UPPER COLUMBIA RIVER

FINAL
Chemicals of Potential Concern Refinement for Aquatic and Terrestrial Receptors

Prepared for

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ACRONYMS AND ABBREVIATIONS

95 UCL	95th percentile upper confidence limit on the mean
ADA	aerial deposition area
AVS	acid volatile sulfides
AWQC	ambient water quality criteria
BERA	baseline ecological risk assessment
BHC	Beta-hexachlorocyclohexane
BSAF	biota-sediment accumulation factor
bw/BW	body weight
COI	chemical of interest
COPC	chemical of potential concern
CSM	conceptual site model
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DDDx	sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
DL	detection limit
Ecology	Washington State Department of Ecology
Eco-SSL	ecological soil screening level
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ESG	equilibrium partitioning sediment guideline
FIR	food ingestion rate
HHRA	human health risk assessment
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HQ	hazard quotient
K_{ow}	octanol-water partition coefficient
LAET	lowest apparent effects threshold
LOAEL	lowest-observed-adverse-effect level
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
NOAEL	no-observed-adverse-effect level
OC	organic carbon normalized

OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
QAPP	quality assurance project plan
RFDA	relict floodplain deposition area
RI/FS	remedial investigation and feasibility study
RM	river mile
SEM	simultaneously extracted metals
Site	Upper Columbia River Site
SLERA	screening-level ecological risk assessment
SL TRV	screening-level toxicity reference value
SQS	Sediment quality standard
SVOC	semivolatile organic compound
TAI	Teck American Incorporated
TEC	threshold effect concentration
TEF	toxic equivalency factor
TEQ	toxic equivalent
UCR	Upper Columbia River
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
Windward	Windward Environmental LLC
WQC	water quality criteria
WQS	water quality standard(s)
WSDA	windblown sediment deposition area

UNITS OF MEASURE

cm	centimeter(s)
dw	dry weight
ft	foot/feet
g	gram(s)
in.	inch(es)
kg	kilogram(s)
kg dw/day	kilogram(s) dry weight per day
kg ww/day	kilogram(s) wet weight per day
log K_{ow}	log octanol-water partition coefficient
m	meter(s)
mg	milligram(s)
mg/kg	milligram(s) per kilogram
mg/kg bw/d	milligram(s) per kilogram per body weight per day
mg/kg dw	milligram(s) per kilogram dry weight
mg/kg_{diet}	milligram(s) per kilogram diet
mg/L	milligram(s) per liter
mi^2	square mile(s)
mm	millimeter(s)
ng	nanogram(s)
ng/L	nanogram(s) per liter
pg/L	picogram(s) per liter
pg/g	picogram(s) per gram
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
µm	micrometer(s)
ww	wet weight
yr	year

1 INTRODUCTION

This document presents the results of a refined analysis for the selection of chemicals of potential concern (COPCs) for the Upper Columbia River (UCR) Site (Site) prior to the initiation of the baseline ecological risk assessment (BERA). This is an interim screening step between the screening-level ecological risk assessment (SLERA) and the BERA, which is part of the iterative and tiered approach that is characteristic of the ecological risk assessment process. This document satisfies the U.S. Environmental Protection Agency's (EPA's) requirement in the dispute resolution for the Phase 2 sediment study quality assurance project plan (QAPP) (USEPA 2013), namely that the refinement would "include and evaluate any and all USEPA-approved data as collected for the Remedial Investigation/Feasibility Study (RI/FS) to date [and]…refine the assumptions and methods used in the SLERA." In addition, in comments on the draft Phase 2 sediment QAPP, EPA stated that "the COPC refinement across the UCR site must be done on a medium-by-medium basis and should be consistent with the use of each medium as a measurement endpoint for each applicable assessment endpoint" (USEPA 2012).

Following EPA guidance (USEPA 1997) and using conservative assumptions, the SLERA (TAI 2010) identified a list of chemicals of interest (COIs) to be carried forward for additional analysis as well as a list of COIs to be eliminated from further evaluation. As discussed in the BERA work plan (Parametrix et al. 2011) and the expanded problem formulation (Exponent and HDR|HydroQual 2012), a refined screening-level analysis was proposed to be conducted after the SLERA (TAI 2010) to identify the list of COPCs to be carried forward for further analysis in the BERA. This refined COPC screen differs from the SLERA in the following primary ways:

- New data collected as part of the RI/FS were added—1) surface water data collected in 2009 and 2010 (Exponent and Parametrix 2013); 2) beach sediment data collected from 2009 to 2011 (Integral 2014); 3) fish tissue data collected in 2009 (Exponent et al. 2013); 4) sediment and porewater data collected as part of the Phase 2 sediment study in 2013 (Windward et al. 2017); 5) upland soil data collected in 2014 (Windward 2015); 6) Bossburg Flat Beach sediment data collected in 2015 (Windward 2016); and 7) benthic macroinvertebrate tissue data collected in 2016 (Windward 2018).
- A terrestrial COPC screen was added, using upland soil data collected in 2014 (Windward 2015).
- The 95th percentile upper confidence limits on the mean (95 UCLs) were used for chemical exposure point concentrations (EPCs) rather than maximum concentrations for aquatic-dependent wildlife dietary exposure evaluations.

- For the aquatic evaluation, rather than conducting only one screen for the entire UCR, the screens for the Upper Reach Operable Unit (OU)[1] and the Transitional and Lacustrine conceptual site model (CSM) Units were conducted separately.
- Results of the screens are presented on a receptor- and media-specific (i.e., exposure pathway) basis.

Table 1-1 presents a summary of the screening process by ecological receptor and exposure pathway and indicates the primary differences between the SLERA (TAI 2010) and the COPC refinement. The objective of this COPC refinement is to provide a list of 1) COPCs to be carried forward to the BERA based on exposure concentrations greater than or equal to benchmarks or screening-level toxicity reference values (SL TRVs)[2]; 2) COIs to be eliminated from further evaluation based on exposure concentrations less than benchmarks or SL TRVs; and 3) COIs to be retained for the BERA because of uncertainty (e.g., no benchmarks or SL TRVs are available). The results of this COPC refinement will be used to inform the BERA and future UCR sampling programs; data needs for the human health risk assessment (HHRA) that is being conducted by the EPA will not be limited by these results. COPCs identified in this refined screen will be included in the TRV development work that is currently in progress. This TRV work was initiated with the intention of documenting and obtaining agreement on the approach for further development once the COPC list is final.

The remainder of this document is organized as follows:

- Section 2 presents the ecological receptor groups and exposure pathways evaluated in this refined COPC screen.
- Section 3 presents the methods used in the refined COPC screening process, including the exposure areas, derivation of screening concentrations and doses, and a description of benchmarks and SL TRVs.
- Section 4 presents the results of the COPC screening by ecological receptor group.
- Section 5 discusses uncertainties associated with the COPC screening process.

[1] In a letter to Teck American Incorporated (TAI) dated January 8, 2018, EPA established the riverine portion of the UCR from the international border (river mile [RM] 745) to Marcus Flats at RM 708 as a separate operable unit, designated as the Upper Reach OU. The Upper Reach OU includes (1) the entire segment that has been referred to as the riverine CSM unit in previous documents, including the BERA work plan (Parametrix et al. 2011) and subsequent work plans and reports, and (2) 3 miles of the segment referred to as the Transitional CSM Unit in previous documents.

[2] SL TRVs are based on no-observed-adverse-effect levels (NOAELs), whereas TRVs used in the BERA will be based on lowest-observed-adverse-effect levels (LOAELs) or modeled doses representing effects that are 20 percent less than the control response.

- Section 6 is a summary of the screening results.
- Section 7 provides a list of the references cited in this document.

2 ECOLOGICAL RECEPTOR GROUPS AND EXPOSURE PATHWAYS

Ecological receptor groups and specific surrogate species were identified in the BERA work plan (Table 4-2 and Table 5-1 in Parametrix et al. 2011) and in the expanded problem formulation (Table 1 in Exponent and HDR|HydroQual 2012). The selected aquatic and terrestrial receptor groups represent general categories of plants and animals found at or near the Site. Exposure pathways and the conceptual framework for the consideration of exposure, as well as the exposure routes important to each receptor group, were discussed in detail in the BERA work plan (Parametrix et al. 2011) and the expanded problem formulation (Exponent and HDR|HydroQual 2012). The receptor groups and exposure media and pathways evaluated in this COPC refinement, as presented in Table 2-1, include:

- Aquatic plants—surface water and porewater
- Aquatic benthic invertebrates—surface water, porewater, and sediment
- Fish—surface water, porewater, tissue, and diet (including incidental sediment ingestion)
- Aquatic-dependent wildlife (birds and mammals)—diet (including incidental sediment ingestion)
- Amphibians (early life stage)—surface water and porewater
- Terrestrial plants—soil
- Terrestrial invertebrates—soil
- Terrestrial wildlife (birds and mammals)—soil (representing dietary uptake).

Additional receptors, exposure media, and pathways identified in the BERA work plan (Parametrix et al. 2011) and expanded problem formulation (Exponent and HDR|HydroQual 2012) for which there are no established benchmarks or SL TRVs, and only limited toxicity data include:

- Fish—sediment
- Aquatic plants—sediment
- Adult (terrestrial-stage) amphibians—sediment, soil, and diet (including incidental sediment ingestion)
- Reptiles—soil and diet (including incidental sediment ingestion).

These receptor groups, exposure media, and pathways are not addressed in this COPC refinement. The BERA will include a detailed literature search for toxicity data for aquatic

plants and fish exposed to chemicals via the sediment pathway, and for adult amphibians and reptiles exposed via the sediment, soil, or dietary pathway. COIs and receptors with toxicity data will be evaluated in the BERA. For COIs and receptors with no toxicity data, an uncertainty discussion will be included in the BERA.

The COPC screen was applied to each receptor group separately, as discussed in the following sections.

2.1 AQUATIC PLANTS

The aquatic plant community in the UCR includes phytoplankton and other types of algae, as well as rooted and nonrooted submergent and emergent plant species. Aquatic plants may be exposed to chemicals through surface water. Rooted macrophytes and some types of algae may also be exposed through contact with sediment and porewater. The sediment pathway is not included in this evaluation because there are no established sediment benchmarks for rooted aquatic plants and very few studies in the scientific literature from which to develop screening level values.

2.2 AQUATIC BENTHIC INVERTEBRATES

The benthic invertebrate community in the UCR includes filter feeders (e.g., mussels, sphaeriid clams, larvae of many insects), grazers and scrapers (e.g., snails, mayfly larvae), and infaunal organisms (e.g., mainly oligochaetes and chironomids). This COPC refinement covers all types of benthic invertebrates in the UCR that may be exposed to chemicals through surface water, porewater, and sediment exposure pathways.

2.3 FISH

Fish receptors in the UCR can be grouped into feeding guilds according to their trophic level, as well as by feeding location within the water column (i.e., near the sediment surface or in the pelagic zone). For the dietary pathway screen in this COPC refinement, surrogate species have been selected to represent a variety of feeding groups:

- Benthic invertivore and detritivore—largescale sucker (*Catostomus macrocheilus*)
- Benthic omnivore—prickly sculpin (*Cottus asper*)
- Benthic invertivore and piscivore—white sturgeon (*Acipenser transmontanus*)
- Pelagic insectivore and piscivore—bull trout (*Salvelinus confluentus*)
- Pelagic insectivore—Chinook salmon (*Oncorhynchus tshawytscha*)
- Pelagic omnivore—yellow perch (*Perca flavescens*).

The use of surrogate species to represent a variety of feeding groups is consistent with the approach presented in the BERA work plan (Parametrix et al. 2011) and the expanded problem formulation (Exponent and HDR|HydroQual 2012) for selecting fish receptors. However, three of the selected species were not previously listed in the BERA work plan (Parametrix et al. 2011) or the expanded problem formulation (Exponent and HDR|HydroQual 2012); rather, these species were selected as receptors for this COPC refinement because they are species of concern or special interest, as follows:

- Bull trout is listed as threatened by the federal Endangered Species Act and is a Washington State Species of Concern.
- Chinook salmon from the UCR is listed as federally endangered, is a Washington State Species of Concern, and has cultural significance.
- White sturgeon has cultural significance, and there are concerns about potential stress to the current population (Hildebrand and Parsley 2013).

For the tissue evaluation, chemical concentrations were calculated for each species for which data were available—burbot (*Lota lota*), kokanee (*Oncorhynchus nerka*), lake whitefish (*Coregonus clupeaformis*), largescale sucker (*Catostomus macrocheilus*), longnose sucker (*Catostomus catostomus*), mountain whitefish (*Prosopium williamsoni*), pikeminnow (*Ptychocheilus oregonensis*), rainbow trout (*Oncorhynchus mykiss*), sculpin (*Cottus* sp.), smallmouth bass (*Micropterus dolomieu*), walleye (*Stizostedion vitreum)*, and yellow perch (*Perca flavescens*).

In addition to the tissue and diet pathways, this COPC refinement evaluates chemical exposure of all fish life stages through the surface water pathway, as well as exposure of early life stages through the porewater pathway.

2.4 AQUATIC-DEPENDENT WILDLIFE

Exposure of aquatic-dependent wildlife to COIs is addressed in this COPC refinement using the dietary pathway. Aquatic-dependent wildlife includes avian and mammalian receptors that obtain most or all of their diet from the aquatic habitat of the UCR. The aquatic-dependent species selected to represent various feeding guilds for this screening are the same as those included in the SLERA, as follows:

- Avian receptors
    - Herbivore—tundra swan (*Cygnus columbianus*) and Canada goose (*Branta canadensis)*
    - Invertivore (emergent invertebrates)—tree swallow (*Tachycineta bicolor*)
    - Invertivore (benthic invertebrates)—spotted sandpiper (*Actitis macularius*)

  - Omnivore—mallard (*Anas platyrhynchos*) and lesser scaup (*Aythya affinis*)
  - Piscivore—belted kingfisher (*Megaceryle alcyon*), great blue heron (*Ardea herodias)*, and osprey (*Pandion haliaetus*)
  - Piscivore and carnivore—bald eagle (*Haliaeetus leucocephalus*).
- Mammalian receptors
  - Herbivore—muskrat (*Ondatra zibethicus*)
  - Invertivore (emergent invertebrates)—little brown bat (*Myotis lucifugus*)
  - Piscivore and carnivore—mink (*Mustela vison)* and river otter (*Lontra canadensis*).

2.5 AMPHIBIANS

The SLERA cited a number of documents (Hebner et al. 2000; Creveling and Renfrow 1986; Quigley et al. 2001; Marcot et al. 2003) as well as digital spatial data from the Washington Department of Fish and Wildlife containing priority species and habitats. These documents reported that several species of amphibians occur in the UCR, including two salamander species, two toad species, and six frog species. In addition, incidental observations by the Washington Department of Fish and Wildlife while sampling fish have confirmed that amphibians are present. The BERA work plan (Parametrix et al. 2011) identified early life-stage amphibians (eggs and larvae) as an aquatic receptor group. Eggs and larvae develop in water; therefore, this COPC screen evaluates exposure to chemicals through contact with surface water. Because eggs and larvae may be in contact with the sediment surface as well, exposure to porewater is also evaluated. The sediment and soil uptake pathways are not addressed in this evaluation, because there are no established benchmarks and limited toxicity data are available for adult (terrestrial-stage) amphibians associated with these pathways. For example, in an extensive database of reptile and amphibian toxicology literature (Pauli et al. 2000), only a few laboratory studies investigated effects of exposure to metals through the oral or dermal pathways. The BERA will include a detailed literature search for toxicity data for adult amphibians exposed via the oral and dermal pathways. COIs with toxicity data will be evaluated in the BERA, and those with no toxicity data will be discussed in the uncertainty section of the BERA.

2.6 TERRESTRIAL PLANTS

Terrestrial plant communities at the Site include grasses, forbs, woody shrubs, and trees. As detailed in Appendix B of the BERA work plan (Parametrix et al. 2011), the predominant ecoregion present across the Site is Northern Rocky Mountain Forest/Steppe/Coniferous

Forest/Alpine Meadow Province, characterized by an evergreen and deciduous needle-leaf forest that includes western white pine (*Pinus monticola*), Douglas fir (*Pseudotsuga menziesii*), and western larch (*Larix occidentalis*), with interspersed mountain grasslands. The Intermountain Semi-Desert Province ecoregion is present at the southern end of the Site. It is a large, high-elevation plain with rolling hills, the dominant vegetation of which includes big sagebrush (*Artemisia tridentata*), mountain grasses, and ponderosa pine (*Pinus ponderosa*). This COPC refinement addresses the exposure of terrestrial plants to chemicals through soil uptake, consistent with the assessment endpoint for terrestrial plants in the expanded problem formulation (Exponent and HDR|HydroQual 2012).

2.7 TERRESTRIAL INVERTEBRATES

The terrestrial invertebrate community evaluated in this COPC screening includes soft-bodied animals such as earthworms (*Eisinia* spp.) and potworms (family Enchytraeidae), and hard-bodied animals such as beetles (order Coleoptera), ants (order Hymenoptera), and springtails (order Collembola). This COPC refinement evaluates the potential for exposure of terrestrial invertebrates to COIs through uptake from the soil. The soil uptake pathway is consistent with the assessment endpoint from the expanded problem formulation (Exponent and HDR|HydroQual 2012), ecological soil screening levels (Eco-SSLs) are available, and terrestrial invertebrate tissue data have not been collected to allow for evaluation of the tissue uptake pathway.

2.8 TERRESTRIAL WILDLIFE

To address the exposure of terrestrial wildlife to COIs, this COPC screening uses soil benchmarks (i.e., primarily Eco-SSLs) developed from toxicity data associated with dietary intake. The Eco-SSLs were used for evaluation of wildlife rather than the dietary pathway because these soil benchmarks incorporate the dietary pathway and because site-specific tissue data have not been collected from the Site. An Eco-SSL for a particular COI is the soil concentration that results in a hazard quotient (HQ) of 1 when the dietary exposure dose is equal to the estimated no-effect dietary dose (USEPA 2005). The exposure doses used to calculate Eco-SSLs are based on the food ingestion rates (FIRs) and body weights of small-bodied insectivorous birds (American robin [*Turdus migratorius*] or woodcock [*Scolopax* spp.]) and mammals (shrew [*Sorex* spp.]) (USEPA 2005). These species had the greatest exposure (i.e., the highest food ingestion rates and lowest body weights) out of all the feeding guilds evaluated for birds and mammals (six feeding guilds for each). The use of the high end of exposure, along with TRVs at the low end of the toxicity distribution, to calculate the Eco-SSL is expected to provide a high degree of protection to nearly all types of bird and mammal receptors (USEPA 2007).

Some birds and mammals may have relatively large home ranges (e.g., up to 20 mi^2 for bald eagle and 1 mi^2 for white-tailed deer). Soil data used in this evaluation are from incremental composite samples collected from areas approximately 25 acres (0.04 mi^2) in size, an area much smaller than the home ranges of these species. The maximum value in any composite soil sample is used as the exposure concentration, which is a conservative assumption, because lower concentrations would be expected if area-weighted soil values were to be used instead.

3 METHODS

This section describes the COPC screening process (Section 3.1), the exposure areas used to screen fish and wildlife (Section 3.2), the calculation of screening concentrations and dietary doses (Section 3.3), and benchmarks or SL TRVs used in the evaluation (Section 3.4).

3.1 COPC SCREENING PROCESS

3.1.1 COIs Evaluated

The refined screening process was conducted for all COIs, except for those that were eliminated for specific receptors and media based on the SLERA (i.e., those COIs with a scientific management decision point of 1 in Table 7-1 of the SLERA) (TAI 2010). The following COIs were eliminated in the SLERA because they were considered to pose negligible risk (Table 3-1):

- COIs with low bioaccumulation potential (i.e., log K_{ow} < 4) were eliminated from further consideration for evaluation of risk to fish through the tissue pathway or risk to wildlife through the dietary pathway. These are a subset of semivolatile organic compounds and pesticides.
- COIs with maximum sediment concentrations that did not exceed benchmarks or were eliminated from further evaluation for risk to benthic invertebrates. These are polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and a subset of semivolatile organic compounds and pesticides.
- COIs with maximum dietary doses that did not exceed SL TRVs were eliminated from further evaluation for aquatic-dependent wildlife dietary risk. These are silver and low-molecular-weight PAHs for birds and mammals, including beryllium for mammals.

In the SLERA, COIs for the soil, surface water, or porewater pathways were retained for further evaluation because of limitations in the data sets (i.e., data gaps and/or only a few COIs analyzed). All COIs with checkmarks in Table 3-1 were carried forward from the SLERA to this COPC refinement.

For the fish tissue evaluation, PAHs were not included as COIs because they are readily metabolized by fish; however, PAHs are included in the fish dietary evaluation. The dietary evaluation in this document includes only metals and PAHs.

3.1.2 Identification of COPCs

Figure 3-1 presents an overview of the COPC screening process for comparing environmental media concentrations (i.e., in surface water, porewater, sediment, tissue, and soil) and modeled dietary doses (for fish and aquatic-dependent birds and mammals) to respective benchmarks or SL TRVs. The screen with media concentrations used a maximum concentration to represent exposure, except the surface water screen for fish, which used the 95 UCL. The dietary screen for fish and aquatic-dependent wildlife used the 95 UCL in food and incidentally ingested sediment to represent an upper-bound average concentration; the 95 UCL was derived from data collected over a relatively large area, as described in more detail in Section 3.2.1. The 95 UCL was not used for terrestrial wildlife because the data were from composite samples collected over relatively large areas of approximately 25 acres each; therefore, averaging data for spatial representation of exposure was not considered necessary.

The first step for all receptors (Figure 3-1) was to eliminate any COIs that were previously eliminated in the SLERA. Also, if a COI had not been analyzed in environmental media relevant to the exposure pathway for a particular receptor (based on the data set used for this COPC refinement), that COI was retained for a receptor group for discussion in the uncertainty section of the BERA (see Appendix A for a description of the data set used in this screening). In addition, if a benchmark or SL TRV was not available for a particular COI and receptor, the COI was retained for discussion in the BERA based on uncertainty.

For the screen based on media concentrations (except surface water for fish), maximum detected concentrations of remaining COIs were compared to the appropriate screening benchmarks, if available (Figure 3-1). If the maximum detected concentration within an exposure area exceeded the benchmark and more than one concentration exceeded the benchmark, the COI was considered a COPC for the receptor. If more than one of the nondetected concentrations of a COI was greater than or equal to the screening benchmark, the COI was retained for discussion in the uncertainty section of the BERA. If a sample had a single exceedance for a COI and also had exceedances of other COIs, the COI with the single exceedance was retained for discussion in the uncertainty evaluation of the BERA; the specific cases in which this situation occurs are discussed in Section 4 for the relevant receptors and exposure pathways. For the surface water screen for fish, the 95 UCL of surface water concentrations was compared to the surface water benchmarks. For the dietary exposure pathway for fish and aquatic-dependent receptors, the 95 UCL of sediment and tissues of appropriate prey was used to calculate dietary doses within the defined exposure areas for comparison with dietary dose SL TRVs. If the surface water concentration or dietary dose exceeded the benchmark or SL TRV, the COI was considered a COPC for that receptor.

In summary, there were three possible outcomes of the screening for each COI evaluated for a particular exposure pathway and receptor group: 1) designation of a COI as a COPC;

2) retention of a COI for the BERA based on uncertainty (i.e., COI was not analyzed, COI had no benchmark or SL TRV, COI detection limits exceeded the benchmark in more than one sample, or there was a single exceedance of the benchmark for a COI in a sample that had at least one other COI exceedance); or 3) elimination of a COI from further evaluation (i.e., not a COPC).

3.2 EXPOSURE AREAS

Exposure areas used for the aquatic and terrestrial evaluations are described in this section.

3.2.1 Aquatic Exposure Areas

In the BERA work plan (Section 4.2.1.1 in Parametrix et al. 2011), the Site was separated into three separate aquatic CSM units to reflect the different physical and biological properties of the Site:

- Riverine CSM unit—river mile (RM) 711 to RM 745 (U.S.-Canada border)
- Transitional CSM unit—RM 699 to RM 711
- Lacustrine CSM unit—Lake Roosevelt; RM 597 (Grand Coulee Dam) to RM 699.

On January 8, 2018, EPA notified Teck American Incorporated (TAI) that the riverine portion of the UCR from the international border (RM 745) to Marcus Flats at RM 708 would be considered a separate OU designated as the Upper Reach OU (USEPA 2018). The Upper Reach OU consists of the previously defined Riverine CSM Unit plus 3 river miles (RM 711 to RM 708) from the Transitional CSM Unit. To reflect the site characteristics as much as possible and to be in alignment with the recent Upper Reach OU designation, the current COPC screening was conducted by changing the Transitional CSM Unit to cover RM 699 to RM 708, resulting in the following three aquatic exposure units:

- Upper Reach OU—RM 708 to RM 745 (U.S.-Canada border)
- Revised Transitional CSM Unit—RM 699 to RM 708 (hereinafter referred to as the Transitional CSM Unit)
- Lacustrine CSM Unit—Lake Roosevelt; RM 597 (Grand Coulee Dam) to RM 699.

For the environmental media-based screen, maximum concentrations within each of the three aquatic exposure units were compared to benchmarks, except for the dietary dose-based screen for fish and aquatic-dependent wildlife. For the fish and wildlife dietary screen, doses were calculated for each aquatic area based on 95 UCLs in food and incidentally ingested sediment. Subdividing the Site into three aquatic exposure areas for this evaluation, rather than using data from the entire Site, is a conservative approach, because it takes into account potential differences in chemical concentrations among the areas. As described in the BERA

work plan (Parametrix et al. 2011), the three aquatic areas were defined based on key physical and ecological differences among areas of the Site that can affect chemical fate and transport as well as receptor exposure. Consistent with the BERA work plan (Parametrix et al. 2011), sediments in the transitional and lacustrine units were further divided into shallow (< 80 ft below full pool) and deep (> 80 ft below full pool) areas.

3.2.2 Terrestrial Exposure Areas

Soil data from the 2014 upland soil sampling event used in this COPC refinement were collected from aerial deposition areas (ADAs), relict floodplain deposition areas (RFDAs), and windblown sediment deposition areas (WSDAs), as defined in the QAPP for the upland soil study (Exponent et al. 2014). Using a conservative approach, the maximum concentration from any of these soil exposure areas was used to screen COIs for the terrestrial receptors (invertebrates, plants, and wildlife).

3.3 SCREENING CONCENTRATIONS AND DOSES

This section describes the data included in the screening, the methods for calculating dietary exposure for fish and aquatic-dependent wildlife, and the methods for calculating the 95 UCLs used in the dietary screen. For screening calculations based on comparisons of surface water, sediment, porewater, fish tissue, and soil data to benchmarks, maximum concentrations were used. The use of surrogate data when data were not available for a particular COI and/or exposure pathway is also described in this section.

3.3.1 Data Included

Data for six media types were used in the screening process: surface water, porewater, sediment, fish tissue, aquatic invertebrate tissue, and soil. Detailed descriptions of data for each of the media types are provided in Appendix A and summarized in the following sections. Table 2-1 shows which data sets were used for each of these media to evaluate the different ecological receptors.

The screening of PCB congeners, PAHs, dichlorodiphenyltrichloroethane (DDT) and metabolites, and chlordane and metabolites was conducted on a "total" concentration basis. Total concentrations were calculated by summing the individual constituents in each of the chemical groups, as described in Appendix A. For dioxins/furans, toxic equivalents (TEQs) were calculated by summing each of the toxic dioxin/furan congeners after each congener had been multiplied by its toxic equivalency factor (TEF) (fish, bird, or mammal, as appropriate)

to adjust for potency (Van den Berg et al. 2006; USEPA 2010; Van den Berg et al. 1998)[3] (see Section 3 of Appendix A). Similarly, TEQs were calculated for PCBs using TEFs for the 12 coplanar PCBs from Van den Berg et al. (2006; 1998) and EPA (2010). PCB, dioxin/furan, and total TEQs (PCBs plus dioxin/furan) based on fish TEFs were used for the evaluation of benthic invertebrates[4] and fish, and PCB, dioxin/furan, and total TEQs based on bird and mammal TEFs were used for the evaluation of aquatic-dependent birds and mammals,[5] respectively.

3.3.1.1 Surface Water

Data from the 2009 to 2010 surface water investigation (Exponent and Parametrix 2013) were included in the screening. The investigation measured concentrations of a comprehensive list of COIs during three phases of river flow and at the surface, mid-level, and at the bottom along river transects (see Appendix A for more details). All data from the investigation were used in the COPC screening regardless of river flow, depth, or location along the transect. In addition, the most recent years of historical data from the Northport station collected by the Washington State Department of Ecology (Ecology) and the U.S. Geological Survey (USGS) at the time of the preparation of the SLERA (2006 and 2007, respectively), were included in the screening.[6] During the 2009 to 2010 surface water sampling event, both undisturbed and disturbed water samples were collected, and the samples were analyzed for both total and dissolved constituents. Disturbed samples were collected from approximately 0.25 m below the water surface after sediment had been disturbed to represent recreational play or other human disturbance in shallow water (i.e., 1 m deep) (Exponent and Parametrix 2013). Disturbed surface water data were used for the COPC screening for amphibians via the surface water pathway because of the potential for sediment to become stirred up during amphibian movements.

3.3.1.2 Porewater

The following porewater data collected in the field, as well as porewater data evaluated as part of laboratory toxicity tests, were included in the screening:

[3] Van den Berg et al. (1998) presents TEFs for fish and invertebrates, and Van den Berg et al. (2006) and USEPA (2010) present updates to the TEFs for mammals.
[4] TEQs based on fish TEFs were used for the evaluation of benthic invertebrates because the sediment TEQ guideline (CCME 2002) is based on fish TEFs. Uncertainty associated with this approach is discussed in Appendix B (Section 2).
[5] Screening of terrestrial birds and mammals for exposure to dioxins/furans was not conducted because dioxins/furans were not analyzed in upland soils.
[6] These data are in the UCR database and are also available directly from the Ecology and USGS websites (https://fortress.wa.gov/ecy/eap/riverwq/station.asp?wria=61 and https://waterdata.usgs.gov/usa/nwis/qw).

- Field data collected by USGS in 2002, 2004, and 2015 (Paulson et al. 2006; Cox et al. 2005; USGS 2017) and by TAI for the Phase 2 sediment study in 2013 (Windward et al. 2017)
- Laboratory data used in toxicity tests conducted by EPA for the Phase I sediment evaluation (CH2M HILL and E&E 2006) by the USGS as part of the Columbia Environmental Research Center toxicity evaluation in 2013 (Ingersoll et al. 2016), and by TAI as part of the Phase 2 sediment study in 2013 (Windward et al. 2017).

In the transitional and lacustrine areas, porewater data were screened separately in shallow zones, which are defined in the BERA work plan (Parametrix et al. 2011) as less than 80 ft below full pool height, and deep zones, defined in the work plan as locations with water depths more than 80 ft below the full pool height, with the full pool elevation being 1,290 ft above mean sea level.

3.3.1.3 Sediment

Data from 11 sediment studies were used in the screening process—two Ecology studies (Era and Serdar 2001; Dowling 2007), two EPA studies (CH2M HILL and E&E 2006; USEPA 2003), three USGS studies (Cox et al. 2005; Paulson et al. 2006; Ingersoll et al. 2016), and four TAI studies (Integral 2014; Cardno Entrix and HDR|HydroQual 2014; Windward et al. 2017; Windward 2016). Sediment data included only samples collected from the top 6-in. (0- to 15-cm) interval. For the benthic invertebrate screen, sediment data were screened separately in shallow and deep zones in the transitional and lacustrine areas, as described for porewater. For the fish and wildlife screens, only sediment data from the shallow zone were included. Data from discrete sediment sampling locations were not included in the fish and aquatic-dependent wildlife dietary screens if composite samples were also collected at the same locations, as described in more detail in Appendix A.

3.3.1.4 Tissue

The following fish tissue and aquatic invertebrate tissue data were included in the screening:

- **Fish tissue.** Fish tissue data used in the screening were from the remedial investigation and feasibility study (RI/FS) sampling conducted in 2009 (Exponent et al. 2013) and the EPA Phase I data collected in 2005 (CH2M HILL and E&E 2007). Data were collected for three size classes—small (≤ 15 cm), medium (> 15 cm and ≤ 30 cm), and large (> 30 cm). Only whole-body tissue data were used. Fillet tissue collected for use in the HHRA were not included; however, if data were available for fillet and offal concentrations from the same sample, an estimated whole-body concentration was calculated from that sample and used as well. Whole-body concentrations were calculated using the relative weights and concentrations of each sample component.

screen, dioxin/furan TEQs were normalized to the tissue lipid content for comparison to the fish tissue benchmark, which is based on mg/kg lipid.

- **Aquatic invertebrate tissue.** Mussel and crayfish tissue data used in the screening were from the benthic invertebrate RI/FS study conducted in 2016 (Windward 2018). Only whole-body tissue data were used. Some of the crayfish samples were analyzed separately for carapace/stomach, and whole body minus carapace/stomach so that data could be used in the HHRA. If data were available for both tissue components in a sample, estimated whole-body concentrations were calculated for that sample using the relative weights and concentrations of each sample component.

3.3.1.5 Soil

Soil data used in the screening were those collected from the ADA, RFDAs, and WSDAs as part of the 2014 upland soil study (Windward 2015). In the study, samples were sieved, and analyses were performed on two soil size fractions—< 2 mm and < 149 µm. Data for the < 2 mm fraction were collected to evaluate exposures of ecological receptors and were used in this COPC screening. Data for the < 149 µm fraction were collected for use in the HHRA (Exponent et al. 2014; Windward 2015) and included the *in vitro* bioaccessibility assay for arsenic and lead; these data were not used in this screening. Only surface soil data from the 0- to 15-cm interval were included. Soil data for the < 2-mm-size fraction from the Bossburg Flat Beach study (Windward 2016) were excluded from this COPC screening because that study focused on a specific area near the Young America Mill and mining operations, which is a known source of elevated lead concentrations in area soils. However, for informational purposes, maximum concentrations of COIs from the Bossburg Flat Beach investigation were screened against soil benchmarks as part of this evaluation.

3.3.2 Calculation of Exposure for Fish and Wildlife Dietary Pathways

Dietary exposure for aquatic-dependent wildlife was evaluated as a daily dose (expressed as mg/kg bw/day), whereas dietary exposure for fish was evaluated as both a daily dose and a concentration in food (expressed as mg/kg_{food} dry weight [dw]).

3.3.2.1 Aquatic-dependent Wildlife Dietary Pathway

The equation used to estimate the dietary exposure of aquatic-dependent wildlife to COIs from ingestion of food items and sediment is as follows:

$$\text{Daily Dose} = \frac{([\mathbf{FIR} \times \mathbf{C_{food}} \times \mathbf{ABS_{food}}] + [\mathbf{SIR} \times \mathbf{C_{sed}} \times \mathbf{ABS_{sed}]) \times \mathbf{AUF}}}{\mathbf{BW}} \qquad \textbf{Equation 3-1}$$

Where:

Daily Dose = COIs ingested per day via food, water, and sediment (mg/kg bw/day)

FIR = food ingestion rate (kg food dw/day)

C_{food} = concentration in prey items (mg/kg food dw)

ABS_{food} = bioavailable fraction absorbed from ingested prey items (unitless) (conservative assumption of 1.0 assumed)

SIR = sediment ingestion rate (kg sediment dw/day)

C_{sed} = concentration in sediment (mg/kg dw)

ABS_{sed} = bioavailable fraction absorbed from ingested sediment (unitless) (conservative assumption of 1.0 assumed)

AUF = area use factor (unitless); fraction of time that a receptor spends foraging in the UCR relative to the entire home range (conservative assumption of 1.0 assumed)

BW = species body weight (kg)

Ingestion of surface water was not included in this screening because it has a negligible influence on the total dietary intake of any individual COI. Doses via water are typically two or more orders of magnitude lower than doses by food and sediment (see Appendix D, Attachment D-1, of the SLERA).

Wildlife exposure factors (e.g., ingestion rates and body weights) and their sources are presented in Table 3-2.

The concentration in food was calculated based on the fraction of each prey type in the receptor's diet, as follows:

$$\mathbf{C_{food}=(C_1 \times F_1)+(C_2 \times F_2)+(C_3 \times F_3)} \qquad \textbf{Equation 3-2}$$

Where:

C_{food} = concentration in food (mg/kg food dw)

$C_{1,2,3}$ = concentration in each individual prey type (mg/kg tissue dw)

$F_{1,2,3}$ = fraction ingested of each individual prey type (kg fish/kg food)

The fractions of different prey items in each receptor's diet, along with associated references, are presented in Table 3-3. Some of the fractions differ slightly from those in the SLERA; detailed rationale for the selected fractions is described in Table 3-3.

3.3.2.2 Fish Dietary Pathway

For fish, the dietary doses were calculated in the same manner as for aquatic-dependent wildlife. Ingestion rates and body weights are presented in Table 3-4, and dietary fractions of

different prey items are presented in Table 3-5. In addition to dietary doses, the concentrations in food (in mg/kg$_{food}$ dw) were compared directly to fish dietary SL TRVs, also expressed as concentrations in food.

3.3.3 Calculation of Exposure Point Concentrations

EPCs were represented by maximum concentrations within an aquatic area for media concentration-based screens, except for surface water and fish. For the surface water pathway for fish and the dietary pathways for fish and aquatic-dependent wildlife, EPCs were calculated as follows:

- For fish exposure to COIs in surface water, EPCs were calculated as 95 UCLs in undisturbed surface water for each of the three aquatic exposure units (Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit).
- For fish and aquatic-dependent wildlife dietary pathways, EPCs for each of the dietary items (i.e., tissue and incidentally ingested sediment) were calculated as the 95 UCLs in each of the aquatic exposure units. These dietary items include shallow sediment data (dry weight basis), benthic macroinvertebrate data (i.e., mussels and crayfish; dry weight basis), and fish tissue data (dry weight basis) by size class (small [≤ 15 cm], medium [> 15 cm and ≤ 30 cm], and large [> 30 cm]) for each of the three aquatic exposure units. Within each unit, the maximum 95 UCL for any fish size class was used as the EPC in the screening calculations. These EPCs are used as the C_{sed} and C_{food} values in Equations 1 and 2. EPCs for aquatic plants were not calculated directly, but were instead estimated from 95 UCL sediment concentrations (see Section 3.3.4).

An EPC was calculated for each COI in each of the above data sets for which a benchmark or SL TRV was available. The 95 UCLs were calculated using EPA's ProUCL Version 5.1.002 (USEPA 2015), and were derived following EPA guidance for calculating UCLs for EPCs at hazardous waste sites (USEPA 2002). For comparison to screening values, as in this COPC refinement, the ProUCL technical guide (USEPA 2015) states that point-by-point comparisons should be used when sample sizes are fewer than six. (This is equivalent to using the maximum value in the screen.) ProUCL software can both test the goodness of fit and calculate central tendency and UCLs for a given data set. Because ProUCL has an option for handling nondetected data, all detected and nondetected data were used, with nondetected data being identified as such. One of several methods for calculating UCLs is selected by the software based on the size of the dataset, the distribution of detected data, and the skewness of the data. The UCL recommended by ProUCL software (typically the 95 UCL, but in some cases the 97.5th or 99th percentile UCL on the mean) was used. If statistically derived UCLs were greater than the maximum detected concentration, or if no UCL was recommended by ProUCL, the maximum detected concentration was used. If the test performed using ProUCL indicated that more than one statistic was acceptable for use, the highest recommended 95 UCL was used. If

there were no detected concentrations for a particular data set, the highest detection limit was used as the EPC, and benchmark or SL TRV exceedances were considered uncertain.

EPCs for the Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit are presented in Tables 3-6a, 3-6b, and 3-6c, respectively.

3.3.4 Use of Surrogate Data

Sometimes, data were not available for a particular COI and/or media/exposure pathway. In such cases, surrogate data were used as estimated values for the missing data, as discussed below for porewater, plants, benthic invertebrate tissue (other than crayfish and mussels), emergent insects, crayfish and mussel tissue, and fish tissue.

3.3.4.1 Porewater

The aluminum and manganese benchmarks for porewater are based on total concentrations. However, site-specific data were not available for total concentrations in porewater; instead, dissolved concentrations of aluminum and manganese were used.

3.3.4.2 Plant Tissue

For the dietary pathway for Canada goose, lesser scaup, mallard, tundra swan, and muskrat, aquatic plants are part of the diet, but there were no data for COI concentrations in aquatic plants. For organic compounds in plant tissue, fish tissue data were used as a surrogate. For metals, plant tissue concentrations were estimated from sediment concentrations using the following equation: $\log(C_{plant}) = -0.08 + 0.9(\log[C_{sed}])$ in mg/kg dw (Jackson et al. 1991; Jackson 1998), as was done in the SLERA (Parametrix et al. 2010).

3.3.4.3 Benthic Invertebrate Tissue

Empirical data were not available for metals or organic compounds in smaller mixed benthic invertebrate tissue (as opposed to mussels and crayfish). For metals, the concentrations were estimated using the following biota-sediment accumulation factor (BSAF) approach:

$$BSAF = \frac{\text{Biota (mg/kg dw)}}{\text{Sediment (mg/kg dw)}} \qquad \textbf{Equation 3-3}$$

Where:

BSAF	=	biota-sediment accumulation factor
Biota	=	concentration in biota on a dry weight basis
Sediment	=	concentration in sediment on a dry weight basis

The BSAFs were derived primarily from those presented by Bechtel Jacobs (1998), if available (Table 3-7). Although there is some uncertainty in the use of metals BSAFs for benthic invertebrates, the 90th percentile values were used to be conservative.

For COIs not included in Bechtel Jacobs (1998), co-located data for sediment and aquatic invertebrates from the Blackfoot River watershed in southeastern Idaho (Hamilton and Buhl 2002; 2003a,b) were used to calculate 90th percentile BSAFs (Table 3-7). For silver, a BSAF of 0.18 from a study evaluating silver accumulation in freshwater oligochaetes (Hirsch 1998) was used. For all other COIs for which a BSAF was not identified or data to calculate a BSAF could not be found (antimony, cobalt, thallium, and uranium), a default value of 1 was used. This default value is uncertain and could overestimate or underestimate concentrations in tissues.

Total PAHs, total high-molecular-weight PAHs (HPAHs), total PCBs, PCB TEQ, and dioxin/furan TEQ in benthic invertebrate tissue were estimated with BSAFs based on lipid-normalized concentrations in tissue and organic carbon-normalized concentrations in sediment:

$$BSAF = \frac{\text{Biota (mg/kg lipid)}}{\text{Sediment (mg/kg organic carbon)}} \qquad \textbf{Equation 3-4}$$

Where:

BSAF	=	biota-sediment accumulation factor
Biota	=	concentration in biota on a lipid-normalized basis
Sediment	=	concentration in sediment on an organic carbon-normalized basis

BSAFs for PAHs, PCBs, and TEQs were derived from the U.S. Army Corps of Engineers (USACE) BSAF dataset (USACE 2019) that used data for benthic invertebrates (i.e., amphipods, polychaetes, oligochaetes, aquatic insects). The PAH and TEQ BSAFs used (Table 3-7) were calculated as the means of the 90th percentile BSAFs for each of the individual compounds in total PAHs, PCB TEQs, and dioxin/furan TEQs. Total PCB BSAFs were calculated as the 90th percentile of all BSAFs reported for total PCBs. The average lipid content of 9.8 percent in benthic invertebrate tissue from the USACE BSAF dataset[7] and an average sediment organic carbon content of 0.75 percent from the COPC refinement sediment dataset were assumed, respectively, in converting the lipid-based tissue concentrations and organic carbon-normalized sediment concentrations to dry weight.

[7] The mean percent lipids in benthic invertebrates was calculated using dry weight values. Values presented as wet weight were converted to dry weight assuming 80 percent moisture content. Duplicate percent lipid values were removed, the average for each genus was calculated, and then the mean genus value was calculated, resulting in a value of 9.8 percent lipids on a dry weight basis.

Empirical data were not available for pesticides and semivolatile organic compounds (SVOCs) in benthic invertebrate tissue; therefore, the fish tissue data were used as a surrogate. There is some uncertainty associated with the assumption that fish tissue data represent benthic invertebrate tissue data. However, it is difficult to quantify that uncertainty without site-specific data. In a paper by Tracey and Hansen (1996), bioaccumulation of organic compounds, including pesticides, was compared among different types of organisms using sediment and tissue data from a variety of laboratory and field exposures. In general, no consistent trends were observed in the BSAF values among the different groups (i.e., infaunal deposit feeders, epibenthic scavengers, epibenthic filter feeders, and benthically coupled fish). Based on these observations, it is possible that the use of fish tissue data could overestimate or underestimate benthic invertebrate tissue concentrations.

3.3.4.4 Emergent Insect Tissue

Recommended methods for modeling tissue in emergent insects provided by Bechtel Jacobs (1998) were used to estimate prey concentrations for tree swallow and bat diets. These methods included the use BSAFs for some metals and regression models for others. For metals not included in Bechtel Jacobs (1998), the BSAFs for benthic invertebrates were used (Table 3-7). Uncertainties associated with this approach are described in Section 5.

3.3.4.5 Crayfish and Mussel Tissue

Crayfish and mussel tissue samples were not analyzed for PAHs, molybdenum, uranium, pesticides, or SVOCs. For PAHs, molybdenum, and uranium, the modeled benthic invertebrate data were used as surrogate data. Although there are some uncertainties in using modeled benthic invertebrate concentrations, their use is likely conservative because they represent sediment-dwelling organisms and are based on 90th percentile BSAFs. For pesticides and SVOCs, fish tissue data were used as surrogate data. The same uncertainties in using fish tissue SVOCs and pesticide concentrations to represent benthic invertebrate data (as described in Section 3.3.4.3) apply to crayfish and mussel data.

PCB and dioxin/furan congener data for whole-body crayfish tissue were not available; only partial-body samples (i.e., whole-body minus stomach and carapace) were analyzed. In place of these data, the maximum of the following 95 UCLs from each aquatic unit was used: mussel tissue, partial-body crayfish tissue, or fish tissue (any size classes).

3.3.4.6 Fish Tissue

PCB Aroclor data are available for the large fish size class only, whereas PCB congener data are available for all of the fish size classes analyzed. Because quantitation of PCB congeners is more accurate than that of PCB Aroclors, only the PCB congener data are used in the fish tissue and aquatic-dependent wildlife screening.

3.4 BENCHMARKS AND SCREENING-LEVEL TOXICITY REFERENCE VALUES

This section presents the screening-level benchmark concentrations or SL TRVs against which exposure concentrations or doses were compared for screening purposes. In this document, the screening-level toxicity values are referred to as benchmarks for the media concentration-based evaluations, and are referred to as SL TRVs for the dietary fish and aquatic-dependent wildlife evaluations.

3.4.1 Surface Water and Porewater

Benchmarks used to screen both surface water and porewater[8] COI concentrations were derived from national and regional water quality criteria (WQC) and water quality standards (WQS) that have been developed for the protection of aquatic life—1) EPA's national recommended chronic WQC; 2) Ecology's chronic WQS; 3) the Confederated Tribes of the Colville Reservation WQC; and 4) the Spokane Tribe of Indians WQS. The lowest of these criteria and standards was selected as the screening benchmark for each COI and for each of the three aquatic exposure units. For COIs with criteria dependent upon alkalinity, hardness, calcium, magnesium, sodium, sulfate, dissolved organic carbon, or pH, values were selected to calculate the most conservative benchmarks for each aquatic exposure unit, water type (disturbed or undisturbed for surface water), and depth zone (for porewater) as described in Appendix B (parameter values are presented in Tables B-3, B-4, and B-5). Criteria were calculated for both surface water and porewater using the relevant parameters for each media type. The selected surface water and porewater criteria are described in more detail in Appendix B and are summarized in Table B-2 of Appendix B.

For most inorganic COIs in surface water and/or porewater, WQC and WQS are expressed on a dissolved basis (i.e., arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium,[9] silver, and zinc). Therefore, comparisons were made to dissolved surface water concentrations for these COIs. For aluminum, iron, and all organic COIs, WQC and WQS are expressed on a total basis. Therefore, comparisons were made to total concentrations for these COIs. For porewater, only dissolved concentrations were available for metals. Therefore, there may be some uncertainty in the application of the total criteria for aluminum and iron to the dissolved porewater concentrations of those metals. For this screen using the dissolved concentrations, aluminum and iron were identified as COPCs and therefore will be further evaluated in the

[8] The use of surface water benchmarks for screening porewater is consistent with the recommendation of EPA (USEPA 2005).

[9] The criterion for selenium includes all dissolved forms of selenium and is thus identified as a dissolved total value.

BERA; the uncertainty in using dissolved concentrations rather than total concentrations will be discussed, as applicable, to the results of the BERA.

For the purposes of this COPC refinement, Windward Environmental LLC (Windward) developed benchmarks for six metals that do not have established WQS or WQC (antimony, barium, beryllium, cobalt, thallium, and vanadium). The benchmarks were developed following EPA guidelines for ambient water quality criteria (AWQC) (USEPA 1985) and toxicity data compiled from EPA's ECOTOX database. Details of these methods are presented in Appendix B.

3.4.2 Sediment

The primary benchmarks used for sediment were the threshold effect concentrations (TECs) from MacDonald et al. (2000), if available for a given COI. For COIs that had no TECs, either the lowest apparent effects thresholds (Ecology 2003) or the equilibrium partitioning sediment guidelines derived using the equilibrium partitioning paradigm (USEPA 2008) were used, whichever was lower. A benchmark for dioxin/furan TEQ was not available from the TECs, the lowest apparent effects thresholds, or the equilibrium partitioning sediment guidelines. Consistent with the SLERA, the Environment Canada environmental guideline for the protection of aquatic life from dioxins in sediment (0.85 ng TEQ/kg) was used as the sediment benchmark for dioxin/furan TEQ (CCME 2002). These benchmarks are consistent with those used in the SLERA. The selected benchmarks based on this approach are presented in Table B-7 and described in more detail in Appendix B, along with associated uncertainties.

3.4.3 Fish Tissue

Screening-level fish tissue benchmarks from the Portland Harbor BERA (Windward 2013) were selected for use in this COPC refinement, if available, because they were derived using methods previously recommended by EPA Region 10 (Appendix B, Table B-8). If fewer than 20 studies were identified in the Portland Harbor BERA, the 5th percentile concentrations reported by Dyer et al. (2000) were used. If there were fewer than 20 studies and no value was reported by Dyer et al. (2000), the benchmark was calculated as the product of EPA WQC and a bioconcentration factor, as described in more detail in Appendix B. The selected benchmarks for bis(2-ethylhexyl)phthalate and di-n-butyl phthalate were updated from the Portland Harbor BERA; they are now based on freshwater fish thresholds from Staples et al. (1997) and bioconcentration factors from EPA (2016a). The selenium benchmark for tissue was revised from the benchmark in the Portland Harbor BERA to reflect the recently updated chronic AWQC whole-body tissue concentration (USEPA 2016b). The dioxin/furan TEQ screening-level concentration used in the Portland Harbor BERA was derived from WQC and bioconcentration factors presented by Shephard (1998). For this COPC screening, the dioxin/furan TEQ benchmark was derived from a more recent study that used residue effects

from early life-stage fish to derive a mean concentration expected to protect 95 percent of fish species (Steevens et al. 2005).

3.4.4 Fish Diet

Fish diet SL TRVs are expressed as both diet-borne concentrations (mg/kg_{diet} dw) and as dietary doses (mg/kg bw/day). The primary source of the fish dietary SL TRVs was the Portland Harbor BERA (Windward 2013). The screening-level thresholds for the Portland Harbor BERA were based on the most conservative values found in a literature search conducted on the dietary toxicity of metals/metalloids and PAHs, as described in Appendix B. For this screening, lower values than those used in the Portland Harbor BERA were sometimes found in the literature and were used instead (i.e., for aluminum and lead). In addition to the screening-level thresholds for metals/metalloids included in the Portland Harbor BERA, NOAELs were found in the scientific literature for five other metals (chromium, molybdenum, nickel, uranium, and vanadium) and were included in this screening as fish tissue SL TRVs. The diet-borne concentrations and dietary doses selected as SL TRVs for this COPC screening are provided in Appendix B (Table B-9).

3.4.5 Aquatic-dependent Wildlife Diet

The dietary SL TRVs used to screen COIs for aquatic-dependent birds and mammals were Eco-SSL TRVs (USEPA 2005) or, if an Eco-SSL TRV was not available, EPA Region 10 SL TRVs from the Portland Harbor risk assessment (Windward 2013) or Lower Duwamish Waterway (Windward 2007) risk assessment were used. The Portland Harbor SL TRVs were preferred over the Lower Duwamish Waterway SL TRVs because they are the more recent values established for relevant studies completed with EPA Region 10 oversight. If an Eco-SSL or EPA Region 10 value was not available for a particular COI, which occurred in very few cases, then a NOAEL associated with an adverse effect on survival, growth, or reproduction was selected from the scientific literature. Details on the methods for conducting the literature searches and deriving the NOAELs are presented in Appendix B; SL TRVs are presented in Table B-10.

3.4.6 Soil

Screening-level soil benchmarks for terrestrial plants, invertebrates, birds, and mammals were based on EPA's Eco-SSLs (Appendix B; Table B-11). If no Eco-SSL was available for a particular COI, a screening benchmark was derived using the lowest acceptable toxicity value from the Eco-SSL documents for that chemical, if available. For terrestrial plants and invertebrates, if no Eco-SSL document was available (i.e., for mercury, molybdenum, and thallium), EPA's ECOTOX database (ECOTOX 2015) was searched, and the highest bounded NOAEL below the lowest bounded LOAEL in soil associated with an adverse effect on growth, reproduction, or survival was used as the soil screening benchmark. If bounded NOAEL and LOAEL data

from the same study were not available, the highest NOAEL from any study below the lowest LOAEL from any other study was used. The lowest LOAEL was used as the benchmark if there was no NOAEL below the lowest LOAEL.

Eco-SSL documents were prepared by EPA for aluminum and iron, although plant and invertebrate Eco-SSL values were not developed for either metal (USEPA 2003a,b). For aluminum, the soluble form in soil was considered more reliable for prediction of toxicity than the total form (USEPA 2003a). Because the soluble form of aluminum is pH-dependent, EPA recommended that aluminum be identified as a COPC only for those soils with a pH less than 5.5, so this pH level was used as a benchmark for aluminum for plants and invertebrates. For iron, EPA did not identify a specific benchmark because the bioavailability of iron is dependent upon site-specific soil conditions, including pH (USEPA 2003b). EPA concluded that because the iron demand of plants is higher than the amount of iron available in well-aerated soils with a pH between 5 and 8, iron under these soil conditions is not expected to be toxic to plants (USEPA 2003b). As a conservative approach, iron was identified as a COPC for plants and invertebrates for those soil samples with a pH less than 5 or greater than 8.

4 RESULTS

As discussed in Section 3.1.2 and shown in Figure 3-1, there were three possible outcomes of the screening for each COI evaluated for a particular exposure pathway and receptor group: 1) designation of a COI as a COPC; 2) retention as a COI for discussion of uncertainty in the BERA (i.e., COI was not analyzed, COI had no benchmark or SL TRV, COI detection limits exceeded the benchmark in more than one sample, or there was a single exceedance of the benchmark for a COI in a sample that had at least one other COI exceedance); or 3) elimination of a COI from further evaluation (i.e., COI not a COPC). The results of this COPC screening for each COI for each exposure pathway and receptor group are presented in Table 4-1. For aquatic receptors and aquatic-dependent wildlife, a chemical is identified as a COPC in Table 4-1 if it exceeded the benchmark or SL TRV in at least one aquatic exposure unit. Table 4-1 also indicates which COIs are not considered COPCs because they were previously eliminated in the SLERA. The following sections discuss results for each receptor group.

Results are presented in the following tables by exposure pathway:

- Tables 4-2 and 4-3 for surface water, using maximum concentrations and EPCs, respectively
- Table 4-4 for porewater
- Table 4-5 for sediment
- Table 4-6 for fish tissue
- Tables 4-7a through 4-7w for diet of fish, birds, and mammals for the Upper Reach OU
- Tables 4-8a through 4-8w for diet of fish, birds, and mammals for the Transitional CSM Unit
- Tables 4-9a through 4-9w for diet of fish, birds, and mammals for the Lacustrine CSM Unit
- Table 4-10 for soil.

4.1 AQUATIC PLANTS

Aquatic plants were evaluated through the surface water and porewater exposure pathways. Results for both of these pathways are described below.

