UPPER COLUMBIA RIVER

FINAL
Data Management Plan
Amendment No. 1

Prepared for

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ACRONYMS AND ABBREVIATIONS

COC	chain-of-custody
COPC	chemical of potential concern
DDT	dichlorodiphenyltrichloroethane
DMP	data management plan
DQO	data quality objective
DSR	data summary report
DU	decision unit
EDD	electronic data deliverable
EMPC	estimated maximum possible concentration
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ESI	Environmental Standards, Inc.
ESRI	Environmental Systems Research Institute, Inc.
FSP	field sampling plan
FTP	file transfer protocol
GIS	geographic information system
GPS	global positioning system
ID	identification
ISM	incremental sampling method
MDL	method detection limit
MRL	method reporting limit
NAD83	North American Datum of 1983
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
QA/QC	quality assurance and quality control
QAPP	quality assurance project plan
RI/FS	Remedial Investigation and Feasibility Study
SDG	sample delivery group
TAI	Teck American Incorporated
TEF	toxic equivalency factor
TEQ	toxic equivalents
UCL	upper confidence limit
UCR	Upper Columbia River
UTM	Universal Transverse Mercator

1 INTRODUCTION

This amendment to the data management plan (DMP) (Appendix B of the Upper Columbia River Work Plan for the Remedial Investigation and Feasibility Study [USEPA 2008]) refines standard procedures for the management of all environmental data (field and laboratory) generated during the Upper Columbia River (UCR) Remedial Investigation and Feasibility Study (RI/FS). This amendment describes data management procedures relating to the creation, acquisition, handling, storage, management, reporting, and distribution of project-related data for the UCR Site (hereafter "the Site").[1] The general approach to data management support for the UCR RI/FS is summarized in a data flow diagram (Figure 1) and described in this document. The DMP and this associated amendment is a central component of the RI/FS. Principal data types addressed in this document include the following:

- Physical, chemical, and biological measurements in various media collected from the study area (e.g., analytical chemistry, bioassay data, and benthic macroinvertebrate data)
- Spatial data
- Project data documents (e.g., finalized reports and laboratory documents).

Data management systems and procedures described below are intended to establish and maintain an efficient organization of large volumes of complex environmental information for a diverse combination of data types. To accomplish this task, the following three management systems will be used to provide organized and efficient data management and retrieval:

- **Project Database.** Stores environmental sampling and analytical data, information pertaining to geographic information system (GIS) files, and citations of documents related to collection and analysis of data.
- **Geographic Information System.** Stores spatial data and enables the cartographic presentation of data trends and patterns.
- **Website.** Provides access to electronic data that are available via the secure database website http://teck-ucr.exponent.com (also referred to as the UCR database web tool). Users with appropriate privileges will be able to upload/download electronic data,

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

documents, and spatial files. Project documents and other project information will be available via the public project website (www.ucr-rifs.com).

Tabulated environmental data and documents, including scanned documents, from historical and current investigations for the RI/FS, as well as field data and ancillary technical information, will be stored in the project database so that specific data queries can be rapidly addressed and results made accessible to data users.

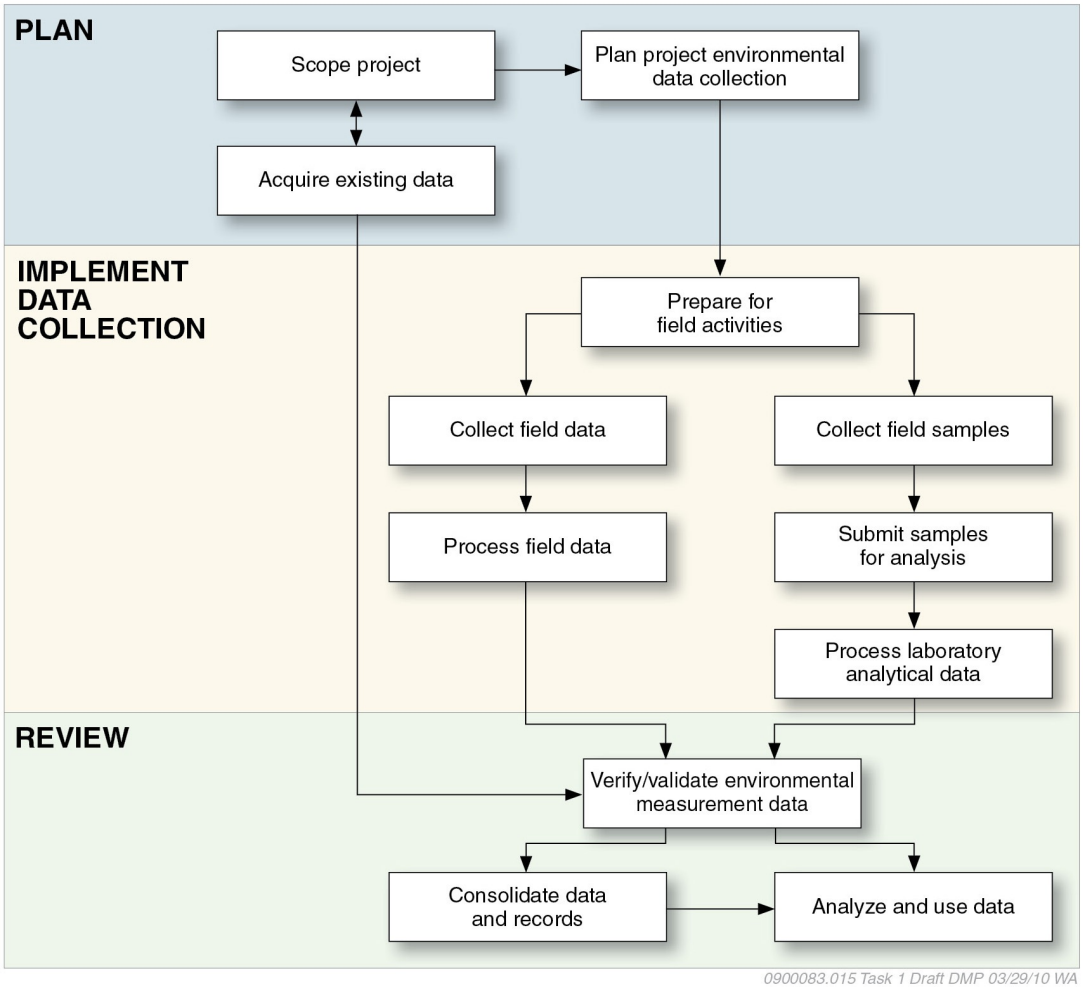

Figure 1. Data Management Process

2 DATA MANAGEMENT SYSTEMS

Data management systems to be used for the UCR RI/FS are described in the following sections.

2.1 PROJECT DATABASE

A relational database will be used to organize, analyze, and store project data, as well as optimize data integrity. Both current and historical RI/FS data will be stored in the project database. Significant effort has been made to identify and address any differences that may have existed between data stored in the Teck American Incorporated (TAI) and U.S. Environmental Protection Agency (EPA) project databases. Steps to reconcile the discrepancies between the two project databases are detailed in memoranda provided in Appendix A. Reconciliation actions detailed in Appendix A were undertaken to establish a single unified database for the RI/FS and all associated data users.

Relational databases store data in different types of well-defined tables that are linked to each other via common fields. Each table represents a particular class of information, such as the information describing a sampling location, a sample, or an analytical result. Links between tables typically represent one-to-many relationships, such as the relationship between a single sampling location and the many samples that might be collected at the location. This linkage enables the efficient storage, updating, and retrieval of data, and the straightforward implementation of quality assurance procedures. The Microsoft® Access project database and the open source UCR database web tool will be used specifically to:

- Provide a single authoritative repository for environmental data (e.g., sediment, soil, and tissue chemistry; benthic macroinvertebrate data; and bioassay data)
- Maintain an inventory of GIS data layers and track successive versions of spatial data sets
- Execute queries that summarize data completeness, quality assurance status, and final assessments of data quality levels to support data quality assurance audits
- Store citations of documents containing project data and link documents to data as appropriate.

2.2 GEOGRAPHIC INFORMATION SYSTEM

Many of the UCR RI/FS activities will use spatial data sets and analyses for planning, data interpretation, decision support, and data presentation. All GIS data will be stored in Environmental Systems Research Institute, Inc. (ESRI)-compatible file formats. An inventory of spatial data sets will be maintained in the project database. Links between data in the project database and GIS files will be established via common identifiers for sampling locations and

other geographic features. Station coordinates also will be stored in the project database with links to each field sample and the associated results. Spatial data analyses and maps will be carried out or prepared using ESRI (or compatible) software.

2.3 BACKUP AND MAINTENANCE OF DATABASE AND GIS FILES

The project database and all GIS files will be stored on a networked server. As new and/or revised data are received, the database will be updated and made available through the UCR database web tool. The project database will be backed up as a Microsoft® Access file on a monthly basis. The zipped Microsoft® Access file will be available for download to any authorized users of the UCR database web tool. A log of database updates will be maintained on the UCR database web tool; this log will also be available in the Microsoft® Access project database. In addition, users will also be able to download query results in a format compatible with Microsoft® Excel (see Section 4.1.2).

Data on the networked server will be stored on redundant hard drives to protect against data loss as a result of hard drive failure. These drives will be mounted in a Windows server protected by an uninterruptible power supply. Data from these drives will be backed up to tapes daily to protect against data loss as a result of user error or other potential causes. This backup enables recovery of recently changed versions of all files. Backup tapes are rotated to offsite storage on a weekly basis. Overall, maintenance of components that make up the data infrastructure (systems that store, back up, archive, etc.) and network systems will be monitored on a weekly basis to ensure that ongoing data storage and access needs are efficiently managed. Reasonable care will be used to protect data from system failure, accidental damage, catastrophic failures, and intrusion.

2.4 DATABASE WEBSITE

The UCR database website (i.e., the UCR database web tool) will be password-protected and accessible only to authorized individuals. The UCR database web tool will provide EPA, the participating parties, TAI, and other registered users with access to electronic data compiled or identified as part of the RI/FS. Users with appropriate privileges will be able to interactively query, view, and upload/download data from the project database, including spatial (GIS) data. Searchable data fields include the following:

- Sample material (e.g., fish tissue, sediment, water, and quality control samples)
- Sample dates, depths, and locations
- Taxa
- Organ

- Laboratory
- Laboratory flags
- Concentration qualifiers
- Analyte type (e.g., semivolatile organic)
- Analyte (e.g., anthracene)
- Geographic location
- Study.

Queries can be made for each of the fields individually or in combination, providing flexibility for the amount and type of data displayed and/or downloaded during a single search. Sample locations by sample materials, taxa, or study location can be shown on a Bing™ map and downloaded. In addition, the UCR database web tool will contain a history of website updates, including data uploads.

3 DATA MANAGEMENT PROCEDURES

This section describes the data management team and the procedures used to manage the field and laboratory data, as well as the documentation associated with the field sampling data.

3.1 DATA MANAGEMENT TEAM

The data management team will work together and assume unique roles to ensure the high quality of the project database. The database management team consists of the following designations:

- **Database Management Lead.** TAI is the database management lead and is responsible for the overall direction of data management for the UCR RI/FS. The database management lead is responsible for implementing the DMP, staffing, and overseeing the overall data management process.
- **Field Project Managers and Staff.** Consultants responsible for field sampling are field project managers; their roles are specific to the sampling event. Field project managers are responsible for overseeing sample collection, recording field measurements, and documenting field efforts.
- **Database Manager.** Exponent will serve as the database manager and is responsible for developing and maintaining the project database. The database manager will provide electronic templates for uploading field and laboratory data to the project database. The database manager will work directly with all members of the data management team to ensure data are complete and accurate. The database manager will provide technical support to users for queries, tables, graphs, and other data exports from the project database.
- **Data Validator.** Environmental Standards, Inc. (ESI) will serve as the project data validator and is responsible for reviewing, verifying, and validating analytical data.

3.2 FIELD SAMPLING DATA

Effective management of data resulting from field operations is essential to providing consistent, accurate, and defensible documentation of data quality as well as straightforward access to data for analysis and interpretation. This section provides guidance for managing field and laboratory records, including spatial data, laboratory deliverables, and the subsequent population of the project database with the results of field investigations and data handling procedures.

An extensive sampling program consisting of several studies (refer to USEPA 2008) may be required to complete the RI/FS. Details of such studies will be provided in dedicated field

sampling plans (FSPs) and quality assurance project plans (QAPPs). The goal of these FSPs and QAPPs is to generate high-quality, reliable data that can be used to investigate the nature and extent of unacceptable risks at the Site, provide information to support the baseline human health and ecological risk assessments, and develop and evaluate remedial alternatives for the Site. Minimum data requirements for each study will be discussed in the study-specific FSPs and QAPPs.

3.2.1 Field Data and Records

Field data such as, but not necessarily limited to, identifying and describing task activities and geographical information associated with sample collection will be recorded daily. Daily field records (e.g., field logbooks, data sheets, photographs, etc.) and navigational records will comprise the main documentation for field-based activities. Instruments used during any field event should be designed to keep as much of the data in electronic format as reasonably possible. For example, field records may be generated electronically in real time and uploaded on a daily basis to the field contractor's secure server. Hardcopy backups of all field data may be generated simultaneously with electronic data entry. Some example photographs for the various field programs will be stored as .jpg records in the database and will be accessible via the UCR database web tool. Field notes, data sheets, photographs, and other field sampling records will be scanned and provided in study-specific data summary reports (DSRs). Field forms to be used for each study will be described in the study-specific FSP. The study-specific FSP will describe field parameters to be included on the field forms. At a minimum, the field form should contain fields for date, time, sample location, location coordinates, sampling device employed, sample medium, and sampler(s) name(s).

3.2.2 Sample Tracking

Sample tracking will begin after the planning phase of each study is completed. When each study's sampling plan is defined, TAI will provide the field sampling contractor with a field data collection template containing place holders for each planned sample. As samples are collected in the field, sample collection details will be completed within a data collection template and the field contractor will update TAI on the status of each sample during daily project check-in calls. Shipment of sample coolers will be tracked by the field consultant using delivery services tracking options, but this information will not be tracked in the database. The database manager, or designate, will be responsible for loading the completed field data collection file and the associated laboratory and validation results to the project database for each study. The following events will be tracked in the data management systems: laboratory sample receipt, electronic data deliverable (EDD) receipt, EDD resubmission dates as needed based on issues identified in any EDD when checked for correctness and completeness, and data validation reports. To ensure

that samples were received and that the correct analyses will be performed, the laboratory will submit a sample log-in confirmation that specifies the following: sample receipt quantities, condition of containers (e.g., temperature, sample integrity, hold time, and presence of custody seals), sample preparation (e.g., compositing and filtering), analyses to be performed, date that analyses will be completed, laboratory sample identification (ID), and sample delivery group (SDG) number. The laboratory will also return a copy of the signed chain-of-custody (COC) form to the field project manager, a copy of which will be part of the data deliverable package given to the data validator. Sample tracking records will be updated in the project database when sample log-in information and COC forms are received and a deliverable is received from the laboratories. Samples will be continuously tracked until the data are delivered and written permission is received from EPA to dispose of samples.

3.2.3 Spatial Data

Spatial data provided by the UCR database web tool will be related to the sample locations found within the project database.

To facilitate use by various parties, a common horizontal spatial reference will be applied to all data on the UCR database web tool:

- Horizontal Datum – North American Datum of 1983 (NAD83)
- Projection – Universal Transverse Mercator (UTM) Zone 11
- Units – meters
- Vertical Datum – varies, dependent on study.

For publicly available layers, the website address will be posted on the "Downloads" GIS Layer List web page. For the remaining layers, zip files will be posted to the GIS Layers List web page for download.

Quality assurance measures will be applied to spatial data collected as part of this study. These measures will, at a minimum, include field procedures for ensuring that data are recorded and preserved accurately, and check plots are verified by field personnel. The GIS inventory will contain an estimate of the spatial accuracy of each data set and document the source of each spatial data set, any changes that have been made to it, and the quality assurance checks that have been applied. If available, equipment accuracy from global positioning system (GPS) or surveying tools used in each data set will be recorded in the study-specific DSR or the project database. This information may not be available for earlier data sets.

3.2.4 Data Storage and Archiving

All incoming field data, both scanned and electronic, will be tracked in the project database. Sample numbers and date received will be noted and retained in the project database. Data entry, validation, and global positioning downloads will also be tracked in the same manner. Electronic copies of the original data will be retained. A complete record of updates made subsequent to data receipt from the laboratory will be stored either electronically or as hard copies, as appropriate.

3.2.5 Laboratory Deliverables

Laboratory deliverables will include EDDs and data packages in hard copy and pdf files. The EDDs will meet the specifications described in Appendix B. The EDD format includes 11 data tables that are to be completed and provided by the laboratory. These tables describe the laboratory samples and analytical methods. They also contain results of analyses of environmental samples and quality control samples (e.g., blanks, spikes, laboratory control samples, and surrogates). EDDs will include sample identification information, analyte concentrations in field and quality control samples, units, and other related information. Fields used in each of the EDD tables are described in Table B-2 of Appendix B. Valid values for analyte names and other similar information to be used in the EDDs are provided in Appendix C. Respective laboratories will contact the database manager if they encounter any difficulties in populating the EDDs. Data packages will include data summaries for all field samples and quality control samples, instrument calibration with the associated raw data, instrument printouts, and laboratory logbooks needed to complete full validation of the data.

For each SDG, the laboratory will submit data electronically by use of a file transfer protocol (FTP) site (see Section 3.2.8). Upon receipt of validation results from the data validator, database managers will update the project database appropriately, perform an independent verification of the resulting data against the validator's notes, file the validator's notes in the project file, and update the quality assurance level flags in the project database for all of the relevant results. The data validator will produce tables summarizing field and laboratory quality control data that will will be uploaded to the FTP site and also included in the data validation report.

3.2.6 Quality Management of New Data

To ensure production of technically valid and usable data for each study, data quality objectives (DQOs) must be established during the study's early planning phase. The DQOs will be developed following EPA's Guidance on Systematic Planning Using the Data Quality Objectives Process (USEPA 2006). The process to achieve the DQOs will be detailed in each study-specific QAPP according to EPA's Guidance for Quality Assurance Project Plans (USEPA 2002) and

EPA's Intergovernmental Data Quality Task Force: Uniform Federal Policy for Quality Assurance Project Plans (USEPA 2005). The QAPP will define the quality assurance and quality control (QA/QC) procedures that will be implemented throughout the study's duration.

Field and laboratory data generated for this project will not be available for use by project team members until the laboratory data have been validated. Exponent and the firms responsible for leading the sampling events will check the electronic field data entries. Electronic field data include sample information, COC forms, biota survey results, etc. ESI will validate the laboratory (analytical and biological) data for this project. Exponent is responsible for developing and maintaining the project database.

Field Data

Managing the quality of the data begins in the field during sample and data collection. Field staff members are responsible for understanding the study's DQOs, reviewing the study-related FSP and QAPP, and executing the procedures defined in these documents in the field. Field staff will collect field measurements and field samples, and document all field activities. Field measurements, sample collection details, and field activities may be recorded electronically with direct upload into the project database. Any hardcopy field documents will be scanned, stored as pdfs, and linked to the appropriate samples in the project database. Field sampling information will include, at a minimum, field measurements, sample collection details (including date and time), and sample location coordinates.

If hardcopy backups of field data are provided to the database manager with electronic field data, the database manager will check data entry on the electronic field forms to ensure the data are correct and complete. At least 10 percent of the electronic field parameter data will be checked against the available hardcopy backups of the field data.

Laboratory Data

Laboratory staff members are responsible for understanding the study's DQOs, reviewing the QAPP, and executing the procedures defined in the QAPP during sample analyses. Managing the quality of the data by the laboratory will be defined and discussed in detail in the study-specific QAPPs.

Data Validation

The goal of data validation is to determine the quality of each sample result. The necessary level of data validation will be established and detailed in the study-specific QAPPs.

ESI will perform data validation for the UCR RI/FS. Data validation procedures will be consistent with EPA's national functional guidelines for data review documents (USEPA 2007, 2009, 2011,

2017a,b) and study-specific requirements documented in the associated QAPPs. ESI will review data uploaded onto a secure FTP website by the testing laboratory (see Section 3.2.8).

Documenting the Data Validation Level and Procedure

All new data entered into the project database will be coded according to the requirements presented in EPA's Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (USEPA 2009). Data will be coded by ESI to indicate the level at which the data were validated and the procedure used to validate the data as specified within an individual QAPP. EPA defines the five data validation stages as follows:

- **Stage 1**. Includes a review of the laboratory-produced data package to ensure overall completeness and sample receipt compliance
- **Stage 2A**. Includes all of the Stage 1 activities plus review of sample-related quality control results
- **Stage 2B**. Includes all of the Stage 2A activities plus review of instrument-related quality control results
- **Stage 3**. Includes all of the Stage 2B activities plus the recalculation of several results from the raw data to ensure that results were accurately determined and reported
- **Stage 4**. Includes all of the Stage 3 activities plus review of the actual instrument outputs.

EPA defines three categories for data validation procedures. "Electronic Data Validation" is performed using only the EDD produced by the laboratory and a computerized data validation tool. "Manual Data Validation" is performed using only the hardcopy data package produced by the laboratory and a manual review by a data validation professional. "Electronic and Manual Data Validation" is any combination of these two procedures used to validate the data. All new data records will be coded according to the EPA-defined label codes (USEPA 2009).

Database

When data are uploaded, the database manager will conduct manual data checks to ensure that the correct volume of data has been added to the project database. These data checks will include verifying the number of records uploaded, checking that all fields of information have been added, and spot-checking the data (at least 5 percent of the uploaded data). In addition, the system will send an error message during the uploading process if incompatible data are encountered, and the upload will be halted until the incompatibility issue is resolved.

3.2.7 Evaluating Existing Data

Many studies have been conducted at the UCR Site that may be pertinent to the RI/FS. Several of the studies and monitoring efforts produced electronic data sets that are publicly available. These studies were reviewed for relevance, suitability, and reliability (data quality). Electronic data sets from several previous investigations were compiled into the project database. During Phase I of the RI/FS, CH2M HILL (2005) conducted a preliminary assessment of the quality of these existing electronic analytical data. CH2M HILL categorized existing data sets that were available electronically in one of three groups as follows:

> **Category 1 – Data of Known Quality.** Category 1 data are of known quality and are considered acceptable for use in decision-making. There is sufficient information on these data sets to confidently verify that the data, along with associated data qualifiers, accurately represent chemical concentrations present at the Site at the time of sampling.
>
> **Category 2 – Data of Partially Known Quality.** Category 2 data have a limited body of supporting QA/QC information. Although insufficient to be considered Category 1, the level of quality information is considered suitable for qualitative use. These data sets may be considered for further evaluation based on study-specific DQOs and intended end uses.
>
> **Category 3 – Data of Unknown Quality.** Category 3 data include sample concentration information, but lack adequate supporting QA/QC information. These data sets are not considered suitable for detailed RI/FS uses. However, considering the reputability of the data sources, these data sets may be used on a limited or provisional basis for qualitative comparisons with Category 1 and Category 2 data sets.

These data quality categories do not provide sufficient information for the RI/FS, nor do they meet the requirements presented in EPA's Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (USEPA 2009). The quality and usability of the Phase I EPA studies and other studies conducted prior to the 2006 Settlement Agreement will be evaluated on a case-by-case basis by EPA, in consultation with TAI. ESI validated the Phase II sediment and 2009 fish tissue studies to the standards set by the DMP. Data, such as the Phase I EPA studies, that were collected before the 2006 Settlement Agreement and are in the project database are not subject to data requirements described in this DMP. The quality of the Phase I EPA studies will be evaluated in the ecological risk assessment using a weight-of-evidence approach that considers the relevance, strength, and reliability of such data sets (USEPA 2016).[2]

[2] A separate document will be prepared that presents the weight-of-evidence approach for the Site ecological risk assessment.

Additional information on these studies is provided in the Final Summary and Evaluation of Phase 1 (2005) Sediment Toxicity Tests, Upper Columbia River Site (CH2M HILL 2012), and the Final Phase I Fish Tissue Sampling Data Evaluation, Upper Columbia River Site CERCLA RI/FS (CH2M HILL 2007).

The project database will contain data collected before Phase I of the RI/FS, for purposes other than the RI/FS, or by parties interested in but ancillary to the formal RI/FS process described in the 2006 Settlement Agreement. These data sets may include data of unknown quality or data that will not be subject to verification. These data may consist of spatial data, facility operations data, modeling results, data provided by interested parties, and historical site conditions data. These earlier data were annotated with a brief description of the data quality to indicate the extent and type of data validation that has been applied, if any, as described in Appendix A. As with the Phase I EPA studies, the quality of these existing data will be evaluated in the ecological risk assessment using a weight-of-evidence approach that considers the relevance, strength, and reliability of such data sets (USEPA 2016). These data may also be useful for non-risk-based quantitative and qualitative purposes, such as identifying potential chemicals of interest, guiding future data collection activities, and qualitative viewing of trends in concentrations over time and space.

3.2.8 Uploading Data into the Database

Data will be uploaded in electronic format whenever possible. A secure FTP site will be available that will segregate data types into separate folders (i.e., laboratory data, field data, etc.), and a monitoring program will be designed to begin the data integration process when files are added to any of the secure FTP folders. Only validated laboratory data will be uploaded into the project database. When laboratories upload data to the secure FTP site, these files will be moved to a folder available to the data validator and an e-mail will be sent to the data validator.

When the data are validated, the data will be uploaded by the validator to the secure FTP site and transferred into the project database. When data have been uploaded to the project database, manual data checks will be completed to ensure that the correct volume of data has been added to the project database. The manual data checks will include verifying the number of records uploaded, checking that all fields of information have been added, and spot-checking the data (at least 5 percent of the data). In addition, the system will send an error message if incompatible data are encountered during the uploading process, and the upload will be halted until the incompatibility issue is resolved. Further detail on uploading data into the project database is provided in Appendix D, Database Operation for Users. All data flags and documented changes will be incorporated into the project database as the data are uploaded.

The "d_labresult" table fields in the project database contains the measurement value, the method reporting limit (MRL), and method detection limit (MDL). For values flagged as nondetected values, the measurement value field will contain either the MDL, MRL, or other value. The MRL and MDL for all applicable samples and analytes will be reported in the reporting limit and detection limit fields, respectively. In some cases, the MRL equals the MDL. For nondetected values for TAI and EPA post-2006 Settlement Agreement data sets[3], the project database will include three additional fields:

- "nd_reported_to", which is populated with the terms "MDL," "MRL," or "Other"
- "qapp_deviation", which is populated with the terms "Yes" or "No" to indicate whether the reported nondetected value deviated from that stated in the study-specific QAPP
- "nd_rationale", which states why the nondetected value was "Other" and not the "MDL" or "MRL."

Field data will be uploaded to the secure FTP site during a sampling event after an initial quality control check by the field project manager. Field data will be added as the field project manager is able to compile the field parameters and access the secure FTP site. This will occur on a daily basis when feasible, but it is expected that field teams will be unable to access the secure FTP site because of remote sampling locations.

When necessary, data may also be entered manually. Manually entered data will be printed, verified against the original source documents, and corrected if necessary. Hard copies will be initialed as the electronic versions are verified against the original source documents. Once data have been loaded into the project database, a series of quality assurance procedures will be used to review the data for completeness and to ensure correct formatting.

A history of database updates, including data uploads, will be available in the database so that users can identify when data of interest have been uploaded.

3.2.9 Data Handling Procedures

The project database and data tables resulting from queries of the project database website will contain laboratory data as received from the data validator. Appendix E contains data quality flags currently used in the project database. The data flags for post-2006 Settlement Agreement studies are also defined on the UCR database web tool (see "Lab Flags and Qualifiers" under "UCR Validation Reports" on the "Downloads" page). Data flags for pre-2006 Settlement

[3] This includes EPA and TAI post-2006 Settlement Agreement studies for which study-specific QAPPs are available to TAI. It does not include studies from the literature because those studies frequently lack sufficient information on reporting and detection limits.

Agreement studies are not defined in the project database since some of the data sources do not define the data flags. Before being used for statistical analyses or risk assessment purposes, data should be handled in a manner consistent with the following typical data handling procedures for risk assessment:

- **Nondetected values**. Nondetected values (i.e., data qualified as "*U*," "*U**," "*UJ*," "*JU**," and "*EMPC*"[4]) will be evaluated at the MDL or MRL, depending on the study and analyte. The "*U*" flag indicates the analyte was not detected below the MRL. The "*U**" flag indicates the analyte should be considered not detected because it was detected in an associated blank at a similar level. The "*UJ*" or "*JU*" flag indicates the analyte was not detected below the MDL. The "*EMPC*" flag indicates the dioxin or furan value was estimated when the signal-to-noise ratio was at least 2.5:1 for both of the quantitation ions, but the ion abundance ratio criteria are not met.

  Note that EPA's ProUCL software will be used to estimate exposure point concentrations (EPCs) for use in human health and ecological risk assessments. ProUCL includes methods for estimating EPCs with data that includes nondetected values. Simpler substitution methods (e.g., using one half of the sample detection limit for nondetected values) may be acceptable for some statistical analyses depending on the analysis, sample size, and frequency of nondetected values.

- **Rejected Data**. Data qualified as "*R*" for rejected data will be included in the data tables generated by the project database but should not be used for statistical analyses or risk assessment purposes. The "*R*" qualifier will be reported for these results to show data users that the analysis was performed but failed quality assurance checks.

- **Blank Contamination.** Data qualified as "*B*" for blank contamination will be treated as a nondetected result (e.g., the same as *U*-flagged data). During data validation, the "*B*" qualified results will be evaluated and the qualifier will be modified based on the level detected in the blank as compared to the associated sample results.

- **Estimated or Biased Data.** Data qualified as "*J*" (estimated), "*J+*" (biased high), or "*J-*" (biased low) will be included in the data tables generated by the project database because all are acceptable for use in risk assessments. No modifications are to be made to those data to "correct" them. However, data flagged with these qualifiers may require careful consideration when interpreting the risk estimates and results.

[4] Estimated Maximum Possible Concentration: a qualifier used for dioxin/furan, polychlorinated biphenyl (PCB), and polybrominated diphenyl ether (PBDE) analytical data.

- **Field Duplicates.** Field duplicate samples are samples collected at the same time, in the same location, and with the same sampling procedure; both samples would be analyzed by the same laboratory. Field duplicates are used to check sampling techniques. Field duplicates have been called "duplicate," "replicate," or "split" samples across the various field studies. Samples collected and analyzed as described above are considered "field duplicates." Field duplicate samples will be combined with primary samples to yield one value to represent the sample. If both the field duplicate and primary sample had detected results, then the average concentration of the two samples will be used to represent that sample result. If both samples have nondetected results, the lower QAPP-specific limit reported in the measurement value field of the two samples will be used and the sample result will be considered a nondetected value. If one of the field duplicate or primary samples has a detected result but the other does not, the detected value will be used to represent that sample result. If triplicate samples were collected and there was a mixture of detected and nondetected results among the samples (primary and field triplicates), then the average of the detected results will be used to represent that sample and the sample will be considered a detected result.
- **Incremental Sampling Method (ISM) Samples.** The terms “duplicate” or “replicate” are used to refer to the second and third ISM samples collected from a decision unit (DU) where triplicate ISM samples were collected. ISM field replicates require completely separate incremental locations within the DU where the initial ISM sample was collected to obtain an estimate of the variance in the mean. Additionally, as long as at least three ISM samples were collected within a DU, ISM sample results can be used to calculate the 95 percent upper confidence limit (UCL) (USEPA 2015). Primary, duplicate, and triplicate ISM samples should be retained as individual sample results rather than being reduced to a single sample result. Calculating the variance in the estimate of the mean concentration of a chemical of potential concern (COPC) in a DU is only one reason replicate ISM samples are collected. EPA treated each ISM sample as an individual sample when generating EPCs for COPCs within a DU to use for risk calculations.
- **Split Samples.** Split samples are two or more parts of a homogeneous sample divided for analysis of the same parameters by different laboratories. Split samples are used to check analytical techniques. When collected, split samples will be handled as two separate samples given that the results for the split samples are analyzed by different laboratories. Only the parent sample will be used in data analyses (e.g., the risk assessments and statistical analyses). Split sample data files will be included in the UCR database web tool if they are accompanied by all necessary QA/QC information and found to meet appropriate validation criteria.

- **Laboratory Replicate Samples.** The parent sample results will be used in data analyses (e.g., the risk assessments and statistical analyses). Laboratory replicates are used to assess analytical error.
- **Significant Digits and Rounding.** Analytical data from post-2006 Settlement Agreement studies are typically reported in two to three significant digits in DSRs. In the project database, data from post-2006 Settlement Agreement studies are reported as received from the laboratory and data validator. However, performing calculations produces additional digits to the value that are not significant digits. Thus, including additional digits to the calculated value introduces uncertainty to the results. To provide the least amount of uncertainty in the data analysis, results from calculations should be rounded to the number of significant digits in the least exact factor for multiplication and division or the quantity with the least number of significant decimal places for addition and subtraction. When rounding, the final digit should be rounded up 1 if the value to its right is equal to or greater than 5; otherwise, the last significant digit will be retained without changing its value. The following examples illustrate the rules for rounding to three significant digits: 9.8453 will be rounded to 9.85; 9.8445 will be rounded to 9.84; and 107.25 will be rounded to 107. Rounding should occur as the last step of the calculations, not following each stage of the calculation. Where appropriate, unrounded calculation results should be shown to ensure that results are transparent, reproducible, and consistent.
- **Estimating Total (Summation) Concentrations for Certain Chemicals**. For each sample, a total concentration should be calculated as follows, using a substitution value of zero or half the MRL or MDL for nondetected values (the MRL and MDL may be used in some cases).
  - Toxic equivalents (TEQs) where toxic equivalency factors (TEFs) are applicable and data are available for individual compounds
  - Total polychlorinated biphenyls (PCBs) (the sum of the PCB homologs or as the sum of the individual Aroclor® mixtures)
  - Total dichlorodiphenyltrichloroethane (DDT) (the sum of the DDT isomers)
  - Total polycyclic aromatic hydrocarbons (PAHs) (the sum of individual PAHs)
  - Total polybrominated diphenyl ethers (PBDEs) (the sum of individual PBDEs).

  This is not a complete list of chemical summations. The project database does not provide chemical summations unless reported by the laboratory and included in the EDD (e.g., nitrate plus nitrite; total PCBs). Users should review study-specific DSRs, which provide chemical summations relevant to the study, along with explanations of the chemical summation calculations.

3.2.10 Database Records for Superseded Data

During the course of a study, it may be agreed upon that specific data records are unsuitable for inclusion in certain analyses. Re-analyses of samples, for example, may produce more accurate results that supersede the original analysis. All records will be included, but any records that should not be used will be flagged as "not reportable" or "rejected." The rationale for setting the record as "not reportable" or "rejected" is provided in the comment field in the laboratory results table, in the database history table records, in the data validation report, or in the source documents for the pre-2006 Settlement Agreement data sets.

Registered users of the UCR database web tool may view all changes or additions to the project database or metadata in the "Database History" tab in the UCR database web tool. Key words and filters can be applied to this tab to help users find information.

3.3 DOCUMENT MANAGEMENT

The project database will be used to record the name, authors, date, and other descriptive information for documents that pertain to data within the project database. This information will be stored in a manner consistent with efficient export to other citation management programs. Distribution dates of project deliverables to EPA and participating parties will also be recorded in the project database's database history table. Study deliverables will be assigned a unique identifier, and that number will be used as a key to the citation in the project database. Electronic copies of project data documents will be stored in an uneditable form (pdf or other, as appropriate), and the document's identifier will be used as part of the filename. Paper copies of project documents will be filed by the document identifier.

4 DATA SHARING

This section describes how data will be shared among the various parties through use of a restricted-access website. The project database will be accessible by web to the project team and participating parties at http://teck-ucr.exponent.com. Plone®, which is a powerful and flexible open-source content management system, will provide access to the project database online and manage user access. It controls how the pages are displayed on the web. PostgreSQL®, which is a powerful open-source database system, will be used as the project database for the website. These software platforms allow the UCR database web tool flexibility to respond to the needs of the project and are easy to use without sacrificing security.

Users will also be able to download query results in a format compatible with Microsoft® Excel. In addition, the entire project database will be available for download in a format compatible with Microsoft® Access.

4.1 Document Repository

Users with appropriate privileges (i.e., project team members and participating parties) will be able to view and download a more extensive group of documents from the project database. Users will be able to access these documents via either a set of categorized lists (as for the public documents) or via a search tool.

4.2 Data Retrieval

The UCR database web tool will facilitate the interactive query of data contained within the project database. A simple user interface will enable users to specify attributes of the data they are interested in retrieving. For example, a user could choose to view only sediment metals data from a particular location and range of dates. Results of each such query will be presented in tabular format on a web page; this table will contain links to related information, such as sampling location descriptions. Users will also be able to download query results in a format compatible with Microsoft® Excel. In addition, data from individual sampling events will be available for download. The entire project database will be available for download in a format compatible with Microsoft® Access.

Data available in the project database will be updated frequently, on a schedule to be driven by project activities. More frequent updates to the UCR database web tool will be made as necessary or appropriate. The date of the latest database update will be displayed as part of the status information available in the project database's database history table.

Authorized users will be able to access the project database through the UCR database web tool (http://teck-ucr.exponent.com) using their username and password. The UCR database web tool has a number of methods available to users to view and/or download data. All changes or additions to the project database or metadata can be viewed by registered users by accessing the "Database History" tab on the web tool. The entire project database, in Microsoft® Access format, will be available for download as a zip file. There are a variety of methods to query the database directly on the web tool (i.e., by station, study, analyte, etc.). Further detail on data retrieval is provided in Appendix D.

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APPENDIX A

MEMORANDA REGARDING DATABASE RECONCILIATION

REVIEW OF SEDIMENT STUDIES IN SRC AND UCR DATABASES

Numerous data sets have been compiled for the Upper Columbia River (UCR) RI/FS. Several historical data sets and the results of the Phase I investigation were originally compiled by CH2M-Hill and subsequently conveyed to Teck's consultants for the ecological risk assessment and EPA's consultant for the human health risk assessment. These two compilations are currently maintained by Integral Consulting Inc. (Integral) and Syracuse Research Corporation (SRC), respectively. Because a) transmittal of CH2M-Hill's database to Integral and SRC occurred at different times, and changes to the data were evidently made between those times, and b) Integral and SRC have both made changes or additions to the respective databases, there are now differences between these two databases. This review was conducted to evaluate those differences in sufficient detail so that a single unified database can be constructed to be used by consultants to both Teck and EPA.

The first step in the review process was to identify the studies in common between the two databases. The name or identifier assigned to each study typically differs between the two databases, so this step required an overall comparison of sampling locations, dates, and analytes among all studies in both databases. For those studies common to both databases, a comprehensive comparison was then carried out of sampling locations (identifiers and coordinates), dates, sample identifiers (including replicates and splits), and analytical results (including analytes, laboratories, methods, measurement bases, units, concentrations, and qualifiers). In some cases this detailed comparison identified data that were in one database but not the other, and in other cases it identified some attributes of the data, such as qualifiers or significant digits, that differed between the databases. In the latter cases—that is, where the same data were present but varied in some respect—original data sources were reviewed to determine the correct representation of the data.

The results of the comparison of sediment data sets are reported here. Fifteen sediment studies from the SRC database and twenty-six sediment studies from the Teck database were reviewed. The first step of the review determined that five of the fifteen studies in the SRC database had no counterpart in the Teck database, and that fifteen of the twenty-six studies in the Teck database had no counterpart in the SRC database. Tables 1 and 2 list the studies in each database, and the corresponding study (or studies) in the other database.