4.1.1 Surface Water Pathway

The surface water pathway screening for aquatic plants compared maximum concentrations of COIs in undisturbed surface water to benchmarks for surface water for each of the aquatic

exposure units. The undisturbed surface water screening results for COIs with benchmarks are shown in Table 4-2. Any COI with more than one exceedance of a benchmark in the aquatic exposure unit in which it was screened was retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—aluminum
- **Lacustrine CSM Unit**—aluminum.

The following additional chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limits greater than benchmarks in more than one sample:

- **Upper Reach OU**—cadmium and toxaphene
- **Transitional CSM Unit**—toxaphene
- **Lacustrine CSM Unit**—toxaphene.

In addition, the following chemicals were retained as COIs for the discussion of uncertainty in the BERA, because although they each had only single sample exceedances of benchmarks, there were also detection limit exceedances of other COIs in the same samples:

- **Upper Reach OU**—dieldrin and heptachlor
- **Lacustrine CSM Unit**—4,4′-DDT.

4.1.2 Porewater Pathway

The porewater pathway screen for aquatic plants compared maximum concentrations of COIs in porewater to surface water benchmarks for each of the aquatic exposure units. The screening was conducted using all data from the Upper Reach OU and only data from the shallow zones (< 80 ft below full pool elevation) for the Transitional CSM Unit and Lacustrine CSM Unit. The porewater screening results for COIs with benchmarks are shown in Table 4-4. COIs with more than one exceedance of a benchmark in the aquatic exposure unit and the depth zone for which it was screened (i.e., shallow or deep) is retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—aluminum, antimony, cadmium, copper, iron, lead, manganese, selenium, zinc, and ammonia
- **Transitional CSM Unit**—aluminum, cadmium, copper, iron, lead, manganese, and ammonia
- **Lacustrine CSM Unit**—aluminum, cadmium, copper, iron, lead, manganese, selenium, zinc, and ammonia.

The following additional chemicals are retained as COIs for discussion of uncertainty in the BERA based on detection limits greater than the benchmarks for these COIs:

- **Upper Reach OU**—beryllium, cobalt, nickel, silver, and vanadium
- **Transitional CSM Unit**—antimony, beryllium, cobalt, selenium, silver, vanadium, and zinc
- **Lacustrine CSM Unit**—antimony, beryllium, cobalt, nickel, silver, and vanadium.

In addition, the following were retained as COIs for discussion of uncertainty in the BERA, because although they had only single exceedances of benchmarks, there were also exceedances of other COIs in the same samples:

- **Upper Reach OU**—chromium, nickel, silver (chromium and nickel exceedances were at the same location)
- **Transitional CSM Unit**—selenium and zinc (at different locations)
- **Lacustrine CSM Unit**—arsenic, cobalt, and vanadium (at different locations).

4.2 AQUATIC BENTHIC INVERTEBRATES

Aquatic benthic invertebrates were evaluated through the surface water, porewater, and sediment exposure pathways. This section presents the results for each of these pathways.

4.2.1 Surface Water Pathway

The surface water pathway evaluation for aquatic benthic invertebrates was the same as for aquatic plants (see Section 4.1.1). A summary of the results of the surface water screening for each COI with surface water benchmarks is presented in Table 4-2.

4.2.2 Porewater Pathway

The porewater pathway evaluation for aquatic benthic invertebrates compared maximum concentrations of COIs in porewater to surface water benchmarks separately for each of the three aquatic exposure units, as for the aquatic plant evaluation. However, the benthic invertebrate screening was also conducted for the deep zones in the Transitional CSM Unit and Lacustrine CSM Unit.

The porewater screening results for COIs with benchmarks are shown in Table 4-4. COIs with more than one exceedance of a benchmark within the shallow or deep zones was retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—aluminum, antimony, cadmium, copper, iron, lead, manganese, selenium, zinc, and ammonia

- **Transitional CSM Unit**—aluminum (shallow only), cadmium (shallow only), copper, iron (shallow only), lead, manganese (shallow only), and ammonia (shallow only)
- **Lacustrine CSM Unit**—aluminum, cadmium, copper, iron, lead, manganese, selenium (shallow only), zinc (shallow only), and ammonia.

The following additional chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limit exceedances of benchmarks:

- **Upper Reach OU**—beryllium, cobalt, nickel, silver, and vanadium
- **Transitional CSM Unit**—antimony (shallow only), beryllium (shallow only), cobalt (shallow only), selenium (shallow only), silver (shallow only), vanadium (shallow only), and zinc (shallow only)
- **Lacustrine CSM Unit**—antimony (shallow only), beryllium (shallow only), cobalt (shallow only), nickel (shallow only), silver, vanadium (shallow only), and zinc (deep only).

In addition, the following were retained as COIs for discussion of uncertainty in the BERA, because although they had only single exceedances of benchmarks, there were also exceedances of other COIs in the same samples:

- **Upper Reach OU**—chromium, nickel, and silver
- **Transitional CSM Unit**—aluminum (deep only), selenium (shallow only), and zinc
- **Lacustrine CSM Unit**—arsenic (shallow only), cobalt (shallow only), vanadium (shallow only), and zinc (deep only).

4.2.3 Sediment Pathway

The sediment pathway screen for benthic invertebrates compared sediment concentrations of COIs to sediment benchmarks for each of the aquatic exposure units, but separately for shallow and deep zones. The sediment screening results for COIs with benchmarks are shown in Table 4-5. COIs with more than one exceedance of a benchmark aquatic exposure unit and within the depth zone in which it was screened for was retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, and dioxin/furan TEQ
- **Transitional CSM Unit**—antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury (shallow only), nickel (shallow only), silver, zinc, and methoxychlor (shallow only)

- **Lacustrine CSM Unit**—antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, zinc, total DDE (shallow only), total DDT (shallow only), total DDx[10], and dioxin/furan TEQ.

The following additional chemicals were retained as COIs for the discussion of uncertainty in the BERA based on more than one detection limit exceedance of benchmarks:

- **Upper Reach OU**—di-n-octylphthalate and methoxychlor
- **Transitional CSM Unit**—di-n-octylphthalate and methoxychlor
- **Lacustrine CSM Unit**—dimethyl phthalate, di-n-octylphthalate, and methoxychlor.

In addition, the following were retained as COIs for discussion of uncertainty in the BERA, because although they had only single exceedances of benchmarks, there were also exceedances of other COIs in the same samples:

- **Upper Reach OU**—methoxychlor
- **Transitional CSM Unit**—total DDT (shallow only), total DDx
- **Lacustrine CSM Unit**—4,4′-DDE (shallow only), 4,4′-DDT, total DDT (deep only).

This COPC refinement does not include an evaluation of risk to benthic invertebrates based on an analysis of the concentration of simultaneously extracted metals (SEM) compared to acid volatile sulfides (AVS) in bulk sediments. However, all of the SEM metals (cadmium, copper, lead, nickel, and zinc) were screened as COPCs in at least one aquatic unit. The benthic invertebrate sediment risk assessment in the BERA will include this type of analysis.

4.3 FISH

Fish were evaluated through the surface water, porewater, tissue, and dietary exposure pathways. This section presents the results for each of these pathways.

4.3.1 Surface Water Pathway

The surface water pathway screen for fish compared EPCs (i.e., 95 UCLs) for COIs in undisturbed surface water to benchmarks for surface water for each of the aquatic exposure units. The surface water screening results for COIs with benchmarks are shown in Table 4-3. None of the COIs had EPCs exceeding the available benchmarks.

[10] Total DDx is the sum of all six DDT isomers (2,4′-dichlorodiphenyldichloroethane [DDD], 4,4′-DDD, 2,4′-dichlorodiphenyldichloroethylene [DDE], 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT).

4.3.2 Porewater Pathway

The porewater pathway evaluation for fish was the same as for benthic invertebrates (see Section 4.2.2); results are presented in Table 4-4.

4.3.3 Tissue Pathway

The fish tissue pathway screening compared maximum concentrations of COIs in fish tissue to screening-level benchmarks, but separately for each species, and for each of the aquatic exposure units (Table 4-6). A COI with more than one exceedance of a benchmark for any of the fish species in the aquatic exposure unit in which it was screened was retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—aluminum, antimony, cadmium, chromium, copper, lead, and zinc
- **Transitional CSM Unit**—aluminum, antimony, cadmium, lead, and zinc
- **Lacustrine CSM Unit**—aluminum, antimony, cadmium, chromium, lead, and zinc.

There were no additional chemicals retained as COIs for the discussion of uncertainty in the BERA based on at least one detection limit being greater than or equal to the benchmark for any fish species, or based on single exceedances that also had exceedances of other COIs in the same areas.

4.3.4 Dietary Pathway

The fish dietary pathway compared dietary concentrations in food, as well as estimated dietary doses (calculated as described in Section 3.3.2) with dietary SL TRVs. Screening was conducted separately for each of the three aquatic exposure units for the following receptors: bull trout, Chinook salmon, largescale sucker, prickly sculpin, white sturgeon, and yellow perch. EPCs representing dietary concentrations in fish prey items are shown in Tables 3-6a, 3-6b, and 3-6c for the Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit, respectively. Calculations of COIs in food and dietary doses are presented in Tables 4-7a through 4-7f for the Upper Reach OU; Tables 4-8a through 4-8f for the Transitional CSM Unit; and Tables 4-9a through 4-9f for the Lacustrine CSM Unit. Summaries of chemicals identified as COPCs for each fish receptor are presented in Tables 4-7g, 4-8g, and 4-9g for each of the Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit, respectively.

The following COIs were identified as COPCs based on SL TRV exceedances for at least one fish receptor in each river unit, using either the dietary food or dietary dose approach:

- **Upper Reach OU**—aluminum, cadmium, chromium, copper, mercury, selenium, vanadium, and zinc
- **Transitional CSM Unit**—aluminum, cadmium, chromium, copper, mercury, selenium, vanadium, and zinc
- **Lacustrine CSM Unit**—aluminum, cadmium, chromium, copper, mercury, selenium, vanadium, and zinc.

4.4 AQUATIC-DEPENDENT WILDLIFE

The aquatic-dependent wildlife dietary pathway compared estimated dietary doses (calculated as described in Section 3.3.2) with SL TRVs. Screening was conducted separately for each of the three aquatic exposure units for both birds and mammals.

4.4.1 Birds

Ten bird receptors were evaluated in this screening—bald eagle, belted kingfisher, Canada goose, great blue heron, lesser scaup, mallard, osprey, spotted sandpiper, tree swallow, and tundra swan. EPCs representing dietary concentrations in bird prey items are shown in Tables 3-6a, 3-6b, and 3-6c for the Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit, respectively. Calculations of COIs in food and dietary doses are presented in Tables 4-7h through 4-7q for the Upper Reach OU; Tables 4-8h through 4-8q for the Transitional CSM Unit; and Tables 4-9h through 4-9q for the Lacustrine CSM Unit; summaries of chemicals identified as COPCs for each bird receptor are shown in Tables 4-7r, 4-8r, and 4-9r. The following COIs were identified as COPCs based on dietary SL TRV exceedances for at least one bird receptor in each area:

- **Upper Reach OU**—aluminum, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, nickel, selenium, vanadium, zinc, total HPAHs, di-n-butyl phthalate, dioxin/furan TEQ, and total TEQ
- **Transitional CSM Unit**—aluminum, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, dioxin/furan TEQ, and total TEQ
- **Lacustrine CSM Unit**—aluminum, cadmium, chromium, copper, lead, nickel, manganese, mercury, selenium, vanadium, zinc, bis(2-ethylhexyl)phthalate, total PCBs, and dioxin/furan TEQ.[11]

[11] PCB TEQs and total TEQs could not be calculated for the lacustrine area because sediment PCB congener data were not available. PCB Aroclor data in sediment were used to evaluate total PCBs in the lacustrine area.

4.4.2 Mammals

Four mammalian receptors were evaluated in this screening—little brown bat, mink, muskrat, and river otter. EPCs representing dietary concentrations in mammalian prey items are shown in Tables 3-6a, 3-6b, and 3-6c for the Upper Reach OU, Transitional CSM Unit, and Lacustrine CSM Unit, respectively. Calculations of COIs in food and dietary doses are presented in Tables 4-7s through 4-7v for the Upper Reach OU; Tables 4-8s through 4-8v for the Transitional CSM Unit; and Tables 4-9s through 4-9v for the Lacustrine CSM Unit; summaries of chemicals identified as COPCs for each mammal receptor are shown in Tables 4-7w, 4-8w, and 4-9w. The following COIs were identified as COPCs based on dietary SL TRV exceedances for at least one mammal receptor in each area:

- **Upper Reach OU**—aluminum, antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, selenium, zinc, total PCBs, PCB TEQ, dioxin/furan TEQ, and total TEQ
- **Transitional CSM Unit**—aluminum, antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, selenium, and total PCBs
- **Lacustrine CSM Unit**—aluminum, antimony, barium, cadmium, copper, manganese, mercury, molybdenum, selenium, and total PCBs.

4.5 AMPHIBIANS

The aquatic life stages of amphibians were evaluated through the surface water and porewater exposure pathways. Results for each of these pathways are described below.

4.5.1 Surface Water Pathway

The surface water pathway screen for amphibians compared concentrations of COIs in disturbed surface water to benchmarks for surface water for each of the aquatic exposure units. The screening results for COIs with benchmarks are shown in Table 4-2. COIs with more than one exceedance of a benchmark in the aquatic exposure unit in which it was screened for was retained as a COPC for further evaluation in the BERA, as follows:

- **Upper Reach OU**—aluminum
- **Transitional CSM Unit**—aluminum
- **Lacustrine CSM Unit**—aluminum.

The following additional chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limit exceedances of benchmarks in more than one sample:

- **Upper Reach OU**—toxaphene
- **Transitional CSM Unit**—toxaphene
- **Lacustrine CSM Unit**—toxaphene.

Cobalt had only a single exceedance of its benchmark in the Lacustrine CSM Unit, but also had an exceedance of aluminum in the same samples; therefore, it was retained as a COI for discussion in the uncertainty section of the BERA.

Surface water COIs with no benchmarks were retained for the discussion of uncertainty in the BERA. A summary of the screening results for each COI evaluated is presented in Table 4-1.

4.5.2 Porewater Pathway

The porewater pathway evaluation for amphibians was the same as for aquatic plants (see Section 4.1.2). A summary of the screening results for each COI evaluated for amphibians and the porewater pathway is presented in Table 4-1.

4.6 TERRESTRIAL PLANTS

The soil pathway screening for terrestrial plants compared maximum concentrations of COIs in any soil sample to Eco-SSL benchmarks for soil. Any COI with more than one exceedance of a benchmark was retained as a COPC for further evaluation in the BERA. The screening results for COIs with soil benchmarks are as follows (see Table 4-10):

- Eight COIs had more than one concentration greater than or equal to their respective soil benchmarks and were therefore retained as COPCs for terrestrial plants—arsenic, cobalt, copper, lead, manganese, nickel, selenium, and zinc.
- No chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limit exceedances of the benchmarks in more than one sample.

Barium had only a single exceedance of its benchmark but there were exceedances of other COIs in the same sample; therefore, barium was retained as a COI for discussion in the uncertainty section of the BERA.

In addition to the comparison to Eco-SSL benchmarks, soil pH was evaluated to determine whether aluminum and/or iron should be retained as COPCs. Based on soil pH < 5.5 at 23 locations, aluminum was retained as a COPC, and based on soil pH < 5.0 at three locations, iron was retained as a COPC.

Results for the soil pathway screening for terrestrial plants using the Bossburg Flat Beach soil data (Windward 2016) are presented in Appendix C. Six of the eight COIs listed above that exceeded their respective soil benchmarks in the refined COPC screening also exceeded their benchmarks based on the Bossburg Flat Beach data—cobalt, lead, manganese, nickel, selenium, and zinc.

4.7 TERRESTRIAL INVERTEBRATES

The soil pathway screening for terrestrial invertebrates compared maximum concentrations of COIs in any soil sample to Eco-SSL benchmarks for soil. COIs with more than one exceedance of a benchmark was retained as a COPC for further evaluation in the BERA. The screening results for COIs with soil benchmarks are as follows (see Table 4-10):

- Four COIs had more than one concentration greater than or equal to their respective soil benchmarks and were retained as COPCs for terrestrial invertebrates—barium, copper, manganese, and zinc.
- No chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limit exceedances of the benchmarks in more than one sample.

Chromium had only a single exceedance of its benchmark but there were exceedances of other COIs in the same sample; therefore, chromium was retained as a COI for discussion in the uncertainty section of the BERA.

In addition to the comparison to Eco-SSL benchmarks, soil pH was evaluated to determine whether aluminum and/or iron should be retained as COPCs. Based on soil pH < 5.5 at 23 locations, aluminum was retained as a COPC, and based on soil pH < 5.0 at three locations, iron was retained as a COPC.

Results for the soil pathway screen for terrestrial invertebrates using the Bossburg Flat Beach soil data (Windward 2016) are presented in Appendix C. Based on these data, lead, manganese, and zinc exceeded soil screening benchmarks.

4.8 TERRESTRIAL WILDLIFE

The soil pathway screening for terrestrial wildlife compared maximum concentrations of COIs in any soil sample to bird and mammal Eco-SSL benchmarks for soil. Any COI with more than one exceedance of a benchmark was retained as a COPC for further evaluation in the BERA. The screening results for COIs with soil benchmarks are as follows (see Table 4-10):

- The COIs with more than one concentration greater than or equal to their respective soil benchmarks were retained as COPCs for birds and mammals, as follows
    - **Birds**—cadmium, chromium, copper, lead, selenium, vanadium, and zinc
    - **Mammals**—antimony, cadmium, chromium, copper, lead, selenium, and zinc.
- No chemicals were retained as COIs for the discussion of uncertainty in the BERA based on detection limits being greater than the benchmarks in more than one sample.

Results for the soil pathway screen for wildlife using the Bossburg Flat Beach soil data are included in Appendix C. Based on the Bossburg soil data, cadmium, chromium, copper, lead, vanadium, and zinc exceeded their respective soil screening benchmarks for birds; antimony, cadmium, chromium, copper, lead, selenium, and zinc exceeded benchmarks for mammals.

5 UNCERTAINTY EVALUATION

This section discusses the primary uncertainties associated with the calculations conducted in this COPC refinement. Overall, these calculations are conservative, which is an intentional aspect of a screening-level assessment. Examples of the conservatism of the approach include the use of benchmarks or SL TRVs that are based on no-effect concentrations in the most sensitive species; the use of the lowest hardness concentration within an aquatic exposure unit to calculate hardness-based WQC; the use of the highest concentration within an aquatic exposure unit as an exposure estimate for sedentary receptors; and the assumption of 100 percent exposure of benthic invertebrates and fish to porewater when they may also be exposed to surface water.

Other uncertainties associated with the calculations in this COPC refinement primarily fall within two areas of evaluation: 1) the exposure assessment, which involves the estimation of screening concentrations and doses; and 2) the effects assessment, which involves the selection and use of screening-level benchmarks or TRVs. Uncertainties associated with a lack of data for a particular COI, lack of benchmarks or SL TRVs, and nondetected concentrations exceeding benchmarks will be discussed in the BERA.

Uncertainties related to the exposure assessment include:

- A substantial amount of the porewater data included in this screening was collected from laboratory studies not necessarily representative of field conditions. In addition, the field-collected porewater data are uncertain because of difficulties in collecting representative data. A data usability evaluation has not yet been conducted for field-collected porewater data to determine if these data are suitable for use in risk calculations.
- Only dissolved concentrations of metals were analyzed in porewater, whereas the aluminum benchmark is based on total concentrations. The use of dissolved concentrations only could underestimate or overestimate the exposure of aquatic organisms to aluminum in porewater.
- Surrogate data were used when data for certain analytes were not available for some of the environmental media types that had data for other analytes:
    - For aquatic plant tissue, metal concentrations were modeled using a regression equation relating concentrations in sediment to those in aquatic plants (Jackson et al. 1991). This equation was also used for antimony, beryllium, mercury, silver, vanadium, and uranium, even though Jackson et al. (1991) did not use those metals in deriving the equation. While it is uncertain how accurate the regression equation is for the metals not used to develop the equation, it was

reported that the model was able to account for 75 to 96 percent of the variability in plant concentrations compared to sediment concentrations, and that for a wide range of environments and growth forms, aquatic plants and their underlying sediment have similar elemental composition (Jackson et al. 1991).

Fish tissue data were used as a surrogate for organic compound concentrations in plants. It is uncertain whether the substituted organic compounds resulted in an underestimation or overestimation of exposure. However, HQs for receptors consuming primarily plants (Canada goose, tundra swan, and muskrat) rarely exceeded 0.1 for pesticides, PAHs, and SVOCs, indicating that plant tissue concentrations of these chemicals would need to be 10 times higher than fish tissue concentrations (which are based on the highest 95 UCL among the small, medium, and large fish) in order for these chemicals to be identified as COPCs. For PCBs and dioxins/furans, fish tissue concentrations are a conservative substitution because PCBs and dioxins/furans are more likely to accumulate in organisms with fatty tissue (e.g., fish) due to the higher fat solubilities of these compounds (Frakes et al. 1993; Wong et al. 2004), and because PCBs are known to biomagnify in organisms higher in the food chain (Burreau et al. 2004; Gobas and Arnot 2010).

- For benthic invertebrate tissue, 90th percentile BSAFs were used to model concentrations of metals, PAHs, PCBs, and TEQs; this constitutes a conservative approach, because these upper-bound estimates are likely to overestimate tissue concentrations. Benthic invertebrate tissue concentrations were used as surrogates for emergent insect concentrations when values from Bechtel Jacobs (1998) were not available. This usage is a conservative assumption for metals and PAHs and an appropriate assumption for other organic compounds based on an evaluation of loss of chemicals in insect tissue during metamorphosis (Kraus et al. 2014). Kraus et al. (2014) found that metals and PAHs were 3.1 and 2.9 times more concentrated, respectively, in larvae than in adults, while PCBs were 1.3 times higher in adults on average. Increasing the estimated emergent insect concentrations of PCBs by a factor of 1.3 would not change the conclusions regarding COPC identification.

  Uncertainty associated with the percent lipids value used when calculating concentrations of organic compounds in tissue from BSAFs was evaluated by using the 90th percentile dry weight lipid value (11.4 percent) rather than the mean (9.8 percent). Upon doing so, the conclusions regarding COPC identification did not change.

Fish tissue data were used as a surrogate for SVOC and pesticide concentrations in benthic invertebrates and emergent insects; it is uncertain whether this resulted in an underestimation or overestimation of exposure. HQs for receptors consuming primarily benthic invertebrates or emergent insects (spotted sandpiper, tree swallow, and bat) rarely exceeded 0.1 for pentachlorophenol and pesticides. Concentrations of pentachlorophenol and pesticides in benthic invertebrate and emergent insect tissue would need to be 10 times higher than in fish tissue for these chemicals to be identified as COPCs. It is unlikely that concentrations of some pesticides—such as DDT and methoxychlor, which are known to biomagnify (Chopra et al. 2011; Fisk et al. 1998—would be higher in benthic invertebrates than in invertivorous fish.

The remaining SVOCs are phthalates. BSAFs for bis(2-ethylhexyl)phthalate for chironomids and dragonflies have been estimated to be 0.5 and 0.1, respectively (Gobas et al. 2003. Using the highest of these BSAFs for all phthalates and using a sediment organic carbon content of 0.75 percent and a dry weight lipid content of 9.8 percent to estimate dry weight benthic invertebrate and emergent insect concentrations results in HQs ≤ 0.32 for spotted sandpiper, tree swallow, and bat. These results indicate that using fish tissue as a surrogate for phthalates is a reasonable and conservative assumption.

- For crayfish and mussel tissue, 90th percentile BSAFs (upper-bound estimates that are likely to overestimate tissue concentrations) were used to estimate PAH, molybdenum, and uranium concentrations, which is a conservative approach. For crayfish tissue, data were not available for PCBs or dioxins/furans; therefore, the maximum of fish, mussel, or partial-body crayfish data was used instead. It is not known if this approach underestimated or overestimated exposure. For mammals, total PCBs, dioxin/furan TEQ, PCB TEQ, and total TEQ were identified as COPCs in all three areas. These chemicals will be carried through to the BERA; therefore, any potential underestimation of crayfish tissue concentrations would not affect the outcome of this evaluation. For birds, crayfish are a relatively small dietary component (25 percent for belted kingfisher and 5 percent for great blue heron), and HQs were ≤ 0.2. Given that the portion of crayfish tissue not analyzed (i.e., stomach and carapace) averaged less than 8 percent of the entire body weight, concentrations in the stomach and carapace would need to be substantially higher than the partial body concentrations to result in HQs >1.

- Fractions of different prey items in receptors' diets were based on a limited amount of information from the scientific literature and may not have represented the diets of the receptors in the UCR. If site-specific dietary composition estimates become available, they will be considered for use in the BERA.
- The FIRs and body weights used in the calculation of dietary dose estimates for each receptor were derived from the scientific literature and were used as discrete values (averages) rather than more realistic ranges.

Primary uncertainties related to the effects assessment are as follows:

- Fish, plant, terrestrial invertebrates, and wildlife benchmark and SL TRVs were based on laboratory species exposed to highly bioavailable forms of the COIs; these species may not have been representative of UCR receptors of concern exposed to COIs in the natural environment.
- The copper biotic ligand model benchmarks were overly conservative because each parameter value used in the calculation was selected to result in the lowest benchmark calculation, which was an unrealistic assumption for individual water samples.

6 SUMMARY

This COPC refinement was conducted as an interim screening step between the SLERA and the BERA. Refinements from the SLERA were the use of new data collected as part of the RI/FS (most notably soil data), the use of 95 percent UCLs as EPCs for mobile receptors, the evaluation of each of the three UCR aquatic exposure areas separately, and the presentation of results on a receptor- and media-specific basis.

Chemicals that were eliminated in the SLERA were not considered COPCs and will not be further evaluated in the BERA. All other chemicals from the SLERA were carried forward as COIs for evaluation in this COPC screening. Each COI was placed in one of the following categories (identified separately by aquatic exposure unit for aquatic receptors) as a result of this screening: 1) a COPC based on a benchmark exceedance in more than one sample; 2) not a COPC based on no benchmark exceedances in more than one sample; or 3) a COI to be carried forward to the BERA based on uncertainty (i.e., no chemistry data, no benchmarks or SL TRVs, nondetected concentrations of a COI exceeding benchmarks in more than one sample, or a single COI exceeding a benchmark in a sample in which there were other COI exceedances).

Chemicals identified as COPCs are shown in Table 6-1 and summarized as follows:

- For the surface water pathway, aluminum was the only chemical identified as a COPC in at least one aquatic exposure unit for aquatic plants, benthic invertebrates, and amphibians. No chemicals were identified as COPCs for fish for the surface water pathway.
- For the porewater pathway, results were the same for aquatic plants, amphibians, fish, and invertebrates. Nine metals were identified as COPCs in at least one of the aquatic exposure units—aluminum, antimony (Upper Reach OU only), cadmium, copper, iron, lead, manganese, selenium, and zinc, along with ammonia.
- In the sediment evaluation for benthic invertebrate exposure, 11 metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, silver, and zinc); 4 pesticides (methoxychlor [transitional unit only], total DDE [Lacustrine CSM Unit only], total DDT [Lacustrine CMS Unit only], total DDx [Lacustrine CSM Unit only]); dioxin/furan TEQ; and total TEQ were identified as COPCs. The benthic invertebrate evaluation in the BERA will include an analysis of excess SEM compared to AVS.
- For both the fish tissue and dietary pathways, the following chemicals were identified as COPCs: aluminum, cadmium, chromium, copper, and zinc. Additional COPCs

identified for the fish tissue pathway include antimony and lead. Additional COPCs for the fish dietary pathway include mercury, selenium, and vanadium.

- For the dietary pathway for aquatic-dependent wildlife, the following COPCs were identified for both birds and mammals: aluminum, barium (only the Upper Reach OU and Transitional CSM Unit for birds), cadmium, chromium (only the Upper Reach OU and Transitional CSM Unit for mammals), copper, lead (only the Upper Reach OU and Transitional CSM Unit for mammals), manganese (only the Upper Reach OU for birds), mercury, molybdenum (only the Upper Reach OU for birds), selenium, zinc (only the Upper Reach OU for mammals), total PCBs (only the Lacustrine CSM Unit for birds), dioxin/furan TEQ (only the Upper Reach OU for mammals), and total TEQ (only the Upper Reach OU and Transitional CSM Unit for birds, and only the Upper Reach OU for mammals). COPCs identified for birds only were arsenic (Upper Reach OU only), nickel, vanadium, bis(2-ethylhexyl)phthalate (Lacustrine CSM Unit only), and di-n-butyl phthalate (Upper Reach OU only). Additional COPCs identified for mammals only included antimony and PCB TEQ (Upper Reach OU only).
- For the soil pathway for both terrestrial plants and invertebrates, aluminum, copper, iron, manganese and zinc were identified as COPCs. Additional COPCs identified for terrestrial plants were arsenic, cobalt, lead, nickel, and selenium, and an additional COPC for terrestrial invertebrates was barium.
- For the soil pathway for terrestrial wildlife, the following COPCs were identified for both birds and mammals: cadmium, chromium, copper, lead, selenium, and zinc. Additionally, antimony was also identified as a COPC for mammals, and vanadium was also identified as a COPC for birds.

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FIGURE

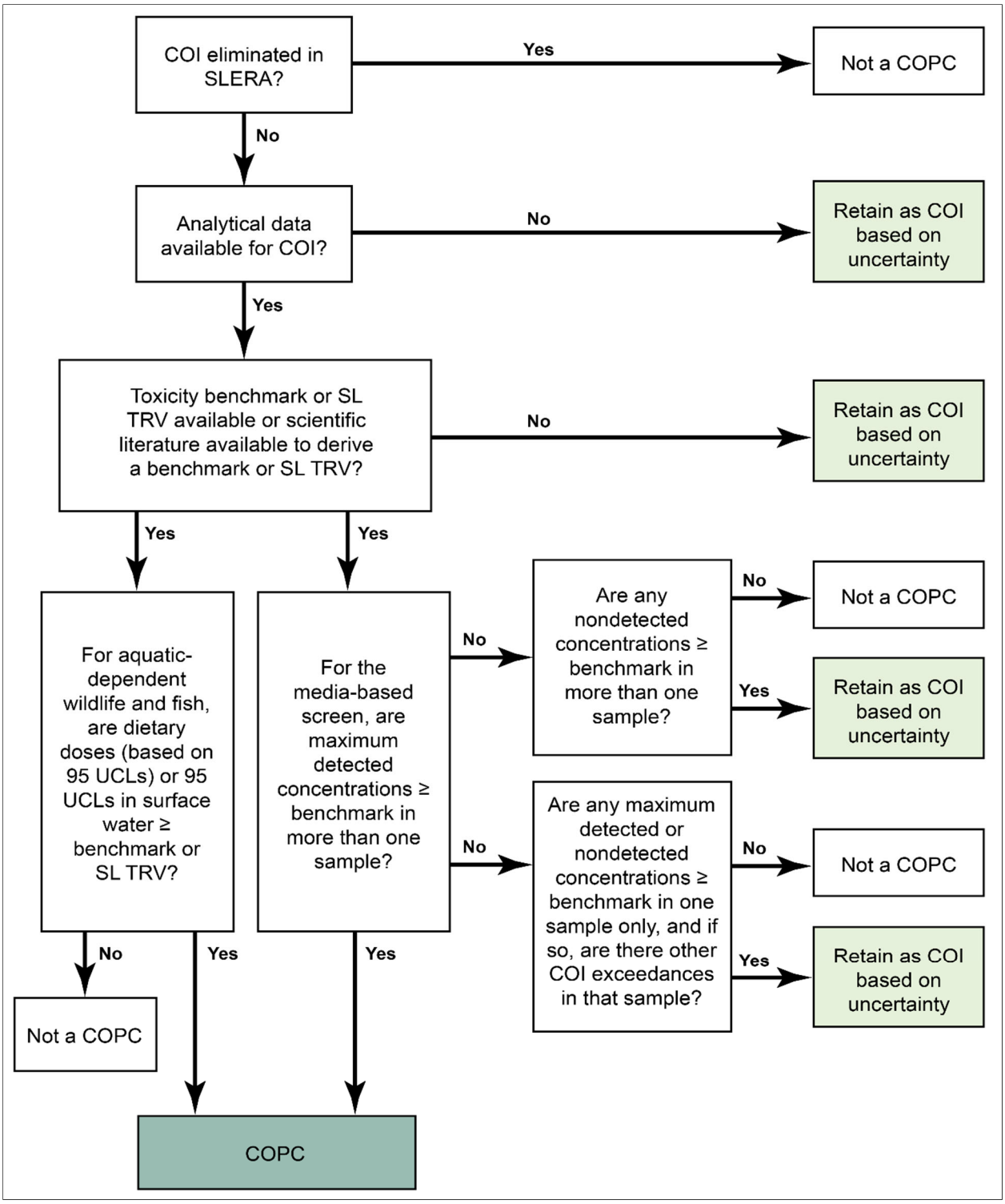

Figure 3-1. Refined COPC Screening Process

TABLES

Table 1-1. Overview of COPC Screening Process for the Aquatic and Terrestrial Environments

Receptor	Medium/Exposure Pathway[a]	Evaluated in SLERA?	COIs Eliminated in SLERA?	Evaluated in COPC Refinement?	Primary Differences Between SLERA and COPC Refinement
Aquatic plants	Surface water	✓	No	✓	New RI/FS surface water data
	Porewater	✓	No	✓	New RI/FS porewater data; additional USGS porewater data
	Sediment	X	No	X	NA
Benthic invertebrates	Surface water	✓	No	✓	New RI/FS surface water data
	Porewater	✓	No	✓	New RI/FS porewater data; additional USGS porewater data
	Sediment	✓	Yes[b]	✓	New RI/FS sediment data; additional sediment data
	Tissue	X	No	X	NA
Fish	Surface water	✓	No	✓	New RI/FS surface water data
	Porewater	✓	No	✓	New RI/FS porewater data; additional porewater data
	Sediment	X	No	X	NA
	Tissue	✓	Yes[b,c]	✓	New RI/FS fish tissue data; screen was conducted using maximum concentrations and benchmarks rather than evaluation of bioaccumulation potential only
	Diet	X	No	✓	NA
Amphibians	Surface water	✓	No	✓	New RI/FS surface water data
	Porewater	✓	No	✓	New RI/FS porewater data; additional USGS porewater data
	Diet	X	No	X	NA
	Sediment	X	No	X	NA
	Soil	X	No	X	NA
Aquatic-dependent wildlife	Diet	✓	Yes[b]	✓	New RI/FS sediment, fish tissue, and benthic invertebrate tissue data; refined EPCs; additional screening-level toxicity reference values
Terrestrial plants	Soil	✓	No	X	New RI/FS soil data; additional benchmarks
Terrestrial invertebrates	Soil	✓	No	✓	New RI/FS soil data; additional benchmarks
Terrestrial wildlife	Soil	✓	No	✓	New RI/FS soil data; additional benchmarks
Reptiles	Soil	X	No	X	NA
	Diet	X	No	X	NA

Notes:

[a] All pathways identified in the expanded problem formulation document (Exponent and HDR|HydroQual 2012) are included in this table.

[b] See Table 3-1 for the list of chemicals of interest (COIs) eliminated based on the screening-level ecological risk assessment (SLERA). COIs eliminated in the SLERA are not considered chemicals of potential concern (COPCs) and were not evaluated in this refined screen.

[c] Organic compounds were evaluated using bioaccumulation potential (i.e., chemicals with log K_{ow} < 4 were eliminated).

EPC - exposure point concentration

K_{ow} - octanol-water partition coefficient

NA - not applicable

RI/FS - remedial investigation/feasibility study

USGS - United States Geological Survey

✓ - pathway was evaluated

X - pathway was not evaluated

Table 2-1. Screening Approach for Aquatic and Terrestrial Receptors in the SLERA and Refined COPC Screen

		SLERA			COPC Refinement		
Receptor	Medium/Exposure Pathway	Data Used	Exposure Point Concentration	Benchmarks or SL TRVs	Data Used	Exposure Point Concentration	Benchmarks or SL TRVs
Aquatic plants	Surface water	Ecology 2007; USGS 2006; Paulson et al. 2006	Maximum concentration	Lowest of national and regional water quality criteria (dissolved only)	Ecology 2007; USGS 2006; Exponent and Parametrix 2013	Maximum concentration, undisturbed, by UCR area	Lowest of national and regional water quality criteria
	Porewater	Cox et al. 2005; Paulson et al. 2006	Maximum concentration	Lowest of national and regional water quality criteria (dissolved only)	Cox et al. 2005; Paulson et al. 2006; Windward et al. 2017; Ingersoll et al. 2016; CH2M Hill and E&E 2006; USGS 2017	Maximum concentration, shallow zone[a], by UCR area	Lowest of national and regional water quality criteria
Benthic invertebrates	Surface water	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants
	Porewater	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	Maximum concentration, shallow and deep zones[a], by UCR area	See above for aquatic plants
	Sediment	Era and Serdar 2001; USEPA 2003; Cox et al. 2005; CH2M Hill and E&E 2006; Paulson et al. 2006	Maximum concentration	TECs preferred; if not available, then the lowest of 1) Ecology marine SQS, 2) Ecology LAET, or 3) EPA Tier 2 ESGs	Era and Serdar 2001; USEPA 2003; Cox et al. 2005; CH2M Hill and E&E 2006; Paulson et al. 2006; Dowling 2007; Integral 2014; Cardno Entrix and HDR|HydroQual 2014; Ingersoll et al. 2016; Windward et al. 2017; Windward 2016	Maximum concentration, shallow and deep zones[a], by UCR area	TECs preferred; if not available, then the lowest of Ecology LAET or EPA Tier 2 ESGs
Fish	Surface water	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	95 UCL, undisturbed, by UCR area	See above for aquatic plants
	Porewater	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	Maximum concentration, shallow and deep zones[a], by UCR area	See above for aquatic plants
	Tissue	Not evaluated	None – screening was conducted based on bioaccumulation potential (log K_{ow} < 4)	Not applicable	CH2M Hill and E&E 2007; Exponent et al. 2013	Maximum concentration by species and UCR area	Portland Harbor BERA (Windward 2013) or the scientific literature
	Diet	Not evaluated	Not evaluated	Not evaluated	Fish prey – CH2M Hill and E&E 2007; Exponent et al. 2013	95 UCL by species and UCR area	Portland Harbor BERA (Windward 2013) or the scientific literature
					Benthic prey – Windward 2018	95 UCL by UCR area	
					Sediment – see list for benthic invertebrate evaluation	95 UCL, shallow zone[a], by UCR area	
Aquatic-dependent wildlife	Diet	Fish prey – CH2M Hill and E&E 2007	Maximum concentration	Eco-SSL-based toxicity reference values if available; otherwise SL TRVs from EPA Region 10 BERAs or from the scientific literature	Fish prey – CH2M Hill and E&E 2007; Exponent et al. 2013	Maximum 95 UCL within any size class, by UCR area	Eco-SSL-based toxicity reference values if available; otherwise SL TRVs from EPA Region 10 BERAs or from the scientific literature
		Benthic prey – estimated[b]			Benthic prey – Windward 2018	95 UCL by UCR area	
		Aquatic plants – estimated[b]			Aquatic plants – estimated[b]	95 UCL by UCR area	
		Sediment – Ecology 2001; USEPA 2003; Cox et al. 2005; USEPA 2006; Paulson et al. 2006			Sediment – see list for benthic invertebrate evaluation	95 UCL, shallow zone[a], by UCR area	
Amphibians	Surface water	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	Maximum concentration, disturbed, by UCR area	See above for aquatic plants
	Porewater	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants	See above for aquatic plants
Terrestrial plants, invertebrates, and wildlife	Soil	Holmgren et al. 1993; Burt et al. 2003; USGS 2007; Weston 2005; TCM 2007; Archibold 1974	Maximum concentration	Eco-SSLs	Windward 2015	Maximum concentration	Eco-SSLs, lowest values from Eco-SSL documents, or data from EPA's ECOTOX database

Notes:

[a] The shallow and deep zones apply to the transitional and lacustrine units; the upper reach operable unit is not divided into shallow and deep zones.

[b] Estimated concentrations were either modeled from sediment, or were surrogate data from other prey types that have empirical data.

95 UCL - 95th percentile upper confidence limit on the mean
BERA - baseline ecological risk assessment
COPC - chemical of potential concern
Eco-SSL - ecological soil screening levels
ESG - equilibrium partitioning sediment guideline
K_{ow} - octanol-water partition coefficient
LAET - lowest apparent effects threshold
SL TRV - screening-level toxicity reference value
SLERA - screening-level ecological risk assessment
SQS - sediment quality standard
TEC - threshold effect concentration

Table 3-1. COIs Evaluated in the Refined Screen

COI	Ecological Receptor / Exposure Pathway	Aquatic Plants, Benthic Invertebrates, Amphibians, and Fish — Surface Water	Aquatic Plants, Benthic Invertebrates, and Amphibians — Porewater	Benthic Invertebrates — Sediment	Fish — Tissue	Fish — Diet	Aquatic-Dependent Birds — Diet	Aquatic-Dependent Mammals — Diet	Terrestrial Plants, Invertebrates, Birds, and Mammals — Soil[a]
Nutrients									
Ammonia as nitrogen		✓	✓	N/A	NE (3)	NE (3)	N/A	N/A	N/A
Cyanide		N/A	N/A	N/A	NE (3)	NE (3)	N/A	N/A	N/A
Nitrate plus nitrite		✓	N/A	N/A	NE (3)	NE (3)	N/A	N/A	N/A
Phosphorous		✓	✓	✓	NE (3)	NE (3)	N/A	N/A	N/A
Common Metals/Metalloids									
Aluminum		✓	✓	✓	✓	✓	✓	✓	✓
Antimony		✓	✓	✓	✓	✓	✓	✓	✓
Arsenic		✓	✓	✓	✓	✓	✓	✓	✓
Barium		✓	✓	✓	✓	✓	✓	✓	✓
Beryllium		✓	✓	✓	✓	✓	✓	NE (2)	✓
Boron		✓	N/A	N/A	✓	✓	✓	✓	N/A
Cadmium		✓	✓	✓	✓	✓	✓	✓	✓
Calcium		✓	✓	✓	✓	✓	✓	✓	✓
Chloride		✓	✓	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (total)[b]		✓	✓	✓	✓	✓	✓	✓	✓
Cobalt		✓	✓	✓	✓	✓	✓	✓	✓
Copper		✓	✓	✓	✓	✓	✓	✓	✓
Fluoride		N/A	N/A	N/A	✓	✓	✓	✓	N/A
Gold		✓	N/A	N/A	✓	✓	✓	✓	N/A
Iron		✓	✓	✓	✓	✓	✓	✓	✓
Lead		✓	✓	✓	✓	✓	✓	✓	✓
Magnesium		✓	✓	✓	✓	✓	✓	✓	✓
Manganese		✓	✓	✓	✓	✓	✓	✓	✓
Mercury		✓	✓	✓	✓	✓	✓	✓	✓
Molybdenum		✓	✓	N/A	✓	✓	✓	✓	✓
Nickel		✓	✓	✓	✓	✓	✓	✓	✓
Potassium		✓	✓	✓	✓	✓	✓	✓	✓
Selenium		✓	✓	✓	✓	✓	✓	✓	✓
Silica		✓	✓	N/A	N/A	N/A	N/A	N/A	N/A
Silicon		✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver		✓	✓	✓	✓	✓	NE (2)	NE (2)	✓
Sodium		✓	✓	✓	✓	✓	✓	✓	✓
Sulfur		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium		✓	✓	✓	✓	✓	✓	✓	✓
Tin		✓	N/A	N/A	✓	✓	✓	✓	N/A
Uranium		✓	✓	✓	✓	✓	✓	✓	N/A
Vanadium		✓	✓	✓	✓	✓	✓	✓	✓
Zinc		✓	✓	✓	✓	✓	✓	✓	✓
Other Metals/Metalloids									
Bismuth		✓	✓	✓	✓	✓	✓	✓	N/A
Cerium		✓	✓	✓	✓	✓	✓	✓	N/A
Cesium		✓	✓	✓	✓	✓	✓	✓	N/A
Dysprosium		✓	✓	N/A	✓	✓	✓	✓	N/A
Erbium		✓	✓	N/A	✓	✓	✓	✓	N/A
Europium		✓	✓	N/A	✓	✓	✓	✓	N/A
Gadolinium		✓	✓	N/A	✓	✓	✓	✓	N/A
Gallium		✓	✓	✓	✓	✓	✓	✓	N/A
Germanium		✓	✓	N/A	✓	✓	✓	✓	N/A
Holmium		✓	✓	N/A	✓	✓	✓	✓	N/A
Indium		✓	N/A	N/A	✓	✓	✓	✓	N/A
Lanthanum		✓	✓	✓	✓	✓	✓	✓	N/A
Lithium		✓	✓	✓	✓	✓	✓	✓	N/A
Lutetium		✓	✓	N/A	✓	✓	✓	✓	N/A
Neodymium		✓	✓	N/A	✓	✓	✓	✓	N/A
Niobium		✓	✓	✓	✓	✓	✓	✓	N/A
Praseodymium		✓	✓	N/A	✓	✓	✓	✓	N/A
Rubidium		✓	✓	✓	✓	✓	✓	✓	N/A
Samarium		✓	✓	N/A	✓	✓	✓	✓	N/A
Scandium		✓	✓	✓	✓	✓	✓	✓	N/A
Strontium		✓	✓	✓	✓	✓	✓	✓	N/A
Tantalum		✓	✓	✓	✓	✓	✓	✓	N/A
Tellurium		✓	N/A	N/A	✓	✓	✓	✓	N/A
Terbium		✓	✓	N/A	✓	✓	✓	✓	N/A
Thorium		✓	✓	✓	✓	✓	✓	✓	N/A
Thulium		✓	✓	N/A	✓	✓	✓	✓	N/A
Titanium		✓	✓	✓	✓	✓	✓	✓	N/A
Tungsten		✓	✓	N/A	✓	✓	✓	✓	N/A
Ytterbium		✓	✓	✓	✓	✓	✓	✓	N/A
Yttrium		✓	✓	✓	✓	✓	✓	✓	N/A
Zirconium		✓	✓	N/A	✓	✓	✓	✓	N/A
SVOCs									
1,1'-Biphenyl		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
1,2,4-Trichlorobenzene		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
1,2-Dichlorobenzene		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
1,3-Dichlorobenzene		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
1,4-Dichlorobenzene		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
2,2'-oxybis(1-chloropropane)		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4,5-Trichlorophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4,6-Trichlorophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4-Dichlorophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4-Dimethylphenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4-Dinitrophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,4-Dinitrotoluene		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2,6-Dinitrotoluene		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2-Chloronaphthalene		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2-Chlorophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2-Methylphenol (o-cresol)		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2-Nitroaniline		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
2-Nitrophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
3,3'-Dichlorobenzidine		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
3-Nitroaniline		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
4,6-Dinitro-2-methylphenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
4-Bromophenyl-phenylether		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
4-Chloro-3-methylphenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
4-Chloroaniline		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
4-Chlorophenyl-phenyl ether		✓	N/A	✓	✓	NE (3)	✓	✓	N/A

Table 3-1. COIs Evaluated in the Refined Screen

COI	Ecological Receptor / Exposure Pathway	Aquatic Plants, Benthic Invertebrates, Amphibians, and Fish Surface Water	Aquatic Plants, Benthic Invertebrates, and Amphibians Porewater	Benthic Invertebrates Sediment	Fish Tissue	Fish Diet	Aquatic-Dependent Birds Diet	Aquatic-Dependent Mammals Diet	Terrestrial Plants, Invertebrates, Birds, and Mammals Soil[a]
SVOCs (continued)									
4-Methylphenol (p-cresol)		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
4-Nitroaniline		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
4-Nitrophenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Acetophenone		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Benzaldehyde		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Benzoic acid		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
Benzyl alcohol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Benzyl n-butyl phthalate		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
bis(2-Chloroethoxy)methane		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
bis(2-Chloroethyl)ether		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
bis(2-Ethylhexyl)phthalate		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Caprolactam		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Carbazole		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
Dibenzofuran		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Diethyl phthalate		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
Dimethyl phthalate		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Di-n-butyl phthalate		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Di-n-octylphthalate		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Hexachlorocyclopentadiene		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Hexachloroethane		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Isophorone		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Nitrobenzene		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
N-Nitrosodi-n-propylamine		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
N-Nitrosodiphenylamine		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Pentachlorophenol		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Phenol		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Pesticides[c]									
2,4'-DDD		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
2,4'-DDE		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
2,4'-DDT		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
4,4'-DDD		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
4,4'-DDE		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
4,4'-DDT		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Aldrin		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
alpha-BHC		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
alpha-Chlordane		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Atrazine		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
beta-BHC		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
cis-Nonachlor		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
delta-BHC		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Dieldrin		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Endosulfan I		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
Endosulfan II		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
Endosulfan sulfate		✓	N/A	✓	NE (1)	NE (3)	✓	✓	N/A
Endrin		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Endrin aldehyde		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Endrin ketone		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
gamma-BHC (Lindane)		✓	N/A	NE (2)	NE (1)	NE (3)	✓	✓	N/A
gamma-Chlordane		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Heptachlor		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Heptachlor epoxide		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Hexachlorobenzene		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Hexachlorobutadiene		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Methoxychlor		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
Mirex		N/A	N/A	✓	N/A	N/A	N/A	N/A	N/A
Oxychlordane		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Toxaphene		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
trans-Nonachlor		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
PAHs									
Benzo(a)anthracene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Benzo(a)pyrene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Benzo(b)fluoranthene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Benzo(e)pyrene		✓	N/A	NE (2)	NE (3)	N/A	N/A	N/A	N/A
Benzo(ghi)perylene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Benzo(k)fluoranthene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Chrysene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Dibenzo(a,h)anthracene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Indeno[1,2,3]pyrene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Anthracene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
2-Methylnaphthalene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Acenaphthene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Acenaphthylene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Fluoranthene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
Fluorene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Naphthalene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Perylene		✓	N/A	NE (2)	NE (3)	N/A	N/A	N/A	N/A
Phenanthrene		✓	N/A	NE (2)	NE (3)	✓	NE (2)	NE (2)	N/A
Pyrene		✓	N/A	NE (2)	NE (3)	✓	✓	✓	N/A
PCBs									
Aroclor 1016		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1221		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1232		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1242		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1248		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1254		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1260		N/A	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Aroclor 1262		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
Aroclor 1268		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
PCB Congeners (209 congeners)		✓	N/A	NE (2)	✓	NE (3)	✓	✓	N/A
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,4,7,8-Hexachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,6,7,8-Hexachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,7,8,9-Hexachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,7,8-Pentachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
2,3,7,8-Tetrachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
Octachlorodibenzodioxin		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A

Table 3-1. COIs Evaluated in the Refined Screen

COI	Ecological Receptor / Exposure Pathway	Aquatic Plants, Benthic Invertebrates, Amphibians, and Fish Surface Water	Aquatic Plants, Benthic Invertebrates, and Amphibians Porewater	Benthic Invertebrates Sediment	Fish Tissue	Fish Diet	Aquatic-Dependent Birds Diet	Aquatic-Dependent Mammals Diet	Terrestrial Plants, Invertebrates, Birds, and Mammals Soil[a]
Dioxins/Furans (continued)									
1,2,3,4,6,7,8-Heptachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,4,7,8,9-Heptachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,4,7,8-Hexachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,6,7,8-Hexachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,7,8-Pentachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
1,2,3,7,8-Pentachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
2,3,4,6,7,8-Hexachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
2,3,4,7,8-Pentachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
2,3,7,8-Tetrachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
Octachlorodibenzofuran		N/A	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDEs									
PBDE-17		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-28		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-47		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-49		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-66		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-71		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-85		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-99		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-100		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-128		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-138		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-153		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-154		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-183		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-184		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-190		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-191		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-200		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-203		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-206		✓	N/A	✓	✓	NE (3)	✓	✓	N/A
PBDE-209		✓	N/A	✓	✓	NE (3)	✓	✓	N/A

Notes:

Chemicals not analyzed for in a particular media/receptor group combination will be retained for evaluation in the uncertainty section of the baseline ecological risk assessment (BERA).

Chemicals of interest (COIs) with checkmarks were carried through from the screening-level ecological risk assessment (SLERA) (TAI 2010) and were evaluated in the refined screen if benchmarks were available (i.e., they were evaluated beyond the first two steps in Figure 3-1).

[a] The terrestrial wildlife exposure pathway is through the diet, but is estimated using soil benchmarks.

[b] Chromium is reported throughout this report as total chromium.

[c] Organophosphorus pesticides were also anayzed in historical surface water samples collected from the Northport area, but none were detected with the exception of dimethyl tetrachloroterephthalate, which has no screening benchmark. Therefore, these pesticides were not included in the refined screen.

NE (1) - Eliminated from SLERA based on low bioaccumulation potential (log K_{ow} < 4)

NE (2) - Eliminated from the SLERA because of hazard quotient (HQ) < 1

NE (3) - Not evaluated as part of the fish tissue or fish dietary evaluation as discussed in Section 3.1.1

N/A - not analyzed; retained as COI for uncertainty discussion in the BERA

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

K_{ow} - octanol-water partition coefficient

PAH - polycyclic aromatic hydrocarbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

Table 3-2. Aquatic-Dependent Wildlife Exposure Assumptions

	BW		Dry Weight FIR		Incidental Sediment Ingestion (as % of Dry Weight FIR)		SIR
Receptor	Value (kg)	Source	Value (kg dw/day)	Source	Value (%)	Source	Value (kg dw/day)
Bald eagle	4.684	Average of adult males and females (Snyder and Wiley 1976, as cited in Dunning 1984 and USEPA 1993)	0.230	Nagy 2001 (carnivorous birds)[a]	2	Assumed comparable to red-breasted merganser from Beyer et al. 2008	0.0046
Belted kingfisher	0.148	Average of adult males and females (Dunning 1984, as cited in USEPA 1993)	0.0233	Nagy 2001 (carnivorous birds)[a]	2	Assumed comparable to red-breasted merganser from Beyer et al. 2008	0.00047
Canada goose	2.62	Average of adult males and females (Grieb 1970, as cited in USEPA 1993)	0.140	Nagy 2001 (all birds)[b]	8.2	USEPA 1993	0.011
Great blue heron	2.39	Average of adult males and females (Hartman 1961, as cited in USEPA 1993)	0.148	Nagy 2001 (carnivorous birds)[a]	8.4	Generic model for waterfowl from Beyer et al. 2008	0.012
Lesser scaup	0.82	Averaged of adult males and females (Nelson and Martin 1953, as cited in USEPA 1993)	0.045	Nagy 2001 (omnivorous birds)[c]	4.7	Beyer et al. 2008	0.0021
Mallard	1.134	Average of adult males and females (Nelson and Martin 1953, as cited in USEPA 1993)	0.0551	Nagy 2001 (omnivorous birds)[c]	3.3	Beyer et al. 1994	0.0018
Osprey	1.486	Average of adult males and females, (Brown and Amadon 1968, as cited in USEPA 1993)	0.108	Nagy 2001 (carnivorous birds)[a]	2	Assumed comparable to red-breasted merganser from Beyer et al. 2008	0.0022
Spotted sandpiper	0.0425	Average of adult males and females (Maxson and Oring 1980, as cited in USEPA 1993)	0.00933	Nagy 2001 (shorebirds)[d]	18	Based on western sandpiper from Beyer et al. 1994	0.0017
Tree swallow	0.0202	Nagy 2001	0.0045	Nagy 2001 (insectivorous birds)[e]	2	BPJ	0.00009
Tundra swan	6.75	Average of adult males and females (Limpert and Earnst 1994)	0.265	Nagy 2001 (all birds)[b]	8.4	Beyer et al. 2008	0.022
Little brown bat	0.0075	Gould 1955 (as cited in Sample and Suter 1994)	0.0014	Nagy 2001 (Chiroptera - bats)[f]	2	BPJ	0.000028
Mink	0.852	Average of adult males and females (Mitchell 1961, as cited in USEPA 1993)	0.0425	Nagy 2001 (carnivorous mammals)[g]	5	BPJ; assumed comparable to other wildlife species based on Beyer et al. 1994	0.0021
Muskrat	0.873	Average of adult males and females (Reeves and Williams 1956, as cited in USEPA 1993)	0.0604	Nagy 2001 (herbivorous mammals)[h]	5	BPJ; assumed comparable to other wildlife species based on Beyer et al. 1994	0.0030
River otter	8.55	Average of adult males and females (Melquist and Hornocker 1983, as cited in USEPA 1993)	0.291	Nagy 2001 (carnivorous mammals)[g]	5	BPJ; assumed comparable to other wildlife species based on Beyer et al. 1994	0.015

Notes:

[a] Equation from Nagy (2001) for carnivorous birds (food ingestion rate [FIR] in g/day dry weight): $0.849*(BW[g])^{0.663}$.