The remainder of this document focuses on the studies that are represented in both databases. For each such study, a brief description of the differences (if any) is presented, followed by the recommended approach for reconciliation of the databases. Because the Teck database currently contains a larger quantity of data, and because Teck has the responsibility for maintaining the comprehensive data set (Tonel 2009, pers. comm.),

resolution steps are focused on data to be transferred from the SRC database to the Teck database, or other changes that are to be made to the Teck database.

UCR RI/FS PHASE I DATA

This study is identified as "USEPA 2005 SEDIMENT" in both SRC and Teck databases. The Phase I data set consists of approximately 63,000 individual analytical measurements. The source of this data set to both databases was CH2M-Hill, which originally collected and compiled the data. The transmittal of the data set to SRC occurred later than the transmittal to Teck's consultants (Woodbury 2008, pers. comm.). Both data sets are identical in nearly all respects, but there are a few changes to be made to Teck's database based on the information in SRC's version of this data set. These changes are:

- Delete 50 exact duplicate results for samples collected in May 2005 from locations RM735B2, RM700B2, and RM642B2
- Add analytical results for 3,3'-Dichlorobenzidine, Endosulfan sulfate, and moisture that are in SRC's copy of the data set but not in Teck's
- Add laboratory duplicate measurements for TOC that are in SRC's copy of the data set but not in Teck's
- Change the 'undetected' flag from True to False for one silver measurement and 18 hexachlorodibenzofuran measurements.

There are also differences in some concentration values between the two databases, but because these differences are in the 12th and 13th decimal places, reconciling them is not considered to be necessary.

USGS STUDIES BY PAULSON AND COX

Data collected by USGS from 9 locations in Lake Roosevelt in 2002, 2003, and 2004 are reported in Cox et al. (2005) and Paulson et al. (2006). The SRC database includes results from a single location (RM-743) for which data were collected by Cox and are presented in both documents. The data for this location are different in the two documents, and the SRC database contains the values for RM-743 from Paulson et al. (2006). Teck's database contains all environmental sample data from both the Cox et al. (2005) and Paulson et al. (2006) studies, with data for location RM-743 taken from Cox et al. (2005), where the data were originally reported.

Because the Teck database contains a more complete set of data from these two studies, no reconciliation steps are necessary.

WASHINGTON DEPARTMENT OF ECOLOGY 2007 DATA

This data set is identified as the 'Ecology 2007' study in the SRC database and as the 'WADOE_2007' study in the Teck database. This study includes 55 analytical results from 8 locations. All data are identical in the two databases, and therefore no reconciliation steps are necessary.

UPPER COLUMBIA RIVER EXPANDED SITE INSPECTION (ESI)

This data set is identified as "USEPA 2001 ESI" in the SRC database and as "US EPA 2003A" in the Teck database.

The numbers of samples and results for the ESI data set differs in the SRC and Teck databases. The Teck version of the data set originated with the data transmittal from CH2M-Hill; presumably SRC's version did also. To resolve discrepancies, both databases were compared to the version of the ESI data set that is stored in the Washington Department of Ecology's Environmental Information Management (EIM) database (http://www.ecy.wa.gov/eim/). The following differences have been found between these three versions of the ESI data set:

- The SRC database has more locations identified than are present in either the Teck or EIM databases. However, this is a result of sample identifiers having been used as location identifiers, so that locations that have been sampled more than once have been identified as different locations. The SRC database does not include data for two locations that are in the Teck and EIM databases ("Van Stone Mine Soil" and "Unnamed tributary to Hunter's Creek"). The Teck and EIM databases have the same number of sampling locations.
- All sample collection identifiers in Teck's database match sample identifiers in the EIM database except for sample "TS095"; this additional sample is present in both Teck's and SRC's version of the data set. SRC's database is missing data from six samples from the two locations listed in the previous bullet.
- Upper or lower sampling depths for several samples are different from EIM data in both the Teck and SRC databases.
- The Teck database does not contain chemical data for organic analytes (primarily pesticides and PCBs) that are present in both SRC and EIM databases.
- Neither the Teck nor SRC database contains chemical data for polynuclear aromatic hydrocarbons (PAH), phthalates, phenols, or other semivolatile organic compounds (SVOC) that are present in the EIM database.

- The Teck database does not contain one silver measurement and several grain size measurements that are present in the EIM database.
- The Teck database contains percent solids measurements that are not present in either SRC or EIM databases.
- Of 4,751 analytical results in both Teck and SRC databases, 9 have different data qualifiers, and 45 have different concentration values. For these discrepancies, the EIM database sometimes agrees with SRC's database, and sometimes agrees with Teck's.

If EIM's data set is taken to be the authoritative source, then the following steps need to be taken to update Teck's version of the database:

- Lower depths for four samples need to be updated
- Qualifiers for six results need to be updated
- Concentrations for six results need to be updated
- One silver, four sand, and one silt result need to be added
- Analytical results need to be added for organic analytes: pesticides, Aroclors, PAH, phthalates, phenols, and other SVOCs.

USGS SEDIMENT STUDIES

This data set is identified by the study ID "USGS 1992" in the SRC database and as the two study IDs "USGS. 2005" and "Bortleson et al. 2001" in the Teck database.

These data sets were loaded into the Teck database from a data file provided by CH2M-Hill. Bortleson et al. (2001) was used as a reference for the data originating from that document; an authoritative data source is unknown for the remainder of the data. There are some discrepancies between the databases that may require reference to such a data source to resolve. Discrepancies between the two databases include:

- One sample has a different sampling date (different by one day) in the two databases.
- SRC's database contains results for several field replicates or duplicates from Bortleson et al. (2001) that are not present in Teck's database.
- SRC's database contains duplicate results for several metals and metalloids at one station (492128117334200-SSD) that are not in Teck's database. These duplicate results may be related to the 3 or 5 field replicate grabs that are reported by Bortleson et al. (2001).

- Analytical results from Bortleson et al. (2001) that are coded with an unknown analytical method in the Teck database should have a method code indicating analysis by atomic absorption spectrometry (AAS).
- Metal results for 18 samples are identified as total recoverable in SRC's database, but total metals in Teck's database. SRC's database conforms with Bortleson et al. (2001).
- There are two cadmium results with different detection qualifiers in the two databases.
- There are six samples with different concentrations of mercury or lead in the two databases.
- These are locations where field replicates or splits were collected and the number of samples in the two databases differ.
- There is one sample where the concentration of mercury differs in the two databases. The value in Teck's database agrees with Bortleson et al. (2001), but the value in SRC's database is more precise.
- There are 538 analytical results in the SRC database that are not present in Teck's. These are partly a result of SRC's database including field replicates and duplicates not present in Teck's database. However, some of the results in SRC's database are identified as dissolved measurements, and probably should be checked against the original source.
- There are 40 analytical results in the Teck database that are not present in SRC's version. These do not correspond to data in Bortleson et al. (2001).

The following steps should be taken to update Teck's version of the database:

- Check the sampling date for location 474959118213600 against SRC's data source, and update if appropriate
- Correct sample descriptions in the Teck database regarding sample compositing and sample treatment
- Add results for the 38 organic analytes present in SRC's database
- Possibly add the 538 inorganic results present in SRC's database, after reviewing SRC's source
- Update method descriptions for total recoverable total results
- Update method descriptions currently coded as unknown

MAJEWSKI ET AL. 2003

This data set is identified by the study ID "USGS 2001" in the SRC database and as "USGS 2005" and "Majewski et al. 2003" in the Teck database.

During the database reconciliation task, the "USGS 2005" study in the Teck database was found to include data that are also reported in the "Majewski et al. 2003" study. The former includes specific dates that are missing in the latter (the latter reflects the incomplete date information in the published report) and more accurate sample depth and sieving information, but the latter has better information regarding analytical method descriptions and duplicate analyses. A slag sample from Canada is reported in the former, but not in the latter. Potassium results are reported as phosphorus. Information from the former study should be used to update the latter study, and then the Majewski data deleted from the former study.

There are a small number of discrepancies between the SRC study "USGS 2001" and the Teck study "Majewski et al. 2003". The published report (Majewski et al. 2003) was used to resolve discrepancies. The differences are:

- Duplicate results that are identified as laboratory replicates in the Teck database are identified as field duplicates in SRC's database. It is not clear from the original data source which is correct, but for most data analyses the difference is not important.
- There are 64 analytical results with different concentration values in the two databases. Differences are within rounding error. The values in Teck's database correspond to those in the published report, whereas those in SRC's database have higher precision.
- Total carbon is reported as total chloride in the SRC database, total nitrogen is reported as total nitrate in the SRC database, and total sulfur is reported as total sulfate in the SRC database. Values in Teck's database match those in the published report.

The only step that might be taken to update Teck's database from SRC's is to replace the 64 differing values with the higher-precision values from SRC's database, after review of SRC's data source and confirmation that this is an appropriate action.

USGS NASQAN SEDIMENT DATA FROM NORTHPORT

This data set is identified as the study ID "NASQAN PROGRAM NORTHPORT STATION" in the SRC database and as study ID "USGS_NORTHP" in the Teck database.

Both water and suspended sediment data from Northport are reported as part of USGS's National Stream Quality Accounting Network (NASQAN) program. Only the suspended sediment data are compared here. The two databases are similar for this data set, with only the following discrepancies:

- There are 615 analytical results in the SRC database that are identified as suspended sediment but have units of mg/L—these are identified as surface water data in the Teck database.
- There are 89 analytical results in the SRC database that are not in the Teck database (several different analytes in samples from 1978 to 2000). These data were not found in a search of the online NASQAN database (http://water.usgs.gov/nasqan/), indicating that the SRC data was obtained from some other source.
- There are 32 analytical results in the Teck database that are not in the SRC database (weight percent for particles smaller than 63 microns in samples from 1999-2000).

Reconciliation of these differences could be accomplished by updating it with the 89 additional results found in SRC's database, after obtaining and reviewing the data source used by SRC.

ERA AND SERDAR 2001

This data set is identified as "Ecology 2001" in the SRC database and as "WADOE. 2001" in the Teck database.

The two databases are very similar with respect to this study. The only difference is that the Teck database contains 44 results for grain size measurements that are not present in the SRC database. No reconciliation steps are required for the Teck database.

JOHNSON 1989 SEDIMENT METAL STUDY

This data set is identified by the study ID "Ecology 1986" in the SRC database and as "Johnson et al. 1989" in the Teck database.

The following discrepancies were found between the two databases:

- The SRC database contains sediment core data for two locations that are not included in the Teck database. (These two 'locations' have different identifiers but the same geographic coordinates.)
- The Teck database contains field replicate samples for two locations, whereas the SRC database contains only a single sample from each of these locations.

Concentration values are different at these locations, evidently because field replicates are averaged in the SRC database.

- The Teck database contains 120 grain size and total solids analyses that are not present in the SRC database.

The following change needs to be made to the Teck database to reconcile these differences: add the core data that is present only in the SRC database.

SUMMARY

Several studies in the SRC database contain data that, in whole or in part, can be used to update the Teck database to resolve discrepancies in the sediment data sets. These data sets, and the reconciliation actions that are to be taken for each are as follows:

- Ecology 1990 Sediment/Fish—add entire data set
- Ecology 1990-1993—add entire data set
- Ecology 1994—add entire data set
- SCCD 1996—add entire data set
- USEPA 2001 Mines and Mills—add entire data set
- USEPA 2005 Sediment –add results for several analytes and update qualifiers for some others
- USEPA 2001 ESI—add analytical results for several groups of organic analytes, and update depths and qualifiers for other samples or results.
- USGS 1992—add results for organic analytes after confirming original data source; update sample dates and descriptions for several samples, and update analytical methods for several results.
- NASQAN PROGRAM NORTHPORT STATION—add 89 results, after confirming the original data source.
- Ecology 1986—add the analytical results for two core samples.

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Paulson, Anthony J., Richard J. Wagner, Richard F. Sanzolone, and Steven E. Cox. 2006. Concentrations of Elements in Sediments and Selective Fractions of Sediments, and in Natural Waters in Contaact with Sediments from Lake Roosevelt, Washington, September 2004. Open-File Report 2006-1350. U.S. Geological Survey.

Table 1. Sediment Studies in the SRC Database

SRC Study ID	Teck Study ID
USEPA 2005 Sediment	USEPA 2005 Sediment
Ecology 1986	Johnson et al. 1989
Ecology 1990 Sediment/Fish	--
Ecology 1990-1993	--
Ecology 1994	--
Ecology 2001	WADOE. 2001
SCCD 1996	--
USEPA 2005 Sediment	USEPA 2005 Sediment
USEPA 2001 ESI	US EPA 2003a
USEPA 2001 Mines and Mills	--
NASQAN Program Northport Station	USGS_Northp
Paulson et al 2006	USGS_Cox2005; USGS_04_LR
USGS 1992	Bortleson et al. 2001; USGS. 2005
USGS 2001	Majewski et al. 2003; USGS. 2005
Ecology 2007	WADOE_2007

Table 2. Sediment Studies in the Teck Database

Teck Study ID	SRC Study ID
Bortleson et al. 2001	USGS 1992
Columbia Environmental Co	--
CRIEMP05	--
Johnson 1999	--
Johnson et al. 1989	Ecology 1986
Johnson et al. 1994	--
Johnson, A. 1991	--
Majewski et al. 2003	USGS 2001
NSS_sed	--
NURE Seds	--
RGS_Sediment	--
Spokane_Seds	--
URS. 2003	--
US EPA 2003a	USEPA 2001 ESI
US EPA 2003b	--
USEPA 2005 Sediment	USEPA 2005 Sediment
USGS. 2003	--
USGS. 2005	USGS 1992; USGS 2001
USGS. 2006	--
USGS_04_LR	--
USGS_Cox2005	Paulson et al 2006
USGS_SpokLL	--
WADOE. 2001	Ecology 2001
WADOE. 2003b	--
WADOE_2007	Ecology 2007
USGS_Northp	NASQAN Program Northport Station

REVIEW OF SURFACE WATER STUDIES IN SRC AND UCR DATABASES

Following the review of differences between sediment data sets in the Upper Columbia River (UCR) databases maintained by Syracuse Research Corporation (SRC) and Integral Consulting Inc. (Integral), a similar comparison was undertaken for surface water data sets. This review was conducted to evaluate those differences in sufficient detail so that a single unified database can be constructed to be used by consultants to both Teck American Inc. (Teck) and the U.S. Environmental Protection Agency (EPA).

The first step in the review process was to identify the studies in common between the two databases. The name or identifier assigned to each study typically differs between the two databases, so this step required an overall comparison of sampling locations, dates, and analytes among all studies in both databases. For those studies common to both databases, a comprehensive comparison was then carried out of sampling locations (identifiers and coordinates), dates, sample identifiers (including replicates and splits), and analytical results (including analytes, laboratories, methods, measurement bases, units, concentrations, and qualifiers). In some cases this detailed comparison identified data that were in one database but not the other, and in other cases it identified some attributes of the data, such as qualifiers or significant digits, that differed between the databases. In the latter cases—that is, where the same data were present but varied in some respect—original data sources were reviewed to determine the correct representation of the data.

The results of the comparison of surface water data sets are reported here. Ten surface water studies from the SRC database and sixteen surface water studies from the Teck database were reviewed. The first step of the review determined that six of the studies in the SRC database had no counterpart in the Teck database, and that eight of the studies in the Teck database had no counterpart in the SRC database. Tables 1 and 2 list the studies in each database, and the corresponding study (or studies) in the other database.

The remainder of this document focuses on the studies that are represented in both databases. For each such study, a brief description of the differences (if any) is presented, followed by the recommended approach for reconciliation of the databases. Resolution steps are focused on data to be transferred from the SRC database to the Teck database, or other changes that are to be made to the Teck database.

Washington Department of Ecology Monitoring at Northport

This data set is identified as the 'Ecology WQ' study in the SRC database and is part of studies 'AJOH0029', 'AMS001', 'AMS001B', 'AMS001C', and 'AMS001D' in the Teck

database. Both databases contain data for only one location: the WA DOE monitoring station at Northport, WA. The SRC database contains 4,333 analytical results, and the Teck database contains 5,835 analytical results. Data are identical in both databases for the 4,333 analytical results in the SRC database. The additional data in the Teck database consists of results for temperature, pH, and conductivity—these measurements are not present in the SRC database.

No reconciliation steps are necessary for the Teck database.

USGS NASQAN Surface Water Data from Northport

This data set is identified as the "NASQAN Program Northport Station" study in the SRC database and as the "USGS_Northp" study in the Teck database. Both databases include data from one location at Northport, although the coordinates of this location are not identical in the two databases.

Most of the data in this data set corresponds between these two databases, but there are a number of discrepancies, as follows:

- The SRC database contains 14,401 analytical results and the Teck database contains 19,501 analytical results. Of these, 10,666 results are exact matches in the two databases.
- Analytical results that are similar but not exact matches in the two databases include two with different qualifiers, 99 with different concentrations, 151 with missing concentrations in the SRC database, 782 with different measurement bases (the measurement basis was not specified in the SRC database for these), 22 with different measurement bases and concentrations, and 6 with different measurement bases, concentrations, and qualifiers.
- There are five sampling dates, and 128 associated analyses, that are present only in the SRC database.
- There are 2,341 analytical results in the Teck database for which duplicate analytical results are present in the SRC database (in the SRC database, some of the duplicates are identified as field duplicates, some have different laboratory names, and some are distinguished only by an autonumber field).
- There are two analytes that are reported in the SRC database but not in the Teck database (thallium and Terbuthylazine).
- The SRC database includes microbial data characterized only as "bacteria" whereas the Teck database includes results more specifically identified as fecal streptococcus, fecal coliform, and total coliform.

- There are 22 samples that are present only in the Teck database.
- There are 7,819 analytical results that are present only in the Teck database. These include 33 analytes that are reported only in the Teck database. These analytes are field measurements and physical/chemical measurements.

Reference to the original data source (http://waterdata.usgs.gov/wa/nwis/inventory/?station=12400520) will be required to reconcile some of these differences. After checking against the original data source, the reconciliation steps to be carried out for the UCR database may include:

- Updating the concentration values, measurement bases, and detection flag for all results where these differ between the two databases
- Add the 206 analyses missing from the Teck database
- Add data for the 2,467 field or laboratory duplicates, as appropriate.

USGS Studies by Paulson and Cox

This data set is identified as the 'Paulson et al 2006' study in the SRC database and as the 'USGS_04_LR' study in the Teck database. Eight locations were sampled in this study. The SRC database contains surface water data only from the two locations where tumbling experiments were not conducted. All analytical results in the SRC database match those in the Teck database, and therefore no reconciliation steps are necessary for the Teck database.

Water Quality Monitoring at Grand Coulee Dam

This data set is identified as the 'USGS Grand Coulee Dam Station' study in the SRC database and is part of studies 'AMS001', 'AMS001B', 'AMS001C', and 'AMS001D' in the Teck database. Data in the SRC database appear to have been compiled from USGS's web database, whereas data in the Teck database have been compiled from Ecology's EIM. There are substantial differences between these two data sets, including:

- The SRC database contains 2,270 analytical results, and the Teck database contains 4,777 analytical results. Only 366 results are identical in the two databases.
- The Teck database contains samples from 439 more sampling dates than the SRC database.
- The SRC database contains results for some analytes—nutrients, conventional water quality parameters, and total coliform—that are not in the Teck database.
- The Teck database contains results for some metals—arsenic, cadmium, nickel, and silver—that are not present in the SRC database.

Before reconciliation of these databases can be completed, the accuracy of the two different data sources used must be assessed. Only after the authoritative data source is identified can the appropriate updates to the Teck database be identified. Based on this evaluation, however, it appears that there are nutrient and water quality data that should be added to the Teck database.

SUMMARY

Several studies in the SRC database contain data that, in whole or in part, can be used to update the Teck database to resolve discrepancies in the sediment data sets. These data sets, and the reconciliation actions that are to be taken for each are as follows:

- Ecology 1986—add entire data set (539 analytical results from 18 locations)
- Ecology 1990-1993—add entire data set (51 analytical results from 1 location)
- Ecology 1994—add entire data set (15 analytical results from 1 location)
- SCCD 1996—add entire data set (2,431 analytical results from 10 locations)
- USEPA 2001 ESI—add entire data set (325 analytical results from 8 locations; no coordinates are provided for one location, however)
- USEPA 2001 Mines and Mills—add entire data set (621 results from 27 locations; no coordinates are provided for 17 locations, however)
- NASQAN Program Northport—check and update data as necessary a subset of data, add 206 analyses, and add duplicate results as appropriate
- USGS Grand Coulee Dam Station—determine whether USGS or Ecology databases are the authoritative source for these data, and update the Teck database as necessary.

Table 1. Surface Water Studies in the SRC Database

SRC Study ID	Teck Study ID
Ecology 1986	
Ecology 1990-1993	
Ecology 1994	
Ecology WQ	*Part of* AJOH0029, AMS001, AMS001B, AMS001C, and AMS001D
SCCD 1996	
USEPA 2001 ESI	
USEPA 2001 Mines and Mills	
NASQAN Program Northport Station	USGS_Northp
Paulson et al 2006	USGS_04_LR
USGS Grand Coulee Dam Station	*Part of* AMS001, AMS001B, AMS001C, and AMS001D

Table 2. Surface Water Studies in the Teck Database

Teck Study ID	SRC Study ID
AJOH0029	Ecology WQ
AMS001	Ecology WQ *and* USGS Grand Coulee Dam Station
AMS001B	Ecology WQ *and* USGS Grand Coulee Dam Station
AMS001C	Ecology WQ *and* USGS Grand Coulee Dam Station
AMS001D	Ecology WQ *and* USGS Grand Coulee Dam Station
AMS004	
BC_Mon_Prgm	
CRIEMP05	
NURE Seds	
USBR_CrescB	
USGS_04_LR	Paulson et al 2006
USGS_North	NASQAN Program Northport Station
USGS_SpokLL	

RECONCILIATION OF SOIL AND TISSUE DATA IN SRC AND UCR DATABASES

Soil and tissue data sets compiled for the Upper Columbia River (UCR) RI/FS by Syracuse Research Corporation (SRC) for EPA have been compared to those in Teck's database, and Teck's database updated to reconcile the differences. Sediment and surface water data sets have previously been evaluated, and merging of the soil and tissue data sets completes the process of database reconciliation. Differences between the databases for soil and tissue data sets, and their resolution, are described in the following sections.

SOIL DATA

The SRC database contained three studies with soil data. Each of these studies was also included in Teck's database, but SRC's database contained some additional information for each of these. The differences, and the changes made to Teck's database, were as follows:

- U.S. EPA 2001 START-2 Expanded Site Investigation—Sediment data from this study was present in Teck's database as a result of the original import from CH2M-Hill. Samples from this study that were identified as soil samples in SRC's database were found, following evaluation of the original data source, to actually be sediment samples that were already in Teck's database. SRC's database contained results for additional analytes (organic compounds) that were not present in Teck's database, however, and those data were added.
- U.S. EPA 2001 Mines and Mills study—Sediment data from this study collected at locations in mouths of tributaries below the high water mark was contained in Teck's database. Additional sediment data and soil data from this study were contained in SRC's database. The additional data from SRC's database with known locations was added to Teck's database. There were 64 soil samples in SRC's database without any known coordinates, and these were not added to Teck's database.
- U.S. EPA LeRoi Smelter Removal Action—Soil data from this study was present in both the SRC and Teck databases, but the SRC database included data for subsurface samples and organic compounds. The SRC database also included more precise sampling dates and laboratory replicate results. The additional and more detailed information (a total of 3,444 additional results) was added to Teck's database.

TISSUE DATA

The SRC database included six studies with tissue data. One of those, the Phase I fish tissue study, was also included in Teck's database, and the other five were not. Updates were made to the Phase I fish tissue data in Teck's database to conform to SRC's database, and the additional studies were added in their entirety.

Changes to the Phase I fish tissue data in Teck's database consisted of updates to reported concentration values. Because SRC received a copy of CH2M-Hill's database later than did Teck's consultants, the differences are assumed to represent corrections made by CH2M-Hill. A total of 2,908 concentration values were updates; 1,776 of these were only differences in precision (rounding) of the reported data. There were no differences in number or type of samples.

The five tissue studies that were added in their entirety to Teck's database included sampling conducted by the Washington Department of Ecology (Ecology) in 1986, 1990, 1992, 1993, and 1994, and by the U.S. Geological Survey in 1994 and 1998. The sampling conducted by Ecology in 1986 included sediment sampling; the sediment data were previously in Teck's database and have been reconciled with SRC's database. The Ecology data sets consisted of 235 samples of various tissues from lake whitefish, largescale sucker, walleye, and a salmonid, including whole fish, fillets, liver, and eggs. The USGS data set consisted of 123 fillet samples from lake whitefish, walleye, and a salmonid.

APPENDIX B

ELECTRONIC DATA DELIVERABLE SPECIFICATIONS

Appendix B—Electronic Data Deliverable Specifications

The database manager uses several different databases to manage environmental data, including a custom-developed database that can accommodate most types of laboratory analysis results data. This document describes the target format for laboratory electronic data deliverables (EDDs) to be loaded into the project database. The target EDD format includes up to 10 data tables that need to be completed and provided by the laboratory. These 10 data tables have rigorous relationships with 15 dictionary tables, which are populated based on the project database. These tables describe laboratory samples and analytical methods and contain the results of analyses of environmental samples as well as blanks, spikes, laboratory control samples (LCSs), and surrogates. Depending on the needs of the project, as indicated in the work order issued to the laboratory, from 4 to 10 tables may not be relevant for each data package or sample delivery group (SDG).

The 10 different tables that form an EDD contain the following different types of information:

- d_labpkg: A description of each laboratory data package or set of samples that are analyzed and reported together.
- d_labsample: The correspondence between laboratory sample identifiers and client sample identifiers.
- d_labresult: Analytical results for each client sample, by laboratory sample identifier.
- d_labcalbatch: Instrument calibration dates and instruments information.
- d_labqcbatch: Laboratory quality control "batches" (which may, but need not, be unique for each data package). Details of the preparation and extraction dates.
- d_labqcsamp: Laboratory quality control sample descriptions.
- d_matrixspike: Analytical results for spikes and matrix spikes.
- d_methodblank: Analytical results for method blanks.
- d_lcs: Analytical results for LCSs.
- d_surrogate: Analytical results for surrogates.

The first three of these tables are required for any project. If laboratory quality control data are also to be reported in electronic format, then some or all of the other tables may also be required (according to the work order). This information is also presented in Table B-1.

EDD template databases, which are Microsoft® Access files, are provided to the laboratories to ensure that the laboratories provide EDD tables that correspond to the project database. The name of the Access file should correspond to the data package. Other formats can also potentially

be used but should be approved by the database management staff before use. The delivery format should be specified in the laboratory work order. Each set of EDD data tables must be accompanied by an electronic version of a transmittal document (or case narrative) that names the data package(s) and the data file(s) being transmitted. If an EDD is resubmitted, the transmittal document must also identify specifically which elements (tables and/or laboratory samples) of the previous transmittal are to be replaced.

The fields, or columns, making up each of the EDD tables are described in Table B-2. Information such as sample material descriptions, analyte names, and measurement basis codes should be represented by a consistent set of names or codes, both within and across tables. An explicit list of valid values for analyte names and other similar information has been developed for this project and will be provided to the laboratory. If the laboratory encounters any questions or difficulties while populating the EDD tables, the database manager should be contacted to discuss and resolve the problem.

TABLES

Table B-1. EDD Table Descriptions

Table Name	Description	Required	Comment
d_labpkg	Laboratory package (SDG) descriptions	R	Laboratory package IDs for distinct sets of samples that are typically analyzed and reported together. Every analytical result for a client sample should be linked to a data package; this table must always be completed.
d_labsample	Laboratory sample identifiers	R	Laboratory sample IDs for both client (database manager) sample number and laboratory quality control sample are required.
d_labresult	Laboratory analysis results for client samples	R	Analytical results for client (database manager) samples are required.
d_labcalbatch	Laboratory calibration batch identifiers and descriptions	O	Batch information for calibration. Because instrument calibration data may apply to data in sample delivery groups (SDGs), calibration "batches" can be defined separately from data packages. However, if calibration is performed for each data package, the calibration batch ID and the data package ID may be the same. If the same calibration batch applies to multiple data packages, the calibration batch descriptions need only be provided once, not with every data package.
d_labqcbatch	Laboratory quality control batch identifiers and descriptions	O	Batch information for quality control. Similar to calibration data, laboratory quality control measurements may apply to data in SDGs. Consequently, quality control "batches" can be defined separately from data packages. However, if all quality control measurements are made separately for each data package, the quality control batch ID and the data package ID may be the same. If the same quality control batch applies to multiple data packages, the quality control batch descriptions and data (for laboratory control samples [LCSs], spikes, blanks, and surrogates) need only be provided once, not with every data package.
d_labqcsamp	Laboratory quality control sample descriptions	O	Laboratory sample IDs for laboratory quality control samples (e.g., method blanks and LCSs).
d_matrixspike	Laboratory matrix spikes	O	Analytical results for matrix spikes and spike duplicates.
d_methodblank	Laboratory method blanks	O	Analytical results for method blanks.
d_lcs	Laboratory control samples	O	Analytical results for LCSs.
d_surrogate	Surrogate results	O	Analytical results for surrogates, including both client (database manager) samples and laboratory quality control samples.

Notes:
O - optional, depending on work order requirements
R - always required

Table B-2. Fields used in EDD Tables

Table Name	Column[a]	PK	Data Type	Length Limit	Description	Required	Valid Values[b]	Comments
d_labpkg	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_pkg	x	Text	16	Laboratory package (SDG) identifier	x		
	anal_type	x	Text	10	Type of analysis performed	x	Per e_analyte table	This should distinguish different types of analyses performed on the same set of samples (typically 20).
	anal_begun		Date/Time		Date the analysis started			
	anal_completed		Date/Time		Date the analysis was completed			
	analyst		Text	32	Person performing the analysis			
	Comments		Memo		General notes and information			
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_labsample	lab	x	Text	10	Laboratory performing the analysis	X		
	labsample	x	Text	20	Laboratory sample identifier	X		This is the analytical sample identifier assigned by the laboratory.
	study_id		Text	25	Client (database manager) study identifier	x[c]		A database manager work order number may be used.
	sample_no		Text	100	Client (database manager) sample number	x[c]		This is the database manager sample number as on the sample container and COC form.
	labqc_samp		Text	20	Laboratory quality control sample identifier	x[c]	Per d_labqcsample	
	receipt_date		Date/Time		Date of written acknowledgment of having received the samples			This is relevant only when the sample_no field is used.
	coc_id		Text	12	COC form number			This is relevant only when the sample_no field is used.
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_labresult	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_pkg	x	Text	16	Laboratory package (SDG) identifier	x	Per d_labpkg table	
	anal_type	x	Text	10	Type of analysis performed	x	Per d_labpkg table	
	labsample	x	Text	20	Laboratory sample identification	x	Per d_labsample table	
	material_analyzed	x	Text	20	Material analyzed	x	Per e_sampmaterial table	This description should reflect the results of any sample processing in the laboratory that results in a subdivision of the material analyzed, other than just the extraction of an aliquot. Any sample subdivision method should be indicated in the lab_prep_method of the e_analmethod table.
	method_code	x	Text	25	Analysis method code	x	Per e_analmethod table	
	analyte	x	Text	16	Name of analyte measured	x	Per e_analyte table	
	meas_basis	x	Text	10	Measurement basis	x	Per e_measbasis table	
	lab_rep	x	Text	6	Laboratory replicate identifier	x		
	meas_value		Double		Measured concentration or equivalent value	x		Use the detection limit for nonndetected measurements.
	units		Text	10	Units associated with the measured value	x	Per e_unit table	
	sig_figs		Integer			x		
	std_dev		Double		Standard deviation			Ordinarily carried only for radiological measurements.
	detection_limit		Double		Detection limit			
	quantification_limit		Double		Quantification limit			
	reporting_limit		Double		Project-specific reporting limit			
	maximum_limit		Double		Maximum limit for right-censored data			Applicable only to some types of analyses (e.g., grain size fractions calculated by subtraction) where the "detection limit" is an upper, rather than lower, bound.

Table B-2. Fields used in EDD Tables (continued)

Table Name	Column[a]	PK	Data Type	Length Limit	Description	Required	Valid Values[b]	Comments
d_labresult (continued)	nd_reported_to		Text	10	Limit used for nondetected values	x	"MDL," "MRL," "Other"	
	qapp_deviation		Yes/No		Whether the reported nondetected value deviated from that stated in the study-specific QAPP	x		
	nd_rationale		Text	255	Why the nondetected value was "Other" and not the "MDL" or "MRL"			
	lab_conc_qual		Text	1				
	lab_flags		Text	8	Laboratory-assigned process notation flags			Flags should identify undetected values, tentatively identified compounds, and any other result-specific observations that affect data interpretation or usability.
	qa_level		Text	10		x		
	undetected		Yes/No					
	estimated		Yes/No					
	rejected		Yes/No					
	greater_than		Yes/No					
	tic		Yes/No					
	reportable		Yes/No					
	original_lab_result		Double					
	validator_flags		Text	8				
	principal_doc		Text	12		x		
	Comments		Memo		General notes and information			
	lab_qc_batch		Text	16	Laboratory quality control batch number		Per d_labqcbatch table	
	lab_cal_batch		Text	30	Laboratory calibration batch number		Per d_labcalbatch table	
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_labcalbatch	Lab	x	Text	10	Name of laboratory performing the analysis	x		
	lab_cal_batch	x	Text	30	Laboratory calibration batch identifier	x		The calibration batch ID may be the same as the data package ID.
	instrument_type		Text	10	Type of laboratory instrument used in analysis	x		
	instrument_id		Text	16	Identifier of instrument used in analysis	x		The laboratory's identifier for the specific instrument was used.
	initial_cal_date		Date/Time		Initial calibration date	x		
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_labqcbatch	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_qc_batch	x	Text	16	Laboratory quality control batch number	x		The laboratory quality control batch ID may be the same as the data package ID.
	prep_date		Date/Time		Quality control batch preparation date			
	extraction_date		Text	50	Date of extraction			
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_labqcsamp	lab	x	Text	10	Laboratory performing the analysis	x		
	labqc_samp	x	Text	20	Laboratory quality control sample identifier	x		There should be a matching entry (or entries) in the labqc_samp field of the d_labsample table.
	qc_type		Text	12	Type of quality control sample	x	Per e_qctype table	
	comments		Memo		General notes and information			
	sdg_file		Text	255	Laboratory package (SDG) file name			

Table B-2. Fields used in EDD Tables (continued)

Table Name	Column[a]	PK	Data Type	Length Limit	Description	Required	Valid Values[b]	Comments
d_matrixspike	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_qc_batch	x	Text	16	Laboratory quality control batch identifier	x	Per d_labqcbatch table	
	labsample	x	Text	20	Laboratory sample identifier	x	Per d_labsample table	There should be a matching row in the d_labsample table (and rows in the d_labresult table).
	method_code	x	Text	15	Analysis method code	x	Per e_analmethod table	
	analyte	x	Text	16	Name of analyte measured	x	Per e_analyte table	
	meas_basis	x	Text	10	Measurement basis	x	Per e_measbasis table	
	spike_no	x	Integer		Spike number (replicate)	x		Typically, there is only one spike (data row) for inorganic analytes, and two for organics.
	samp_conc		Double		Sample concentration value	x		Typically, this value will also be reported in the d_labresult table.
	initial_qual		Text	1	Initial qualifier			
	spike_added		Double		Amount of spike added	x		
	spiked_conc		Double		Spiked sample concentration value	x		
	final_qual		Text	1	Final qualifier			
	lab_flags		Text	8	Laboratory flags			
	units		Text	10	Units associated with measurement	x	Per e_unit table	
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_methodblank	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_qc_batch	x	Text	16	Laboratory quality control batch number	x	Per d_labqcbatch table	
	labsample	x	Text	20	Laboratory sample identifier	x	Per d_labsample table	
	method_code	x	Text	15	Analyzation method code	x	Per e_analmethod table	
	analyte	x	Text	16	Name of analyte measured	x	Per e_analyte table	
	lab_rep	x	Text	6	Laboratory replicate identifier	x		
	concentration		Double		Measured concentration or equivalent value			
	retention_time		Double		Column retention time			
	units		Text	10	Units associated with measurement	x	Per e_unit	
	lab_flags		Text	8	Laboratory validation flags			
	sdg_file		Text	255	Laboratory package (SDG) file name			
d_lcs	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_qc_batch	x	Text	16	Laboratory quality control batch identifier	x	Per d_labqcbatch table	
	lcs_id	x	Text	25	Laboratory control sample identifier	x		
	analyte	x	Text	10	Name of analyte measured	x	Per e_analyte table	
	meas_basis	x	Text	10	Measurement basis	x	Per e_measbasis table	
	lcs_type		Text	1	Laboratory control sample type	x	”L” for liquid or “S” for soild	This indicates solid or liquid.
	true_lcs_conc		Double		True laboratory control sample concentration	x		
	meas_lcs_conc		Double		Measured laboratory control sample concentration	x		
	lcs_lowlimit		Double		Laboratory control sample lower limit			
	lcs_highlimit		Double		Laboratory control sample high limit			
	units		Text	10	Units associated with measurement	x	Per e_unit table	
	conc_qual		Text	1	Concentration qualifier			
	sdg_file		Text	255	Laboratory package (SDG) file name			

Table B-2. Fields used in EDD Tables (continued)

Table Name	Column[a]	PK	Data Type	Length Limit	Description	Required	Valid Values[b]	Comments
	lab	x	Text	10	Laboratory performing the analysis	x		
	lab_qc_batch	x	Text	16	Laboratory quality control batch number	x	Per d_labqcbatch table	
	labsample	x	Text	20	Laboratory sample identifier	x	Per d_labsample table	
	method_code	x	Text	15	Analyzation method code	x	Per e_analmethod table	
	surrogate	x	Text	25	Name of analyte measured	x		
d_surrogate	meas_basis	x	Text	10	Measurement basis	x	Per e_measbasis table	
	column_no	x	Text	2	Laboratory column number	x		
	lab_rep	x	Text	4	Laboratory replicate identifier	x		
	recovery		Double		Percent recovery	x		
	out_flag		Text	1	Laboratory validation flag			
	sdg_file		Text	255	Laboratory package (SDG) file name			

Notes: COC - chain-of-custody
PK - primary key
SDG - sample delivery group

[a] Either study_id and sample_no or labqc_samp must be included.

[b] Values listed here are only examples; other values may also be used as appropriate.