[b] Equation from Nagy (2001) for all birds (FIR in g/day dry weight): $0.638*(BW[g])^{0.685}$.

[c] Equation from Nagy (2001) for omnivorous birds (FIR in g/day dry weight): $0.670*(BW[g])^{0.627}$.

[d] Equation from Nagy (2001) for shorebirds (FIR in g/day dry weight): $0.522*(BW[g])^{0.769}$.

[e] Equation from Nagy (2001) for insectivorous birds (FIR in g/day dry weight): $0.540*(BW[g])^{0.705}$.

[f] Equation from Nagy (2001) for Chiroptera (FIR in g/day dry weight): $0.365*(BW[g])^{0.671}$.

[g] Equation from Nagy (2001) for carnivorous mammals (FIR in g/day dry weight): $0.153*(BW[g])^{0.834}$.

[h] Equation from Nagy (2001) for herbivorous mammals (FIR in g/day dry weight): $0.859*(BW[g])^{0.628}$.

BPJ - best professional judgment

BW - body weight

SIR - sediment ingestion rate

Table 3-3. Aquatic-Dependent Wildlife Dietary Composition Assumptions

Receptor	Percent of Diet						Notes
	Aquatic Plants	Benthic Invertebrates	Emergent Insects	Fish	Mussels	Crayfish	
Bald eagle				100[a]			Bald eagles are opportunistic foragers with site-specific food habits based on available prey species (Buehler 2000; Anthony et al. 1999). In a study conducted in the lower Columbia River estuary, the diet composition of bald eagles was observed to be 90% fish, 7% birds, and 3% mammals (Watson et al. 1991).
Belted kingfisher				75[a]		25	A study conducted in Ohio stream habitats observed a diet consisting of 87% fish and 13% crayfish (Davis 1982, as cited in Prose 1985). In trout streams in Michigan, a study of the belted kingfisher diet suggested that the majority of their food consisted of forage fish and crayfish (39 and 24%, respectively) (Salyer and Lagler 1949, as cited in Prose 1985). In a lake study in Michigan, Alexander (1977) found the belted kingfisher diet to consist of 46% fish, 5% crustaceans, 19% insects, 27% amphibians, 1% birds and mammals, and 2% unidentified items.
Canada goose	100						Canada geese feed almost entirely on vegetation (USEPA 1993).
Great blue heron				95		5	In an analysis of great blue heron stomach contents from a Michigan lake and river, fish made up 94 to 98% of the species' diet; crustaceans and amphibians made up < 2 to 5%, and birds and mammals made up 0 to 1% (Alexander 1977, as cited in USEPA 1993).
Lesser scaup	25	35		5	35		Diet consists primarily of aquatic invertebrates, although plants are included in the diet seasonally as the availability of food changes (Tome and Wrubleski 1988; Afton et al. 1991, as cited in USEPA 1993). The percentages of prey items in the diet were reported to range from 53 to 93% for invertebrates, 0 to 50% for plants, and 0 to 9% for fish (Afton et al. 1991; Bartonek and Murdy 1970; Dirschl 1969).
Mallard	50	50					Mallards are omnivorous and opportunistic generalist feeders (Drilling et al. 2002). A study conducted in North Dakota found that a breeding mallard's diet consisted of 40 to 46% non-insect benthic invertebrates, 11 to 33% plants, and 13 to 48% insects (Swanson et al. 1985, as cited in USEPA 1993).
Osprey				100[a]			Diet is almost completely fish, but may on occasion contain other prey such as birds, frogs, and crustaceans (Brown and Amadon 1968, as cited in USEPA 1993).
Spotted sandpiper		100					Spotted sandpipers feed primarily on freshwater and terrestrial invertebrates (Reed et al. 2013).
Tree swallow			100				Tree swallows feed primarily on insects, with mollusks, vertebrates, spiders, and roundworms found to a lesser extent in their diet (Winkler et al. 2011).
Tundra swan	100						The diet of tundra swan consists of plants, primarily the seeds, stems, roots, and tubers of submerged and emergent aquatic vegetation (Limpert and Earnst 1994).
Little brown bat			100				Diet is 100% invertebrates (flying insects) (Fenton and Barclay 1980, as cited in Sample and Suter 1994).
Mink				90[a]		10	Diet is opportunistic, consisting of mammals, birds, fish, invertebrates, reptiles, and amphibians. Alexander (1977), as cited in USEPA (1993), reported dietary percentages of 61 to 85% for fish, 4 to 11% for crustaceans, 2 to 3% for amphibians, and 5 to 6% for birds and mammals.
Muskrat	100						Muskrats are primarily herbivorous, with the diet consisting of mostly of aquatic vegetation (USEPA 1993).
River otter				88[a]	2	10	Larsen (1984) reported the following proportions of prey items in southeastern Alaska: 86% fish, 10% crabs, 2% invertebrates other than crabs, 1% birds, and 1% mammals and plant material.

Notes:
[a] Estimated portion of diet other than plants, benthic invertebrates, or fish (e.g., birds, mammals, amphibians) is represented by fish.

Table 3-4. Fish Exposure Assumptions for Dietary COPC Refinement

	BW		Wet Weight FIR[a]			Incidental Sediment Ingestion[c]		
Receptor	Value (kg)	Source	Value (kg ww/day)	Source	Dry Weight FIR[b] (kg dw/day)	Value (%)	Source	SIR[d] (kg dw/day)
Bull trout	7.0	McPhail and Baxter 1996	0.39	Arnot and Gobas 2004	0.077	1	BPJ	0.00077
Chinook salmon	1.0	Lee et al. 2006	0.074	Arnot and Gobas 2004	0.015	1	BPJ	0.00015
Largescale sucker	0.40[e]	Exponent et al. 2013	0.034	Arnot and Gobas 2004	0.0068	8	Lee 2006; Spotts et al. 2002	0.0005
Prickly sculpin	0.078[e]	Exponent et al. 2013	0.0085	Arnot and Gobas 2004	0.0017	5	ODFW 2006; BPJ	0.000085
White sturgeon	51	Howell and McClellan 2006	2.1	Arnot and Gobas 2004	0.42	56	Romano et al. 2002	0.23
Yellow perch	0.19[e]	Exponent et al. 2013	0.018	Arnot and Gobas 2004	0.0036	1	BPJ	0.000036

Notes:

[a] Wet weight food ingestion rate (FIR) was calculated based on the equation from Arnot and Gobas (2004): FIR (ww) = (0.022 x BW $^{0.85}$) x (exp$^{(0.06 \times T)}$); where exp = 2.71828 and T = 20.2˚C (the maximum temperature measured during the three rounds of surface water sampling in 2009-2010 [Exponent and Parametrix 2013]).

[b] Dry weight FIR was calculated from ww FIR assuming an 80% moisture content in prey.

[c] Percent of incidental sediment ingestion of the dry diet.

[d] The sediment ingestion rate (SIR) was calculated as a percent of the FIR on a dw basis.

[e] Based on average body weights for fish > 1 yr old from field-collected data (Exponent et al. 2013).

BPJ - best professional judgment

BW - body weight

COPC - chemical of potential concern

Table 3-5. Fish Dietary Composition Assumptions

Receptor	Percent of Diet					Notes
	Aquatic Plants	Benthic Invertebrates	Fish	Mussels	Crayfish	
Bull trout			100			Adult diet is almost exclusively fish (Wydoski and Whitney 2003).
Chinook salmon		100				Diet in freshwater is primarily aquatic insect larvae and insects (Wydoski and Whitney 2003).
Largescale sucker	50	50				Diet consists of aquatic invertebrates, fish eggs, and plant material (periphyton) (McEvoy 1998; Dauble 1986).
Prickly sculpin		90	10			Diet is mostly benthic invertebrates (Brown et al. 1995), but larger fish may feed on small fishes when available (Wydoski and Whitney 2003).
White sturgeon	5	17	70	5	3	Lower Columbia River diet for juvenile & subadult was reported as: fish (68%), amphipods (15%), bivalves (5%), mysids (1%), isopods (1%), decapods (3%), and other (7%). Sturgeon < 800 mm length fed more on amphipods, and those > 800 mm fed primarily on fish (Muir et al. 1986). Prey found in adult stomachs include adult mountain whitefish, clams, snails, invertebrates, algae, and detritus (Hildebrand and Parsley 2013).
Yellow perch		15	70		15	Adult perch consume insects, invertebrates, fish eggs, juvenile fish, and crayfish (Brown et al. 2009). In Lake Washington, diet of perch was longfin smelt (56%), sculpin (26%), and invertebrates and insects (18%) (Warner 2000, as cited in Wydoski and Whitney 2003).

Table 3-6a. EPCs for the Upper Reach OU Refined Fish and Aquatic Wildlife Screen

COI	Sediment (mg/kg dw)		Aquatic Plants (mg/kg dw)		Benthic Invertebrates (mg/kg dw)		Emergent Insects (mg/kg dw)		Crayfish (mg/kg dw)		Mussels (mg/kg dw)		Fish Tissue (mg/kg dw) Small		Medium		Large		Maximum	
Metals/Metalloids																				
Aluminum	15000		4770		3750		3750		208		656		269		187		151		269	
Antimony	34.1		20		34		34		0.23		1.41	M	0.351		0.138		0.383		0.383	
Arsenic	13.2		8.5		9.1		1.7		1.27		9.2		0.526		0.601		0.715		0.715	
Barium	859		364		3436		3436		153		776		22.4		11.2		15.3		22.4	
Beryllium	0.701		0.60		0.14		0.14		0.011	M	0.0663		0.0104		0.0112	M	0.00765		0.0112	M
Cadmium	3.02		2.2		24		9.3		1.53		8.14		0.352		0.381		0.631		0.631	
Chromium	61.8		34		29		29		3.16		7.58		13.8		1.11		4.31		13.8	
Cobalt	27		16		27		27		0.522		1.15		0.272		0.222		0.314		0.314	
Copper	982		410		5156		83		179		18.2		7.42		6.3		15.9		15.9	
Iron	94300		24949		103730		103730		430		2330		646		432		1130		1130	
Lead	428		194		261		28		3.33		7.58		3.67		8.16		9.45		9.45	
Manganese	1770		697		2885		2885		184		4070		34		25		33.7		34	
Mercury	0.313		0.29		0.90		0.90		0.0786		0.106		0.114		0.19		0.445		0.445	
Molybdenum	47.8		27		135		191		135		135		1.57	M	0.0797	M	0.0717		1.57	M
Nickel	14.5		9.2		34		2.3		2.74		4.14		6.88		0.795		2.16		6.88	
Selenium	2.58		2.0		17		17		1.16		3.79		2.39		2.09		2.01		2.39	
Silver	2.04		1.6		0.37		0.37		0.338		0.264		0.0482		0.019		0.0498		0.0498	
Thallium	0.383		0.35		0.38		0.38		0.0716		0.0598		0.125		0.115		0.078		0.125	
Uranium	16.3		10		16		16		16		16		0.0628		0.0384		0.0453		0.0628	
Vanadium	32.5		19		11		11		0.768		1.84		0.749		0.637		0.462		0.749	
Zinc	7680		2611		57830		240		89.8		280		131		102		162		162	
Pesticides																				
Aldrin	0.00017	M	0.00812	M	0.00812	M	0.00812	M	0.00812	M	0.00812	M	0.0154	U	0.00319	U	0.00812	M	0.00812	M
Total Chlordane	0.00072	U	0.044	M	0.044	M	0.044	M	0.044	M	0.044	M	0.044	M	0.00168	U	0.0106		0.044	M
alpha-Chlordane	0.0021	U	0.00996	M	0.00996	M	0.00996	M	0.00996	M	0.00996	M	0.00996	M	0.00108	U	0.00178		0.00996	M
gamma-Chlordane	0.0021	U	0.00321		0.00321		0.00321		0.00321		0.00321		0.00622	U	0.00112	U	0.00321		0.00321	
Total DDx	0.00118		0.0846		0.0846		0.0846		0.0846		0.0846		0.0187	M	0.0298	M	0.0846		0.0846	
delta-BHC	0.0021	U	0.00765	M	0.00765	M	0.00765	M	0.00765	M	0.00765	M	0.00415	U	0.000862	U	0.00765	M	0.00765	M
Dieldrin	0.004	U	0.00258	M	0.00258	M	0.00258	M	0.00258	M	0.00258	M	0.00476	U	0.00103	M	0.00258	M	0.00258	M
Endrin	0.004	U	0.00581	U	0.00581	U	0.00581	U	0.00581	U	0.00581	U	0.00581	U	0.00121	U	0.00568	U	0.00581	U
Endrin aldehyde	0.004	U	0.0129	U	0.0129	U	0.0129	U	0.0129	U	0.0129	U	0.0129	U	0.00267	U	0.0126	U	0.0129	U
Endrin ketone	0.004	U	0.00962	U	0.00962	U	0.00962	U	0.00962	U	0.00962	U	0.0083	U	0.00438	U	0.00962	U	0.00962	U
Heptachlor	0.0021	U	0.00514	M	0.00514	M	0.00514	M	0.00514	M	0.00514	M	0.00823	U	0.00177	U	0.00514	M	0.00514	M
Heptachlor epoxide	0.0021	U	0.00329	M	0.00329	M	0.00329	M	0.00329	M	0.00329	M	0.00373	U	0.00151	U	0.00329	M	0.00329	M
Hexachlorobenzene	0.00097	M	0.0126	M	0.0126	M	0.0126	M	0.0126	M	0.0126	M	0.00435	M	0.0126	M	0.0104		0.0126	M
Hexachlorobutadiene	0.00072	U	0.00289	M	0.00289	M	0.00289	M	0.00289	M	0.00289	M	0.00289	M	0.00422	U	0.0192	U	0.00289	M
Methoxychlor	0.0035	M	0.00996	U	0.00996	U	0.00996	U	0.00996	U	0.00996	U	0.00996	U	0.00207	U	0.00975	U	0.00996	U
cis-Nonachlor	0.00072	U	0.00952	M	0.00952	M	0.00952	M	0.00952	M	0.00952	M	0.00952	M	0.00125	U	0.00326	M	0.00952	M
trans-Nonachlor	0.00072	U	0.00348		0.00348		0.00348		0.00348		0.00348		0.00581	U	0.00116	U	0.00348		0.00348	
Oxychlordane	0.00072	U	0.00303		0.00303		0.00303		0.00303		0.00303		0.0498	U	0.00168	U	0.00303		0.00303	
PAHs																				
Benzo(a)pyrene	0.0034		0.00366	M	0.058		0.058		0.015		0.015		0.00123	U	0.00186	M	0.00366	M	0.00366	M
Total PAHs	0.0764		0.885	M	2.80		2.80		0.74		0.74		0.885	M	0.543	M	0.136		0.885	M
Total HPAHs	0.0528		0.0484	M	1.03		1.03		0.27		0.27		0.0221	U	0.0484	M	0.00546		0.0484	M
Total LPAHs	0.0241		0.866	M	1.39		1.39		0.37		0.37		0.866	M	0.522	M	0.123		0.866	M
SVOCs																				
bis(2-Ethylhexyl)phthalate	0.205	M	0.494	M	0.494	M	0.494	M	0.494	M	0.494	M	0.909	U	0.905	U	0.494	M	0.494	M
Butyl benzyl phthalate	0.0069	M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M
Di-n-butyl phthalate	0.23	U	7.02	M	7.02	M	7.02	M	7.02	M	7.02	M	1.87	U	7.02	M	0.372		7.02	M
Di-n-octylphthalate	0.23	U	0.117	M	0.117	M	0.117	M	0.117	M	0.117	M	1.46	U	2.46	U	0.117	M	0.117	M
Pentachlorophenol	0.59	U	0.0386	U	0.0386	U	0.0386	U	0.0386	U	0.0386	U	0.0195	U	0.0194	U	0.0386	U	0.0386	U
PCBs																				
Total PCB congeners	0.00352	M	0.299		0.166		0.166		0.299		0.0152	M	0.0429		0.0453		0.299		0.299	
PCB TEQ, birds	0.00000041	M	0.00000927		0.0000341		0.0000341		0.00000927		0.00000139	M	0.00000814		0.00000517		0.00000927		0.00000927	
PCB TEQ, mammals	0.000000272	M	0.00000678		0.0000224		0.0000224		0.00000678		0.000000333	M	0.00000414		0.00000229		0.00000678		0.00000678	
Dioxins/Furans																				
Dioxin TEQ, birds	0.000013		0.0000117		0.000165		0.000165		0.0000117		0.00000246	M	0.00000211		0.00000517		0.0000117		0.0000117	
Dioxin TEQ, mammals	0.00000196		0.00000388		0.0000248		0.0000248		0.00000388		0.00000165	M	0.000000847		0.00000388		0.00000211		0.00000388	
Total TEQ																				
Total TEQ, birds	0.0000126	M	0.0000173		0.000199		0.000199		0.0000173		0.00000376	M	0.0000114		0.0000111		0.0000173		0.0000173	
Total TEQ, mammals	0.00000222	M	0.00000854		0.000047		0.000047		0.00000854		0.00000198	M	0.00000568		0.00000854		0.00000851		0.00000854	

Notes:

Surrogate data were used when data for certain media types were not available, as indicated in the table by the following colors:

Pink: biota sediment accumulation factor (BSAF)

Blue: maximum of any size fish tissue

Yellow: maximum of any size fish tissue, mussels, or crayfish partial body (whole body minus stomach and carapace)

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

EPC - exposure point concentration

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - maximum concentration

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC could not be calculated. Value represents the greatest full detection limit.

Table 3-6b. EPCs for the Transitional CSM Unit Refined Fish and Aquatic Wildlife Screen

COI	Sediment (mg/kg dw)		Aquatic Plants (mg/kg dw)		Benthic Invertebrates (mg/kg dw)		Emergent Insects (mg/kg dw)		Crayfish (mg/kg dw)		Mussels (mg/kg dw)		Fish Tissue (mg/kg dw) Small		Medium		Large		Maximum	
Metals/Metalloids																				
Aluminum	21800		6677		5450		5450		414		742		134		63.1		60.9		134	
Antimony	2.37		1.8		2.4		2.4		0.0615	M	0.157	U	0.0916		0.0345		0.0546		0.0916	
Arsenic	5.84		4.1		4.0		0.7		2.09		9.13		0.685		0.565		1.18		1.18	
Barium	407		186		1628		1628		196		1560		7.58		5.63		10.2		10.2	
Beryllium	0.905		0.76		0.18		0.2		0.0175		0.0676		0.00729	M	0.00405	M	0.0053		0.00729	M
Cadmium	3.24		2.4		25.9		10.0		1.62		9.11		0.358		0.171		0.394		0.394	
Chromium	27.3		16		12.8		13		4.1		6.16		1.92		0.65		2.37		2.37	
Cobalt	7.26		5.0		7.26		7.3		0.719		1.57		0.205		0.14		0.136		0.205	
Copper	112		58		588		46		187		13.6		5.65		4.35		3.91		5.65	
Iron	22600		6898		24860		24860		680		3250		363		104		111		363	
Lead	167		83		102		11		2.21		11.7		0.455		0.381		3.33		3.33	
Manganese	353		163		575		575		186		8000		17.4		11.9		10.3		17.4	
Mercury	0.343		0.32		0.98		0.98		0.104		0.122		0.269		0.335		0.615		0.615	
Molybdenum	3.8	M	2.8		11		11		11	M	11	M	0.251	M	0.107	M	0.0498		0.251	M
Nickel	18.4		11		43		2.7		3.01		3.51	M	1.31		0.675		1.23		1.31	
Selenium	1.08		0.89		7.1		7.1		1.21		3.64		2		1.82		2.12		2.12	
Silver	0.959		0.80		0.17		0.17		0.377		0.372		0.0214	M	0.0158	M	0.00982		0.0214	M
Thallium	0.44		0.40		0.44		0.44		0.0763		0.0982	M	0.184		0.15		0.0831		0.184	
Uranium	2.78		0.027		2.8		2.8		2.8		2.8		0.0157		0.0196	M	0.0274		0.0274	
Vanadium	42.5		24		14		14		1.53		1.89		0.585		0.332	M	0.291		0.585	
Zinc	1060		439		7982		187		75.9		331		102		76.6		63.9		102	
Pesticides																				
Aldrin	0.0045	U	0.0122	U	0.0122	U	0.0122	U	0.0122	U	0.0122	U	0.00607	U	0.00429	U	0.0122	U	0.0122	U
Total Chlordane	0.00094	U	0.00878		0.00878		0.00878		0.00878		0.00878		0.00308	U	0.00158	U	0.00878		0.00878	
alpha-Chlordane	0.0045	U	0.00356	M	0.00356	M	0.00356	M	0.00356	M	0.00356	M	0.00198	U	0.00101	U	0.00356	M	0.00356	M
gamma-Chlordane	0.0045	U	0.0019	M	0.0019	M	0.0019	M	0.0019	M	0.0019	M	0.00206	U	0.00105	U	0.0019	M	0.0019	M
Total DDx	0.00136		0.0539		0.0539		0.0539		0.0539		0.0539		0.0108	M	0.0102	M	0.0539		0.0539	
delta-BHC	0.0045	U	0.00541	M	0.00541	M	0.00541	M	0.00541	M	0.00541	M	0.00158	U	0.00081	U	0.00541	M	0.00541	M
Dieldrin	0.0087	U	0.0034	M	0.0034	M	0.0034	M	0.0034	M	0.0034	M	0.0034	M	0.00081	U	0.00112	M	0.0034	M
Endrin	0.0087	U	0.00382	U	0.00382	U	0.00382	U	0.00382	U	0.00382	U	0.00223	U	0.00113	U	0.00382	U	0.00382	U
Endrin aldehyde	0.0087	U	0.00856	U	0.00856	U	0.00856	U	0.00856	U	0.00856	U	0.00486	U	0.00251	U	0.00856	U	0.00856	U
Endrin ketone	0.0087	U	0.00544	U	0.00544	U	0.00544	U	0.00544	U	0.00544	U	0.00308	U	0.00158	U	0.00544	U	0.00544	U
Heptachlor	0.0045	U	0.00656	M	0.00656	M	0.00656	M	0.00656	M	0.00656	M	0.00486	U	0.00389	U	0.00656	M	0.00656	M
Heptachlor epoxide	0.0045	U	0.00272	M	0.00272	M	0.00272	M	0.00272	M	0.00272	M	0.00142	U	0.00093	M	0.00272	M	0.00272	M
Hexachlorobenzene	0.00094	U	0.0162		0.0162		0.0162		0.0162		0.0162		0.0023	M	0.00526	U	0.0162		0.0162	
Hexachlorobutadiene	0.00094	U	0.00699	U	0.00699	U	0.00699	U	0.00699	U	0.00699	U	0.00235	U	0.00121	U	0.00699	U	0.00699	U
Methoxychlor	0.052	M	0.00656	U	0.00656	U	0.00656	U	0.00656	U	0.00656	U	0.00377	U	0.00194	U	0.00656	U	0.00656	U
cis-Nonachlor	0.00094	U	0.00156	M	0.00156	M	0.00156	M	0.00156	M	0.00156	M	0.00227	U	0.00117	U	0.00156	M	0.00156	M
trans-Nonachlor	0.00094	U	0.00381		0.00381		0.00381		0.00381		0.00381		0.00215	U	0.00109	U	0.00381		0.00381	
Oxychlordane	0.00094	U	0.00592	M	0.00592	M	0.00592	M	0.00592	M	0.00592	M	0.00308	U	0.00158	U	0.00592	M	0.00592	M
PAHs																				
Benzo(a)pyrene	0.00161		0.00149	U	0.0273		0.0273		0.0073		0.0073		0.00126	U	0.00126	U	0.00149	U	0.00149	U
Total PAHs	0.0384		0.05	M	1.405		1.405		0.373		0.373		0.0409	M	0.05	M	0.0358		0.05	M
Total HPAHs	0.0215		0.00185	M	0.421		0.421		0.112		0.112		0.00405	U	0.0607	U	0.00185	M	0.00185	M
Total LPAHs	0.0144		0.0294	M	0.828		0.828		0.220		0.220		0.0294	M	0.0285	M	0.0263		0.0294	M
SVOCs																				
bis(2-Ethylhexyl)phthalate	0.24	U	0.69	M	0.69	M	0.69	M	0.69	M	0.69	M	0.85	U	0.85	U	0.69	M	0.69	M
Butyl benzyl phthalate	0.0034	M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M	0.21	U,M
Di-n-butyl phthalate	0.24	U	0.746	M	0.746	M	0.75	M	0.746	M	0.746	M	2.67	U	7.5	U	0.746	M	0.75	M
Di-n-octylphthalate	0.24	U	0.113	M	0.113	M	0.11	M	0.113	M	0.11300	M	0.0364	U	0.0364	U	0.113	M	0.113	M
Pentachlorophenol	0.61	U	0.0192	U	0.0192	U	0.019	U	0.0192	U	0.0192	U	0.0182	U	0.0182	U	0.0192	U	0.0192	U
PCBs																				
Total PCB congeners	0.00421		0.111		0.198		0.198		0.111		0.111		0.0297		0.0279		0.111		0.111	
PCB TEQ, birds	0.000000327	M	0.0000061		0.0000269		0.0000269		0.0000061		0.0000061		0.00000592		0.0000041		0.0000061		0.0000061	
PCB TEQ, mammals	0.000000086	M	0.00000317		0.0000071		0.0000071		0.00000317		0.00000317		0.00000317		0.00000266		0.00000293		0.00000317	
Dioxins/Furans																				
Dioxin TEQ, birds	0.00000589	M	0.00001		0.000075		0.0000747		0.00001		0.00001		0.0000023	M	0.00000336		0.00001		0.00001	
Dioxin TEQ, mammals	0.000000979	M	0.0000026		0.0000124		0.0000124		0.0000026		0.0000026		0.000000665	M	0.0000026		0.00000228		0.0000026	
Total TEQ																				
Total TEQ, birds	0.00000622	M	0.0000127		0.000102		0.000102		0.0000127		0.0000127		0.0000111		0.00000738		0.0000127		0.0000127	
Total TEQ, mammals	0.00000107	M	0.0000061		0.0000195		0.0000195		0.0000061		0.0000061		0.00000606		0.00000516		0.0000046		0.00000606	

Notes:

Surrogate data were used when data for certain media types were not available, as indicated in the table by the following colors:

Pink: biota sediment accumulation factor (BSAF)

Blue: maximum of any size fish tissue

Yellow: maximum of any size fish tissue, mussels, or crayfish partial body (whole body minus stomach and carapace)

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

EPC - exposure point concentration

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - maximum concentration

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC could not be calculated. Value represents the greatest full detection limit.

Table 3-6c. EPCs for the Lacustrine CSM Unit Refined Fish and Aquatic Wildlife Screen

COI	Sediment (mg/kg dw)	Aquatic Plants (mg/kg dw)	Benthic Invertebrates (mg/kg dw)	Emergent Insects (mg/kg dw)	Crayfish (mg/kg dw)	Mussels (mg/kg dw)	Fish Tissue (mg/kg dw) Small	Medium	Large	Maximum
Metals/Metalloids										
Aluminum	15900	5026	3975	3975	637	2460	110	121	42.7	121
Antimony	0.937	0.78	0.94	0.94	0.0688 U	0.0483	0.191	0.0407	0.0321	0.191
Arsenic	6	4.2	4.1	0.76	1.13	8.16	0.875	0.599	1.22	1.22
Barium	210	102	840	840	284	1060	8.85	4.11	11.3	11.3
Beryllium	0.755	0.65	0.15	0.15	0.0217	0.0998	0.0152 M	0.00855 M	0.00344	0.0152 M
Cadmium	1.55	1.2	12	4.8	1.29	8.85	0.466	0.155	0.313	0.466
Chromium	22.2	14	10	10	4.47	9.48	11.6	0.858	1.78	11.6
Cobalt	6.91	4.7	6.9	6.9	0.578	1.59	0.299	0.16	0.138	0.299
Copper	23.3	14	122	29	120	10.4	7.38	4.59	3.11	7.38
Iron	18300	5704	20130	20130	563	3490	180	163	115	180
Lead	79.7	43	49	5.3	1.84	2.56	0.234	0.123	1.32	1.32
Manganese	455	205	742	742	119	7800	15.2	8.43	10.9	15.2
Mercury	0.19	0.19	0.55	0.55	0.0953	0.0912	0.258	0.32	0.622	0.622
Molybdenum	1.53	1.2	4.3	4.3	4.3	4.3	0.207	0.0815	0.0577	0.207
Nickel	17.1	11	40	2.6	2.42	5.02	6.86	0.605	0.86	6.86
Selenium	0.959	0.80	6.3	6.3	0.92	2.69	1.58	1.6	1.62	1.62
Silver	0.339	0.31	0.061	0.061	0.338	0.377	0.0391 M	0.0115	0.00779	0.0391 M
Thallium	0.433	0.39	0.43	0.43	0.0676	0.0743	0.185	0.146	0.0893	0.185
Uranium	3	0.025	3.0	3.0	3.0	3.0	0.0245	0.0105	0.0205	0.0245
Vanadium	29.8	18	9.8	9.8	1.43	4.08	0.733	0.222	0.219	0.733
Zinc	214	104	1611	153	82	376	97	70.3	63.4	97
Pesticides										
Aldrin	0.0037 U	0.0064	0.0064	0.0064	0.0064	0.0064	0.0159 U	0.00789 U	0.0064	0.0064
Total Chlordane	0.00275 M	0.0118	0.0118	0.0118	0.0118	0.0118	0.013 U	0.00686 M	0.0118	0.0118
alpha-Chlordane	0.0011 M	0.00306	0.00306	0.00306	0.00306	0.00306	0.0056 U	0.00306 M	0.00251	0.00306
gamma-Chlordane	0.00084 M	0.0024	0.0024	0.0024	0.0024	0.0024	0.0056 U	0.00198 U	0.00236	0.00236
Total DDx	0.0141	0.0671	0.0671	0.0671	0.0671	0.0671	0.053 M	0.0296	0.0671	0.0671
delta-BHC	0.0037 U	0.0018	0.0018	0.0018	0.0018	0.0018	0.00431 U	0.00165 U	0.00177	0.00177
Dieldrin	0.0072 U	0.0034 M	0.0034 M	0.0034 M	0.0034 M	0.0034 M	0.00335 M	0.00152 U	0.00113	0.00335 M
Endrin	0.0072 U	0.00664 U	0.00664 U	0.00664 U	0.00664 U	0.00664 U	0.00603 U	0.00213 U	0.00664 U	0.00664 U
Endrin aldehyde	0.0072 U	0.0019 M	0.0019 M	0.0019 M	0.0019 M	0.0019 M	0.01340 U	0.00494 U	0.00193 M	0.00193 M
Endrin ketone	0.0072 U	0.0102 U	0.0102 U	0.0102 U	0.0102 U	0.0102 U	0.00862 U	0.00297 U	0.0102 U	0.0102 U
Heptachlor	0.0037 U	0.00995	0.00995	0.00995	0.00995	0.00995	0.00603 U	0.00283 M	0.00995	0.00995
Heptachlor epoxide	0.0037 U	0.00418 M	0.00418 M	0.00418 M	0.00418 M	0.00418 M	0.00114 M	0.00418 M	0.00135	0.00418 M
Hexachlorobenzene	0.0016 M	0.0214 M	0.0214 M	0.0214 M	0.0214 M	0.0214 M	0.00783 M	0.0214 M	0.011	0.0214 M
Hexachlorobutadiene	0.0026 U	0.0046	0.0046	0.0046	0.0046	0.0046	0.00647 U	0.0076 U	0.00463 M	0.00463
Methoxychlor	0.0024 M	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0114 U	0.0103 U	0.00365 U	0.0114 U	0.0114 U
cis-Nonachlor	0.0026 U	0.0026 M	0.0026 M	0.0026 M	0.0026 M	0.0026 M	0.00647 U	0.00221 U	0.00263 M	0.00263 M
trans-Nonachlor	0.001 M	0.0028	0.0028	0.0028	0.0028	0.0028	0.00603 U	0.0039 U	0.00283	0.00283
Oxychlordane	0.0026 U	0.0032	0.0032	0.0032	0.0032	0.0032	0.01300 U	0.00297 U	0.00322	0.00322
PAHs										
Benzo(a)pyrene	0.000972	0.00262 U	0.0165	0.0165	0.0044	0.0044	0.00126 U	0.00132 U	0.00262 U	0.00262 U
Total PAHs	0.0505	0.136	1.85	1.848	0.490	0.490	0.13600	0.0532	0.0481	0.136
Total HPAHs	0.0143	0.00911	0.280	0.280	0.074	0.074	0.00407 U	0.0109 U	0.00911	0.00911
Total LPAHs	0.0104	0.132	0.60	0.598	0.159	0.159	0.132	0.0438	0.0256	0.132
SVOCs										
bis(2-Ethylhexyl)phthalate	0.079 M	7.08 M	7.08 M	7.08 M	7.08 M	7.08 M	0.913 U	7.08 M	1.69 M	7.08 M
Butyl benzyl phthalate	0.0038 M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M	0.21 U,M
Di-n-butyl phthalate	0.24 U	1.02	1.02	1.02	1.02	1.02	1.22 U	7.97 U	1.02	1.02
Di-n-octylphthalate	0.24 U	0.0685	0.0685	0.0685	0.0685	0.0685	0.0391 U	0.0385 U	0.0685	0.0685
Pentachlorophenol	0.6 U	0.0305 U	0.0305 U	0.0305 U	0.0305 U	0.0305 U	0.0196 U	0.0192 U	0.0305 U	0.0305 U
PCBs										
Total PCB congeners	0.141 M	0.172	6.6	6.6	0.172	0.158	0.0358	0.0834	0.172	0.172
PCB TEQ, birds	na	0.0000105	na	na	0.0000105	0.00000222	0.00000597	0.00000415	0.0000105	0.0000105
PCB TEQ, mammals	na	0.0000058	na	na	0.00000583	0.000000661	0.00000306	0.00000235	0.00000583	0.0000058
Dioxins/Furans										
Dioxin TEQ, birds	0.00000402	0.000011	0.000051	0.000051	0.000011	0.00000247	0.00000511	0.00000576	0.000011	0.000011
Dioxin TEQ, mammals	0.000000758	0.0000026	0.0000096	0.0000096	0.0000026	0.00000162	0.0000026	0.00000086	0.00000233	0.0000026
Total TEQ										
Total TEQ, birds	na	0.0000201	na	na	0.0000201	0.00000466	0.0000124	0.00000885	0.0000201	0.0000201
Total TEQ, mammals	na	0.0000069	na	na	0.0000069	0.0000024	0.00000691	0.00000438	0.00000587	0.0000069

Notes:

Surrogate data were used when data for certain media types were not available, as indicated in the table by the following colors:

Pink: biota sediment accumulation factor (BSAF)

Blue: maximum of any size fish tissue

Yellow: maximum of any size fish tissue, mussels, or crayfish partial body (whole body minus stomach and carapace)

BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
EPC - exposure point concentration
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - maximum concentration
na - not available (no data)
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC could not be calculated. Value represents the greatest full detection limit.

Table 3-7. Literature-Based BSAFs for Benthic Invertebrates and Emergent Insects

COI	BSAF for Benthic Invertebrates[a]	BSAF or Regression Model for Emergent Insects[a]	Source
Metals/Metalloids			
Aluminum	$C_{invert} = C_{sed} \times 0.25$	na[b]	Hamilton and Buhl 2002, 2003a,b
Antimony	$C_{invert} = C_{sed} \times 1$	na[b]	no BSAF available; assumed BSAF of 1.0
Arsenic	$C_{invert} = C_{sed} \times 0.69$	$C_{invert} = C_{sed} \times 0.127$	Bechtel Jacobs 1998
Barium	$C_{invert} = C_{sed} \times 4.0$	na[b]	Hamilton and Buhl 2002, 2003a,b
Beryllium	$C_{invert} = C_{sed} \times 0.2$	na[b]	Hamilton and Buhl 2002, 2003a,b
Cadmium	$C_{invert} = C_{sed} \times 7.99$	$C_{invert} = C_{sed} \times 3.073$	Bechtel Jacobs 1998
Chromium	$C_{invert} = C_{sed} \times 0.47$	$C_{invert} = C_{sed} \times 0.47$	Bechtel Jacobs 1998
Cobalt	$C_{invert} = C_{sed} \times 1$	na[b]	no BSAF available; assumed BSAF of 1.0
Copper	$C_{invert} = C_{sed} \times 5.25$	$C_{invert} = 10^{1.089 + 0.278 * \log(Csed)}$	Bechtel Jacobs 1998
Iron	$C_{invert} = C_{sed} \times 1.1$	na[b]	Hamilton and Buhl 2002, 2003a,b
Lead	$C_{invert} = C_{sed} \times 0.61$	$C_{invert} = C_{sed} \times 0.066$	Bechtel Jacobs 1998
Manganese	$C_{invert} = C_{sed} \times 1.63$	na[b]	Hamilton and Buhl 2002, 2003a,b
Mercury	$C_{invert} = C_{sed} \times 2.87$	$C_{invert} = C_{sed} \times 2.87$	Bechtel Jacobs 1998
Molybdenum	$C_{invert} = C_{sed} \times 2.83$	na[b]	Hamilton and Buhl 2002, 2003a,b
Nickel	$C_{invert} = C_{sed} \times 2.32$	$C_{invert} = 10^{-0.440 + 0.695 * \log(Csed)}$	Bechtel Jacobs 1998
Selenium	$C_{invert} = C_{sed} \times 6.53$	na[b]	Hamilton and Buhl 2002, 2003a,b
Silver	$C_{invert} = C_{sed} \times 0.18$	na[b]	Hirsch 1998
Thallium	$C_{invert} = C_{sed} \times 1$	na[b]	no BSAF available; assumed BSAF of 1.0
Uranium	$C_{invert} = C_{sed} \times 1$	na[b]	no BSAF available; assumed BSAF of 1.0
Vanadium	$C_{invert} = C_{sed} \times 0.33$	na[b]	Hamilton and Buhl 2002, 2003a,b
Zinc	$C_{invert} = C_{sed} \times 7.53$	$C_{invert} = 10^{1.89 + 0.126 * \log(Csed)}$	Bechtel Jacobs 1998
PAHs			
Benzo(a)pyrene	$C_{invert} = C_{sed} \times 1.3$	na[b]	USACE 2019
Total PAHs	$C_{invert} = C_{sed} \times 2.8$	na[b]	USACE 2019
Total HPAHs	$C_{invert} = C_{sed} \times 1.5$	na[b]	USACE 2019
Total LPAHs	$C_{invert} = C_{sed} \times 4.4$	na[b]	USACE 2019
PCBs			
Total PCB congeners	$C_{invert} = C_{sed} \times 3.6$	na[b]	USACE 2019
PCB TEQ, birds	$C_{invert} = C_{sed} \times 6.3$	na[b]	USACE 2019
PCB TEQ, mammals	$C_{invert} = C_{sed} \times 6.3$	na[b]	USACE 2019
Dioxins/Furans			
Dioxin TEQ, birds	$C_{invert} = C_{sed} \times 0.97$	na[b]	USACE 2019
Dioxin TEQ, mammals	$C_{invert} = C_{sed} \times 0.97$	na[b]	USACE 2019

Notes:

[a] For metals, biota-sediment accumulation factor (BSAF) or model is based on units of mg/kg dw for C_{invert} and C_{sed}. For organic compounds, BSAF is based on units of mg/kg lipid for C_{invert} and mg/kg organic carbon for C_{sed}.

[b] Benthic invertebrate BSAFs were used if emergent insect BSAFs were not available.

COI - chemical of interest

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

na - not available

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
Nutrients															
Ammonia as nitrogen		NOT COPC	NOT COPC	N/A	COPC	COPC	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide		N/A	N/A	N/A	N/A	N/A	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Nitrate plus nitrite		NB	NB	NB	N/A	N/A	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Phosphorous		NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Common Metals/Metalloids															
Aluminum		COPC	NOT COPC	COPC	COPC	SE	NB	COPC	COPC	COPC	COPC	COPC	COPC	NB	NB
Antimony		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	NB	NB	COPC	NB	NOT COPC	NB	COPC
Arsenic		NOT COPC	NOT COPC	NOT COPC	SE	SE	COPC	NOT COPC	NOT COPC	COPC	NOT COPC	COPC	NB	NOT COPC	NOT COPC
Barium		NOT COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	NB	NB	NB	COPC	COPC	SE	COPC	NB	NOT COPC
Beryllium		NOT COPC	NOT COPC	NOT COPC	ND ≥ B	ND ≥ B	COPC	NB	NB	NB	NOT COPC (S)	NOT COPC	NOT COPC	NB	NOT COPC
Boron		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cadmium		ND ≥ B	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	NOT COPC	NOT COPC	COPC	COPC
Calcium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Chloride		NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium		NOT COPC	NOT COPC	NOT COPC	SE	SE	COPC	COPC	COPC	COPC	COPC	NB	SE	COPC	COPC
Cobalt		NOT COPC	NOT COPC	SE	ND ≥ B and SE	ND ≥ B and SE	NB	NB	NB	NOT COPC	NOT COPC	COPC	NB	NOT COPC	NOT COPC
Copper		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC
Fluoride		N/A	N/A	N/A	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gold		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Iron		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	NB	NB	NB	NB	NB	COPC	COPC	NB	NB
Lead		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC
Magnesium		NOT COPC	NOT COPC	NOT COPC	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Manganese		NB	NB	NB	COPC	COPC	NB	NB	NB	COPC	COPC	COPC	COPC	NOT COPC	NOT COPC
Mercury		NOT COPC	NOT COPC	NOT COPC	NB	NB	COPC	NOT COPC	COPC	COPC	COPC	NOT COPC	NOT COPC	NB	NB
Molybdenum		NB	NB	NB	NB	NB	N/A	NB	NOT COPC	COPC	COPC	NB	NB	NB	NB
Nickel		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	COPC	NOT COPC	NOT COPC	COPC	NOT COPC	COPC	NOT COPC	NOT COPC	NOT COPC
Potassium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Selenium		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	NB	NOT COPC	COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC
Silica		NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silicon		NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	COPC	NOT COPC	NOT COPC	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NOT COPC	NOT COPC
Sodium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Sulfur		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium		NOT COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	NB	NOT COPC	NB	NOT COPC	NOT COPC	NB	NB	NB	NB
Tin		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Uranium		NB	NB	NB	NB	NB	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Vanadium		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	NB	NB	COPC	COPC	NOT COPC	NOT COPC	NB	COPC	NOT COPC
Zinc		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	COPC	COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC	COPC	COPC
Other Metals/Metalloids															
Bismuth		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cerium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cesium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Dysprosium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Erbium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Europium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gadolinium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gallium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Germanium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Holmium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Indium		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lanthanum		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lithium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lutetium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Neodymium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Niobium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Praseodymium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Rubidium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Samarium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Scandium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Strontium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Tantalum		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor / Exposure Pathway	Aquatic Plants and Benthic Invertebrates Surface Water (Undisturbed)	Fish Surface Water (Undisturbed)	Amphibians Surface Water (Disturbed)	Aquatic Plants and Amphibians Porewater (Shallow)	Benthic Invertebrates and Fish Porewater (All Depths)	Benthic Invertebrates Sediment (All Depths)	Fish Tissue (All Sizes)	Fish Diet	Aquatic-Dependent Birds Diet	Aquatic-Dependent Mammals Diet	Terrestrial Plants Soil	Terrestrial Invertebrates Soil	Terrestrial Birds Diet[a]	Terrestrial Mammals Diet[a]
Other Metals/Metalloids (continued)															
Tellurium		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Terbium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Thorium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Thulium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Titanium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Tungsten		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Ytterbium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Yttrium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Zirconium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
SVOCs															
1,1'-Biphenyl		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
1,2,4-Trichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,2'-oxybis(1-chloropropane)		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4,5-Trichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4,6-Trichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4-Dichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4-Dimethylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4-Dinitrophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4-Dinitrotoluene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,6-Dinitrotoluene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2-Chloronaphthalene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2-Chlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2-Methylphenol (o-cresol)		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2-Nitrophenol		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
3-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4,6-Dinitro-2-methylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Bromophenyl-phenylether		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Chloro-3-methylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Chloroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Chlorophenyl-phenyl ether		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Methylphenol (p-cresol)		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4-Nitrophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Acetophenone		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Benzaldehyde		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Benzoic acid		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Benzyl alcohol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
bis(2-Chloroethoxy)methane		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
bis(2-Chloroethyl)ether		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
bis(2-Ethylhexyl)phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	COPC	NOT COPC	N/A	N/A	N/A	N/A
Butyl benzyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Caprolactam		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Carbazole		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Dibenzofuran		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Diethyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Dimethyl phthalate		NB	NB	NB	N/A	N/A	ND ≥ B	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Di-n-butyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	COPC	NOT COPC	N/A	N/A	N/A	N/A
Di-n-octylphthalate		NB	NB	NB	N/A	N/A	ND ≥ B	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorocyclopentadiene		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Hexachloroethane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Isophorone		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Nitrobenzene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
N-Nitrosodi-n-propylamine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
N-Nitrosodiphenylamine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Pentachlorophenol		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Phenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
Pesticides[b]															
2,4'-DDD		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4'-DDE		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
2,4'-DDT		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDD		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDE		NB	NB	NB	N/A	N/A	SE	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDT		SE	NOT COPC	NOT COPC	N/A	N/A	SE	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Total DDD		NB	NB	NB	N/A	N/A	NOT COPC	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Total DDE		NB	NB	NB	N/A	N/A	COPC	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Total DDT		NB	NB	NB	N/A	N/A	COPC	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Total DDx		NB	NB	NB	N/A	N/A	COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Aldrin		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
alpha-BHC		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
alpha-Chlordane		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Atrazine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
beta-BHC		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NOT COPC	NB	N/A	N/A	N/A	N/A
cis-Nonachlor		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
delta-BHC		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Dieldrin		SE	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endosulfan I		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Endosulfan II		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Endosulfan sulfate		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Endrin		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endrin aldehyde		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endrin ketone		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
gamma-Chlordane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Heptachlor		SE	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Heptachlor epoxide		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorobenzene		NB	NB	NB	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorobutadiene		NB	NB	NB	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Mirex		N/A	N/A	N/A	N/A	N/A	NB	N/A	NOT COPC	N/A	N/A	N/A	N/A	N/A	N/A
Methoxychlor		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Oxychlordane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Toxaphene		ND ≥ B	NOT COPC	ND ≥ B	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
trans-Nonachlor		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Total chlordane		NB	NB	NB	N/A	N/A	NB	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
PAHs															
Benzo(a)anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(a)pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(e)pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(ghi)perylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Chrysene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Dibenzo(a,h)anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Indeno[1,2,3]pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
2-Methylnaphthalene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Acenaphthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Acenaphthylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Fluorene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Naphthalene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Perylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Phenanthrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Total PAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NB	N/A	N/A	N/A	N/A
Total HPAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Total LPAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
PCBs															
Total PCBs (as congeners)		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	COPC	COPC	N/A	N/A	N/A	N/A
PCB TEQ		NB	NB	NB	N/A	N/A	NOT COPC	NOT COPC	NOT COPC	NOT COPC	COPC	N/A	N/A	N/A	N/A
Dioxins/Furans															
Dioxin/furan TEQ		N/A	N/A	N/A	N/A	N/A	COPC	NOT COPC	NOT COPC	NOT COPC	COPC	N/A	N/A	N/A	N/A
Total TEQ		N/A	N/A	N/A	N/A	N/A	COPC	NOT COPC	NOT COPC	NOT COPC	COPC	N/A	N/A	N/A	N/A
PBDEs															
PBDE-17		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-28		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-47		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-49		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-66		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-71		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-85		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-99		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-100		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-128		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-138		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-153		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-154		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-183		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-184		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-190		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-191		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-200		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-203		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-206		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
PBDE-209		NB	NB	NB	N/A	N/A	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A

Notes:

[a] The terrestrial wildlife exposure pathway is through the diet, but is estimated using soil benchmarks.

[b] Organophosphorus pesticides were also anayzed in historical surface water samples collected from the Northport area, but none were detected with the exception of dimethyl tetrachloroterephthalate, which has no screening benchmark. Therefore, these pesticides were not included in the refined screen.

BERA - baseline ecological risk assessment

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

COPC - chemical of potential concern

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SLERA - screening level ecological risk assessment

SVOC - semivolatile organic compound

TEQ - toxic equivalent

N/A - Not analyzed; retained as COI for discussion of uncertainty in the BERA.

NB - No benchmark; retained as COI for discussion of uncertainty in the BERA.

ND ≥ B - Nondetected concentrations greater than or equal to the benchmark in at least one of the river areas; retained as COI for discussion of uncertainty in the BERA.

SE - Single exceedance, but the location had other COIs with detected concentrations or detection limits exceeding the benchmark, so retained as a COI for discussion of uncertainty in the BERA.

COPC - Identified as a COPC in at least one of the river areas (Upper Reach OU, Transitional CSM Unit, or Lacustrine CSM Unit), at least one of the depth zones for areas in which both shallow and deep sediment and porewater data were screened, and at least one of the fish size groups (small, medium, or large) for fish tissue. Specific areas in which benchmarks were exceeded are indicated in Table 6-1.

NOT COPC - Not identified as a COPC in any of the river areas; COI will not be carried through to the BERA.

NOT COPC (S) - Not identified as a COPC in the SLERA (TAI 2010); COI will not be carried through to the BERA.