APPENDIX C

VALID VALUES FOR EDDS

anal_type	description
Biological	Biologicals
Convent	Conventionals
DioxFuran	Dioxins/Furans
FatAcid	Fatty Acids
GrainSize	Grain Size
Metal/oids	Metals/Metalloids
Nutrients	Nutrients
PAH	PAH
PBDE	PBDE
PCB	PCB
Pest-Herb	Pesticides/Herbicides
Petroleum	Petroleum
PhysChem	Physical-Chemical properties
Radionuc	Radionuclides
ResinAcid	Resin Acids
Samp Info	Sample Information
SVOC	SVOC
Total	Grand Total
Unknown	Unknown
VOC	VOC

analyte	full_name	chem_class	anal_type	aliases	cas_rn
<200 Total	Particles < 75 um in diameter (passing a #200 sieve)	GrainSize	GrainSize		T200
1112TetraClEt	1,1,1,2-Tetrachloroethane	Volatiles	VOC		630206
111TriClEth	1,1,1-Trichloroethane	Volatiles	VOC		71556
1122TetrClEth	1,1,2,2-Tetrachloroethane	Volatiles	VOC		79345
112Cl122FEthane	1,1,2-Trichloro-1,2,2-trifluoroethane	Volatiles	VOC		76131
112TriClEth	1,1,2-Trichloroethane	Volatiles	VOC		79005
11Biphenyl	1,1'-Biphenyl	PAH	PAH		92524
11DiClEth	1,1-Dichloroethane	Volatiles	VOC		75343
11DiClEthe	1,1-Dichloroethene	Volatiles	VOC		75354
1234678HepDioxin	1,2,3,4,6,7,8-Heptachlorodibenzodioxin	DioxinFura	DioxFuran		35822469
1234678HepFuran	1,2,3,4,6,7,8-Heptachlorodibenzofuran	DioxinFura	DioxFuran		67562394
1234789HepFuran	1,2,3,4,7,8,9-Heptachlorodibenzofuran	DioxinFura	DioxFuran		55673897
123478HexDioxin	1,2,3,4,7,8-Hexachlorodibenzodioxin	DioxinFura	DioxFuran		39227286
123478HexFuran	1,2,3,4,7,8-Hexachlorodibenzofuran	DioxinFura	DioxFuran		70648269
123678HexDioxin	1,2,3,6,7,8-Hexachlorodibenzodioxin	DioxinFura	DioxFuran		57653857
123678HexFuran	1,2,3,6,7,8-Hexachlorodibenzofuran	DioxinFura	DioxFuran		57117449
123789HexDioxin	1,2,3,7,8,9-Hexachlorodibenzodioxin	DioxinFura	DioxFuran		19408743
123789HexFuran	1,2,3,7,8,9-Hexachlorodibenzofuran	DioxinFura	DioxFuran		72918219
12378PenDioxin	1,2,3,7,8-Pentachlorodibenzodioxin	DioxinFura	DioxFuran		40321764
12378PenFuran	1,2,3,7,8-Pentachlorodibenzofuran	DioxinFura	DioxFuran		57117416
123TriClPropa	1,2,3-Trichloropropane	Volatiles	VOC		96184
1245TetClBenzene	1,2,4,5-Tetrachlorobenzene	SemiVolati	SVOC	1,2,4,5-Tetrachlorobenzene; benzene tetrachloride; s-tetrachlorobenzene; TCB; Tetrachlorobenzene; Tetrachlorobenzene, 1,2,4,5- ;	95943
124TriClBenzene	1,2,4-Trichlorobenzene	SemiVolati	SVOC		120821
12DiBr3ClPprop	1,2-Dibromo-3-chloropropane	Volatiles	VOC	DBCP	96128
12DiBrEth	1,2-Dibromoethane	Volatiles	VOC		106934
12DiClBenzene	1,2-Dichlorobenzene	SemiVolati	SVOC		95501
12DiClEth	1,2-Dichloroethane	Volatiles	VOC		107062
12DiClProp	1,2-Dichloropropane	Volatiles	VOC		78875
135TrinitrBenzen	1,3,5-Trinitrobenzene	SemiVolati	SVOC		99354
13C_OCDD	13C Octachlorodibenzodioxin		DioxFuran		114423971
13C_PBDE_100	13C_PBDE_100		PBDE		
13C_PBDE_118	13C_PBDE_118		PBDE		L
13C_PBDE_126	13C_PBDE_126		PBDE		L
13C_PBDE_138	13C_PBDE_138		PBDE		L
13C_PBDE_139	13C_PBDE_139		PBDE		
13C_PBDE_153	13C_PBDE_153		PBDE		
13C_PBDE_154	13C_PBDE_154		PBDE		
13C_PBDE_169	13C_PBDE_169		PBDE		L
13C_PBDE_180	13C_PBDE_180		PBDE		L
13C_PBDE_183	13C_PBDE_183		PBDE		
13C_PBDE_203	13C_PBDE_203		PBDE		L
13C_PBDE_206	13C_PBDE_206		PBDE		L
13C_PBDE_209	13C_PBDE_209		PBDE		
13C_PBDE_28	13C_PBDE_28		PBDE		
13C_PBDE_47	13C_PBDE_47		PBDE		
13C_PBDE_77	13C_PBDE_77		PBDE		L
13C_PBDE_79	13C_PBDE_79		PBDE		L
13C_PBDE_99	13C_PBDE_99		PBDE		

13C_PCB_156_157	13C PCB 156+157		PCB		
13C_PCB_156+157	13C_PCB_156+157		PCB		L
13C_PCB_cong_1	13C 2-Chlorobiphenyl		PCB		234432850
13C_PCB_cong_101	13C_PCB_cong_101		PCB		L
13C_PCB_cong_104	13C PCB_cong_104		PCB		234432894
13C_PCB_cong_105	13C PCB_cong_105		PCB		208263621
13C_PCB_cong_111	13C PCB_cong_111		PCB		235416292
13C_PCB_cong_114	13C PCB_cong_114		PCB		208263632
13C_PCB_cong_118	13C PCB_cong_118		PCB		104130407
13C_PCB_cong_123	13C PCB_cong_123		PCB		208263643
13C_PCB_cong_126	13C PCB_cong_126		PCB		208263654
13C_PCB_cong_127	13C_PCB_cong_127		PCB		L
13C_PCB_cong_138	13C_PCB_cong_138		PCB		L
13C_PCB_cong_141	13C_PCB_cong_141		PCB		L
13C_PCB_cong_15	13C 4,4'-Dichlorobiphenyl (PCB 15)		PCB		208263676
13C_PCB_cong_153	13C_PCB_cong_153		PCB		L
13C_PCB_cong_155	13C PCB_cong_155		PCB		234432907
13C_PCB_cong_156	13C_PCB_cong_156		PCB		235416305
13C_PCB_cong_159	13C_PCB_cong_159		PCB		L
13C_PCB_cong_167	13C PCB_cong_167		PCB		208263698
13C_PCB_cong_169	13C PCB_cong_169		PCB		208263701
13C_PCB_cong_170	13C_PCB_cong_170		PCB		L
13C_PCB_cong_178	13C PCB_cong_178		PCB		232919674
13C_PCB_cong_180	13C_PCB_cong_180		PCB		L
13C_PCB_cong_188	13C PCB_cong_188		PCB		234432918
13C_PCB_cong_189	13C PCB_cong_189		PCB		208263734
13C_PCB_cong_19	13C PCB_cong_19		PCB		234432872
13C_PCB_cong_194	13C_PCB_cong_194		PCB		L
13C_PCB_cong_202	13C PCB_cong_202		PCB		105600268
13C_PCB_cong_205	13C PCB_cong_205		PCB		234446641
13C_PCB_cong_206	13C PCB_cong_206		PCB		208263756
13C_PCB_cong_207	13C PCB_cong_207		PCB		
13C_PCB_cong_208	13C PCB_cong_208		PCB		234432929
13C_PCB_cong_209	13C_PCB_cong_209		PCB		L
13C_PCB_cong_28	13C PCB_cong_28		PCB		208263767
13C_PCB_cong_3	13C 4-Chlorobiphenyl (PCB 3)		PCB		208263778
13C_PCB_cong_32	13C_PCB_cong_32		PCB		L
13C_PCB_cong_37	13C PCB_cong_37		PCB		208263790
13C_PCB_cong_4	13C PCB_cong_4		PCB		234432861
13C_PCB_cong_47	13C_PCB_cong_47		PCB		L
13C_PCB_cong_52	13C_PCB_cong_52		PCB		L
13C_PCB_cong_54	13C PCB_cong_54		PCB		234432883
13C_PCB_cong_70	13C_PCB_cong_70		PCB		L
13C_PCB_cong_77	13C PCB_cong_77		PCB		105600235
13C_PCB_cong_79	13C PCB_cong_79		PCB		
13C_PCB_cong_80	13C_PCB_cong_80		PCB		L
13C_PCB_cong_81	13C PCB_cong_81		PCB		208461249
13C_PCB_cong_9	13C_PCB_cong_9		PCB		L
13C_PCB_cong_95	13C_PCB_cong_95		PCB		L
13C_PCB_cong_97	13C_PCB_cong_97		PCB		L
13C1234678HpCDD	13C12-1,2,3,4,6,7,8-Heptachlorodibenzodioxin		DioxFuran		109719837

13C1234678HpCDF	13C12-1,2,3,4,6,7,8-Heptachlorodibenzofuran		DioxFuran		109719848
13C1234789HpCDF	13C12-1,2,3,4,7,8,9-Heptachlorodibenzofuran		DioxFuran		109719940
13C123478HxCDD	13C12-1,2,3,4,7,8-Hexachlorodibenzodioxin		DioxFuran		109719804
13C123478HxCDF	13C12-1,2,3,4,7,8-Hexachlorodibenzofuran		DioxFuran		114423982
13C123678HxCDD	13C12-1,2,3,6,7,8-Hexachlorodibenzodioxin		DioxFuran		109719815
13C123678HxCDF	13C12-1,2,3,6,7,8-Hexachlorodibenzofuran		DioxFuran		116843039
13C123789HxCDD	13C123789HxCDD		DioxFuran		
13C123789HxCDF	13C12-1,2,3,7,8,9-Hexachlorodibenzofuran		DioxFuran		116843040
13C12378PeCDD	13C12-1,2,3,7,8-Pentachlorodibenzodioxin		DioxFuran		109719791
13C12378PeCDF	13C12-1,2,3,7,8-Pentachlorodibenzofuran		DioxFuran		109719779
13C234678HxCDF	13C12-2,3,4,6,7,8-Hexachlorodibenzofuran		DioxFuran		116843051
13C23478PeCDF	3C12-2,3,4,7,8-Pentachlorodibenzofuran		DioxFuran		116843028
13C2378TCDD	3C12-2,3,7,8-Tetrachlorodibenzodioxin		DioxFuran		76523405
13C2378TCDF	3C12-2,3,7,8-Tetrachlorodibenzofuran		DioxFuran		89059461
13CDecClBiphenyl	13C Decachlorobiphenyl (PCB 209)		PCB		105600279
13COCDD	13COCDD		DioxFuran		
13COCDF	13COCDF		DioxFuran		
13DiClBenzene	1,3-Dichlorobenzene	SemiVolati	SVOC		541731
13DiClProp	1,3-Dichloropropane	Volatiles	VOC		142289
13Dinitrobenzene	1,3-Dinitrobenzene	SemiVolati	SVOC		99650
14ClDehydroAbiet	14-Chlorodehydroabietic Acid	ResinAcid	ResinAcid		
14DiClBenzene	1,4-Dichlorobenzene	SemiVolati	SVOC		106467
14Dioxane	1,4-Dioxane	Volatiles	SVOC		123911
14Naphthoquinone	1,4-Naphthoquinone	SemiVolati	SVOC		130154
14Phenylenediam	1,4-Phenylenediamine	SemiVolati	SVOC		106503
167TRIMETHNAP	1,6,7-Trimethyl Naphthalene		PAH	Naphthalene, 1,6,7-Trimethyl	
1MethylNapth	1-Methylnaphthalene	SemiVolati	PAH		90120
1Naphthylamine	1-Naphthylamine	SemiVolati	SVOC		134327
1Pentanol	1-Pentanol	SemiVolati	VOC		71410
22OxyBis1ClProp	2,2'-oxybis(1-Chloropropane)	SemiVolati	SVOC	Bis-chloroisopropyl Ether	108601
22OxyBis2ClProp	2,2'-oxybis(2-Chloropropane)	SemiVolati	SVOC	Bis(2-chloroisopropyl) Ether	39638329
2345TetrClPhenol	2,3,4,5-Tetrachlorophenol	Phenols	SVOC		4901513
2346-56TetClPhnl	2346- and 2356- Tetrachlorophenol	SemiVolati	SVOC		
234678HexFuran	2,3,4,6,7,8-Hexachlorodibenzofuran	DioxinFura	DioxFuran		60851345
2346TetrClPhenol	2,3,4,6-Tetrachlorophenol	Phenols	SVOC		58902
23478PenFuran	2,3,4,7,8-Pentachlorodibenzofuran	DioxinFura	DioxFuran		57117314
234TriClPhenol	2,3,4-Trichlorophenol	Phenols	SVOC		15950660
235TriClPhenol	2,3,5-Trichlorophenol	Phenols	SVOC		933788
236TriClPhenol	2,3,6-Trichlorophenol	Phenols	SVOC		933755
2378TetDioxin	2,3,7,8-Tetrachlorodibenzodioxin	DioxinFura	DioxFuran	TCDD	1746016
2378TetFuran	2,3,7,8-Tetrachlorodibenzofuran	DioxinFura	DioxFuran		51207319
23DiClPhenol	2,3-Dichlorophenol	SemiVolati	SVOC		576249
24_D	2,4-Dichlorophenoxyacetic acid	Herbicides	Pest-Herb	2,4-D	94757
24-34DiClPhenol	2,4- and 3,4-Dichlorophenol	SemiVolati	SVOC		
245_T	2,4,5-Trichlorophenoxy-acetic acid	Herbicides	Pest-Herb	2,4,5-T	93765
245TriClPhenol	2,4,5-Trichlorophenol	SemiVolati	SVOC		95954
246-TriBrPhenol	2,4,6-Tribromophenol		SVOC		
246TriClPhenol	2,4,6-Trichlorophenol	SemiVolati	SVOC		88062
24DDD	2,4'-DDD	Pesticides	Pest-Herb		53190
24DDE	2,4'-DDE	Pesticides	Pest-Herb		3424826

24DDT	2,4'-DDT	Pesticides	Pest-Herb		789026
24DiClPhenol	2,4-Dichlorophenol	SemiVolati	SVOC		120832
24DiMePhenol	2,4-Dimethylphenol	SemiVolati	SVOC		105679
24DiNiPhenol	2,4-Dinitrophenol	SemiVolati	SVOC		51285
24DiNiToluene	2,4-Dinitrotoluene	SemiVolati	SVOC		121142
25DiClPhenol	2,5-Dichlorophenol	SemiVolati	SVOC		
26DiClPhenol	2,6-Dichlorophenol	SemiVolati	SVOC		87650
26DiEthylAn	2,6-Diethylaniline	Pesticides	Pest-Herb		579668
26DIMETHNAP	2,6-dimethyl-Naphthalene		SVOC	Naphthalene, 2,6-dimethyl-	
26DiNiToluene	2,6-Dinitrotoluene	SemiVolati	SVOC		606202
2AcetylAminoFlou	2-Acetylaminofluorene	PAH	SVOC		53963
2Cl11pBiphenyl	2-Chlorobiphenyl	SemiVolati	PCB	2-chloro-1,1'-Biphenyl; 2-Chlorobiphenyl; 2-Monochloro-biphenyl; PCB 1;	2051607
2ClNaphthalene	2-Chloronaphthalene	SemiVolati	SVOC		91587
2ClPhenol	2-Chlorophenol	SemiVolati	SVOC		95578
2-Fluorobiphenyl	2-Fluorobiphenyl		SVOC		
2-Fluorophenol	2-Fluorophenol		SVOC		
2Hexanone	2-Hexanone	Volatiles	VOC		591786
2MeNaphthalene	2-Methylnaphthalene	PAH	PAH		91576
2MePhenol	2-Methylphenol	SemiVolati	SVOC	o-Cresol	95487
2METHPHEN	2-Methylphenanthrene		PAH		
2Naphthylamine	2-Naphthylamine	SemiVolati	SVOC		91598
2NiAniline	2-Nitroaniline	PAH	SVOC		88744
2NiPhenol	2-Nitrophenol	SemiVolati	SVOC		88755
2Octanone	2-Octanone	Volatiles	VOC		111137
2Picoline	2-Picoline	SemiVolati	SVOC	2-Methylpyridine	109068
2Propanol	2-Propanol	SemiVolati	SVOC		67630
2secbuty46diPhe	2-sec-butyl-4,6-dinitrophenol	Herbicides	Pest-Herb	Dinoseb	88857
33DiClBenzidine	3,3'-Dichlorobenzidine	SemiVolati	SVOC	3,3'-Dichloro-4,4'-Biphenyldiamine	91941
33PDimethBenzid	3,3'-Dimethylbenzidine	SemiVolati	SVOC		119937
345TriClPhenol	3,4,5-Trichlorophenol	Phenols	SVOC		609198
34DiClBiphenyl	3,4-dichloro-biphenyl	SemiVolati	PCB		2974927
35DiClBiphenyl	3,5-dichloro-biphenyl	SemiVolati	PCB		34883415
35DiClPhenol	3,5-Dichlorophenol	SemiVolati	SVOC		
37Cl4-2378TCDD	37Cl4-2,3,7,8-TCDD (?? U.S. EPA 2005 tissue data)		DioxFuran		85508505
3ClBiphenyl	3-Chlorobiphenyl	SemiVolati	PCB	1,1'-Biphenyl, 3-monochloro-; 3-Chlorobiphenyl; 3-Monochloro-biphenyl;	2051618
3ClPhenol	3-Chlorophenol	SemiVolati	SVOC		108430
3MePhenol	3-Methylphenol	SemiVolati	SVOC	m-Cresol	108394
3MethylCholAnthr	3-Methylcholanthrene	PAH	PAH		56495
3NiAniline	3-Nitroaniline	PAH	SVOC		99092
44DDD	4,4'-DDD	Pesticides	Pest-Herb		72548
44DDE	4,4'-DDE	Pesticides	Pest-Herb		72559
44DDT	4,4'-DDT	Pesticides	Pest-Herb		50293
44DiClBiphenyl	Dichlorobiphenyl	PCBs	PCB	1,1'-Biphenyl, 4,4'-dichloro-; 4,4-Dichlorobiphenyl; 4,4'-Dichlorobiphenyl; Dichlorobiphenyl;	2050682
44EthylDDD	p,p'-Ethyl-DDD	Pesticides	Pest-Herb		72560
44Methoxychlor	p,p'-Methoxychlor	Pesticides	Pest-Herb		
46DiNi2MePhenol	4,6-Dinitro-2-methylphenol	SemiVolati	SVOC		534521
4AminoBiphenyl	4-amino-diphenyl	SemiVolati	SVOC	4-Amino biphenyl	92671
4BrPhPhEther	4-Bromophenyl-phenylether	SemiVolati	SVOC		101553

4Cl11Biphenyl	4-chloro-1,1'-Biphenyl	SemiVolati	PCB	1-chloro-4-phenyl benzene; 4-chloro-1,1'-Biphenyl; 4-chlorobiphenyl; 4-Monochloro-biphenyl;	2051629
4Cl3MePhenol	4-Chloro-3-methylphenol	SemiVolati	SVOC		59507
4ClAniline	4-Chloroaniline	SemiVolati	SVOC		106478
4ClPhenol	4-Chlorophenol	SemiVolati	SVOC		106489
4ClPhPhEther	4-Chlorophenyl-phenyl ether	SemiVolati	SVOC		7005723
4MePhenol	4-Methylphenol	SemiVolati	SVOC	p-Cresol	106445
4Meth2Pentanone	4-Methyl-2-pentanone	Volatiles	VOC		108101
4NiAniline	4-Nitroaniline	PAH	SVOC		100016
4NiPhenol	4-Nitrophenol	SemiVolati	SVOC		100027
4Nitroquin1Oxide	4-Nitroquinoline-1-oxide	SemiVolati	SVOC		56575
4NONPHENOL	4-nonyl-Phenol		SVOC	Phenol, 4-nonyl-	
5NitroOToluidine	5-Nitro-o-toluidine	SemiVolati	SVOC		99558
712DimethBAA	7,12-Dimethylbenz(a)anthracene	PAH	PAH		57976
814AbietenicAcid	8(14)-Abietenic Acid	ResinAcid	ResinAcid		
910DiClSteAcid	9,10-Dichlorostearic Acid	FatAcid	FatAcid		
aaDimethPhenAmin	a,a-Dimethylphenethylamine	SemiVolati	SVOC		122098
AbieticAcid	Abietic Acid	ResinAcid	ResinAcid		
AbietLevoPimaric	Abietic and levo pimaric acid	ResinAcid	ResinAcid		
Acenaphthene	Acenaphthene	PAH	PAH		83329
Acenaphthylene	Acenaphthylene	PAH	PAH		208968
Acetochlor	Acetochlor	Herbicides	Pest-Herb		34256821
Acetone	Acetone	Volatiles	VOC		67641
Acetonitrile	Acetonitrile	Volatiles	VOC		75058
Acetophenone	Acetophenone	SemiVolati	SVOC	1-Phenylethanone	98862
Acidity_CaCO3	Acidity as calcium carbonate	PhysChem	Convent		
Acidity_H	Acidity as hydrogen ion	PhysChem	Convent		
Acrolein	Acrolein	Volatiles	VOC		107028
Acrylonitrile	Acrylonitrile	Volatiles	VOC		107131
AFDW	Ash-free dry weight	PhysChem	Convent		
AgencyAnalyzing	Agency analyzing sample		Samp Info		
AgencyCollecting	Agency collecting sample		Samp Info		
aHCH	alpha-Hexachlorocyclohexane	Pesticides	Pest-Herb	alpha-HCH	319846
Alachlor	Alachlor	Herbicides	Pest-Herb	Metachlor	15972608
Aldrin	Aldrin	Pesticides	Pest-Herb		309002
Alkalinity	Alkalinity	PhysChem	Convent		
Alkalinity_Ph	Phenolphthalein Alkalinity	PhysChem	Convent		
AllylChloride	Allyl chloride	Volatiles	VOC	3-Chloropropene	107051
alphaBHC	alpha-Benzenehexachloride	Pesticides	Pest-Herb	Alpha-hexachlorocyclohexane; alpha-HCH	319846
alphaChlordane	alpha-Chlordane	Pesticides	Pest-Herb		5103719
alpha-HCH	alpha-HCH	Pesticides	Pest-Herb	Alpha-hexachlorocyclohexane; alphaBHC; alpha-Benzenehexachloride	319846
AltSlag_area	AltSlag Area		PhysChem		
AltSlag_pct	% AltSlag		PhysChem		
Aluminum	Aluminum	Metals	Metal/oids		7429905
Ammonia	Ammonia	Nutrients	Nutrients		7664417
Ammonia_N	Ammonia as Nitrogen	Nutrients	Nutrients		
Ammonia_union	Ammonia, unionized	Nutrients	Nutrients		
Ammonia_union_N	Ammonia, unionized as Nitrogen	Nutrients	Nutrients		
Ammonium	Ammonium		Nutrients	NH4	
AmmPlusOrgN	Ammonia plus organic nitrogen	Nutrients	Nutrients		

ANC_CaCO3	Acid neutralizing capacity	PhysChem	Convent		
Aniline	Aniline	Volatiles	SVOC		62533
Anthracene	Anthracene	PAH	PAH		120127
Antimony	Antimony	Metals	Metal/oids	Sb	7440360
ArachAcid	Arachidic Acid	FatAcid	FatAcid		
Aramite	Aramite	Pesticides	Pest-Herb		140578
Area	Area Analyzed		PhysChem		
Aroclor 1016	Aroclor 1016	PCBs	PCB		12674112
Aroclor 1210	Aroclor 1210	PCBs	PCB		147601874
Aroclor 1216	Aroclor 1216	PCBs	PCB		151820278
Aroclor 1221	Aroclor 1221	PCBs	PCB		11104282
Aroclor 1231	Aroclor 1231	PCBs	PCB		37234405
Aroclor 1232	Aroclor 1232	PCBs	PCB		11141165
Aroclor 1240	Aroclor 1240	PCBs	PCB		71328897
Aroclor 1242	Aroclor 1242	PCBs	PCB		53469219
Aroclor 1248	Aroclor 1248	PCBs	PCB		12672296
Aroclor 1250	Aroclor 1250	PCBs	PCB		165245512
Aroclor 1252	Aroclor 1252	PCBs	PCB		89577786
Aroclor 1254	Aroclor 1254	PCBs	PCB		11097691
Aroclor 1260	Aroclor 1260	PCBs	PCB		11096825
Aroclor_1254_60	Aroclor 1254/1260	PCBs	PCB		
Aroclor_1262	Aroclor 1262	PCBs	PCB		37324235
Aroclor_1268	Aroclor 1268	PCBs	PCB		11100144
Arsenic	Arsenic	Metals	Metal/oids	As	7440382
As_inorg	Inorganic Arsenic	Metals	Metal/oids	As	7440382
ASB_cation	ASB + Cation	PhysChem	Convent		
As-III	Arsenic III		Metal/oids		
As-V	Arsenic V		Metal/oids		
Atrazine	Atrazine	Pesticides	Pest-Herb		1912249
AzinPMethyl	Azinphos-methyl	Pesticides	Pest-Herb		86500
Barium	Barium	Metals	Metal/oids	Ba	7440393
Battery voltage	Battery voltage		Samp Info		
BehenAcid	Behenic Acid	FatAcid	FatAcid		
Benfluralin	Benfluralin	Herbicides	Pest-Herb		1861401
Benzaldehyde	Benzaldehyde	SemiVolati	SVOC		100527
Benzene	Benzene	Volatiles	VOC		71432
Benzidine	Benzidine	SemiVolati	SVOC		92875
Benzoic acid	Benzoic acid	SemiVolati	SVOC		65850
Benzyl alcohol	Benzyl alcohol	SemiVolati	SVOC		100516
Beryllium	Beryllium	Metals	Metal/oids	Be	7440417
betaBHC	beta-BHC	Pesticides	Pest-Herb	beta-Benzenehexachloride; b-HCH; beta-Hexachlorocyclohexane	319857
bHCH	beta-Hexachlorocyclohexane	Pesticides	Pest-Herb	beta-HCH; betas-BHC; beta-Benzenehexachloride	319857
Bicarbonate	Bicarbonate	PhysChem	Convent		71523
Bismuth	Bismuth	Metals	Metal/oids	Bi	7440699
BOD	Biochemical oxygen demand	PhysChem	Convent		
Boron	Boron	Metals	Metal/oids	B	7440428
BP	Barometric pressure		Samp Info		
BrDiClMeth	Bromodichloromethane	Volatiles	VOC		75274
Bright_pct	% Bright		PhysChem		
BrMeth	Bromomethane	Volatiles	VOC		74839

Bromide	Bromide ion	Halogens	Metal/oids		
Bromine	Bromine	Halogens	Metal/oids	Br	7726956
Bromoform	Bromoform	Volatiles	VOC		75252
bs2ClEtOxEther	Bis(2-chloroethyl)ether	SemiVolati	SVOC		111444
bs2ClEtOxMethane	bis(2-Chloroethoxy)methane	SemiVolati	SVOC		111911
bs2EtHxPhthalate	bis(2-Ethylhexyl)phthalate	SemiVolati	SVOC		117817
BulkDensity	Bulk Density	PhysChem	Convent		
Butylate	Butylate	Herbicides	Pest-Herb	Diisocarb	2008415
BzAAnthracene	Benzo[a]anthracene	PAH	PAH		56553
BzAPyrene	Benzo[a]pyrene	PAH	PAH		50328
BzBFluoranthene	Benzo[b]fluoranthene	PAH	PAH		205992
BzEPyrene	Benzo(e)pyrene	PAH	PAH		192972
BzGhiPerylene	Benzo[g,h,i]perylene	PAH	PAH		191242
BzKFluoranthene	Benzo[k]fluoranthene	PAH	PAH		207089
BzNButPhthalate	Benzyl n-butyl phthalate	SemiVolati	SVOC	Butyl benzyl phthalate	85687
CacodylicAc	Cacydylic acid	Pesticides	Pest-Herb	ansar 138; Arsan; Dimethylarsenic acid; Dimethylarsinic acid; Dimethylarsonic Acid; Bolate; Bolls; cacodylic acid; Cacodylic acid ; Cacodylic acid, free acid; chexmate; DMAA; Erase; hydroxydimethylarsine oxide; Moncide; phytar; rad-e-cat 25; Rad-E-Cate 35	75605
Cadmium	Cadmium	Metals	Metal/oids	Cd	7440439
Caffeine	Caffeine		Unknown		
Calcium	Calcium	Metals	Metal/oids	Ca	7440702
Caprolactam	Caprolactam	SemiVolati	SVOC		105602
Carb_hardness	Hardness as CaC03	PhysChem	Convent		
Carbaryl	Carbaryl	Pesticides	Pest-Herb	Carbamic acid	63252
Carbazole	Carbazole	Pesticides	SVOC		86748
Carbofuran	Carbofuran	Pesticides	Pest-Herb		1563662
Carbon_inorg	Inorganic carbon	PhysChem	Convent		
Carbon_org	Organic carbon	PhysChem	Convent		
Carbon_org_corr	Organic carbon, corrected	PhysChem	Convent		
Carbon_total	Total Carbon	PhysChem	Convent		
Carbonate	Carbonate	PhysChem	Convent		3812326
CarbonDisulfide	Carbon disulfide	Volatiles	VOC		75150
CarbonTetrCl	Carbon Tetrachloride	Volatiles	VOC		56235
Carbophenothion	Carbophenothion	Pesticides	Pest-Herb		786196
CatExchangeCap	Cation Exchange Capacity	PhysChem	Convent		
Cerium	Cerium	Lanthanide	Metal/oids	Ce	7440451
Cesium	Cesium	Metals	Metal/oids	Cs	7440462
Chlordane_T	Chlordane (technical)	Pesticides	Pest-Herb		12789036
Chloride	Chloride ion	Halogens	Metal/oids		
Chloride_total	Total chloride	Halogens	Metal/oids		
Chlorine	Chlorine	Halogens	Metal/oids	Cl	7782505
ChlorineAV	Available chlorine		Metal/oids		
ChlorineTL	Total chlorine		Metal/oids		
Chlorobenzilate	Chlorobenzilate	SemiVolati	SVOC		510156
Chloroform	Chloroform	Volatiles	VOC		67663
Chlorophyll	Chlorophyll	Biological	Biological		
Chlorophyll_a	Chlorophyll a	Biological	Biological		
Chlorophyll_b	Chlorophyll b	Biological	Biological		
Chloroprene	Chloroprene	SemiVolati	VOC		126998

Chlorpyrifos	Chlorpyrifos	Pesticides	Pest-Herb		2921882
Cholesterol	Cholesterol		FatAcid		
Chromium	Chromium	Metals	Metal/oids	Cr	7440473
Chrysene	Chrysene	PAH	PAH		218019
ClAT	2-Chloro-4-isopropylamino-6-amino-s-triazine	Pesticides	Pest-Herb	Deethyl atrazine	6190654
cis12DiClEthe	cis-1,2-Dichloroethene	Volatiles	VOC		156592
cis13DiClPrope	cis-1,3-Dichloropropene	Volatiles	VOC		10061015
cischlordane	cis-chlordane		Pest-Herb		
cisNonachlor	cis-Nonachlor	Pesticides	Pest-Herb		5103731
cis-Permethrin	cis-Permethrin	Pesticides	Pest-Herb		61949766
Clay	Clay	GrainSize	GrainSize		E-14612
ClBenzene	Chlorobenzene	Volatiles	VOC		108907
ClDehydroAbiet	Chlorodehydroabietic acid (non-specific)	ResinAcid	ResinAcid		
ClEthane	Chloroethane	Volatiles	VOC		75003
ClMeth	Chloromethane	Volatiles	VOC		74873
CO2	Carbon dioxide	PhysChem	Convent		
CoarseGravel	Coarse gravel	GrainSize	GrainSize		
CoarseSand	Coarse sand	GrainSize	GrainSize		E-15006
Cobalt	Cobalt	Metals	Metal/oids	Co	7440484
Cobbles	Cobbles	GrainSize	GrainSize		
COD	Chemical Oxygen Demand	PhysChem	Convent		
Colloids	Colloids	PhysChem	GrainSize		E-15001
Color	Color		PhysChem		
Conductivity	Conductivity		Convent		
Copper	Copper	Metals	Metal/oids	Cu	7440508
Coprosterol	Coprosterol		FatAcid		
Cr_VI	Chromium (VI)	Metals	Metal/oids		18540299
Cs137	Cesium-137	Radionuc	Radionuc		10045973
Cs137_2sigma	Cesium-137 2-sigma combined uncertainty	Radionuc	Radionuc		
Cumene	Cumene	Volatiles	VOC		98828
Cyanazine	Cyanazine	Herbicides	Pest-Herb		21725462
Cyanide	Cyanide	PhysChem	Metal/oids		
DCPA	Dimethyl tetrachloroterephthalate	Herbicides	Pest-Herb	Dacthal	1861321
DecaClBiphenyls	Decachlorobiphenyl homologs	PCBs	PCB		
Decane	Decane	Petroleum	VOC		124185
DecClBiphenyl	Decachlorobiphenyl (PCB 209)	SemiVolati	PCB		2051243
DeClBiphenyls	Decachlorobiphenyl homologs	PCBs	PCB		
DehydroAbietic	Dehydroabietic Acid	ResinAcid	ResinAcid		
delta_18O	Stable oxygen isotope-ratio	Radionuc	Radionuc		
delta_DH	Stable hydrogen isotope-ratio	Radionuc	Radionuc		
deltaBHC	delta-BHC	Pesticides	Pest-Herb		319868
Demeton	Demeton	Pesticides	Pest-Herb		8065483
Density	Density	PhysChem	Convent		
DF_TEQ_WHO05_0	Dioxin/Furan TEQ using WHO 2005 TEFs ND=0 DL		DioxFuran		
DF_TEQ_WHO05_H	Dioxin/Furan TEQ using WHO 2005 TEFs ND=1/2 DL		DioxFuran		
dHCH	delta-Hexachlorocyclohexane	Pesticides	Pest-Herb	delta-HCH	319-86-8
Diallate	Diallate	Herbicides	Pest-Herb		2303164
Diazinon	Diazinon	Pesticides	Pest-Herb		333415
Dibenzofuran	Dibenzofuran	PAH	PAH		132649
DiBrClMeth	Dibromochloromethane	Volatiles	VOC		124481
DiBrMeth	Dibromomethane	Volatiles	VOC		74953

Dibutylphthalate	Dibutyl phthalate		SVOC		
DiBzAhAnthracene	Dibenzo[a,h]anthracene	PAH	PAH		53703
DiBzThiophene	Dibenzothiophene	SemiVolati	SVOC		132650
Dichlorprop	Dichlorprop	Herbicides	Pest-Herb	2,4-DP	120365
DiClBiphenyls	Dichlorobiphenyl homologs	PCBs	PCB		25512429
DiClDehydroAbiet	Dichlorodehydroabietic Acid	ResinAcid	ResinAcid		
DiClDiFlMeth	Dichlorodifluoromethane	Volatiles	VOC		75718
Dieldrin	Dieldrin	Pesticides	Pest-Herb		60571
DiEtPhthalate	Diethyl phthalate	SemiVolati	SVOC		84662
DiHydroIsopimar	Dihydroisopimaric Acid	ResinAcid	ResinAcid		
DiMePhthalate	Dimethyl phthalate	SemiVolati	SVOC		131113
Dimethoate	Dimethoate	Pesticides	Pest-Herb		60515
DiNButPhthalate	Di-n-butyl phthalate	SemiVolati	SVOC		84742
DiNOctPhthalate	Di-n-octylphthalate	SemiVolati	SVOC		117840
Diphenylamine	Diphenylamine	SemiVolati	SVOC		122394
Dissolved oxygen	Dissolved oxygen	PhysChem	Convent		
DissOxygen	Dissolved oxygen, in overlying water	PhysChem	Convent		
DissOxygen_aer	Dissolved oxygen, triggered aeration	PhysChem	Convent		
DissOxygen_new	Dissolved oxygen, in new overlying water	PhysChem	Convent		
DissOxygen_old	Dissolved oxygen, in old overlying water	PhysChem	Convent		
Disulfoton	Disulfoton	Pesticides	Pest-Herb		298044
DO_pctsat_temp	Dissolved oxygen - % saturation adjusted for temperature		Convent		
DOC	Dissolved Organic Carbon	PhysChem	Convent		
Dysprosium	Dysprosium	Lanthanide	Metal/oids	Dy	7429916
Ecoli	Escherichia coli	Biological	Biological		
ElecConductivity	Electrical Conductivity	PhysChem	Convent		
Endosulfan_I	Endosulfan I	Pesticides	Pest-Herb		959988
Endosulfan_II	Endosulfan II	Pesticides	Pest-Herb		33213659
EndosulfanSulf	Endosulfan sulfate	Pesticides	Pest-Herb		1031078
Endrin	Endrin	Pesticides	Pest-Herb		72208
Endrin aldehyde	Endrin aldehyde	Pesticides	Pest-Herb		7421934
Endrin ketone	Endrin ketone	Pesticides	Pest-Herb		53494705
Enterococci	Enterococci		Biological		
EPH_C10-C19	Extractable Petroleum Hydrocarbons with a chain length from C10 to C19	Petroleum	Petroleum		
EPH_C19-C32	Extractable Petroleum Hydrocarbons with a chain length from C19 to C32	Petroleum	Petroleum		
Epoxy_frac	Epoxy Fraction		PhysChem		
EPTC	Ethyl di-n-prophylthiolcarbamate	Pesticides	Pest-Herb		759944
Erbium	Erbium	Lanthanide	Metal/oids	Er	7440520
Ethalfluralin	Ethalfluralin	Herbicides	Pest-Herb		55283686
Ethion	Ethion	Pesticides	Pest-Herb		563122
Ethoprop	Ethoprop	Pesticides	Pest-Herb		13194484
Ethylbenzene	Ethylbenzene	Volatiles	VOC		100414
EthylMethacrylat	Ethyl methacrylate	SemiVolati	VOC		97632
Europium	Europium	Metals	Metal/oids	Eu	7440531
Famphur	Famphur	Pesticides	Pest-Herb		52857
Fecal_coliform	Fecal coliform	Biological	Biological		
Fecal_strep	Fecal streptococci	Biological	Biological		
Fine_Gravel	Fine Gravel	GrainSize	GrainSize		
Fine_Sand	Fine Sand	GrainSize	GrainSize		E-15005
FineGravel	Fine gravel	GrainSize	GrainSize		
Fines	Fines	GrainSize	GrainSize		

FineSand	Fine sand	GrainSize	GrainSize		E-15005
Fluoranth-d10	Fluoranthene-d10		Radionuc		
Fluoranthene	Fluoranthene	PAH	PAH		206440
Fluorene	Fluorene	PAH	PAH		86737
Fluorene-d10	Fluorene-d10		Radionuc		
Fluoride	Fluoride	PhysChem	Convent		
Fluorine	Fluorine	Halogens	Metal/oids	F	7782414
Fonofos	Fonofos	Pesticides	Pest-Herb		944229
G_alpha_Radio	Gross alpha radioactivity	PhysChem	Radionuc		
G_beta_Radio	Gross beta radioactivity	PhysChem	Radionuc		
Gadolinium	Gadolinium	Lanthanide	Metal/oids	Gd	7440542
Gallium	Gallium	Metals	Metal/oids	Ga	7440553
gammaBHC	gamma-BHC	Pesticides	Pest-Herb	Lindane	58899
gammaChlordane	gamma-Chlordane	Pesticides	Pest-Herb		5566347
Germanium	Germanium	Metals	Metal/oids	Ge	7440564
Gold	Gold	Metals	Metal/oids	Au	7440575
Gravel	Gravel	GrainSize	GrainSize		E-14613
GsGt9phi	TOTAL SEDIMENT PARTICLE SIZE %COARSER THAN 9.	GrainSize	GrainSize		
GsLt.002mm	Particles < 0.002 millimeters	GrainSize	GrainSize		
GsLt.004mm	Particles < 0.004 millimeters	GrainSize	GrainSize		
GsLt.008mm	Particles < 0.008 millimeters	GrainSize	GrainSize		
GsLt.016mm	Particles < 0.016 millimeters	GrainSize	GrainSize		
GsLt.031mm	Particles < 0.031 millimeters	GrainSize	GrainSize		
GsLt.125mm	Particles < 0.125 millimeters	GrainSize	GrainSize		
GsLt.25mm	Particles < 0.25 millimeters	GrainSize	GrainSize		
GsLt.5mm	Particles < 0.5 millimeters	GrainSize	GrainSize		
GsLt1mm	Particles < 1 millimeter	GrainSize	GrainSize		
GsLt2mm	Particles < 2 millimeters	GrainSize	GrainSize		
Guthion	Guthion	Pesticides	Pest-Herb		86500
H_ion	Hydrogen ion	PhysChem	Convent		
H2S	Hydrogen sulfide	PhysChem	Convent		7783064
Hafnium	Hafnium	Metals	Metal/oids	Hf	7440586
Hardness	Hardness		Convent		
Hardness_CaCO3	Hardness as CaCO3	PhysChem	Convent		
HCH_TechGrade	Hexachlorocyclohexane-tech grade	Pesticides	Pest-Herb		608731
Helium	Helium		Metal/oids		
HepClBiphenyls	Heptachlorobiphenyl homologs	PCBs	PCB		28655712
HEPH	Heavy Extractable Petroleum Hydrocarbons	Petroleum	Petroleum		
Heptachlor	Heptachlor	Pesticides	Pest-Herb		76448
HeptachorEpox	Heptachlor epoxide	Pesticides	Pest-Herb		1024573
Hexachloroethane	Hexachloroethane	SemiVolati	SVOC		67721
Hexachlorophene	Hexachlorophene	SemiVolati	SVOC		70304
Hexane	Hexane	Petroleum	VOC		110543
HexClBiphenyls	Hexachlorobiphenyl homologs	PCBs	PCB		26601649
Holmium	Holmium	Lanthanide	Metal/oids	Ho	7440600
HPAH	High molecular weight Polycyclic Aromatic Hydrocarbons	PAH	PAH		
HpClDiBzDioxin	Heptachlorodibenzodioxin (Total)	DioxinFura	DioxFuran		37871004
HpClDiBzFuran	Heptachlorodibenzofuran (Total)	DioxinFura	DioxFuran		38998753
HxClBenzene	Hexachlorobenzene	SemiVolati	SVOC		118741
HxClButadiene	Hexachlorobutadiene	SemiVolati	SVOC		87683
HxClCycPenDiene	Hexachlorocyclopentadiene	SemiVolati	SVOC		77474