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Upper Reach OU - Disturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	14	14	100	21.3	742	187	187	0	0	7	50	8.5
Antimony	39.1	µg/L	Total	14	14	100	0.112	2.87	0.613	0.613	0	0	0	0	0.073
Arsenic	150	µg/L	Dissolved	14	11	79	0.267	0.7	0.479	0.433	0	0	0	0	0.0047
Barium	2749	µg/L	Total	14	14	100	26.3	70	45	45	0	0	0	0	0.025
Beryllium	2.44	µg/L	Total	14	8	57	0.007	0.0437	0.017	0.0109	0	0	0	0	0.018
Cadmium	0.5	µg/L	Dissolved	14	11	79	0.0105	0.0273	0.019	0.0166	0	0	0	0	0.055
Chromium	50	µg/L	Dissolved	14	1	7	0.1	0.1	0.1	0.0468	0	0	0	0	0.002
Cobalt	6.16	µg/L	Total	14	14	100	0.056	0.862	0.277	0.277	0	0	0	0	0.14
Copper	4.2	µg/L	Dissolved	14	10	71	0.45	0.68	0.576	0.49	0	0	0	0	0.16
Iron	1000	µg/L	Dissolved	14	4	29	3.5	6.3	4.94	3.81	0	0	0	0	0.0063
Lead	1.5	µg/L	Dissolved	14	4	29	0.0227	0.329	0.103	0.0386	0	0	0	0	0.22
Manganese	1390	µg/L	Dissolved	14	11	79	0.598	33.1	4.14	3.3	0	0	0	0	0.024
Mercury	770	µg/L	Dissolved	14	5	36	0.393	0.633	0.522	0.301	0	0	0	0	0.00082
Nickel	35	µg/L	Dissolved	14	12	86	0.347	0.577	0.471	0.417	0	0	0	0	0.016
Selenium	3.1	µg/L	Total	14	6	43	0.3	0.5	0.408	0.264	0	0	0	0	0.16
Silver	1.4	µg/L	Dissolved	14	0	0	NA	NA	NA	0.002	0	0	0	0	NA
Thallium	31.2	µg/L	Total	14	4	29	0.0203	0.061	0.0338	0.0159	0	0	0	0	0.002
Vanadium	38.7	µg/L	Total	14	11	79	0.217	2.22	0.74	0.611	0	0	0	0	0.057
Zinc	70	µg/L	Dissolved	14	6	43	0.85	3.6	2	1.23	0	0	0	0	0.051
SVOCs															
Pentachlorophenol	12.5	µg/L	Total	8	0	0	NA	NA	NA	0.17	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	9	0	0	NA	NA	NA	0.171	0	0	0	0	NA
Aldrin	1.9	ng/L	Total	9	2	22	0.33	0.82	0.575	0.268	0	0	0	0	0.43
alpha-Chlordane	4.3	ng/L	Total	9	1	11	2.3	2.3	2.3	0.536	0	0	0	0	0.53
Dieldrin	1.9	ng/L	Total	9	0	0	NA	NA	NA	0.187	0	0	0	0	NA
Endosulfan I	56	ng/L	Total	9	0	0	NA	NA	NA	0.14	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	9	0	0	NA	NA	NA	0.242	0	0	0	0	NA
Endrin	2.3	ng/L	Total	9	0	0	NA	NA	NA	0.248	0	0	0	0	NA
gamma-BHC	80	ng/L	Total	9	0	0	NA	NA	NA	0.238	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	9	0	0	NA	NA	NA	0.112	0	0	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	9	0	0	NA	NA	NA	0.122	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	9	0	0	NA	NA	NA	0.207	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	9	0	0	NA	NA	NA	26.1	9	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	9	9	100	29.5	633	140	140	0	0	0	0	0.045

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Transitional CSM Unit - Disturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	6	6	100	55.2	819	231	231	0	0	4	67	9.4
Antimony	39.1	µg/L	Total	6	6	100	0.103	0.228	0.175	0.175	0	0	0	0	0.0058
Arsenic	150	µg/L	Dissolved	6	2	33	0.4	0.433	0.417	0.272	0	0	0	0	0.0029
Barium	2749	µg/L	Total	6	6	100	31.8	44.3	38.7	38.7	0	0	0	0	0.016
Beryllium	2.44	µg/L	Total	6	4	67	0.008	0.0413	0.0217	0.0154	0	0	0	0	0.017
Cadmium	0.5	µg/L	Dissolved	6	4	67	0.0085	0.0133	0.0114	0.0105	0	0	0	0	0.027
Chromium	50	µg/L	Dissolved	6	0	0	NA	NA	NA	0.0392	0	0	0	0	NA
Cobalt	6.16	µg/L	Total	6	5	83	0.0983	1.16	0.344	0.293	0	0	0	0	0.19
Copper	3.11	µg/L	Dissolved	6	2	33	0.663	0.703	0.683	0.402	0	0	0	0	0.23
Iron	1000	µg/L	Dissolved	6	0	0	NA	NA	NA	1.88	0	0	0	0	NA
Lead	1.5	µg/L	Dissolved	6	2	33	0.0163	0.0187	0.0175	0.0132	0	0	0	0	0.012
Manganese	1430	µg/L	Dissolved	6	4	67	0.991	13.9	5.59	3.78	0	0	0	0	0.0097
Mercury	770	µg/L	Dissolved	6	2	33	0.43	0.457	0.444	0.281	0	0	0	0	0.00059
Nickel	34	µg/L	Dissolved	6	2	33	0.507	0.527	0.517	0.29	0	0	0	0	0.016
Selenium	1.2	µg/L	Total	6	3	50	0.3	0.4	0.367	0.258	0	0	0	0	0.33
Silver	1.4	µg/L	Dissolved	6	0	0	NA	NA	NA	0.002	0	0	0	0	NA
Thallium	31.2	µg/L	Total	6	2	33	0.0127	0.037	0.0249	0.013	0	0	0	0	0.0012
Vanadium	38.7	µg/L	Total	6	6	100	0.3	2.02	0.698	0.698	0	0	0	0	0.052
Zinc	69	µg/L	Dissolved	6	0	0	NA	NA	NA	0.517	0	0	0	0	NA
SVOCs															
Pentachlorophenol	11.5	µg/L	Total	3	0	0	NA	NA	NA	0.17	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	3	0	0	NA	NA	NA	0.108	0	0	0	0	NA
Aldrin	1.9	ng/L	Total	3	0	0	NA	NA	NA	0.0783	0	0	0	0	NA
alpha-Chlordane	4.3	ng/L	Total	3	0	0	NA	NA	NA	0.225	0	0	0	0	NA
Dieldrin	1.9	ng/L	Total	3	0	0	NA	NA	NA	0.192	0	0	0	0	NA
Endosulfan I	56	ng/L	Total	3	0	0	NA	NA	NA	0.13	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	3	0	0	NA	NA	NA	0.317	0	0	0	0	NA
Endrin	2.3	ng/L	Total	3	0	0	NA	NA	NA	0.253	0	0	0	0	NA
gamma-BHC	80	ng/L	Total	3	0	0	NA	NA	NA	0.243	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	3	0	0	NA	NA	NA	0.0933	0	0	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	3	0	0	NA	NA	NA	0.11	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	3	0	0	NA	NA	NA	0.145	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	3	0	0	NA	NA	NA	23.2	3	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	3	2	67	26.5	58	42.3	29.6	0	0	0	0	0.0041

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Lacustrine CSM Unit - Disturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	22	21	95	46.8	25400	1610	1530	0	0	20	91	290
Antimony	39.1	µg/L	Total	22	22	100	0.098	0.283	0.177	0.177	0	0	0	0	0.0072
Arsenic	150	µg/L	Dissolved	22	15	68	0.333	1.33	0.577	0.469	0	0	0	0	0.0089
Barium	2749	µg/L	Total	22	22	100	25	932	76.6	76.6	0	0	0	0	0.34
Beryllium	2.44	µg/L	Total	22	19	86	0.0075	1.34	0.0988	0.0857	0	0	0	0	0.55
Cadmium	0.44	µg/L	Dissolved	22	19	86	0.008	0.0283	0.0147	0.0137	0	0	0	0	0.064
Chromium	44	µg/L	Dissolved	22	3	14	0.113	0.23	0.162	0.0589	0	0	0	0	0.0052
Cobalt	6.16	µg/L	Total	22	19	86	0.126	31.7	2.06	1.79	0	0	1	5	5.1
Copper	2.79	µg/L	Dissolved	22	14	64	0.523	0.71	0.6	0.478	0	0	0	0	0.25
Iron	1000	µg/L	Dissolved	22	3	14	14.9	48.5	33.2	6.66	0	0	0	0	0.049
Lead	1.3	µg/L	Dissolved	22	8	36	0.008	0.0503	0.0198	0.0102	0	0	0	0	0.039
Manganese	1390	µg/L	Dissolved	22	13	59	1.32	160	21.3	12.7	0	0	0	0	0.12
Mercury	770	µg/L	Dissolved	22	3	14	0.237	0.68	0.411	0.182	0	0	0	0	0.00088
Nickel	30	µg/L	Dissolved	22	21	95	0.36	0.65	0.489	0.477	0	0	0	0	0.022
Selenium	1.2	µg/L	Total	22	4	18	0.4	0.5	0.45	0.205	0	0	0	0	0.42
Silver	1.1	µg/L	Dissolved	22	1	5	0.006	0.006	0.006	0.00218	0	0	0	0	0.0055
Thallium	31.2	µg/L	Total	22	12	55	0.0143	0.288	0.0658	0.0397	0	0	0	0	0.0092
Vanadium	38.7	µg/L	Total	22	22	100	0.21	33	2.56	2.56	0	0	0	0	0.85
Zinc	61	µg/L	Dissolved	22	7	32	0.733	10.3	4.3	1.72	0	0	0	0	0.17
SVOCs															
Pentachlorophenol	10.8	µg/L	Total	6	0	0	NA	NA	NA	0.17	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	6	0	0	NA	NA	NA	0.0858	0	0	0	0	NA
Aldrin	1.9	ng/L	Total	6	0	0	NA	NA	NA	0.0883	0	0	0	0	NA
alpha-Chlordane	4.3	ng/L	Total	6	0	0	NA	NA	NA	0.273	0	0	0	0	NA
Dieldrin	1.9	ng/L	Total	6	0	0	NA	NA	NA	0.186	0	0	0	0	NA
Endosulfan I	56	ng/L	Total	6	0	0	NA	NA	NA	0.126	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	6	0	0	NA	NA	NA	0.176	0	0	0	0	NA
Endrin	2.3	ng/L	Total	6	0	0	NA	NA	NA	0.254	0	0	0	0	NA
gamma-BHC	80	ng/L	Total	6	0	0	NA	NA	NA	0.236	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	6	0	0	NA	NA	NA	0.118	0	0	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	6	0	0	NA	NA	NA	0.108	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	6	0	0	NA	NA	NA	0.141	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	6	0	0	NA	NA	NA	28.8	6	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	6	6	100	28.6	93.5	60.2	60.2	0	0	0	0	0.0067

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Upper Reach OU - Undisturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	49	40	82	9.7	224	33.5	30	0	0	2	4	2.6
Antimony	39.1	µg/L	Total	49	48	98	0.096	0.38	0.172	0.17	0	0	0	0	0.0097
Arsenic	150	µg/L	Dissolved	60	38	63	0.2	1	0.465	0.483	0	0	0	0	0.0067
Barium	2749	µg/L	Total	49	49	100	23.7	49	36.2	36.2	0	0	0	0	0.018
Beryllium	2.44	µg/L	Total	49	1	2	0.012	0.012	0.012	0.00294	0	0	0	0	0.0049
Cadmium	0.5	µg/L	Dissolved	56	34	61	0.008	0.031	0.0194	0.05	4	7	0	0	0.062
Chromium	50	µg/L	Dissolved	56	2	4	0.26	0.49	0.375	0.0913	0	0	0	0	0.0098
Cobalt	6.16	µg/L	Total	37	26	70	0.036	0.076	0.0531	0.0476	0	0	0	0	0.012
Copper	4.2	µg/L	Dissolved	56	27	48	0.47	1.25	0.576	0.438	0	0	0	0	0.3
Iron	1000	µg/L	Dissolved	57	10	18	3.8	19.9	8.77	4.03	0	0	0	0	0.02
Lead	1.5	µg/L	Dissolved	56	15	27	0.024	0.166	0.0485	0.0631	0	0	0	0	0.11
Manganese	1390	µg/L	Dissolved	53	25	47	0.521	14.6	1.96	1.1	0	0	0	0	0.011
Mercury	770	µg/L	Dissolved	49	9	18	0.09	0.97	0.429	0.235	0	0	0	0	0.0013
Nickel	34	µg/L	Dissolved	56	43	77	0.22	1.63	0.552	0.481	0	0	0	0	0.048
Selenium	3.1	µg/L	Total	49	11	22	0.3	0.6	0.455	0.234	0	0	0	0	0.19
Silver	1.4	µg/L	Dissolved	56	0	0	NA	NA	NA	0.038	0	0	0	0	NA
Thallium	31.2	µg/L	Total	49	0	0	NA	NA	NA	0.00935	0	0	0	0	NA
Vanadium	38.7	µg/L	Total	49	12	24	0.21	0.8	0.326	0.16	0	0	0	0	0.021
Zinc	69	µg/L	Dissolved	56	10	18	0.6	17	3.04	1.12	0	0	0	0	0.25
Nutrients															
Ammonia as nitrogen	0.41	mg/L	Dissolved	8	7	88	0.004	0.019	0.00943	0.0838	0	0	0	0	0.046
Ammonia as nitrogen	0.41	mg/L	Total	55	11	20	0.01	0.057	0.0272	0.0124	0	0	0	0	0.14
SVOCs															
Pentachlorophenol	12.5	µg/L	Total	19	0	0	NA	NA	NA	0.174	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	19	0	0	NA	NA	NA	0.158	0	0	0	0	NA
Aldrin	1.9	ng/L	Total	19	2	11	0.56	0.65	0.605	0.201	0	0	0	0	0.34
alpha-Chlordane	4.3	ng/L	Total	19	0	0	NA	NA	NA	0.314	0	0	0	0	NA
Dieldrin	1.9	ng/L	Dissolved	8	0	0	NA	NA	NA	0.75	1	12	0	0	NA
Dieldrin	1.9	ng/L	Total	19	1	5	0.52	0.52	0.52	0.212	0	0	0	0	0.27
Endosulfan I	56	ng/L	Total	19	0	0	NA	NA	NA	0.146	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	19	3	16	0.83	1.2	1.04	0.353	0	0	0	0	0.021
Endrin	2.3	ng/L	Total	19	1	5	0.57	0.57	0.57	0.271	0	0	0	0	0.25
gamma-BHC	80	ng/L	Dissolved	8	0	0	NA	NA	NA	2	0	0	0	0	NA
gamma-BHC	80	ng/L	Total	19	0	0	NA	NA	NA	0.243	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	19	0	0	NA	NA	NA	0.272	1	5	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	19	0	0	NA	NA	NA	0.147	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	19	0	0	NA	NA	NA	0.146	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	19	0	0	NA	NA	NA	35.3	19	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	19	17	89	26.6	91.3	54.2	48.8	0	0	0	0	0.0065

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Transitional CSM Unit - Undisturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	30	20	67	10.5	125	34.3	25.7	0	0	1	3	1.4
Antimony	39.1	µg/L	Total	30	30	100	0.092	0.224	0.167	0.167	0	0	0	0	0.0057
Arsenic	150	µg/L	Dissolved	30	16	53	0.3	0.7	0.388	0.323	0	0	0	0	0.0047
Barium	2749	µg/L	Total	30	30	100	23.9	41.8	34.6	34.6	0	0	0	0	0.015
Beryllium	2.44	µg/L	Total	30	4	13	0.007	0.009	0.0085	0.00373	0	0	0	0	0.0037
Cadmium	0.45	µg/L	Dissolved	30	16	53	0.007	0.026	0.0148	0.0124	0	0	0	0	0.058
Chromium	44	µg/L	Dissolved	30	0	0	NA	NA	NA	0.0485	0	0	0	0	NA
Cobalt	6.16	µg/L	Total	28	14	50	0.0387	0.13	0.0594	0.0479	0	0	0	0	0.021
Copper	3.1	µg/L	Dissolved	30	4	13	0.61	0.7	0.645	0.338	0	0	0	0	0.23
Iron	1000	µg/L	Dissolved	30	5	17	3	4.4	3.56	3.6	0	0	0	0	0.0044
Lead	1.3	µg/L	Dissolved	30	5	17	0.018	0.036	0.0246	0.0138	0	0	0	0	0.028
Manganese	1430	µg/L	Dissolved	30	8	27	0.669	2.81	1.86	0.812	0	0	0	0	0.002
Mercury	770	µg/L	Dissolved	30	8	27	0.19	0.71	0.436	0.258	0	0	0	0	0.00092
Nickel	30	µg/L	Dissolved	30	12	40	0.26	0.55	0.397	0.293	0	0	0	0	0.018
Selenium	1.2	µg/L	Total	30	4	13	0.3	0.7	0.45	0.192	0	0	0	0	0.58
Silver	1.1	µg/L	Dissolved	30	0	0	NA	NA	NA	0.00203	0	0	0	0	NA
Thallium	31.2	µg/L	Total	30	6	20	0.015	0.025	0.0197	0.0101	0	0	0	0	0.0008
Vanadium	38.7	µg/L	Total	30	16	53	0.15	0.45	0.234	0.168	0	0	0	0	0.012
Zinc	61	µg/L	Dissolved	30	1	3	4.2	4.2	4.2	0.908	0	0	0	0	0.069
Nutrients															
Ammonia as nitrogen	0.67	mg/L	Total	30	1	3	0.02	0.02	0.02	0.00937	0	0	0	0	0.03
SVOCs															
Pentachlorophenol	11.5	µg/L	Total	9	0	0	NA	NA	NA	0.172	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	9	0	0	NA	NA	NA	0.104	0	0	0	0	NA
Aldrin	1.9	ng/L	Total	9	3	33	0.36	0.66	0.5	0.278	0	0	0	0	0.35
alpha-Chlordane	4.3	ng/L	Total	9	0	0	NA	NA	NA	0.556	0	0	0	0	NA
Dieldrin	1.9	ng/L	Total	9	0	0	NA	NA	NA	0.187	0	0	0	0	NA
Endosulfan I	56	ng/L	Total	9	0	0	NA	NA	NA	0.127	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	9	1	11	0.94	0.94	0.94	0.328	0	0	0	0	0.017
Endrin	2.3	ng/L	Total	9	2	22	0.693	0.77	0.732	0.365	0	0	0	0	0.33
gamma-BHC	80	ng/L	Total	9	0	0	NA	NA	NA	0.238	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	9	0	0	NA	NA	NA	0.125	0	0	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	9	0	0	NA	NA	NA	0.107	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	9	0	0	NA	NA	NA	0.142	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	9	0	0	NA	NA	NA	41.8	9	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	9	9	100	27.2	83.1	56.2	56.2	0	0	0	0	0.0059

Table 4-2. Results of Maximum Concentration Screen for COIs in Disturbed and Undisturbed Surface Water

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Lacustrine CSM Unit - Undisturbed															
Metals/Metalloids															
Aluminum	87	µg/L	Total	114	76	67	8	620	45.5	32.7	0	0	4	4	7.1
Antimony	39.1	µg/L	Total	114	114	100	0.09	0.346	0.162	0.162	0	0	0	0	0.0088
Arsenic	150	µg/L	Dissolved	114	59	52	0.2	1.37	0.465	0.364	0	0	0	0	0.0091
Barium	2749	µg/L	Total	114	114	100	19.3	37.3	29.8	29.8	0	0	0	0	0.014
Beryllium	2.44	µg/L	Total	114	15	13	0.006	0.136	0.0211	0.00525	0	0	0	0	0.056
Cadmium	0.4	µg/L	Dissolved	114	59	52	0.006	0.028	0.0127	0.0107	0	0	0	0	0.07
Chromium	40	µg/L	Dissolved	114	6	5	0.05	0.24	0.115	0.058	0	0	0	0	0.006
Cobalt	6.16	µg/L	Total	107	70	65	0.033	0.594	0.0699	0.0577	0	0	0	0	0.096
Copper	2.78	µg/L	Dissolved	113	40	35	0.48	0.75	0.583	0.38	0	0	0	0	0.27
Iron	1000	µg/L	Dissolved	106	2	2	4	21.4	12.7	3.35	0	0	0	0	0.021
Lead	1.1	µg/L	Dissolved	114	18	16	0.007	0.0253	0.0151	0.00819	0	0	0	0	0.023
Manganese	1390	µg/L	Dissolved	114	33	29	0.375	32.4	3.07	1.1	0	0	0	0	0.023
Mercury	770	µg/L	Dissolved	114	14	12	0.27	0.81	0.583	0.224	0	0	0	0	0.0011
Nickel	27	µg/L	Dissolved	113	64	57	0.29	0.66	0.462	0.374	0	0	0	0	0.024
Selenium	1.2	µg/L	Total	114	6	5	0.3	0.4	0.383	0.179	0	0	0	0	0.33
Silver	0.87	µg/L	Dissolved	114	1	1	0.004	0.004	0.004	0.00203	0	0	0	0	0.0046
Thallium	31.2	µg/L	Total	114	20	18	0.01	0.148	0.0273	0.0119	0	0	0	0	0.0047
Vanadium	38.7	µg/L	Total	114	45	39	0.1	2.27	0.346	0.21	0	0	0	0	0.059
Zinc	55	µg/L	Dissolved	114	16	14	0.9	12.5	4.28	1.34	0	0	0	0	0.23
Nutrients															
Ammonia as nitrogen	0.35	mg/L	Total	114	24	21	0.014	0.04	0.0256	0.0138	0	0	0	0	0.11
SVOCs															
Pentachlorophenol	10.8	µg/L	Total	36	0	0	NA	NA	NA	0.173	0	0	0	0	NA
Pesticides															
4,4'-DDT	1	ng/L	Total	36	1	3	0.515	0.515	0.515	0.126	1	3	0	0	0.52
Aldrin	1.9	ng/L	Total	36	0	0	NA	NA	NA	0.0933	0	0	0	0	NA
alpha-Chlordane	4.3	ng/L	Total	36	0	0	NA	NA	NA	0.231	0	0	0	0	NA
Dieldrin	1.9	ng/L	Total	36	0	0	NA	NA	NA	0.19	0	0	0	0	NA
Endosulfan I	56	ng/L	Total	36	0	0	NA	NA	NA	0.132	0	0	0	0	NA
Endosulfan II	56	ng/L	Total	36	2	6	1.2	1.3	1.25	0.255	0	0	0	0	0.023
Endrin	2.3	ng/L	Total	36	4	11	0.61	0.76	0.697	0.312	0	0	0	0	0.33
gamma-BHC	80	ng/L	Total	36	0	0	NA	NA	NA	0.24	0	0	0	0	NA
Heptachlor	3.8	ng/L	Total	36	0	0	NA	NA	NA	0.134	0	0	0	0	NA
Heptachlor epoxide	3.8	ng/L	Total	36	0	0	NA	NA	NA	0.124	0	0	0	0	NA
Methoxychlor	30	ng/L	Total	36	0	0	NA	NA	NA	0.148	0	0	0	0	NA
Toxaphene	0.2	ng/L	Total	36	0	0	NA	NA	NA	29.3	36	100	0	0	NA
PCBs															
Total PCB congeners	14000	pg/L	Total	36	32	89	17.6	169	65	58.1	0	0	0	0	0.012

Notes:

[a] Mean of nondetected values (one half of the detection limit) and detected values.

Blue shading indicates hazard quotients (HQs) ≥ 1.

This table only includes results for chemicals of interest (COIs) with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDT - dichlorodiphenyltrichloroethane

DL - detection limit

NA - not applicable because the analyte was not detected

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

Table 4-3. Results of EPC Screen for COIs in Undisturbed Surface Water

				Summary Statistics			Benchmark Comparison			
							Nondetected Values			
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	EPC	HQ
Upper Reach OU										
Metals/Metalloids										
Aluminum	87	µg/L	Total	49	40	82	0	0	51.3	0.59
Antimony	39.1	µg/L	Total	49	48	98	0	0	0.187	0.0048
Arsenic	150	µg/L	Dissolved	60	38	63	0	0	0.478	0.0032
Barium	2749	µg/L	Total	49	49	100	0	0	37.8	0.014
Beryllium	2.44	µg/L	Total	49	1	2	0	0	0.012 M	0.0049
Cadmium	0.5	µg/L	Dissolved	56	34	61	4	7	0.0182	0.036
Chromium	50	µg/L	Dissolved	56	2	4	0	0	0.49 M	0.0098
Cobalt	6.16	µg/L	Total	37	26	70	0	0	0.0552	0.009
Copper	4.2	µg/L	Dissolved	56	27	48	0	0	0.56	0.13
Iron	1000	µg/L	Dissolved	57	10	18	0	0	4.94	0.0049
Lead	1.5	µg/L	Dissolved	56	15	27	0	0	0.0428	0.029
Manganese	1390	µg/L	Dissolved	53	25	47	0	0	2.31	0.0017
Mercury	770	µg/L	Dissolved	49	9	18	0	0	0.234	0.0003
Nickel	34	µg/L	Dissolved	56	43	77	0	0	0.567	0.017
Selenium	3.1	µg/L	Total	49	11	22	0	0	0.357	0.12
Silver	1.4	µg/L	Dissolved	56	0	0	0	0	ND	ND
Thallium	31.2	µg/L	Total	49	0	0	0	0	ND	ND
Vanadium	38.7	µg/L	Total	49	12	24	0	0	0.222	0.0057
Zinc	69	µg/L	Dissolved	56	10	18	0	0	2.45	0.036
Nutrients										
Ammonia as nitrogen	0.41	mg/L	Total	55	11	20	0	0	0.0163	0.040
Ammonia as nitrogen	0.41	mg/L	Dissolved	8	7	88	0	0	0.0122	0.030
SVOCs										
Pentachlorophenol	12.5	µg/L	Total	19	0	0	0	0	ND	ND
Pesticides										
4,4'-DDT	1	ng/L	Total	19	0	0	0	0	ND	ND
Aldrin	1.9	ng/L	Total	19	2	11	0	0	0.65 M	0.34
alpha-Chlordane	4.3	ng/L	Total	19	0	0	0	0	ND	ND
Dieldrin	1.9	ng/L	Total	19	1	5	0	0	0.52 M	0.27
Dieldrin	1.9	ng/L	Dissolved	8	0	0	1	12	ND	ND
Endosulfan I	56	ng/L	Total	19	0	0	0	0	ND	ND
Endosulfan II	56	ng/L	Total	19	3	16	0	0	1.2 M	0.021
Endrin	2.3	ng/L	Total	19	1	5	0	0	0.57 M	0.25

Table 4-3. Results of EPC Screen for COIs in Undisturbed Surface Water

				Summary Statistics			Benchmark Comparison			
							Nondetected Values			
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	EPC	HQ
Pesticides (continued)										
gamma-BHC	80	ng/L	Total	19	0	0	0	0	ND	ND
gamma-BHC	80	ng/L	Dissolved	8	0	0	0	0	ND	ND
Heptachlor	3.8	ng/L	Total	19	0	0	1	5	ND	ND
Heptachlor epoxide	3.8	ng/L	Total	19	0	0	0	0	ND	ND
Methoxychlor	30	ng/L	Total	19	0	0	0	0	ND	ND
Toxaphene	0.2	ng/L	Total	19	0	0	19	100	ND	ND
PCBs										
Total PCB congeners	14000	pg/L	Total	19	17	89	0	0	59	0.0042
Transitional CSM Unit										
Metals/Metalloids										
Aluminum	87	µg/L	Total	30	20	67	0	0	43.4	0.5
Antimony	39.1	µg/L	Total	30	30	100	0	0	0.182	0.0047
Arsenic	150	µg/L	Dissolved	30	16	53	0	0	0.39	0.0026
Barium	2749	µg/L	Total	30	30	100	0	0	36.2	0.013
Beryllium	2.44	µg/L	Total	30	4	13	0	0	0.009 M	0.0037
Cadmium	0.45	µg/L	Dissolved	30	16	53	0	0	0.0148	0.033
Chromium	44	µg/L	Dissolved	30	0	0	0	0	ND	ND
Cobalt	6.16	µg/L	Total	28	14	50	0	0	0.0618	0.01
Copper	3.1	µg/L	Dissolved	30	4	13	0	0	0.7 M	0.23
Iron	1000	µg/L	Dissolved	30	5	17	0	0	4.4 M	0.0044
Lead	1.3	µg/L	Dissolved	30	5	17	0	0	0.036 M	0.028
Manganese	1430	µg/L	Dissolved	30	8	27	0	0	0.955	0.00067
Mercury	770	µg/L	Dissolved	30	8	27	0	0	0.306	0.0004
Nickel	30	µg/L	Dissolved	30	12	40	0	0	0.381	0.013
Selenium	1.2	µg/L	Total	30	4	13	0	0	0.7 M	0.58
Silver	1.1	µg/L	Dissolved	30	0	0	0	0	ND	ND
Thallium	31.2	µg/L	Total	30	6	20	0	0	0.0118	0.00038
Vanadium	38.7	µg/L	Total	30	16	53	0	0	0.212	0.0055
Zinc	61	µg/L	Dissolved	30	1	3	0	0	4.2 M	0.069
Nutrients										
Ammonia as nitrogen	0.67	mg/L	Total	30	1	3	0	0	0.02 M	0.030
SVOCs										
Pentachlorophenol	11.5	µg/L	Total	9	0	0	0	0	ND	ND

Table 4-3. Results of EPC Screen for COIs in Undisturbed Surface Water

				Summary Statistics			Benchmark Comparison				
							Nondetected Values				
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	EPC		HQ
Pesticides											
4,4'-DDT	1	ng/L	Total	9	0	0	0	0	ND		ND
Aldrin	1.9	ng/L	Total	9	3	33	0	0	0.66	M	0.35
alpha-Chlordane	4.3	ng/L	Total	9	0	0	0	0	ND		ND
Dieldrin	1.9	ng/L	Total	9	0	0	0	0	ND		ND
Endosulfan I	56	ng/L	Total	9	0	0	0	0	ND		ND
Endosulfan II	56	ng/L	Total	9	1	11	0	0	0.94	M	0.017
Endrin	2.3	ng/L	Total	9	2	22	0	0	0.77	M	0.33
gamma-BHC	80	ng/L	Total	9	0	0	0	0	ND		ND
Heptachlor	3.8	ng/L	Total	9	0	0	0	0	ND		ND
Heptachlor epoxide	3.8	ng/L	Total	9	0	0	0	0	ND		ND
Methoxychlor	30	ng/L	Total	9	0	0	0	0	ND		ND
Toxaphene	0.2	ng/L	Total	9	0	0	9	100	ND		ND
PCBs											
Total PCB congeners	14000	pg/L	Total	9	9	100	0	0	68.1		0.0049
Lacustrine CSM Unit											
Metals/Metalloids											
Aluminum	87	µg/L	Total	114	76	67	0	0	63.5		0.73
Antimony	39.1	µg/L	Total	114	114	100	0	0	0.168		0.0043
Arsenic	150	µg/L	Dissolved	114	59	52	0	0	0.43		0.0029
Barium	2749	µg/L	Total	114	114	100	0	0	30.2		0.011
Beryllium	2.44	µg/L	Total	114	15	13	0	0	0.011		0.0045
Cadmium	0.4	µg/L	Dissolved	114	59	52	0	0	0.0119		0.030
Chromium	40	µg/L	Dissolved	114	6	5	0	0	0.0362		0.00091
Cobalt	6.16	µg/L	Total	107	70	65	0	0	0.0724		0.012
Copper	2.78	µg/L	Dissolved	113	40	35	0	0	0.53		0.19
Iron	1000	µg/L	Dissolved	106	2	2	0	0	21.4	M	0.021
Lead	1.1	µg/L	Dissolved	114	18	16	0	0	0.00802		0.0073
Manganese	1390	µg/L	Dissolved	114	33	29	0	0	2.56		0.0018
Mercury	770	µg/L	Dissolved	114	14	12	0	0	0.184		0.00024
Nickel	27	µg/L	Dissolved	113	64	57	0	0	0.46		0.017
Selenium	1.2	µg/L	Total	114	6	5	0	0	0.309		0.26
Silver	0.87	µg/L	Dissolved	114	1	1	0	0	0.004	M	0.0046
Thallium	31.2	µg/L	Total	114	20	18	0	0	0.0105		0.00034
Vanadium	38.7	µg/L	Total	114	45	39	0	0	0.33		0.0085
Zinc	55	µg/L	Dissolved	114	16	14	0	0	1.27		0.023

Table 4-3. Results of EPC Screen for COIs in Undisturbed Surface Water

				Summary Statistics			Benchmark Comparison				
							Nondetected Values				
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	EPC		HQ
Nutrients											
Ammonia as nitrogen	0.35	mg/L	Total	114	24	21	0	0	0.0159		0.045
SVOCs											
Pentachlorophenol	10.8	µg/L	Total	36	0	0	0	0	ND		ND
Pesticides											
4,4'-DDT	1	ng/L	Total	36	1	3	1	3	0.515	M	0.52
Aldrin	1.9	ng/L	Total	36	0	0	0	0	ND		ND
alpha-Chlordane	4.3	ng/L	Total	36	0	0	0	0	ND		ND
Dieldrin	1.9	ng/L	Total	36	0	0	0	0	ND		ND
Endosulfan I	56	ng/L	Total	36	0	0	0	0	ND		ND
Endosulfan II	56	ng/L	Total	36	2	6	0	0	1.3	M	0.023
Endrin	2.3	ng/L	Total	36	4	11	0	0	0.76	M	0.33
gamma-BHC	80	ng/L	Total	36	0	0	0	0	ND		ND
Heptachlor	3.8	ng/L	Total	36	0	0	0	0	ND		ND
Heptachlor epoxide	3.8	ng/L	Total	36	0	0	0	0	ND		ND
Methoxychlor	30	ng/L	Total	36	0	0	0	0	ND		ND
Toxaphene	0.2	ng/L	Total	36	0	0	36	100	ND		ND
PCBs											
Total PCB congeners	14000	pg/L	Total	36	32	89	0	0	69.2		0.0049

Notes:

This table only includes results for chemicals of interest (COIs) with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDT - dichlorodiphenyltrichloroethane

DL - detection limit

EPC - exposure point concentration

HQ - hazard quotient

M - UCL could not be calculated; EPC based on maximum detected concentration

ND - no samples had detected concentrations

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

UCL - upper confidence limit

Table 4-4. Results of Maximum Concentration Screen for Dissolved COIs in Porewater

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Upper Reach OU															
Aluminum	87	µg/L	Dissolved	319	168	53	3	308	32.8	25.9	6	2	10	3	3.5
Antimony	39.1	µg/L	Dissolved	318	238	75	0.28	90.5	7.83	7.42	15	5	10	3	2.3
Arsenic	150	µg/L	Dissolved	394	289	73	0.26	78.3	8.71	6.93	0	0	0	0	0.52
Barium	2749	µg/L	Dissolved	319	319	100	9.8	1210	192	192	0	0	0	0	0.44
Beryllium	2.44	µg/L	Dissolved	319	9	3	0.009	0.4	0.0696	0.413	31	10	0	0	0.16
Cadmium	0.38	µg/L	Dissolved	394	197	50	0.01	3.3	0.256	0.385	81	21	33	8	8.7
Chromium	37	µg/L	Dissolved	319	125	39	0.05	117	2.21	1.48	0	0	1	0.3	3.2
Cobalt	6.16	µg/L	Dissolved	319	156	49	0.03	5.9	0.896	1.6	17	5	0	0	0.96
Copper	1.02	µg/L	Dissolved	394	329	84	0.08	224	12.4	10.5	8	2	279	71	220
Iron	1000	µg/L	Dissolved	360	224	62	5	78000	4260	2670	0	0	82	23	78
Lead	1	µg/L	Dissolved	394	305	77	0.046	250	5.14	4.27	67	17	155	39	250
Manganese	1390	µg/L	Dissolved	360	341	95	0.2	6060	562	533	0	0	47	13	4.4
Mercury	0.77	µg/L	Dissolved	24	13	54	0.015	0.086	0.0264	0.0601	0	0	0	0	0.11
Nickel	26	µg/L	Dissolved	391	238	61	0.16	81.1	1.89	2.32	18	5	1	0.3	3.1
Selenium	3.1	µg/L	Dissolved	319	49	15	0.4	20.7	2.57	2.11	48	15	5	2	6.7
Silver	0.8	µg/L	Dissolved	319	33	10	0.007	5	0.292	1.16	176	55	1	0.3	6.3
Thallium	31.2	µg/L	Dissolved	319	32	10	0.014	2.3	0.135	1.19	0	0	0	0	0.074
Vanadium	38.7	µg/L	Dissolved	319	136	43	0.114	21.6	1.56	2.35	17	5	0	0	0.56
Zinc	52	µg/L	Dissolved	394	313	79	1	540	44.7	39.2	20	5	74	19	10
Ammonia as nitrogen	0.41	mg/L	Unknown	28	28	100	0.103	20.2	2.65	2.65	0	0	23	82	49
Transitional CSM Unit - Shallow[b]															
Aluminum	87	µg/L	Dissolved	17	9	53	5	366	133	83.2	2	12	5	29	4.2
Antimony	39.1	µg/L	Dissolved	17	13	76	0.23	1.8	0.852	7.71	4	24	0	0	0.046
Arsenic	150	µg/L	Dissolved	23	20	87	1.57	111	23.4	21	0	0	0	0	0.74
Barium	2749	µg/L	Dissolved	17	17	100	64	370	171	171	0	0	0	0	0.13
Beryllium	2.44	µg/L	Dissolved	17	3	18	0.009	0.03	0.0217	0.455	3	18	0	0	0.012
Cadmium	0.75	µg/L	Dissolved	23	16	70	0.013	4	0.6	0.53	1	4	3	13	5.3
Chromium	78	µg/L	Dissolved	17	13	76	0.13	4	0.913	0.789	0	0	0	0	0.051
Cobalt	6.16	µg/L	Dissolved	17	15	88	0.267	3.19	0.896	3.73	2	12	0	0	0.52
Copper	16.9	µg/L	Dissolved	23	21	91	0.334	36.4	6.14	5.61	0	0	2	9	2.2
Iron	1000	µg/L	Dissolved	20	19	95	120	16700	5320	5060	0	0	10	50	17
Lead	2.7	µg/L	Dissolved	23	22	96	0.095	50.8	8.09	7.96	1	4	12	52	19
Manganese	1430	µg/L	Dissolved	20	20	100	580	3430	1650	1650	0	0	11	55	2.4
Mercury	0.77	µg/L	Dissolved	4	3	75	0.023	0.34	0.131	0.123	0	0	0	0	0.44
Nickel	55	µg/L	Dissolved	23	15	65	0.802	11.8	3.03	4.82	0	0	0	0	0.21
Selenium	1.2	µg/L	Dissolved	14	1	7	1.2	1.2	1.2	5.27	4	29	1	7	1
Silver	3.6	µg/L	Dissolved	17	5	29	0.015	0.149	0.061	1.46	4	24	0	0	0.041
Thallium	31.2	µg/L	Dissolved	17	5	29	0.034	0.1	0.0648	2.96	0	0	0	0	0.0032
Vanadium	38.7	µg/L	Dissolved	17	11	65	0.473	5.41	1.51	6.88	4	24	0	0	0.14
Zinc	110	µg/L	Dissolved	23	15	65	4.9	200	31.8	34.6	2	9	1	4	1.8
Ammonia as nitrogen	0.67	mg/L	Unknown	2	2	100	1.94	2.37	2.16	2.16	0	0	2	100	3.5

Table 4-4. Results of Maximum Concentration Screen for Dissolved COIs in Porewater

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Transitional CSM Unit - Deep[b]															
Aluminum	87	µg/L	Dissolved	13	8	62	9.3	199	50.2	32.5	0	0	1	8	2.3
Antimony	39.1	µg/L	Dissolved	13	13	100	0.41	12.4	3.69	3.69	0	0	0	0	0.32
Arsenic	150	µg/L	Dissolved	16	15	94	0.16	14.7	3.33	3.15	0	0	0	0	0.098
Barium	2749	µg/L	Dissolved	13	13	100	48.9	377	124	124	0	0	0	0	0.14
Beryllium	2.44	µg/L	Dissolved	13	1	8	0.011	0.011	0.011	0.00881	0	0	0	0	0.0045
Cadmium	0.76	µg/L	Dissolved	16	13	81	0.019	0.22	0.124	0.103	0	0	0	0	0.29
Chromium	78	µg/L	Dissolved	13	3	23	0.18	0.36	0.247	0.0819	0	0	0	0	0.0046
Cobalt	6.16	µg/L	Dissolved	13	12	92	0.014	0.623	0.273	0.252	0	0	0	0	0.1
Copper	6.87	µg/L	Dissolved	16	14	88	0.22	26.2	4.58	4.04	0	0	2	12	3.8
Iron	1000	µg/L	Dissolved	15	11	73	10.2	768	283	211	0	0	0	0	0.77
Lead	2.7	µg/L	Dissolved	16	15	94	0.07	5.4	0.79	0.745	0	0	2	12	2
Manganese	1430	µg/L	Dissolved	15	13	87	8.75	420	158	138	0	0	0	0	0.29
Nickel	55	µg/L	Dissolved	16	13	81	0.15	4.92	0.764	0.751	0	0	0	0	0.089
Selenium	1.2	µg/L	Dissolved	13	0	0	NA	NA	NA	0.412	0	0	0	0	NA
Silver	3.6	µg/L	Dissolved	13	2	15	0.027	0.068	0.0475	0.0119	0	0	0	0	0.019
Thallium	31.2	µg/L	Dissolved	13	7	54	0.04	0.119	0.084	0.0482	0	0	0	0	0.0038
Vanadium	38.7	µg/L	Dissolved	13	12	92	0.115	20.8	2.57	2.37	0	0	0	0	0.54
Zinc	111	µg/L	Dissolved	16	13	81	2.1	126	54.6	50.6	0	0	1	6	1.1
Ammonia as nitrogen	0.67	mg/L	Unknown	1	1	100	0.208	0.208	0.208	0.208	0	0	0	0	0.31
Lacustrine CSM Unit - Shallow[b]															
Aluminum	87	µg/L	Dissolved	140	74	53	4.7	1040	87.2	55.4	10	7	19	14	12
Antimony	39.1	µg/L	Dissolved	140	58	41	0.12	2.39	0.431	5.34	24	17	0	0	0.061
Arsenic	150	µg/L	Dissolved	173	153	88	0.167	190	24.6	22.2	0	0	1	1	1.3
Barium	2749	µg/L	Dissolved	140	140	100	34.5	384	145	145	0	0	0	0	0.14
Beryllium	2.44	µg/L	Dissolved	140	2	1	0.047	0.07	0.0585	0.438	24	17	0	0	0.029
Cadmium	0.54	µg/L	Dissolved	173	93	54	0.009	130	2.36	1.42	10	6	26	15	240
Chromium	54	µg/L	Dissolved	140	97	69	0.05	40.7	2.47	2.06	0	0	0	0	0.75
Cobalt	6.16	µg/L	Dissolved	140	121	86	0.072	7	1.04	2.37	8	6	1	1	1.1
Copper	1.37	µg/L	Dissolved	173	123	71	0.08	350	5.39	6.19	11	6	52	30	260
Iron	1000	µg/L	Dissolved	156	129	83	9.2	16400	1830	1520	0	0	44	28	16
Lead	1.7	µg/L	Dissolved	173	127	73	0.009	3800	44.7	33.3	16	9	51	29	2200
Manganese	1390	µg/L	Dissolved	156	153	98	4.7	12800	2470	2420	0	0	91	58	9.2
Mercury	0.77	µg/L	Dissolved	24	9	38	0.014	0.26	0.0586	0.0845	0	0	0	0	0.34
Nickel	38	µg/L	Dissolved	169	138	82	0.19	27.2	2.44	3.17	9	5	0	0	0.72
Selenium	1.2	µg/L	Dissolved	140	14	10	0.3	17.7	2.77	3.57	38	27	7	5	15
Silver	1.7	µg/L	Dissolved	140	4	3	0.008	0.092	0.048	1.67	39	28	0	0	0.054
Thallium	31.2	µg/L	Dissolved	140	40	29	0.009	6.8	0.379	2.18	0	0	0	0	0.22
Vanadium	38.7	µg/L	Dissolved	140	118	84	0.13	50.9	2.5	3.46	7	5	1	1	1.3
Zinc	76	µg/L	Dissolved	173	88	51	1.29	2600	80	45.3	7	4	10	6	34
Ammonia as nitrogen	0.35	mg/L	Unknown	13	13	100	0.033	3.87	1.03	1.03	0	0	11	85	11

Table 4-4. Results of Maximum Concentration Screen for Dissolved COIs in Porewater

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Lacustrine CSM Unit - Deep[b]															
Aluminum	87	µg/L	Dissolved	148	64	43	4.5	150	28.1	16.4	0	0	4	3	1.7
Antimony	39.1	µg/L	Dissolved	148	44	30	0.04	2	0.571	0.192	0	0	0	0	0.051
Arsenic	150	µg/L	Dissolved	190	190	100	2.9	139	33.6	33.6	0	0	0	0	0.93
Barium	2749	µg/L	Dissolved	148	148	100	36.7	325	146	146	0	0	0	0	0.12
Beryllium	2.44	µg/L	Dissolved	148	10	7	0.02	0.034	0.0242	0.00987	0	0	0	0	0.014
Cadmium	0.55	µg/L	Dissolved	190	57	30	0.007	1.13	0.253	0.0835	0	0	10	5	2.1
Chromium	55	µg/L	Dissolved	148	126	85	0.05	3.36	0.184	0.188	0	0	0	0	0.061
Cobalt	6.16	µg/L	Dissolved	148	147	99	0.134	1.91	0.723	0.718	0	0	0	0	0.31
Copper	1.73	µg/L	Dissolved	190	98	52	0.07	14.9	2.12	1.15	0	0	29	15	8.6
Iron	1000	µg/L	Dissolved	170	169	99	35.1	23700	7550	7510	0	0	147	86	24
Lead	1.7	µg/L	Dissolved	190	178	94	0.058	46.2	3.57	3.34	0	0	41	22	27
Manganese	1390	µg/L	Dissolved	170	170	100	260	18600	5430	5430	0	0	165	97	13
Nickel	38	µg/L	Dissolved	190	152	80	0.17	5.74	1.01	1	0	0	0	0	0.15
Selenium	1.2	µg/L	Dissolved	141	6	4	0.3	0.5	0.35	0.412	7	5	0	0	0.42
Silver	1.7	µg/L	Dissolved	148	0	0	NA	NA	NA	0.0759	7	5	0	0	NA
Thallium	31.2	µg/L	Dissolved	148	10	7	0.034	0.2	0.0798	0.0107	0	0	0	0	0.0064
Vanadium	38.7	µg/L	Dissolved	148	142	96	0.24	7.18	1.08	1.05	0	0	0	0	0.19
Zinc	77	µg/L	Dissolved	190	51	27	3.28	96	22.3	13.6	11	6	1	1	1.2
Ammonia as nitrogen	0.35	mg/L	Unknown	18	18	100	0.241	7.64	2.19	2.19	0	0	17	94	22

Notes:

[a] Mean of nondetected values (one half of the detection limit) and detected values.

[b] Porewater data in the Transitional and Lacustrine Conceptual Site Model (CSM) Units were divided into shallow (< 80 ft below full pool) and deep (> 80 ft below full pool) areas.

Blue shading indicates hazard quotients (HQs) ≥ 1.

This table only includes results for chemicals of interest (COIs) with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

DL - detection limit

NA - not applicable

OU - operable unit

Table 4-5. Results of Maximum Concentration Screen for COIs in Sediment

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Upper Reach OU															
Metals/Metalloids															
Antimony	0.6	mg/kg	dw	287	279	97	0.086	174	23	22.4	6	2	264	92	290
Arsenic	9.79	mg/kg	dw	330	322	98	1.68	74.4	12.5	12.2	0	0	162	49	7.6
Beryllium	0.46	mg/kg	dw	297	297	100	0.1	2.4	0.632	0.632	0	0	176	59	5.2
Cadmium	0.99	mg/kg	dw	330	323	98	0.004	18	3.09	3.03	0	0	267	81	18
Chromium	43.4	mg/kg	dw	320	320	100	7.29	250	49.4	49.4	0	0	114	36	5.8
Copper	31.6	mg/kg	dw	328	328	100	6.9	3600	737	737	0	0	294	90	110
Lead	35.8	mg/kg	dw	330	329	100	7.6	4870	331	330	0	0	310	94	140
Mercury	0.18	mg/kg	dw	308	301	98	0.003	1.96	0.274	0.269	0	0	118	38	11
Nickel	22.7	mg/kg	dw	318	318	100	6.3	48.8	14.4	14.4	0	0	23	7	2.1
Silver	0.545	mg/kg	dw	297	196	66	0.033	12.6	2.46	1.85	100	34	166	56	23
Zinc	121	mg/kg	dw	328	328	100	46.5	28200	5980	5980	0	0	313	95	230
SVOCs															
Dimethyl phthalate	311	µg/kg	dw	109	0	0	NA	NA	NA	50.4	0	0	0	0	NA
Di-n-octylphthalate	11	µg/kg	dw	109	0	0	NA	NA	NA	50.5	102	94	0	0	NA
Pesticides															
4,4'-DDD	96	µg/kg	dw	121	0	0	NA	NA	NA	0.537	0	0	0	0	NA
4,4'-DDE	21	µg/kg	dw	121	16	13	0.072	0.65	0.279	0.526	0	0	0	0	0.031
4,4'-DDT	19	µg/kg	dw	121	28	23	0.15	1.5	0.421	0.541	0	0	0	0	0.079
Methoxychlor	1.9	mg/kg	OC	121	3	2	0.159	2.31	0.974	1.09	31	26	1	1	1.2
Total DDD	4.88	µg/kg	dw	109	1	1	0.43	0.43	NA	0.414	0	0	0	0	0.088
Total DDE	3.16	µg/kg	dw	109	17	16	0.25	1.13	0.657	0.451	0	0	0	0	0.36
Total DDT	4.16	µg/kg	dw	109	29	27	0.245	1.76	0.78	0.51	0	0	0	0	0.42
Total DDx	5.28	µg/kg	dw	109	37	34	0.765	3.54	2.38	1.08	0	0	0	0	0.67
PCBs															
PCB TEQ, fish	0.85	pg/g	dw	5	5	100	0.00151	0.0129	0.00535	0.00535	0	0	0	0	0.015
Dioxin/Furans															
Dioxin TEQ, fish	0.85	pg/g	dw	21	21	100	0.0782	2.24	0.665	0.665	0	0	6	29	2.6
Total TEQ, fish	0.85	pg/g	dw	5	5	100	0.256	2.25	1.08	1.08	0	0	2	40	2.6
Transitional CSM Unit - Shallow[b]															
Metals/Metalloids															
Antimony	0.6	mg/kg	dw	103	75	73	0.048	7.2	1.38	1.23	12	12	34	33	12
Arsenic	9.79	mg/kg	dw	114	112	98	0.91	26.2	4.54	4.48	0	0	13	11	2.7
Beryllium	0.46	mg/kg	dw	109	109	100	0.11	2.6	0.515	0.515	0	0	36	33	5.7
Cadmium	0.99	mg/kg	dw	114	110	96	0.091	11	2.11	2.03	0	0	53	46	11
Chromium	43.4	mg/kg	dw	111	111	100	5.2	110	21.5	21.5	0	0	7	6	2.5
Copper	31.6	mg/kg	dw	114	114	100	5.7	1110	44.6	44.6	0	0	40	35	35
Lead	35.8	mg/kg	dw	114	114	100	3.3	500	107	107	0	0	59	52	14
Mercury	0.18	mg/kg	dw	109	95	87	0.002	2.2	0.278	0.248	0	0	38	35	12
Nickel	22.7	mg/kg	dw	111	111	100	4.9	52.8	15.7	15.7	0	0	17	15	2.3
Silver	0.545	mg/kg	dw	109	76	70	0.02	5	0.526	0.557	28	26	22	20	9.2
Zinc	121	mg/kg	dw	114	114	100	22.4	11300	410	410	0	0	58	51	93
SVOCs															
Dimethyl phthalate	311	µg/kg	dw	33	0	0	NA	NA	NA	51	0	0	0	0	NA
Di-n-octylphthalate	11	µg/kg	dw	33	0	0	NA	NA	NA	51	27	82	0	0	NA
Pesticides															
4,4'-DDD	96	µg/kg	dw	41	0	0	NA	NA	NA	0.923	0	0	0	0	NA
4,4'-DDE	21	µg/kg	dw	41	2	5	0.3	0.43	0.365	0.915	0	0	0	0	0.02
4,4'-DDT	19	µg/kg	dw	41	6	15	0.15	5.7	1.29	1.05	0	0	0	0	0.3
Methoxychlor	1.9	mg/kg	OC	41	4	10	1.59	7.16	3.63	1.32	13	32	3	7	3.8
Total DDD	4.88	µg/kg	dw	33	0	0	NA	NA	NA	0.423	0	0	0	0	NA
Total DDE	3.16	µg/kg	dw	33	2	6	0.875	0.9	0.888	0.447	0	0	0	0	0.28
Total DDT	4.16	µg/kg	dw	33	6	18	0.239	6.4	1.71	0.656	0	0	1	3	1.5
Total DDx	5.28	µg/kg	dw	33	6	18	0.494	8.5	3.42	0.967	0	0	1	3	1.6

Table 4-5. Results of Maximum Concentration Screen for COIs in Sediment

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
PCBs															
PCB TEQ, fish	0.85	pg/g	dw	1	1	100	0.00512	0.00512	NA	NA	0	0	0	0	0.006
Dioxin/Furans															
Dioxin TEQ, fish	0.85	pg/g	dw	5	5	100	0.0759	0.64	0.206	0.206	0	0	0	0	0.75
Total TEQ, fish	0.85	pg/g	dw	1	1	100	0.645	0.645	NA	NA	0	0	0	0	0.76
Transitional CSM Unit - Deep[b]															
Metals/Metalloids															
Antimony	0.6	mg/kg	dw	10	10	100	5.2	34.6	15.9	15.9	0	0	10	100	58
Arsenic	9.79	mg/kg	dw	12	12	100	5.8	21.3	13.1	13.1	0	0	8	67	2.2
Beryllium	0.46	mg/kg	dw	11	11	100	0.277	1.2	0.825	0.825	0	0	10	91	2.6
Cadmium	0.99	mg/kg	dw	12	12	100	0.25	2.6	1.45	1.45	0	0	10	83	2.6
Chromium	43.4	mg/kg	dw	12	12	100	30.6	82.1	44.6	44.6	0	0	6	50	1.9
Copper	31.6	mg/kg	dw	12	12	100	77.5	1500	785	785	0	0	12	100	47
Lead	35.8	mg/kg	dw	12	12	100	99.9	954	399	399	0	0	12	100	27
Mercury	0.18	mg/kg	dw	12	12	100	0.009	0.14	0.0453	0.0453	0	0	0	0	0.78
Nickel	22.7	mg/kg	dw	12	12	100	6.1	20.7	10.4	10.4	0	0	0	0	0.91
Silver	0.545	mg/kg	dw	11	4	36	1.27	2.3	1.69	1	7	64	4	36	4.2
Zinc	121	mg/kg	dw	12	12	100	521	19500	9990	9990	0	0	12	100	160
SVOCs															
Dimethyl phthalate	311	µg/kg	dw	7	0	0	NA	NA	NA	59	0	0	0	0	NA
Di-n-octylphthalate	11	µg/kg	dw	7	0	0	NA	NA	NA	59	7	100	0	0	NA
Pesticides															
4,4'-DDD	96	µg/kg	dw	7	0	0	NA	NA	NA	0.469	0	0	0	0	NA
4,4'-DDE	21	µg/kg	dw	7	1	14	0.16	0.16	NA	0.443	0	0	0	0	0.0076
4,4'-DDT	19	µg/kg	dw	7	2	29	0.14	3.1	1.62	0.766	0	0	0	0	0.16
Methoxychlor	1.9	mg/kg	OC	7	0	0	NA	NA	NA	1.37	3	43	0	0	NA
Total DDD	4.88	µg/kg	dw	7	0	0	NA	NA	NA	0.469	0	0	0	0	NA
Total DDE	3.16	µg/kg	dw	7	1	14	0.505	0.505	NA	0.492	0	0	0	0	0.16
Total DDT	4.16	µg/kg	dw	7	2	29	0.605	3.61	2.11	0.905	0	0	0	0	0.87
Total DDx	5.28	µg/kg	dw	7	3	43	1.89	6.41	3.59	1.79	0	0	1	14	1.2
Dioxin/Furans															
Dioxin TEQ, fish	0.85	pg/g	dw	1	1	100	0.136	0.136	NA	NA	0	0	0	0	0.16
Lacustrine CSM Unit - Shallow[b]															
Metals/Metalloids															
Antimony	0.6	mg/kg	dw	275	214	78	0.052	4.8	0.563	0.646	36	13	45	16	8
Arsenic	9.79	mg/kg	dw	355	342	96	0.2	25	5.52	5.37	0	0	32	9	2.6
Beryllium	0.46	mg/kg	dw	345	345	100	0.0515	2.9	0.531	0.531	0	0	149	43	6.3
Cadmium	0.99	mg/kg	dw	355	301	85	0.032	11.8	0.958	0.835	0	0	54	15	12
Chromium	43.4	mg/kg	dw	354	354	100	1.2	109	16.3	16.3	0	0	11	3	2.5
Copper	31.6	mg/kg	dw	355	350	99	0.8	111	17	16.8	0	0	29	8	3.5
Lead	35.8	mg/kg	dw	355	354	100	2.19	841	40.6	40.5	0	0	63	18	23
Mercury	0.18	mg/kg	dw	340	269	79	0.002	2.4	0.101	0.0874	0	0	29	9	13
Nickel	22.7	mg/kg	dw	354	354	100	0.68	50.1	14	14	0	0	46	13	2.2
Silver	0.545	mg/kg	dw	326	189	58	0.018	2.9	0.196	0.346	119	37	16	5	5.3
Zinc	121	mg/kg	dw	355	355	100	7.55	1460	127	127	0	0	75	21	12
SVOCs															
Dimethyl phthalate	311	µg/kg	dw	143	4	3	1.4	1.7	1.51	44.1	0	0	0	0	0.0055
Di-n-octylphthalate	11	µg/kg	dw	143	0	0	NA	NA	NA	44.2	127	89	0	0	NA

Table 4-5. Results of Maximum Concentration Screen for COIs in Sediment

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Pesticides															
4,4'-DDD	96	µg/kg	dw	151	1	1	2.1	2.1	NA	0.484	0	0	0	0	0.022
4,4'-DDE	21	µg/kg	dw	151	17	11	0.062	63	4.51	0.948	0	0	1	1	3
4,4'-DDT	19	µg/kg	dw	151	40	26	0.08	200	6.32	2.04	0	0	1	1	11
Methoxychlor	1.9	mg/kg	OC	151	1	1	1.74	1.74	NA	1.92	89	59	0	0	0.92
Total DDD	4.88	µg/kg	dw	143	1	1	4.65	4.65	NA	0.4	0	0	0	0	0.95
Total DDE	3.16	µg/kg	dw	143	17	12	0.412	80	5.89	1.04	0	0	2	1	25
Total DDT	4.16	µg/kg	dw	143	40	28	0.42	257	8.19	2.55	0	0	5	3	62
Total DDx	5.28	µg/kg	dw	143	42	29	1.53	342	11.6	3.66	0	0	6	4	65
Dioxin/Furans															
Dioxin TEQ, fish	0.85	pg/g	dw	28	26	93	0.0763	1.73	0.264	0.249	0	0	2	7	2
Lacustrine CSM Unit - Deep[b]															
Metals/Metalloids															
Antimony	0.6	mg/kg	dw	107	94	88	0.327	10	2.64	2.87	13	12	92	86	17
Arsenic	9.79	mg/kg	dw	163	159	98	3.9	20.7	10.3	10.1	0	0	82	50	2.1
Beryllium	0.46	mg/kg	dw	145	145	100	0.42	2.8	1.43	1.43	0	0	143	99	6.1
Cadmium	0.99	mg/kg	dw	163	162	99	0.08	16.2	4.85	4.82	0	0	157	96	16
Chromium	43.4	mg/kg	dw	159	159	100	8.8	110	42.4	42.4	0	0	44	28	2.5
Copper	31.6	mg/kg	dw	163	163	100	11.1	329	72.7	72.7	0	0	155	95	10
Lead	35.8	mg/kg	dw	163	163	100	6.1	841	191	191	0	0	159	98	23
Mercury	0.18	mg/kg	dw	155	153	99	0.03	1.9	0.659	0.651	0	0	137	88	11
Nickel	22.7	mg/kg	dw	159	159	100	8.5	48	30.5	30.5	0	0	144	91	2.1
Silver	0.545	mg/kg	dw	132	60	45	0.256	2.7	1.02	1.16	72	55	55	42	5
Zinc	121	mg/kg	dw	163	163	100	38.4	2230	592	592	0	0	160	98	18
SVOCs															
Dimethyl phthalate	311	µg/kg	dw	63	0	0	NA	NA	NA	104	5	8	0	0	NA
Di-n-octylphthalate	11	µg/kg	dw	63	0	0	NA	NA	NA	104	63	100	0	0	NA
Pesticides															
4,4'-DDD	96	µg/kg	dw	69	2	3	0.35	2.1	1.23	1.01	0	0	0	0	0.022
4,4'-DDE	21	µg/kg	dw	69	5	7	0.37	0.88	0.511	0.979	0	0	0	0	0.042
4,4'-DDT	19	µg/kg	dw	69	8	12	0.15	20	3.54	1.32	0	0	1	1	1.1
Methoxychlor	1.9	mg/kg	OC	69	0	0	NA	NA	NA	0.587	6	9	0	0	NA
Total DDD	4.88	µg/kg	dw	63	2	3	1.15	3	2.08	0.893	0	0	0	0	0.61
Total DDE	3.16	µg/kg	dw	63	5	8	1.17	1.35	1.28	0.895	0	0	0	0	0.43
Total DDT	4.16	µg/kg	dw	63	8	13	0.95	26.5	5.04	1.4	0	0	1	2	6.4
Total DDx	5.28	µg/kg	dw	63	11	17	4.01	31.3	7.26	1.98	0	0	3	5	5.9
Dioxin/Furans															
Dioxin TEQ, fish	0.85	pg/g	dw	3	3	100	1.82	4.64	3.18	3.18	0	0	3	100	5.5

Notes:

[a] Mean of nondetected values (one half of the detection limit) and detected values.

[b] Porewater data in the Transitional and Lacustrine Conceptual Site Model (CSM) Units were divided into shallow (< 80 ft below full pool) and deep (> 80 ft below full pool) areas.

Blue shading indicates hazard quotients (HQs) ≥ 1.