HxClDiBzDioxin	Hexachlorodibenzodioxin (Total)	DioxinFura	DioxFuran		34465468
HxClDiBzFuran	Hexachlorodibenzofuran (Total)	DioxinFura	DioxFuran		55684941
HydraulicConduct	Hydraulic Conductivity	PhysChem	Convent		
HydrogenSulfide	Hydrogen sulfide	Volatiles	Convent		7783064
Hydroxide	Alkalinity as Hydroxide		Convent		
Ind123CdPyrene	Indeno[1,2,3-cd]pyrene	PAH	PAH		193395
Indium	Indium	Metals	Metal/oids	In	
Iodine	Iodine		Metal/oids		
Iodomethane	Iodomethane	Volatiles	VOC	Methyl iodide	74884
Iridium	Iridium		Metal/oids		
Iron	Iron	Metals	Metal/oids	Fe	7439896
IsobutylAlcohol	Isobutyl alcohol	Volatiles	VOC	2-Methyl-1-propanol	78831
Isodrin	Isodrin	Pesticides	Pest-Herb		465736
Isophorone	Isophorone	SemiVolati	SVOC		78591
IsopimaricAcid	Isopimaric Acid	ResinAcid	ResinAcid		
Isosafrole	Isosafrole	Pesticides	SVOC		120581
Kepone	Kepone	Pesticides	Pest-Herb		143500
Lanthanum	Lanthanum	Lanthanide	Metal/oids	La	7439910
LauricAcid	Lauric Acid	FatAcid	FatAcid		
Lead	Lead	Metals	Metal/oids	Pb	7439921
LEPH	Light Extractable Petroleum Hydrocarbons	Petroleum	Petroleum		
LignocerAcid	Lignoceric Acid	FatAcid	FatAcid		
LinoleicAcid	Linoleic Acid	FatAcid	FatAcid		
LinolenicAcid	Linolenic Acid	FatAcid	FatAcid		
Linuron	Linuron	Pesticides	Pest-Herb		330552
Lipid	Lipid	PhysChem	Convent		
Lithium	Lithium	Metals	Metal/oids	Li	7439932
LOI	Loss on Ignition	PhysChem	Convent		
LPAH	Low molecular weight Polycyclic Aromatic Hydrocarbons	PAH	PAH		
Lutetium	Lutetium	Metals	Metal/oids	Lu	7439943
Magnesium	Magnesium	Metals	Metal/oids	Mg	7439954
Malathion	Malathion	Pesticides	Pest-Herb		121755
Manganese	Manganese	Metals	Metal/oids	Mn	7439965
MeArsonicAc	Methylarsonic acid	Pesticides	Pest-Herb	MAA; Methane arsonic acid; Methylarsonic acid; Monomethylarsonic acid	124583
Med. Sand	Med. Sand	GrainSize	GrainSize		E-15004
Med_ Gravel	Medium Gravel	GrainSize	GrainSize		
MedGravel	Medium gravel	GrainSize	GrainSize		
MedSand	Medium sand	GrainSize	GrainSize		E-15004
MEK	2-Butanone	Volatiles	VOC		78933
Mercury	Mercury	Metals	Metal/oids	Hg	7439976
Metal_PEC_sum	Sum of consensus PEC ratios for metals, per MacDonald et al. 2000		Metal/oids		
metaXylene	m-Xylene	Volatiles	VOC		108383
MethAcO	Methyl acetate	Volatiles	VOC		79209
MethAcryloNitrit	Methacrylonitrile	Volatiles	VOC		126987
Methapyrilene	Methapyrilene	Volatiles	SVOC		91805
MethCycloHex	Methylcyclohexane	Volatiles	VOC		108872
Methoxychlor	Methoxychlor	Pesticides	Pest-Herb		72435
MethyleneCl	Methylene Chloride	Volatiles	VOC	Dichloromethane	75092
MethylMercury	Methyl mercury	Volatiles	Metal/oids		22967926
MethylMethacryla	Methyl methacrylate	Volatiles	VOC		80626

MethylMethaneSul	Methyl methanesulfonate	Volatiles	SVOC		66273
MethylParathion	Methyl parathion	Pesticides	Pest-Herb		298000
MethylTrithion	Methyl trithion	Pesticides	Pest-Herb		953173
Metolachlor	Metolachlor	Herbicides	Pest-Herb		51218452
Metribuzin	Metribuzin	Herbicides	Pest-Herb		21087649
Mirex	Mirex	Pesticides	Pest-Herb		2385855
Moisture	Moisture	PhysChem	Convent		
Molinate	Molinate	Pesticides	Pest-Herb		2212671
Molybdenum	Molybdenum	Metals	Metal/oids	Mo	7439987
MonoClBiphenyls	Monochlorobiphenyl homologs	PCBs	PCB		27323188
MTBE	Methyl tert-butyl-ether (MTBE)	Volatiles	VOC		1634044
MyristicAcid	Myristic Acid	FatAcid	FatAcid		
NaFractionCat	Sodium fraction of cations in equivalents of major cations	PhysChem	Convent		
Naphthalene	Naphthalene	PAH	PAH		91203
NaPlusK	Sodium plus potassium	PhysChem	Metal/oids		
Napropamide	Napropamide	Herbicides	Pest-Herb		15299997
NeoabieticAcid	Neoabietic Acid	ResinAcid	ResinAcid		
Neodymium	Neodymium	Lanthanide	Metal/oids	Nd	7440008
Nickel	Nickel	Metals	Metal/oids	Ni	7440020
Niobium	Niobium	Metals	Metal/oids	Nb	7440031
Nitrate	Nitrate	Nutrients	Nutrients		
Nitrate_N	Nitrate as nitrogen	Nutrients	Nutrients		
Nitrite	Nitrite	Nutrients	Nutrients		
Nitrite_N	Nitrite as nitrogen	Nutrients	Nutrients		
Nitrite-Nitrate	Nitrate plus nitrite	Nutrients	Nutrients		
Nitrobenzene	Nitrobenzene	SemiVolati	SVOC		98953
Nitrobenzene-d5	Nitrobenzene-d5		Radionuc		
Nitrogen	Nitrogen	PhysChem	Nutrients	N	7727379
Nitrogen_org	Organic nitrogen	Nutrients	Nutrients		
Nitrogen_total	Total Nitrogen	PhysChem	Nutrients	N	7727379
NNitDiMeAmine	N-Nitrosodimethylamine	SemiVolati	SVOC		62759
NNitDiNPropAmine	N-Nitrosodi-n-propylamine	SemiVolati	SVOC		621647
NNitDiPhenAmine	N-Nitrosodiphenylamine	SemiVolati	SVOC		86306
NnitroDibutyl	N-nitroso-dibutylamine	SemiVolati	VOC		924163
NnitroDiethyl	N-nitroso diethylamine	SemiVolati	SVOC		55185
NNitroMorph	N-Nitrosomorpholine	SemiVolati	SVOC		59892
NNitroPiperIdine	N-nitrosopiperidine	SemiVolati	SVOC		100754
NNitroPyroLidine	N-nitrosopyrrolidine	SemiVolati	SVOC		930552
NNitrosMethEthyl	N-Nitrosomethylethylamine	SemiVolati	SVOC		10595956
NonadecAcid	Nonadecanoic acid		FatAcid		646300
NonC_Hardness	Noncarbonate hardness	PhysChem	Convent		
NonClBiphenyls	Nonachlorobiphenyl homologs	PCBs	PCB		53742077
Nonylphenol	Nonylphenol	SemiVolati	SVOC		1044051
NP_Lipid	Non-polar lipids	PhysChem	Convent		
NS_EPA2005TissAs	Unspecified analyte from U.S. EPA 2005 analysis of tissue arsenic species		Metal/oids		
OctClBiphenyls	Octachlorobiphenyl homologs	PCBs	PCB		55722264
OctClDiBzDioxin	Octachlorodibenzodioxin	DioxinFura	DioxFuran		3268879
OctClDiBzFuran	Octachlorodibenzofuran	DioxinFura	DioxFuran		39001020
OleicAcid	Oleic Acid	FatAcid	FatAcid		
OOOTriethylPhosp	O,O,O-Triethylphosphorothioate	Pesticides	Pest-Herb		126681
OrganicMatter	Organic Matter	PhysChem	Convent		

ORP	Oxidation Reduction Potential	PhysChem	PhysChem		
Orthophosphate	Orthophosphate	Nutrients	Nutrients		
Orthophosphate_P	Orthophosphate as phosphorus	Nutrients	Nutrients		
orthoXylene	o-Xylene	Volatiles	VOC		95476
Osmium	Osmium		Metal/oids		
oToluidine	o-Toluidine	Volatiles	SVOC		95534
Oxychlordane	Oxychlordane	Pesticides	Pest-Herb		27304138
Palladium	Palladium		Metal/oids		
PalmiticAcid	Palmitic Acid	FatAcid	FatAcid		
PalusticAcid	Palustic Acid	ResinAcid	ResinAcid		
PalustricAcid	Palustric acid		ResinAcid		1945535
Parathion	Parathion	Pesticides	Pest-Herb		56382
paraXylene	p-Xylene	Volatiles	VOC		106423
Particle_area	Total Particle Area		PhysChem		
ParticleDensity	Particle Density	PhysChem	Convent		
PBDE_coel119+120	Coelution of PBDE 119 and 120	PBDE	PBDE		
PBDE_coel12+13	Coelution of PBDE 12 and 13	PBDE	PBDE		
PBDE_coel138+166	Coelution of PBDE 138 and 166	PBDE	PBDE		
PBDE_coel17+25	Coelution of PBDE 17 and 25	PBDE	PBDE		
PBDE_coel28+33	Coelution of PBDE 28 and 33	PBDE	PBDE		
PBDE_coel8+11	Coelution of PBDE 8 and 11	PBDE	PBDE		
PBDE_cong_1	2-Bromodiphenyl ether	PBDE	PBDE		
PBDE_cong_10	2,6-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_100	2,2',4,4',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_101	2,2',4,5,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_102	2,2',4,5,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_103	2,2',4,5,'6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_104	2,2',4,6,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_105	2,3,3',4,4'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_106	2,3,3',4,5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_107	2,3,3',4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_108	2,3,3',4,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_109	2,3,3',4,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_11	3,3'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_110	2,3,3',4',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_111	2,3,3',5,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_112	2,3,3',5,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_113	2,3,3',5',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_114	2,3,4,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_115	2,3,4,4',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_116	2,3,4,5,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_117	2,3,4',5,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_118	2,3',4,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_119	2,3',4,4',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_12	3,4-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_120	2,3',4,5,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_121	2,3',4,5,'6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_122	2',3,3',4,5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_123	2',3,4,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_124	2',3,4,5,5'-Pentabromodiphenyl ether	PBDE	PBDE		

PBDE_cong_125	2',3,4,5,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_126	3,3',4,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_127	3,3',4,5,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_128	2,2',3,3',4,4'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_129	2,2',3,3',4,5-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_13	3,4'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_130	2,2',3,3',4,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_131	2,2',3,3',4,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_132	2,2',3,3',4,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_133	2,2',3,3',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_134	2,2',3,3',5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_135	2,2',3,3',5,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_136	2,2',3,3',6,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_137	2,2',3,4,4',5-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_138	2,2',3,4,4',5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_139	2,2',3,4,4',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_14	3,5-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_140	2,2',3,4,4',6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_141	2,2',3,4,5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_142	2,2',3,4,5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_143	2,2',3,4,5,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_144	2,2',3,4,5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_145	2,2',3,4,6,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_146	2,2',3,4',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_147	2,2',3,4',5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_148	2,2',3,4',5,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_149	2,2',3,4',5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_15	4,4'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_150	2,2',3,4',6,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_151	2,2',3,5,5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_152	2,2',3,5,6,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_153	2,2',4,4',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_154	2,2',4,4',5,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_155	2,2',4,4',6,6'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_156	2,3,3',4,4',5-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_157	2,3,3',4,4',5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_158	2,3,3',4,4',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_159	2,3,3',4,5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_16	2,2',3-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_160	2,3,3',4,5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_161	2,3,3',4,5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_162	2,3,3',4',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_163	2,3,3',4',5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_164	2,3,3',4',5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_165	2,3,3',5,5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_166	2,3,4,4',5,6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_167	2,3',4,4',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_168	2,3',4,4',5',6-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_169	3,3',4,4',5,5'-Hexabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_17	2,2',4-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_170	2,2',3,3',4,4',5-Heptabromodiphenyl ether	PBDE	PBDE		

PBDE_cong_171	2,2'3,3',4,4',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_172	2,2',3,3',4,5,5'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_173	2,2',3,3',4,5,6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_174	2,2',3,3',4,5,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_175	2,2',3,3',4,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_176	2,2',3,3',4,6,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_177	2,2',3,3',4',5,6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_178	2,2',3,3',5,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_179	2,2',3,3',5,6,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_18	2,2',5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_180	2,2',3,4,4',5,5'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_181	2,2',3,4,4',5,6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_182	2,2',3,4,4',5,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_183	2,2',3,4,4',5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_184	2,2',3,4,4',6,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_185	2,2',3,4,5,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_186	2,2',3,4,5,6,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_187	2,2',3,4',5,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_188	2,2',3,4',5,6,6'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_189	2,3,3',4,4',5,5'-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_19	2,2',6-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_190	2,3,3',4,4',5,6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_191	2,3,3',4,4',5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_192	2,3,3',4,5,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_193	2,3,3',4',5,5',6-Heptabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_194	2,2',3,3',4,4',5,5'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_195	2,2',3,3',4,4',5,6-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_196	2,2',3,3',4,4',5,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_197	2,2',3,3',4,4',6,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_198	2,2',3,3',4,5,5',6-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_199	2,2',3,3',4,5,5',6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_2	3-Bromodiphenyl ether	PBDE	PBDE		
PBDE_cong_20	2,3,3'-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_200	2,2',3,3',4,5,6,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_201	2,2',3,3',4,5',6,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_202	2,2',3,3',5,5',6,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_203	2,2',3,4,4',5,5',6-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_204	2,2',3,4,4',5,6,6'-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_205	2,3,3',4,4',5,5',6-Octabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_206	2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_207	2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_208	2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_209	Decabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_21	2,3,4-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_22	2,3,4'-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_23	2,3,5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_24	2,3,6-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_25	2,3',4-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_26	2,3',5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_27	2,3',6-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_28	2,4,4'-Tribromodiphenyl ether	PBDE	PBDE		

PBDE_cong_29	2,4,5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_3	4-Bromodiphenyl ether	PBDE	PBDE		
PBDE_cong_30	2,4,6-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_31	2,4',5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_32	2,4',6-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_33	2',3,4-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_34	2',3,5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_35	3,3',4-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_36	3,3',5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_37	3,4,4'-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_38	3,4,5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_39	3,4',5-Tribromodiphenyl ether	PBDE	PBDE		
PBDE_cong_4	2,2'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_40	2,2',3,3'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_41	2,2',3,4-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_42	2,2',3,4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_43	2,2',3,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_44	2,2',3,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_45	2,2',3,6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_46	2,2',3,6'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_47	2,2',4,4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_48	2,2',4,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_49	2,2',4,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_5	2,3-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_50	2,2',4,6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_51	2,2',4,6'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_52	2,2',5,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_53	2,2',5,6'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_54	2,2',6,6'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_55	2,3,3',4-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_56	2,3,3',4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_57	2,3,3',5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_58	2,3,3',5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_59	2,3,3',6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_6	2,3'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_60	2,3,4,4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_61	2,3,4,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_62	2,3,4,6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_63	2,3,4',5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_64	2,3,4',6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_65	2,3,5,6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_66	2,3',4,4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_67	2,3',4,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_68	2,3',4,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_69	2,3',4,6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_7	2,4-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_70	2,3',4',5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_71	2,3',4',6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_72	2,3',5,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_73	2,3',5',6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_74	2,4,4',5-Tetrabromodiphenyl ether	PBDE	PBDE		

PBDE_cong_75	2,4,4',6-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_76	2',3,4,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_77	3,3',4,4'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_78	3,3',4,5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_79	3,3',4,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_8	2,4'-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_80	3,3',5,5'-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_81	3,4,4',5-Tetrabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_82	2,2',3,3',4-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_83	2,2',3,3',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_84	2,2',3,3',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_85	2,2',3,4,4'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_86	2,2',3,4,5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_87	2,2',3,4,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_88	2,2',3,4,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_89	2,2',3,4,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_9	2,5-Dibromodiphenyl ether	PBDE	PBDE		
PBDE_cong_90	2,2',3,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_91	2,2',3,4',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_92	2,2',3,5,5'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_93	2,2',3,5,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_94	2,2',3,5,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_95	2,2',3,5',6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_96	2,2',3,6,6'-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_97	2,2',3',4,5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_98	2,2',3',4,6-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong_99	2,2',4,4',5-Pentabromodiphenyl ether	PBDE	PBDE		
PBDE_cong183+176	Coelution of PBDE 183 and 176		PBDE		
PBDE_cong190+171	Coelution of PBDE 190 and 171		PBDE		
PBDE_cong203+200	Coelution of PBDE 200 and 203		PBDE		
PBDEs	Total PBDEs		PBDE		
PCB_111+116+117	Coelution of PCB 111, 116 and 117	PCBs	PCB		
PCB_129+138+163	Coelution of PCB 129, 138 and 163		PCB		
PCB_129+138+2m	Coelution of PCB 129, 138, 160 and 163	PCBs	PCB		
PCB_135+151+154	Coelution of PCB 135, 151 and 154	PCBs	PCB		
PCB_138+163+164	Coelution of PCB 138, 163 and 164	PCBs	PCB		
PCB_20+21+33	Coelution of PCB 20, 21 and 33	PCBs	PCB		
PCB_40+41+71	Coelution of PCB 40, 41 and 71	PCBs	PCB		
PCB_40+71	Coelution of PCB 40 and 71	PCBs	PCB		
PCB_41+64+71+72	Coelution of PCB 41, 64, 71 and 72	PCBs	PCB		
PCB_41+71+72	Coelution of PCB 41, 71 and 72	PCBs	PCB		
PCB_44+47+65	Coelution of PCB 44, 47 and 65	PCBs	PCB		
PCB_47+62+75	Coelution of PCB 47, 62 and 75	PCBs	PCB		
PCB_59+62+75	Coelution of PCB 59, 62 and 75		PCB		
PCB_59+62+78	Coelution of PCB 59, 62 and 78	PCBs	PCB		
PCB_61+70+74+76	Coelution of PCB 61,70,74 and 76		PCB		
PCB_70+74+76	Coelution of PCB 70, 74 and 76	PCBs	PCB		
PCB_85+115+116	Coelution of PCB 85, 115 and 116	PCBs	PCB		
PCB_85+116+117	Coelution of PCB 85, 116 and 117	PCBs	PCB		
PCB_86+87+97+3m	Coelution of PCB 86, 87, 97, 108, 119, and 125	PCBs	PCB		
PCB_87+117+125	Coelution of PCB 87, 117, and 125	PCBs	PCB		

PCB_89+101+113	Coelution of PCB 89, 101 and 113	PCBs	PCB		
PCB_90+101+113	Coelution of PCB 90, 101 and 113	PCBs	PCB		
PCB_93+95+98+100	Coelution of PCB 93, 95, 98, and 100	PCBs	PCB		
PCB_95+98+102	Coelution of PCB 95, 98, and 102	PCBs	PCB		
PCB_cong_1	PCB congener 1	PCBs	PCB		
PCB_cong_10	2,6-Dichlorobiphenyl	PCBs	PCB	PCB 10; 2,6-Dichlorobiphenyl	33146451
PCB_cong_100	2,2',4,4',6-Pentachlorobiphenyl	PCBs	PCB	PCB 100; 2,2',4,4',6-Pentachlorobiphenyl	39485831
PCB_cong_101	2,2',4,5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 101; 2,2',4,5,5'-Pentachlorobiphenyl	37680732
PCB_cong_102	2,2',4,5,6'-Pentachlorobiphenyl	PCBs	PCB	PCB 102; 2,2',4,5,6'-Pentachlorobiphenyl	68194069
PCB_cong_103	2,2',4,5',6-Pentachlorobiphenyl	PCBs	PCB	PCB 103; 2,2',4,5',6-Pentachlorobiphenyl	60145213
PCB_cong_104	2,2',4,6,6'-Pentachlorobiphenyl	PCBs	PCB	PCB 104; 2,2',4,6,6'-Pentachlorobiphenyl	56558168
PCB_cong_105	2,3,3',4,4'-Pentachlorobiphenyl	PCBs	PCB	PCB 105; 2,3,3',4,4'-Pentachlorobiphenyl	32598144
PCB_cong_106	2,3,3',4,5-Pentachlorobiphenyl	PCBs	PCB	PCB 106; 2,3,3',4,5-Pentachlorobiphenyl	70424690
PCB_cong_106+118	Coelution of PCB 106 and 118	PCBs	PCB		
PCB_cong_107	2,3,3',4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 107; 2,3,3',4',5-Pentachlorobiphenyl	70424689
PCB_cong_107+109	Coelution of PCB 107 and 109	PCBs	PCB		
PCB_cong_107+124	Coelution of PCB 107 and 124	PCBs	PCB		
PCB_cong_108	2,3,3',4,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 108; 2,3,3',4,5'-Pentachlorobiphenyl	70362413
PCB_cong_108+112	Coelution of PCB 108 and 112	PCBs	PCB		
PCB_cong_109	2,3,3',4,6-Pentachlorobiphenyl	PCBs	PCB	PCB 109; 2,3,3',4,6-Pentachlorobiphenyl	74472358
PCB_cong_11	3,3'-Dichlorobiphenyl	PCBs	PCB	PCB 11; 3,3'-Dichlorobiphenyl	2050671
PCB_cong_110	2,3,3',4',6-Pentachlorobiphenyl	PCBs	PCB	PCB 110; 2,3,3',4',6-Pentachlorobiphenyl	38380039
PCB_cong_110+115	Coelution of PCB 110 and 115	PCBs	PCB		
PCB_cong_111	2,3,3',5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 111; 2,3,3',5,5'-Pentachlorobiphenyl	39635320
PCB_cong_111+115	Coelution of PCB 111 and 115	PCBs	PCB		
PCB_cong_112	2,3,3',5,6-Pentachlorobiphenyl	PCBs	PCB	PCB 112; 2,3,3',5,6-Pentachlorobiphenyl	74472369
PCB_cong_113	2,3,3',5',6-Pentachlorobiphenyl	PCBs	PCB	PCB 113; 2,3,3',5',6-Pentachlorobiphenyl	68194105
PCB_cong_114	2,3,4,4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 114; 2,3,4,4',5-Pentachlorobiphenyl	74472370
PCB_cong_115	2,3,4,4',6-Pentachlorobiphenyl	PCBs	PCB	PCB 115; 2,3,4,4',6-Pentachlorobiphenyl	74472381
PCB_cong_116	2,3,4,5,6-Pentachlorobiphenyl	PCBs	PCB	PCB 116; 2,3,4,5,6-Pentachlorobiphenyl	18259057
PCB_cong_117	2,3,4',5,6-Pentachlorobiphenyl	PCBs	PCB	PCB 117; 2,3,4',5,6-Pentachlorobiphenyl	68194116
PCB_cong_118	2,3',4,4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 118; 2,3',4,4',5-Pentachlorobiphenyl	31508006
PCB_cong_119	2,3',4,4',6-Pentachlorobiphenyl	PCBs	PCB	PCB 119; 2,3',4,4',6-Pentachlorobiphenyl	56558179
PCB_cong_12	3,4-Dichlorobiphenyl	PCBs	PCB	PCB 12	2974927
PCB_cong_12+13	Coelution of PCB 12 and 13	PCBs	PCB		
PCB_cong_120	2,3',4,5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 120; 2,3',4,5,5'-Pentachlorobiphenyl	68194127
PCB_cong_121	2,3',4,5',6-Pentachlorobiphenyl	PCBs	PCB	PCB 121; 2,3',4,5',6-Pentachlorobiphenyl	56558180
PCB_cong_122	2,3,3',4',5'-Pentachlorobiphenyl	PCBs	PCB	PCB 122; 2,3,3',4',5'-Pentachlorobiphenyl	76842074
PCB_cong_123	2,3',4,4',5'-Pentachlorobiphenyl	PCBs	PCB	PCB 123; 2,3',4,4',5'-Pentachlorobiphenyl	65510443
PCB_cong_124	2,3',4',5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 124; 2,3',4',5,5'-Pentachlorobiphenyl	70424703
PCB_cong_125	2,3',4',5',6-Pentachlorobiphenyl	PCBs	PCB	PCB 125; 2,3',4',5',6-Pentachlorobiphenyl	74472392
PCB_cong_126	3,3',4,4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 126; 3,3',4,4',5-Pentachlorobiphenyl	57465288
PCB_cong_127	3,3',4,5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 127; 3,3',4,5,5'-Pentachlorobiphenyl	39635331
PCB_cong_128	2,2',3,3',4,4'-Hexachlorobiphenyl	PCBs	PCB	PCB 128; 2,2',3,3',4,4'-Hexachlorobiphenyl	38380073
PCB_cong_128+162	Coelution of PCB 128 and 162	PCBs	PCB		
PCB_cong_128+166	Coelution of PCB 128 and 166	PCBs	PCB		
PCB_cong_129	2,2',3,3',4,5-Hexachlorobiphenyl	PCBs	PCB	PCB 129; 2,2',3,3',4,5-Hexachlorobiphenyl	55215184
PCB_cong_13	3,4'-Dichlorobiphenyl	PCBs	PCB	PCB 13; 3,4'-Dichlorobiphenyl	2974905
PCB_cong_130	2,2',3,3',4,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 130; 2,2',3,3',4,5'-Hexachlorobiphenyl	52663668
PCB_cong_131	2,2',3,3',4,6-Hexachlorobiphenyl	PCBs	PCB	PCB 131; 2,2',3,3',4,6-Hexachlorobiphenyl	61798707
PCB_cong_131+133	Coelution of PCB 131 and 133	PCBs	PCB		

PCB_cong_132	2,2',3,3',4,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 132; 2,2',3,3',4,6'-Hexachlorobiphenyl	38380051
PCB_cong_132+146	Coelution of PCB 132 and 146	PCBs	PCB		
PCB_cong_132+161	Coelution of PCB 132 and 161	PCBs	PCB		
PCB_cong_133	2,2',3,3',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 133; 2,2',3,3',5,5'-Hexachlorobiphenyl	35694043
PCB_cong_133+142	Coelution of PCB 133 and 142	PCBs	PCB		
PCB_cong_133+165	Coelution of PCB 133 and 165	PCBs	PCB		
PCB_cong_134	2,2',3,3',5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 134; 2,2',3,3',5,6-Hexachlorobiphenyl	52704708
PCB_cong_134+143	Coelution of PCB 134 and 143	PCBs	PCB		
PCB_cong_135	2,2',3,3',5,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 135; 2,2',3,3',5,6'-Hexachlorobiphenyl	52744135
PCB_cong_135+151	Coelution of PCB 135 and 151		PCB		
PCB_cong_136	2,2',3,3',6,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 136; 2,2',3,3',6,6'-Hexachlorobiphenyl	38411222
PCB_cong_137	2,2',3,4,4',5-Hexachlorobiphenyl	PCBs	PCB	PCB 137; 2,2',3,4,4',5-Hexachlorobiphenyl	35694065
PCB_cong_138	2,2',3,4,4',5'-Hexachlorobiphenyl	PCBs	PCB	PCB 138; 2,2',3,4,4',5'-Hexachlorobiphenyl	35065282
PCB_cong_138+160	Coelution of PCB 138 and 160	PCBs	PCB		
PCB_cong_139	2,2',3,4,4',6-Hexachlorobiphenyl	PCBs	PCB	PCB 139; 2,2',3,4,4',6-Hexachlorobiphenyl	56030569
PCB_cong_139+140	Coelution of PCB 139 and 140	PCBs	PCB		
PCB_cong_139+149	Coelution of PCB 139 and 149	PCBs	PCB		
PCB_cong_14	PCB congener 14	PCBs	PCB		
PCB_cong_140	2,2',3,4,4',6'-Hexachlorobiphenyl	PCBs	PCB	PCB 140; 2,2',3,4,4',6'-Hexachlorobiphenyl	59291644
PCB_cong_141	2,2',3,4,5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 141; 2,2',3,4,5,5'-Hexachlorobiphenyl	52712046
PCB_cong_142	2,2',3,4,5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 142; 2,2',3,4,5,6-Hexachlorobiphenyl	41411614
PCB_cong_143	2,2',3,4,5,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 143; 2,2',3,4,5,6'-Hexachlorobiphenyl	68194150
PCB_cong_144	2,2',3,4,5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 144; 2,2',3,4,5',6-Hexachlorobiphenyl	68194149
PCB_cong_145	2,2',3,4,6,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 145; 2,2',3,4,6,6'-Hexachlorobiphenyl	74472405
PCB_cong_146	2,2',3,4',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 146; 2,2',3,4',5,5'-Hexachlorobiphenyl	51908168
PCB_cong_146+165	Coelution of PCB 146 and 165	PCBs	PCB		
PCB_cong_147	2,2',3,4',5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 147; 2,2',3,4',5,6-Hexachlorobiphenyl	68194138
PCB_cong_147+149	Coelution of PCB 147 and 149	PCBs	PCB		
PCB_cong_148	2,2',3,4',5,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 148; 2,2',3,4',5,6'-Hexachlorobiphenyl	74472416
PCB_cong_149	2,2',3,4',5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 149; 2,2',3,4',5',6-Hexachlorobiphenyl	38380040
PCB_cong_15	PCB congener 15	PCBs	PCB		
PCB_cong_150	2,2',3,4',6,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 150; 2,2',3,4',6,6'-Hexachlorobiphenyl	68194081
PCB_cong_151	2,2',3,5,5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 151; 2,2',3,5,5',6-Hexachlorobiphenyl	52663635
PCB_cong_152	2,2',3,5,6,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 152; 2,2',3,5,6,6'-Hexachlorobiphenyl	68194092
PCB_cong_153	2,2',4,4',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 153; 2,2',4,4',5,5'-Hexachlorobiphenyl	35065271
PCB_cong_153+168	Coelution of PCB 153 and 168	PCBs	PCB		
PCB_cong_154	2,2',4,4',5,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 154; 2,2',4,4',5,6'-Hexachlorobiphenyl	60145224
PCB_cong_155	2,2',4,4',6,6'-Hexachlorobiphenyl	PCBs	PCB	PCB 155; 2,2',4,4',6,6'-Hexachlorobiphenyl	33979032
PCB_cong_156	2,3,3',4,4',5-Hexachlorobiphenyl	PCBs	PCB	PCB 156; 2,3,3',4,4',5-Hexachlorobiphenyl	38380084
PCB_cong_156+157	Coelution of PCB 156 and 157	PCBs	PCB		
PCB_cong_157	2,3,3',4,4',5'-Hexachlorobiphenyl	PCBs	PCB	PCB 157; 2,3,3',4,4',5'-Hexachlorobiphenyl	69782907
PCB_cong_158	2,3,3',4,4',6-Hexachlorobiphenyl	PCBs	PCB	PCB 158; 2,3,3',4,4',6-Hexachlorobiphenyl	74472427
PCB_cong_158+160	Coelution of PCB 158 and 160	PCBs	PCB		
PCB_cong_159	2,3,3',4,5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 159; 2,3,3',4,5,5'-Hexachlorobiphenyl	39635353
PCB_cong_16	2,2',3-Trichlorobiphenyl	PCBs	PCB	PCB 16; 2,2',3-Trichlorobiphenyl	38444789
PCB_cong_16+32	Coelution of PCB 16 and 32	PCBs	PCB		
PCB_cong_160	2,3,3',4,5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 160; 2,3,3',4,5,6-Hexachlorobiphenyl	41411625
PCB_cong_161	2,3,3',4,5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 161; 2,3,3',4,5',6-Hexachlorobiphenyl	74472438
PCB_cong_162	2,3,3',4',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 162; 2,3,3',4',5,5'-Hexachlorobiphenyl	39635342
PCB_cong_163	2,3,3',4',5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 163; 2,3,3',4',5,6-Hexachlorobiphenyl	74472449
PCB_cong_163+164	Coelution of PCB 163 and 164	PCBs	PCB		

PCB_cong_164	2,3,3',4',5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 164; 2,3,3',4',5',6-Hexachlorobiphenyl	74472450
PCB_cong_165	2,3,3',5,5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 165; 2,3,3',5,5',6-Hexachlorobiphenyl	74472461
PCB_cong_166	2,3,4,4',5,6-Hexachlorobiphenyl	PCBs	PCB	PCB 166; 2,3,4,4',5,6-Hexachlorobiphenyl	41411636
PCB_cong_167	2,3',4,4',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 167; 2,3',4,4',5,5'-Hexachlorobiphenyl	52663726
PCB_cong_168	2,3',4,4',5',6-Hexachlorobiphenyl	PCBs	PCB	PCB 168; 2,3',4,4',5',6-Hexachlorobiphenyl	59291655
PCB_cong_169	3,3',4,4',5,5'-Hexachlorobiphenyl	PCBs	PCB	PCB 169; 3,3',4,4',5,5'-Hexachlorobiphenyl	32774166
PCB_cong_17	2,2',4-Trichlorobiphenyl	PCBs	PCB	PCB 17; 2,2',4-Trichlorobiphenyl	37680663
PCB_cong_170	2,2',3,3',4,4',5-Heptachlorobiphenyl	PCBs	PCB	PCB 170; 2,2',3,3',4,4',5-Heptachlorobiphenyl	35065306
PCB_cong_170+190	Coelution of PCB 170 and 190	PCBs	PCB		
PCB_cong_171	2,2',3,3',4,4',6-Heptachlorobiphenyl	PCBs	PCB	PCB 171; 2,2',3,3',4,4',6-Heptachlorobiphenyl	52663715
PCB_cong_171+173	Coelution of PCB 171 and 173	PCBs	PCB		
PCB_cong_172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	PCBs	PCB	PCB 172; 2,2',3,3',4,5,5'-Heptachlorobiphenyl	52663748
PCB_cong_172+192	Coelution of PCB 172 and 192	PCBs	PCB		
PCB_cong_173	2,2',3,3',4,5,6-Heptachlorobiphenyl	PCBs	PCB	PCB 173; 2,2',3,3',4,5,6-Heptachlorobiphenyl	68194161
PCB_cong_174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 174; 2,2',3,3',4,5,6'-Heptachlorobiphenyl	38411255
PCB_cong_175	2,2',3,3',4,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 175; 2,2',3,3',4,5',6-Heptachlorobiphenyl	40186707
PCB_cong_176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 176; 2,2',3,3',4,6,6'-Heptachlorobiphenyl	52663657
PCB_cong_177	2,2',3,3',4,5',6'-Heptachlorobiphenyl	PCBs	PCB	PCB 177; 2,2',3,3',4,5',6'-Heptachlorobiphenyl	52663704
PCB_cong_178	2,2',3,3',5,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 178; 2,2',3,3',5,5',6-Heptachlorobiphenyl	52663679
PCB_cong_179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 179; 2,2',3,3',5,6,6'-Heptachlorobiphenyl	52663646
PCB_cong_18	2,2',5-Trichlorobiphenyl	PCBs	PCB	PCB 18; 2,2',5-Trichlorobiphenyl	37680652
PCB_cong_18+30	Coelution of PCB 18 and 30	PCBs	PCB		
PCB_cong_180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	PCBs	PCB	PCB 180; 2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065293
PCB_cong_180+193	Coelution of PCB 180 and 193	PCBs	PCB		
PCB_cong_181	2,2',3,4,4',5,6-Heptachlorobiphenyl	PCBs	PCB	PCB 181; 2,2',3,4,4',5,6-Heptachlorobiphenyl	74472472
PCB_cong_181+193	Coelution of PCB 181 and 193	PCBs	PCB		
PCB_cong_182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 182; 2,2',3,4,4',5,6'-Heptachlorobiphenyl	60145235
PCB_cong_182+187	Coelution of PCB 182 and 187	PCBs	PCB		
PCB_cong_183	2,2',3,4,4',5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 183; 2,2',3,4,4',5',6-Heptachlorobiphenyl	52663691
PCB_cong_183+185	Coelution of PCB 183 and 185	PCBs	PCB		
PCB_cong_184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 184; 2,2',3,4,4',6,6'-Heptachlorobiphenyl	74472483
PCB_cong_185	2,2',3,4,5,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 185; 2,2',3,4,5,5',6-Heptachlorobiphenyl	52712057
PCB_cong_186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 186; 2,2',3,4,5,6,6'-Heptachlorobiphenyl	74472494
PCB_cong_187	2,2',3,4',5,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 187; 2,2',3,4',5,5',6-Heptachlorobiphenyl	52663680
PCB_cong_188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	PCBs	PCB	PCB 188; 2,2',3,4',5,6,6'-Heptachlorobiphenyl	74487857
PCB_cong_189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	PCBs	PCB	PCB 189; 2,3,3',4,4',5,5'-Heptachlorobiphenyl	39635319
PCB_cong_19	2,2',6-Trichlorobiphenyl	PCBs	PCB	PCB 19; 2,2',6-Trichlorobiphenyl	38444734
PCB_cong_190	2,3,3',4,4',5,6-Heptachlorobiphenyl	PCBs	PCB	PCB 190; 2,3,3',4,4',5,6-Heptachlorobiphenyl	41411647
PCB_cong_191	2,3,3',4,4',5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 191; 2,3,3',4,4',5',6-Heptachlorobiphenyl	74472507
PCB_cong_192	2,3,3',4,5,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 192; 2,3,3',4,5,5',6-Heptachlorobiphenyl	74472518
PCB_cong_193	2,3,3',4',5,5',6-Heptachlorobiphenyl	PCBs	PCB	PCB 193; 2,3,3',4',5,5',6-Heptachlorobiphenyl	69782918
PCB_cong_194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCBs	PCB	2,2',3,3',4,4',5,5'-octachlorobiphenyl; PCB 194;	35694087
PCB_cong_195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	PCBs	PCB	PCB 195; 2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663782
PCB_cong_196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	PCBs	PCB	PCB 196; 2,2',3,3',4,4',5,6'-Octachlorobiphenyl	42740501
PCB_cong_196+203	Coelution of PCB 196 and 203	PCBs	PCB		
PCB_cong_197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	PCBs	PCB	PCB 197; 2,2',3,3',4,4',6,6'-Octachlorobiphenyl	33091177
PCB_cong_197+200	Coelution of PCB 197 and 200	PCBs	PCB		
PCB_cong_198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	PCBs	PCB	PCB 198; 2,2',3,3',4,5,5',6-Octachlorobiphenyl	68194172
PCB_cong_198+199	Coelution of PCB 198 and 199	PCBs	PCB		
PCB_cong_199	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCBs	PCB	PCB 199; 2,2',3,3',4,5,5',6'-Octachlorobiphenyl	52663759
PCB_cong_2	PCB congener 2	PCBs	PCB		

PCB_cong_20	2,3,3'-Trichlorobiphenyl	PCBs	PCB	PCB 20; 2,3,3'-Trichlorobiphenyl	38444847
PCB_cong_20+28	Coelution of PCB 20 and 28	PCBs	PCB		
PCB_cong_200	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	PCBs	PCB	PCB 200; 2,2',3,3',4,5,6,6'-Octachlorobiphenyl	52663737
PCB_cong_201	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCBs	PCB	PCB 201; 2,2',3,3',4,5',6,6'-Octachlorobiphenyl	40186718
PCB_cong_202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	PCBs	PCB	PCB 202; 2,2',3,3',5,5',6,6'-Octachlorobiphenyl	2136994
PCB_cong_203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	PCBs	PCB	PCB 203; 2,2',3,4,4',5,5',6-Octachlorobiphenyl	52663760
PCB_cong_204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	PCBs	PCB	PCB 204; 2,2',3,4,4',5,6,6'-Octachlorobiphenyl	74472529
PCB_cong_205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	PCBs	PCB	PCB 205; 2,3,3',4,4',5,5',6-Octachlorobiphenyl	74472530
PCB_cong_206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	PCBs	PCB	2,2',3,3',4,4',5,5',6-nonachlorobiphenyl; PCB 206;	40186729
PCB_cong_207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	PCBs	PCB	PCB 207; 2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	52663793
PCB_cong_208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	PCBs	PCB	PCB 208; 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	52663771
PCB_cong_21	2,3,4-Trichlorobiphenyl	PCBs	PCB	PCB 21; 2,3,4-Trichlorobiphenyl	55702460
PCB_cong_21+33	Coelution of PCB 21 and 33	PCBs	PCB		
PCB_cong_22	2,3,4'-Trichlorobiphenyl	PCBs	PCB	PCB 22; 2,3,4'-Trichlorobiphenyl	38444858
PCB_cong_23	2,3,5-Trichlorobiphenyl	PCBs	PCB	PCB 23; 2,3,5-Trichlorobiphenyl	55720440
PCB_cong_23+34	Coelution of PCB 23 and 34	PCBs	PCB		
PCB_cong_24	2,3,6-Trichlorobiphenyl	PCBs	PCB	PCB 24; 2,3,6-Trichlorobiphenyl	55702459
PCB_cong_24+27	Coelution of PCB 24 and 27	PCBs	PCB		
PCB_cong_25	2,3',4-Trichlorobiphenyl	PCBs	PCB	PCB 25; 2,3',4-Trichlorobiphenyl	55712373
PCB_cong_26	2,3',5-Trichlorobiphenyl	PCBs	PCB	PCB 26; 2,3',5-Trichlorobiphenyl	38444814
PCB_cong_26+29	Coelution of PCB 26 and 29	PCBs	PCB		
PCB_cong_27	2,3',6-Trichlorobiphenyl	PCBs	PCB	PCB 27; 2,3',6-Trichlorobiphenyl	38444767
PCB_cong_28	2,4,4'-Trichlorobiphenyl	PCBs	PCB	PCB 28; 2,4,4'-Trichlorobiphenyl	7012375
PCB_cong_28+31	Coelution of PCB 28 and 31	PCBs	PCB		
PCB_cong_29	2,4,5-Trichlorobiphenyl	PCBs	PCB	PCB 29; 2,4,5-Trichlorobiphenyl	15862074
PCB_cong_3	PCB congener 3	PCBs	PCB		
PCB_cong_30	2,4,6-Trichlorobiphenyl	PCBs	PCB	PCB 30; 2,4,6-Trichlorobiphenyl	35693926
PCB_cong_31	2,4',5-Trichlorobiphenyl	PCBs	PCB	PCB 31; 2,4',5-Trichlorobiphenyl	16606023
PCB_cong_32	2,4',6-Trichlorobiphenyl	PCBs	PCB	PCB 32; 2,4',6-Trichlorobiphenyl	38444778
PCB_cong_33	2,3',4'-Trichlorobiphenyl	PCBs	PCB	PCB 33; 2,3',4'-Trichlorobiphenyl	38444869
PCB_cong_34	2,3',5'-Trichlorobiphenyl	PCBs	PCB	PCB 34; 2,3',5'-Trichlorobiphenyl	37680685
PCB_cong_35	3,3',4-Trichlorobiphenyl	PCBs	PCB	PCB 35; 3,3',4-Trichlorobiphenyl	37680696
PCB_cong_36	3,3',5-Trichlorobiphenyl	PCBs	PCB	PCB 36; 3,3',5-Trichlorobiphenyl	38444870
PCB_cong_37	3,4,4'-Trichlorobiphenyl	PCBs	PCB	PCB 37; 3,4,4'-Trichlorobiphenyl	38444905
PCB_cong_38	3,4,5-Trichlorobiphenyl	PCBs	PCB	PCB 38; 3,4,5-Trichlorobiphenyl	53555661
PCB_cong_39	3,4',5-Trichlorobiphenyl	PCBs	PCB	PCB 39; 3,4',5-Trichlorobiphenyl	38444881
PCB_cong_4	2,2'-Dichlorobiphenyl	PCBs	PCB	PCB 4; 2,2'-Dichlorobiphenyl	13029088
PCB_cong_4+10	Coelution of PCB 4 and 10	PCBs	PCB		
PCB_cong_40	2,2',3,3'-Tetrachlorobiphenyl	PCBs	PCB	PCB 40; 2,2',3,3'-Tetrachlorobiphenyl	38444938
PCB_cong_40+71	Coelution of PCB 40 and 71		PCB		
PCB_cong_41	2,2',3,4-Tetrachlorobiphenyl	PCBs	PCB	PCB 41; 2,2',3,4-Tetrachlorobiphenyl	52663599
PCB_cong_42	2,2',3,4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 42; 2,2',3,4'-Tetrachlorobiphenyl	36559225
PCB_cong_42+59	Coelution of PCB 42 and 59	PCBs	PCB		
PCB_cong_43	2,2',3,5-Tetrachlorobiphenyl	PCBs	PCB	PCB 43; 2,2',3,5-Tetrachlorobiphenyl	70362468
PCB_cong_43+49	Coelution of PCB 43 and 49	PCBs	PCB		
PCB_cong_44	2,2',3,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 44; 2,2',3,5'-Tetrachlorobiphenyl	41464395
PCB_cong_45	2,2',3,6-Tetrachlorobiphenyl	PCBs	PCB	PCB 45; 2,2',3,6-Tetrachlorobiphenyl	70362457
PCB_cong_45+51	Coelution of PCB 45 and 51	PCBs	PCB		
PCB_cong_46	2,2',3,6'-Tetrachlorobiphenyl	PCBs	PCB	PCB 46; 2,2',3,6'-Tetrachlorobiphenyl	41464475
PCB_cong_47	2,2',4,4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 47; 2,2',4,4'-Tetrachlorobiphenyl	2437798
PCB_cong_48	2,2',4,5-Tetrachlorobiphenyl	PCBs	PCB	PCB 48; 2,2',4,5-Tetrachlorobiphenyl	70362479

PCB_cong_48+75	Coelution of PCB 48 and 75	PCBs	PCB		
PCB_cong_49	2,2',4,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 49; 2,2',4,5'-Tetrachlorobiphenyl	41464408
PCB_cong_49+61	Coelution of PCB 49 and 61	PCBs	PCB		
PCB_cong_49+69	Coelution of PCB 49 and 69		PCB		
PCB_cong_5	2,3-Dichlorobiphenyl	PCBs	PCB	PCB 5; 2,3-Dichlorobiphenyl	16605917
PCB_cong_5+8	Coelution of PCB 5 and 8	PCBs	PCB		
PCB_cong_50	2,2',4,6-Tetrachlorobiphenyl	PCBs	PCB	PCB 50; 2,2',4,6-Tetrachlorobiphenyl	62796650
PCB_cong_50+53	Coelution of PCB 50 and 53	PCBs	PCB		
PCB_cong_51	2,2',4,6'-Tetrachlorobiphenyl	PCBs	PCB	PCB 51; 2,2',4,6'-Tetrachlorobiphenyl	68194047
PCB_cong_52	2,2',5,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 52; 2,2',5,5'-Tetrachlorobiphenyl	35693993
PCB_cong_52+69	Coelution of PCB 52 and 69	PCBs	PCB		
PCB_cong_53	2,2',5,6'-Tetrachlorobiphenyl	PCBs	PCB	PCB 53; 2,2',5,6'-Tetrachlorobiphenyl	41464419
PCB_cong_54	2,2',6,6'-Tetrachlorobiphenyl	PCBs	PCB	PCB 54; 2,2',6,6'-Tetrachlorobiphenyl	15968055
PCB_cong_55	2,3,3',4-Tetrachlorobiphenyl	PCBs	PCB	PCB 55; 2,3,3',4-Tetrachlorobiphenyl	74338242
PCB_cong_56	2,3,3',4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 56; 2,3,3',4'-Tetrachlorobiphenyl	41464431
PCB_cong_56+60	Coelution of PCB 56 and 60	PCBs	PCB		
PCB_cong_57	2,3,3',5-Tetrachlorobiphenyl	PCBs	PCB	PCB 57; 2,3,3',5-Tetrachlorobiphenyl	70424678
PCB_cong_58	2,3,3',5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 58; 2,3,3',5'-Tetrachlorobiphenyl	41464497
PCB_cong_59	2,3,3',6-Tetrachlorobiphenyl	PCBs	PCB	PCB 59; 2,3,3',6-Tetrachlorobiphenyl	74472336
PCB_cong_6	2,3'-Dichlorobiphenyl	PCBs	PCB	PCB 6; 2,3'-Dichlorobiphenyl	25569806
PCB_cong_60	2,3,4,4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 60; 2,3,4,4'-Tetrachlorobiphenyl	33025411
PCB_cong_61	2,3,4,5-Tetrachlorobiphenyl	PCBs	PCB	PCB 61; 2,3,4,5-Tetrachlorobiphenyl	33284536
PCB_cong_61+70	Coelution of PCB 61 and 70	PCBs	PCB		
PCB_cong_62	2,3,4,6-Tetrachlorobiphenyl	PCBs	PCB	PCB 62; 2,3,4,6-Tetrachlorobiphenyl	54230227
PCB_cong_63	2,3,4',5-Tetrachlorobiphenyl	PCBs	PCB	PCB 63; 2,3,4',5-Tetrachlorobiphenyl	74472347
PCB_cong_64	2,3,4',6-Tetrachlorobiphenyl	PCBs	PCB	PCB 64; 2,3,4',6-Tetrachlorobiphenyl	52663588
PCB_cong_64+68	Coelution of PCB 64 and 68	PCBs	PCB		
PCB_cong_65	2,3,5,6-Tetrachlorobiphenyl	PCBs	PCB	PCB 65; 2,3,5,6-Tetrachlorobiphenyl	33284547
PCB_cong_66	2,3',4,4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 66; 2,3',4,4'-Tetrachlorobiphenyl	32598100
PCB_cong_66+76	Coelution of PCB 66 and 76	PCBs	PCB		
PCB_cong_66+80	Coelution of PCB 66 and 80	PCBs	PCB		
PCB_cong_67	2,3',4,5-Tetrachlorobiphenyl	PCBs	PCB	PCB 67; 2,3',4,5-Tetrachlorobiphenyl	73575538
PCB_cong_68	2,3',4,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 68; 2,3',4,5'-Tetrachlorobiphenyl	73575527
PCB_cong_69	2,3',4,6-Tetrachlorobiphenyl	PCBs	PCB	PCB 69; 2,3',4,6-Tetrachlorobiphenyl	60233241
PCB_cong_69+73	Coelution of PCB 69 and 73	PCBs	PCB		
PCB_cong_7	2,4-Dichlorobiphenyl	PCBs	PCB	PCB 7; 2,4-Dichlorobiphenyl	33284503
PCB_cong_7+9	Coelution of PCB 7 and 9	PCBs	PCB		
PCB_cong_70	2,3',4',5-Tetrachlorobiphenyl	PCBs	PCB	PCB 70; 2,3',4',5-Tetrachlorobiphenyl	32598111
PCB_cong_71	2,3',4',6-Tetrachlorobiphenyl	PCBs	PCB	PCB 71; 2,3',4',6-Tetrachlorobiphenyl	41464464
PCB_cong_72	2,3',5,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 72; 2,3',5,5'-Tetrachlorobiphenyl	41464420
PCB_cong_73	2,3',5',6-Tetrachlorobiphenyl	PCBs	PCB	PCB 73; 2,3',5',6-Tetrachlorobiphenyl	74338231
PCB_cong_74	2,4,4',5-Tetrachlorobiphenyl	PCBs	PCB	PCB 74; 2,4,4',5-Tetrachlorobiphenyl	32690930
PCB_cong_75	2,4,4',6-Tetrachlorobiphenyl	PCBs	PCB	PCB 75; 2,4,4',6-Tetrachlorobiphenyl	32598122
PCB_cong_76	2,3',4',5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 76; 2,3',4',5'-Tetrachlorobiphenyl	70362480
PCB_cong_77	3,3',4,4'-Tetrachlorobiphenyl	PCBs	PCB	PCB 77; 3,3',4,4'-Tetrachlorobiphenyl	32598133
PCB_cong_78	3,3',4,5-Tetrachlorobiphenyl	PCBs	PCB	PCB 78; 3,3',4,5-Tetrachlorobiphenyl	70362491
PCB_cong_79	3,3',4,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 79; 3,3',4,5'-Tetrachlorobiphenyl	41464486
PCB_cong_8	2,4'-Dichlorobiphenyl	PCBs	PCB	PCB 8; 2,4'-Dichlorobiphenyl	34883437
PCB_cong_80	3,3',5,5'-Tetrachlorobiphenyl	PCBs	PCB	PCB 80; 3,3',5,5'-Tetrachlorobiphenyl	33284525
PCB_cong_81	3,4,4',5-Tetrachlorobiphenyl	PCBs	PCB	PCB 81; 3,4,4',5-Tetrachlorobiphenyl	70362504
PCB_cong_82	2,2',3,3',4-Pentachlorobiphenyl	PCBs	PCB	PCB 82; 2,2',3,3',4-Pentachlorobiphenyl	52663624

PCB_cong_83	2,2',3,3',5-Pentachlorobiphenyl	PCBs	PCB	PCB 83; 2,2',3,3',5-Pentachlorobiphenyl	60145202
PCB_cong_83+109	Coelution of PCB 83 and 109	PCBs	PCB		
PCB_cong_83+99	Coelution of PCB 83 and 99	PCBs	PCB		
PCB_cong_84	2,2',3,3',6-Pentachlorobiphenyl	PCBs	PCB	PCB 84; 2,2',3,3',6-Pentachlorobiphenyl	52663602
PCB_cong_84+92	Coelution of PCB 84 and 92	PCBs	PCB		
PCB_cong_85	2,2',3,4,4'-Pentachlorobiphenyl	PCBs	PCB	PCB 85; 2,2',3,4,4'-Pentachlorobiphenyl	65510454
PCB_cong_85+116	Coelution of PCB 85 and 116	PCBs	PCB		
PCB_cong_85+124	Coelution of PCB 85 and 124	PCBs	PCB		
PCB_cong_86	2,2',3,4,5-Pentachlorobiphenyl	PCBs	PCB	PCB 86; 2,2',3,4,5-Pentachlorobiphenyl	55312691
PCB_cong_87	2,2',3,4,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 87; 2,2',3,4,5'-Pentachlorobiphenyl	38380028
PCB_cong_88	2,2',3,4,6-Pentachlorobiphenyl	PCBs	PCB	PCB 88; 2,2',3,4,6-Pentachlorobiphenyl	55215173
PCB_cong_88+91	Coelution of PCB 88 and 91	PCBs	PCB		
PCB_cong_89	2,2',3,4,6'-Pentachlorobiphenyl	PCBs	PCB	PCB 89; 2,2',3,4,6'-Pentachlorobiphenyl	73575572
PCB_cong_9	2,5-Dichlorobiphenyl	PCBs	PCB	PCB 9; 2,5-Dichlorobiphenyl	34883391
PCB_cong_90	2,2',3,4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 90; 2,2',3,4',5-Pentachlorobiphenyl	68194070
PCB_cong_90+101	Coelution of PCB 90 and 101	PCBs	PCB		
PCB_cong_91	2,2',3,4',6-Pentachlorobiphenyl	PCBs	PCB	PCB 91; 2,2',3,4',6-Pentachlorobiphenyl	68194058
PCB_cong_92	2,2',3,5,5'-Pentachlorobiphenyl	PCBs	PCB	PCB 92; 2,2',3,5,5'-Pentachlorobiphenyl	52663613
PCB_cong_93	2,2',3,5,6-Pentachlorobiphenyl	PCBs	PCB	PCB 93; 2,2',3,5,6-Pentachlorobiphenyl	73575561
PCB_cong_93+100	Coelution of PCB 93 and 100		PCB		
PCB_cong_94	2,2',3,5,6'-Pentachlorobiphenyl	PCBs	PCB	PCB 94; 2,2',3,5,6'-Pentachlorobiphenyl	73575550
PCB_cong_95	2,2',3,5',6-Pentachlorobiphenyl	PCBs	PCB	PCB 95; 2,2',3,5',6-Pentachlorobiphenyl	38379996
PCB_cong_95+121	Coelution of PCB 95 and 121	PCBs	PCB		
PCB_cong_96	2,2',3,6,6'-Pentachlorobiphenyl	PCBs	PCB	PCB 96; 2,2',3,6,6'-Pentachlorobiphenyl	73575549
PCB_cong_97	2,2',3,4',5'-Pentachlorobiphenyl	PCBs	PCB	PCB 97; 2,2',3,4',5'-Pentachlorobiphenyl	41464511
PCB_cong_97+125	Coelution of PCB 97 and 125	PCBs	PCB		
PCB_cong_98	2,2',3,4',6'-Pentachlorobiphenyl	PCBs	PCB	PCB 98; 2,2',3,4',6'-Pentachlorobiphenyl	60233252
PCB_cong_98+102	Coelution of PCB 98 and 102				
PCB_cong_99	2,2',4,4',5-Pentachlorobiphenyl	PCBs	PCB	PCB 99; 2,2',4,4',5-Pentachlorobiphenyl	38380017
PCB_cong_TEQ	PCB congener TEQ (U.S. EPA 2005 tissue data; TEFs unspecified)		PCB		
PCB_TEQ_WHO05_0	PCB TEQ using WHO 2005 TEFs ND=0 DL		PCB		
PCB_TEQ_WHO05_H	PCB TEQ using WHO 2005 TEFs ND=1/2 DL		PCB		
PCB_TEQ_WHO06	PCB TEQ using WHO 2006 TEFs		PCB		
PCB93+100	Coelution of PCB 93 and 100	PCBs	PCB		
PCB93+98+100+102	Coelution of PCB 93, 98, 100 and 102		PCB		
PCB98+102	Coelution of PCB 98 and 102	PCBs	PCB		
pDimethAminoBenz	p-Dimethylaminoazobenzene	SemiVolati	SVOC		60117
Pebulate	Pebulate	Herbicides	Pest-Herb		1114712
PenClDiBzDioxin	Pentachlorodibenzodioxin (Total)	DioxinFura	DioxFuran		36088229
PenClDiBzFuran	Pentachlorodibenzofuran (Total)	DioxinFura	DioxFuran		30402154
PenClPhenol	Pentachlorophenol	SemiVolati	SVOC		87865
Pendimethalin	Pendimethalin	Herbicides	Pest-Herb		40487421
PentChlorBenzene	Pentachlorobenzene	SemiVolati	SVOC		608935
PentChlorEthane	Pentachloroethane	SemiVolati	SVOC		76017
PentChlorNitroBe	Pentachloronitrobenzene	SemiVolati	Pest-Herb		82688
PentClBiphenyls	Pentachlorobiphenyl homologs	PCBs	PCB		25429292
Percent<63um	Weight percent smaller than 63 microns	PhysChem	GrainSize		
PeriphChlorophR	Biomass/chlorophyll ratio	Biological	Biological		
Perylene	Perylene	PAH	PAH		198550
pH	pH	PhysChem	Convent		
PhenAcAcid	Phenylacetic acid		SVOC	PAA; 2-phenylacetic acid	103822

Phenacetin	Phenacetin	SemiVolati	SVOC		62442
Phenanthrene	Phenanthrene	PAH	PAH		85018
Phenol	Phenol	SemiVolati	SVOC		108952
Phenol-d6	Phenol-d6		Radionuc		
Pheophytin	Pheophytin		Biological		
Phorate	Phorate	Pesticides	Pest-Herb		298022
Phosphate	Phosphate	Nutrients	Nutrients		
Phosphorus	Phosphorus	Nutrients	Nutrients	P	7723140
Phosphorus_PO4	Phosphorus as phosphate	Nutrients	Nutrients		
Phytoplankton	Phytoplankton	Biological	Biological		
PimaricAcid	Pimaric Acid	ResinAcid	ResinAcid		
Platinum	Platinum		Metal/oids		
PO4	PO4	Nutrients	Nutrients		
Potassium	Potassium	Metals	Metal/oids	K	7440097
Potassium-40	Potassium-40	PhysChem	Metal/oids		
Praseodymium	Praseodymium	Lanthanide	Metal/oids	Pr	7440100
PrClCycPenDiene	Perchlorocyclopentadiene	SemiVolati	SVOC		77474
Precipitation	Precipitation		Samp Info		
Prometon	Prometon	Herbicides	Pest-Herb		1610180
Pronamide	Pronamide	SemiVolati	Pest-Herb		23950585
Propachlor	Propachlor	Pesticides	Pest-Herb		1918167
Propanil	Propanil	Pesticides	Pest-Herb		709988
Propargite	Propargite	Pesticides	Pest-Herb		2312358
Propionitrile	Propionitrile	Volatiles	VOC		107120
Propyzamide	Propyzamide	Pesticides	Pest-Herb		23950585
p-Terphenyl-d14	p-Terphenyl-d14		Radionuc		
Pyrene	Pyrene	PAH	PAH		129000
Pyridine	Pyridine	SemiVolati	VOC		110861
Ra_226	Radium-226	Metals	Radionuc	Ra	13982633
Ra_Alpha	Alpha-emitting isotopes of radium	PhysChem	Radionuc		
Residue	Residue	PhysChem	Convent		
Residue_ac_ft	Residue, tons per acre-foot	PhysChem	Convent		
Residue_evapour	Residue on evaporation	PhysChem	Convent	TS	
Residue_filt	Dissolved Residue, total filterable	PhysChem	Convent	TDS	
Residue_filt_fix	Residue, fixed filterable (weighed after ignition of filterable residue)	PhysChem	Convent	FDS	
Residue_nonf_fix	Residue, fixed nonfilterable (weighed after ignition of non-filterable residue)	PhysChem	Convent	FSS	
Residue_nonfilt	Residue, total nonfilterable	PhysChem	Convent	TSS	
Residue_sum	Residue, sum of constituents	PhysChem	Convent		
RETENE	Retene		PAH		
RH	Relative humidity		Samp Info		
Rhenium	Rhenium		Metal/oids		
Rhodium	Rhodium		Metal/oids		
Rubidium	Rubidium	Metals	Metal/oids	Rb	7440177
Ruthenium	Ruthenium		Metal/oids		
Safrole	Safrole	SemiVolati	SVOC		94597
Salinity	Salinity		Convent		
Samarium	Samarium	Metals	Metal/oids	Sm	7440199
Sample location	Sample location		Samp Info		
Sample purpose	Sample purpose		Samp Info		
Sample volume	Sample volume	PhysChem	Samp Info		
Sample weight	Sample weight	PhysChem	Samp Info		

SampleMass	Sample Mass	PhysChem	Samp Info		
Sampler type	Sampler type		Samp Info		
Sampling depth	Sampling depth		Samp Info		
Sampling method	Sampling method		Samp Info		
Sand	Sand	GrainSize	GrainSize		
SandaraPimaric	Sandaracopimaric Acid	ResinAcid	ResinAcid		
Scandium	Scandium	Metals	Metal/oids	Sc	7440202
Selenium	Selenium	Metals	Metal/oids	Se	7782492
SEM	Total SEM		Metal/oids		
Silica	Silica	PhysChem	Metal/oids		7631869
Silicon	Silicon	PhysChem	Metal/oids	Si	7440213
Silt	Silt	GrainSize	GrainSize		E-14615
Silt_Coarse	Silt, coarse	GrainSize	GrainSize		
Silt_Fine	Silt, fine	GrainSize	GrainSize		
Silver	Silver	Metals	Metal/oids	Ag	7440224
Silvex	Silvex	Herbicides	Pest-Herb		93721
Simazine	Simazine	Herbicides	Pest-Herb		122349
Slag_area	Slag Area		PhysChem		
Slag_pct	% Slag		PhysChem		
Sodium	Sodium	Metals	Metal/oids		7440235
Solids	Solids	PhysChem	Convent		
SpConductance	Specific conductance	PhysChem	Convent		
SS_flow_thru	Suspended sediment concentration, flow-through centrifuge	PhysChem	Convent		
StearicAcid	Stearic Acid	FatAcid	FatAcid		
Strontium	Strontium	Metals	Metal/oids	Sr	7440246
Styrene	Styrene	Volatiles	VOC		100425
Sulfate	Sulfate	PhysChem	Convent		
Sulfate-sulfur	Sulfate-sulfur (SO4-S)	PhysChem	Convent		
Sulfide	Sulfide	PhysChem	Convent		18496258
Sulfide-AVS	Sulfide-AVS	PhysChem	Convent		18496258
Sulfotepp	Sulfotep	Pesticides	Pest-Herb	Tetraethyl dithiopyrophosphate	3689245
Sulfur	Sulfur	PhysChem	Convent	S	63705055
SuspSedConc	Suspended sediment concentration	PhysChem	Convent		
SuspSedLoad	Suspended sediment load	PhysChem	Convent		
Tantalum	Tantalum	Metals	Metal/oids	Ta	7440257
TDS	Total dissolved solids	PhysChem	Convent	TDS	
Tebuthiuron	Tebuthiuron	Pesticides	Pest-Herb		34014181
Tellurium	Tellurium	Metals	Metal/oids	Te	13494809
Temperature	Temperature	PhysChem	PhysChem		
Temp-Water	Temperature, water	PhysChem	PhysChem		
TEQ_WHO98	TEQ WHO-98 (U.S. EPA 2005 tissue data; constituents unspecified)		Unknown		
TEQMinWHO05Dioxn	TEQMinWHO2005Dioxin	DioxinFura	DioxFuran		
Terbacil	Terbacil	Pesticides	Pest-Herb		5902512
Terbium	Terbium	Metals	Metal/oids	Tb	7440279
Terbufos	Terbufos	Pesticides	Pest-Herb		13071799
TetClBiphenyls	Tetrachlorobiphenyl homologs	PCBs	PCB		26914330
TetClDiBzDioxin	Tetrachlorodibenzodioxin (Total)	DioxinFura	DioxFuran		41903575
TetClDiBzFuran	Tetrachlorodibenzofuran (Total)	DioxinFura	DioxFuran		30402143
TetraCl-m-xylene	Tetrachloro-m-xylene		VOC		
TetrClEth	Tetrachloroethene	Volatiles	VOC		127184

TFS	Total Fixed Solids	PhysChem	Convent	TFS	
Thallium	Thallium	Metals	Metal/oids	Tl	7440280
Thiobencarb	Thiobencarb	Herbicides	Pest-Herb		28249776
Thionazin	Thionazin	Pesticides	Pest-Herb		297972
Thorium	Thorium	Actinides	Metal/oids	Th	7440291
Thulium	Thulium	Lanthanide	Metal/oids	Tm	7440304
Tin	Tin	Metals	Metal/oids	Sn	7440315
Titanium	Titanium	Metals	Metal/oids	Ti	7440326
TKN	Total Kjeldahl nitrogen		Nutrients		
TOC	TOC	PhysChem	Convent		E-10195
Toluene	Toluene	Volatiles	VOC		108883
Tot12DiClEthe	1,2-Dichloroethene isomers (total)	Volatiles	VOC		
Tot13DiClPrope	1,3-Dichloropropene (total cis & trans)	Volatiles	VOC		
Total Deca-BDE	Total Deca-BDE	PBDE	PBDE		1163195
Total Di-BDE	Total Di-BDE	PBDE	PBDE		2050477
Total Hepta-BDE	Total Hepta-BDE	PBDE	PBDE		68928803
Total Hexa-BDE	Total Hexa-BDE	PBDE	PBDE		36483600
Total Mono-BDE	Total Mono-BDE	PBDE	PBDE		101553
Total Nona-BDE	Total Nona-BDE	PBDE	PBDE		63936561
Total Octa-BDE	Total Octa-BDE	PBDE	PBDE		32536520
Total Penta-BDE	Total Penta-BDE	PBDE	PBDE		32534819
Total sulfur	Total sulfur	PhysChem	Convent		
Total Tetra-BDE	Total Tetra-BDE	PBDE	PBDE		40088479
Total Tri-BDE	Total Tri-BDE	PBDE	PBDE		49690940
Total_coliform	Total coliform	Biological	Biological		
Total_N_NO3	Total nitrogen as nitrate	Nutrients	Nutrients		
Total_nitrogen	Total nitrogen	Nutrients	Nutrients		
TotalChloride	Total chloride	Halogens	Metal/oids		
TotalDDx	Total DDT, DDE, DDD	Pesticides	Pest-Herb		
TotalPorosity	Total Porosity	PhysChem	Convent		
TotAnt_Phe	Anthracene + Phenanthrene	PAH	PAH		
TotBaA_Chr	Unresolved combination of benz[a]anthracene and chrysene	PAH	PAH		
TotBKF_BBF	Benzo[k]fluoranthene and Benzo[b]fluoranthene	PAH	PAH		
TotChlordane	Chlordane	Pesticides	Pest-Herb		57749
TotClPhenols	Total Chlorinated Phenols	Phenols	SVOC		
TotCresols	Cresols	SemiVolati	SVOC		1319773
TotDCB	Dichlorobenzene, non-specific	Volatiles	VOC	DCB	
TotDDD	sum of p,p'-DDD and o,p'-DDD	Pesticides	Pest-Herb		
TotDDE	sum of p,p'-DDE and o,p'-DDE	Pesticides	Pest-Herb		
TotDDT	sum of p,p'-DDT and o,p'-DDT	Pesticides	Pest-Herb		
TotDiazSpectr	Unresolved combination of Diazinon/Spectracide	Herbicides	Pest-Herb		
TotEndosulfan	Endosulfan	Pesticides	Pest-Herb		115297
TotHCH	Hexachlorocyclohexane	Pesticides	Pest-Herb		
TotPCBaroclor	Total PCB Aroclors	PCBs	PCB		
TotPCBcong	Total PCB congeners	PCBs	PCB		
TotPCBs	Total PCBs	PCBs	PCB		
TotPCDD	Polychlorinated dibenzo-p-dioxins	DioxinFura	DioxFuran		
TotPCDD_PCDF	Total Dioxins and Furans	DioxinFura	DioxFuran		
TotPCDF	Polychlorinated dibenzofurans	DioxinFura	DioxFuran		
TotPentanol	Pentanol	Volatiles	VOC		
TotPersulfN	Total Persulfate Nitrogen		Nutrients		

TotPropanol	Propanol	Volatiles	SVOC		
TotTetrClPhenols	Total Tetrachlorophenols	Phenols	SVOC		
TotTriBrPhenols	Total Tribromophenols	Phenols	SVOC		
TotTriClethene	Total Trichloroethene	Volatiles	VOC		79016
TotTriClPhenols	Total Trichlorophenols	Phenols	SVOC		
TotXyleneIsomers	Xylene isomers (total)	Volatiles	VOC		
Toxaphene	Toxaphene	Pesticides	Pest-Herb		8001352
TPAH	Total Polynuclear Aromatic Hydrocarbons	PAH	PAH		
TPM10	Total particulate matter with an aerodynamic mean diameter of 10 micrometers or less	PhysChem	GrainSize		
TPN	Polychlorinated naphthalenes	SemiVolati	SVOC		
trans12DiClEthe	trans-1,2-Dichloroethene	Volatiles	VOC		156605
trans13DiClPrope	trans-1,3-Dichloropropene	Volatiles	VOC		10061026
trans14Dichlor2B	trans-1,4-Dichloro-2-butene	Volatiles	VOC		110576
transchlordane	trans-chlordane		Pest-Herb		
transNonachlor	trans-Nonachlor	Pesticides	Pest-Herb		39765805
Triallate	Triallate	Herbicides	Pest-Herb		2303175
Tributyltin	Tributyltin	Volatiles	Pest-Herb		688733
TriClBiphenyls	Trichlorobiphenyl homologs	PCBs	PCB		25323686
TriClFMeth	Trichlorofluoromethane	Volatiles	VOC		75694
Trifluralin	Trifluralin	Herbicides	Pest-Herb		1582098
TrivChrom	Chromium, trivalent	Metals	Metal/oids		16065831
TSP	Total Suspended Particulates	PhysChem	Convent	TSP	
TSS	Total suspended solids	PhysChem	Convent	TSS	
Tungsten	Tungsten	Metals	Metal/oids	W	7440337
Turbidity	Turbidity	PhysChem	Convent		
TVS	Total Volatile Solids	PhysChem	Convent	TVS	
U-238	Uranium-238	Actinides	Radionuc		7440611
Uranium	Uranium	Actinides	Metal/oids	U	7440611
Vanadium	Vanadium	Metals	Metal/oids	V	7440622
Vapour	Soil vapour	PhysChem	Convent		
VCoarseGravel	Very coarse gravel	GrainSize	GrainSize		
VCoarseSand	Very coarse sand	GrainSize	GrainSize		
VeryFineSand	Very fine sand	GrainSize	GrainSize		
VFine_Gravel	Very Fine Gravel	GrainSize	GrainSize		
VFineGravel	Very fine gravel	GrainSize	GrainSize		
VH_C6-C10	Volatile Hydrocarbons with a chain length from C6 to C10	Petroleum	Petroleum		
VinylAcetate	Vinyl acetate	Volatiles	VOC		108054
VinylCl	Vinyl Chloride	Volatiles	VOC		75014
VPH	Volatile Petroleum Hydrocarbons	Petroleum	Petroleum		
Water added	Water added	PhysChem	Convent		
WatRet_1500J/Kg	Water retention @ 1500 J/kg	PhysChem	PhysChem		
WatRet_33J/Kg	Water retention @ 33 J/kg	PhysChem	PhysChem		
WatStorCap	Water storage capacity	PhysChem	PhysChem		
WD s.d.	Wind direction s. d.		Samp Info		
Wind direction	Wind direction		Samp Info		
Wind speed	Wind speed		Samp Info		
XSectLoc	Location in cross section		Samp Info		
Xylenes	Xylenes	Volatiles	VOC		1330207
Ytterbium	Ytterbium	Lanthanide	Metal/oids	Yb	7440644
Yttrium	Yttrium	Metals	Metal/oids	Y	7440655
Zinc	Zinc	Metals	Metal/oids	Zn	7440666

Zirconium	Zirconium	Metals	Metal/oids	Zr	7440677

method_code	description	lab_leach_method	lab_prep_method	lab_extraction_method	lab_anal_method
105dry	Gravimetrically, dried at 105oC.				Grav
110dry	Dried at 110 C.				110dry
1-1-SOLN	1:1 solution by weight of soil to deionized water				
1613	Determination of CDDs/CDFs by HRGC/HRMS				1613
1614	Determination of BDEs by HRGC/HRMS				1614
1631E	Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry				1631E
1668A	Determination of PCBs by HRGC/HRMS				1668A
1N AmmAcet	1N ammonium acetate, ph=7				1N AmmAcet
300.0	Determination of inorganic ions by ion chromatography				300.0
6000-7000AVSSEM	AVS and SEM Metals by EPA 6000/7000 Series Methods				
6000-7000METALS	Metals by EPA 6000/7000 Series Methods				
6010	EPA Method 6010 (ICP)				6010
8081	EPA SW846 8081 for PCBs				8081
8082	8082				8082
80823	EPA SW846 80823 for pesticides				80823
8260	EPA SW846 8260 for VOCs				8260
8270	EPA SW846 8270 for SVOCs				8270
8270CSIM	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring			EPA_3520C	8270CSIM
8270CSIM_20	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring			EPA_3520C	8270CSIM
8270CSIM_2mm41	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring		2mm sieve	EPA3541	8270CSIM
8270CSIM_3541	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring				
9030M	9030M				9030M
9030M_2mm	Sulfide, Acid Soluble (Total) (Distillation, Colorimetric)		2mm sieve	EPA9030B	9030M
9045D	9045D				9045D
9045D_2mm	Soil and Waste pH		2mm sieve		9045D
9060	EPA SW846 9060 for TOC				9060
AA_CV	AA_CV				
AA_CV_WO	AA_CV_WO				
AA_F_Fuse	AA_F_Fuse				
AA_F_HF	AA_F_HF				
AA_F_HNO3_P	AA_F_HNO3_P				
AA_FE	AA_FE				
AA_HG_Acid	AA_HG_Acid				
AA_HG_HF	AA_HG_HF				
AA_HG_ST	AA_HG_ST				
AA-hyd	AA-hyd				
AAS	Atomic Absorption Spectroscopy				AAS
AAS_100	Atomic Absorption Spectroscopy		-100 Mesh		AAS
AAS_AmAc	Atomic Absorption Spectrophotometry using ammonium acetate extract			CH3COONH4	AAS
AAS_ARD	aqua regia digestion-atomic absorption spectrometry			ARD	AAS
AAS_HCl	Atomic Absorption Spectrophotometry using 0.1 N HCl extract			0.1 N HCL	AAS
AAS_Recov	AAS of recoverable fraction			Recov	AAS
AAS_TD	Atomic Absorption Spectroscopy after total digestion			T20	AAS
AD	AD				AD
AD_thiocyanate	AD, thiocyanate				AD