This table only includes results for chemicals of interest (COIs) with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

DL - detection limit

NA - not applicable because the analyte was not detected

OC - organic carbon normalized

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-6. Results of Fish Tissue Screen

				Burbot									Kokanee							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Upper Reach OU																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	7	5	71	0	0	0	0	5.472	0.17	14	14	100	0	0	0	0	1.82	0.055
Antimony	0.03	mg/kg	ww	7	4	57	3	43	0	0	0.0185	0.62	14	14	100	0	0	0	0	0.0202	0.67
Arsenic	1.7	mg/kg	ww	7	7	100	0	0	0	0	0.827	0.49	14	14	100	0	0	0	0	0.112	0.066
Cadmium	0.09	mg/kg	ww	7	7	100	0	0	0	0	0.0301	0.33	14	14	100	0	0	0	0	0.0386	0.43
Chromium	2.7	mg/kg	ww	7	7	100	0	0	0	0	0.5016	0.19	14	11	79	0	0	0	0	0.175	0.065
Copper	3.1	mg/kg	ww	7	7	100	0	0	0	0	1.6	0.52	14	14	100	0	0	0	0	2.18	0.7
Lead	2.2	mg/kg	ww	7	7	100	0	0	0	0	0.209	0.095	14	14	100	0	0	0	0	0.0595	0.027
Mercury	460	µg/kg	ww	7	7	100	0	0	0	0	192	0.42	14	14	100	0	0	0	0	63	0.14
Nickel	18.4	mg/kg	ww	7	7	100	0	0	0	0	0.3192	0.017	14	14	100	0	0	0	0	0.116	0.0063
Selenium	1.7	mg/kg	ww	7	7	100	0	0	0	0	0.766	0.45	14	14	100	0	0	0	0	0.524	0.31
Silver	0.27	mg/kg	ww	7	1	14	0	0	0	0	0.00379	0.014	14	14	100	0	0	0	0	0.0329	0.12
Thallium	4.6	mg/kg	ww	7	1	14	0	0	0	0	0.00674	0.0015	14	14	100	0	0	0	0	0.037	0.008
Zinc	27	mg/kg	ww	7	7	100	0	0	0	0	14.5	0.54	14	14	100	0	0	0	0	20.5	0.76
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	4	100	0	0	0	0	29.5	0.00072
Pentachlorophenol	3100	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	1	25	0	0	0	0	2.18	0.44
Dieldrin	220	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	1	25	0	0	0	0	1.43	0.024
Heptachlor epoxide	55	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	4	100	0	0	0	0	1.5	0.0031
Hexachlorobutadiene	26	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	4	1	25	0	0	0	0	2.85	0.0052
Total DDx	240	µg/kg	ww	2	2	100	0	0	0	0	23.9	0.1	4	4	100	0	0	0	0	6.6	0.028
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	3	3	100	0	0	0	0	87	0.12	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	5	5	100	0	0	0	0	35600	0.049	14	14	100	0	0	0	0	16800	0.023
PCB TEQ, fish	0.000321	mg/kg	lipid	5	5	100	0	0	0	0	0.00000145	0.0045	14	14	100	0	0	0	0	0.000000449	0.0014
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	7	7	100	0	0	0	0	0.0000441	0.14	14	14	100	0	0	0	0	0.00000944	0.029
Total TEQ, fish	0.000321	mg/kg	lipid	5	5	100	0	0	0	0	0.0000312	0.097	14	14	100	0	0	0	0	0.0000097	0.03
Transitional CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	10	10	100	0	0	0	0	16	0.48	8	8	100	0	0	0	0	3.49	0.11
Antimony	0.03	mg/kg	ww	10	4	40	5	50	1	10	0.056	1.9	8	8	100	0	0	0	0	0.0148	0.49
Arsenic	1.7	mg/kg	ww	10	10	100	0	0	0	0	0.7171	0.42	8	8	100	0	0	0	0	0.105	0.062
Cadmium	0.09	mg/kg	ww	10	10	100	0	0	0	0	0.04784	0.53	8	8	100	0	0	0	0	0.0348	0.39
Chromium	2.7	mg/kg	ww	10	10	100	0	0	0	0	0.418	0.15	8	7	88	0	0	0	0	0.109	0.04
Copper	3.1	mg/kg	ww	10	10	100	0	0	0	0	1.444	0.47	8	8	100	0	0	0	0	1.67	0.54
Lead	2.2	mg/kg	ww	10	10	100	0	0	0	0	0.514	0.23	8	8	100	0	0	0	0	0.0098	0.0045
Mercury	460	µg/kg	ww	10	10	100	0	0	0	0	204	0.44	8	8	100	0	0	0	0	61.7	0.13
Nickel	18.4	mg/kg	ww	10	10	100	0	0	0	0	0.328	0.018	8	8	100	0	0	0	0	0.09	0.0049
Selenium	1.7	mg/kg	ww	10	10	100	0	0	0	0	0.828	0.49	8	8	100	0	0	0	0	0.461	0.27
Silver	0.27	mg/kg	ww	10	4	40	0	0	0	0	0.00367	0.014	8	8	100	0	0	0	0	0.00477	0.018
Thallium	4.6	mg/kg	ww	10	3	30	0	0	0	0	0.0103	0.0022	8	8	100	0	0	0	0	0.0392	0.0085
Zinc	27	mg/kg	ww	10	10	100	0	0	0	0	16.1	0.6	8	8	100	0	0	0	0	20.1	0.74

Table 4-6. Results of Fish Tissue Screen

				Burbot									Kokanee							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	2	100	0	0	0	0	30.1	0.00073
Pentachlorophenol	3100	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	2	100	0	0	0	0	1.44	0.29
Dieldrin	220	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	1	50	0	0	0	0	1.18	0.02
Heptachlor epoxide	55	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	2	100	0	0	0	0	0.823	0.0017
Hexachlorobutadiene	26	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND	2	2	100	0	0	0	0	2.62	0.0048
Total DDx	240	µg/kg	ww	2	1	50	0	0	0	0	11.5	0.048	2	2	100	0	0	0	0	6.33	0.026
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	5	5	100	0	0	0	0	81.2	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	6	6	100	0	0	0	0	26900	0.037	8	8	100	0	0	0	0	11500	0.016
PCB TEQ, fish	0.000321	mg/kg	lipid	6	6	100	0	0	0	0	0.0000118	0.037	8	8	100	0	0	0	0	0.000000365	0.0011
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	10	10	100	0	0	0	0	0.0000412	0.13	8	7	88	0	0	0	0	0.0000123	0.038
Total TEQ, fish	0.000321	mg/kg	lipid	6	6	100	0	0	0	0	0.0000513	0.16	8	8	100	0	0	0	0	0.0000127	0.04
Lacustrine CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	31	31	100	0	0	0	0	19.76	0.6	22	22	100	0	0	0	0	24.1	0.73
Antimony	0.03	mg/kg	ww	31	3	10	14	45	0	0	0.00443	0.15	22	18	82	0	0	1	5	0.036	1.2
Arsenic	1.7	mg/kg	ww	31	31	100	0	0	0	0	1.37	0.81	22	15	68	0	0	0	0	0.12	0.071
Cadmium	0.09	mg/kg	ww	31	31	100	0	0	0	0	0.08772	0.97	22	22	100	0	0	0	0	0.0409	0.45
Chromium	2.7	mg/kg	ww	31	31	100	0	0	0	0	1.485	0.55	22	20	91	0	0	0	0	0.507	0.19
Copper	3.1	mg/kg	ww	31	31	100	0	0	0	0	1.68	0.54	22	22	100	0	0	0	0	2.09	0.67
Lead	2.2	mg/kg	ww	31	31	100	0	0	0	0	0.157	0.071	22	22	100	0	0	0	0	0.0495	0.023
Mercury	460	µg/kg	ww	31	31	100	0	0	0	0	242	0.53	22	22	100	0	0	0	0	71.3	0.16
Nickel	18.4	mg/kg	ww	31	31	100	0	0	0	0	0.416	0.023	22	22	100	0	0	0	0	0.16	0.0087
Selenium	1.7	mg/kg	ww	31	31	100	0	0	0	0	0.6286	0.37	22	22	100	0	0	0	0	0.485	0.29
Silver	0.27	mg/kg	ww	31	11	35	0	0	0	0	0.00577	0.021	22	11	50	0	0	0	0	0.00534	0.02
Thallium	4.6	mg/kg	ww	31	11	35	0	0	0	0	0.0137	0.003	22	22	100	0	0	0	0	0.0382	0.0083
Zinc	27	mg/kg	ww	31	31	100	0	0	0	0	14.6	0.54	22	22	100	0	0	0	0	23.4	0.87
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	6	3	50	0	0	0	0	82.5	0.00015	6	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	6	6	100	0	0	0	0	25.5	0.00062	6	6	100	0	0	0	0	48.8	0.0012
Pentachlorophenol	3100	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	6	2	33	0	0	0	0	2.05	0.0025	6	1	17	0	0	0	0	3.73	0.0046
delta-BHC	4.9	µg/kg	ww	6	1	17	0	0	0	0	0.225	0.046	6	1	17	0	0	0	0	1.71	0.35
Dieldrin	220	µg/kg	ww	6	3	50	0	0	0	0	0.299	0.0014	6	2	33	0	0	0	0	0.595	0.0027
Endrin	25	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	6	2	33	0	0	0	0	0.889	0.015	6	2	33	0	0	0	0	4.98	0.083
Heptachlor epoxide	55	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	1	17	0	0	0	0	1.21	0.022
Hexachlorobenzene	490	µg/kg	ww	6	1	17	0	0	0	0	2.56	0.0052	6	6	100	0	0	0	0	3.41	0.007

Table 4-6. Results of Fish Tissue Screen

				Burbot									Kokanee								
							Benchmark Comparison									Benchmark Comparison					
				Summary Statistics			Nondetected Values		Detected Values				Summary Statistics			Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Pesticides (continued)																					
Hexachlorobutadiene	26	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	6	0	0	0	0	ND	ND	ND	ND	6	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	6	6	100	0	0	0	0	2.23	0.0041	6	2	33	0	0	0	0	5.21	0.0095
Total DDx	240	µg/kg	ww	6	6	100	0	0	0	0	13.9	0.058	6	6	100	0	0	0	0	10.3	0.043
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	14	14	100	0	0	0	0	102	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	20	20	100	0	0	0	0	25100	0.035	22	22	100	0	0	0	0	12100	0.017
PCB TEQ, fish	0.000321	mg/kg	lipid	20	20	100	0	0	0	0	0.0000072	0.022	22	22	100	0	0	0	0	0.000000475	0.0015
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	31	31	100	0	0	0	0	0.0000877	0.27	22	22	100	0	0	0	0	0.0000184	0.057
Total TEQ, fish	0.000321	mg/kg	lipid	20	20	100	0	0	0	0	0.0000937	0.29	22	22	100	0	0	0	0	0.0000189	0.059

Table 4-6. Results of Fish Tissue Screen

				Lake Whitefish									Largescale Sucker							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Upper Reach OU																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	5	1	20	0	0	0	0	4.788	0.15	28	28	100	0	0	14	50	400.6	12
Antimony	0.03	mg/kg	ww	5	0	0	5	100	ND	ND	ND	ND	28	21	75	7	25	15	54	1.4	47
Arsenic	1.7	mg/kg	ww	5	5	100	0	0	0	0	0.2668	0.16	28	25	89	0	0	0	0	0.4377	0.26
Cadmium	0.09	mg/kg	ww	5	2	40	0	0	0	0	0.02428	0.27	28	28	100	0	0	24	86	0.638	7.1
Chromium	2.7	mg/kg	ww	5	5	100	0	0	0	0	0.7182	0.27	28	28	100	0	0	8	29	8.218	3
Copper	3.1	mg/kg	ww	5	5	100	0	0	0	0	0.8208	0.26	28	28	100	0	0	8	29	48.49	16
Lead	2.2	mg/kg	ww	5	5	100	0	0	0	0	0.08136	0.037	28	28	100	0	0	21	75	14.37	6.5
Mercury	460	µg/kg	ww	5	5	100	0	0	0	0	68.8	0.15	18	18	100	0	0	0	0	222	0.48
Nickel	18.4	mg/kg	ww	5	5	100	0	0	0	0	0.1782	0.0097	28	28	100	0	0	0	0	5.203	0.28
Selenium	1.7	mg/kg	ww	5	5	100	0	0	0	0	0.855	0.5	28	28	100	0	0	0	0	0.775	0.46
Silver	0.27	mg/kg	ww	5	0	0	0	0	ND	ND	ND	ND	28	10	36	0	0	0	0	0.1663	0.62
Thallium	4.6	mg/kg	ww	5	0	0	0	0	ND	ND	ND	ND	28	9	32	0	0	0	0	0.0246	0.0053
Zinc	27	mg/kg	ww	5	5	100	0	0	0	0	13.82	0.51	28	28	100	0	0	19	68	359.3	13
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	0.24	0.0011
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	0.997	0.018
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	5	83	0	0	0	0	3.38	0.0069
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	0.68	0.026
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	4	67	0	0	0	0	7.7	0.014
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	100	0	0	0	0	97.9	0.41
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	5	5	100	0	0	0	0	74.5	0.1	7	7	100	0	0	0	0	615	0.85
Total PCB congeners	720000	pg/g	ww	1	1	100	0	0	0	0	26100	0.036	13	13	100	0	0	0	0	382000	0.53
PCB TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.000000918	0.0029	13	13	100	0	0	0	0	0.00000596	0.019
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	5	5	100	0	0	0	0	0.0000757	0.24	18	18	100	0	0	0	0	0.0000403	0.13
Total TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.0000109	0.034	13	13	100	0	0	0	0	0.0000341	0.11
Transitional CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	11	8	73	0	0	1	9	39.4	1.2	16	16	100	0	0	4	25	51.02	1.5
Antimony	0.03	mg/kg	ww	11	6	55	5	45	0	0	0.0262	0.87	16	8	50	8	50	1	6	0.1123	3.7
Arsenic	1.7	mg/kg	ww	11	11	100	0	0	0	0	0.283	0.17	16	16	100	0	0	0	0	0.243	0.14
Cadmium	0.09	mg/kg	ww	11	11	100	0	0	0	0	0.0253	0.28	16	16	100	0	0	9	56	0.391	4.3
Chromium	2.7	mg/kg	ww	11	9	82	0	0	0	0	0.9398	0.35	16	15	94	0	0	1	6	3.021	1.1
Copper	3.1	mg/kg	ww	11	11	100	0	0	0	0	1.11	0.36	16	14	88	0	0	0	0	1.183	0.38
Lead	2.2	mg/kg	ww	11	11	100	0	0	0	0	0.178	0.081	16	16	100	0	0	4	25	4.202	1.9
Mercury	460	µg/kg	ww	11	11	100	0	0	0	0	83	0.18	11	11	100	0	0	0	0	293	0.64
Nickel	18.4	mg/kg	ww	11	11	100	0	0	0	0	0.3018	0.016	16	14	88	0	0	0	0	2.043	0.11
Selenium	1.7	mg/kg	ww	11	11	100	0	0	0	0	0.8747	0.51	16	14	88	0	0	0	0	0.7787	0.46
Silver	0.27	mg/kg	ww	11	1	9	0	0	0	0	0.0035	0.013	16	3	19	0	0	0	0	0.0032	0.012
Thallium	4.6	mg/kg	ww	11	6	55	0	0	0	0	0.0263	0.0057	16	6	38	0	0	0	0	0.0289	0.0063
Zinc	27	mg/kg	ww	11	11	100	0	0	0	0	15	0.56	16	16	100	0	0	0	0	24.18	0.9

Table 4-6. Results of Fish Tissue Screen

				Lake Whitefish										Largescale Sucker									
							Benchmark Comparison										Benchmark Comparison						
				Summary Statistics			Nondetected Values		Detected Values					Summary Statistics			Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	2	50	0	0	0	0	191	0.0052	
Di-n-butyl phthalate	551000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Di-n-octylphthalate	41000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Pentachlorophenol	3100	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Pesticides																							
Aldrin	810	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
delta-BHC	4.9	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Dieldrin	220	µg/kg	ww	2	2	100	0	0	0	0	0.368	0.0017		4	2	50	0	0	0	0	0.84	0.0038	
Endrin	25	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Heptachlor	60	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Heptachlor epoxide	55	µg/kg	ww	2	1	50	0	0	0	0	0.904	0.016		4	1	25	0	0	0	0	0.338	0.0061	
Hexachlorobenzene	490	µg/kg	ww	2	2	100	0	0	0	0	1.95	0.004		4	2	50	0	0	0	0	2.55	0.0052	
Hexachlorobutadiene	26	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Methoxychlor	200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		4	0	0	0	0	ND	ND	ND	ND	
Total chlordane	550	µg/kg	ww	2	2	100	0	0	0	0	5.27	0.0096		4	2	50	0	0	0	0	2.63	0.0048	
Total DDx	240	µg/kg	ww	2	2	100	0	0	0	0	11.5	0.048		4	3	75	0	0	0	0	13.6	0.057	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	5	5	100	0	0	0	0	77.3	0.11		4	4	100	0	0	0	0	109	0.15	
Total PCB congeners	720000	pg/g	ww	7	7	100	0	0	0	0	25100	0.035		8	8	100	0	0	0	0	109000	0.15	
PCB TEQ, fish	0.000321	mg/kg	lipid	7	7	100	0	0	0	0	0.00000119	0.0037		8	8	100	0	0	0	0	0.00000108	0.0034	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	11	11	100	0	0	0	0	0.000019	0.059		11	10	91	0	0	0	0	0.000044	0.14	
Total TEQ, fish	0.000321	mg/kg	lipid	7	7	100	0	0	0	0	0.0000133	0.041		8	8	100	0	0	0	0	0.0000267	0.083	
Lacustrine CSM Unit																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	22	18	82	0	0	1	5	55.9	1.7		39	28	72	0	0	12	31	107	3.2	
Antimony	0.03	mg/kg	ww	22	9	41	12	55	0	0	0.00996	0.33		39	13	33	18	46	1	3	0.13	4.3	
Arsenic	1.7	mg/kg	ww	22	22	100	0	0	0	0	0.3116	0.18		39	39	100	0	0	0	0	0.266	0.16	
Cadmium	0.09	mg/kg	ww	22	18	82	0	0	0	0	0.03208	0.36		39	39	100	0	0	36	92	0.4053	4.5	
Chromium	2.7	mg/kg	ww	22	20	91	0	0	0	0	0.9169	0.34		39	37	95	0	0	1	3	2.99	1.1	
Copper	3.1	mg/kg	ww	22	22	100	0	0	0	0	1.28	0.41		39	38	97	0	0	0	0	1.2	0.39	
Lead	2.2	mg/kg	ww	22	22	100	0	0	0	0	0.1134	0.052		39	39	100	0	0	2	5	4.01	1.8	
Mercury	460	µg/kg	ww	22	22	100	0	0	0	0	109	0.24		34	34	100	0	0	0	0	376	0.82	
Nickel	18.4	mg/kg	ww	22	22	100	0	0	0	0	0.2662	0.014		39	38	97	0	0	0	0	1.4	0.076	
Selenium	1.7	mg/kg	ww	22	22	100	0	0	0	0	0.8689	0.51		39	38	97	0	0	0	0	0.6281	0.37	
Silver	0.27	mg/kg	ww	22	6	27	0	0	0	0	0.0065	0.024		39	2	5	0	0	0	0	0.003	0.011	
Thallium	4.6	mg/kg	ww	22	10	45	0	0	0	0	0.0366	0.008		39	18	46	0	0	0	0	0.021	0.0046	
Zinc	27	mg/kg	ww	22	22	100	0	0	0	0	17.8	0.66		39	39	100	0	0	2	5	34.9	1.3	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	0	0	0	0	ND	ND	ND	ND	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	4	2	50	0	0	0	0	210	0.0057		8	2	25	0	0	0	0	484	0.013	
Di-n-butyl phthalate	551000	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	0	0	0	0	ND	ND	ND	ND	
Di-n-octylphthalate	41000	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	1	12	0	0	0	0	63.3	0.0015	
Pentachlorophenol	3100	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	0	0	0	0	ND	ND	ND	ND	
Pesticides																							
Aldrin	810	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	0	0	0	0	ND	ND	ND	ND	
delta-BHC	4.9	µg/kg	ww	4	1	25	0	0	0	0	0.664	0.14		8	2	25	0	0	0	0	0.867	0.18	
Dieldrin	220	µg/kg	ww	4	3	75	0	0	0	0	1.23	0.0056		8	1	12	0	0	0	0	0.395	0.0018	
Endrin	25	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	0	0	0	0	ND	ND	ND	ND	
Heptachlor	60	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		8	5	62	0	0	0	0	2.35	0.039	
Heptachlor epoxide	55	µg/kg	ww	4	1	25	0	0	0	0	0.357	0.0065		8	3	38	0	0	0	0	1.06	0.019	
Hexachlorobenzene	490	µg/kg	ww	4	4	100	0	0	0	0	2.71	0.0055		8	8	100	0	0	0	0	12.2	0.025	

Table 4-6. Results of Fish Tissue Screen

				Lake Whitefish										Largescale Sucker									
							Benchmark Comparison										Benchmark Comparison						
				Summary Statistics			Nondetected Values		Detected Values					Summary Statistics			Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Pesticides (continued)																					
Hexachlorobutadiene	26	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	8	1	12	0	0	0	0	1.33	0.051
Methoxychlor	200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	8	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	4	4	100	0	0	0	0	4.03	0.0073	8	7	88	0	0	0	0	5.65	0.01
Total DDx	240	µg/kg	ww	4	4	100	0	0	0	0	21.3	0.089	8	8	100	0	0	0	0	59.3	0.25
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	12	12	100	0	0	0	0	91.5	0.13	14	14	100	0	0	0	0	248	0.34
Total PCB congeners	720000	pg/g	ww	13	13	100	0	0	0	0	47400	0.066	23	23	100	0	0	0	0	172000	0.24
PCB TEQ, fish	0.000321	mg/kg	lipid	13	13	100	0	0	0	0	0.00000137	0.0043	22	22	100	0	0	0	0	0.00000989	0.031
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	22	22	100	0	0	0	0	0.0000161	0.05	33	32	97	0	0	0	0	0.0000217	0.068
Total TEQ, fish	0.000321	mg/kg	lipid	13	13	100	0	0	0	0	0.0000127	0.04	22	22	100	0	0	0	0	0.000021	0.065

Table 4-6. Results of Fish Tissue Screen

				Longnose Sucker										Mountain Whitefish									
				Summary Statistics			Benchmark Comparison							Summary Statistics			Benchmark Comparison						
							Nondetected Values		Detected Values								Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
Upper Reach OU																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	10	10	100	0	0	2	20	139	4.2		13	13	100	0	0	1	8	50.8	1.5	
Antimony	0.03	mg/kg	ww	10	4	40	0	0	1	10	0.048	1.6		13	6	46	5	38	1	8	0.0887	3	
Arsenic	1.7	mg/kg	ww	10	9	90	0	0	0	0	0.23	0.14		13	13	100	0	0	0	0	0.194	0.11	
Cadmium	0.09	mg/kg	ww	10	10	100	0	0	1	10	0.112	1.2		13	13	100	0	0	7	54	0.304	3.4	
Chromium	2.7	mg/kg	ww	10	10	100	0	0	0	0	2.55	0.94		13	12	92	0	0	0	0	1.156	0.43	
Copper	3.1	mg/kg	ww	10	10	100	0	0	0	0	2.1	0.68		13	13	100	0	0	1	8	3.33	1.1	
Lead	2.2	mg/kg	ww	10	10	100	0	0	1	10	2.4	1.1		13	13	100	0	0	0	0	0.521	0.24	
Mercury	460	µg/kg	ww	10	10	100	0	0	0	0	137	0.3		13	13	100	0	0	0	0	105	0.23	
Nickel	18.4	mg/kg	ww	10	10	100	0	0	0	0	1.64	0.089		13	13	100	0	0	0	0	0.289	0.016	
Selenium	1.7	mg/kg	ww	10	9	90	0	0	0	0	0.76	0.45		13	13	100	0	0	0	0	1.22	0.72	
Silver	0.27	mg/kg	ww	10	9	90	0	0	0	0	0.017	0.063		13	6	46	0	0	0	0	0.00547	0.02	
Thallium	4.6	mg/kg	ww	10	10	100	0	0	0	0	0.0388	0.0084		13	8	62	0	0	0	0	0.0442	0.0096	
Zinc	27	mg/kg	ww	10	10	100	0	0	3	30	46.3	1.7		13	13	100	0	0	5	38	45.8	1.7	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Di-n-butyl phthalate	551000	µg/kg	ww	3	2	67	0	0	0	0	85.6	0.00016		3	0	0	0	0	ND	ND	ND	ND	
Di-n-octylphthalate	41000	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Pentachlorophenol	3100	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Pesticides																							
Aldrin	810	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
delta-BHC	4.9	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Dieldrin	220	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	1	33	0	0	0	0	0.401	0.0018	
Endrin	25	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Heptachlor	60	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	1	33	0	0	0	0	0.937	0.016	
Heptachlor epoxide	55	µg/kg	ww	3	2	67	0	0	0	0	0.716	0.013		3	1	33	0	0	0	0	0.45	0.0082	
Hexachlorobenzene	490	µg/kg	ww	3	2	67	0	0	0	0	1.31	0.0027		3	3	100	0	0	0	0	7.78	0.016	
Hexachlorobutadiene	26	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Methoxychlor	200	µg/kg	ww	3	0	0	0	0	ND	ND	ND	ND		3	0	0	0	0	ND	ND	ND	ND	
Total chlordane	550	µg/kg	ww	3	1	33	0	0	0	0	1.43	0.0026		3	3	100	0	0	0	0	4.48	0.0081	
Total DDx	240	µg/kg	ww	3	3	100	0	0	0	0	9.95	0.041		3	3	100	0	0	0	0	21.8	0.091	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA		5	5	100	0	0	0	0	120	0.17	
Total PCB congeners	720000	pg/g	ww	10	10	100	0	0	0	0	26700	0.037		9	9	100	0	0	0	0	97400	0.14	
PCB TEQ, fish	0.000321	mg/kg	lipid	10	10	100	0	0	0	0	0.00000246	0.0077		8	8	100	0	0	0	0	0.00000456	0.014	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	10	9	90	0	0	0	0	0.000043	0.13		12	12	100	0	0	0	0	0.0000121	0.038	
Total TEQ, fish	0.000321	mg/kg	lipid	10	10	100	0	0	0	0	0.0000818	0.25		8	8	100	0	0	0	0	0.000016	0.05	
Transitional CSM Unit																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	2	2	100	0	0	1	50	47.8	1.4		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Antimony	0.03	mg/kg	ww	2	2	100	0	0	1	50	0.0379	1.3		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Arsenic	1.7	mg/kg	ww	2	2	100	0	0	0	0	0.21	0.12		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cadmium	0.09	mg/kg	ww	2	2	100	0	0	1	50	0.135	1.5		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chromium	2.7	mg/kg	ww	2	2	100	0	0	0	0	0.373	0.14		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Copper	3.1	mg/kg	ww	2	2	100	0	0	0	0	1.02	0.33		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Lead	2.2	mg/kg	ww	2	2	100	0	0	0	0	0.101	0.046		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Mercury	460	µg/kg	ww	2	2	100	0	0	0	0	31.9	0.069		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nickel	18.4	mg/kg	ww	2	2	100	0	0	0	0	0.28	0.015		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Selenium	1.7	mg/kg	ww	2	1	50	0	0	0	0	0.384	0.23		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Silver	0.27	mg/kg	ww	2	2	100	0	0	0	0	0.0049	0.018		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Thallium	4.6	mg/kg	ww	2	2	100	0	0	0	0	0.031	0.0067		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Zinc	27	mg/kg	ww	2	2	100	0	0	0	0	26.2	0.97		NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 4-6. Results of Fish Tissue Screen

				Longnose Sucker									Mountain Whitefish								
							Benchmark Comparison									Benchmark Comparison					
				Summary Statistics			Nondetected Values		Detected Values				Summary Statistics			Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	2	2	100	0	0	0	0	5630	0.0078	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.00000101	0.0031	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.0000133	0.041	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.0000142	0.044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lacustrine CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	7	7	100	0	0	2	29	56.4	1.7	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.03	mg/kg	ww	7	4	57	0	0	1	14	0.0329	1.1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.7	mg/kg	ww	7	7	100	0	0	0	0	0.3	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.09	mg/kg	ww	7	7	100	0	0	1	14	0.292	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	2.7	mg/kg	ww	7	7	100	0	0	0	0	0.672	0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	3.1	mg/kg	ww	7	7	100	0	0	0	0	1.71	0.55	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	2.2	mg/kg	ww	7	7	100	0	0	0	0	0.145	0.066	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	460	µg/kg	ww	7	7	100	0	0	0	0	149	0.32	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	18.4	mg/kg	ww	7	7	100	0	0	0	0	0.43	0.023	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	1.7	mg/kg	ww	7	7	100	0	0	0	0	0.432	0.25	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	0.27	mg/kg	ww	7	4	57	0	0	0	0	0.009	0.033	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	4.6	mg/kg	ww	7	7	100	0	0	0	0	0.0584	0.013	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	27	mg/kg	ww	7	7	100	0	0	1	14	39.3	1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	551000	µg/kg	ww	4	2	50	0	0	0	0	114	0.00021	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-octylphthalate	41000	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3100	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																					
Aldrin	810	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	4.9	µg/kg	ww	4	1	25	0	0	0	0	0.367	0.075	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	220	µg/kg	ww	4	2	50	0	0	0	0	0.77	0.0035	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	25	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	60	µg/kg	ww	4	2	50	0	0	0	0	0.488	0.0081	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	55	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	490	µg/kg	ww	4	3	75	0	0	0	0	1.8	0.0037	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-6. Results of Fish Tissue Screen

				Longnose Sucker										Mountain Whitefish									
							Benchmark Comparison										Benchmark Comparison						
				Summary Statistics			Nondetected Values		Detected Values					Summary Statistics			Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Pesticides (continued)																					
Hexachlorobutadiene	26	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total chlordane	550	µg/kg	ww	4	3	75	0	0	0	0	2.76	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total DDx	240	µg/kg	ww	4	4	100	0	0	0	0	13.8	0.058	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	7	7	100	0	0	0	0	34700	0.048	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB TEQ, fish	0.000321	mg/kg	lipid	7	7	100	0	0	0	0	0.0000014	0.0044	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	7	6	86	0	0	0	0	0.0000115	0.036	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total TEQ, fish	0.000321	mg/kg	lipid	7	7	100	0	0	0	0	0.0000183	0.057	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-6. Results of Fish Tissue Screen

				Pikeminnow									Rainbow Trout							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Upper Reach OU																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	3	3	100	0	0	0	0	15.3	0.46	26	21	81	0	0	0	0	17.7	0.54
Antimony	0.03	mg/kg	ww	3	3	100	0	0	2	67	0.21	7	26	16	62	10	38	2	8	0.0353	1.2
Arsenic	1.7	mg/kg	ww	3	2	67	0	0	0	0	0.068	0.04	26	26	100	0	0	0	0	0.159	0.094
Cadmium	0.09	mg/kg	ww	3	3	100	0	0	0	0	0.086	0.96	26	26	100	0	0	0	0	0.0868	0.96
Chromium	2.7	mg/kg	ww	3	3	100	0	0	0	0	0.649	0.24	26	26	100	0	0	0	0	0.984	0.36
Copper	3.1	mg/kg	ww	3	3	100	0	0	0	0	2.05	0.66	26	26	100	0	0	0	0	2.6	0.84
Lead	2.2	mg/kg	ww	3	3	100	0	0	0	0	0.183	0.083	26	26	100	0	0	0	0	0.601	0.27
Mercury	460	µg/kg	ww	3	3	100	0	0	0	0	124	0.27	26	26	100	0	0	0	0	85.6	0.19
Nickel	18.4	mg/kg	ww	3	3	100	0	0	0	0	0.465	0.025	26	26	100	0	0	0	0	0.408	0.022
Selenium	1.7	mg/kg	ww	3	3	100	0	0	0	0	0.874	0.51	26	26	100	0	0	0	0	0.816	0.48
Silver	0.27	mg/kg	ww	3	2	67	0	0	0	0	0.002	0.0074	26	12	46	0	0	0	0	0.0092	0.034
Thallium	4.6	mg/kg	ww	3	3	100	0	0	0	0	0.015	0.0033	26	16	62	0	0	0	0	0.0339	0.0074
Zinc	27	mg/kg	ww	3	3	100	0	0	3	100	30.5	1.1	26	26	100	0	0	2	8	30	1.1
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	1	14	0	0	0	0	2000	0.0036
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	2	29	0	0	0	0	0.834	0.0038
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	6	86	0	0	0	0	3.6	0.0073
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	3	43	0	0	0	0	4.25	0.0077
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	7	7	100	0	0	0	0	28.3	0.12
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	10	10	100	0	0	0	0	113	0.16
Total PCB congeners	720000	pg/g	ww	3	3	100	0	0	0	0	12800	0.018	18	18	100	0	0	0	0	77400	0.11
PCB TEQ, fish	0.000321	mg/kg	lipid	3	3	100	0	0	0	0	0.00000141	0.0044	18	18	100	0	0	0	0	0.00000435	0.014
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	3	3	100	0	0	0	0	0.0000123	0.038	26	26	100	0	0	0	0	0.0000191	0.06
Total TEQ, fish	0.000321	mg/kg	lipid	3	3	100	0	0	0	0	0.0000137	0.043	18	18	100	0	0	0	0	0.0000216	0.067
Transitional CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	2	2	100	0	0	0	0	14.1	0.43	13	13	100	0	0	2	15	33.1	1
Antimony	0.03	mg/kg	ww	2	2	100	0	0	0	0	0.016	0.53	13	8	62	5	38	0	0	0.00806	0.27
Arsenic	1.7	mg/kg	ww	2	1	50	0	0	0	0	0.072	0.042	13	13	100	0	0	0	0	0.157	0.092
Cadmium	0.09	mg/kg	ww	2	2	100	0	0	0	0	0.0292	0.32	13	13	100	0	0	0	0	0.0664	0.74
Chromium	2.7	mg/kg	ww	2	2	100	0	0	0	0	0.17	0.063	13	12	92	0	0	0	0	0.773	0.29
Copper	3.1	mg/kg	ww	2	2	100	0	0	0	0	0.875	0.28	13	13	100	0	0	0	0	2.57	0.83
Lead	2.2	mg/kg	ww	2	2	100	0	0	0	0	0.0431	0.02	13	13	100	0	0	0	0	0.208	0.095
Mercury	460	µg/kg	ww	2	2	100	0	0	0	0	118	0.26	13	13	100	0	0	0	0	101	0.22
Nickel	18.4	mg/kg	ww	2	2	100	0	0	0	0	0.2	0.011	13	13	100	0	0	0	0	0.379	0.021
Selenium	1.7	mg/kg	ww	2	2	100	0	0	0	0	0.69	0.41	13	13	100	0	0	0	0	0.71	0.42
Silver	0.27	mg/kg	ww	2	2	100	0	0	0	0	0.003	0.011	13	5	38	0	0	0	0	0.00992	0.037
Thallium	4.6	mg/kg	ww	2	2	100	0	0	0	0	0.014	0.003	13	8	62	0	0	0	0	0.0493	0.011
Zinc	27	mg/kg	ww	2	2	100	0	0	1	50	30	1.1	13	13	100	0	0	1	8	27.2	1

Table 4-6. Results of Fish Tissue Screen

				Pikeminnow									Rainbow Trout							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	50	0	0	0	0	3.72	0.0076
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	50	0	0	0	0	2.55	0.0046
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	2	100	0	0	0	0	9.16	0.038
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	5	100	0	0	0	0	56.2	0.078
Total PCB congeners	720000	pg/g	ww	2	2	100	0	0	0	0	8200	0.011	10	10	100	0	0	0	0	20800	0.029
PCB TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.000000538	0.0017	10	10	100	0	0	0	0	0.00000145	0.0045
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.0000038	0.012	13	12	92	0	0	0	0	0.0000477	0.15
Total TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.000004	0.012	10	10	100	0	0	0	0	0.0000282	0.088
Lacustrine CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	23.54	0.71
Antimony	0.03	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	14	40	16	46	0	0	0.0298	0.99
Arsenic	1.7	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	0.1753	0.1
Cadmium	0.09	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	0.0804	0.89
Chromium	2.7	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	34	97	0	0	0	0	0.6886	0.26
Copper	3.1	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	0.8954	0.29
Lead	2.2	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	28	80	0	0	0	0	0.102	0.046
Mercury	460	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	103	0.22
Nickel	18.4	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	0.242	0.013
Selenium	1.7	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	0	0	0.54	0.32
Silver	0.27	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	17	49	0	0	0	0	0.00566	0.021
Thallium	4.6	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	19	54	0	0	0	0	0.0408	0.0089
Zinc	27	mg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	35	100	0	0	1	3	28.1	1
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	164	0.0044
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	50.6	0.0012
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	2.63	0.54
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	1	17	0	0	0	0	0.525	0.0024
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	5	83	0	0	0	0	4.06	0.0083

Table 4-6. Results of Fish Tissue Screen

				Pikeminnow									Rainbow Trout							
							Benchmark Comparison									Benchmark Comparison				
				Summary Statistics			Nondetected Values		Detected Values				Summary Statistics			Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Pesticides (continued)																					
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	2	33	0	0	0	0	7.32	0.013
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	6	6	100	0	0	0	0	26.7	0.11
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	16	100	0	0	0	0	61.1	0.085
Total PCB congeners	720000	pg/g	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	23	23	100	0	0	0	0	21000	0.029
PCB TEQ, fish	0.000321	mg/kg	lipid	NA	NA	NA	NA	NA	NA	NA	NA	NA	23	23	100	0	0	0	0	0.00000152	0.0047
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	34	97	0	0	0	0	0.0000477	0.15
Total TEQ, fish	0.000321	mg/kg	lipid	NA	NA	NA	NA	NA	NA	NA	NA	NA	23	23	100	0	0	0	0	0.0000491	0.15

Table 4-6. Results of Fish Tissue Screen

				Sculpin									Smallmouth Bass							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
Upper Reach OU																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	2	2	100	0	0	0	0	30.2	0.92	3	3	100	0	0	0	0	28	0.85
Antimony	0.03	mg/kg	ww	2	2	100	0	0	1	50	0.0322	1.1	3	2	67	0	0	0	0	0.0295	0.98
Arsenic	1.7	mg/kg	ww	2	2	100	0	0	0	0	0.143	0.084	3	3	100	0	0	0	0	0.2	0.12
Cadmium	0.09	mg/kg	ww	2	2	100	0	0	1	50	0.127	1.4	3	3	100	0	0	1	33	0.123	1.4
Chromium	2.7	mg/kg	ww	2	2	100	0	0	0	0	1.33	0.49	3	3	100	0	0	0	0	0.364	0.13
Copper	3.1	mg/kg	ww	2	2	100	0	0	0	0	2.79	0.9	3	3	100	0	0	0	0	0.985	0.32
Lead	2.2	mg/kg	ww	2	2	100	0	0	0	0	0.616	0.28	3	3	100	0	0	0	0	0.68	0.31
Mercury	460	µg/kg	ww	2	2	100	0	0	0	0	52.9	0.12	3	3	100	0	0	0	0	135	0.29
Nickel	18.4	mg/kg	ww	2	2	100	0	0	0	0	0.512	0.028	3	3	100	0	0	0	0	0.485	0.026
Selenium	1.7	mg/kg	ww	2	2	100	0	0	0	0	0.554	0.33	3	3	100	0	0	0	0	0.965	0.57
Silver	0.27	mg/kg	ww	2	1	50	0	0	0	0	0.0242	0.09	3	1	33	0	0	0	0	0.0033	0.012
Thallium	4.6	mg/kg	ww	2	2	100	0	0	0	0	0.024	0.0052	3	3	100	0	0	0	0	0.0357	0.0078
Zinc	27	mg/kg	ww	2	2	100	0	0	1	50	29.1	1.1	3	3	100	0	0	1	33	29.8	1.1
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	50	0	0	0	0	82.6	0.00015
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	50	0	0	0	0	0.861	0.0018
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	2	100	0	0	0	0	10.6	0.019
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	2	1	50	0	0	0	0	31.7	0.13
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	2	2	100	0	0	0	0	15400	0.021	3	3	100	0	0	0	0	87200	0.12
PCB TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.000000992	0.0031	3	3	100	0	0	0	0	0.00000168	0.0052
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.00000371	0.012	3	3	100	0	0	0	0	0.00000449	0.014
Total TEQ, fish	0.000321	mg/kg	lipid	2	2	100	0	0	0	0	0.00000465	0.014	3	3	100	0	0	0	0	0.00000614	0.019
Transitional CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	1	1	100	0	0	1	100	35.1	1.1	11	11	100	0	0	0	0	13.2	0.4
Antimony	0.03	mg/kg	ww	1	1	100	0	0	0	0	0.0097	0.32	11	10	91	0	0	0	0	0.0208	0.69
Arsenic	1.7	mg/kg	ww	1	1	100	0	0	0	0	0.16	0.094	11	11	100	0	0	0	0	0.197	0.12
Cadmium	0.09	mg/kg	ww	1	1	100	0	0	0	0	0.082	0.91	11	11	100	0	0	0	0	0.0605	0.67
Chromium	2.7	mg/kg	ww	1	1	100	0	0	0	0	0.645	0.24	11	11	100	0	0	0	0	0.674	0.25
Copper	3.1	mg/kg	ww	1	1	100	0	0	0	0	2.06	0.66	11	11	100	0	0	0	0	1.48	0.48
Lead	2.2	mg/kg	ww	1	1	100	0	0	0	0	0.145	0.066	11	11	100	0	0	0	0	0.0396	0.018
Mercury	460	µg/kg	ww	1	1	100	0	0	0	0	56.9	0.12	11	11	100	0	0	0	0	258	0.56
Nickel	18.4	mg/kg	ww	1	1	100	0	0	0	0	0.389	0.021	11	11	100	0	0	0	0	0.21	0.011
Selenium	1.7	mg/kg	ww	1	1	100	0	0	0	0	0.409	0.24	11	11	100	0	0	0	0	0.725	0.43
Silver	0.27	mg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	11	2	18	0	0	0	0	0.00131	0.0049
Thallium	4.6	mg/kg	ww	1	1	100	0	0	0	0	0.0323	0.007	11	11	100	0	0	0	0	0.0418	0.0091
Zinc	27	mg/kg	ww	1	1	100	0	0	0	0	18.2	0.67	11	11	100	0	0	0	0	19.7	0.73

Table 4-6. Results of Fish Tissue Screen

				Sculpin									Smallmouth Bass							
				Summary Statistics			Benchmark Comparison						Summary Statistics			Benchmark Comparison				
							Nondetected Values		Detected Values							Nondetected Values		Detected Values			
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	3	60	0	0	0	0	113	0.00021
Di-n-octylphthalate	41000	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	1	20	0	0	0	0	29.1	0.00071
Pentachlorophenol	3100	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
delta-BHC	4.9	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	2	40	0	0	0	0	2.02	0.034
Heptachlor epoxide	55	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	1	20	0	0	0	0	0.26	0.0047
Hexachlorobenzene	490	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	3	60	0	0	0	0	13.2	0.027
Hexachlorobutadiene	26	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Methoxychlor	200	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	0	0	0	0	ND	ND	ND	ND
Total chlordane	550	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	1	20	0	0	0	0	1.64	0.003
Total DDx	240	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	4	80	0	0	0	0	22	0.092
PCBs																					
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total PCB congeners	720000	pg/g	ww	1	1	100	0	0	0	0	8950	0.012	11	11	100	0	0	0	0	26100	0.036
PCB TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.000000677	0.0021	11	11	100	0	0	0	0	0.00000107	0.0033
Dioxins/Furans																					
Dioxin TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.00000269	0.0084	11	11	100	0	0	0	0	0.00000383	0.012
Total TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.00000338	0.011	11	11	100	0	0	0	0	0.0000049	0.015
Lacustrine CSM Unit																					
Metals/Metalloids																					
Aluminum	33	mg/kg	ww	3	3	100	0	0	1	33	37	1.1	20	20	100	0	0	0	0	20.5	0.62
Antimony	0.03	mg/kg	ww	3	3	100	0	0	1	33	0.102	3.4	20	9	45	0	0	1	5	0.0354	1.2
Arsenic	1.7	mg/kg	ww	3	3	100	0	0	0	0	0.18	0.11	20	20	100	0	0	0	0	0.285	0.17
Cadmium	0.09	mg/kg	ww	3	3	100	0	0	1	33	0.0975	1.1	20	20	100	0	0	0	0	0.0657	0.73
Chromium	2.7	mg/kg	ww	3	3	100	0	0	1	33	5.76	2.1	20	20	100	0	0	0	0	2.56	0.95
Copper	3.1	mg/kg	ww	3	3	100	0	0	0	0	2.76	0.89	20	20	100	0	0	1	5	3.27	1.1
Lead	2.2	mg/kg	ww	3	3	100	0	0	0	0	0.066	0.03	20	15	75	0	0	0	0	0.075	0.034
Mercury	460	µg/kg	ww	3	3	100	0	0	0	0	49.3	0.11	20	20	100	0	0	0	0	170	0.37
Nickel	18.4	mg/kg	ww	3	2	67	0	0	0	0	3.12	0.17	20	20	100	0	0	0	0	1.99	0.11
Selenium	1.7	mg/kg	ww	3	3	100	0	0	0	0	0.432	0.25	20	18	90	0	0	0	0	0.516	0.3
Silver	0.27	mg/kg	ww	3	0	0	0	0	ND	ND	ND	ND	20	4	20	0	0	0	0	0.00624	0.023
Thallium	4.6	mg/kg	ww	3	3	100	0	0	0	0	0.0382	0.0083	20	15	75	0	0	0	0	0.0401	0.0087
Zinc	27	mg/kg	ww	3	3	100	0	0	0	0	21.1	0.78	20	20	100	0	0	0	0	20.4	0.76
SVOCs																					
Benzyl n-butyl phthalate	1200	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
Di-n-butyl phthalate	551000	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	1	8	0	0	0	0	2180	0.004
Di-n-octylphthalate	41000	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
Pentachlorophenol	3100	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
Pesticides																					
Aldrin	810	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	4	33	0	0	0	0	9.31	0.011
delta-BHC	4.9	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
Dieldrin	220	µg/kg	ww	1	1	100	0	0	0	0	0.28	0.0013	12	0	0	0	0	ND	ND	ND	ND
Endrin	25	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	0	0	0	0	ND	ND	ND	ND
Heptachlor	60	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND	12	1	8	0	0	0	0	0.79	0.013
Heptachlor epoxide	55	µg/kg	ww	1	1	100	0	0	0	0	0.29	0.0053	12	3	25	0	0	0	0	0.537	0.0098
Hexachlorobenzene	490	µg/kg	ww	1	1	100	0	0	0	0	1.7	0.0035	12	4	33	0	0	0	0	5.48	0.011

Table 4-6. Results of Fish Tissue Screen

				Sculpin										Smallmouth Bass									
				Summary Statistics			Benchmark Comparison							Summary Statistics			Benchmark Comparison						
							Nondetected Values		Detected Values								Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
Pesticides (continued)																							
Hexachlorobutadiene	26	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND		12	0	0	0	0	ND	ND	ND	ND	
Methoxychlor	200	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND		12	0	0	0	0	ND	ND	ND	ND	
Total chlordane	550	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND		12	5	42	0	0	0	0	3	0.0055	
Total DDx	240	µg/kg	ww	1	0	0	0	0	ND	ND	ND	ND		12	10	83	0	0	0	0	19.1	0.08	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total PCB congeners	720000	pg/g	ww	1	1	100	0	0	0	0	9070	0.013		20	20	100	0	0	0	0	27400	0.038	
PCB TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.000000676	0.0021		20	20	100	0	0	0	0	0.000000813	0.0025	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.00000397	0.012		20	19	95	0	0	0	0	0.0000197	0.061	
Total TEQ, fish	0.000321	mg/kg	lipid	1	1	100	0	0	0	0	0.00000465	0.014		20	20	100	0	0	0	0	0.0000206	0.064	

Table 4-6. Results of Fish Tissue Screen

				Walleye										Yellow Perch									
				Summary Statistics			Benchmark Comparison							Summary Statistics			Benchmark Comparison						
							Nondetected Values		Detected Values								Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
Upper Reach OU																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	20	13	65	0	0	1	5	125	3.8		1	1	100	0	0	0	0	4.8	0.15	
Antimony	0.03	mg/kg	ww	20	6	30	10	50	0	0	0.0137	0.46		1	0	0	0	0	ND	ND	ND	ND	
Arsenic	1.7	mg/kg	ww	20	20	100	0	0	0	0	0.151	0.089		1	1	100	0	0	0	0	0.032	0.019	
Cadmium	0.09	mg/kg	ww	20	20	100	0	0	0	0	0.0384	0.43		1	1	100	0	0	0	0	0.034	0.38	
Chromium	2.7	mg/kg	ww	20	20	100	0	0	0	0	0.9687	0.36		1	1	100	0	0	0	0	0.261	0.097	
Copper	3.1	mg/kg	ww	20	20	100	0	0	0	0	0.417	0.13		1	1	100	0	0	0	0	2.63	0.85	
Lead	2.2	mg/kg	ww	20	20	100	0	0	0	0	0.124	0.056		1	1	100	0	0	0	0	0.0728	0.033	
Mercury	460	µg/kg	ww	20	20	100	0	0	0	0	213	0.46		1	1	100	0	0	0	0	14	0.03	
Nickel	18.4	mg/kg	ww	20	20	100	0	0	0	0	0.473	0.026		1	1	100	0	0	0	0	0.288	0.016	
Selenium	1.7	mg/kg	ww	20	20	100	0	0	0	0	0.613	0.36		1	1	100	0	0	0	0	0.32	0.19	
Silver	0.27	mg/kg	ww	20	1	5	0	0	0	0	0.0055	0.02		1	0	0	0	0	ND	ND	ND	ND	
Thallium	4.6	mg/kg	ww	20	8	40	0	0	0	0	0.0421	0.0092		1	1	100	0	0	0	0	0.0519	0.011	
Zinc	27	mg/kg	ww	20	20	100	0	0	0	0	14.2	0.53		1	1	100	0	0	0	0	17	0.63	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	4	1	25	0	0	0	0	155	0.0042		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-butyl phthalate	551000	µg/kg	ww	4	4	100	0	0	0	0	207	0.00038		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-octylphthalate	41000	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pentachlorophenol	3100	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pesticides																							
Aldrin	810	µg/kg	ww	4	3	75	0	0	0	0	2.55	0.0031		NA	NA	NA	NA	NA	NA	NA	NA	NA	
delta-BHC	4.9	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dieldrin	220	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Endrin	25	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor	60	µg/kg	ww	4	1	25	0	0	0	0	0.74	0.012		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor epoxide	55	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobenzene	490	µg/kg	ww	4	1	25	0	0	0	0	1.69	0.0034		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobutadiene	26	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methoxychlor	200	µg/kg	ww	4	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total chlordane	550	µg/kg	ww	4	4	100	0	0	0	0	4.38	0.008		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total DDx	240	µg/kg	ww	4	4	100	0	0	0	0	23.5	0.098		NA	NA	NA	NA	NA	NA	NA	NA	NA	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	10	10	100	0	0	0	0	104	0.14		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total PCB congeners	720000	pg/g	ww	12	12	100	0	0	0	0	247000	0.34		1	1	100	0	0	0	0	9730	0.014	
PCB TEQ, fish	0.000321	mg/kg	lipid	12	12	100	0	0	0	0	0.0000147	0.046		1	1	100	0	0	0	0	0.000000891	0.0028	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	20	20	100	0	0	0	0	0.0000306	0.095		1	0	0	0	0	ND	ND	ND	ND	
Total TEQ, fish	0.000321	mg/kg	lipid	12	12	100	0	0	0	0	0.0000282	0.088		1	1	100	0	0	0	0	0.0000629	0.2	
Transitional CSM Unit																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	13	11	85	0	0	0	0	4.25	0.13		1	1	100	0	0	0	0	7.99	0.24	
Antimony	0.03	mg/kg	ww	13	5	38	5	38	0	0	0.01	0.33		1	0	0	0	0	ND	ND	ND	ND	
Arsenic	1.7	mg/kg	ww	13	13	100	0	0	0	0	0.186	0.11		1	1	100	0	0	0	0	0.062	0.036	
Cadmium	0.09	mg/kg	ww	13	13	100	0	0	0	0	0.0332	0.37		1	1	100	0	0	0	0	0.0409	0.45	
Chromium	2.7	mg/kg	ww	13	13	100	0	0	0	0	0.8	0.3		1	1	100	0	0	0	0	0.41	0.15	
Copper	3.1	mg/kg	ww	13	13	100	0	0	0	0	1.21	0.39		1	1	100	0	0	0	0	0.589	0.19	
Lead	2.2	mg/kg	ww	13	13	100	0	0	0	0	0.105	0.048		1	1	100	0	0	0	0	0.0396	0.018	
Mercury	460	µg/kg	ww	13	13	100	0	0	0	0	201	0.44		1	1	100	0	0	0	0	35.5	0.077	
Nickel	18.4	mg/kg	ww	13	13	100	0	0	0	0	0.446	0.024		1	1	100	0	0	0	0	0.28	0.015	
Selenium	1.7	mg/kg	ww	13	13	100	0	0	0	0	0.696	0.41		1	1	100	0	0	0	0	0.27	0.16	
Silver	0.27	mg/kg	ww	13	2	15	0	0	0	0	0.000619	0.0023		1	0	0	0	0	ND	ND	ND	ND	
Thallium	4.6	mg/kg	ww	13	7	54	0	0	0	0	0.0458	0.01		1	1	100	0	0	0	0	0.0596	0.013	
Zinc	27	mg/kg	ww	13	13	100	0	0	0	0	14.8	0.55		1	1	100	0	0	0	0	19	0.7	

Table 4-6. Results of Fish Tissue Screen

				Walleye										Yellow Perch									
				Summary Statistics			Benchmark Comparison							Summary Statistics			Benchmark Comparison						
							Nondetected Values		Detected Values								Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-butyl phthalate	551000	µg/kg	ww	2	2	100	0	0	0	0	208	0.00038		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-octylphthalate	41000	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pentachlorophenol	3100	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pesticides																							
Aldrin	810	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
delta-BHC	4.9	µg/kg	ww	2	1	50	0	0	0	0	0.49	0.1		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dieldrin	220	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Endrin	25	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor	60	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor epoxide	55	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobenzene	490	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobutadiene	26	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methoxychlor	200	µg/kg	ww	2	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total chlordane	550	µg/kg	ww	2	2	100	0	0	0	0	1.93	0.0035		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total DDx	240	µg/kg	ww	2	2	100	0	0	0	0	7.96	0.033		NA	NA	NA	NA	NA	NA	NA	NA	NA	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	5	5	100	0	0	0	0	65.8	0.091		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total PCB congeners	720000	pg/g	ww	9	9	100	0	0	0	0	37600	0.052		1	1	100	0	0	0	0	4840	0.0067	
PCB TEQ, fish	0.000321	mg/kg	lipid	9	9	100	0	0	0	0	0.00000498	0.016		1	1	100	0	0	0	0	0.000000724	0.0023	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	13	12	92	0	0	0	0	0.000121	0.38		1	0	0	0	0	ND	ND	ND	ND	
Total TEQ, fish	0.000321	mg/kg	lipid	9	9	100	0	0	0	0	0.0000576	0.18		1	1	100	0	0	0	0	0.0000402	0.13	
Lacustrine CSM Unit																							
Metals/Metalloids																							
Aluminum	33	mg/kg	ww	40	36	90	0	0	0	0	25.91	0.79		3	3	100	0	0	0	0	12.8	0.39	
Antimony	0.03	mg/kg	ww	40	21	52	15	38	1	2	0.0352	1.2		3	2	67	0	0	0	0	0.015	0.5	
Arsenic	1.7	mg/kg	ww	40	40	100	0	0	0	0	0.312	0.18		3	3	100	0	0	0	0	0.11	0.065	
Cadmium	0.09	mg/kg	ww	40	40	100	0	0	1	2	0.147	1.6		3	3	100	0	0	0	0	0.0692	0.77	
Chromium	2.7	mg/kg	ww	40	39	98	0	0	0	0	0.842	0.31		3	3	100	0	0	0	0	0.266	0.099	
Copper	3.1	mg/kg	ww	40	40	100	0	0	0	0	1.34	0.43		3	3	100	0	0	0	0	0.813	0.26	
Lead	2.2	mg/kg	ww	40	38	95	0	0	0	0	0.2228	0.1		3	3	100	0	0	0	0	0.019	0.0086	
Mercury	460	µg/kg	ww	40	40	100	0	0	0	0	292	0.63		3	3	100	0	0	0	0	33.7	0.073	
Nickel	18.4	mg/kg	ww	40	40	100	0	0	0	0	0.475	0.026		3	3	100	0	0	0	0	0.269	0.015	
Selenium	1.7	mg/kg	ww	40	40	100	0	0	0	0	0.8003	0.47		3	3	100	0	0	0	0	0.37	0.22	
Silver	0.27	mg/kg	ww	40	5	12	0	0	0	0	0.002	0.0074		3	0	0	0	0	ND	ND	ND	ND	
Thallium	4.6	mg/kg	ww	40	30	75	0	0	0	0	0.0567	0.012		3	3	100	0	0	0	0	0.0606	0.013	
Zinc	27	mg/kg	ww	40	40	100	0	0	0	0	15.91	0.59		3	3	100	0	0	0	0	21.9	0.81	
SVOCs																							
Benzyl n-butyl phthalate	1200	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	36900	µg/kg	ww	9	1	11	0	0	0	0	1700	0.046		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-butyl phthalate	551000	µg/kg	ww	9	4	44	0	0	0	0	313	0.00057		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Di-n-octylphthalate	41000	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pentachlorophenol	3100	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Pesticides																							
Aldrin	810	µg/kg	ww	9	1	11	0	0	0	0	1.93	0.0024		NA	NA	NA	NA	NA	NA	NA	NA	NA	
delta-BHC	4.9	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dieldrin	220	µg/kg	ww	9	1	11	0	0	0	0	0.17	0.00077		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Endrin	25	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor	60	µg/kg	ww	9	3	33	0	0	0	0	1.08	0.018		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Heptachlor epoxide	55	µg/kg	ww	9	2	22	0	0	0	0	1.1	0.02		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hexachlorobenzene	490	µg/kg	ww	9	2	22	0	0	0	0	2.9	0.0059		NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 4-6. Results of Fish Tissue Screen

				Walleye										Yellow Perch									
							Benchmark Comparison										Benchmark Comparison						
				Summary Statistics			Nondetected Values		Detected Values					Summary Statistics			Nondetected Values		Detected Values				
COI	Benchmark	Units	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ		No. of Samples	No. of Detected Values	Frequency of Detection (%)	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. Detect	Max. HQ	
Pesticides (continued)																							
Hexachlorobutadiene	26	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Methoxychlor	200	µg/kg	ww	9	0	0	0	0	ND	ND	ND	ND		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total chlordane	550	µg/kg	ww	9	5	56	0	0	0	0	3.03	0.0055		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total DDx	240	µg/kg	ww	9	9	100	0	0	0	0	18.8	0.078		NA	NA	NA	NA	NA	NA	NA	NA	NA	
PCBs																							
Total PCB Aroclors	720	µg/kg	ww	15	15	100	0	0	0	0	111	0.15		NA	NA	NA	NA	NA	NA	NA	NA	NA	
Total PCB congeners	720000	pg/g	ww	28	28	100	0	0	0	0	49700	0.069		3	3	100	0	0	0	0	4920	0.0068	
PCB TEQ, fish	0.000321	mg/kg	lipid	28	28	100	0	0	0	0	0.0000353	0.11		3	3	100	0	0	0	0	0.00000104	0.0032	
Dioxins/Furans																							
Dioxin TEQ, fish	0.000321	mg/kg	lipid	40	40	100	0	0	0	0	0.000116	0.36		3	0	0	0	0	ND	ND	ND	ND	
Total TEQ, fish	0.000321	mg/kg	lipid	28	28	100	0	0	0	0	0.000151	0.47		3	3	100	0	0	0	0	0.0000877	0.27	

Notes:

Blue shading indicates chemicals of interest (COIs) based on exceedance of benchmark.