Adjusted	Adjusted concentration				
AES	Atomic Emission Spectrometry				AES
AES_HF	AES_HF				
AFS_P_Mo	ASF, phosphomolybdate formation				ASF
APDC_MIBK_AAS	AAS with APDC-MIBK extraction			APDC_MIBK	AAS
ARD	Aqua regia digestion				
As_species	Nonspecific As method used for EPA 2005 tissue data				
ASF	Automated Segmented Flow Spectrophotometry				ASF
ASF_block	Automated Segmented Flow Spectrophotometry, block digest		BlockDgst		ASF
ASF_Cd	Automated Segmented Flow Spectrophotometry, Cd reduction				ASF
ASF_Diazo	Automated Segmented Flow Spectrophotometry, diazotization				ASF
ASF_indophenol	Automated Segmented Flow Spectrophotometry, indophenol				ASF
ASF_Met_Blue	Automated Segmented Flow Spectrophotometry, methylthymol blue				ASF
ASF_MoBlue	Automated Segmented Flow Spectrophotometry, molybdate blue formation				ASF
ASF_P_Mo	Automated Segmented Flow Spectrophotometry, phosphomolybdate formation				ASF
ASF_Sal_Hypo	Automated Segmented Flow Spectrophotometry, salicylate-hypochlor				ASF
ASF_thiocyanate	Automated Segmented Flow Spectrophotometry, thiocyanate				ASF
ASF_uKjeld	Automated Segmented Flow Spectrophotometry, microkjeldahl		uKjeldahl		ASF
ASF_uKjeld_H	Automated Segmented Flow Spectrophotometry, microkjeldahl digestion, acidified		uKjeldahl		ASF
ASF_uKjeld_Hg	Automated Segmented Flow Spectrophotometry, microkjeldahl digestion, Hg		uKjeldahl		ASF
ASTMD2434	Standard Test Method for Permeability of Granular Soils (Constant Head)				
ASTMD4129-05	ASTMD4129-05				
ASTMD412982M	ASTMD412982M				ASTMD412982M
ASTMD42263	ASTM D 422-63 for grain size				ASTMD42263
ASTMD7263B	Standard Test Methods for Laboratory Determination of Density (Unit Weight) of Soil Specimens				
AVS	Acid-Volatile Sulfide				AVS
AVS_SEM	Acid Volatile Sulfide/Simultaneously Extracted Metals			SEM	AVS
Bioaccess1.5pH	Bioaccessible arsenic and lead (at pH 1.5)		9200Mod		
Bioaccess2.5pH	Bioaccessible arsenic and lead (at pH 2.5)		9200Mod		
BREMNER82	Total nitrogen, dry combustion at 900°C, J.M. Bremner and C.S. Mulvaney, 1982.				
BROWNCURRY02	Adaptation of Brown and Curry (2002)				
CALC	Calculated				
CanSoil	Canadian soil manual				CanSoil
CB_TC	CB_TC				
CB_TT	CB_TT				
CCSEM	Computer Controlled Scanning Electron Microscopy Analysis				
CCT	cell collision technology				
CLP SOW	based on SW846 method 6010B/7471				CLP SOW
CLP_LOW	CLP LOW				CLP_LOW
CLP-IO-LOW	CLP-IO-LOW				
CLP-TAL	EPA CLP TAL metals				
CM_Acid	CM_Acid				
CM_Fuse	CM_Fuse				
CM_HSF	CM_HSF				
CmbCO2_HCl	Combustion at 1350 C - measurement of evolving CO2 using infrared detector		10HCl		CombCO2
COL_Acid	Colorimetry, acidified				COLOR

COL_AMAAPAT	Colorimetric: with ammonium molybdate, ascorbic acid, and potassium antimonyl tartrate.				COLOR
COL_Azo	Colorimetric: Nitrogen compounds are oxidized to nitrate which then is reducted to nitrite, then reacted to a diazo compound, then coupled with n-(1-naphthyl)ethylenediamine dihydrochloride to form an azo dye				COLOR
COL_BaCl_MB	Colorimetric: BaCl2 and methylthymol blue				COLOR
COL_Cd	Colorimetry, cadmium reduction				COLOR
COL_Cd_LL	Colorimetry, cadmium reduction, low level				COLOR
COL_Cl_Barb	Colorimetrically using chloramine-t and pyridine barbituric acid				COLOR
COL_FeNO3_MT	Colorimetric: ferric nitrate and mercury thiocyanate				COLOR
COL_Jirka	Colorimetry using digestion by the Jirka method		Jirka		COLOR
COL_KHSO4	potassium bisulphate fusion - colorimetric determination				COLOR
COL_Kjeld	Colorimetrically using a technicon autoanylser on a semi-micro Kjeldahl digest		Kjeldahl		COLOR
COL_Kjeld_Acid	Colorimetry, Kjeldahl digestion, acidified		Kjeldahl		COLOR
COL_LL	Colorimetry, low level				COLOR
COL_Mo_Blue	Colorimetric: with ammonium molybdate				COLOR
COL_modJirka	Colorimetry using digestion by the modified Jirka method		modJirka		COLOR
COL_P_Mo	Phosphomolybdate colorimetry				COLOR
COL_P_Mo_LL	Phosphomolybdate colorimetry, low level				COLOR
COL_Sal_Hypo	Colorimetry, salicylate-hypochlor				COLOR
COL_VitC	Colormetrically using the ascorbic acid development on a 1:10 soil to Bray extract.			Bray	COLOR
COLOR	Colorimetric Determination				COLOR
COLOR_100	Colorimetric Determination		-100 Mesh		COLOR
CombCO2	CombCO2				CombCO2
CombGas	CombGas				CombGas
CombSO2	Combustion at 1350 c - measurement of evolving S02 usint infrared detector				CombSO2
CombVol	CombVol				CombVol
CondCell	Conductivity Cell				CondCell
CondMeter	Conductance measured in water with a conductivity meter				CondCell
Cs_curve	Calibration self-absorption curves based on Cs-137.				CSAC
CSAC	Calibration self-absorption curves prepared using radioactive standards				CSAC
CSR_1	B.C. MOELP CSR Method 1 "Volatile Hydrocarbons in Soilds by GC/FID"			Meth	GC_FID
CSR_3	B.C. MOELP CSR Method 3 "Extractable Petroleum Hydrocarbons in Soilds by GC/FID"			AcHx	GC_FID
CSR_5	B.C. MOELP CSR Method 5 "Calculation of Volatile Petroleum Hydrocarbons in Soilds or Water (VPH)"				NA
CSR_6	B.C. MOELP CSR Method 5 "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Soilds or Water (LEPH & HEPH)"				NA
CVAA	Cold Vapor Atomic Absorption				CVAA
CVAA_Man	Mercury in Solid/Semisolid Waste by Manual Cold Vapor Atomic Absorption (CVAA).				CVAA
CVAA-ARegia	CVAA after Aqua Regia digestion				
CVAAS	Cold Vapour Atomic Absorption Spectrophotometry		WetOxDig		CVAAS
CVAAS_ARD	Cold Vapour Atomic Absorption Spectroscopy			ARD	CVAAS
CVAAS_Recov	CVAAS of recoverable fraction			Recov	CVAAS
CVAF	Cold Vapour Atomic Fluoresence				CVAF
CVAF_Recov	Cold Vapour Atomic Fluoresence, Recoverable			Recov	CVAF
D2166_MOD	ASTM D2216/Cassel, D.K. and D.R. Nielsen 1986.				

D412982M	Total and Organic Carbon in Water by Temperature Oxidation and Coulometric Detection, Modified for Soils				
D412982M_2mm	Total and Organic Carbon in Water by Temperature Oxidation and Coulometric Detection, Modified for Soils		2mm sieve		ASTMD412982M
D422	ASTM Method D422 for grain size				D422
DataLogger	Data Logger (transducer)				
DCP-AES	Direct Current Plasma Atomic Emission Spectrometry				AES
DN	DN				
DNC	Delayed Neutron Counting				DNC
DNC_100	Delayed Neutron Counting		-100 Mesh		DNC
Draft 1991-SEM	Draft 1991, simultaneously extracted metals			SEM	
E1109	ASTM E1109-86				
E1613_3520	Determination of CDDs/CDFs by HRGC/HRMS		SW3520	SW3520	1613
E1613_3535	Determination of CDDs/CDFs by HRGC/HRMS				
E1613_3540	Determination of CDDs/CDFs by HRGC/HRMS		SW3540	SW3540	1613
E1614_3520	Determination of BDEs by HRGC/HRMS		SW3520	SW3520	1614
E1614_3535	Determination of BDEs by HRGC/HRMS				
E1614_3540	Determination of BDEs by HRGC/HRMS		SW3540	SW3540	1614
E1668A_3535	Determination of PCBs by HRGC/HRMS				
EC_slurry	Electrical Conductivity determined on a 1:1 soil to distilled water slurry using a radiometer conductivity cell.				CondCell
EDTA_Titr	EDTA Titration				Titration
EP1_206.2	EP1_206.2				EP1_206.2
EP1_270.2	EP1_270.2				EP1_270.2
EP1_279.2	EP1_279.2				EP1_279.2
EPA 1632	HG-CT-GC-AAS				EPA 1632
EPA 903.1	EPA 903.1				EPA 903.1
EPA 903.1m	EPA 903.1m				EPA 903.1m
EPA_120.1	Specific conductivity (conductance) by conductivity meter @ 25 deg C				
EPA_130.2	Hardness, Total (as CaCO3), Titrimetric, EDTA				
EPA_160.1	Residue, Filterable, Gravimeteric, Dried at 180 Deg-C				
EPA_160.2	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.2				EPA_160.2
EPA_160.3	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.3				EPA_160.3
EPA_160.3_2mm	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.3		2mm sieve		EPA_160.3
EPA_1600	Enterococci in Water by Membrane Filtration Using mEI Agar				EPA_1600
EPA_200.7	EPA 200.7				EPA_200.7
EPA_200.7SA	EPA 200.7 (ICP)			StrongAc	EPA_200.7
EPA_200.8	Metals and Trace Elements in Waters by ICP-MS				EPA_200.8
EPA_200.8_3050B	EPA 200.8 (ICPMS)			EPA3050B	EPA_200.8
EPA_200.8_Recov	Metals and Trace Elements in Waters by ICP-MS on a total recoverable fraction			Recov	EPA_200.8
EPA_200.8M	Metals and Trace Elements in Waters by ICP-MS -- modified, unspecified				EPA_200.8
EPA_200.9	EPA200.9				
EPA_202.1	EPA 202.1				EPA_202.1
EPA_204.2	EPA204.2				
EPA_206.2	EPA 206.2				EPA_206.2
EPA_206.2SA	EPA 206.2 (GFAA)			StrongAc	EPA_206.2
EPA_213.2	EPA 213.2				EPA_213.2

EPA_220.2	EPA 220.2				EPA_220.2
EPA_236.1	EPA 236.1				EPA_236.1
EPA_239.2	EPA 239.2				EPA_239.2
EPA_239.2SA	EPA 239.2 (GFAA)			StrongAc	EPA_239.2
EPA_243.1	EPA 243.1				EPA_243.1
EPA_245.1	Mercury (Cold Vapor, Manual)				EPA245.1
EPA_245.5	EPA 245.5				EPA_245.5
EPA_245.6	EPA_245.6				EPA_245.6
EPA_245.7	Mercury by Cold Vapor Atomic Flourescence (CVAF)				EPA_245.7
EPA_258.1	EPA258.1				
EPA_270.2	EPA270.2				
EPA_272.2	EPA272.2				
EPA_273.1	EPA273.1				
EPA_279.2	EPA 279.2 (GFAA)				EPA_279.2
EPA_279.2SA	EPA 279.2 (GFAA)			StrongAc	EPA_279.2
EPA_289.2	EPA 289.2				EPA_289.2
EPA_300.0	Anions by IC				EPA_300.0
EPA_3015A	Microwave assisted acid digestion of aqueous samples and extracts				EPA_3015A
EPA_3015Am	Microwave assisted acid digestion of aqueous samples and extracts, modified for solid samples				EPA_3015Am
EPA_310.1	Alkalinity (Titrimetric, pH 4.5)				
EPA_310.2	Alkalinity (Colorimetric, Automated, Methyl Orange)				EPA_310.2
EPA_340.2	EPA 340.2				EPA_340.2
EPA_340.2_3	Fluoride, Total				
EPA_350.1	Nitrogen as Ammonia, Colorimetric, Automated Phenate				EPA_350.1
EPA_351.2	Total Kjeldahl Nitrogen Colorimetric, Semi-Automated Block Digester				EPA_351.2
EPA_353.2	Nitrogen, Nitrate-Nitrite (Colorimetric, Automated Cadmium Reduction)				EPA_353.2
EPA_360.2	Dissolved Oxygen (DO) by Modified Winkler Full Bottle				EPA_360.2
EPA_365.1	Phosphorus, All Forms (Colorimetric, Automated, Ascorbic Acid)				EPA_365.1
EPA_365.1M	Phosphorus (All Fomrs), Colorimetric, Automated- Low Level, Ascorbic Acid				EPA_365.1
EPA_365.3	Phosphorus, (All Forms), Colorimetric, Ascorbic Acid, Two Reagent				EPA_365.3
EPA_365.3M	Phosphorus, Ortho-phos; Colorimetric, Ascorbic Acid, Two Reagent low level cal.				EPA_365.3
EPA_365.3OP	Phosphorus, Ortho-phos; Colorimetric, Ascorbic Acid, Two Reagent				EPA_365.3
EPA_376.2	EPA376.2				
EPA_410.1	Chemical Oxygen Demand, Titrimetric, Mid-Level				
EPA_415.1	TOC by combustion				
EPA_608.5	EPA_608.5				EPA_608.5
EPA_7470A	EPA_7470A				EPA_7470A
EPA_7740	EPA 7740				EPA_7740
EPA_7742	Selenium (AA, Borohydride Reduction)				
EPA_821_R91_100	Draft analytical method for determination of acid volatile sulfide in sediment, 1991				EPA_821_R91_100
EPA_821_R91-SEM	Draft analytical method for determination of acid volatile sulfide in sediment, 1991; simultaneously extracted metals			SEM	EPA_821_R91_100
EPA_903.1	EPA 903.1				EPA 903.1
EPA_903.1m	EPA 903.1m				EPA 903.1m
EPA160.3_2mm	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.3		2mm sieve		EPA_160.3
EPA1600	Enterococci in Water by Membrane Filtration Using mEI Agar				EPA_1600

EPA1613_3520	Determination of CDDs/CDFs by HRGC/HRMS		SW3520	SW3520	1613
EPA1613_3535	Determination of CDDs/CDFs by HRGC/HRMS				
EPA1613_3540	Determination of CDDs/CDFs by HRGC/HRMS		SW3540	SW3540	1613
EPA1613A	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water				EPA1613A
EPA1613B	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water				EPA1613B
EPA1614	Determination of BDEs by HRGC/HRMS				1614
EPA1614_3520	Determination of BDEs by HRGC/HRMS		SW3520	SW3520	1614
EPA1614_3535	Determination of BDEs by HRGC/HRMS				
EPA1614_3540	Determination of BDEs by HRGC/HRMS		SW3540	SW3540	1614
EPA1631E	Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry				1631E
EPA1632	HG-CT-GC-AAS				EPA 1632
EPA1632A	Chemical Speciation of Arsenic in Water and Tissue by Hydride Generation Quartz Furnace Atomic Absorption Spectrometry				
EPA1668A	Determination of PCBs by HRGC/HRMS				1668A
EPA1668A_3520	Determination of PCBs by HRGC/HRMS		SW3520	SW3520	1668A
EPA1668A_3535	Determination of PCBs by HRGC/HRMS				
EPA1668A_3540	Determination of PCBs by HRGC/HRMS		SW3540	SW3540	1668A
EPA200.7SA	EPA 200.7 (ICP)			StrongAc	EPA_200.7
EPA200.8_3050B	EPA 200.8 (ICPMS)			EPA3050B	EPA_200.8
EPA206.2SA	EPA 206.2 (GFAA)			StrongAc	EPA_206.2
EPA239.2SA	EPA 239.2 (GFAA)			StrongAc	EPA_239.2
EPA245.1	Mercury (Cold Vapor, Manual)				EPA245.1
EPA279.2SA	EPA 279.2 (GFAA)			StrongAc	EPA_279.2
EPA3015A	Microwave assisted acid digestion of aqueous samples and extracts				EPA_3015A
EPA3015Am	Microwave assisted acid digestion of aqueous samples and extracts, modified for solid samples				EPA_3015Am
EPA3050	EPA 3050				
EPA3050B	EPA 3050B				
EPA340.2	EPA340.2				
EPA340.2_3	Fluoride, Total				
EPA6010	EPA Method 6010 (ICP)				6010
EPA6010_9200Bio1.5	EPA Method 6010 (ICP); Bioaccessible metals at pH 1.5: Glycine extraction (Standard - pH 1.5)				6010
EPA6010_9200Bio2.5	EPA Method 6010 (ICP); Bioaccessible metals at pH 2.5; Glycine extraction (Modified - pH 2.5)				6010
EPA6010_EPABio	Metals by ICP/MS, method EPA 6010B; Bioavailability method per USEPA 9200.2-86 Modified prep and Glycine extraction.				6010
EPA6010_MEHLICH3	Mehlich III extractable lead and phosphorous		MEHLICH84		
EPA6010_RubyBio	EPA Method 6010 (ICP); Bioavailability method per Ruby, M.				6010
EPA6010B	EPA Method 6010B (ICP)				6010B
EPA6010B-AVSSEM	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements; simultaneously extracted metals				
EPA6010C	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals & Trace Elements, Rev 3				
EPA6010C_RubyBio	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals & Trace Elements, Rev 3; Bioavailability method per Ruby, M.				6010C

EPA6010C-AVSSEM	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010; simultaneously extracted metals				
EPA6010C-SEM	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, Rev 3; simultaneously extracted metals				6010C
EPA6010-SEM	EPA Method 6010 (ICP), SEM			CLAA	6010
EPA6020	Metals by ICP/MS				6020
EPA6020_RubyBio	Metals by ICP/MS; Bioavailability method per Ruby, M.				6020
EPA6020A	Metals by ICP/MS				6020A
EPA6020A_RubyBio	Metals by ICP/MS; Bioavailability method per Ruby, M.				6020A
EPA6020ARubyBio	Metals by ICP/MS; Bioavailability method per Ruby, M.				6020A
EPA6200	SW6200				
EPA7000A	SW7000A				
EPA7000B	SW7000B				
EPA7010	SW7010				
EPA7060	SW7060				
EPA7060A	SW7060A				
EPA7071A	EPA 7071A				
EPA7130	SW7130				
EPA7190	SW7190				
EPA7196	SW7196				
EPA7196A	SW7196A				
EPA7420	SW7420				
EPA7421	SW7421				
EPA7470A	Mercury in Liquid Waste (Manual Cold-Vapor Technique)				EPA7470A
EPA7470ARubyBio	Mercury in Liquid Waste (Manual Cold-Vapor Technique); Bioavailability method per Ruby, M.				EPA7470A
EPA7470A-SEM	Mercury in Liquid Waste (Manual Cold-Vapor Technique); simultaneously extracted metals			SEM	EPA7470A
EPA7471	SW7471				
EPA7471A	Mercury by Cold Vapor Atomic Fluorescence (CVAF)				EPA7471A
EPA7471A_2mm	Mercury by Cold Vapor Atomic Flourescence (CVAF)		2mm sieve		EPA7471A
EPA7471B	EPA 7471B				
EPA7740	EPA 7740				EPA_7740
EPA7740SA	EPA 7740 (GFAA)			StrongAc	EPA_7740
EPA7742	Selenium (AA, Borohydride Reduction)			EPA3050B	EPA7742
EPA7841	SW7841				
EPA8021	SW8021				
EPA8021B	SW8021B				
EPA8081	EPA SW846 8081 for PCBs				8081
EPA8081A	Organochlorine Pesticides by GC/ECD			EPA_3535	8081
EPA8081A_2mm41	Organochlorine Pesticides by GC/ECD		2mm sieve	EPA3541	8081
EPA8081A_35	Organochlorine Pesticides by GC/ECD			EPA_3535	8081
EPA8081A_3541	Organochlorine Pesticides by GC/ECD				
EPA8081B	Organochlorine Pesticides by GC/ECD				8081B
EPA8082	Polychlorinated Biphenyls (PCBs) by GC/ECD			EPA_3535	8082
EPA8082_2mm41	Polychlorinated Biphenyls (PCBs) by GC/ECD		2mm sieve	EPA3541	8082
EPA8082_35	Polychlorinated Biphenyls (PCBs) by GC/ECD			EPA_3535	8082

EPA8082A	Polychlorinated Biphenyls (PCBs) by GC/ECD, Rev 1				8082A
EPA8082A_2mm41	Polychlorinated Biphenyls (PCBs) by GC/ECD, Rev 1		2mm sieve		8082A
EPA8082A_35	Polychlorinated Biphenyls (PCBs) by GC/ECD, Rev 1			EPA_3535	8082A
EPA8260B	SW8260B				
EPA8260C	SW8260C				
EPA8270	EPA SW846 8270 for SVOCs				8270
EPA8270C	Semivolatile Organic Compounds by GC/MS			EPA_3520C	GC_MS
EPA8270C_20	Semivolatile Organic Compounds by GC/MS			EPA_3520C	GC_MS
EPA8270C_2mm41	Semivolatile Organic Compounds by GC/MS		2mm sieve	EPA3541	GC_MS
EPA8270CSIM	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring			EPA_3520C	8270CSIM
EPA8270CSIM_20	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring			EPA_3520C	8270CSIM
EPA8270CSIM_2mm	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring		2mm sieve	EPA3541	8270CSIM
EPA8270CSIM_41	Semivolatile Organic Compounds by GC/MS Selective Ion Monitoring				
EPA8290	Polychlorinated Dibenzodioxins (PCDDs) & Polychlorinated Dibenzofurans (PCDFs) by High-Resolution GC/High Resolution MS				SW8290
EPA9030M	9030M				9030M
EPA9030M_2mm	Sulfide, Acid Soluble (Total) (Distillation, Colorimetric)		2mm sieve	EPA9030B	9030M
EPA9045	EPA 9045				
EPA9045D	9045D				9045D
EPA9045D_2mm	Soil and Waste pH		2mm sieve		9045D
EPA9060	Total Organic Carbon (TOC) in water				
EPA9080	EPA9080				
ES_SQ	ES_SQ				
Evap180C	Evapouration at 180oC				Evapour
Evapour	Evapouration				Evapour
FA_MS	FA_MS				
FEP 4.5	Fixed endpoint (pH 4.5) titration				Titration
FEP 4.5_03	Stop titration at pH 4.5 and record the volume and exact pH. Add additional titrant to reduce the pH by exactly 0.3 pH units and record the volume again.				Titration
FES	Flame Emission Spectroscopy				FES
FES_100	Flame Emission Spectroscopy		-100 Mesh		FES
Filter	Filtration				Filter
FlameAAS	Flame AAS				AAS
Freeze Dry	Freeze Dried Solids				
FS	Fluorometry (Fluorescence Spectroscopy)				FS
FTC	Flow-through centrifuge				FTC
g_count	gamma counting				g_count
GC_ECD	Gas Chromatography with Electron Capture Detector				GC_ECD
GC_FID	Gas Chromatography with Flame Ionization Detector				GC_FID
GC_MS	Gas Chromatography Mass Spectrometryr				GC_MS
GCECD_Phen	based on EPA 604/8040				GC_ECD
GCMS_PAH	based on EPA 625/8270				GC_MS
GCMS-SIM	GCMS-SIM				GC_MS
GCMS-SIM_Rec	GCMS-SIM on a recoverable fraction				GC_MS
GFAAS	Graphite Furnace Atomic Absorption Spectrometry				GFAAS

GFAAS_Recov	GFAAS of reoverable fraction			Recov	GFAAS
Grav	Gravimetric				Grav
Grav_Ign_Filt	Gravimetric: Filtered; filtrate is evapourated in a preignited pt dish, the dish is ignited in a muffle furnace at 550oC for 30 min, cooled in a desiccator, and weighed				Grav
Grav_Ign_Res	Gravimetric: Filtered; residue is placed in a porcelain dish, ignited in a muffle furnace at 550oC for 30 min, cooled in a desiccator, and weighed				Grav
H2SO4_Titr	Field titrating drops of H2SO4 into water until a pH of ~ 4.5 is reached.				Titration
HAGEMANETAL02	Adaptation of Hageman and others (2002)				
HGAAS	Hydride Generation Atomic Absorption Spectroscopy				HGAAS
HGAAS_TD	Hydride Generation Atomic Absorption Spectroscopy after total digestion			T20	HGAAS
Hi-Bismuth	Hi-Bismuth reducible method on a 1:2 soil to calcium chloride extract.			CaCl2	Hi-Bismuth
HiVol_PM10	Total Suspended Particulate matter less than 10 um in diameter trapped in a high volume air sampler.				HiVol_PM10
HSL-300m	HSL-300m				HSL-300m
HydGen	Hydride generation				HydGen
IC	Ion Chromatography				IC
ICAP	Inductively Coupled Argon Plasma Spectroscopy				ICAP
ICAP_SAL	Inductively Coupled Argon Plasma Spectroscopy (SALM)			SALM	ICAP
ICP_MS	ICP MS				ICP_MS
ICP_MS_3050B	ICP MS			EPA3050B	ICP_MS
ICP_MS_ARD	aqua regia digestion-inductively coupled plasma mass spectrometry			ARD	ICP_MS
ICP_MS_CLFAA	ICP MS			CLFAA	ICP_MS
ICP_MS_Recov	ICP_MS of reoverable fraction			Recov	ICP_MS
ICP_MS_SAL	ICP MS using Strong Acid Leachable Metals (SALM)		3051	SALM	ICP_MS
ICP_MS_SSE	ICP_MS using sequential selective extraction			SSE	ICP_MS
ICP_MS_T20	ICP_MS using total four-acid digestion			T20	ICP_MS
ICP_OES	Inductively coupled plasma – optical emission spectrometer				ICP_OES
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010				ICP-AES
ICPAES_3050B2mm	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010		2mm sieve	EPA3050B	ICP-AES
ICPAES_CLAA	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010			CLAA	ICP-AES
ICP-AES_CLAA	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010			CLAA	ICP-AES
ICPAES_PSEP	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010				
ICP-AES_Recov	ICP-AES of reoverable fraction			Recov	ICP-AES
ICP-AES_TD	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES)			T20	ICP-AES
ICP-AES-NA	Nitric acid digestion, ICP-AES				
ICP-AES-SEM	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010; simultaneously extracted metals			SEM	ICP-AES
ICP-ES-ACID	ICP-ES with nitric, hydrochloric, hydrofluoric and perchloric acids				
ICPMS_3050B2mm	ICP MS		2mm sieve	EPA3050B	ICP_MS
ICPMS_CLFAA	ICP MS			CLFAA	ICP_MS
ICPMS_PSEP	ICP MS				
ICP-MS-1-1	ICP-MS after 1:1 HCl:HNO3 digestion				

INAA	instrumental neutron activation analysis				INAA
IncrTitr	Incremental titration				Titration
ION	sodium carbonate-potassium nitrate fusion-specific ion electrode				ION
IR	Infrared analyses				IR
IR_perS_045	Infrared analyses using 0.45u filter		0_45u		IR
IR_Shimadzu	IR on an automated SHIMADZU system. Total C: sample is injected on a Pt catalyst packed tube at 680oC. TIC: the sample is injected into an inorganic reaction vessel containing 25% phosphoric acid. TOC: obtained by subtracting the IC form the total C.				IR
ISE	Ion selective Electrode				ISE
KFstrep_MF	KF streptococcus MF				KFstrep_MF
Klute	Soil core equilibrated at 0.33 bars and at 15 bars in a pressure chamber after being allowed to saturate. The Available Water Storage Capacity (AWSC) is the difference between water content measured each time divided by the soil core volume.		Dry sieved		Klute
LabCalc	Numerical value was calculated in lab from other data available.				
LAMOTTE	LaMotte WQ test kits				
LCA	Extracted with hot H2SO4, Leco Carbon Analyzer				
LECO CR 12	LECO CR 12 carbon analyzer				LECO CR 12
LECO S	LECO Sulfur Analyser				LECO S
LQC8500FIA	Lachat QuickChem 8500 Flow Injection Analyzer				
MassSpec	Mass Spectrometry				MassSpec
Measured	Measured concentraiton				
mEndo_MF	m-Endo MF				mEndo_MF
mEnteroMF	m-Enterococcus MF				mEnteroMF
MFC	Membrane Filter Count		0_45u		
mFC_MF	mFC MF				mFC_MF
mFC_MF_0_45	mFC MF (0.45 micron)				mFC_MF
mFC_MF_0_7	mFC MF (0.7 micron)				mFC_MF
MinCalc	Calculation from mineralogical data				
MISCCONV	Miscellaneous Physical/Conventional Chemistry Parameters				
NA	Not applicable (lab calculation or non-specified analytical method)				NA
NA_LC	NA_LC				
NAA	Neutron Activation Analysis				NAA
NAA_100	Neutron Activation Analysis		-100 Mesh		NAA
NADNC	Neutron Activation with Delayed Neutron Counting				NADNC
NADNC_100	Neutron Activation with Delayed Neutron Counting		-100 Mesh		NADNC
NatU_curve	Calibration self-absorption curves based on natural Uranium.				CSAC
NELSON82	Total carbon, dry combustion at 900°C, D.W. Nelson and L.E. Sommers, 1982.				
NitricPerch	Nitric perchloric digestion				
NOAA LIPID	National Oceanic and Atmospheric Administration Method for Determination of Tissue Lipid				
Nominal	Nominal concentration				
NWTPH-GX	NWTPH-GX				
PartSize	Particle size is determined using the pipette method. The sand content is determined by wet sieving.				PartSize
PartSize_H	Particle size is determined using the pipette method. The sand content is determined by wet sieving. Organic matter destroyed with sodium hypochlorite.		NaOCl		SievePipet
PCM	Pygmy Current Meter				

Perkin-Elm	Perkin-Elmer atomic absorption spectrophotometer				Perkin-Elm
pH	Potentiometric pH meter				pH_meter
pH_glass	pH using glass electrode				pH_meter
pH_leach	Based on procedures described in the Manual on Soil Sampling and Methods of Analysis (Canadian Society of Soil Science, 1993) using a deionized water leach.				pH_meter
pH_meter	Potemtiometric pH meter				pH_meter
pH_slurry	pH determined potentiometrically using radiometer pH meter on a 1:1 soil to distilled water slurry.				pH_meter
PID	Photo-Ionization Detector - for soil vapours				PID
Planchet_C	Planchet count				Planchet_C
Planchet_count	Planchet count				Planchet_C
PLASMASPEC	Plasma spectroscopy				
PLUMB81	Plumb 1981				
PM10	weather station				
PSEP	Puget Sound Estuary Protocols				PSEP
PSEP SID	PSEP total sulfides				
PSEP_GrSz	Puget Sound Estuary Protocols, Conventional Sediment Variables, Particle/Grain Size by Sieve-Pipette, 1986, Minor Rev. 2003				SievePipet
PSEP_TOC	Puget Sound Estuary Protocols TOC				PSEP_TOC
PSEP_TOCM	Puget Sound Estuary Protocols TOCM				PSEP_TOCM
PSEP-MET97	PSEP-MET97				
PSEP-PS	Puget Sound Estuary Protocols, Conventional Sediment Variables, Particle/Grain Size by Sieve-Pipette, 1986, Minor Rev. 2003				PSEP-PS
PSEP-TS2	Puget Sound Estuary Protocols, Conventional Sediment Variables, Total Sulfides, Distillation, 1986, Minor Rev. 2003				PSEP-TS2
PT_001N_SO4	Potentiometric titration using 0.01N H2SO4				Titration
PT_45_42	Potentiometric titration using H2SO4 or HCL to pH=4.5 and then to pH=4.2				Titration
PT_83	Potentiometric titration using H2SO4 or HCL TO pH=8.3				Titration
Radon	Radon method				Radon
Ruby, etal	Ruby, etal				Ruby, etal
RubyBioavail	Bioavailability method per Ruby, M.				
Sieved	Sieved		Dry sieved		Sieved
SievePipet	SievePipet				SievePipet
SM10200H3M	Fluorometric determination of chlorophyll a in presence of pheophytin, modified method				SM10200H3M
SM14-214B	Turbidity, Visual Methods - Jackson Turbidity Units				
SM16-1002G	Spectrophotometric determination of chlorophyll a in the presence of pheophytin				
SM16-909C	Fecal Coliform by Membrane Filtration using mFC Medium.				
SM17-9230C	Fecal Strep and Enterococci by Membrane Filtration				
SM2130	Nephelometer				
SM2320	Alkalinity; Total Hydroxide, Bicarbonate, Carbonate				
SM2320B	Alkalinity, Total (Hydroxide, Carbonate and Bicarbonate) by Titrimetry, pH 4.5				SM2320B
SM2340B	Hardness, Total (as CaCO3), calculated				SM2340B
SM2340C	Hardness by EDTA Titration				SM2340C
SM2510B	Specific conductivity				SM2510B
SM2540B	Standard Method 2540B				
SM2540C	Solids, Total Dissolved (Gravimetric, Dried at 180 Degrees C.)				SM2540C
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

SM2540G	Total, Fixed and Volatile Solids in Solid and Semisolid Samples				SM2540G
SM3113B	SM3113B				
SM3125	SM3125				
SM3500CrD	SM3500CrD				
SM4500FC	SM4500FC				
SM4500HB	pH (Electrometric)				SM4500HB
SM4500NB	Total Persulfate Nitrogen				SM4500NB
SM4500NH3G	Nitrogen (Ammonia) Automated Phenate				SM4500NH3G
SM4500NH3H	Nitrogen (as Ammonia, NH3) by Flow Injection Analysis				SM4500NH3H
SM4500NO3I	Nitrogen (Nitrate, NO3/Nitrite, NO2) by Cadmium Reduction Flow Injection Method				
SM4500PG	Phosphorus/Orthophosphate by Flow Injection Analysis				SM4500PG
SM4500PI	Total Phosphorus by In-Line UV/Persulfate Digestion and Flow Injection Analysis				SM4500PI
SM4500S2D	Sulfide (Colorimetric, Methylene Blue)				SM4500S2D
SM4500SiO2C	Silica (Molybdosilicate)				SM4500SiO2C
SM5310B	Total Organic Carbon (TOC), High Temperature Combustion Method				SM5310B
SM5310C	Total Organic Carbon (Persulfate-UV Oxidation)				SM5310C
SM9222D	Fecal Coliform by Membrane Filtration using mFC Medium				SM9222D
SOP710071	Salinity, Refractometric				
SOP730009	Lipids				
SOPALS_MMT	ALS SOP for methyl mercury (tissue)				
Spectrophoto	Spectrophotometrically				SpectrpPho
SpectrpPho	Spectrophotometrically				SpectrpPho
SPLP-6010C	SPLP metals extraction, EPA Method 6010 (ICP) metals analysis			SPLP	6010C
Sr_Y_curve	Calibration self-absorption curves based on Sr-90/Y-90.				CSAC
SR3-XU	Savannah River - Supplemental Analysis of sediments for extractable U by unnamed contract Laboratory; Analytical Method not recorded				
SR3-XU_100	Savannah River - Supplemental Analysis of sediments for extractable U by unnamed contract Laboratory; Analytical Method not recorded		-100 Mesh		
SR3-XX	Savannah River - Supplemental Analysis of sediments for As, Se, and Ca by unnamed contract Laboratory; Analytical Method not recorded				
SR3-XX_100	Savannah River - Supplemental Analysis of sediments for As, Se, and Ca by unnamed contract Laboratory; Analytical Method not recorded		-100 Mesh		
StrongAc	Strong acid digestion			StrongAc	
SW1668A	Determination of PCBs by HRGC/HRMS				1668A
SW1668A_3520	Determination of PCBs by HRGC/HRMS		SW3520	SW3520	1668A
SW1668A_3535	Determination of PCBs by HRGC/HRMS			SW3535	1668A
SW1668A_3540	Determination of PCBs by HRGC/HRMS		SW3540	SW3540	1668A
SW80818082	Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs) by GC, combined method				SW80818082
SW8082	SW8082				SW8082
SW8270	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)				SW8270
SW8290	Polychlorinated Dibenzodioxins (PCDDs) & Polychlorinated Dibenzofurans (PCDFs) by High-Resolution GC/High Resolution MS				SW8290
SW9030M	Acid-Soluble and Acid-Insoluble Sulfides: Distillation, modified				SW9030M
TCLP-6010B	TCLP-6010B				
TCLP-6020A	TCLP-6020A				
Th-230_curve	Calibration self-absorption curves based on Th-230.				CSAC
THERM	Thermometer (mercury)				THERM