This table only includes results for COIs with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
DL - detection limit
HQ - hazard quotient
NA - not applicable
ND - no samples had detected concentrations
OU - operable unit
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-7a. Results of Bull Trout Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
	Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	15000	269	4.6	NOAEL	67	0.069	419	NOAEL	2232	0.19
Antimony	34.1	0.383	0.0080	na	NA	NA	0.72	na	NA	NA
Arsenic	13.2	0.715	0.0094	NOAEL	0.4	0.023	0.85	NOAEL	20	0.042
Barium	859	22.4	0.34	na	NA	NA	31	na	NA	NA
Beryllium	0.701	0.0112	0.00020	na	NA	NA	0.018	na	NA	NA
Cadmium	3.02	0.631	0.0073	NOAEL	0.002	3.7	0.66	NOAEL	0.1	6.6
Chromium	61.8	13.8	0.16	NOAEL	0.037	4.3	14	NOAEL	2	7.2
Cobalt	27	0.314	0.0064	na	NA	NA	0.58	na	NA	NA
Copper	982	15.9	0.28	NOAEL	0.24	1.2	26	NOAEL	8	3.2
Iron	94300	1130	23	na	NA	NA	2073	na	NA	NA
Lead	428	9.45	0.15	NOAEL	12.4	0.012	14	NOAEL	728	0.019
Manganese	1770	34	0.57	na	NA	NA	52	na	NA	NA
Mercury	0.313	0.445	0.0049	NOAEL	0.005	0.99	0.45	NOAEL	0.2	2.2
Molybdenum	47.8	1.57	0.023	NOAEL	45	0.00050	2.0	NOAEL	1500	0.0014
Nickel	14.5	6.88	0.078	NOAEL	1.4	0.055	7.0	NOAEL	70	0.10
Selenium	2.58	2.39	0.027	NOAEL	0.1	0.27	2.4	NOAEL	3.9	0.62
Silver	2.04	0.0498	0.00078	NOAEL	70	0.000011	0.070	NOAEL	3000	0.000023
Thallium	0.383	0.125	0.0014	na	NA	NA	0.13	na	NA	NA
Uranium	16.3	0.0628	0.0025	NOAEL	300	0.0000083	0.23	NOAEL	10000	0.000023
Vanadium	32.5	0.749	0.012	NOAEL	0.036	0.33	1.1	NOAEL	1.2	0.90
Zinc	7680	162	2.6	NOAEL	19	0.14	239	NOAEL	1000	0.24
PAHs										
Benzo(a)pyrene	0.0034	0.00366	0.000041	NOAEL	0.66	0.000062	0.0037	NOAEL	47	0.000079
Total PAHs	0.0764	0.885	0.0098	NOAEL	6.1	0.0016	0.89	NOAEL	324	0.0027
Total HPAHs	0.0528	0.0484	0.00054	NOAEL	6.1	0.000089	0.049	NOAEL	324	0.00015
Total LPAHs	0.0241	0.866	0.0096	NOAEL	6.1	0.0016	0.87	NOAEL	324	0.0027

Refined COPC Screen Assumptions	
Receptor	Bull Trout
Body weight (kg)	7.0
Food ingestion rate (kg/day dw)	0.077
Sediment ingestion rate (kg/day dw)	0.00077
Sediment ingestion as percent of food	0.010
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

SL TRV - screening-level toxicity reference value

Table 4-7b. Results of Chinook Salmon Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	15000	3750	57.7	NOAEL	67	0.86	3900	NOAEL	2232	1.7
Antimony	34.1	34.1	0.51	na	NA	NA	34.4	na	NA	NA
Arsenic	13.2	9.1	0.14	NOAEL	0.4	0.34	9.2	NOAEL	20	0.46
Barium	859	3436	50.9	na	NA	NA	3445	na	NA	NA
Beryllium	0.701	0.14	0.0022	na	NA	NA	0.15	na	NA	NA
Cadmium	3.02	24.1	0.36	NOAEL	0.002	179	24.2	NOAEL	0.1	242
Chromium	61.8	29.0	0.44	NOAEL	0.037	12	29.7	NOAEL	2	15
Cobalt	27	27.0	0.40	na	NA	NA	27.3	na	NA	NA
Copper	982	5156	76.4	NOAEL	0.24	318	5165	NOAEL	8	646
Iron	94300	103730	1548	na	NA	NA	104673	na	NA	NA
Lead	428	261	3.9	NOAEL	12.4	0.32	265	NOAEL	728	0.36
Manganese	1770	2885	42.9	na	NA	NA	2903	na	NA	NA
Mercury	0.313	0.90	0.013	NOAEL	0.005	2.7	0.90	NOAEL	0.2	4.5
Molybdenum	47.8	135	2.0	NOAEL	45	0.045	136	NOAEL	1500	0.091
Nickel	14.5	33.6	0.50	NOAEL	1.4	0.36	33.8	NOAEL	70	0.48
Selenium	2.58	16.8	0.25	NOAEL	0.1	2.5	17	NOAEL	3.9	4.3
Silver	2.04	0.37	0.0057	NOAEL	70	0.000082	0.39	NOAEL	3000	0.00013
Thallium	0.383	0.38	0.0057	na	NA	NA	0.39	na	NA	NA
Uranium	16.3	16.3	0.24	NOAEL	300	0.00081	16.5	NOAEL	10000	0.0016
Vanadium	32.5	10.7	0.16	NOAEL	0.036	4.5	11.1	NOAEL	1.2	9.2
Zinc	7680	57830	856	NOAEL	19	45	57907	NOAEL	1000	58
PAHs										
Benzo(a)pyrene	0.0034	0.058	0.00085	NOAEL	0.66	0.0013	0.058	NOAEL	47	0.0012
Total PAHs	0.0764	2.8	0.041	NOAEL	6.1	0.0068	2.8	NOAEL	324	0.0086
Total HPAHs	0.0528	1.0	0.015	NOAEL	6.1	0.0025	1.0	NOAEL	324	0.0032
Total LPAHs	0.0241	1.4	0.020	NOAEL	6.1	0.0034	1.4	NOAEL	324	0.0043

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
SL TRV - screening-level toxicity reference value

Refined COPC Screen Assumptions	
Receptor	Chinook Salmon
Body weight (kg)	1.0
Food ingestion rate (kg/day dw)	0.015
Sediment ingestion rate (kg/day dw)	0.00015
Sediment ingestion as percent of food	0.010
Dietary Composition	
Benthic invertebrates	100%

Table 4-7c. Results of Largescale Sucker Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	15000	4770	3750	93	NOAEL	67	1.4	5460	NOAEL	2232	2.4
Antimony	34.1	19.9	34	0.50	na	NA	NA	30	na	NA	NA
Arsenic	13.2	8.48	9.1	0.17	NOAEL	0.4	0.42	9.9	NOAEL	20	0.49
Barium	859	364	3436	33	na	NA	NA	1969	na	NA	NA
Beryllium	0.701	0.604	0.14	0.0073	na	NA	NA	0.43	na	NA	NA
Cadmium	3.02	2.25	24.1	0.23	NOAEL	0.002	114	13.4	NOAEL	0.1	134
Chromium	61.8	34.0	29.0	0.62	NOAEL	0.037	17	36	NOAEL	2	18
Cobalt	27	16.2	27.0	0.40	na	NA	NA	24	na	NA	NA
Copper	982	410	5156	48.5	NOAEL	0.24	202	2861	NOAEL	8	358
Iron	94300	24949	103730	1219	na	NA	NA	71884	na	NA	NA
Lead	428	194	261	4.4	NOAEL	12.4	0.36	262	NOAEL	728	0.36
Manganese	1770	697	2885	33	na	NA	NA	1933	na	NA	NA
Mercury	0.313	0.29	0.90	0.011	NOAEL	0.005	2.1	0.62	NOAEL	0.2	3.1
Molybdenum	47.8	27	135	1.4	NOAEL	45	0.032	85	NOAEL	1500	0.057
Nickel	14.5	9.2	33.6	0.38	NOAEL	1.4	0.27	22.6	NOAEL	70	0.32
Selenium	2.58	2.0	16.8	0.16	NOAEL	0.1	1.6	9.6	NOAEL	3.9	2.5
Silver	2.04	1.6	0.37	0.019	NOAEL	70	0.00028	1.1	NOAEL	3000	0.00038
Thallium	0.383	0.35	0.38	0.0067	na	NA	NA	0.40	na	NA	NA
Uranium	16.3	10	16.3	0.25	NOAEL	300	0.00082	14.6	NOAEL	10000	0.0015
Vanadium	32.5	19	10.7	0.30	NOAEL	0.036	8.2	17.5	NOAEL	1.2	15
Zinc	7680	2611	57830	523	NOAEL	19	28	30835	NOAEL	1000	31
PAHs											
Benzo(a)pyrene	0.0034	0.00366	0.058	0.00053	NOAEL	0.66	0.00080	0.031	NOAEL	47	0.00066
Total PAHs	0.0764	0.885	2.8	0.031	NOAEL	6.1	0.0051	1.8	NOAEL	324	0.0057
Total HPAHs	0.0528	0.0484	1.0	0.0093	NOAEL	6.1	0.0015	0.55	NOAEL	324	0.0017
Total LPAHs	0.0241	0.866	1.4	0.019	NOAEL	6.1	0.0031	1.1	NOAEL	324	0.0035

Refined COPC Screen Assumptions	
Receptor	Largescale Sucker
Body weight (kg)	0.4
Food ingestion rate (kg/day dw)	0.0068
Sediment ingestion rate (kg/day dw)	0.00054
Sediment ingestion as percent of food	0.080
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
SL TRV - screening-level toxicity reference value

Table 4-7d. Results of Prickly Sculpin Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Fish	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	15000	269	3750	90	NOAEL	67	1.3	4152	NOAEL	2232	1.9
Antimony	34.1	0.383	34	0.70	na	NA	NA	32	na	NA	NA
Arsenic	13.2	0.715	9.1	0.19	NOAEL	0.4	0.48	8.9	NOAEL	20	0.45
Barium	859	22.4	3436	68	na	NA	NA	3138	na	NA	NA
Beryllium	0.701	0.0112	0.14	0.0035	na	NA	NA	0.16	na	NA	NA
Cadmium	3.02	0.631	24.1	0.48	NOAEL	0.002	238	21.9	NOAEL	0.1	219
Chromium	61.8	13.8	29	0.66	NOAEL	0.037	18	31	NOAEL	2	15
Cobalt	27	0.314	27	0.56	na	NA	NA	26	na	NA	NA
Copper	982	15.9	5156	102	NOAEL	0.24	424	4691	NOAEL	8	586
Iron	94300	1130	103730	2128	na	NA	NA	98185	na	NA	NA
Lead	428	9.45	261	5.6	NOAEL	12.4	0.45	257	NOAEL	728	0.35
Manganese	1770	34	2885	58.3	na	NA	NA	2688	na	NA	NA
Mercury	0.313	0.445	0.90	0.019	NOAEL	0.005	3.8	0.87	NOAEL	0.2	4.3
Molybdenum	47.8	1.57	135	2.7	NOAEL	45	0.060	124	NOAEL	1500	0.083
Nickel	14.5	6.88	33.6	0.69	NOAEL	1.4	0.49	31.7	NOAEL	70	0.45
Selenium	2.58	2.39	17	0.34	NOAEL	0.1	3.4	15.5	NOAEL	3.9	4.0
Silver	2.04	0.0498	0.37	0.0095	NOAEL	70	0.00014	0.44	NOAEL	3000	0.00015
Thallium	0.383	0.125	0.38	0.0082	na	NA	NA	0.38	na	NA	NA
Uranium	16.3	0.0628	16.3	0.34	NOAEL	300	0.0011	15	NOAEL	10000	0.0015
Vanadium	32.5	0.749	11	0.25	NOAEL	0.036	6.8	11	NOAEL	1.2	9.5
Zinc	7680	162	57830	1137	NOAEL	19	60	52448	NOAEL	1000	52
PAHs											
Benzo(a)pyrene	0.0034	0.00366	0.058	0.0011	NOAEL	0.66	0.0017	0.053	NOAEL	47	0.0011
Total PAHs	0.0764	0.885	2.8	0.057	NOAEL	6.1	0.0093	2.6	NOAEL	324	0.0080
Total HPAHs	0.0528	0.0484	1.0	0.020	NOAEL	6.1	0.0033	0.94	NOAEL	324	0.0029
Total LPAHs	0.0241	0.866	1.4	0.029	NOAEL	6.1	0.0047	1.3	NOAEL	324	0.0041

Refined COPC Screen Assumptions	
Receptor	Prickly Sculpin
Body weight (kg)	0.078
Food ingestion rate (kg/day dw)	0.0017
Sediment ingestion rate (kg/day dw)	0.000085
Sediment ingestion as percent of food	0.050
Dietary Composition	
Fish	10%
Benthic invertebrates	90%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
SL TRV - screening-level toxicity reference value

Table 4-7e. Results of White Sturgeon Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)						Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Crayfish	Mussels	Fish	Aquatic Plants	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids														
Aluminum	15000	208	656	269	4770	3750	78	NOAEL	67	1.2	9503	NOAEL	2232	4.3
Antimony	34.1	0.23	1.41	0.383	19.9	34	0.22	na	NA	NA	26	na	NA	NA
Arsenic	13.2	1.27	9.2	0.715	8.48	9.1	0.085	NOAEL	0.4	0.21	10.4	NOAEL	20	0.52
Barium	859	153	776	22.4	364	3436	9.4	na	NA	NA	1142	na	NA	NA
Beryllium	0.701	0.011	0.066	0.0112	0.604	0.14	0.0038	na	NA	NA	0.46	na	NA	NA
Cadmium	3.02	1.53	8.14	0.631	2.25	24.1	0.056	NOAEL	0.002	28	6.8	NOAEL	0.1	68
Chromium	61.8	3.16	7.58	13.8	34.0	29	0.42	NOAEL	0.037	11	51	NOAEL	2	26
Cobalt	27	0.522	1.15	0.314	16.2	27	0.17	na	NA	NA	21	na	NA	NA
Copper	982	179	18.2	15.9	410	5156	12.0	NOAEL	0.24	50	1464	NOAEL	8	183
Iron	94300	430	2330	1130	24949	103730	595	na	NA	NA	72610	na	NA	NA
Lead	428	3.33	7.58	9.45	194	261	2.5	NOAEL	12.4	0.20	301	NOAEL	728	0.41
Manganese	1770	184	4070	34	697	2885	14.3	na	NA	NA	1749	na	NA	NA
Mercury	0.313	0.079	0.11	0.445	0.292	0.90	0.0054	NOAEL	0.005	1.1	0.66	NOAEL	0.2	3.3
Molybdenum	47.8	135	135	1.57	27.0	135	0.52	NOAEL	45	0.011	63	NOAEL	1500	0.042
Nickel	14.5	2.74	4.14	6.88	9.23	33.6	0.16	NOAEL	1.4	0.11	19	NOAEL	70	0.28
Selenium	2.58	1.16	3.79	2.39	1.95	16.8	0.052	NOAEL	0.1	0.52	6.3	NOAEL	3.9	1.6
Silver	2.04	0.34	0.26	0.0498	1.58	0.37	0.011	NOAEL	70	0.00016	1.3	NOAEL	3000	0.00045
Thallium	0.383	0.072	0.0598	0.125	0.351	0.38	0.0032	na	NA	NA	0.39	na	NA	NA
Uranium	16.3	16.3	16.3	0.0628	10.26	16.3	0.11	NOAEL	300	0.00038	14	NOAEL	10000	0.0014
Vanadium	32.5	0.77	1.84	0.749	19.1	10.7	0.18	NOAEL	0.036	4.9	22	NOAEL	1.2	18
Zinc	7680	89.8	280	162	2611	57830	118	NOAEL	19	6.2	14393	NOAEL	1000	14
PAHs														
Benzo(a)pyrene	0.0034	0.015	0.015	0.00366	0.00366	0.058	0.00016	NOAEL	0.66	0.00024	0.019	NOAEL	47	0.00041
Total PAHs	0.0764	0.74	0.74	0.885	0.885	2.8	0.012	NOAEL	6.1	0.0019	1.4	NOAEL	324	0.0043
Total HPAHs	0.0528	0.27	0.27	0.0484	0.0484	1.0	0.0027	NOAEL	6.1	0.00044	0.32	NOAEL	324	0.0010
Total LPAHs	0.0241	0.37	0.37	0.866	0.866	1.4	0.0083	NOAEL	6.1	0.0014	1.0	NOAEL	324	0.0031

Refined COPC Screen Assumptions	
Receptor	White Sturgeon
Body weight (kg)	51
Food ingestion rate (kg/day dw)	0.418
Sediment ingestion rate (kg/day dw)	0.234
Sediment ingestion as percent of food	0.56
Dietary Composition	
Crayfish	3%
Mussels	5%
Fish	70%
Aquatic plants	5%
Benthic invertebrates	17%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
SL TRV - screening-level toxicity reference value

Table 4-7f. Results of Yellow Perch Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)				Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Crayfish	Fish	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids												
Aluminum	15000	208	269	3750	17.7	NOAEL	67	0.26	932	NOAEL	2232	0.42
Antimony	34.1	0.23	0.383	34	0.11	na	NA	NA	5.8	na	NA	NA
Arsenic	13.2	1.27	0.715	9.1	0.042	NOAEL	0.4	0.10	2.2	NOAEL	20	0.11
Barium	859	153	22.4	3436	10.7	na	NA	NA	563	na	NA	NA
Beryllium	0.701	0.011	0.0112	0.14	0.00071	na	NA	NA	0.038	na	NA	NA
Cadmium	3.02	1.53	0.631	24.1	0.082	NOAEL	0.002	41	4.3	NOAEL	0.1	43
Chromium	61.8	3.16	13.8	29	0.29	NOAEL	0.037	7.7	15	NOAEL	2	7.6
Cobalt	27	0.52	0.314	27	0.088	na	NA	NA	4.6	na	NA	NA
Copper	982	179	15.9	5156	15.6	NOAEL	0.24	65	821	NOAEL	8	103
Iron	94300	430	1130	103730	329	na	NA	NA	17358	na	NA	NA
Lead	428	3.33	9.45	261	0.96	NOAEL	12.4	0.077	50.6	NOAEL	728	0.069
Manganese	1770	184	34	2885	9.5	na	NA	NA	502	na	NA	NA
Mercury	0.313	0.079	0.445	0.90	0.0087	NOAEL	0.005	1.7	0.46	NOAEL	0.2	2.3
Molybdenum	47.8	135	1.57	135	0.80	NOAEL	45	0.018	42.2	NOAEL	1500	0.028
Nickel	14.5	2.74	6.88	33.6	0.20	NOAEL	1.4	0.14	10.4	NOAEL	70	0.15
Selenium	2.58	1.16	2.39	17	0.083	NOAEL	0.1	0.83	4.4	NOAEL	3.9	1.1
Silver	2.04	0.34	0.0498	0.37	0.0031	NOAEL	70	0.000044	0.16	NOAEL	3000	0.000054
Thallium	0.383	0.072	0.125	0.38	0.0030	na	NA	NA	0.16	na	NA	NA
Uranium	16.3	16.3	0.0628	16.3	0.097	NOAEL	300	0.00032	5.1	NOAEL	10000	0.00051
Vanadium	32.5	0.77	0.749	11	0.049	NOAEL	0.036	1.4	2.6	NOAEL	1.2	2.1
Zinc	7680	89.8	162	57830	168	NOAEL	19	8.9	8878	NOAEL	1000	8.9
PAHs												
Benzo(a)pyrene	0.0034	0.015	0.00366	0.058	0.00038	NOAEL	0.66	0.00057	0.020	NOAEL	47	0.00042
Total PAHs	0.0764	0.74	0.885	2.8	0.028	NOAEL	6.1	0.0045	1.5	NOAEL	324	0.0045
Total HPAHs	0.0528	0.27	0.0484	1.0	0.0065	NOAEL	6.1	0.0011	0.34	NOAEL	324	0.0011
Total LPAHs	0.0241	0.37	0.866	1.4	0.019	NOAEL	6.1	0.0032	1.0	NOAEL	324	0.0032

Refined COPC Screen Assumptions	
Receptor	Yellow Perch
Body weight (kg)	0.19
Food ingestion rate (kg/day dw)	0.0036
Sediment ingestion rate (kg/day dw)	0.000036
Sediment ingestion as percent of food	0.010
Dietary Composition	
Crayfish	15%
Fish	70%
Benthic invertebrates	15%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
SL TRV - screening-level toxicity reference value

Table 4-7g. Summary of Fish Receptor Dietary Screen HQs for the Upper Reach OU

	Dose-Based HQs						Concentration-Based HQs					
COI	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch
Metals/Metalloids												
Aluminum	0.069	0.86	1.4	1.3	1.2	0.26	0.19	1.7	2.4	1.9	4.3	0.42
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.023	0.34	0.42	0.48	0.21	0.10	0.042	0.46	0.49	0.45	0.52	0.11
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	3.7	179	114	238	28	41	6.6	242	134	219	68	43
Chromium	4.3	12	17	18	11	7.7	7.2	15	18	15	26	7.6
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1.2	318	202	424	50	65	3.2	646	358	586	183	103
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.012	0.32	0.36	0.45	0.20	0.077	0.019	0.36	0.36	0.35	0.41	0.069
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.99	2.7	2.1	3.8	1.1	1.7	2.2	4.5	3.1	4.3	3.3	2.3
Molybdenum	0.00050	0.045	0.032	0.060	0.011	0.018	0.0014	0.091	0.057	0.083	0.042	0.028
Nickel	0.055	0.36	0.27	0.49	0.11	0.14	0.10	0.48	0.32	0.45	0.28	0.15
Selenium	0.27	2.5	1.6	3.4	0.52	0.83	0.62	4.3	2.5	4.0	1.6	1.1
Silver	0.000011	0.000082	0.00028	0.00014	0.00016	0.000044	0.000023	0.00013	0.00038	0.00015	0.00045	0.000054
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	0.0000083	0.00081	0.00082	0.0011	0.00038	0.00032	0.000023	0.0016	0.0015	0.0015	0.0014	0.00051
Vanadium	0.33	4.5	8.2	6.8	4.9	1.4	0.90	9.2	15	9.5	18	2.1
Zinc	0.14	45	28	60	6.2	8.9	0.24	58	31	52	14	8.9
PAHs												
Benzo(a)pyrene	0.000062	0.0013	0.00080	0.0017	0.00024	0.00057	0.000079	0.0012	0.00066	0.0011	0.00041	0.00042
Total PAHs	0.0016	0.0068	0.0051	0.0093	0.0019	0.0045	0.0027	0.0086	0.0057	0.0080	0.0043	0.0045
Total HPAHs	0.000089	0.0025	0.0015	0.0033	0.00044	0.0011	0.00015	0.0032	0.0017	0.0029	0.0010	0.0011
Total LPAHs	0.0016	0.0034	0.0031	0.0047	0.0014	0.0032	0.0027	0.0043	0.0035	0.0041	0.0031	0.0032

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OU - operable unit

Table 4-7h. Results of Bald Eagle Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	269	28	NOAEL	157	0.18
Antimony	34.1	0.383	0.052	na	NA	NA
Arsenic	13.2	0.715	0.048	Eco-SSL	2.24	0.021
Barium	859	22.4	1.9	NOAEL	208.3	0.0093
Beryllium	0.701	0.0112	0.0012	na	NA	NA
Cadmium	3.02	0.631	0.034	Eco-SSL	1.47	0.023
Chromium	61.8	13.8	0.74	Eco-SSL	2.66	0.28
Cobalt	27	0.314	0.042	Eco-SSL	7.61	0.0055
Copper	982	15.9	1.7	Eco-SSL	4.05	0.43
Iron	94300	1130	148	na	NA	NA
Lead	428	9.45	0.89	Eco-SSL	1.63	0.54
Manganese	1770	34	3.4	NOAEL	179	0.019
Mercury	0.313	0.445	0.022	NOAEL	0.018	1.2
Molybdenum	47.8	1.57	0.12	NOAEL	6	0.021
Nickel	14.5	6.88	0.35	Eco-SSL	6.71	0.053
Selenium	2.58	2.39	0.12	Eco-SSL	0.29	0.41
Silver	2.04	0.0498	0.0045	Eco-SSL	2.02	0.0022
Thallium	0.383	0.125	0.0065	NOAEL	0.48	0.014
Vanadium	32.5	0.749	0.069	Eco-SSL	0.344	0.20
Zinc	7680	162	16	Eco-SSL	66.1	0.23
Pesticides						
Aldrin	0.00017	0.00812	0.00040	NOAEL	0.008	0.050
Total Chlordane	0.00072	0.044	0.0022	NOAEL	0.6	0.0036
alpha-Chlordane	0.0021	0.00996	0.00049	NOAEL	0.6	0.00082
gamma-Chlordane	0.0021	0.00321	0.00016	NOAEL	0.6	0.00027
Total DDx	0.00118	0.0846	0.0042	Eco-SSL	0.227	0.018
delta-BHC	0.0021	0.00765	0.00038	NOAEL	1.6	0.00024
Dieldrin	0.004	0.00258	0.00013	Eco-SSL	0.0709	0.0018
Endrin	0.004	0.00581	0.00029	NOAEL	0.012	0.024
Endrin aldehyde	0.004	0.0129	0.00064	NOAEL	0.012	0.053
Endrin ketone	0.004	0.00962	0.00048	NOAEL	0.012	0.040
Heptachlor	0.0021	0.00514	0.00025	NOAEL	0.1	0.0025
Heptachlor epoxide	0.0021	0.00329	0.00016	NOAEL	0.1	0.0016
Hexachlorobenzene	0.00097	0.0126	0.00062	NOAEL	0.24	0.0026
Hexachlorobutadiene	0.00072	0.00289	0.00014	NOAEL	1.7	0.000084
Methoxychlor	0.0035	0.00996	0.00049	NOAEL	34.6	0.000014
cis-Nonachlor	0.00072	0.00952	0.00047	NOAEL	0.6	0.00078
trans-Nonachlor	0.00072	0.00348	0.00017	NOAEL	0.6	0.00029
Oxychlordane	0.00072	0.00303	0.00015	NOAEL	0.6	0.00025
PAHs						
Benzo(a)pyrene	0.0034	0.0037	0.00018	NOAEL	0.28	0.00065
Total PAHs	0.0764	0.89	0.044	NOAEL	40	0.0011
Total HPAHs	0.0528	0.048	0.0024	NOAEL	0.14	0.017
Total LPAHs	0.0241	0.87	0.043	NOAEL	7.7	0.0055
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.025	NOAEL	1.1	0.022
Butyl benzyl phthalate	0.0069	0.21	0.010	NOAEL	0.11	0.094
Di-n-butyl phthalate	0.23	7.02	0.35	NOAEL	1.1	0.31
Di-n-octylphthalate	0.23	0.117	0.0060	NOAEL	1.1	0.0054
Pentachlorophenol	0.59	0.0386	0.0025	Eco-SSL	6.73	0.00037
PCBs						
Total PCB congeners	0.00352	0.299	0.015	NOAEL	0.29	0.051
PCB TEQ, birds	0.000000414	0.00000927	0.00000046	NOAEL	0.000014	0.033
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.0000117	0.00000059	NOAEL	0.000014	0.042
Total TEQ						
Total TEQ, birds	0.0000126	0.0000173	0.00000086	NOAEL	0.000014	0.062

Refined COPC Screen Assumptions	
Receptor	Bald Eagle
Body weight (kg)	4.68
Food ingestion rate (kg/day dw)	0.23
Sediment ingestion rate (kg/day dw)	0.0046
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7i. Results of Belted Kingfisher Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)			Total Dose	SL TRV		HQ
	Sediment	Crayfish	Fish	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids							
Aluminum	15000	208	269	87	NOAEL	157	0.56
Antimony	34.1	0.23	0.383	0.16	na	NA	NA
Arsenic	13.2	1.27	0.715	0.18	Eco-SSL	2.24	0.079
Barium	859	153	22.4	11	NOAEL	208.3	0.055
Beryllium	0.701	0.011	0.0112	0.0040	na	NA	NA
Cadmium	3.02	1.53	0.631	0.14	Eco-SSL	1.47	0.10
Chromium	61.8	3.16	13.8	1.9	Eco-SSL	2.66	0.73
Cobalt	27	0.522	0.314	0.14	Eco-SSL	7.61	0.019
Copper	982	179	15.9	12	Eco-SSL	4.05	3.0
Iron	94300	430	1130	447	na	NA	NA
Lead	428	3.33	9.45	2.6	Eco-SSL	1.63	1.6
Manganese	1770	184	34	17	NOAEL	179	0.094
Mercury	0.313	0.0786	0.445	0.057	NOAEL	0.018	3.1
Molybdenum	47.8	135	1.57	5.7	NOAEL	6	0.94
Nickel	14.5	2.74	6.88	0.97	Eco-SSL	6.71	0.14
Selenium	2.58	1.16	2.39	0.34	Eco-SSL	0.29	1.2
Silver	2.04	0.338	0.0498	0.026	Eco-SSL	2.02	0.013
Thallium	0.383	0.0716	0.125	0.019	NOAEL	0.48	0.039
Vanadium	32.5	0.768	0.749	0.22	Eco-SSL	0.344	0.64
Zinc	7680	89.8	162	47	Eco-SSL	66.1	0.71
Pesticides							
Aldrin	0.00017	0.00812	0.00812	0.0013	NOAEL	0.008	0.16
Total Chlordane	0.00072	0.044	0.044	0.0069	NOAEL	0.6	0.012
alpha-Chlordane	0.0021	0.00996	0.00996	0.0016	NOAEL	0.6	0.0026
gamma-Chlordane	0.0021	0.00321	0.00321	0.00051	NOAEL	0.6	0.00085
Total DDx	0.00118	0.0846	0.0846	0.013	Eco-SSL	0.227	0.059
delta-BHC	0.0021	0.00765	0.00765	0.0012	NOAEL	1.6	0.00076
Dieldrin	0.004	0.00258	0.00258	0.00042	Eco-SSL	0.0709	0.0059
Endrin	0.004	0.00581	0.00581	0.00093	NOAEL	0.012	0.077
Endrin aldehyde	0.004	0.0129	0.0129	0.0020	NOAEL	0.012	0.17
Endrin ketone	0.004	0.00962	0.00962	0.0015	NOAEL	0.012	0.13
Heptachlor	0.0021	0.00514	0.00514	0.00082	NOAEL	0.1	0.0082
Heptachlor epoxide	0.0021	0.00329	0.00329	0.00052	NOAEL	0.1	0.0052
Hexachlorobenzene	0.00097	0.0126	0.0126	0.0020	NOAEL	0.24	0.0083
Hexachlorobutadiene	0.00072	0.00289	0.00289	0.00046	NOAEL	1.7	0.00027
Methoxychlor	0.0035	0.00996	0.00996	0.0016	NOAEL	34.6	0.000046
cis-Nonachlor	0.00072	0.00952	0.00952	0.0015	NOAEL	0.6	0.0025
trans-Nonachlor	0.00072	0.00348	0.00348	0.00055	NOAEL	0.6	0.00092
Oxychlordane	0.00072	0.00303	0.00303	0.00048	NOAEL	0.6	0.00080
PAHs							
Benzo(a)pyrene	0.0034	0.0153	0.00366	0.0010	NOAEL	0.28	0.0037
Total PAHs	0.0764	0.742	0.885	0.13	NOAEL	40	0.0033
Total HPAHs	0.0528	0.275	0.0484	0.017	NOAEL	0.14	0.12
Total LPAHs	0.0241	0.368	0.866	0.12	NOAEL	7.7	0.015
SVOCs							
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.494	0.078	NOAEL	1.1	0.071
Butyl benzyl phthalate	0.0069	0.21	0.21	0.033	NOAEL	0.11	0.30
Di-n-butyl phthalate	0.23	7.02	7.02	1.1	NOAEL	1.1	1.0
Di-n-octylphthalate	0.23	0.117	0.117	0.019	NOAEL	1.1	0.017
Pentachlorophenol	0.59	0.0386	0.0386	0.0079	Eco-SSL	6.73	0.0012
PCBs							
Total PCB congeners	0.00352	0.0152	0.299	0.047	NOAEL	0.29	0.16
PCB TEQ, birds	0.00000041	0.00000139	0.00000927	0.0000015	NOAEL	0.000014	0.10
Dioxins/Furans							
Dioxin TEQ, birds	0.000013	0.00000246	0.0000117	0.0000019	NOAEL	0.000014	0.13
Total TEQ							
Total TEQ, birds	0.0000126	0.00000376	0.0000173	0.0000028	NOAEL	0.000014	0.20

Refined COPC Screen Assumptions	
Receptor	Belted Kingfisher
Body weight (kg)	0.15
Food ingestion rate (kg/day dw)	0.023
Sediment ingestion rate (kg/day dw)	0.00047
Dietary Composition	
Crayfish	25%
Fish	75%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7j. Results of Canada Goose Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)		Total Dose	SL TRV		HQ
	Sediment	Aquatic Plants	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	15000	4770	321	NOAEL	157	2.0
Antimony	34.1	20	1.2	na	NA	NA
Arsenic	13.2	8.5	0.51	Eco-SSL	2.24	0.23
Barium	859	364	23	NOAEL	208.3	0.11
Beryllium	0.701	0.60	0.035	na	NA	NA
Cadmium	3.02	2.2	0.13	Eco-SSL	1.47	0.091
Chromium	61.8	34	2.1	Eco-SSL	2.66	0.79
Cobalt	27	16	0.98	Eco-SSL	7.61	0.13
Copper	982	410	26	Eco-SSL	4.05	6.5
Iron	94300	24949	1748	na	NA	NA
Lead	428	194	12	Eco-SSL	1.63	7.5
Manganese	1770	697	45	NOAEL	179	0.25
Mercury	0.313	0.29	0.0170	NOAEL	0.018	0.94
Molybdenum	47.8	27	1.7	NOAEL	6	0.28
Nickel	14.5	9.2	0.56	Eco-SSL	6.71	0.083
Selenium	2.58	2.0	0.12	Eco-SSL	0.29	0.40
Silver	2.04	1.6	0.093	Eco-SSL	2.02	0.046
Thallium	0.383	0.35	0.020	NOAEL	0.48	0.043
Vanadium	32.5	19	1.2	Eco-SSL	0.344	3.4
Zinc	7680	2611	173	Eco-SSL	66.1	2.6
Pesticides						
Aldrin	0.00017	0.00812	0.00043	NOAEL	0.008	0.054
Total Chlordane	0.00072	0.044	0.0024	NOAEL	0.6	0.0039
alpha-Chlordane	0.0021	0.0100	0.00054	NOAEL	0.6	0.00090
gamma-Chlordane	0.0021	0.0032	0.00018	NOAEL	0.6	0.00030
Total DDx	0.00118	0.085	0.0045	Eco-SSL	0.227	0.020
delta-BHC	0.0021	0.0077	0.00042	NOAEL	1.6	0.00026
Dieldrin	0.004	0.0026	0.00016	Eco-SSL	0.0709	0.0022
Endrin	0.004	0.0058	0.00033	NOAEL	0.012	0.027
Endrin aldehyde	0.004	0.013	0.00071	NOAEL	0.012	0.059
Endrin ketone	0.004	0.010	0.00053	NOAEL	0.012	0.044
Heptachlor	0.0021	0.0051	0.00028	NOAEL	0.1	0.0028
Heptachlor epoxide	0.0021	0.0033	0.00019	NOAEL	0.1	0.0019
Hexachlorobenzene	0.00097	0.013	0.00068	NOAEL	0.24	0.0028
Hexachlorobutadiene	0.00072	0.0029	0.00016	NOAEL	1.7	0.000093
Methoxychlor	0.0035	0.010	0.00055	NOAEL	34.6	0.000016
cis-Nonachlor	0.00072	0.0095	0.00051	NOAEL	0.6	0.00085
trans-Nonachlor	0.00072	0.0035	0.00019	NOAEL	0.6	0.00032
Oxychlordane	0.00072	0.0030	0.00017	NOAEL	0.6	0.00028
PAHs						
Benzo(a)pyrene	0.0034	0.0037	0.00021	NOAEL	0.28	0.00075
Total PAHs	0.0764	0.89	0.048	NOAEL	40	0.0012
Total HPAHs	0.0528	0.048	0.0028	NOAEL	0.14	0.020
Total LPAHs	0.0241	0.87	0.046	NOAEL	7.7	0.0060
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.49	0.027	NOAEL	1.1	0.025
Butyl benzyl phthalate	0.0069	0.21	0.011	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.23	7.02	0.38	NOAEL	1.1	0.34
Di-n-octylphthalate	0.23	0.12	0.0073	NOAEL	1.1	0.0066
Pentachlorophenol	0.59	0.04	0.0047	Eco-SSL	6.73	0.00069
PCBs						
Total PCB congeners	0.00352	0.299	0.016	NOAEL	0.29	0.055
PCB TEQ, birds	0.000000414	0.00000927	0.00000050	NOAEL	0.000014	0.036
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.000012	0.00000068	NOAEL	0.000014	0.049
Total TEQ						
Total TEQ, birds	0.0000126	0.0000173	0.00000098	NOAEL	0.000014	0.070

Refined COPC Screen Assumptions	
Receptor	Canada Goose
Body weight (kg)	2.6
Food ingestion rate (kg/day dw)	0.14
Sediment ingestion rate (kg/day dw)	0.011
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7k. Results of Great Blue Heron Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)			Total Dose	SL TRV		HQ
	Sediment	Crayfish	Fish	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids							
Aluminum	15000	208	269	94	NOAEL	157	0.60
Antimony	34.1	0.23	0.383	0.20	na	NA	NA
Arsenic	13.2	1.27	0.715	0.11	Eco-SSL	2.24	0.051
Barium	859	153	22.4	6.2	NOAEL	208.3	0.030
Beryllium	0.701	0.011	0.0112	0.0043	na	NA	NA
Cadmium	3.02	1.53	0.631	0.057	Eco-SSL	1.47	0.039
Chromium	61.8	3.16	13.8	1.1	Eco-SSL	2.66	0.43
Cobalt	27	0.522	0.314	0.16	Eco-SSL	7.61	0.021
Copper	982	179	15.9	6.6	Eco-SSL	4.05	1.6
Iron	94300	430	1130	556	na	NA	NA
Lead	428	3.33	9.45	2.8	Eco-SSL	1.63	1.7
Manganese	1770	184	34	12	NOAEL	179	0.066
Mercury	0.313	0.0786	0.445	0.028	NOAEL	0.018	1.6
Molybdenum	47.8	135.3	1.57	0.76	NOAEL	6	0.13
Nickel	14.5	2.74	6.88	0.49	Eco-SSL	6.71	0.073
Selenium	2.58	1.16	2.39	0.16	Eco-SSL	0.29	0.54
Silver	2.04	0.338	0.0498	0.015	Eco-SSL	2.02	0.0072
Thallium	0.383	0.0716	0.125	0.0095	NOAEL	0.48	0.020
Vanadium	32.5	0.768	0.749	0.21	Eco-SSL	0.344	0.62
Zinc	7680	89.8	162	50	Eco-SSL	66.1	0.75
Pesticides							
Aldrin	0.00017	0.00812	0.00812	0.00050	NOAEL	0.008	0.063
Total Chlordane	0.00072	0.044	0.044	0.0027	NOAEL	0.6	0.0045
alpha-Chlordane	0.0021	0.00996	0.00996	0.00063	NOAEL	0.6	0.0010
gamma-Chlordane	0.0021	0.00321	0.00321	0.00021	NOAEL	0.6	0.00035
Total DDx	0.00118	0.0846	0.0846	0.0052	Eco-SSL	0.227	0.023
delta-BHC	0.0021	0.00765	0.00765	0.00048	NOAEL	1.6	0.00030
Dieldrin	0.004	0.00258	0.00258	0.00018	Eco-SSL	0.0709	0.0025
Endrin	0.004	0.00581	0.00581	0.00038	NOAEL	0.012	0.032
Endrin aldehyde	0.004	0.0129	0.0129	0.00082	NOAEL	0.012	0.068
Endrin ketone	0.004	0.00962	0.00962	0.00061	NOAEL	0.012	0.051
Heptachlor	0.0021	0.00514	0.00514	0.00033	NOAEL	0.1	0.0033
Heptachlor epoxide	0.0021	0.00329	0.00329	0.00021	NOAEL	0.1	0.0021
Hexachlorobenzene	0.00097	0.0126	0.0126	0.00078	NOAEL	0.24	0.0033
Hexachlorobutadiene	0.00072	0.00289	0.00289	0.00018	NOAEL	1.7	0.00011
Methoxychlor	0.0035	0.00996	0.00996	0.00063	NOAEL	34.6	0.000018
cis-Nonachlor	0.00072	0.00952	0.00952	0.00059	NOAEL	0.6	0.0010
trans-Nonachlor	0.00072	0.00348	0.00348	0.00022	NOAEL	0.6	0.00036
Oxychlordane	0.00072	0.00303	0.00303	0.00019	NOAEL	0.6	0.00032
PAHs							
Benzo(a)pyrene	0.0034	0.0153	0.00366	0.00028	NOAEL	0.28	0.0010
Total PAHs	0.0764	0.742	0.885	0.055	NOAEL	40	0.0014
Total HPAHs	0.0528	0.275	0.0484	0.0040	NOAEL	0.14	0.028
Total LPAHs	0.0241	0.368	0.866	0.052	NOAEL	7.7	0.0068
SVOCs							
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.494	0.032	NOAEL	1.1	0.029
Butyl benzyl phthalate	0.0069	0.21	0.21	0.013	NOAEL	0.11	0.12
Di-n-butyl phthalate	0.23	7.02	7.02	0.43	NOAEL	1.1	0.39
Di-n-octylphthalate	0.23	0.117	0.117	0.0084	NOAEL	1.1	0.0076
Pentachlorophenol	0.59	0.0386	0.0386	0.0054	Eco-SSL	6.73	0.00081
PCBs							
Total PCB congeners	0.00352	0.299	0.299	0.018	NOAEL	0.29	0.064
PCB TEQ, birds	0.00000041	0.00000927	0.00000927	0.00000057	NOAEL	0.000014	0.041
Dioxins/Furans							
Dioxin TEQ, birds	0.000013	0.0000117	0.0000117	0.00000079	NOAEL	0.000014	0.056
Total TEQ							
Total TEQ, birds	0.0000126	0.0000173	0.0000173	0.0000011	NOAEL	0.000014	0.081

Refined COPC Screen Assumptions	
Receptor	Great Blue Heron
Body weight (kg)	2.39
Food ingestion rate (kg/day dw)	0.15
Sediment ingestion rate (kg/day dw)	0.012
Dietary Composition	
Crayfish	5%
Fish	95%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7l. Results of Lesser Scaup Dietary Screen for the Upper Reach OU

	Media Concentration (mg/kg dw)								
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Mussels	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids									
Aluminum	15000	4770	3750	656	269	189	NOAEL	157	1.2
Antimony	34.1	20	34.1	1.41	0.383	1.0	na	NA	NA
Arsenic	13.2	8.5	9.11	9.2	0.715	0.50	Eco-SSL	2.24	0.23
Barium	859	364	3436	776	22.4	88	NOAEL	208.3	0.42
Beryllium	0.701	0.60	0.14	0.0663	0.0112	0.014	na	NA	NA
Cadmium	3.02	2.2	24.1	8.14	0.631	0.66	Eco-SSL	1.47	0.45
Chromium	61.8	34	29.0	7.58	13.8	1.4	Eco-SSL	2.66	0.51
Cobalt	27	16	27	1.15	0.314	0.83	Eco-SSL	7.61	0.11
Copper	982	410	5156	18.2	15.9	108	Eco-SSL	4.05	27
Iron	94300	24949	103730	2330	1130	2626	na	NA	NA
Lead	428	194	261	7.58	9.45	9.0	Eco-SSL	1.63	5.5
Manganese	1770	697	2885	4070	34	148	NOAEL	179	0.83
Mercury	0.313	0.29	0.90	0.106	0.445	0.025	NOAEL	0.018	1.4
Molybdenum	47.8	27	135	135	1.57	5.7	NOAEL	6	0.95
Nickel	14.5	9.2	33.6	4.14	6.88	0.91	Eco-SSL	6.71	0.14
Selenium	2.58	2.0	16.8	3.79	2.39	0.44	Eco-SSL	0.29	1.5
Silver	2.04	1.6	0.37	0.264	0.0498	0.039	Eco-SSL	2.02	0.019
Thallium	0.383	0.35	0.38	0.0598	0.125	0.015	NOAEL	0.48	0.031
Vanadium	32.5	19	10.7	1.84	0.749	0.59	Eco-SSL	0.344	1.7
Zinc	7680	2611	57830	280	162	1172	Eco-SSL	66.1	18
Pesticides									
Aldrin	0.00017	0.00812	0.00812	0.00812	0.00812	0.00045	NOAEL	0.008	0.056
Total Chlordane	0.00072	0.044	0.044	0.044	0.044	0.0024	NOAEL	0.6	0.0040
alpha-Chlordane	0.0021	0.00996	0.00996	0.00996	0.00996	0.00055	NOAEL	0.6	0.00092
gamma-Chlordane	0.0021	0.00321	0.00321	0.00321	0.00321	0.00018	NOAEL	0.6	0.00030
Total DDx	0.00118	0.0846	0.0846	0.0846	0.0846	0.0046	Eco-SSL	0.227	0.020
delta-BHC	0.0021	0.00765	0.00765	0.00765	0.00765	0.00043	NOAEL	1.6	0.00027
Dieldrin	0.004	0.00258	0.00258	0.00258	0.00258	0.00015	Eco-SSL	0.0709	0.0021
Endrin	0.004	0.00581	0.00581	0.00581	0.00581	0.00033	NOAEL	0.012	0.027
Endrin aldehyde	0.004	0.0129	0.0129	0.0129	0.0129	0.00072	NOAEL	0.012	0.060
Endrin ketone	0.004	0.00962	0.00962	0.00962	0.00962	0.00054	NOAEL	0.012	0.045
Heptachlor	0.0021	0.00514	0.00514	0.00514	0.00514	0.00029	NOAEL	0.1	0.0029
Heptachlor epoxide	0.0021	0.00329	0.00329	0.00329	0.00329	0.00019	NOAEL	0.1	0.0019
Hexachlorobenzene	0.00097	0.0126	0.0126	0.0126	0.0126	0.00069	NOAEL	0.24	0.0029
Hexachlorobutadiene	0.00072	0.00289	0.00289	0.00289	0.00289	0.00016	NOAEL	1.7	0.000094
Methoxychlor	0.0035	0.00996	0.00996	0.00996	0.00996	0.00056	NOAEL	34.6	0.000016
cis-Nonachlor	0.00072	0.00952	0.00952	0.00952	0.00952	0.00052	NOAEL	0.6	0.00087
trans-Nonachlor	0.00072	0.00348	0.00348	0.00348	0.00348	0.00019	NOAEL	0.6	0.00032
Oxychlordane	0.00072	0.00303	0.00303	0.00303	0.00303	0.00017	NOAEL	0.6	0.00028
PAHs									
Benzo(a)pyrene	0.0034	0.00366	0.0578	0.0153	0.00366	0.0023	NOAEL	0.28	0.0082
Total PAHs	0.0764	0.885	2.80	0.742	0.885	0.12	NOAEL	40	0.0031
Total HPAHs	0.0528	0.0484	1.03	0.275	0.0484	0.041	NOAEL	0.14	0.29
Total LPAHs	0.0241	0.866	1.39	0.368	0.866	0.068	NOAEL	7.7	0.0088
SVOCs									
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.494	0.494	0.494	0.028	NOAEL	1.1	0.025
Butyl benzyl phthalate	0.0069	0.21	0.21	0.21	0.21	0.012	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.23	7.02	7.02	7.02	7.02	0.39	NOAEL	1.1	0.35
Di-n-octylphthalate	0.23	0.117	0.117	0.117	0.117	0.0070	NOAEL	1.1	0.0064
Pentachlorophenol	0.59	0.0386	0.0386	0.0386	0.0386	0.0036	Eco-SSL	6.73	0.00054
PCBs									
Total PCB congeners	0.00352	0.299	0.166	0.0152	0.299	0.0084	NOAEL	0.29	0.029
PCB TEQ, birds	0.00000041	0.00000927	0.000034	0.00000139	0.00000927	0.00000083	NOAEL	0.000014	0.060
Dioxins/Furans									
Dioxin TEQ, birds	0.000013	0.0000117	0.00016	0.00000246	0.0000117	0.0000034	NOAEL	0.000014	0.25
Total TEQ									
Total TEQ, birds	0.0000126	0.0000173	0.00020	0.00000376	0.0000173	0.0000042	NOAEL	0.000014	0.30

Refined COPC Screen Assumptions	
Receptor	Lesser Scaup
Body weight (kg)	0.82
Food ingestion rate (kg/day dw)	0.045
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Aquatic plants	25%
Mussels	35%
Fish	5%
Benthic invertebrates	35%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
OU - operable unit
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-7m. Results of Mallard Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Aquatic Plants	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids							
Aluminum	15000	4770	3750	231	NOAEL	157	1.5
Antimony	34.1	20	34.1	1.4	na	NA	NA
Arsenic	13.2	8.5	9.11	0.45	Eco-SSL	2.24	0.20
Barium	859	364	3436	94	NOAEL	208.3	0.45
Beryllium	0.701	0.60	0.14	0.019	na	NA	NA
Cadmium	3.02	2.2	24.1	0.65	Eco-SSL	1.47	0.44
Chromium	61.8	34	29.0	1.6	Eco-SSL	2.66	0.61
Cobalt	27	16	27.0	1.1	Eco-SSL	7.61	0.14
Copper	982	410	5156	137	Eco-SSL	4.05	34
Iron	94300	24949	103730	3277	na	NA	NA
Lead	428	194	261	11.7	Eco-SSL	1.63	7.2
Manganese	1770	697	2885	90	NOAEL	179	0.50
Mercury	0.313	0.29	0.90	0.029	NOAEL	0.018	1.6
Molybdenum	47.8	27	135	4.0	NOAEL	6	0.67
Nickel	14.5	9.2	33.6	1.06	Eco-SSL	6.71	0.16
Selenium	2.58	2.0	16.8	0.46	Eco-SSL	0.29	1.6
Silver	2.04	1.6	0.37	0.051	Eco-SSL	2.02	0.025
Thallium	0.383	0.35	0.383	0.018	NOAEL	0.48	0.038
Vanadium	32.5	19	11	0.78	Eco-SSL	0.344	2.3
Zinc	7680	2611	57830	1481	Eco-SSL	66.1	22
Pesticides							
Aldrin	0.00017	0.00812	0.0081	0.00039	NOAEL	0.008	0.049
Total Chlordane	0.00072	0.044	0.0440	0.0021	NOAEL	0.6	0.0036
alpha-Chlordane	0.0021	0.00996	0.0100	0.00049	NOAEL	0.6	0.00081
gamma-Chlordane	0.0021	0.00321	0.0032	0.00016	NOAEL	0.6	0.00027
Total DDx	0.00118	0.0846	0.0846	0.0041	Eco-SSL	0.227	0.018
delta-BHC	0.0021	0.00765	0.0077	0.00037	NOAEL	1.6	0.00023
Dieldrin	0.004	0.00258	0.0026	0.00013	Eco-SSL	0.0709	0.0019
Endrin	0.004	0.00581	0.0058	0.00029	NOAEL	0.012	0.024
Endrin aldehyde	0.004	0.0129	0.0129	0.00063	NOAEL	0.012	0.053
Endrin ketone	0.004	0.00962	0.0096	0.00047	NOAEL	0.012	0.039
Heptachlor	0.0021	0.00514	0.0051	0.00025	NOAEL	0.1	0.0025
Heptachlor epoxide	0.0021	0.00329	0.0033	0.00016	NOAEL	0.1	0.0016
Hexachlorobenzene	0.00097	0.0126	0.0126	0.00061	NOAEL	0.24	0.0026
Hexachlorobutadiene	0.00072	0.00289	0.0029	0.00014	NOAEL	1.7	0.000083
Methoxychlor	0.0035	0.00996	0.0100	0.00049	NOAEL	34.6	0.000014
cis-Nonachlor	0.00072	0.00952	0.0095	0.00046	NOAEL	0.6	0.00077
trans-Nonachlor	0.00072	0.00348	0.0035	0.00017	NOAEL	0.6	0.00028
Oxychlordane	0.00072	0.00303	0.0030	0.00015	NOAEL	0.6	0.00025
PAHs							
Benzo(a)pyrene	0.0034	0.00366	0.058	0.00150	NOAEL	0.28	0.0053
Total PAHs	0.0764	0.885	2.8	0.090	NOAEL	40	0.0022
Total HPAHs	0.0528	0.0484	1.0	0.0264	NOAEL	0.14	0.19
Total LPAHs	0.0241	0.866	1.4	0.055	NOAEL	7.7	0.0071
SVOCs							
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.49	0.024	NOAEL	1.1	0.022
Butyl benzyl phthalate	0.0069	0.21	0.21	0.010	NOAEL	0.11	0.093
Di-n-butyl phthalate	0.23	7.02	7.02	0.34	NOAEL	1.1	0.31
Di-n-octylphthalate	0.23	0.117	0.12	0.0061	NOAEL	1.1	0.0055
Pentachlorophenol	0.59	0.0386	0.039	0.0028	Eco-SSL	6.73	0.00042
PCBs							
Total PCB congeners	0.00352	0.299	0.166	0.0113	NOAEL	0.29	0.039
PCB TEQ, birds	0.00000041	0.00000927	0.0000341	0.00000105	NOAEL	0.000014	0.075
Dioxins/Furans							
Dioxin TEQ, birds	0.000013	0.0000117	0.000165	0.0000043	NOAEL	0.000014	0.31
Total TEQ							
Total TEQ, birds	0.0000126	0.0000173	0.000199	0.0000053	NOAEL	0.000014	0.38

Refined COPC Screen Assumptions	
Receptor	Mallard
Body weight (kg)	1.13
Food ingestion rate (kg/day dw)	0.055
Sediment ingestion rate (kg/day dw)	0.0011
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7n. Results of Osprey Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	269	41	NOAEL	157	0.26
Antimony	34.1	0.383	0.077	na	NA	NA
Arsenic	13.2	0.715	0.071	Eco-SSL	2.24	0.032
Barium	859	22.4	2.9	NOAEL	208.3	0.014
Beryllium	0.701	0.0112	0.0018	na	NA	NA
Cadmium	3.02	0.631	0.050	Eco-SSL	1.47	0.034
Chromium	61.8	13.8	1.1	Eco-SSL	2.66	0.41
Cobalt	27	0.314	0.062	Eco-SSL	7.61	0.0081
Copper	982	15.9	2.6	Eco-SSL	4.05	0.64
Iron	94300	1130	218	na	NA	NA
Lead	428	9.45	1.3	Eco-SSL	1.63	0.80
Manganese	1770	34	5.0	NOAEL	179	0.028
Mercury	0.313	0.445	0.033	NOAEL	0.018	1.8
Molybdenum	47.8	1.57	0.18	NOAEL	6	0.030
Nickel	14.5	6.88	0.52	Eco-SSL	6.71	0.077
Selenium	2.58	2.39	0.18	Eco-SSL	0.29	0.61
Silver	2.04	0.0498	0.0066	Eco-SSL	2.02	0.0032
Thallium	0.383	0.125	0.0096	NOAEL	0.48	0.020
Vanadium	32.5	0.749	0.10	Eco-SSL	0.344	0.29
Zinc	7680	162	23	Eco-SSL	66.1	0.35
Pesticides						
Aldrin	0.00017	0.00812	0.00059	NOAEL	0.008	0.074
Total Chlordane	0.00072	0.044	0.0032	NOAEL	0.6	0.0053
alpha-Chlordane	0.0021	0.00996	0.00072	NOAEL	0.6	0.0012
gamma-Chlordane	0.0021	0.00321	0.00024	NOAEL	0.6	0.00039
Total DDx	0.00118	0.0846	0.0061	Eco-SSL	0.227	0.027
delta-BHC	0.0021	0.00765	0.00056	NOAEL	1.6	0.00035
Dieldrin	0.004	0.00258	0.00019	Eco-SSL	0.0709	0.0027
Endrin	0.004	0.00581	0.00043	NOAEL	0.012	0.036
Endrin aldehyde	0.004	0.0129	0.00094	NOAEL	0.012	0.078
Endrin ketone	0.004	0.00962	0.00070	NOAEL	0.012	0.059
Heptachlor	0.0021	0.00514	0.00038	NOAEL	0.1	0.0038
Heptachlor epoxide	0.0021	0.00329	0.00024	NOAEL	0.1	0.0024
Hexachlorobenzene	0.00097	0.0126	0.00091	NOAEL	0.24	0.0038
Hexachlorobutadiene	0.00072	0.00289	0.00021	NOAEL	1.7	0.00012
Methoxychlor	0.0035	0.00996	0.00073	NOAEL	34.6	0.000021
cis-Nonachlor	0.00072	0.00952	0.00069	NOAEL	0.6	0.0012
trans-Nonachlor	0.00072	0.00348	0.00025	NOAEL	0.6	0.00042
Oxychlordane	0.00072	0.00303	0.00022	NOAEL	0.6	0.00037
PAHs						
Benzo(a)pyrene	0.0034	0.00366	0.00027	NOAEL	0.28	0.0010
Total PAHs	0.0764	0.885	0.064	NOAEL	40	0.0016
Total HPAHs	0.0528	0.0484	0.0036	NOAEL	0.14	0.026
Total LPAHs	0.0241	0.866	0.063	NOAEL	7.7	0.0081
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.036	NOAEL	1.1	0.033
Butyl benzyl phthalate	0.0069	0.21	0.015	NOAEL	0.11	0.14
Di-n-butyl phthalate	0.23	7.02	0.51	NOAEL	1.1	0.46
Di-n-octylphthalate	0.23	0.117	0.0088	NOAEL	1.1	0.0080
Pentachlorophenol	0.59	0.0386	0.0036	Eco-SSL	6.73	0.00054
PCBs						
Total PCB congeners	0.00352	0.299	0.022	NOAEL	0.29	0.075
PCB TEQ, birds	0.00000041	0.00000927	0.00000067	NOAEL	0.000014	0.048
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.0000117	0.00000087	NOAEL	0.000014	0.062
Total TEQ						
Total TEQ, birds	0.0000126	0.0000173	0.0000013	NOAEL	0.000014	0.091

Refined COPC Screen Assumptions	
Receptor	Osprey
Body weight (kg)	1.49
Food ingestion rate (kg/day dw)	0.11
Sediment ingestion rate (kg/day dw)	0.0022
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7o. Results of Spotted Sandpiper Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	3750	1411	NOAEL	157	9.0
Antimony	34.1	34	8.8	na	NA	NA
Arsenic	13.2	9.1	2.51	Eco-SSL	2.24	1.1
Barium	859	3436	786	NOAEL	208.3	3.8
Beryllium	0.701	0.14	0.058	na	NA	NA
Cadmium	3.02	24.1	5.4	Eco-SSL	1.47	3.7
Chromium	61.8	29	8.8	Eco-SSL	2.66	3.3
Cobalt	27	27	7.0	Eco-SSL	7.61	0.92
Copper	982	5156	1167	Eco-SSL	4.05	288
Iron	94300	103730	26413	na	NA	NA
Lead	428	261	74	Eco-SSL	1.63	45
Manganese	1770	2885	701	NOAEL	179	3.9
Mercury	0.313	0.90	0.21	NOAEL	0.018	12
Molybdenum	47.8	135	31	NOAEL	6	5.2
Nickel	14.5	33.6	7.9	Eco-SSL	6.71	1.2
Selenium	2.58	17	3.8	Eco-SSL	0.29	13
Silver	2.04	0.37	0.16	Eco-SSL	2.02	0.080
Thallium	0.383	0.38	0.099	NOAEL	0.48	0.21
Vanadium	32.5	11	3.6	Eco-SSL	0.344	11
Zinc	7680	57830	12957	Eco-SSL	66.1	196
Pesticides						
Aldrin	0.00017	0.0081	0.0018	NOAEL	0.008	0.22
Total Chlordane	0.00072	0.0440	0.0097	NOAEL	0.6	0.016
alpha-Chlordane	0.0021	0.0100	0.0023	NOAEL	0.6	0.0038
gamma-Chlordane	0.0021	0.0032	0.00079	NOAEL	0.6	0.0013
Total DDx	0.00118	0.0846	0.019	Eco-SSL	0.227	0.082
delta-BHC	0.0021	0.0077	0.0018	NOAEL	1.6	0.0011
Dieldrin	0.004	0.0026	0.00072	Eco-SSL	0.0709	0.010
Endrin	0.004	0.0058	0.0014	NOAEL	0.012	0.12
Endrin aldehyde	0.004	0.0129	0.0030	NOAEL	0.012	0.25
Endrin ketone	0.004	0.0096	0.0023	NOAEL	0.012	0.19
Heptachlor	0.0021	0.0051	0.0012	NOAEL	0.1	0.012
Heptachlor epoxide	0.0021	0.0033	0.00080	NOAEL	0.1	0.0080
Hexachlorobenzene	0.00097	0.0126	0.0028	NOAEL	0.24	0.012
Hexachlorobutadiene	0.00072	0.0029	0.00066	NOAEL	1.7	0.00039
Methoxychlor	0.0035	0.0100	0.0023	NOAEL	34.6	0.000067
cis-Nonachlor	0.00072	0.0095	0.0021	NOAEL	0.6	0.0035
trans-Nonachlor	0.00072	0.0035	0.00079	NOAEL	0.6	0.0013
Oxychlordane	0.00072	0.0030	0.00069	NOAEL	0.6	0.0012
PAHs						
Benzo(a)pyrene	0.0034	0.058	0.0128	NOAEL	0.28	0.046
Total PAHs	0.0764	2.8	0.61	NOAEL	40	0.015
Total HPAHs	0.0528	1.0	0.23	NOAEL	0.14	1.6
Total LPAHs	0.0241	1.4	0.30	NOAEL	7.7	0.039
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.49	0.12	NOAEL	1.1	0.11
Butyl benzyl phthalate	0.0069	0.21	0.046	NOAEL	0.11	0.42
Di-n-butyl phthalate	0.23	7.0	1.5	NOAEL	1.1	1.4
Di-n-octylphthalate	0.23	0.12	0.035	NOAEL	1.1	0.032
Pentachlorophenol	0.59	0.039	0.032	Eco-SSL	6.73	0.0047
PCBs						
Total PCB congeners	0.00352	0.166	0.0364	NOAEL	0.29	0.13
PCB TEQ, birds	0.00000041	0.000034	0.0000075	NOAEL	0.000014	0.53
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.00016	0.000037	NOAEL	0.000014	2.6
Total TEQ						
Total TEQ, birds	0.0000126	0.00020	0.000044	NOAEL	0.000014	3.1

Refined COPC Screen Assumptions	
Receptor	Spotted Sandpiper
Body weight (kg)	0.04
Food ingestion rate (kg/day dw)	0.01
Sediment ingestion rate (kg/day dw)	0.0017
Dietary Composition	
Benthic invertebrates	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7p. Results of Tree Swallow Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Media Concentration (mg/kg dw) Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	3750	907	NOAEL	157	5.8
Antimony	34.1	34.10	7.8	na	NA	NA
Arsenic	13.2	1.68	0.43	Eco-SSL	2.24	0.19
Barium	859	3436	773	NOAEL	208.3	3.7
Beryllium	0.701	0.14	0.035	na	NA	NA
Cadmium	3.02	9.28	2.1	Eco-SSL	1.47	1.4
Chromium	61.8	29.05	6.8	Eco-SSL	2.66	2.5
Cobalt	27	27.00	6.2	Eco-SSL	7.61	0.81
Copper	982	83.33	23	Eco-SSL	4.05	5.7
Iron	94300	103730	23645	na	NA	NA
Lead	428	28.25	8.2	Eco-SSL	1.63	5.1
Manganese	1770	2885.10	654	NOAEL	179	3.7
Mercury	0.313	0.90	0.20	NOAEL	0.018	11
Molybdenum	47.8	135.27	30.5	NOAEL	6	5.1
Nickel	14.5	2.33	0.59	Eco-SSL	6.71	0.087
Selenium	2.58	16.85	3.8	Eco-SSL	0.29	13
Silver	2.04	0.37	0.091	Eco-SSL	2.02	0.045
Thallium	0.383	0.38	0.087	NOAEL	0.48	0.18
Vanadium	32.5	10.73	2.5	Eco-SSL	0.344	7.4
Zinc	7680	239.64	88	Eco-SSL	66.1	1.3
Pesticides						
Aldrin	0.00017	0.0081	0.0018	NOAEL	0.008	0.23
Total Chlordane	0.00072	0.0440	0.0099	NOAEL	0.6	0.016
alpha-Chlordane	0.0021	0.0100	0.0022	NOAEL	0.6	0.0037
gamma-Chlordane	0.0021	0.0032	0.00073	NOAEL	0.6	0.0012
Total DDx	0.00118	0.0846	0.019	Eco-SSL	0.227	0.083
delta-BHC	0.0021	0.0077	0.0017	NOAEL	1.6	0.0011
Dieldrin	0.004	0.0026	0.00060	Eco-SSL	0.0709	0.0084
Endrin	0.004	0.0058	0.0013	NOAEL	0.012	0.11
Endrin aldehyde	0.004	0.0129	0.0029	NOAEL	0.012	0.24
Endrin ketone	0.004	0.0096	0.0022	NOAEL	0.012	0.18
Heptachlor	0.0021	0.0051	0.0012	NOAEL	0.1	0.012
Heptachlor epoxide	0.0021	0.0033	0.00075	NOAEL	0.1	0.0075
Hexachlorobenzene	0.00097	0.0126	0.0028	NOAEL	0.24	0.012
Hexachlorobutadiene	0.00072	0.0029	0.00065	NOAEL	1.7	0.00038
Methoxychlor	0.0035	0.0100	0.0022	NOAEL	34.6	0.000065
cis-Nonachlor	0.00072	0.0095	0.0021	NOAEL	0.6	0.0036
trans-Nonachlor	0.00072	0.0035	0.00078	NOAEL	0.6	0.0013
Oxychlordane	0.00072	0.0030	0.00068	NOAEL	0.6	0.0011
PAHs						
Benzo(a)pyrene	0.0034	0.058	0.013	NOAEL	0.28	0.046
Total PAHs	0.0764	2.8	0.62	NOAEL	40	0.016
Total HPAHs	0.0528	1.0	0.23	NOAEL	0.14	1.6
Total LPAHs	0.0241	1.4	0.31	NOAEL	7.7	0.040
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.49	0.11	NOAEL	1.1	0.10
Butyl benzyl phthalate	0.0069	0.21	0.05	NOAEL	0.11	0.43
Di-n-butyl phthalate	0.23	7.0	1.6	NOAEL	1.1	1.4
Di-n-octylphthalate	0.23	0.12	0.027	NOAEL	1.1	0.025
Pentachlorophenol	0.59	0.039	0.011	Eco-SSL	6.73	0.0017
PCBs						
Total PCB congeners	0.00352	0.215	0.0480	NOAEL	0.29	0.17
PCB TEQ, birds	0.00000041	0.000044	0.000	NOAEL	0.000014	0.71
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.00021	0.000048	NOAEL	0.000014	3.4
Total TEQ						
Total TEQ, birds	0.000013	0.00026	0.000058	NOAEL	0.000014	4.1

Refined COPC Screen Assumptions	
Receptor	Tree Swallow
Body weight (kg)	0.020
Food ingestion rate (kg/day dw)	0.0045
Sediment ingestion rate (kg/day dw)	0.000090
Dietary Composition	
Emergent insects	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7q. Results of Tundra Swan Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Aquatic Plants	Total Dose (mg/kg bw/d)	SL TRV Type of SL TRV	(mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	4770	237	NOAEL	157	1.5
Antimony	34.1	20	0.90	na	NA	NA
Arsenic	13.2	8.5	0.38	Eco-SSL	2.24	0.17
Barium	859	364	17	NOAEL	208.3	0.082
Beryllium	0.701	0.60	0.026	na	NA	NA
Cadmium	3.02	2.2	0.10	Eco-SSL	1.47	0.067
Chromium	61.8	34	1.5	Eco-SSL	2.66	0.58
Cobalt	27	16	0.72	Eco-SSL	7.61	0.10
Copper	982	410	19	Eco-SSL	4.05	4.8
Iron	94300	24949	1291	na	NA	NA
Lead	428	194	9.0	Eco-SSL	1.63	5.5
Manganese	1770	697	33	NOAEL	179	0.19
Mercury	0.313	0.29	0.013	NOAEL	0.018	0.70
Molybdenum	47.8	27	1.2	NOAEL	6	0.20
Nickel	14.5	9.2	0.41	Eco-SSL	6.71	0.061
Selenium	2.58	2.0	0.085	Eco-SSL	0.29	0.29
Silver	2.04	1.6	0.069	Eco-SSL	2.02	0.034
Thallium	0.383	0.35	0.015	NOAEL	0.48	0.031
Vanadium	32.5	19	0.86	Eco-SSL	0.344	2.5
Zinc	7680	2611	128	Eco-SSL	66.1	1.9
Pesticides						
Aldrin	0.00017	0.00812	0.0003	NOAEL	0.008	0.040
Total Chlordane	0.00072	0.044	0.0017	NOAEL	0.6	0.0029
alpha-Chlordane	0.0021	0.00996	0.0004	NOAEL	0.6	0.00066
gamma-Chlordane	0.0021	0.00321	0.00013	NOAEL	0.6	0.00022
Total DDx	0.00118	0.0846	0.003	Eco-SSL	0.227	0.015
delta-BHC	0.0021	0.00765	0.0003	NOAEL	1.6	0.00019
Dieldrin	0.004	0.00258	0.00011	Eco-SSL	0.0709	0.0016
Endrin	0.004	0.00581	0.00024	NOAEL	0.012	0.020
Endrin aldehyde	0.004	0.0129	0.0005	NOAEL	0.012	0.043
Endrin ketone	0.004	0.00962	0.0004	NOAEL	0.012	0.033
Heptachlor	0.0021	0.00514	0.00021	NOAEL	0.1	0.0021
Heptachlor epoxide	0.0021	0.00329	0.00014	NOAEL	0.1	0.0014
Hexachlorobenzene	0.00097	0.0126	0.0005	NOAEL	0.24	0.0021
Hexachlorobutadiene	0.00072	0.00289	0.00012	NOAEL	1.7	0.000068
Methoxychlor	0.0035	0.00996	0.0004	NOAEL	34.6	0.000012
cis-Nonachlor	0.00072	0.00952	0.0004	NOAEL	0.6	0.00063
trans-Nonachlor	0.00072	0.00348	0.00014	NOAEL	0.6	0.00023
Oxychlordane	0.00072	0.00303	0.00012	NOAEL	0.6	0.00020
PAHs						
Benzo(a)pyrene	0.0034	0.00366	0.00015	NOAEL	0.28	0.00055
Total PAHs	0.0764	0.885	0.035	NOAEL	40	0.00088
Total HPAHs	0.0528	0.0484	0.0021	NOAEL	0.14	0.015
Total LPAHs	0.0241	0.866	0.034	NOAEL	7.7	0.0044
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.020	NOAEL	1.1	0.018
Butyl benzyl phthalate	0.0069	0.21	0.0083	NOAEL	0.11	0.075
Di-n-butyl phthalate	0.23	7.02	0.28	NOAEL	1.1	0.25
Di-n-octylphthalate	0.23	0.117	0.0054	NOAEL	1.1	0.0049
Pentachlorophenol	0.59	0.0386	0.0035	Eco-SSL	6.73	0.00051
PCBs						
Total PCB congeners	0.00352	0.30	0.012	NOAEL	0.29	0.041
PCB TEQ, birds	0.00000041	0.00000927	0.00000037	NOAEL	0.000014	0.026
Dioxins/Furans						
Dioxin TEQ, birds	0.000013	0.000012	0.00000050	NOAEL	0.000014	0.036
Total TEQ						
Total TEQ, birds	0.0000126	0.0000173	0.00000072	NOAEL	0.000014	0.052

Refined COPC Screen Assumptions	
Receptor	Tundra Swan
Body weight (kg)	6.7
Food ingestion rate (kg/day dw)	0.27
Sediment ingestion rate (kg/day dw)	0.022
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7r. Summary of Avian Receptor Dietary Screen HQs for the Upper Reach OU

COI	Bald Eagle	Belted Kingfisher	Canada Goose	Great Blue Heron	Lesser Scaup	Mallard	Osprey	Spotted Sandpiper	Tree Swallow	Tundra Swan
Metals/Metalloids										
Aluminum	0.18	0.56	2.0	0.60	1.2	1.5	0.26	9.0	5.8	1.5
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.021	0.079	0.23	0.051	0.23	0.20	0.032	1.1	0.19	0.17
Barium	0.0093	0.055	0.11	0.030	0.42	0.45	0.014	3.8	3.7	0.082
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.023	0.10	0.091	0.039	0.45	0.44	0.034	3.7	1.4	0.067
Chromium	0.28	0.73	0.79	0.43	0.51	0.61	0.41	3.3	2.5	0.58
Cobalt	0.0055	0.019	0.13	0.021	0.11	0.14	0.0081	0.92	0.81	0.10
Copper	0.43	3.0	6.5	1.6	27	34	0.64	288	5.7	4.8
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.54	1.6	7.5	1.7	5.5	7.2	0.80	45	5.1	5.5
Manganese	0.019	0.094	0.25	0.066	0.83	0.50	0.028	3.9	3.7	0.19
Mercury	1.2	3.1	0.94	1.6	1.4	1.6	1.8	12	11	0.70
Molybdenum	0.021	0.94	0.28	0.13	0.95	0.67	0.030	5.2	5.1	0.20
Nickel	0.053	0.14	0.083	0.073	0.14	0.16	0.077	1.2	0.087	0.061
Selenium	0.41	1.2	0.40	0.54	1.5	1.6	0.61	13	13	0.29
Silver	0.0022	0.013	0.046	0.0072	0.019	0.025	0.0032	0.080	0.045	0.034
Thallium	0.014	0.039	0.043	0.020	0.031	0.038	0.020	0.21	0.18	0.031
Vanadium	0.20	0.64	3.4	0.62	1.7	2.3	0.29	11	7.4	2.5
Zinc	0.23	0.71	2.6	0.75	18	22	0.35	196	1.3	1.9
Pesticides										
Aldrin	0.050	0.16	0.054	0.063	0.056	0.049	0.074	0.22	0.23	0.040
Total Chlordane	0.0036	0.012	0.0039	0.0045	0.0040	0.0036	0.0053	0.016	0.016	0.0029
alpha-Chlordane	0.00082	0.0026	0.00090	0.0010	0.00092	0.00081	0.0012	0.0038	0.0037	0.00066
gamma-Chlordane	0.00027	0.00085	0.00030	0.00035	0.00030	0.00026	0.00039	0.0013	0.0012	0.00022
Total DDx	0.018	0.059	0.020	0.023	0.020	0.018	0.027	0.082	0.083	0.015
delta-BHC	0.00024	0.00076	0.00026	0.00030	0.00027	0.00023	0.00035	0.0011	0.0011	0.00019
Dieldrin	0.0018	0.0059	0.0022	0.0025	0.0021	0.0018	0.0027	0.010	0.0084	0.0016
Endrin	0.024	0.077	0.027	0.032	0.027	0.024	0.036	0.12	0.11	0.020
Endrin aldehyde	0.053	0.17	0.059	0.068	0.060	0.053	0.078	0.25	0.24	0.043
Endrin ketone	0.040	0.13	0.044	0.051	0.045	0.039	0.059	0.19	0.18	0.033
Heptachlor	0.0025	0.0082	0.0028	0.0033	0.0029	0.0025	0.0038	0.012	0.012	0.0021
Heptachlor epoxide	0.0016	0.0052	0.0019	0.0021	0.0019	0.0016	0.0024	0.0080	0.0075	0.0014
Hexachlorobenzene	0.0026	0.0083	0.0028	0.0033	0.0029	0.0026	0.0038	0.012	0.012	0.0021
Hexachlorobutadiene	0.000084	0.00027	0.000093	0.00011	0.000094	0.000083	0.00012	0.00039	0.00038	0.000068
Methoxychlor	0.000014	0.000046	0.000016	0.000018	0.000016	0.000014	0.000021	0.000067	0.000065	0.000012
cis-Nonachlor	0.00078	0.0025	0.00085	0.0010	0.00087	0.00077	0.0012	0.0035	0.0036	0.00063
trans-Nonachlor	0.00029	0.00092	0.00032	0.00036	0.00032	0.00028	0.00042	0.0013	0.0013	0.00023
Oxychlordane	0.00025	0.00080	0.00028	0.00032	0.00028	0.00025	0.00037	0.0012	0.0011	0.00020
PAHs										
Benzo(a)pyrene	0.00065	0.0037	0.00075	0.0010	0.0082	0.0053	0.0010	0.046	0.046	0.00055
Total PAHs	0.0011	0.0033	0.0012	0.0014	0.0031	0.0022	0.0016	0.015	0.016	0.00088
Total HPAHs	0.017	0.12	0.020	0.028	0.29	0.19	0.026	1.6	1.6	0.015
Total LPAHs	0.0055	0.015	0.0060	0.0068	0.0088	0.0071	0.0081	0.039	0.040	0.0044
SVOCs										
bis(2-Ethylhexyl)phthalate	0.022	0.071	0.025	0.029	0.025	0.022	0.033	0.11	0.10	0.018
Butyl benzyl phthalate	0.094	0.30	0.10	0.12	0.10	0.093	0.14	0.42	0.43	0.075
Di-n-butyl phthalate	0.31	1.0	0.34	0.39	0.35	0.31	0.46	1.4	1.4	0.25
Di-n-octylphthalate	0.0054	0.017	0.0066	0.0076	0.0064	0.0055	0.0080	0.032	0.025	0.0049
Pentachlorophenol	0.00037	0.0012	0.00069	0.00081	0.00054	0.00042	0.00054	0.0047	0.0017	0.00051
PCBs										
Total PCB congeners	0.051	0.16	0.055	0.064	0.029	0.039	0.075	0.13	0.17	0.041
PCB TEQ, birds	0.033	0.10	0.036	0.041	0.060	0.075	0.048	0.53	0.71	0.026
Dioxins/Furans										
Dioxin TEQ, birds	0.042	0.13	0.049	0.056	0.25	0.31	0.062	2.6	3.4	0.036
Total TEQ										
Total TEQ, birds	0.062	0.20	0.070	0.081	0.30	0.38	0.091	3.1	4.1	0.052

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7s. Results of Brown Bat Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	3750	756	NOAEL	34	22
Antimony	34.1	34	6.5	Eco-SSL	0.059	110
Arsenic	13.2	1.7	0.36	Eco-SSL	1.04	0.35
Barium	859	3436	645	Eco-SSL	51.8	12
Beryllium	0.701	0.14	0.029	Eco-SSL	0.532	0.054
Cadmium	3.02	9.3	1.7	Eco-SSL	0.77	2.3
Chromium	61.8	29	5.7	Eco-SSL	2.4	2.3
Cobalt	27	27	5.1	Eco-SSL	7.33	0.70
Copper	982	83	19	Eco-SSL	5.6	3.4
Iron	94300	103730	19715	na	NA	NA
Lead	428	28	6.9	Eco-SSL	4.7	1.5
Manganese	1770	2885	545	Eco-SSL	51.5	11
Mercury	0.313	0.9	0.17	NOAEL	0.0017	99
Molybdenum	47.8	135	25	NOAEL	0.258	99
Nickel	14.5	2.3	0.49	Eco-SSL	1.7	0.29
Selenium	2.58	17	3.2	Eco-SSL	0.143	22
Silver	2.04	0.367	0.076	Eco-SSL	6.02	0.013
Thallium	0.383	0.383	0.073	NOAEL	0.74	0.10
Vanadium	32.5	11	2.1	Eco-SSL	4.16	0.51
Zinc	7680	240	73	Eco-SSL	75.4	0.97
Pesticides						
Aldrin	0.00017	0.0081	0.0015	NOAEL	0.83	0.0018
Total Chlordane	0.00072	0.0440	0.0082	NOAEL	0.08	0.10
alpha-Chlordane	0.0021	0.0100	0.0019	NOAEL	0.08	0.023
gamma-Chlordane	0.0021	0.0032	0.00061	NOAEL	0.08	0.0076
Total DDx	0.00118	0.0846	0.016	Eco-SSL	0.147	0.11
delta-BHC	0.0021	0.0077	0.0014	NOAEL	6.1	0.00024
Dieldrin	0.004	0.0026	0.00050	Eco-SSL	0.015	0.033
Endrin	0.004	0.0058	0.0011	NOAEL	0.18	0.0061
Endrin aldehyde	0.004	0.0129	0.0024	NOAEL	0.18	0.013
Endrin ketone	0.004	0.0096	0.0018	NOAEL	0.18	0.010
Heptachlor	0.0021	0.0051	0.0010	NOAEL	1	0.0010
Heptachlor epoxide	0.0021	0.0033	0.00062	NOAEL	1	0.00062
Hexachlorobenzene	0.00097	0.0126	0.0024	NOAEL	0.026	0.091
Hexachlorobutadiene	0.00072	0.0029	0.00054	NOAEL	2	0.00027
Methoxychlor	0.0035	0.0100	0.0019	NOAEL	5.6	0.00033
cis-Nonachlor	0.00072	0.0095	0.0018	NOAEL	2.5	0.00071
trans-Nonachlor	0.00072	0.0035	0.00065	NOAEL	2.5	0.00026
Oxychlordane	0.00072	0.0030	0.00057	NOAEL	0.18	0.0032
PAHs						
Benzo(a)pyrene	0.0034	0.058	0.011	NOAEL	2	0.0054
Total PAHs	0.0764	2.8	0.52	na	NA	NA
Total HPAHs	0.0528	1.0	0.19	Eco-SSL	0.615	0.31
Total LPAHs	0.0241	1.4	0.259	Eco-SSL	65.6	0.0039
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.093	NOAEL	44	0.0021
Butyl benzyl phthalate	0.0069	0.210	0.039	NOAEL	831	0.000047
Di-n-butyl phthalate	0.23	7.0	1.3	NOAEL	16	0.082
Di-n-octylphthalate	0.23	0.117	0.023	NOAEL	44	0.00052
Pentachlorophenol	0.59	0.039	0.0094	Eco-SSL	8.42	0.0011
PCBs						
Total PCB congeners	0.00352	0.215	0.0402	NOAEL	0.0089	4.5
PCB TEQ, mammals	0.000000272	0.0000291	0.0000	NOAEL	0.000001	5.4
Dioxins/Furans						
Dioxin TEQ, mammals	0.00000196	0.0000323	0.00000604	NOAEL	0.000001	6.0
Total TEQ						
Total TEQ, mammals	0.00000222	0.000061	0.000011	NOAEL	0.000001	11.5

Refined COPC Screen Assumptions	
Receptor	Brown Bat
Body weight (kg)	0.0075
Food ingestion rate (kg/day dw)	0.0014
Sediment ingestion rate (kg/day dw)	0.000028
Dietary Composition	
Emergent insects	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7t. Results of Mink Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Fish				
Metals/Metalloids							
Aluminum	15000	208	269	51	NOAEL	34	1.5
Antimony	34.1	0.23	0.383	0.10	Eco-SSL	0.059	1.8
Arsenic	13.2	1.27	0.715	0.071	Eco-SSL	1.04	0.069
Barium	859	153	22.4	3.9	Eco-SSL	51.8	0.076
Beryllium	0.701	0.011	0.0112	0.0023	Eco-SSL	0.532	0.0043
Cadmium	3.02	1.53	0.631	0.043	Eco-SSL	0.77	0.056
Chromium	61.8	3.16	13.8	0.79	Eco-SSL	2.4	0.32
Cobalt	27	0.522	0.314	0.084	Eco-SSL	7.33	0.011
Copper	982	179	15.9	4.1	Eco-SSL	5.6	0.72
Iron	94300	430	1130	288	na	NA	NA
Lead	428	3.33	9.45	1.5	Eco-SSL	4.7	0.32
Manganese	1770	184	34	6.9	Eco-SSL	51.5	0.13
Mercury	0.313	0.0786	0.445	0.021	NOAEL	0.0017	12
Molybdenum	47.8	135	1.57	0.86	NOAEL	0.258	3.4
Nickel	14.5	2.74	6.88	0.36	Eco-SSL	1.7	0.21
Selenium	2.58	1.16	2.39	0.12	Eco-SSL	0.143	0.84
Silver	2.04	0.338	0.0498	0.0090	Eco-SSL	6.02	0.0015
Thallium	0.383	0.0716	0.125	0.0069	NOAEL	0.74	0.0094
Vanadium	32.5	0.768	0.749	0.12	Eco-SSL	4.16	0.028
Zinc	7680	89.8	162	27	Eco-SSL	75.4	0.36
Pesticides							
Aldrin	0.00017	0.00812	0.00812	0.00041	NOAEL	0.83	0.00049
Total Chlordane	0.00072	0.044	0.044	0.0022	NOAEL	0.08	0.027
alpha-Chlordane	0.0021	0.00996	0.00996	0.00050	NOAEL	0.08	0.0063
gamma-Chlordane	0.0021	0.00321	0.00321	0.00017	NOAEL	0.08	0.0021
Total DDx	0.00118	0.0846	0.0846	0.0042	Eco-SSL	0.147	0.029
delta-BHC	0.0021	0.00765	0.00765	0.00039	NOAEL	6.1	0.000063
Dieldrin	0.004	0.00258	0.00258	0.00014	Eco-SSL	0.015	0.0092
Endrin	0.004	0.00581	0.00581	0.00030	NOAEL	0.18	0.0017
Endrin aldehyde	0.004	0.0129	0.0129	0.00065	NOAEL	0.18	0.0036
Endrin ketone	0.004	0.00962	0.00962	0.00049	NOAEL	0.18	0.0027
Heptachlor	0.0021	0.00514	0.00514	0.00026	NOAEL	1	0.00026
Heptachlor epoxide	0.0021	0.00329	0.00329	0.00017	NOAEL	1	0.00017
Hexachlorobenzene	0.00097	0.0126	0.0126	0.00063	NOAEL	0.026	0.024
Hexachlorobutadiene	0.00072	0.00289	0.00289	0.00015	NOAEL	2	0.000073
Methoxychlor	0.0035	0.00996	0.00996	0.00051	NOAEL	5.6	0.000090
cis-Nonachlor	0.00072	0.00952	0.00952	0.00048	NOAEL	2.5	0.00019
trans-Nonachlor	0.00072	0.00348	0.00348	0.00018	NOAEL	2.5	0.000070
Oxychlordane	0.00072	0.00303	0.00303	0.00015	NOAEL	0.18	0.00085
PAHs							
Benzo(a)pyrene	0.0034	0.015	0.00366	0.00025	NOAEL	2	0.00012
Total PAHs	0.0764	0.74	0.885	0.044	na	NA	NA
Total HPAHs	0.0528	0.27	0.0484	0.0037	Eco-SSL	0.615	0.0060
Total LPAHs	0.0241	0.37	0.866	0.041	Eco-SSL	65.6	0.00062
SVOCs							
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.494	0.025	NOAEL	44	0.00057
Butyl benzyl phthalate	0.0069	0.21	0.21	0.010	NOAEL	831	0.000013
Di-n-butyl phthalate	0.23	7.02	7.02	0.35	NOAEL	16	0.022
Di-n-octylphthalate	0.23	0.117	0.117	0.0064	NOAEL	44	0.00015
Pentachlorophenol	0.59	0.0386	0.0386	0.0034	Eco-SSL	8.42	0.00040
PCBs							
Total PCB congeners	0.00352	0.299	0.299	0.015	NOAEL	0.0089	1.7
PCB TEQ, mammals	0.000000272	0.00000678	0.00000678	0.00000034	NOAEL	0.0000010	0.34
Dioxins/Furans							
Dioxin TEQ, mammals	0.00000196	0.00000388	0.00000388	0.00000020	NOAEL	0.0000010	0.20
Total TEQ							
Total TEQ, mammals	0.00000222	0.00000854	0.00000854	0.00000043	NOAEL	0.0000010	0.43

Refined COPC Screen Assumptions	
Receptor	Mink
Body weight (kg)	0.85
Food ingestion rate (kg/day dw)	0.043
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Crayfish	10%
Fish	90%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7u. Results of Muskrat Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw) Sediment	Aquatic Plants	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15000	4770	382	NOAEL	34	11
Antimony	34.1	20	1.5	Eco-SSL	0.059	25
Arsenic	13.2	8.5	0.63	Eco-SSL	1.04	0.61
Barium	859	364	28	Eco-SSL	51.8	0.54
Beryllium	0.701	0.60	0.044	Eco-SSL	0.532	0.083
Cadmium	3.02	2.2	0.17	Eco-SSL	0.77	0.22
Chromium	61.8	34	2.6	Eco-SSL	2.4	1.1
Cobalt	27	16	1.2	Eco-SSL	7.33	0.17
Copper	982	410	32	Eco-SSL	5.6	5.7
Iron	94300	24949	2052	na	NA	NA
Lead	428	194	15	Eco-SSL	4.7	3.2
Manganese	1770	697	54	Eco-SSL	51.5	1.1
Mercury	0.313	0.29	0.021	NOAEL	0.0017	13
Molybdenum	47.8	27	2.0	NOAEL	0.258	7.9
Nickel	14.5	9.2	0.69	Eco-SSL	1.7	0.41
Selenium	2.58	2.0	0.14	Eco-SSL	0.143	1.0
Silver	2.04	1.6	0.12	Eco-SSL	6.02	0.019
Thallium	0.383	0.35	0.026	NOAEL	0.74	0.035
Vanadium	32.5	19	1.4	Eco-SSL	4.16	0.34
Zinc	7680	2611	207	Eco-SSL	75.4	2.7
Pesticides						
Aldrin	0.00017	0.00812	0.00056	NOAEL	0.83	0.00068
Total Chlordane	0.00072	0.044	0.0030	NOAEL	0.08	0.038
alpha-Chlordane	0.0021	0.00996	0.00070	NOAEL	0.08	0.0087
gamma-Chlordane	0.0021	0.00321	0.00023	NOAEL	0.08	0.0029
Total DDx	0.00118	0.0846	0.0059	Eco-SSL	0.147	0.040
delta-BHC	0.0021	0.00765	0.00054	NOAEL	6.1	0.000088
Dieldrin	0.004	0.00258	0.00019	Eco-SSL	0.015	0.0128
Endrin	0.004	0.00581	0.00042	NOAEL	0.18	0.0023
Endrin aldehyde	0.004	0.0129	0.00091	NOAEL	0.18	0.0050
Endrin ketone	0.004	0.00962	0.00068	NOAEL	0.18	0.0038
Heptachlor	0.0021	0.00514	0.00036	NOAEL	1	0.00036
Heptachlor epoxide	0.0021	0.00329	0.00023	NOAEL	1	0.00023
Hexachlorobenzene	0.00097	0.0126	0.00088	NOAEL	0.026	0.034
Hexachlorobutadiene	0.00072	0.00289	0.00020	NOAEL	2	0.00010
Methoxychlor	0.0035	0.00996	0.00070	NOAEL	5.6	0.00013
cis-Nonachlor	0.00072	0.00952	0.00066	NOAEL	2.5	0.00026
trans-Nonachlor	0.00072	0.00348	0.00024	NOAEL	2.5	0.000097
Oxychlordane	0.00072	0.00303	0.00021	NOAEL	0.18	0.0012
PAHs						
Benzo(a)pyrene	0.0034	0.00366	0.00026	NOAEL	2	0.00013
Total PAHs	0.0764	0.885	0.061	na	NA	NA
Total HPAHs	0.0528	0.0484	0.0035	Eco-SSL	0.615	0.0057
Total LPAHs	0.0241	0.866	0.060	Eco-SSL	65.6	0.00091
SVOCs						
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.035	NOAEL	44	0.00079
Butyl benzyl phthalate	0.0069	0.21	0.015	NOAEL	831	0.000018
Di-n-butyl phthalate	0.23	7.02	0.49	NOAEL	16	0.030
Di-n-octylphthalate	0.23	0.117	0.0089	NOAEL	44	0.00020
Pentachlorophenol	0.59	0.0386	0.0047	Eco-SSL	8.42	0.00056
PCBs						
Total PCB congeners	0.00352	0.299	0.021	NOAEL	0.0089	2.3
PCB TEQ, mammals	0.000000272	0.00000678	0.00000047	NOAEL	0.0000010	0.47
Dioxins/Furans						
Dioxin TEQ, mammals	0.00000196	0.00000388	0.00000028	NOAEL	0.0000010	0.28
Total TEQ						
Total TEQ, mammals	0.00000222	0.00000854	0.00000060	NOAEL	0.0000010	0.599

Refined COPC Screen Assumptions	
Receptor	Muskrat
Body weight (kg)	0.87
Food ingestion rate (kg/day dw)	0.060
Sediment ingestion rate (kg/day dw)	0.0030
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7v. Results of River Otter Dietary Screen for the Upper Reach OU

COI	Media Concentration (mg/kg dw)				Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Mussels	Fish				
Metals/Metalloids								
Aluminum	15000	208	656	269	35	NOAEL	34	1.0
Antimony	34.1	0.23	1.41	0.383	0.071	Eco-SSL	0.059	1.2
Arsenic	13.2	1.27	9.2	0.715	0.054	Eco-SSL	1.04	0.052
Barium	859	153	776	22.4	3.2	Eco-SSL	51.8	0.061
Beryllium	0.701	0.011	0.0663	0.0112	0.0016	Eco-SSL	0.532	0.0030
Cadmium	3.02	1.53	8.14	0.631	0.035	Eco-SSL	0.77	0.045
Chromium	61.8	3.16	7.58	13.8	0.53	Eco-SSL	2.4	0.22
Cobalt	27	0.522	1.15	0.314	0.058	Eco-SSL	7.33	0.0079
Copper	982	179	18.2	15.9	2.8	Eco-SSL	5.6	0.49
Iron	94300	430	2330	1130	197	na	NA	NA
Lead	428	3.33	7.58	9.45	1.0	Eco-SSL	4.7	0.22
Manganese	1770	184	4070	34	7.4	Eco-SSL	51.5	0.14
Mercury	0.313	0.079	0.11	0.445	0.014	NOAEL	0.0017	8.4
Molybdenum	47.8	135	135	1.57	0.68	NOAEL	0.258	2.6
Nickel	14.5	2.74	4.14	6.88	0.24	Eco-SSL	1.7	0.14
Selenium	2.58	1.16	3.79	2.39	0.083	Eco-SSL	0.143	0.58
Silver	2.04	0.338	0.264	0.0498	0.0063	Eco-SSL	6.02	0.0010
Thallium	0.383	0.0716	0.0598	0.125	0.0047	NOAEL	0.74	0.0063
Vanadium	32.5	0.768	1.84	0.749	0.082	Eco-SSL	4.16	0.020
Zinc	7680	89.8	280	162	18	Eco-SSL	75.4	0.24
Pesticides								
Aldrin	0.00017	0.00812	0.00812	0.00812	0.00028	NOAEL	0.83	0.00033
Total Chlordane	0.00072	0.044	0.044	0.044	0.0015	NOAEL	0.08	0.019
alpha-Chlordane	0.0021	0.00996	0.00996	0.00996	0.00034	NOAEL	0.08	0.0043
gamma-Chlordane	0.0021	0.00321	0.00321	0.00321	0.00011	NOAEL	0.08	0.0014
Total DDx	0.00118	0.0846	0.0846	0.0846	0.0029	Eco-SSL	0.147	0.020
delta-BHC	0.0021	0.00765	0.00765	0.00765	0.00026	NOAEL	6.1	0.000043
Dieldrin	0.004	0.00258	0.00258	0.00258	0.000095	Eco-SSL	0.015	0.0063
Endrin	0.004	0.00581	0.00581	0.00581	0.00020	NOAEL	0.18	0.0011
Endrin aldehyde	0.004	0.0129	0.0129	0.0129	0.00045	NOAEL	0.18	0.0025
Endrin ketone	0.004	0.00962	0.00962	0.00962	0.00033	NOAEL	0.18	0.0019
Heptachlor	0.0021	0.00514	0.00514	0.00514	0.00018	NOAEL	1	0.00018
Heptachlor epoxide	0.0021	0.00329	0.00329	0.00329	0.00012	NOAEL	1	0.00012
Hexachlorobenzene	0.00097	0.0126	0.0126	0.0126	0.00043	NOAEL	0.026	0.017
Hexachlorobutadiene	0.00072	0.00289	0.00289	0.00289	0.00010	NOAEL	2	0.000050
Methoxychlor	0.0035	0.00996	0.00996	0.00996	0.00034	NOAEL	5.6	0.000062
cis-Nonachlor	0.00072	0.00952	0.00952	0.00952	0.00033	NOAEL	2.5	0.00013
trans-Nonachlor	0.00072	0.00348	0.00348	0.00348	0.00012	NOAEL	2.5	0.000048
Oxychlordane	0.00072	0.00303	0.00303	0.00303	0.00010	NOAEL	0.18	0.00058
PAHs								
Benzo(a)pyrene	0.0034	0.015	0.015	0.00366	0.00018	NOAEL	2	0.000089
Total PAHs	0.0764	0.74	0.74	0.885	0.030	na	NA	NA
Total HPAHs	0.0528	0.27	0.27	0.0484	0.0027	Eco-SSL	0.615	0.0043
Total LPAHs	0.0241	0.37	0.37	0.866	0.027	Eco-SSL	65.6	0.00042
SVOCs								
bis(2-Ethylhexyl)phthalate	0.205	0.494	0.494	0.494	0.017	NOAEL	44	0.00039
Butyl benzyl phthalate	0.0069	0.21	0.21	0.21	0.0072	NOAEL	831	0.0000086
Di-n-butyl phthalate	0.23	7.02	7.02	7.02	0.24	NOAEL	16	0.015
Di-n-octylphthalate	0.23	0.117	0.117	0.117	0.0044	NOAEL	44	0.00010
Pentachlorophenol	0.59	0.0386	0.0386	0.0386	0.0023	Eco-SSL	8.42	0.00028
PCBs								
Total PCB congeners	0.00352	0.299	0.0152	0.299	0.010	NOAEL	0.0089	1.1
PCB TEQ, mammals	0.000000272	0.00000678	0.000000333	0.00000678	0.00000023	NOAEL	0.0000010	0.23
Dioxins/Furans								
Dioxin TEQ, mammals	0.00000196	0.00000388	0.00000165	0.00000388	0.00000013	NOAEL	0.0000010	0.13
Total TEQ								
Total TEQ, mammals	0.00000222	0.00000854	0.00000198	0.00000854	0.00000029	NOAEL	0.0000010	0.29

Refined COPC Screen Assumptions	
Receptor	River Otter
Body weight (kg)	8.6
Food ingestion rate (kg/day dw)	0.29
Sediment ingestion rate (kg/day dw)	0.015
Dietary Composition	
Crayfish	10%
Mussels	2%
Fish	88%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

OU - operable unit

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-7w. Summary of Mammalian Receptor Dietary Screen HQs for the Upper Reach OU

COI	Brown Bat	Mink	Muskrat	River Otter
Metals/Metalloids				
Aluminum	22	1.5	11	1.0
Antimony	110	1.8	25	1.2
Arsenic	0.35	0.069	0.61	0.052
Barium	12	0.076	0.54	0.061
Beryllium	0.054	0.0043	0.083	0.0030
Cadmium	2.3	0.056	0.22	0.045
Chromium	2.3	0.32	1.1	0.22
Cobalt	0.70	0.011	0.17	0.0079
Copper	3.4	0.72	5.7	0.49
Iron	NA	NA	NA	NA
Lead	1.5	0.32	3.2	0.22
Manganese	11	0.13	1.1	0.14
Mercury	99	12	13	8.4
Molybdenum	99	3.4	7.9	2.6
Nickel	0.29	0.21	0.41	0.14
Selenium	22	0.84	1.0	0.58
Silver	0.013	0.0015	0.019	0.0010
Thallium	0.10	0.0094	0.035	0.0063
Vanadium	0.51	0.028	0.34	0.020
Zinc	0.97	0.36	2.7	0.24
Pesticides				
Aldrin	0.0018	0.00049	0.00068	0.00033
Total Chlordane	0.10	0.027	0.038	0.019
alpha-Chlordane	0.023	0.0063	0.0087	0.0043
gamma-Chlordane	0.0076	0.0021	0.0029	0.0014
Total DDx	0.11	0.029	0.040	0.020
delta-BHC	0.00024	0.000063	0.000088	0.000043
Dieldrin	0.033	0.0092	0.013	0.0063
Endrin	0.0061	0.0017	0.0023	0.0011
Endrin aldehyde	0.013	0.0036	0.0050	0.0025
Endrin ketone	0.010	0.0027	0.0038	0.0019
Heptachlor	0.0010	0.00026	0.00036	0.00018
Heptachlor epoxide	0.00062	0.00017	0.00023	0.00012
Hexachlorobenzene	0.091	0.024	0.034	0.017
Hexachlorobutadiene	0.00027	0.000073	0.00010	0.000050
Methoxychlor	0.00033	0.000090	0.00013	0.000062
cis-Nonachlor	0.00071	0.00019	0.00026	0.00013
trans-Nonachlor	0.00026	0.000070	0.000097	0.000048
Oxychlordane	0.0032	0.00085	0.0012	0.00058
PAHs				
Benzo(a)pyrene	0.0054	0.00012	0.00013	0.000089
Total PAHs	NA	NA	NA	NA
Total HPAHs	0.31	0.0060	0.0057	0.0043
Total LPAHs	0.0039	0.00062	0.00091	0.00042
SVOCs				
bis(2-Ethylhexyl)phthalate	0.0021	0.00057	0.00079	0.00039
Butyl benzyl phthalate	0.000047	0.000013	0.000018	0.0000086
Di-n-butyl phthalate	0.082	0.022	0.030	0.015
Di-n-octylphthalate	0.00052	0.00015	0.00020	0.00010
Pentachlorophenol	0.0011	0.00040	0.00056	0.00028
PCBs				
Total PCB congeners	4.5	1.7	2.3	1.1
PCB TEQ, mammals	5.4	0.34	0.47	0.23
Dioxins/Furans				
Dioxin TEQ, mammals	6.0	0.20	0.28	0.13
Total TEQ				
Total TEQ, mammals	11.5	0.43	0.599	0.29

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane
COI - chemical of interest
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
OU - operable unit
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-8a. Results of Bull Trout Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
	Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	21800	134	3.9	NOAEL	67	0.058	352	NOAEL	2232	0.16
Antimony	2.37	0.0916	0.0013	na	NA	NA	0.12	na	NA	NA
Arsenic	5.84	1.18	0.014	NOAEL	0.4	0.034	1.2	NOAEL	20	0.062
Barium	407	10.2	0.16	na	NA	NA	14	na	NA	NA
Beryllium	0.905	0.00729	0.00018	na	NA	NA	0.016	na	NA	NA
Cadmium	3.24	0.394	0.0047	NOAEL	0.002	2.4	0.43	NOAEL	0.1	4.3
Chromium	27.3	2.37	0.029	NOAEL	0.037	0.79	2.6	NOAEL	2	1.3
Cobalt	7.26	0.205	0.0031	na	NA	NA	0.28	na	NA	NA
Copper	112	5.65	0.075	NOAEL	0.24	0.31	6.8	NOAEL	8	0.85
Iron	22600	363	6.5	na	NA	NA	589	na	NA	NA
Lead	167	3.33	0.055	NOAEL	12.4	0.0045	5.0	NOAEL	728	0.0069
Manganese	353	17.4	0.23	na	NA	NA	21	na	NA	NA
Mercury	0.343	0.615	0.0068	NOAEL	0.005	1.4	0.62	NOAEL	0.2	3.1
Molybdenum	3.8	0.251	0.0032	NOAEL	45	0.000071	0.29	NOAEL	1500	0.00019
Nickel	18.4	1.31	0.016	NOAEL	1.4	0.012	1.5	NOAEL	70	0.021
Selenium	1.08	2.12	0.024	NOAEL	0.1	0.24	2.1	NOAEL	3.9	0.55
Silver	0.959	0.0214	0.00034	NOAEL	70	0.0000049	0.031	NOAEL	3000	0.000010
Thallium	0.44	0.184	0.0021	na	NA	NA	0.19	na	NA	NA
Uranium	2.78	0.0274	0.00061	NOAEL	300	0.0000020	0.055	NOAEL	10000	0.0000055
Vanadium	42.5	0.585	0.011	NOAEL	0.036	0.31	1.0	NOAEL	1.2	0.84
Zinc	1060	102	1.2	NOAEL	19	0.065	113	NOAEL	1000	0.11
PAHs										
Benzo(a)pyrene	0.00161	0.00149	0.000017	NOAEL	0.66	0.000025	0.0015	NOAEL	47	0.000032
Total PAHs	0.0384	0.05	0.00056	NOAEL	6.1	0.000091	0.050	NOAEL	324	0.00016
Total HPAHs	0.0215	0.00185	0.000023	NOAEL	6.1	0.0000037	0.0021	NOAEL	324	0.0000064
Total LPAHs	0.0144	0.0294	0.00033	NOAEL	6.1	0.000053	0.030	NOAEL	324	0.000091

Refined COPC Screen Assumptions	
Receptor	Bull Trout
Body weight (kg)	7.0
Food ingestion rate (kg/day dw)	0.077
Sediment ingestion rate (kg/day dw)	0.00077
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-8b. Results of Chinook Salmon Dietary Screen for the Transitional CSM Unit

	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	21800	5450	84	NOAEL	67	1.3	5668	NOAEL	2232	2.5
Antimony	2.37	2.4	0.035	na	NA	NA	2.4	na	NA	NA
Arsenic	5.84	4.03	0.060	NOAEL	0.4	0.15	4.09	NOAEL	20	0.20
Barium	407	1628	24	na	NA	NA	1632	na	NA	NA
Beryllium	0.905	0.18	0.0028	na	NA	NA	0.19	na	NA	NA
Cadmium	3.24	26	0.38	NOAEL	0.002	192	26	NOAEL	0.1	259
Chromium	27.3	13	0.19	NOAEL	0.037	5.2	13	NOAEL	2	6.6
Cobalt	7.26	7.26	0.11	na	NA	NA	7.3	na	NA	NA
Copper	112	588	8.71	NOAEL	0.24	36	589	NOAEL	8	74
Iron	22600	24860	371	na	NA	NA	25086	na	NA	NA
Lead	167	102	1.53	NOAEL	12.4	0.12	104	NOAEL	728	0.14
Manganese	353	575	8.6	na	NA	NA	579	na	NA	NA
Mercury	0.343	0.98	0.015	NOAEL	0.005	2.9	0.99	NOAEL	0.2	4.9
Molybdenum	3.8	10.8	0.16	NOAEL	45	0.0035	11	NOAEL	1500	0.0072
Nickel	18.4	42.7	0.634	NOAEL	1.4	0.45	42.9	NOAEL	70	0.61
Selenium	1.08	7.1	0.10	NOAEL	0.1	1.0	7.1	NOAEL	3.9	1.8
Silver	0.959	0.17	0.0027	NOAEL	70	0.000038	0.18	NOAEL	3000	0.000061
Thallium	0.44	0.44	0.0066	na	NA	NA	0.44	na	NA	NA
Uranium	2.78	2.78	0.042	NOAEL	300	0.00014	2.8	NOAEL	10000	0.00028
Vanadium	42.5	14	0.21	NOAEL	0.036	5.9	14	NOAEL	1.2	12
Zinc	1060	7982	118.2	NOAEL	19	6.2	7992	NOAEL	1000	8.0
PAHs										
Benzo(a)pyrene	0.00161	0.027	0.00040	NOAEL	0.66	0.00061	0.027	NOAEL	47	0.00058
Total PAHs	0.0384	1.40	0.021	NOAEL	6.1	0.0034	1.41	NOAEL	324	0.0043
Total HPAHs	0.0215	0.42	0.0062	NOAEL	6.1	0.0010	0.42	NOAEL	324	0.0013
Total LPAHs	0.0144	0.83	0.012	NOAEL	6.1	0.0020	0.83	NOAEL	324	0.0026

Refined COPC Screen Assumptions	
Receptor	Chinook Salmon
Body weight (kg)	1.0
Food ingestion rate (kg/day dw)	0.015
Sediment ingestion rate (kg/day dw)	0.00015
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Benthic Invertebrates	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-8c. Results of Largescale Sucker Dietary Screen for the Transitional CSM Unit