Titration	Titration				Titration
TOCCALC	Difference between total carbon (material volatilized from complete combusion) and inorganic carbon (material dissolved from hydrochloric acid)				
TOCCALC2	Difference between total carbon and carbonate carbon				
Turbid	Turbidimetry				Turbid
Turbid_bkg_corr	Turbidimetry with background correction				Turbid
Unk	Unknown or not specified				Unk
UnkRecov	Method not specified however known to involve recoverable fraction				
VALDERRAMA	Total Persulfate Nitrogen (TPN) and Phosphorus				
Visual_comp	Visual comparison. Aliquot of the centrifuged sample in a nessler tube is compared to std. colour solns., which are either hellige aqua tester colour solns. or std. solns. of chloroplatinate and co ions.				
VWRPROBE	VWR Multiprobe				
WDX_Fuse	WDX_Fuse				
WETCHEM	Wet Chemistry				
WetOx	Wet oxidation				WetOx
WetOx0_45	Wet oxidation using 0.45u filter		0_45u		WetOx
XRF	X-ray fluorescence				XRF

sample_material	description	matrix	material
Air	Air	L	Air
Barbels	Barbels	S	Tissue
Blank-Comp	Composite Blank	L	QCWater
Blank-Filteration	Blank-filteration	L	QCWater
Blank-Homogenization	Homogenization blank	L	QCWater
BlankWater	Blank water	L	QCWater
BlankWater-DODI	Blank water, Deoxygenated Deionized	L	QCWater
Body	Body	S	Tissue
Centrifuge_Blank	Centrifugation blank	L	QCWater
ChelexBlank	Chelex blank	L	QCWater
CityWater	City water	L	Water
Clam	Clam	S	Tissue
Crayfish	Crayfish	S	Tissue
Cu_test	Copper test	L	Water
DeconWater	Decontamination water	L	QCWater
Definitive	Definitive, sediment	S	Sediment
DGT	Diffusive gradients in thin films	L	Water
DGT_Decon_Blank	DGT, decontamination blank	L	QCWater
DGT_Method_Blank	Diffusive gradients in thin films, method blank	L	QCWater
DGT_Peep_OW	DGT, peeper, overwater	L	Water
DGT_Peep_PW	DGT, peeper, porewater	L	Porewater
DGT_Peep_SWI	DGT, peeper, surface water interface	L	Water
DOC0	DOC0	L	Water
DOC5	DOC5	L	Water
Eggs	Eggs	S	Tissue
EquipBlank	Equipment blank	L	QCWater
Fillet	Fillet, muscle tissue only	S	Tissue
FilletSkOff	Fillet, skin off	S	Tissue
FilletSkOn	Fillet, skin on (no scales if large)	S	Tissue
Fins	Fins	S	Tissue
FishCarcass	Fish remainder after fillet removal	S	Tissue
FishGullet	Fish gullet	S	Tissue
FishOffal	Fish organs	S	Tissue
FishOffalNoGut	Fish organs, stomach emptied	S	Tissue
GutContents	Contents of the stomach	S	Tissue
Head	Head	S	Tissue
HomogenBlank	Homogenization Blank	L	Water
Lab_Water	Lab water	L	Water
LabRinseBlank	Lab rinse blank	L	QCWater
LeftEye	Left eye	S	Tissue
LeftGill	Left gill	S	Tissue
Liver	Liver	S	Tissue
Mussel	Mussel	S	Tissue
Opercula	Opercula	S	Tissue

sample_material	description	matrix	material
OverWater	Overlying water	L	Water
Peeper	Peeper	L	Water
Peeper_Method_Blank	Peeper, method blank	L	QCWater
Periphyton	Periphyton	S	Tissue
Porewater	Sediment porewater	L	Porewater
Porewater-Centri	Sediment porewater, centrifugation	L	Porewater
Porewater-Peeper	Peeper porewater	L	Porewater
Reference	Reference	S	Sediment
RightEye	Right eye	S	Tissue
RightGill	Right gill	S	Tissue
RinseBlank	Rinse blank	L	QCWater
RinseWater	Rinsate water	L	QCWater
Sand	Sand	S	Sand
Sed and Surfwater	Sediment with intact surface water	M	Water
Sediment	Sediment	S	Sediment
Sediment_125-250um	Sediment >125um and <250um	S	Sediment
Sediment_250um-2mm	Sediment >250um and <2mm	S	Sediment
Sediment_63-125um	Sediment >63um and <125um	S	Sediment
Sediment<177um	Sediment < 177um	S	Sediment
Sediment<250um	Sediment <250um	S	Sediment
Sediment<2mm	Sediment < 2mm	S	Sediment
Sediment<62.5um	Sediment < 62.5um	S	Sediment
Sediment<63um	Sediment < 63um	S	Sediment
Sediment<75um	Sediment < 75um	S	Sediment
Sediment>75um	Sediment > 75um	S	Sediment
SieveBlank	Sieve blank	S	Sediment
Slag	Slag	S	Slag
SoftTissue	SoftTissue	S	Tissue
Soil	Soil	S	Soil
Soil<150um	Soil <150 um	S	Soil
Soil<2mm	Soil <2 mm	S	Soil
Soil-Bulk	Soil bulk	S	Soil
Soil-Core	Soil core	S	Soil
Solid	Solid blank	S	Solid
StockSolution	Stock solution	L	QCWater
StomachCarapace	Crayfish stomach and carapace	S	Tissue
Supernatant	Supernatant	L	Water
Surfwater	Surface water	L	Water
SuspendedSed	Suspended sediment	S	Sediment

sample_material	description	matrix	material
SWI	Sediment water interface	L	Water
Talus	Talus	S	Soil
Toxicity_Test	Toxicity test	L	Water
Water	Water	L	Water
WHeadTank	Head tank water	L	Water
WholeBody	Whole body	S	Tissue
WholeBodyNoSC	Whole body (excluding stomach and carapace)	S	Tissue
WholeFish	Whole fish	S	Tissue
WholeFishEst	Whole fish estimated from measurements of individual tissues	S	Tissue

lab_anal_method	description
110dry	dried at 110ºC
1613	Determination of CDDs/CDFs by HRGC/HRMS
1614	Determination of BDEs by HRGC/HRMS
1631E	1631E
1668A	Determination of PCBs by HRGC/HRMS
1N AmmAcet	1N ammonium acetate, ph=7
300.0	Determination of inorganic ions by ion chromatography
6010	EPA Method 6010 (ICP)
6010B	EPA Method 6010B (ICP)
6010C	EPA Method 6010C for Metals
6020	Metals by ICP/MS
6020A	6020A
8081	EPA SW846 8081 for PCBs
8081B	EPA Method 8081B for Organochlorine Pesticide
8082	8082
80823	EPA SW846 80823 for pesticides
8082A	EPA Method 8082A for PCBs
8260	EPA SW846 8260 for VOCs
8270	EPA SW846 8270 for SVOCs
8270CSIM	8270CSIM
9030M	9030M
9045D	9045D
9060	EPA SW846 9060 for TOC
AAS	Atomic Absorption Spectrometry
AD	AD
AES	Atomic Emission Spectrometry
ASF	Automated Segmented Flow Spectrophotometry
ASTMD412982M	ASTMD412982M
ASTMD42263	ASTM D 422-63 for grain size
AVS	Acid-Volatile Sulfide
CanSoil	CanSoil
CLP SOW	based on SW846 method 6010B/7471
CLP_LOW	CLP_LOW
COLOR	colorimetric determination
CombCO2	CombCO2
CombGas	CombGas
CombSO2	Combustion at 1350ºC - measurement of evolving SO2 using infrared detector
CombVol	CombVol
CondCell	Conductivity Cell
CSAC	Calibration self-absorption curves prepared using radioactive standards
CVAA	Cold Vapor Atomic Absorption
CVAAS	Cold Vapour Atomic Absorption Spectrophotometry
CVAF	Cold Vapour Atomic Fluoresnece
D412982M	D412982M
D422	D422
DNC	Delayed Neutron Counting

lab_anal_method	description
EP1_206.2	EP1_206.2
EP1_270.2	EP1_270.2
EP1_279.2	EP1_279.2
EPA 1632	EPA 1632
EPA 903.1	EPA 903.1
EPA 903.1m	EPA 903.1m
EPA_160.2	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.2
EPA_160.3	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.3
EPA_1600	Enterococci in Water by Membrane Filtration Using mEI Agar
EPA_200.7	EPA_200.7
EPA_200.8	EPA 200.8 (ICP-MS)
EPA_202.1	EPA_202.1
EPA_206.2	EPA_206.2
EPA_213.2	EPA_213.2
EPA_220.2	EPA_220.2
EPA_236.1	EPA_236.1
EPA_239.2	EPA_239.2
EPA_243.1	EPA_243.1
EPA_245.5	EPA_245.5
EPA_245.6	EPA_245.6
EPA_245.7	Mercury by Cold Vapor Atomic Flourescence (CVAF)
EPA_279.2	EPA 279.2 (GFAA)
EPA_289.2	EPA_289.2
EPA_300.0	EPA_300.0
EPA_3015A	Microwave assisted acid digestion of aqueous samples and extracts
EPA_3015Am	Microwave assisted acid digestion of aqueous samples and extracts, modified for solid samples
EPA_310.2	Alkalinity (Colorimetric, Automated, Methyl Orange)
EPA_340.2	EPA_340.2
EPA_350.1	Nitrogen as Ammonia, Colorimetric, Automated Phenate
EPA_351.2	Total Kjeldahl Nitrogen Colorimetric, Semi-Automated Block Digester
EPA_353.2	Nitrogen, Nitrate-Nitrite (Colorimetric, Automated Cadmium Reduction)
EPA_360.2	Dissolved Oxygen (DO) by Modified Winkler Full Bottle
EPA_365.1	Phosphorus, All Forms (Colorimetric, Automated, Ascorbic Acid)
EPA_365.3	Phosphorus, (All Forms), Colorimetric, Ascorbic Acid, Two Reagent
EPA_415.1	Organic Carbon, Total, Combustion or Oxidation
EPA_608.5	EPA_608.5
EPA_7470A	EPA_7470A
EPA_7740	EPA_7740
EPA_8082	EPA_8082
EPA_821_R91_100	EPA 821/R-91-100
EPA1613A	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water
EPA1613B	EPA Standard Method for High Resolution Analysis of Dioxins/Furans in Water
EPA245.1	Mercury (Cold Vapor, Manual)
EPA7470A	EPA_7470A
EPA7471A	EPA7471A
EPA7742	EPA7742

lab_anal_method	description
EPA8081A	EPA8081A
Evapour	Evapouration
FES	Flame Emission Spectroscopy
Filter	Filtration
FS	Fluorometry (Fluorescence Spectroscopy)
FTC	Flow-through centrifuge
g_count	gamma counting
GC_ECD	Gas Chromatography with Electron Capture Detector
GC_FID	Gas Chromatography with Flame Ionization Detector
GC_MS	Gas Chromatography Mass Spectrometryr
GFAAS	Graphite Furnace Atomic Absorption Spectrometry
Grav	Grav
HGAAS	Hydride Generation Atomic Absorption Spectroscopy
Hi-Bismuth	Hi-Bismuth reducible method
HiVol_PM10	Total Suspended Particulate matter less than 10 um in diameter trapped in a high volume air sampler.
HSL-300m	HSL-300m
HydGen	HydGen
IC	Ion Chromatography
ICAP	Inductively Coupled Argon Plasma Spectroscopy
ICP_MS	ICP Mass Spectrometer
ICP_OES	Inductively coupled plasma – optical emission spectrometer
ICP-AES	Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) for Metals and Trace Elements, SW6010
INAA	instrumental neutron activation analysis
ION	sodium carbonate-potassium nitrate fusion-specific ion electrode
IR	Infrared analyses
ISE	Ion selective Electrode
KFstrep_MF	KF streptococcus MF
Klute	Klute, A. 1986. Water retention: Laboratory methods.Agronomy No. 9. American Society of Agronomy.
LECO CR 12	LECO CR 12 carbon analyzer
LECO S	LECO Sulfur Analyser
MassSpec	Mass Spectrometry
mEndo_MF	m-Endo MF
mEnteroMF	m-Enterococcus MF
mFC_MF	mFC MF
NA	Not applicable (lab calculation or non-specified analytical method)
NAA	Neutron Activation Analysis
NADNC	Neutron Activation with Delayed Neutron Counting
PartSize	Particle size is determined using the pipette method. The sand content is determined by wet sieving.
Perkin-Elm	Perkin-Elmer atomic absorption spectrophotometer
pH	pH
pH_meter	Potemtiometric pH meter
PID	PID
Planchet_C	Planchet count
PSEP	PSEP
PSEP_GrSz	Puget Sound Estuary Protocols, Conventional Sediment Variables, Particle/Grain Size by Sieve-Pipette, 1986, Minor Rev. 2003
PSEP_TOC	PSEP_TOC

lab_anal_method	description
PSEP_TOCM	PSEP_TOCM
PSEP-PS	Puget Sound Estuary Protocols, Conventional Sediment Variables, Particle/Grain Size by Sieve-Pipette, 1986, Minor Rev. 2003
PSEP-TS2	Puget Sound Estuary Protocols, Conventional Sediment Variables, Total Sulfides, Distillation, 1986, Minor Rev. 2003
Radon	Radon method
Ruby, etal	Ruby, etal
Sieved	Dry sieved
SievePipet	SievePipet
SM10200H3M	Fluorometric determination of chlorophyll a in presence of pheophytin, modified method
SM2320B	SM2320B
SM2340B	SM2340B
SM2340C	SM2340C
SM2510B	Specific conductivity
SM2540C	SM2540C
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C
SM2540G	Total, Fixed and Volatile Solids in Solid and Semisolid Samples
SM4500HB	SM4500HB
SM4500NB	Total Persulfate Nitrogen
SM4500NH3G	Nitrogen (Ammonia) Automated Phenate
SM4500NH3H	Nitrogen (as Ammonia, NH3) by Flow Injection Analysis
SM4500NO3I	Nitrogen (Nitrate, NO3/Nitrite, NO2) by Cadmium Reduction Flow Injection Method
SM4500PG	Phosphorus/Orthophosphate by Flow Injection Analysis
SM4500PI	Total Phosphorus by In-Line UV/Persulfate Digestion and Flow Injection Analysis
SM4500S2D	Sulfide (Colorimetric, Methylene Blue)
SM4500SiO2C	SM4500SiO2C
SM5310B	Total Organic Carbon (TOC), High Temperature Combustion Method
SM5310C	SM5310C
SM9222D	Fecal Coliform by Membrane Filtration using mFC Medium
SpectrpPho	Spectrophotometrically
SW80818082	Organochlorine Pesticides and Polychlorinated Biphenyls (PCBs) by GC, combined method
SW8082	SW8082
SW8270	Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)
SW8290	Polychlorinated Dibenzodioxins (PCDDs) & Polychlorinated Dibenzofurans (PCDFs) by High-Resolution GC/High Resolution MS
SW9030M	Acid-Soluble and Acid-Insoluble Sulfides: Distillation, modified
THERM	Thermometrically
Titration	Titration
Turbid	turbidimetry
Unk	Unknown
WetOx	Wet oxidation
XRF	X-Ray Fluorescence

lab_prep_method	description
0_45u	Trapped on 0.45u membrane filter
-100 Mesh	Sieved to <150 microns (-100 mesh) and dried at 110°C. Analytical sample comprises fractions 500 to 1000 um.
10HCl	Treatment with 10% HCl to remove inorganoc carbonates
2mm sieve	Air dried or dried at < 40C, pinned and sieved through a 2mm sieve
3051	USEPA method: microwave assisted acid digestion of sediments, sludges, soils and oils.
9200Mod	USEPA 9200.2-86 Modified, Glycine extraction.
BlockDgst	Block digest
Dry sieved	Dry sieved
Jirka	Digestion using the modified Jirka method
Kjeldahl	Kjeldahl digestion
MEHLICH84	Mehlich 1984: acetic and nitric acid; ammonium fluoride and ammonium nitrate; EDTA.
modJirka	Digestion using the modified Jirka method
NaOCl	Sodium hypochlorite teratment to destroy organic matter.
PartSize	Organic matter is removed using sodum hypochlorite
Sieved65um	Sieved to less than 65 um.
SW3520	SW3520
SW3540	SW3540
uKjeldahl	Microkjeldahl Digestion
WetOxDig	Non-heated sample subjected to an oxidative digestion, followed by reduction and aeration.

lab_extraction_method	description
0.1 N HCL	0.1 N HCL extract
AcHx	Acetone/Hexane extraction
APDC_MIBK	1-pyrrolidinecarbodithoic acid and methyl isobutyl ketone
ARD	aqua regia disgestion
Bray	Bray (NH4F) extaction
CaCl2	Calcium chloride extract
CH3COONH4	Ammonium acetate extract
CLAA	CLAA
CLFAA	CLFAA
EPA_3520C	EPA_3520C
EPA_3535	EPA_3535
EPA3050B	EPA strong acid digestion
EPA3541	EPA3541
EPA9030B	EPA9030B
InVitro	In vitro extraction
Meth	Methanol extraction
Recov	Acid digestion for total recoverable analyses
SALM	Strong Acid Leachable Metals (SALM) drying the sample at 60°C, sieving using a 2-mm mesh sieve, and digestion using a mixture of hydrochloric and nitric acids.
SEM	Simultaneously extractable metals
SPLP	Synthetic Precipitation Leaching Procedure - metals extraction
SSE	Sequential Selective Extraction (European Commission of Standards, Measurements, and Testing - Rauret et al., 2001)
StrongAc	Strong acid digestion
SW3520	SW3520
SW3535	SW3535
SW3540	SW3540
T20	Total digestion using 4 acids: hydrochloric, nitric, perchloric, and hydrofluoric acids (lab code T20 as described in Briggs and Meier, 2002)

meas_basis	description
AirDried	Air dried
AmbObs	Ambient observation, e.g. wind speed - not related to a sample and not to be confused with a field measurement of a sample.
Dissolved	Dissolved (filtered sample)
DryNoAsh	Ash free dry mass
DryWt	Dry weight
Extrctble	Extractable (not filtered but preserved with concentrated nitric acid)
PerSamp	Per sample
Susp	Suspended
TOC	oc normalized
Total	Total (unfiltered sample)
Unfilt	Unfiltered (whole water sample)
Unk	Unknown
WetWt	Wet weight

qc_type	description
Blank	Blank
BottleBlank	Bottle blank
ChelexBlank	Chelex Blank
DeconBlank	Decontamination blank
EquipBlank	Equipment blank
LCS	Laboratory Control Sample
LCSDUP	LCSDUP
MatSpike	Matrix spike
MatSpikeDup	Matrix spike duplicate
MethodBlank	Method blank
Natural	Natural sample; not a QC sample
PWBlank	Porewater blank
ReagBlank	Reagent blank
RinseBlank	Rinsate blank
SRM	Standard Reference Material
TripBlank	Trip blank
WipeBlank	Wipe blank

unit	description
#	Count
#/100mL	Count per 100 mL
%	percent
cell/ml	cells per milliliter
CFS	Cubic feet per second
CFU/cL	Colony Forming Unit per centiliter
cm	Centimeters
cm/sec	Centimeter per second
code	Code
col/100mL	colonies per 100 milliliters
col/1100mL	colonies per 1100 milliliters
CU	Color unit
days	Days
degC	Degrees Centigrade
degF	Degrees Fahrenheit
degrees	Degree of arc
female	Female
ft	Feet
ft bls	feet below land surface
FTU	Formazin Turbidity Unit
g	Grams
g/cm3	Grams per cubic centimeter
g/kg	Grams per kilogram
g/L	Grams per Liter
g/m2	grams per square meter
g/mL	Grams per milliliter
hPa	Hectopascal
in	Inches
in/hour	Inch per hour
JTU	Jackson Turbidity Unit
Kcfs	Kilo cubic feet per second
kg	Kilograms
kg/m3	Kilograms per cubic meter
km	Kilometers
m	Meters
m/s	Meters per second
m3	Cubic meter
m3/sec	Cubic meters per second
male	Male
me/100gm	Milliequivalents per 100 gram
me/L	Milliequivalents per liter
mg CaCO3/L	mg CaCO3/L
mg N/L	Milligrams nitrogen per liter
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m2	milligrams per square meter
mg/m3	Milligrams per cubic meter
MGD	Million gallons per day
milligrams	Milligrams

unit	description
min	Minutes
mL	Milliliters
mm	Millimeters
mm2	Square millimeter
mmHg	millimeters of mercury
MPN/100mL	most probable number per 100
mS/cm	Millisiemens per centimeter
mS/m	Millisiemens per meter
mV	millivolts
ng	Nanograms
ng/g	Nanograms per gram
ng/kg	Nanograms per kilogram
ng/L	Nanograms per liter
ng/mL	Nanograms per milliliter
NTU	Nephelometer Turbidity Unit
ODU	optical density (absorbance) per cm
Pa	Pascal
pcf	Pounds per cubic foot
pCi	Picocuries
pCi/g	picocuries per gram
pCi/L	picocuries per liter
PCU	platinum cobalt units
percent	Percent by weight
permille	Parts per thousand
pg/g	Picograms per gram
pg/L	Picograms per liter
pg/m3	Picograms per cubic meter
pg/Sample	Picograms per sample
pg/uL	Picograms per microliter
ppm	Parts per million by weight
promille	Parts per thousand
ratio	Ratio
RU	rel units
SU	Standard pH units
ton/ac-ft	tons per acre-foot
tons/d	Tons per day
ug	Micrograms
ug/g	Micrograms per gram
ug/kg	Micrograms per kilogram
ug/L	Micrograms per liter
ug/m3	Micrograms per cubic meter
um2	Square micrometer
umol/g	Micromoles per gram
umol/L	Micromoles per liter
Unk	Unknown units
uS	Microsiemens
uS/cm	Microsiemens per centimeter
volts	Volts
year	Year

nd_reported_to	description
MDL	method detection limit
MRL	method reporting limit
Other	other limit

APPENDIX D

DATABASE OPERATION FOR USERS

Appendix D—Database Operation for Users

The Teck American Incorporated (TAI) Upper Columbia River (UCR) database and documents associated with the project database are available on a web tool developed for this project. The site address for the UCR database web tool is http://teck-ucr.exponent.com. Each user is required to have a unique user name and password. There is a registration form available for new users (Figure D-1). The completed form is sent to site administrators for approval. Once approved, the user will receive an e-mail from the UCR database web tool that will enable access to the web tool.

There are a number of tabs available to the typical user, including Home, Documents, Stations, Data, Map, Downloads, Database History, and Discussion Board.

Home

The Home tab (Figure D-2) contains basic information for the users and a section where generic site administration notes can be posted for the users. These notes concern the general operation of the UCR database web tool (i.e., changes made, site problems that could affect user access to features of the site, etc.).

Documents

The documents associated with the project database can be queried, viewed, and/or downloaded from this page (Figure D-3).

Stations

Sampling stations can be queried from this tab (Figure D-4). There are a number of variables that can be used to narrow the final list of stations queried. Once the variables are selected, there are two options to query the station data: "Query All Stations" and "Query Study Stations." The Query All Stations option will do a query on the complete station list independent of a study. The Query Study Stations option will add the study information to the query result. The Query Study Stations option could return more than one record because some stations may have been or will be sampled more than once.

Once the query is run, a page will be displayed showing the first 15 results of the query (Figure D-5). There will be additional pages depending on the number of records returned. The example shown in Figure D-5 is the result for a query for all stations for the Teck_2009_Phase_II_SW study. The results show that there are 85 records shown across 6 pages. The "location_id" field is linked to additional information about the specific stations shown. The results from this query can be viewed from this results page or downloaded as a Microsoft® Excel table. The table downloaded will have three worksheets: T_Station, locations, and SQL_used. The T_Station table contains information about each station. The locations table has coordinates for the stations

in both UTM and decimal degrees. The SQL_used table contains the string of code used to obtain these results from the project database.

Data

The Data search tab (Figure D-6) has five data categories: Laboratory Results, Field Measurements, Histopathology Results, Bioassay Data, and Bioaccumulation Results. When one of these categories is selected the search criteria can be displayed. The query process works similar to the Stations tab query. The data can be queried based on the variables shown, the results displayed, and downloaded to a Microsoft® Excel table. Shown in this example are the fields available to create a Laboratory Results query (Figure D-7). Figure D-8 is an example of the first page of the returned query if a Laboratory Results query is done on the Teck_2009_Phase_II_SW study.

Map

The Map tab can display station locations returned from a Stations query. These stations can be queried directly from the list available on this page or from a query result on the Stations tab. This page uses Bing™ as the base mapping layer and can display a base map using a simple street view (Figure D-9) or display aerial photograph coverage (Figure D-10).

Downloads

The Downloads tab (Figure D-11) contains links to various other data and documents that may be useful to the user. The complete project database is available to be downloaded as a zipped Microsoft® Access database from this tab. The list of materials available on this tab will be updated if additional information is requested to be posted.

Database History

The Database History tab (Figure D-12) displays any changes that have occurred to the project database. This database history is also available when the Microsoft® Access database version is downloaded.

Discussion Board

This is a blog-like discussion forum where comments and/or questions can be posted.

The following tabs are enabled for the UCR database web tool administrators: Schedule Tracking, Web Tool History, Users, and Logs.

Schedule Tracking

This tab enables authorized users to track the status of sample data. The sample data groups can be queried to check on the status of the various data deliverables required.

Users

This tab lists all the registered users and their contact information on the web tool.

Logs

This is a default page provided with the content management software that keeps a history of the number of people that have accessed the UCR database web tool.

FIGURES

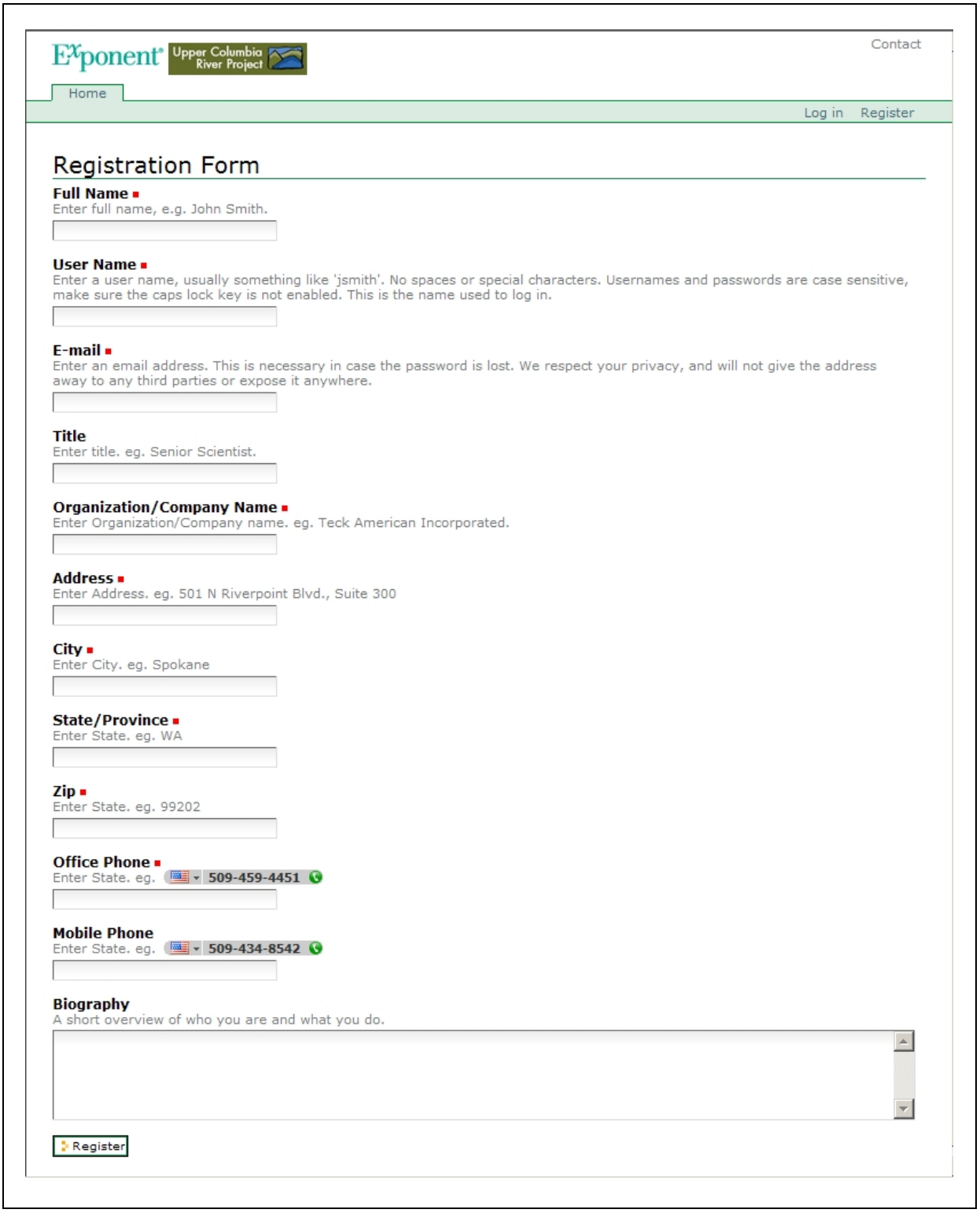


Figure D-1. Registration Page of the UCR Database Web Tool

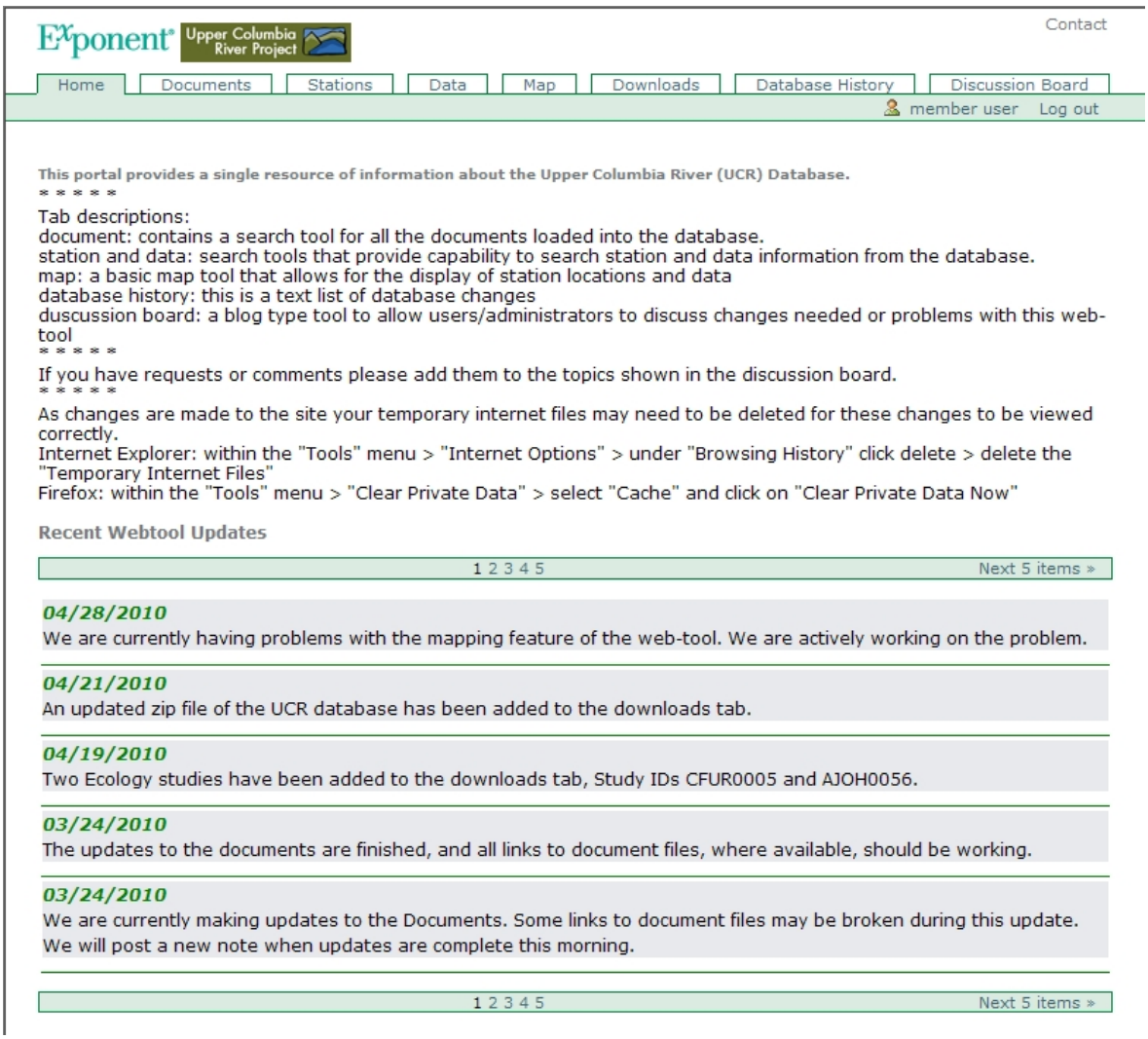


Figure D-2. Home Page of the UCR Database Web Tool

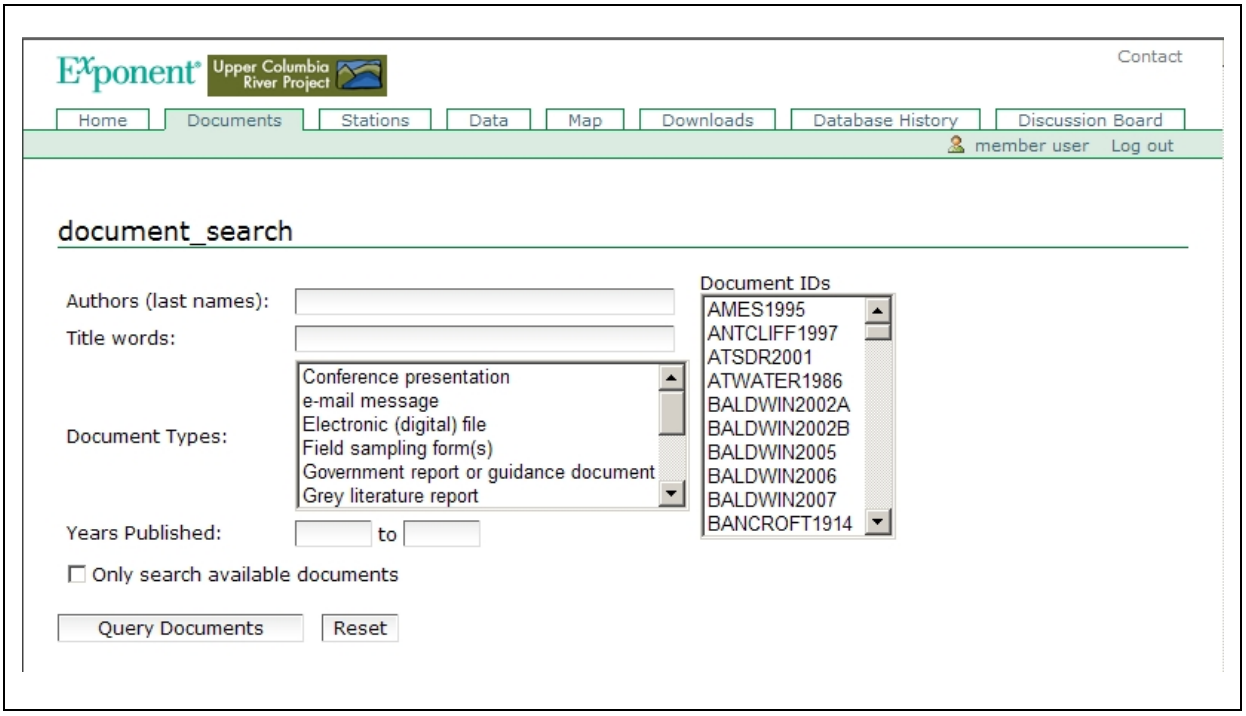


Figure D-3. Documents Page of the UCR Database Web Tool

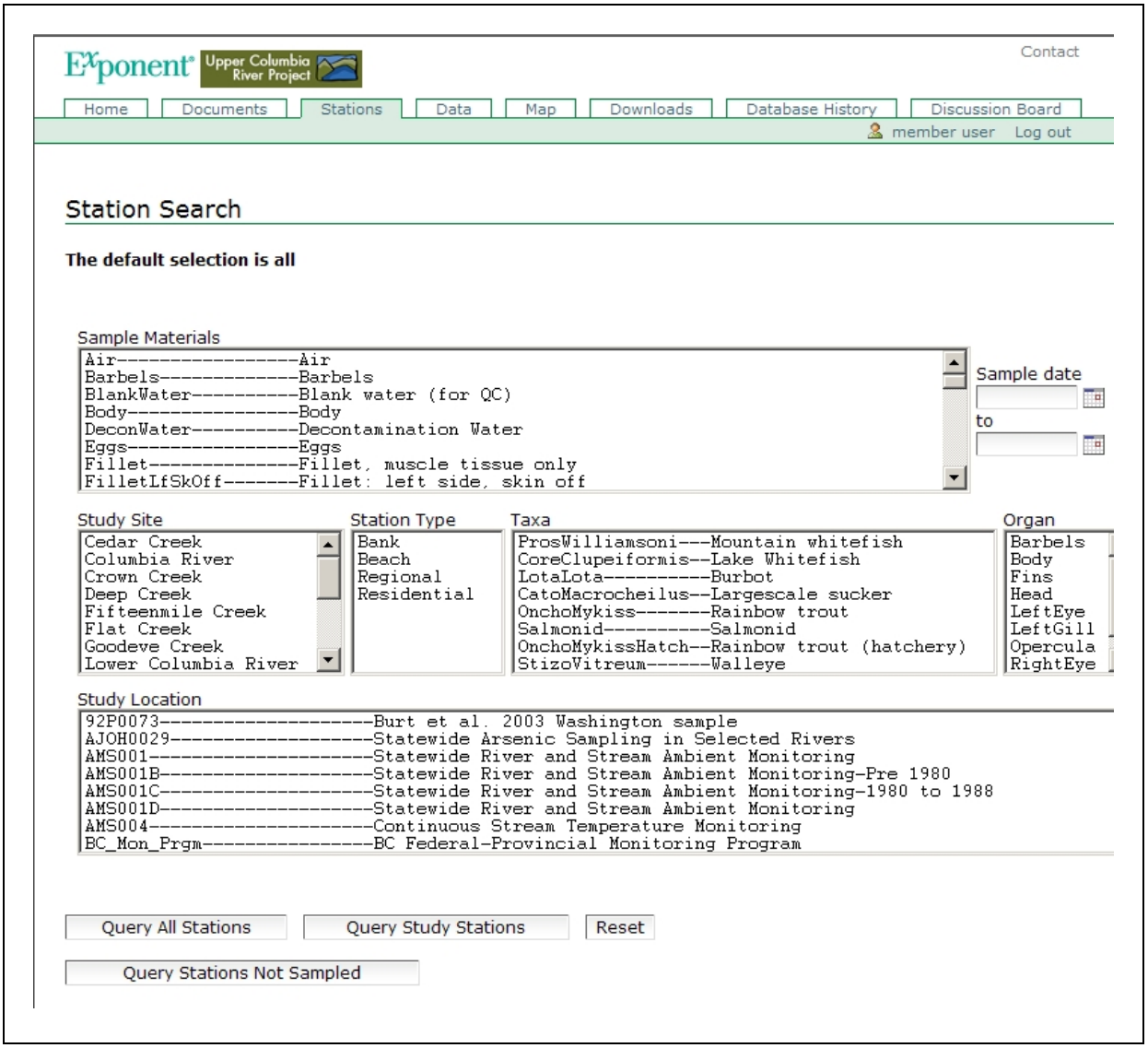
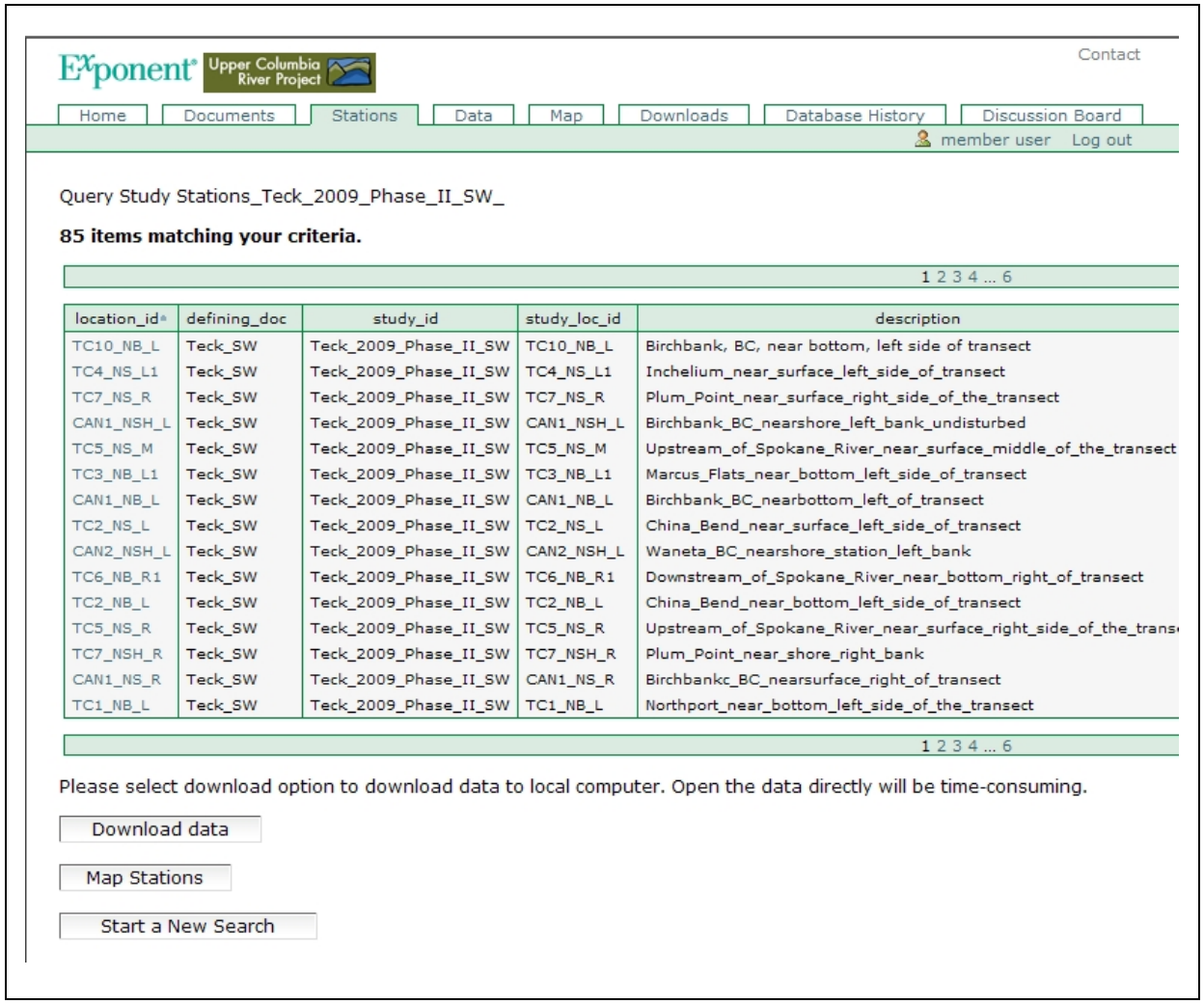


Figure D-4. Stations Query Page of the UCR Database Web Tool



Exponent Upper Columbia River Project

Contact

Home | Documents | Stations | Data | Map | Downloads | Database History | Discussion Board

member user Log out

Query Study Stations_Teck_2009_Phase_II_SW_

85 items matching your criteria.

1 2 3 4 ... 6

location_id	defining_doc	study_id	study_loc_id	description
TC10_NB_L	Teck_SW	Teck_2009_Phase_II_SW	TC10_NB_L	Birchbank, BC, near bottom, left side of transect
TC4_NS_L1	Teck_SW	Teck_2009_Phase_II_SW	TC4_NS_L1	Inchelium_near_surface_left_side_of_transect
TC7_NS_R	Teck_SW	Teck_2009_Phase_II_SW	TC7_NS_R	Plum_Point_near_surface_right_side_of_the_transect
CAN1_NSH_L	Teck_SW	Teck_2009_Phase_II_SW	CAN1_NSH_L	Birchbank_BC_nearshore_left_bank_undisturbed
TC5_NS_M	Teck_SW	Teck_2009_Phase_II_SW	TC5_NS_M	Upstream_of_Spokane_River_near_surface_middle_of_the_transect
TC3_NB_L1	Teck_SW	Teck_2009_Phase_II_SW	TC3_NB_L1	Marcus_Flats_near_bottom_left_side_of_transect
CAN1_NB_L	Teck_SW	Teck_2009_Phase_II_SW	CAN1_NB_L	Birchbank_BC_nearbottom_left_of_transect
TC2_NS_L	Teck_SW	Teck_2009_Phase_II_SW	TC2_NS_L	China_Bend_near_surface_left_side_of_transect
CAN2_NSH_L	Teck_SW	Teck_2009_Phase_II_SW	CAN2_NSH_L	Waneta_BC_nearshore_station_left_bank
TC6_NB_R1	Teck_SW	Teck_2009_Phase_II_SW	TC6_NB_R1	Downstream_of_Spokane_River_near_bottom_right_of_transect
TC2_NB_L	Teck_SW	Teck_2009_Phase_II_SW	TC2_NB_L	China_Bend_near_bottom_left_side_of_transect
TC5_NS_R	Teck_SW	Teck_2009_Phase_II_SW	TC5_NS_R	Upstream_of_Spokane_River_near_surface_right_side_of_the_trans
TC7_NSH_R	Teck_SW	Teck_2009_Phase_II_SW	TC7_NSH_R	Plum_Point_near_shore_right_bank
CAN1_NS_R	Teck_SW	Teck_2009_Phase_II_SW	CAN1_NS_R	Birchbankc_BC_nearsurface_right_of_transect
TC1_NB_L	Teck_SW	Teck_2009_Phase_II_SW	TC1_NB_L	Northport_near_bottom_left_side_of_the_transect

1 2 3 4 ... 6

Please select download option to download data to local computer. Open the data directly will be time-consuming.

Download data

Map Stations

Start a New Search

Figure D-5. Example of Stations Query Results

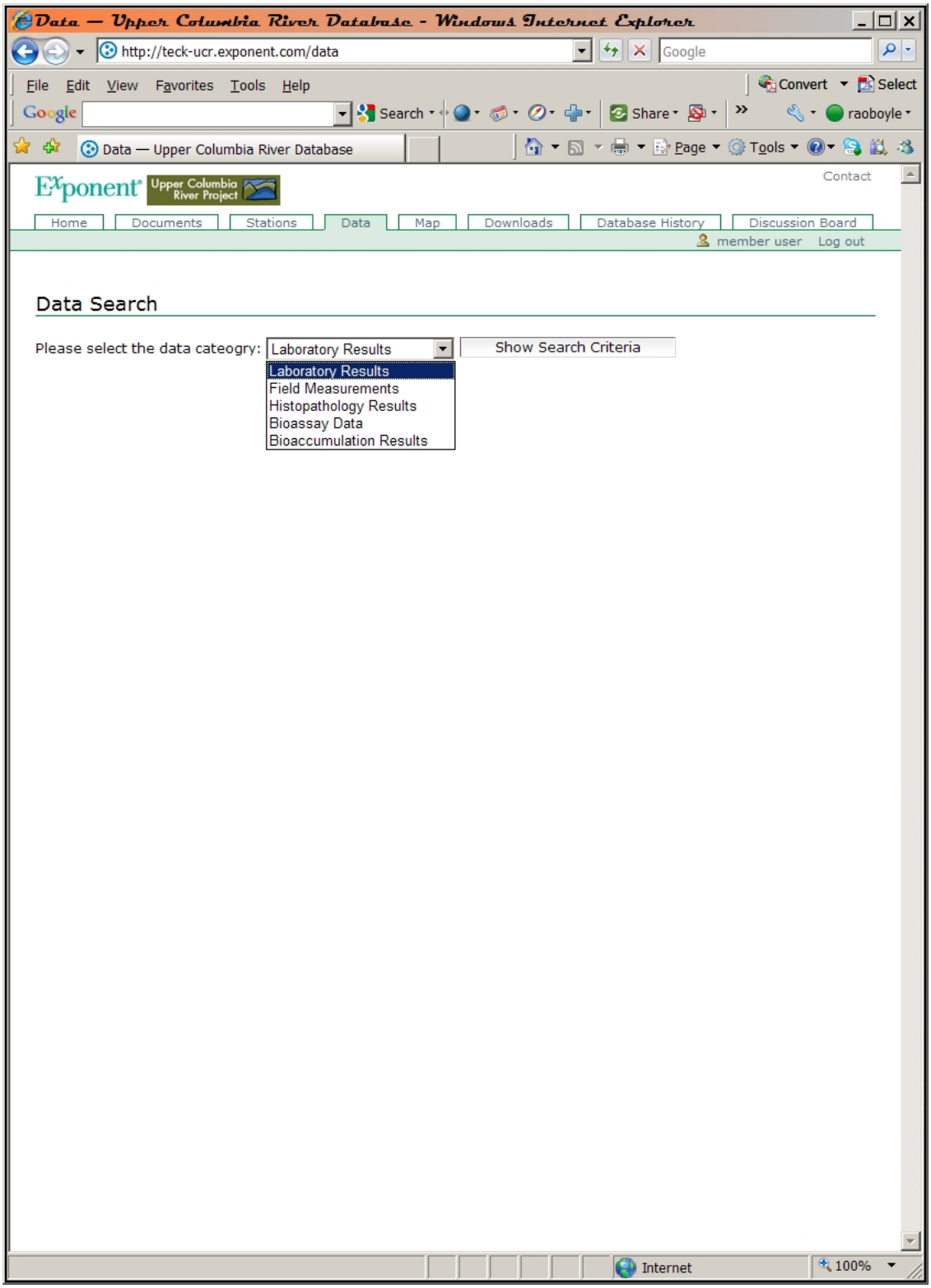


Figure D-6. Data Page of the UCR Database Web Tool

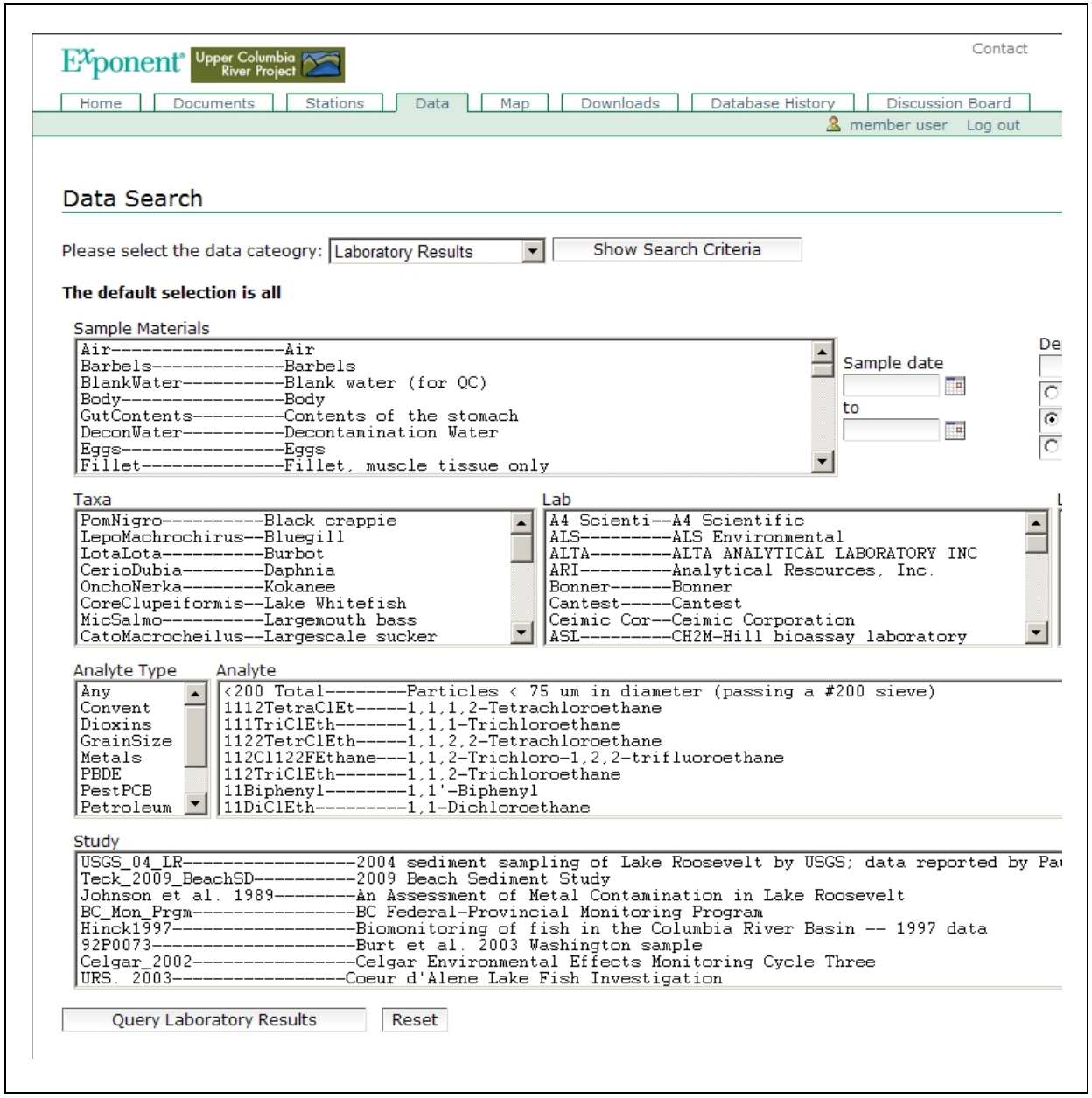
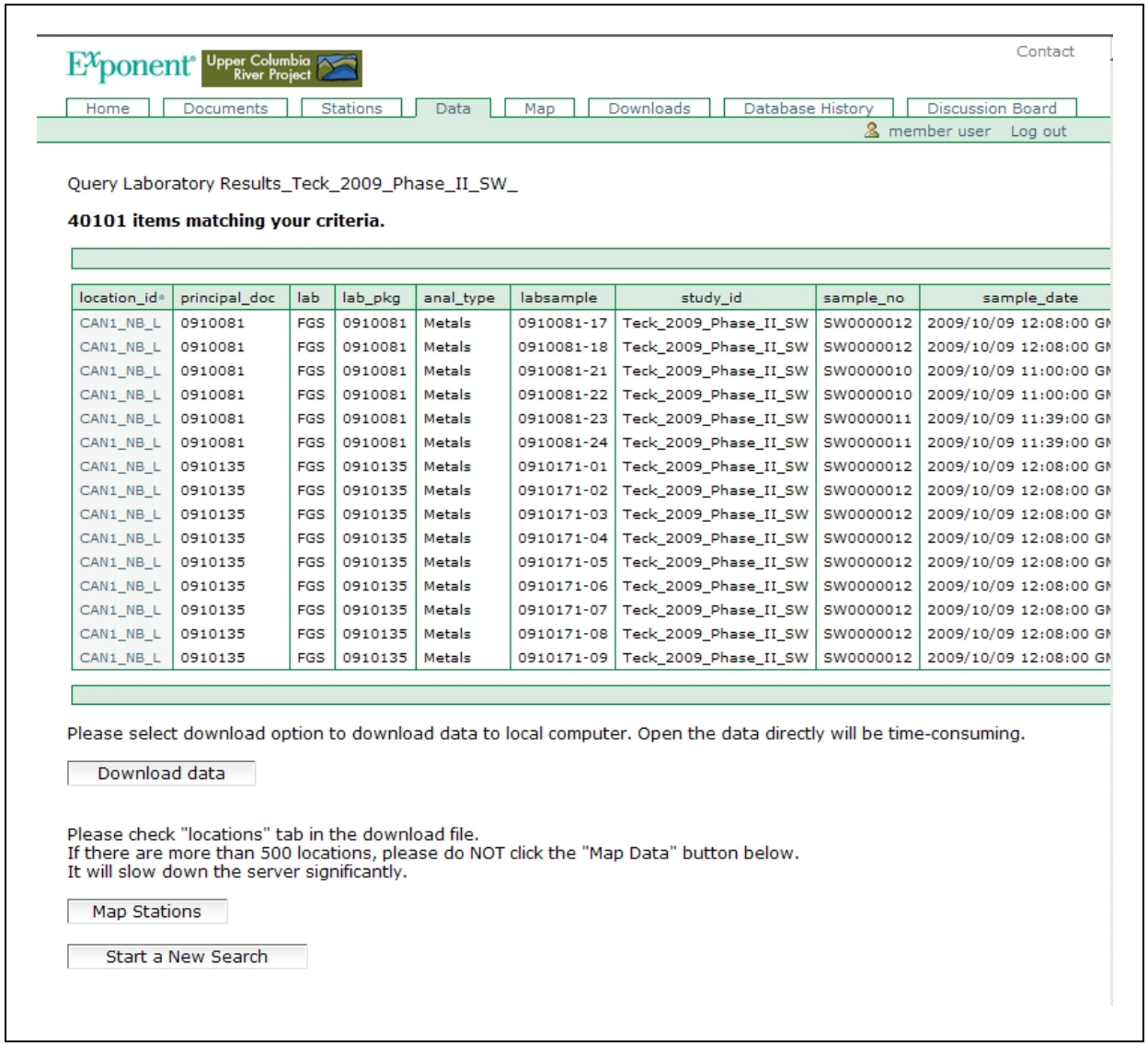


Figure D-7. Laboratory Results Query Page of the UCR Database Web Tool



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member user Log out

Query Laboratory Results_Teck_2009_Phase_II_SW_

40101 items matching your criteria.

location_id	principal_doc	lab	lab_pkg	anal_type	labsample	study_id	sample_no	sample_date
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-17	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-18	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-21	Teck_2009_Phase_II_SW	SW0000010	2009/10/09 11:00:00 GM
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-22	Teck_2009_Phase_II_SW	SW0000010	2009/10/09 11:00:00 GM
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-23	Teck_2009_Phase_II_SW	SW0000011	2009/10/09 11:39:00 GM
CAN1_NB_L	0910081	FGS	0910081	Metals	0910081-24	Teck_2009_Phase_II_SW	SW0000011	2009/10/09 11:39:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-01	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-02	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-03	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-04	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-05	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-06	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-07	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-08	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM
CAN1_NB_L	0910135	FGS	0910135	Metals	0910171-09	Teck_2009_Phase_II_SW	SW0000012	2009/10/09 12:08:00 GM

Please select download option to download data to local computer. Open the data directly will be time-consuming.

Download data

Please check "locations" tab in the download file.
If there are more than 500 locations, please do NOT click the "Map Data" button below.
It will slow down the server significantly.

Map Stations

Start a New Search

Figure D-8. Example Results Table

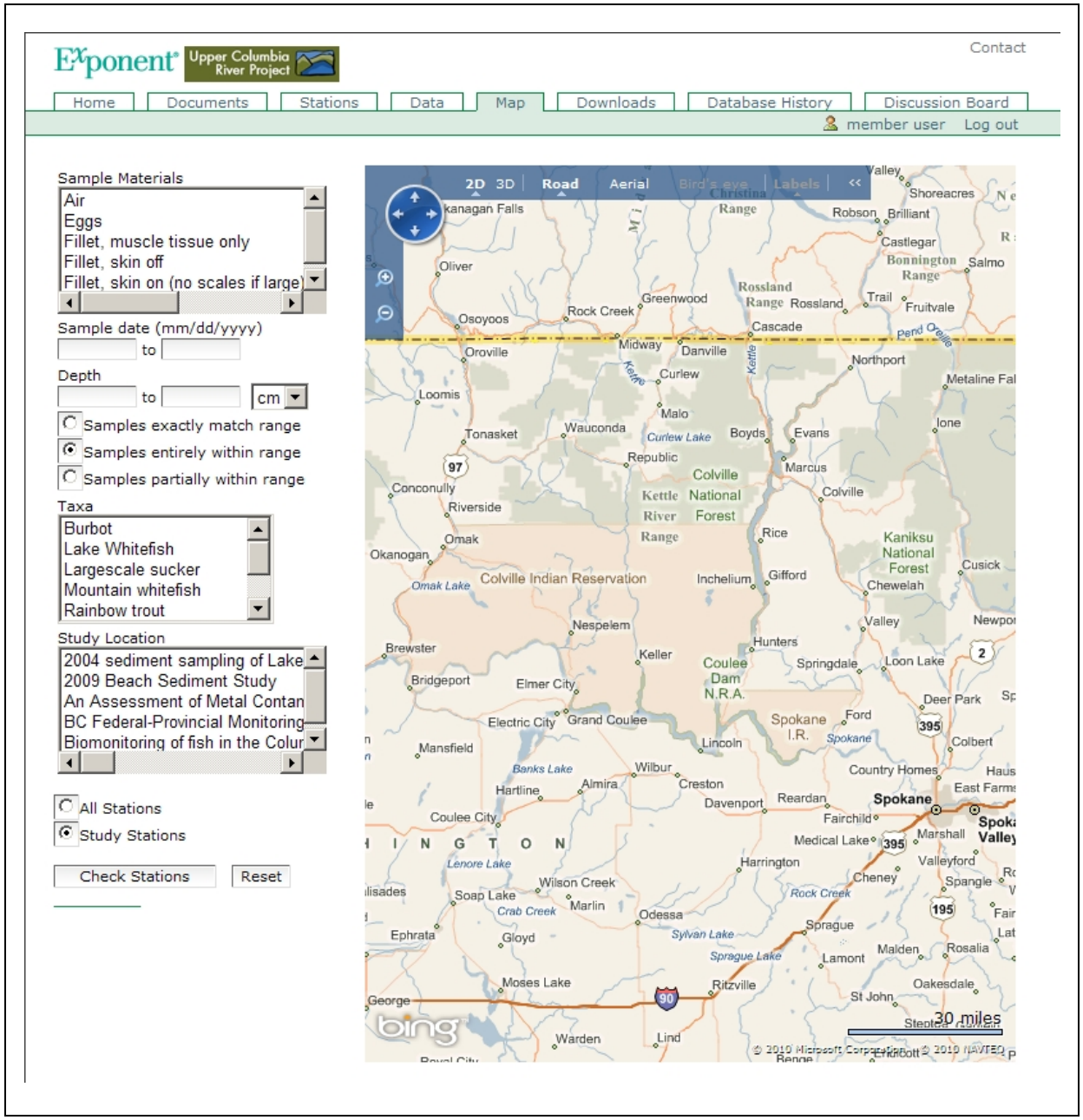


Figure D-9. Street View Map Page of the UCR Database Web Tool

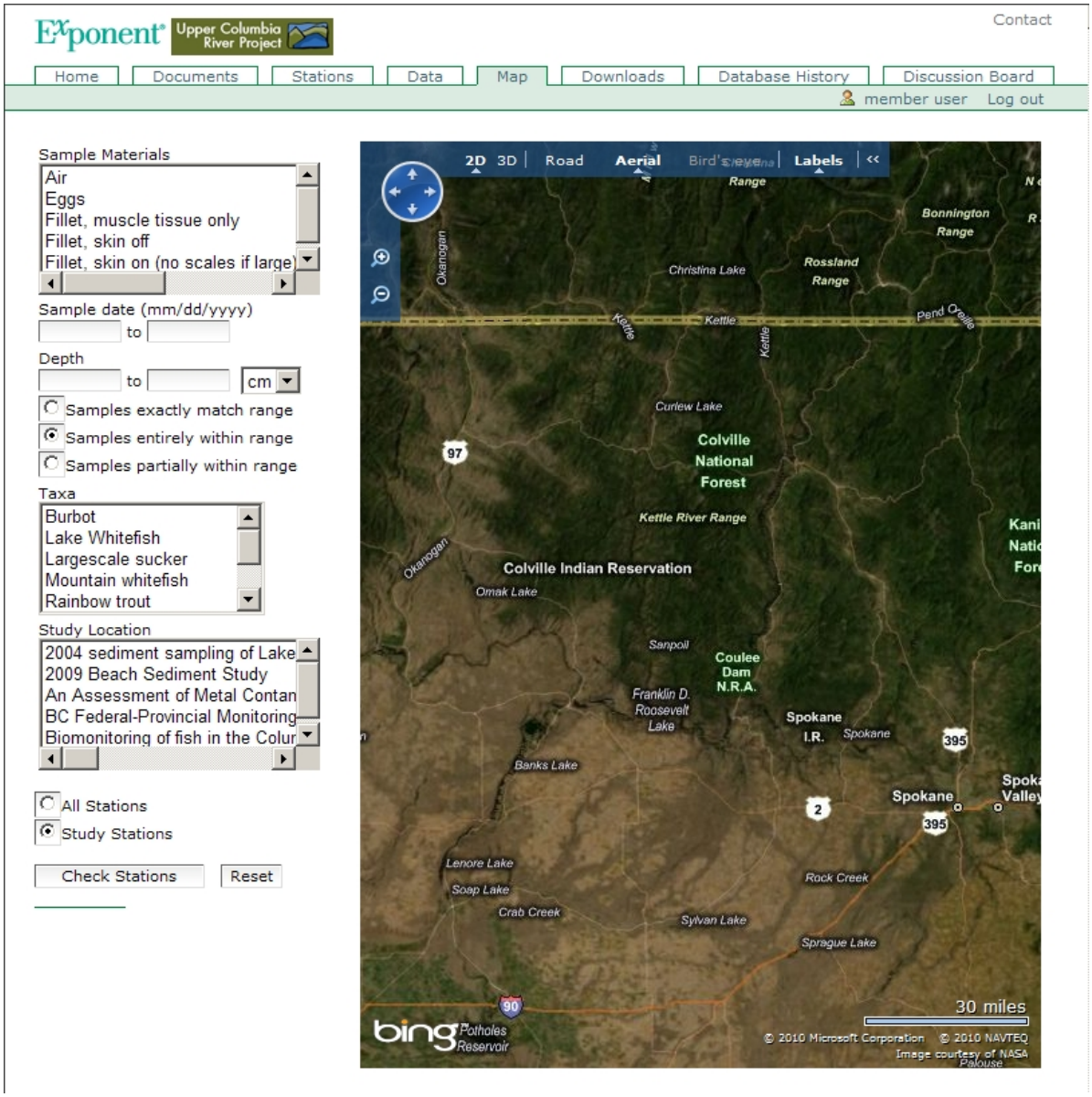
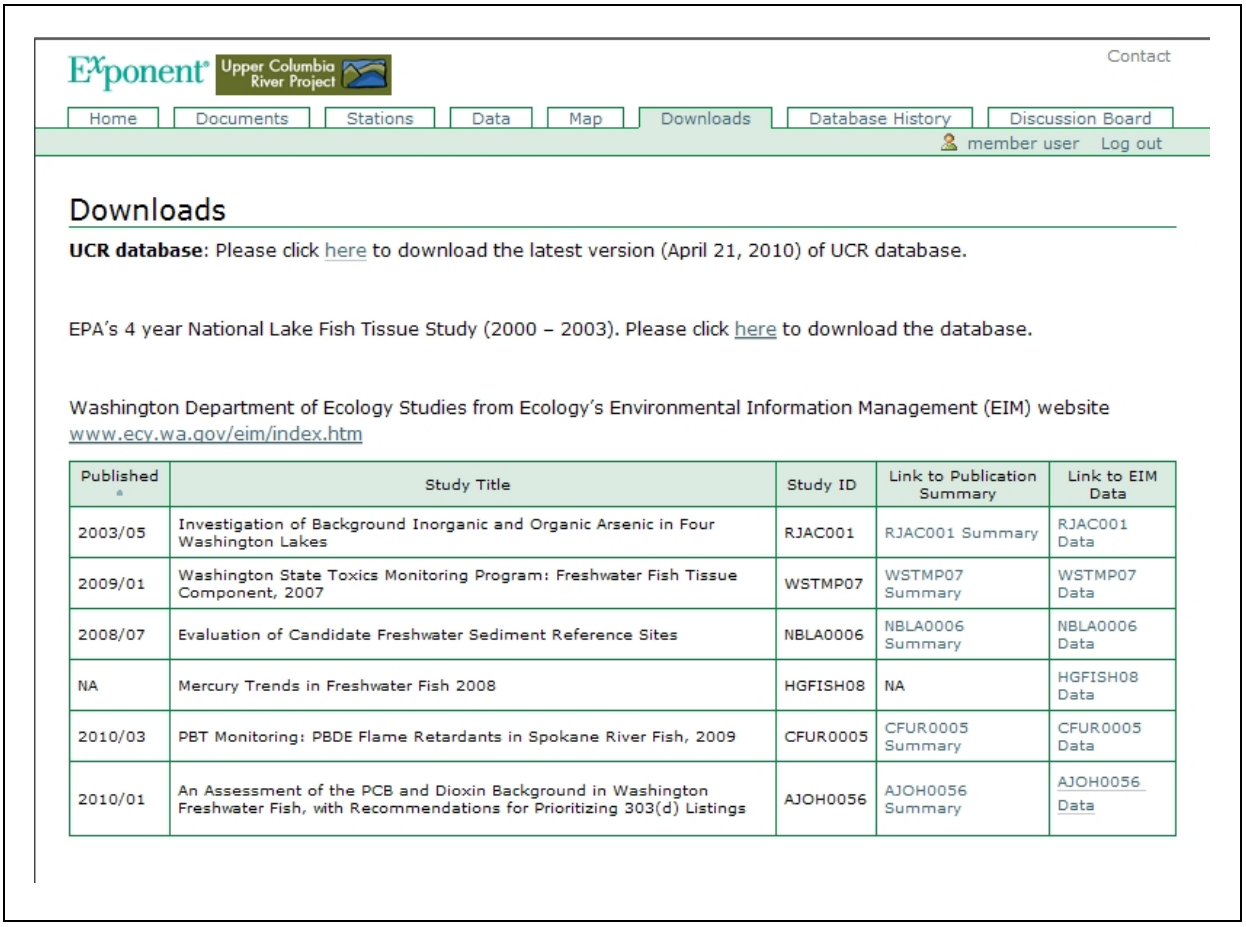


Figure D-10. Aerial Photograph Map Page of the UCR Database Web Tool



Published	Study Title	Study ID	Link to Publication Summary	Link to EIM Data
2003/05	Investigation of Background Inorganic and Organic Arsenic in Four Washington Lakes	RJAC001	RJAC001 Summary	RJAC001 Data
2009/01	Washington State Toxics Monitoring Program: Freshwater Fish Tissue Component, 2007	WSTMP07	WSTMP07 Summary	WSTMP07 Data
2008/07	Evaluation of Candidate Freshwater Sediment Reference Sites	NBLA0006	NBLA0006 Summary	NBLA0006 Data
NA	Mercury Trends in Freshwater Fish 2008	HGFISH08	NA	HGFISH08 Data
2010/03	PBT Monitoring: PBDE Flame Retardants in Spokane River Fish, 2009	CFUR0005	CFUR0005 Summary	CFUR0005 Data
2010/01	An Assessment of the PCB and Dioxin Background in Washington Freshwater Fish, with Recommendations for Prioritizing 303(d) Listings	AJOH0056	AJOH0056 Summary	AJOH0056 Data

Figure D-11. Downloads Page of the UCR Database Web Tool

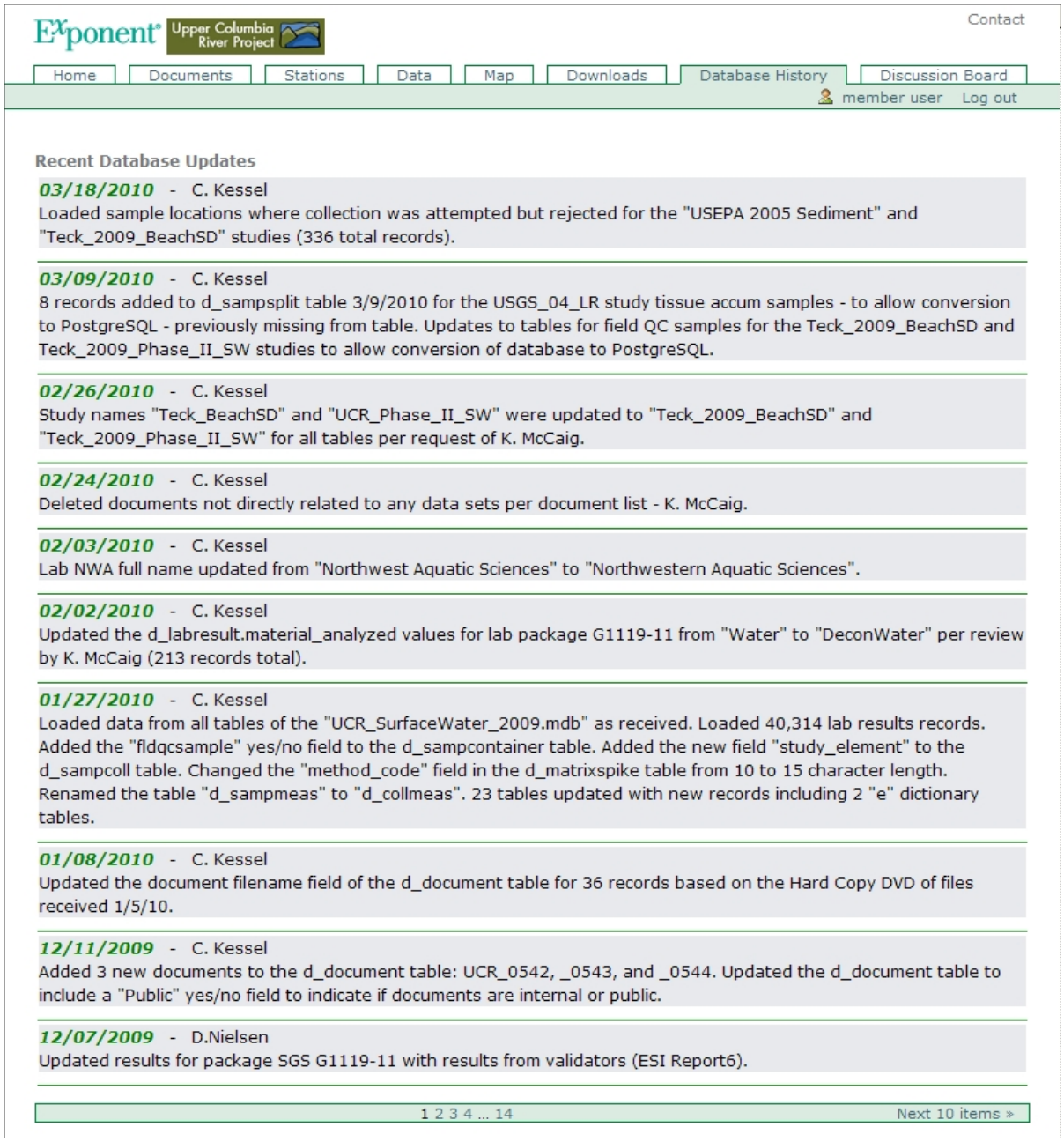


Figure D-12. Database History Page of the UCR Database Web Tool

APPENDIX E

DATA QUALITY FLAGS USED IN THE PROJECT DATABASE

Table E-1. Data Quality Flags Used For Data Collected During Pre-2006 Settlement Agreement Studies

Study Name	Study_ID	Validator Flags	Validator Flag Description
BC Federal-Provincial Monitoring Plan	BC_Mon_Prgm	C	Not available
		ME	Not available
		NV	Not available
		V	Not available
Phase I (2005) Fish Tissue Study (CH2M HILL 2007)	USEPA 2005 Tissue	J	Not available
		Q	Not available
		U	Not available
		UJ	Not available
		UQ	Not available
Phase I (2005) Sediment Toxicity Test (CH2M HILL 2012)	USEPA 2005 Sediment	D	Not available
		J	Not available
		M	Not available
		PD	Not available
		R	Not available
		U	Not available
		UJ	Not available
Cox et al. (2005) study	USGS_Cox2005	U	Not available
USGS NASQAN Program (Northport Station)	USGS_Northp	k	Counts outside acceptable range
USGS water quality samples for Washington (Spokane River at Long Lake WA)	USGS_SpokLL	d	Diluted sample: method high range exceeded
		k	Counts outside acceptable range
		n	Below the LRL and above the LT-MDL

Notes:

Cox, S.E., P.R. Bell, J.S. Lowther, and P.C. VanMetre. 2005. Vertical Distribution of Trace-Element Concentrations and Occurrence of Metallurgical Slag Particles in Accumulated Bed Sediments of Lake Roosevelt, Washington, September 2002. Scientific Investigations Report 2004-5090. U.S. Geological Survey.

CH2M HILL. 2007. Final Phase I Fish Tissue Sampling Data Evaluation, Upper Columbia River Site CERCLA RI/FS. October 30, 2007.

CH2M HILL. 2012. Final Summary and Evaluation of Phase 1 (2005) Sediment Toxicity Tests, Upper Columbia River Site. August 2012.

USGS NASQAN (National Stream Quality Accounting Network) Program from the SRC UCR database.
USGS – United States Geological Survey

Table E-2. Data Quality Flags Used By Data Validators For Data Collected During Post-2006 Settlement Agreement Studies

Study Name	Study_id	Validator Flags[a]
2009 Beach Sediment Study	Teck_2009_BeachSD	C
		C EMPC
		C J
		C J EMPC
		C U
		C U*
		EMPC
		J
		J EMPC
		R
		U
		U*
		UJ
2009 Fish Tissue Study	Teck_2009_fish	EMPC
		J
		J EMPC
		R
		U
		U*
		Ui
		UJ
2009 Surface Water Round 1	Teck_2009_Phase_II_SW_R1	*
		C
		C EMPC
		C J
		C J EMPC
		C U
		C U*
		C UJ
		EMPC
		J
		J EMPC
		R
		U
		U*
		UJ
2009 White Sturgeon 96-hr Acute, 40 Days Post Hatch, Field Study	Teck_2009_Str40dph_Field	J
		JU*
		R
		U*
2009 White Sturgeon 96-hr Acute, 8 Days Post Hatch, Field Study	Teck_2009_Str8dph_Field	J
		JU*
		R
		U*
2009 White Sturgeon 96-hr Acute, 8 Days Post Hatch, Lab Study	Teck_2009_Str8dph_Lab	R

Table E-2. Data Quality Flags Used By Data Validators For Data Collected During Post-2006 Settlement Agreement Studies (continued)

Study Name	Study_id	Validator Flags[a]
FF2009 White Sturgeon in situ Streamside Water Chronic Toxicity Study	Teck_2009_StrChroncInSitu	J
		JU*
		R
		U*
2010 Beach Sediment Study	Teck_2010_BeachSD	C
		C EMPC
		C J
		C J EMPC
		C U
		C U*
		EMPC
		J
		J EMPC
		U
		U*
		UJ
2010 Surface Water Round 2	Teck_2010_Phase_II_SW_R2	*
		J
		J EMPC
		R
		U
		U*
		UJ
2010 Surface Water Round 3	Teck_2010_Phase_II_SW_R3	J
		J EMPC
		R
		U
		U*
		UJ
2010 Sturgeon Sediment Toxicity	Teck_2010_Sturgeon_SedTox	J
		R
		U
		U*
		UJ
2011 Beach Sediment Study	Teck_2011_BeachSD	J
		R
		U
		U*
		UJ
2013 Sediment Toxicity Study	Teck_2013_SedTox	J
		R
		U
		U*
		UJ

Table E-2. Data Quality Flags Used By Data Validators For Data Collected During Post-2006 Settlement Agreement Studies (continued)

Study Name	Study_id	Validator Flags[a]
2014 Upland Soil Study	Teck_2014_UplandSoil	J
		R
		U
		U*
		UJ
2015 Bossburg Flat Beach Refined Sediment and Soil Study	Teck_2015_Bossburg	J
		R
		U
		U*
		UJ
2016 Macroinvertebrate Tissue Study	Teck_2016_Benthic	EMPC
		J
		J-
		J EMPC
		J+
		U
		U*
		UJ
2016 Residential Soil Study	Teck_2016_ResSoil	J
		U
		UJ
2017 Soil Amendment Technology Evaluation Study—Phase IA Test Plot Characterization	Teck_2017_SATES_PIA	J
		J-
		J+
		R
		U
EPA 2014 Residential Soil Study	USEPA_2014_ResSoil	J
		U
		U*
		UJ
EPA 2015 TCRA Soil Study	USEPA_2015_TCRASoil	J
EPA 2016 Sturgeon Tissue Study	USEPA_2016_SturgeonTissue	EMPC
		J
		U
		U*

Notes:
[a] Validator flags are described in Table E-3.

Table E-3. Descriptions Of Data Quality Flags Used By Data Validators For Data Collected During Post-2006 Settlement Agreement Studies

Validator Flags	Validator Flag Description
*	Laboratory flag value (see laboratory report for details).
C	The reported result represents the total concentration of the co-eluting congeners.
C EMPC	The reported result represents the total concentration of the co-eluting congeners. Chromatographic peaks are present in the expected retention time window; however, the peaks do not meet all of the conditions required for a positive identification. The detection limit represents the estimated maximum possible concentration if the compound was present.
C J	The reported result represents the total concentration of the co-eluting congeners. Quantitation is approximate due to limitations identified during the QA review (data validation).
C J EMPC	The reported result represents the total concentration of the co-eluting congeners. Quantitation is approximate due to limitations identified during the QA review (data validation). Chromatographic peaks are present in the expected retention time window; however, the peaks do not meet all of the conditions required for a positive identification. The detection limit represents the estimated maximum possible concentration if the compound was present.
C U	The reported result represents the total concentration of the co-eluting congeners. This compound was not detected at or above the associated detection limit.
C U*	The reported result represents the total concentration of the co-eluting congeners. This compound should be considered “not detected” because it was detected in an associated blank at a similar level.
C UJ	The reported result represents the total concentration of the co-eluting congeners. This compound was not detected at or above the associated detection limit. Quantitation is approximate due to limitations identified during the QA review (data validation).
EMPC	Chromatographic peaks are present in the expected retention time window; however, the peaks do not meet all of the conditions required for a positive identification. The detection limit represents the estimated maximum possible concentration if the compound was present.
J	Quantitation is approximate due to limitations identified during the QA review (data validation).
J-	Quantitation is approximate, but the results may be biased low.
J EMPC	Quantitation is approximate due to limitations identified during the QA review (data validation). Chromatographic peaks are present in the expected retention time window; however, the peaks do not meet all of the conditions required for a positive identification. The detection limit represents the estimated maximum possible concentration if the compound was present.
J+	Quantitation is approximate, but the results may be biased high.
JU*	Quantitation is approximate due to filtration contamination. Due to the presence of the compound in the associated field and/or laboratory blanks at similar levels, the reported positive results should be considered “not detected.”
R	Unusable result; analyte may or may not be present in this sample.
U	This analyte was not detected at or above the associated detection limit.
U*	This analyte should be considered “not detected” because it was detected in an associated blank at a similar level.
Ui	Laboratory flag value.
UJ	This analyte was not detected, but the detection limit is probably higher due to a low bias identified during the QA review.