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Aquatic Plants	Benthic Invertebrate	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	21800	6677	5450	132	NOAEL	67	2.0	7808	NOAEL	2232	3.5
Antimony	2.37	1.81	2.4	0.039	na	NA	NA	2.3	na	NA	NA
Arsenic	5.84	4.07	4.03	0.077	NOAEL	0.4	0.19	4.5	NOAEL	20	0.23
Barium	407	186	1628	16	na	NA	NA	939	na	NA	NA
Beryllium	0.905	0.760	0.18	0.0092	na	NA	NA	0.54	na	NA	NA
Cadmium	3.24	2.40	26	0.24	NOAEL	0.002	122	14.4	NOAEL	0.1	144
Chromium	27.3	16.3	13	0.28	NOAEL	0.037	7.7	17	NOAEL	2	8.4
Cobalt	7.26	4.95	7.3	0.11	na	NA	NA	6.7	na	NA	NA
Copper	112	58.1	588	5.6	NOAEL	0.24	23	332	NOAEL	8	42
Iron	22600	6898	24860	300	na	NA	NA	17687	na	NA	NA
Lead	167	83	102	1.8	NOAEL	12.4	0.14	106	NOAEL	728	0.15
Manganese	353	163	575	6.7	na	NA	NA	398	na	NA	NA
Mercury	0.343	0.318	0.98	0.012	NOAEL	0.005	2.3	0.68	NOAEL	0.2	3.4
Molybdenum	3.8	2.77	10.8	0.12	NOAEL	45	0.0027	7.1	NOAEL	1500	0.0047
Nickel	18.4	11.4	42.7	0.48	NOAEL	1.4	0.35	28.5	NOAEL	70	0.41
Selenium	1.08	0.891	7.1	0.069	NOAEL	0.1	0.69	4.1	NOAEL	3.9	1.0
Silver	0.959	0.801	0.17	0.010	NOAEL	70	0.00014	0.56	NOAEL	3000	0.00019
Thallium	0.44	0.397	0.44	0.0077	na	NA	NA	0.45	na	NA	NA
Uranium	2.78	2.09	2.78	0.045	NOAEL	300	0.00015	2.7	NOAEL	10000	0.00027
Vanadium	42.5	24.3	14	0.38	NOAEL	0.036	11	23	NOAEL	1.2	19
Zinc	1060	439	7982	72.9	NOAEL	19	3.8	4295	NOAEL	1000	4.3
PAHs											
Benzo(a)pyrene	0.00161	0.00149	0.027	0.00025	NOAEL	0.66	0.00037	0.015	NOAEL	47	0.00031
Total PAHs	0.0384	0.0500	1.40	0.012	NOAEL	6.1	0.0020	0.73	NOAEL	324	0.0023
Total HPAHs	0.0215	0.00185	0.42	0.0036	NOAEL	6.1	0.00059	0.21	NOAEL	324	0.00066
Total LPAHs	0.0144	0.0294	0.83	0.0073	NOAEL	6.1	0.0012	0.43	NOAEL	324	0.0013

Refined COPC Screen Assumptions	
Receptor	Largescale Sucker
Body weight (kg)	0.4
Food ingestion rate (kg/day dw)	0.0068
Sediment ingestion rate (kg/day dw)	0.00054
Sediment ingestion as percent of food	0.0800
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-8d. Results of Prickly Sculpin Dietary Screen for the Transitional CSM Unit

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Benthic Invertebrates	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	21800	5450	134	130	NOAEL	67	1.9	6008	NOAEL	2232	2.7
Antimony	2.37	2.4	0.0916	0.049	na	NA	NA	2.3	na	NA	NA
Arsenic	5.84	4.03	1.18	0.088	NOAEL	0.4	0.22	4.0	NOAEL	20	0.20
Barium	407	1628	10.2	32	na	NA	NA	1487	na	NA	NA
Beryllium	0.905	0.18	0.00729	0.0045	na	NA	NA	0.21	na	NA	NA
Cadmium	3.24	25.9	0.394	0.51	NOAEL	0.002	255	23.5	NOAEL	0.1	235
Chromium	27.3	13	2.37	0.29	NOAEL	0.037	7.7	13	NOAEL	2	6.6
Cobalt	7.26	7.3	0.205	0.15	na	NA	NA	6.9	na	NA	NA
Copper	112	588	5.65	11.6	NOAEL	0.24	48	535	NOAEL	8	67
Iron	22600	24860	363	510	na	NA	NA	23540	na	NA	NA
Lead	167	102	3.33	2.18	NOAEL	12.4	0.18	100	NOAEL	728	0.14
Manganese	353	575	17.4	12	na	NA	NA	537	na	NA	NA
Mercury	0.343	1.0	0.615	0.021	NOAEL	0.005	4.2	0.96	NOAEL	0.2	4.8
Molybdenum	3.8	10.8	0.251	0.21	NOAEL	45	0.0048	9.9	NOAEL	1500	0.0066
Nickel	18.4	42.7	1.31	0.856	NOAEL	1.4	0.61	39.5	NOAEL	70	0.56
Selenium	1.08	7.1	2.12	0.14	NOAEL	0.1	1.4	6.6	NOAEL	3.9	1.7
Silver	0.959	0.17	0.0214	0.0045	NOAEL	70	0.000064	0.21	NOAEL	3000	0.000068
Thallium	0.44	0.44	0.184	0.0095	na	NA	NA	0.44	na	NA	NA
Uranium	2.78	2.78	0.0274	0.057	NOAEL	300	0.00019	2.6	NOAEL	10000	0.00026
Vanadium	42.5	14	0.585	0.32	NOAEL	0.036	8.9	14.8	NOAEL	1.2	12
Zinc	1060	7982	102	157	NOAEL	19	8.3	7247	NOAEL	1000	7.2
PAHs											
Benzo(a)pyrene	0.00161	0.027	0.00149	0.00054	NOAEL	0.66	0.00082	0.025	NOAEL	47	0.00053
Total PAHs	0.0384	1.40	0.05	0.028	NOAEL	6.1	0.0045	1.27	NOAEL	324	0.0039
Total HPAHs	0.0215	0.42	0.00185	0.0082	NOAEL	6.1	0.0014	0.38	NOAEL	324	0.0012
Total LPAHs	0.0144	0.83	0.0294	0.016	NOAEL	6.1	0.0027	0.75	NOAEL	324	0.0023

Refined COPC Screen Assumptions	
Receptor	Prickly Sculpin
Body weight (kg)	0.078
Food ingestion rate (kg/day dw)	0.0017
Sediment ingestion rate (kg/day dw)	0.000085
Sediment ingestion as percent of food	0.0500
Dietary Composition	
Benthic Invertebrates	90%
Fish	10%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-8e. Results of White Sturgeon Dietary Screen for the Transitional CSM Unit

	Media Concentration (mg/kg dw)						Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Crayfish	Mussels	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids														
Aluminum	21800	6677	5450	414	742	134	112	NOAEL	67	1.7	13612	NOAEL	2232	6.1
Antimony	2.37	1.81	2.4	0.062	0.16	0.0916	0.016	na	NA	NA	1.9	na	NA	NA
Arsenic	5.84	4.07	4.03	2.09	9.13	1.18	0.045	NOAEL	0.4	0.11	5.5	NOAEL	20	0.28
Barium	407	186	1628	196	1560	10.2	5.0	na	NA	NA	605	na	NA	NA
Beryllium	0.905	0.760	0.18	0.018	0.068	0.00729	0.0048	na	NA	NA	0.58	na	NA	NA
Cadmium	3.24	2.40	25.9	1.62	9.11	0.394	0.058	NOAEL	0.002	29	7.1	NOAEL	0.1	71
Chromium	27.3	16.3	13	4.10	6.16	2.37	0.17	NOAEL	0.037	4.5	20	NOAEL	2	10
Cobalt	7.26	4.95	7.3	0.72	1.57	0.205	0.047	na	NA	NA	5.8	na	NA	NA
Copper	112	58.1	588	187	13.6	5.65	1.44	NOAEL	0.24	6.0	176	NOAEL	8	22
Iron	22600	6898	24860	680	3250	363	145	na	NA	NA	17664	na	NA	NA
Lead	167	83.3	102	2.21	11.7	3.33	0.97	NOAEL	12.4	0.078	118	NOAEL	728	0.16
Manganese	353	163	575	186	8000	17.4	5.9	na	NA	NA	721	na	NA	NA
Mercury	0.343	0.318	1.0	0.10	0.12	0.615	0.0067	NOAEL	0.005	1.3	0.82	NOAEL	0.2	4.1
Molybdenum	3.8	2.77	10.8	10.8	10.75	0.251	0.042	NOAEL	45	0.00093	5.1	NOAEL	1500	0.0034
Nickel	18.4	11.4	42.7	3.01	3.51	1.31	0.16	NOAEL	1.4	0.11	19	NOAEL	70	0.28
Selenium	1.08	0.891	7.1	1.21	3.64	2.12	0.029	NOAEL	0.1	0.29	3.6	NOAEL	3.9	0.91
Silver	0.959	0.801	0.17	0.38	0.37	0.0214	0.0053	NOAEL	70	0.000076	0.65	NOAEL	3000	0.00022
Thallium	0.44	0.397	0.44	0.076	0.10	0.184	0.0039	na	NA	NA	0.48	na	NA	NA
Uranium	2.78	2.09	2.78	2.78	2.78	0.0274	0.019	NOAEL	300	0.000065	2.38	NOAEL	10000	0.00024
Vanadium	42.5	24.3	14	1.53	1.89	0.585	0.23	NOAEL	0.036	6.4	28	NOAEL	1.2	23
Zinc	1060	439	7982	75.9	331	102	16.9	NOAEL	19	0.89	2063	NOAEL	1000	2.1
PAHs														
Benzo(a)pyrene	0.00161	0.00149	0.027	0.0073	0.007	0.00149	0.000073	NOAEL	0.66	0.00011	0.0089	NOAEL	47	0.00019
Total PAHs	0.0384	0.0500	1.40	0.37	0.37	0.05	0.0034	NOAEL	6.1	0.00055	0.41	NOAEL	324	0.0013
Total HPAHs	0.0215	0.00185	0.42	0.11	0.11	0.00185	0.00097	NOAEL	6.1	0.00016	0.12	NOAEL	324	0.00037
Total LPAHs	0.0144	0.0294	0.83	0.22	0.22	0.0294	0.0019	NOAEL	6.1	0.00032	0.24	NOAEL	324	0.00073

Refined COPC Screen Assumptions	
Receptor	White Sturgeon
Body weight (kg)	51
Food ingestion rate (kg/day dw)	0.418
Sediment ingestion rate (kg/day dw)	0.234
Sediment ingestion as percent of food	0.56
Dietary Composition	
Crayfish	3%
Mussels	5%
Fish	70%
Aquatic plants	5%
Benthic invertebrates	17%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Table 4-8f. Results of Yellow Perch Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)				Dose-Based Screen				Concentration-Based Screen			
	Sediment	Benthic Invertebrates	Crayfish	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids												
Aluminum	21800	5450	414	134	23	NOAEL	67	0.34	1191	NOAEL	2232	0.53
Antimony	2.37	2.4	0.0615	0.0916	0.0086	na	NA	NA	0.45	na	NA	NA
Arsenic	5.84	4.03	2.09	1.18	0.034	NOAEL	0.4	0.085	1.8	NOAEL	20	0.090
Barium	407	1628	196	10.2	5.4	na	NA	NA	285	na	NA	NA
Beryllium	0.905	0.18	0.0175	0.00729	0.00083	na	NA	NA	0.044	na	NA	NA
Cadmium	3.24	25.9	1.62	0.394	0.084	NOAEL	0.002	42	4.4	NOAEL	0.1	44
Chromium	27.3	13	4.1	2.37	0.085	NOAEL	0.037	2.3	4.5	NOAEL	2	2.2
Cobalt	7.26	7.3	0.719	0.205	0.027	na	NA	NA	1.4	na	NA	NA
Copper	112	588	187	5.65	2.30	NOAEL	0.24	9.6	121	NOAEL	8	15
Iron	22600	24860	680	363	82	na	NA	NA	4311	na	NA	NA
Lead	167	102	2.21	3.33	0.37	NOAEL	12.4	0.030	19.6	NOAEL	728	0.027
Manganese	353	575	186	17.4	2.5	na	NA	NA	130	na	NA	NA
Mercury	0.343	1.0	0.104	0.615	0.011	NOAEL	0.005	2.3	0.60	NOAEL	0.2	3.0
Molybdenum	3.8	10.8	10.754	0.251	0.065	NOAEL	45	0.0014	3.4	NOAEL	1500	0.0023
Nickel	18.4	42.7	3.01	1.31	0.151	NOAEL	1.4	0.11	8.0	NOAEL	70	0.11
Selenium	1.08	7.1	1.21	2.12	0.052	NOAEL	0.1	0.52	2.7	NOAEL	3.9	0.70
Silver	0.959	0.17	0.377	0.0214	0.0020	NOAEL	70	0.000029	0.11	NOAEL	3000	0.000036
Thallium	0.44	0.44	0.0763	0.184	0.0040	na	NA	NA	0.21	na	NA	NA
Uranium	2.78	2.78	2.78	0.0274	0.0167	NOAEL	300	0.000056	0.88	NOAEL	10000	0.000088
Vanadium	42.5	14	1.53	0.585	0.060	NOAEL	0.036	1.7	3.2	NOAEL	1.2	2.6
Zinc	1060	7982	75.9	102	24.5	NOAEL	19	1.3	1291	NOAEL	1000	1.3
PAHs												
Benzo(a)pyrene	0.00161	0.027	0.0073	0.00149	0.00018	NOAEL	0.66	0.00027	0.0093	NOAEL	47	0.00020
Total PAHs	0.0384	1.40	0.37	0.05	0.0087	NOAEL	6.1	0.0014	0.46	NOAEL	324	0.0014
Total HPAHs	0.0215	0.42	0.11	0.00185	0.0024	NOAEL	6.1	0.00040	0.13	NOAEL	324	0.00039
Total LPAHs	0.0144	0.83	0.22	0.0294	0.0051	NOAEL	6.1	0.00084	0.27	NOAEL	324	0.00083

Refined COPC Screen Assumptions	
Receptor	Yellow Perch
Body weight (kg)	0.19
Food ingestion rate (kg/day dw)	0.0036
Sediment ingestion rate (kg/day dw)	0.000036
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Crayfish	15%
Fish	70%
Benthic invertebrates	15%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Table 4-8g. Summary of Fish Receptor Dietary Screen HQs for the Transitional CSM Unit

	Dose-Based HQs						Concentration-Based HQs					
COI	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch
Metals/Metalloids												
Aluminum	0.058	1.3	2.0	1.9	1.7	0.34	0.16	2.5	3.5	2.7	6.1	0.53
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.034	0.15	0.19	0.22	0.11	0.085	0.062	0.20	0.23	0.20	0.28	0.090
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	2.4	192	122	255	29	42	4.3	259	144	235	71	44
Chromium	0.79	5.2	7.7	7.7	4.5	2.3	1.3	6.6	8.4	6.6	10	2.2
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.31	36	23	48	6.0	9.6	0.85	74	42	67	22	15
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.0045	0.12	0.14	0.18	0.078	0.030	0.0069	0.14	0.15	0.14	0.16	0.027
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1.4	2.9	2.3	4.2	1.3	2.3	3.1	4.9	3.4	4.8	4.1	3.0
Molybdenum	0.000071	0.0035	0.0027	0.0048	0.00093	0.0014	0.00019	0.0072	0.0047	0.0066	0.0034	0.0023
Nickel	0.012	0.45	0.35	0.61	0.11	0.11	0.021	0.61	0.41	0.56	0.28	0.11
Selenium	0.24	1.0	0.69	1.4	0.29	0.52	0.55	1.8	1.0	1.7	0.91	0.70
Silver	0.0000049	0.000038	0.00014	0.000064	0.000076	0.000029	0.000010	0.000061	0.00019	0.000068	0.00022	0.000036
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	0.0000020	0.00014	0.00015	0.00019	0.000065	0.000056	0.0000055	0.00028	0.00027	0.00026	0.00024	0.000088
Vanadium	0.31	5.9	11	8.9	6.4	1.7	0.84	12	19	12	23	2.6
Zinc	0.065	6.2	3.8	8.3	0.89	1.3	0.11	8.0	4.3	7.2	2.1	1.3
PAHs												
Benzo(a)pyrene	0.000025	0.00061	0.00037	0.00082	0.00011	0.00027	0.000032	0.00058	0.00031	0.00053	0.00019	0.00020
Total PAHs	0.000091	0.0034	0.0020	0.0045	0.00055	0.0014	0.00016	0.0043	0.0023	0.0039	0.0013	0.0014
Total HPAHs	0.0000037	0.0010	0.00059	0.0014	0.00016	0.00040	0.0000064	0.0013	0.00066	0.0012	0.00037	0.00039
Total LPAHs	0.000053	0.0020	0.0012	0.0027	0.00032	0.00084	0.000091	0.0026	0.0013	0.0023	0.00073	0.00083

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

Table 4-8h. Results of Bald Eagle Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Fish	Total Dose (mg/kg bw/d)	SL TRV Type of SL TRV	(mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	134	28	NOAEL	157	0.18
Antimony	2.37	0.0916	0.0068	na	NA	NA
Arsenic	5.84	1.18	0.064	Eco-SSL	2.24	0.028
Barium	407	10.2	0.90	NOAEL	208.3	0.0043
Beryllium	0.905	0.00729	0.0012	na	NA	NA
Cadmium	3.24	0.394	0.023	Eco-SSL	1.47	0.015
Chromium	27.3	2.37	0.14	Eco-SSL	2.66	0.054
Cobalt	7.26	0.205	0.017	Eco-SSL	7.61	0.0023
Copper	112	5.65	0.39	Eco-SSL	4.05	0.10
Iron	22600	363	40	na	NA	NA
Lead	167	3.33	0.33	Eco-SSL	1.63	0.20
Manganese	353	17.4	1.2	NOAEL	179	0.0067
Mercury	0.343	0.615	0.031	NOAEL	0.018	1.7
Molybdenum	3.8	0.251	0.016	NOAEL	6	0.0027
Nickel	18.4	1.31	0.083	Eco-SSL	6.71	0.012
Selenium	1.08	2.12	0.11	Eco-SSL	0.29	0.36
Silver	0.959	0.0214	0.0020	Eco-SSL	2.02	0.00099
Thallium	0.44	0.184	0.0095	NOAEL	0.48	0.020
Vanadium	42.5	0.585	0.071	Eco-SSL	0.344	0.21
Zinc	1060	102	6.1	Eco-SSL	66.1	0.092
Pesticides						
Aldrin	0.0045	0.0122	0.00060	NOAEL	0.008	0.076
Total Chlordane	0.00094	0.00878	0.00043	NOAEL	0.6	0.00072
alpha-Chlordane	0.0045	0.00356	0.00018	NOAEL	0.6	0.00030
gamma-Chlordane	0.0045	0.0019	0.00010	NOAEL	0.6	0.00016
Total DDx	0.00136	0.0539	0.0027	Eco-SSL	0.227	0.012
delta-BHC	0.0045	0.00541	0.00027	NOAEL	1.6	0.00017
Dieldrin	0.0087	0.0034	0.00018	Eco-SSL	0.0709	0.0025
Endrin	0.0087	0.00382	0.00020	NOAEL	0.012	0.016
Endrin aldehyde	0.0087	0.00856	0.00043	NOAEL	0.012	0.036
Endrin ketone	0.0087	0.00544	0.00028	NOAEL	0.012	0.023
Heptachlor	0.0045	0.00656	0.00033	NOAEL	0.1	0.0033
Heptachlor epoxide	0.0045	0.00272	0.00014	NOAEL	0.1	0.0014
Hexachlorobenzene	0.00094	0.0162	0.00080	NOAEL	0.24	0.0033
Hexachlorobutadiene	0.00094	0.00699	0.00034	NOAEL	1.7	0.00020
Methoxychlor	0.052	0.00656	0.00037	NOAEL	34.6	0.000011
cis-Nonachlor	0.00094	0.00156	0.000078	NOAEL	0.6	0.00013
trans-Nonachlor	0.00094	0.00381	0.00019	NOAEL	0.6	0.00031
Oxychlordane	0.00094	0.00592	0.00029	NOAEL	0.6	0.00049
PAHs						
Benzo(a)pyrene	0.00161	0.00149	0.000075	NOAEL	0.28	0.00027
Total PAHs	0.0384	0.05	0.0025	NOAEL	40	0.000062
Total HPAHs	0.0215	0.00185	0.00011	NOAEL	0.14	0.00080
Total LPAHs	0.0144	0.0294	0.0015	NOAEL	7.7	0.00019
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.034	NOAEL	1.1	0.031
Butyl benzyl phthalate	0.0034	0.21	0.010	NOAEL	0.11	0.094
Di-n-butyl phthalate	0.24	0.746	0.037	NOAEL	1.1	0.034
Di-n-octylphthalate	0.24	0.113	0.0058	NOAEL	1.1	0.0053
Pentachlorophenol	0.61	0.0192	0.0015	Eco-SSL	6.73	0.00023
PCBs						
Total PCB congeners	0.00421	0.111	0.0055	NOAEL	0.29	0.019
PCB TEQ, birds	0.00000033	0.0000061	0.00000030	NOAEL	0.000014	0.021
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.00001	0.00000050	NOAEL	0.000014	0.036
Total TEQ						
Total TEQ, birds	0.00000622	0.0000127	0.00000063	NOAEL	0.000014	0.045

Refined COPC Screen Assumptions	
Receptor	Bald Eagle
Body weight (kg)	4.68
Food ingestion rate (kg/day dw)	0.23
Sediment ingestion rate (kg/day dw)	0.0046
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8i. Results of Belted Kingfisher Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose	SL TRV		HQ
	Sediment	Crayfish	Fish	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids							
Aluminum	21800	414	134	101	NOAEL	157	0.64
Antimony	2.37	0.0615	0.0916	0.021	na	NA	NA
Arsenic	5.84	2.09	1.18	0.24	Eco-SSL	2.24	0.11
Barium	407	196	10.2	10	NOAEL	208.3	0.049
Beryllium	0.905	0.0175	0.00729	0.0044	na	NA	NA
Cadmium	3.24	1.62	0.394	0.12	Eco-SSL	1.47	0.082
Chromium	27.3	4.1	2.37	0.53	Eco-SSL	2.66	0.20
Cobalt	7.26	0.719	0.205	0.075	Eco-SSL	7.61	0.0099
Copper	112	187	5.65	8.4	Eco-SSL	4.05	2.1
Iron	22600	680	363	141	na	NA	NA
Lead	167	2.21	3.33	1.0	Eco-SSL	1.63	0.62
Manganese	353	186	17.4	10	NOAEL	179	0.059
Mercury	0.343	0.104	0.615	0.078	NOAEL	0.018	4.3
Molybdenum	3.8	10.8	0.251	0.46	NOAEL	6	0.077
Nickel	18.4	3.01	1.31	0.33	Eco-SSL	6.71	0.049
Selenium	1.08	1.21	2.12	0.30	Eco-SSL	0.29	1.0
Silver	0.959	0.377	0.0214	0.020	Eco-SSL	2.02	0.010
Thallium	0.44	0.0763	0.184	0.026	NOAEL	0.48	0.054
Vanadium	42.5	1.53	0.585	0.26	Eco-SSL	0.344	0.76
Zinc	1060	75.9	102	18	Eco-SSL	66.1	0.28
Pesticides							
Aldrin	0.0045	0.0122	0.0122	0.0019	NOAEL	0.008	0.24
Total Chlordane	0.00094	0.00878	0.00878	0.0014	NOAEL	0.6	0.0023
alpha-Chlordane	0.0045	0.00356	0.00356	0.00057	NOAEL	0.6	0.00096
gamma-Chlordane	0.0045	0.0019	0.0019	0.00031	NOAEL	0.6	0.00052
Total DDx	0.00136	0.0539	0.0539	0.0085	Eco-SSL	0.227	0.037
delta-BHC	0.0045	0.00541	0.00541	0.00087	NOAEL	1.6	0.00054
Dieldrin	0.0087	0.0034	0.0034	0.00056	Eco-SSL	0.0709	0.0079
Endrin	0.0087	0.00382	0.00382	0.00063	NOAEL	0.012	0.052
Endrin aldehyde	0.0087	0.00856	0.00856	0.0014	NOAEL	0.012	0.11
Endrin ketone	0.0087	0.00544	0.00544	0.00088	NOAEL	0.012	0.074
Heptachlor	0.0045	0.00656	0.00656	0.0010	NOAEL	0.1	0.010
Heptachlor epoxide	0.0045	0.00272	0.00272	0.00044	NOAEL	0.1	0.0044
Hexachlorobenzene	0.00094	0.0162	0.0162	0.0026	NOAEL	0.24	0.011
Hexachlorobutadiene	0.00094	0.00699	0.00699	0.0011	NOAEL	1.7	0.00065
Methoxychlor	0.052	0.00656	0.00656	0.0012	NOAEL	34.6	0.000035
cis-Nonachlor	0.00094	0.00156	0.00156	0.00025	NOAEL	0.6	0.00041
trans-Nonachlor	0.00094	0.00381	0.00381	0.00060	NOAEL	0.6	0.0010
Oxychlordane	0.00094	0.00592	0.00592	0.00093	NOAEL	0.6	0.0016
PAHs							
Benzo(a)pyrene	0.00161	0.0073	0.00149	0.00047	NOAEL	0.28	0.0017
Total PAHs	0.0384	0.37	0.05	0.021	NOAEL	40	0.00052
Total HPAHs	0.0215	0.11	0.00185	0.0047	NOAEL	0.14	0.033
Total LPAHs	0.0144	0.22	0.0294	0.012	NOAEL	7.7	0.0016
SVOCs							
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.11	NOAEL	1.1	0.10
Butyl benzyl phthalate	0.0034	0.21	0.21	0.033	NOAEL	0.11	0.30
Di-n-butyl phthalate	0.24	0.746	0.746	0.12	NOAEL	1.1	0.11
Di-n-octylphthalate	0.24	0.113	0.113	0.019	NOAEL	1.1	0.017
Pentachlorophenol	0.61	0.0192	0.0192	0.0049	Eco-SSL	6.73	0.00073
PCBs							
Total PCB congeners	0.00421	0.111	0.111	0.017	NOAEL	0.29	0.060
PCB TEQ, birds	0.00000033	0.0000061	0.0000061	0.0000010	NOAEL	0.000014	0.069
Dioxins/Furans							
Dioxin TEQ, birds	0.00000589	0.000010	0.000010	0.0000016	NOAEL	0.000014	0.11
Total TEQ							
Total TEQ, birds	0.00000622	0.0000127	0.0000127	0.0000020	NOAEL	0.000014	0.14

Refined COPC Screen Assumptions	
Receptor	Belted Kingfisher
Body weight (kg)	0.15
Food ingestion rate (kg/day dw)	0.023
Sediment ingestion rate (kg/day dw)	0.00047
Dietary Composition	
Crayfish	25%
Fish	75%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8j. Results of Canada Goose Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose	SL TRV		HQ
	Sediment	Aquatic Plants	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	21800	6677	453	NOAEL	157	2.9
Antimony	2.37	1.8	0.11	na	NA	NA
Arsenic	5.84	4.1	0.24	Eco-SSL	2.24	0.11
Barium	407	186	12	NOAEL	208.3	0.056
Beryllium	0.905	0.76	0.045	na	NA	NA
Cadmium	3.24	2.4	0.14	Eco-SSL	1.47	0.097
Chromium	27.3	16	0.99	Eco-SSL	2.66	0.37
Cobalt	7.26	5.0	0.30	Eco-SSL	7.61	0.039
Copper	112	58	3.6	Eco-SSL	4.05	0.89
Iron	22600	6898	468	na	NA	NA
Lead	167	83	5.2	Eco-SSL	1.63	3.2
Manganese	353	163	10	NOAEL	179	0.057
Mercury	0.343	0.32	0.018	NOAEL	0.018	1.0
Molybdenum	3.8	2.8	0.16	NOAEL	6	0.027
Nickel	18.4	11	0.69	Eco-SSL	6.71	0.10
Selenium	1.08	0.89	0.052	Eco-SSL	0.29	0.18
Silver	0.959	0.80	0.047	Eco-SSL	2.02	0.023
Thallium	0.44	0.40	0.023	NOAEL	0.48	0.048
Vanadium	42.5	24	1.5	Eco-SSL	0.344	4.3
Zinc	1060	439	28	Eco-SSL	66.1	0.43
Pesticides						
Aldrin	0.0045	0.0122	0.00067	NOAEL	0.008	0.084
Total Chlordane	0.00094	0.00878	0.00047	NOAEL	0.6	0.00079
alpha-Chlordane	0.0045	0.00356	0.00021	NOAEL	0.6	0.00035
gamma-Chlordane	0.0045	0.0019	0.00012	NOAEL	0.6	0.00020
Total DDx	0.00136	0.0539	0.0029	Eco-SSL	0.227	0.013
delta-BHC	0.0045	0.00541	0.00031	NOAEL	1.6	0.00019
Dieldrin	0.0087	0.0034	0.00022	Eco-SSL	0.0709	0.0031
Endrin	0.0087	0.00382	0.00024	NOAEL	0.012	0.020
Endrin aldehyde	0.0087	0.00856	0.00050	NOAEL	0.012	0.041
Endrin ketone	0.0087	0.00544	0.00033	NOAEL	0.012	0.027
Heptachlor	0.0045	0.00656	0.00037	NOAEL	0.1	0.0037
Heptachlor epoxide	0.0045	0.00272	0.00017	NOAEL	0.1	0.0017
Hexachlorobenzene	0.00094	0.0162	0.00087	NOAEL	0.24	0.0036
Hexachlorobutadiene	0.00094	0.00699	0.00038	NOAEL	1.7	0.00022
Methoxychlor	0.052	0.00656	0.00058	NOAEL	34.6	0.000017
cis-Nonachlor	0.00094	0.00156	0.000088	NOAEL	0.6	0.00015
trans-Nonachlor	0.00094	0.00381	0.00021	NOAEL	0.6	0.00035
Oxychlordane	0.00094	0.00592	0.00032	NOAEL	0.6	0.00053
PAHs						
Benzo(a)pyrene	0.00161	0.00149	0.000087	NOAEL	0.28	0.00031
Total PAHs	0.0384	0.050	0.0028	NOAEL	40	0.000071
Total HPAHs	0.0215	0.00185	0.00019	NOAEL	0.14	0.0014
Total LPAHs	0.0144	0.0294	0.0016	NOAEL	7.7	0.00021
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.038	NOAEL	1.1	0.034
Butyl benzyl phthalate	0.0034	0.21	0.011	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.24	0.746	0.041	NOAEL	1.1	0.037
Di-n-octylphthalate	0.24	0.113	0.0071	NOAEL	1.1	0.0064
Pentachlorophenol	0.61	0.0192	0.0037	Eco-SSL	6.73	0.00055
PCBs						
Total PCB congeners	0.00421	0.111	0.0060	NOAEL	0.29	0.021
PCB TEQ, birds	0.000000327	0.0000061	0.00000033	NOAEL	0.000014	0.023
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.000010	0.00000056	NOAEL	0.000014	0.040
Total TEQ						
Total TEQ, birds	0.00000622	0.0000127	0.00000071	NOAEL	0.000014	0.050

Refined COPC Screen Assumptions	
Receptor	Canada Goose
Body weight (kg)	2.6
Food ingestion rate (kg/day dw)	0.14
Sediment ingestion rate (kg/day dw)	0.011
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8k. Results of Great Blue Heron Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose	SL TRV		HQ
	Sediment	Crayfish	Fish	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids							
Aluminum	21800	414	134	122	NOAEL	157	0.78
Antimony	2.37	0.0615	0.0916	0.018	na	NA	NA
Arsenic	5.84	2.09	1.18	0.11	Eco-SSL	2.24	0.047
Barium	407	196	10.2	3.3	NOAEL	208.3	0.016
Beryllium	0.905	0.0175	0.00729	0.0052	na	NA	NA
Cadmium	3.24	1.62	0.394	0.045	Eco-SSL	1.47	0.031
Chromium	27.3	4.1	2.37	0.29	Eco-SSL	2.66	0.11
Cobalt	7.26	0.719	0.205	0.052	Eco-SSL	7.61	0.0068
Copper	112	187	5.65	1.5	Eco-SSL	4.05	0.37
Iron	22600	680	363	141	na	NA	NA
Lead	167	2.21	3.33	1.1	Eco-SSL	1.63	0.66
Manganese	353	186	17.4	3.4	NOAEL	179	0.019
Mercury	0.343	0.104	0.615	0.038	NOAEL	0.018	2.1
Molybdenum	3.8	10.75	0.251	0.068	NOAEL	6	0.011
Nickel	18.4	3.01	1.31	0.18	Eco-SSL	6.71	0.027
Selenium	1.08	1.21	2.12	0.13	Eco-SSL	0.29	0.46
Silver	0.959	0.377	0.0214	0.0074	Eco-SSL	2.02	0.0037
Thallium	0.44	0.0763	0.184	0.013	NOAEL	0.48	0.028
Vanadium	42.5	1.53	0.585	0.26	Eco-SSL	0.344	0.75
Zinc	1060	75.9	102	12	Eco-SSL	66.1	0.18
Pesticides							
Aldrin	0.0045	0.0122	0.0122	0.00078	NOAEL	0.008	0.10
Total Chlordane	0.00094	0.00878	0.00878	0.00055	NOAEL	0.6	0.00091
alpha-Chlordane	0.0045	0.00356	0.00356	0.00024	NOAEL	0.6	0.00041
gamma-Chlordane	0.0045	0.0019	0.0019	0.00014	NOAEL	0.6	0.00023
Total DDx	0.00136	0.0539	0.0539	0.0033	Eco-SSL	0.227	0.015
delta-BHC	0.0045	0.00541	0.00541	0.00036	NOAEL	1.6	0.00022
Dieldrin	0.0087	0.0034	0.0034	0.00025	Eco-SSL	0.0709	0.0036
Endrin	0.0087	0.00382	0.00382	0.00028	NOAEL	0.012	0.023
Endrin aldehyde	0.0087	0.00856	0.00856	0.00057	NOAEL	0.012	0.048
Endrin ketone	0.0087	0.00544	0.00544	0.00038	NOAEL	0.012	0.032
Heptachlor	0.0045	0.00656	0.00656	0.00043	NOAEL	0.1	0.0043
Heptachlor epoxide	0.0045	0.00272	0.00272	0.00019	NOAEL	0.1	0.0019
Hexachlorobenzene	0.00094	0.0162	0.0162	0.0010	NOAEL	0.24	0.0042
Hexachlorobutadiene	0.00094	0.00699	0.00699	0.00044	NOAEL	1.7	0.00026
Methoxychlor	0.052	0.00656	0.00656	0.00067	NOAEL	34.6	0.000019
cis-Nonachlor	0.00094	0.00156	0.00156	0.00010	NOAEL	0.6	0.00017
trans-Nonachlor	0.00094	0.00381	0.00381	0.00024	NOAEL	0.6	0.00040
Oxychlordane	0.00094	0.00592	0.00592	0.00037	NOAEL	0.6	0.00062
PAHs							
Benzo(a)pyrene	0.00161	0.0073	0.00149	0.00012	NOAEL	0.28	0.00042
Total PAHs	0.0384	0.37	0.05	0.0043	NOAEL	40	0.00011
Total HPAHs	0.0215	0.11	0.00185	0.00056	NOAEL	0.14	0.0040
Total LPAHs	0.0144	0.22	0.0294	0.0025	NOAEL	7.7	0.00032
SVOCs							
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.044	NOAEL	1.1	0.040
Butyl benzyl phthalate	0.0034	0.21	0.21	0.013	NOAEL	0.11	0.12
Di-n-butyl phthalate	0.24	0.746	0.746	0.047	NOAEL	1.1	0.043
Di-n-octylphthalate	0.24	0.113	0.113	0.0082	NOAEL	1.1	0.0075
Pentachlorophenol	0.61	0.0192	0.0192	0.0043	Eco-SSL	6.73	0.00065
PCBs							
Total PCB congeners	0.00421	0.111	0.111	0.0069	NOAEL	0.29	0.024
PCB TEQ, birds	0.000000327	0.0000061	0.0000061	0.00000038	NOAEL	0.000014	0.027
Dioxins/Furans							
Dioxin TEQ, birds	0.00000589	0.0000100	0.0000100	0.00000065	NOAEL	0.000014	0.046
Total TEQ							
Total TEQ, birds	0.00000622	0.0000127	0.0000127	0.00000082	NOAEL	0.000014	0.058

Refined COPC Screen Assumptions	
Receptor	Great Blue Heron
Body weight (kg)	2.39
Food ingestion rate (kg/day dw)	0.15
Sediment ingestion rate (kg/day dw)	0.012
Dietary Composition	
Crayfish	5%
Fish	95%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8l. Results of Lesser Scaup Dietary Screen for the Transitional CSM Unit

	Media Concentration (mg/kg dw)								
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Mussels	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids									
Aluminum	21800	6677	5450	742	134	267	NOAEL	157	1.7
Antimony	2.37	1.8	2.37	0.157	0.0916	0.080	na	NA	NA
Arsenic	5.84	4.1	4.03	9.13	1.18	0.33	Eco-SSL	2.24	0.15
Barium	407	186	1628	1560	10.2	65	NOAEL	208.3	0.31
Beryllium	0.905	0.76	0.18	0.0676	0.00729	0.018	na	NA	NA
Cadmium	3.24	2.4	25.89	9.11	0.394	0.71	Eco-SSL	1.47	0.49
Chromium	27.3	16	12.83	6.16	2.37	0.67	Eco-SSL	2.66	0.25
Cobalt	7.26	5.0	7.26	1.57	0.205	0.26	Eco-SSL	7.61	0.034
Copper	112	58	588	13.6	5.65	12.7	Eco-SSL	4.05	3.1
Iron	22600	6898	24860	3250	363	694	na	NA	NA
Lead	167	83	101.87	11.7	3.33	3.8	Eco-SSL	1.63	2.3
Manganese	353	163	575	8000	17.4	168	NOAEL	179	0.94
Mercury	0.343	0.32	0.98	0.122	0.615	0.028	NOAEL	0.018	1.6
Molybdenum	3.8	2.8	10.75	10.8	0.251	0.462	NOAEL	6	0.077
Nickel	18.4	11	42.69	3.51	1.31	1.10	Eco-SSL	6.71	0.163
Selenium	1.08	0.89	7.05	3.64	2.12	0.23	Eco-SSL	0.29	0.78
Silver	0.959	0.80	0.17	0.372	0.0214	0.024	Eco-SSL	2.02	0.012
Thallium	0.44	0.40	0.44	0.0982	0.184	0.017	NOAEL	0.48	0.036
Vanadium	42.5	24	14.03	1.89	0.585	0.75	Eco-SSL	0.344	2.2
Zinc	1060	439	7982	331	102	169	Eco-SSL	66.1	2.6
Pesticides									
Aldrin	0.0045	0.0122	0.012	0.0122	0.0122	0.00068	NOAEL	0.008	0.085
Total Chlordane	0.00094	0.00878	0.009	0.00878	0.00878	0.00048	NOAEL	0.6	0.00081
alpha-Chlordane	0.0045	0.00356	0.004	0.00356	0.00356	0.00021	NOAEL	0.6	0.00034
gamma-Chlordane	0.0045	0.0019	0.002	0.0019	0.0019	0.00012	NOAEL	0.6	0.00019
Total DDx	0.00136	0.0539	0.054	0.0539	0.0539	0.0030	Eco-SSL	0.227	0.013
delta-BHC	0.0045	0.00541	0.005	0.00541	0.00541	0.00031	NOAEL	1.6	0.00019
Dieldrin	0.0087	0.0034	0.003	0.0034	0.0034	0.00021	Eco-SSL	0.0709	0.0029
Endrin	0.0087	0.00382	0.004	0.00382	0.00382	0.00023	NOAEL	0.012	0.019
Endrin aldehyde	0.0087	0.00856	0.009	0.00856	0.00856	0.00049	NOAEL	0.012	0.041
Endrin ketone	0.0087	0.00544	0.005	0.00544	0.00544	0.00032	NOAEL	0.012	0.027
Heptachlor	0.0045	0.00656	0.007	0.00656	0.00656	0.00037	NOAEL	0.1	0.0037
Heptachlor epoxide	0.0045	0.00272	0.003	0.00272	0.00272	0.00016	NOAEL	0.1	0.0016
Hexachlorobenzene	0.00094	0.0162	0.016	0.0162	0.0162	0.00089	NOAEL	0.24	0.0037
Hexachlorobutadiene	0.00094	0.00699	0.007	0.00699	0.00699	0.00039	NOAEL	1.7	0.00023
Methoxychlor	0.052	0.00656	0.007	0.00656	0.00656	0.00049	NOAEL	34.6	0.000014
cis-Nonachlor	0.00094	0.00156	0.002	0.00156	0.00156	0.000088	NOAEL	0.6	0.00015
trans-Nonachlor	0.00094	0.00381	0.004	0.00381	0.00381	0.00021	NOAEL	0.6	0.00035
Oxychlordane	0.00094	0.00592	0.006	0.00592	0.00592	0.00033	NOAEL	0.6	0.00055
PAHs									
Benzo(a)pyrene	0.00161	0.00149	0.027	0.0073	0.00149	0.0011	NOAEL	0.28	0.0039
Total PAHs	0.0384	0.05	1.4	0.37	0.05	0.055	NOAEL	40	0.0014
Total HPAHs	0.0215	0.00185	0.42	0.11	0.00185	0.016	NOAEL	0.14	0.12
Total LPAHs	0.0144	0.0294	0.83	0.22	0.0294	0.032	NOAEL	7.7	0.0042
SVOCs									
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.69	0.69	0.038	NOAEL	1.1	0.035
Butyl benzyl phthalate	0.0034	0.21	0.21	0.21	0.21	0.012	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.24	0.746	0.75	0.746	0.746	0.042	NOAEL	1.1	0.038
Di-n-octylphthalate	0.24	0.113	0.11	0.113	0.113	0.0068	NOAEL	1.1	0.0062
Pentachlorophenol	0.61	0.0192	0.019	0.0192	0.0192	0.0026	Eco-SSL	6.73	0.00039
PCBs									
Total PCB congeners	0.00421	0.111	0.20	0.111	0.111	0.0078	NOAEL	0.29	0.027
PCB TEQ, birds	0.000000327	0.0000061	0.000027	0.0000061	0.0000061	0.00000074	NOAEL	0.000014	0.053
Dioxins/Furans									
Dioxin TEQ, birds	0.00000589	0.000010	0.000075	0.000010	0.000010	0.0000018	NOAEL	0.000014	0.13
Total TEQ									
Total TEQ, birds	0.00000622	0.0000127	0.00010	0.0000127	0.0000127	0.0000024	NOAEL	0.000014	0.17

Refined COPC Screen Assumptions	
Receptor	Lesser Scaup
Body weight (kg)	0.82
Food ingestion rate (kg/day dw)	0.045
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Aquatic plants	25%
Mussels	35%
Fish	5%
Benthic invertebrates	35%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8m. Results of Mallard Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Aquatic Plants	Benthic Invertebrates				
Metals/Metalloids							
Aluminum	21800	6677	5450	330	NOAEL	157	2.1
Antimony	2.37	1.8	2.37	0.11	na	NA	NA
Arsenic	5.84	4.1	4.03	0.21	Eco-SSL	2.24	0.092
Barium	407	186	1628	44.7	NOAEL	208.3	0.21
Beryllium	0.905	0.76	0.18	0.024	na	NA	NA
Cadmium	3.24	2.4	25.89	0.69	Eco-SSL	1.47	0.47
Chromium	27.3	16	12.83	0.75	Eco-SSL	2.66	0.28
Cobalt	7.26	5.0	7.26	0.31	Eco-SSL	7.61	0.041
Copper	112	58	588	15.9	Eco-SSL	4.05	3.9
Iron	22600	6898	24860	808	na	NA	NA
Lead	167	83	102	4.77	Eco-SSL	1.63	2.9
Manganese	353	163	575	18.5	NOAEL	179	0.10
Mercury	0.343	0.32	0.98	0.032	NOAEL	0.018	1.8
Molybdenum	3.8	2.8	10.75	0.33	NOAEL	6	0.056
Nickel	18.4	11	42.69	1.34	Eco-SSL	6.71	0.20
Selenium	1.08	0.89	7.05	0.19	Eco-SSL	0.29	0.67
Silver	0.959	0.80	0.17	0.025	Eco-SSL	2.02	0.012
Thallium	0.44	0.40	0.44	0.021	NOAEL	0.48	0.044
Vanadium	42.5	24	14.03	1.00	Eco-SSL	0.344	2.9
Zinc	1060	439	7982	206	Eco-SSL	66.1	3.1
Pesticides							
Aldrin	0.0045	0.0122	0.012	0.00060	NOAEL	0.008	0.075
Total Chlordane	0.00094	0.00878	0.0088	0.00043	NOAEL	0.6	0.00071
alpha-Chlordane	0.0045	0.00356	0.0036	0.00018	NOAEL	0.6	0.00030
gamma-Chlordane	0.0045	0.0019	0.0019	0.00010	NOAEL	0.6	0.00016
Total DDx	0.00136	0.0539	0.0539	0.0026	Eco-SSL	0.227	0.012
delta-BHC	0.0045	0.00541	0.0054	0.00027	NOAEL	1.6	0.00017
Dieldrin	0.0087	0.0034	0.0034	0.00018	Eco-SSL	0.0709	0.0025
Endrin	0.0087	0.00382	0.0038	0.00020	NOAEL	0.012	0.017
Endrin aldehyde	0.0087	0.00856	0.0086	0.00043	NOAEL	0.012	0.036
Endrin ketone	0.0087	0.00544	0.0054	0.00028	NOAEL	0.012	0.023
Heptachlor	0.0045	0.00656	0.0066	0.00033	NOAEL	0.1	0.0033
Heptachlor epoxide	0.0045	0.00272	0.0027	0.00014	NOAEL	0.1	0.0014
Hexachlorobenzene	0.00094	0.0162	0.016	0.00079	NOAEL	0.24	0.0033
Hexachlorobutadiene	0.00094	0.00699	0.0070	0.00034	NOAEL	1.7	0.00020
Methoxychlor	0.052	0.00656	0.0066	0.00040	NOAEL	34.6	0.000012
cis-Nonachlor	0.00094	0.00156	0.0016	0.000077	NOAEL	0.6	0.00013
trans-Nonachlor	0.00094	0.00381	0.0038	0.00019	NOAEL	0.6	0.00031
Oxychlordane	0.00094	0.00592	0.0059	0.00029	NOAEL	0.6	0.00048
PAHs							
Benzo(a)pyrene	0.00161	0.00149	0.027	0.00070	NOAEL	0.28	0.0025
Total PAHs	0.0384	0.05	1.40	0.035	NOAEL	40	0.00089
Total HPAHs	0.0215	0.00185	0.42	0.010	NOAEL	0.14	0.074
Total LPAHs	0.0144	0.0294	0.83	0.021	NOAEL	7.7	0.0027
SVOCs							
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.034	NOAEL	1.1	0.031
Butyl benzyl phthalate	0.0034	0.21	0.21	0.010	NOAEL	0.11	0.093
Di-n-butyl phthalate	0.24	0.746	0.75	0.037	NOAEL	1.1	0.033
Di-n-octylphthalate	0.24	0.113	0.11	0.0059	NOAEL	1.1	0.0053
Pentachlorophenol	0.61	0.0192	0.019	0.0019	Eco-SSL	6.73	0.00028
PCBs							
Total PCB congeners	0.00421	0.111	0.20	0.0075	NOAEL	0.29	0.026
PCB TEQ, birds	0.00000033	0.0000061	0.000027	0.00000080	NOAEL	0.000014	0.057
Dioxins/Furans							
Dioxin TEQ, birds	0.00000589	0.000010	0.000075	0.0000021	NOAEL	0.000014	0.15
Total TEQ							
Total TEQ, birds	0.00000622	0.0000127	0.00010	0.0000028	NOAEL	0.000014	0.20

Refined COPC Screen Assumptions	
Receptor	Mallard
Body weight (kg)	1.13
Food ingestion rate (kg/day dw)	0.055
Sediment ingestion rate (kg/day dw)	0.0011
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8n. Results of Osprey Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	134	41	NOAEL	157	0.26
Antimony	2.37	0.0916	0.010	na	NA	NA
Arsenic	5.84	1.18	0.094	Eco-SSL	2.24	0.042
Barium	407	10.2	1.3	NOAEL	208.3	0.0064
Beryllium	0.905	0.00729	0.0018	na	NA	NA
Cadmium	3.24	0.394	0.033	Eco-SSL	1.47	0.023
Chromium	27.3	2.37	0.21	Eco-SSL	2.66	0.079
Cobalt	7.26	0.205	0.025	Eco-SSL	7.61	0.0033
Copper	112	5.65	0.57	Eco-SSL	4.05	0.14
Iron	22600	363	59	na	NA	NA
Lead	167	3.33	0.48	Eco-SSL	1.63	0.30
Manganese	353	17.4	1.8	NOAEL	179	0.0099
Mercury	0.343	0.615	0.045	NOAEL	0.018	2.5
Molybdenum	3.8	0.251	0.024	NOAEL	6	0.0039
Nickel	18.4	1.31	0.12	Eco-SSL	6.71	0.018
Selenium	1.08	2.12	0.16	Eco-SSL	0.29	0.53
Silver	0.959	0.0214	0.0029	Eco-SSL	2.02	0.0015
Thallium	0.44	0.184	0.014	NOAEL	0.48	0.029
Vanadium	42.5	0.585	0.10	Eco-SSL	0.344	0.30
Zinc	1060	102	8.9	Eco-SSL	66.1	0.13
Pesticides						
Aldrin	0.0045	0.0122	0.00089	NOAEL	0.008	0.11
Total Chlordane	0.00094	0.00878	0.00064	NOAEL	0.6	0.0011
alpha-Chlordane	0.0045	0.00356	0.00026	NOAEL	0.6	0.00044
gamma-Chlordane	0.0045	0.0019	0.00014	NOAEL	0.6	0.00024
Total DDx	0.00136	0.0539	0.0039	Eco-SSL	0.227	0.017
delta-BHC	0.0045	0.00541	0.00040	NOAEL	1.6	0.00025
Dieldrin	0.0087	0.0034	0.00026	Eco-SSL	0.0709	0.0037
Endrin	0.0087	0.00382	0.00029	NOAEL	0.012	0.024
Endrin aldehyde	0.0087	0.00856	0.00063	NOAEL	0.012	0.053
Endrin ketone	0.0087	0.00544	0.00041	NOAEL	0.012	0.034
Heptachlor	0.0045	0.00656	0.00048	NOAEL	0.1	0.0048
Heptachlor epoxide	0.0045	0.00272	0.00020	NOAEL	0.1	0.0020
Hexachlorobenzene	0.00094	0.0162	0.0012	NOAEL	0.24	0.0049
Hexachlorobutadiene	0.00094	0.00699	0.00051	NOAEL	1.7	0.00030
Methoxychlor	0.052	0.00656	0.00055	NOAEL	34.6	0.000016
cis-Nonachlor	0.00094	0.00156	0.00011	NOAEL	0.6	0.00019
trans-Nonachlor	0.00094	0.00381	0.00028	NOAEL	0.6	0.00046
Oxychlordane	0.00094	0.00592	0.00043	NOAEL	0.6	0.00072
PAHs						
Benzo(a)pyrene	0.00161	0.0015	0.00011	NOAEL	0.28	0.00039
Total PAHs	0.0384	0.050	0.0037	NOAEL	40	0.000092
Total HPAHs	0.0215	0.0019	0.00017	NOAEL	0.14	0.0012
Total LPAHs	0.0144	0.029	0.0021	NOAEL	7.7	0.00028
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.050	NOAEL	1.1	0.046
Butyl benzyl phthalate	0.0034	0.21	0.015	NOAEL	0.11	0.14
Di-n-butyl phthalate	0.24	0.75	0.054	NOAEL	1.1	0.049
Di-n-octylphthalate	0.24	0.11	0.0085	NOAEL	1.1	0.0078
Pentachlorophenol	0.61	0.019	0.0023	Eco-SSL	6.73	0.00034
PCBs						
Total PCB congeners	0.00421	0.11	0.0080	NOAEL	0.29	0.028
PCB TEQ, birds	0.000000327	0.0000061	0.00000044	NOAEL	0.000014	0.032
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.000010	0.00000073	NOAEL	0.000014	0.052
Total TEQ						
Total TEQ, birds	0.00000622	0.0000127	0.00000093	NOAEL	0.000014	0.066

Refined COPC Screen Assumptions	
Receptor	Osprey
Body weight (kg)	1.49
Food ingestion rate (kg/day dw)	0.11
Sediment ingestion rate (kg/day dw)	0.0022
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8o. Results of Spotted Sandpiper Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	5450	2051	NOAEL	157	13
Antimony	2.37	2.37	0.61	na	NA	NA
Arsenic	5.84	4.03	1.11	Eco-SSL	2.24	0.50
Barium	407	1628	372	NOAEL	208.3	1.8
Beryllium	0.905	0.18	0.075	na	NA	NA
Cadmium	3.24	25.89	5.8	Eco-SSL	1.47	3.9
Chromium	27.3	12.83	3.9	Eco-SSL	2.66	1.5
Cobalt	7.26	7.26	1.9	Eco-SSL	7.61	0.25
Copper	112	588	133	Eco-SSL	4.05	33
Iron	22600	24860	6330	na	NA	NA
Lead	167	102	28.9	Eco-SSL	1.63	18
Manganese	353	575	140	NOAEL	179	0.78
Mercury	0.343	0.98	0.23	NOAEL	0.018	13
Molybdenum	3.8	10.75	2.50	NOAEL	6	0.42
Nickel	18.4	42.69	10.1	Eco-SSL	6.71	1.5
Selenium	1.08	7.05	1.6	Eco-SSL	0.29	5.5
Silver	0.959	0.17	0.076	Eco-SSL	2.02	0.037
Thallium	0.44	0.44	0.11	NOAEL	0.48	0.24
Vanadium	42.5	14.03	4.7	Eco-SSL	0.344	14
Zinc	1060	7982	1788	Eco-SSL	66.1	27
Pesticides						
Aldrin	0.0045	0.012	0.0028	NOAEL	0.008	0.36
Total Chlordane	0.00094	0.009	0.0020	NOAEL	0.6	0.0033
alpha-Chlordane	0.0045	0.004	0.0010	NOAEL	0.6	0.0016
gamma-Chlordane	0.0045	0.002	0.00059	NOAEL	0.6	0.0010
Total DDx	0.00136	0.054	0.012	Eco-SSL	0.227	0.052
delta-BHC	0.0045	0.005	0.0014	NOAEL	1.6	0.00085
Dieldrin	0.0087	0.003	0.0011	Eco-SSL	0.0709	0.015
Endrin	0.0087	0.004	0.0012	NOAEL	0.012	0.098
Endrin aldehyde	0.0087	0.009	0.0022	NOAEL	0.012	0.18
Endrin ketone	0.0087	0.005	0.0015	NOAEL	0.012	0.13
Heptachlor	0.0045	0.007	0.0016	NOAEL	0.1	0.016
Heptachlor epoxide	0.0045	0.003	0.00077	NOAEL	0.1	0.0077
Hexachlorobenzene	0.00094	0.016	0.0036	NOAEL	0.24	0.015
Hexachlorobutadiene	0.00094	0.007	0.0016	NOAEL	1.7	0.00092
Methoxychlor	0.052	0.007	0.0035	NOAEL	34.6	0.00010
cis-Nonachlor	0.00094	0.002	0.00038	NOAEL	0.6	0.00063
trans-Nonachlor	0.00094	0.004	0.00087	NOAEL	0.6	0.0015
Oxychlordane	0.00094	0.006	0.0013	NOAEL	0.6	0.0022
PAHs						
Benzo(a)pyrene	0.00161	0.027	0.0060	NOAEL	0.28	0.022
Total PAHs	0.0384	1.4	0.31	NOAEL	40	0.0077
Total HPAHs	0.0215	0.42	0.093	NOAEL	0.14	0.66
Total LPAHs	0.0144	0.83	0.18	NOAEL	7.7	0.024
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.16	NOAEL	1.1	0.15
Butyl benzyl phthalate	0.0034	0.21	0.05	NOAEL	0.11	0.42
Di-n-butyl phthalate	0.24	0.75	0.17	NOAEL	1.1	0.16
Di-n-octylphthalate	0.24	0.11	0.034	NOAEL	1.1	0.031
Pentachlorophenol	0.61	0.019	0.028	Eco-SSL	6.73	0.0042
PCBs						
Total PCB congeners	0.00421	0.20	0.044	NOAEL	0.29	0.15
PCB TEQ, birds	0.00000033	0.000027	0.0000059	NOAEL	0.000014	0.42
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.000075	0.000017	NOAEL	0.000014	1.2
Total TEQ						
Total TEQ, birds	0.00000622	0.00010	0.000022	NOAEL	0.000014	1.6

Refined COPC Screen Assumptions	
Receptor	Spotted Sandpiper
Body weight (kg)	0.04
Food ingestion rate (kg/day dw)	0.01
Sediment ingestion rate (kg/day dw)	0.0017
Dietary Composition	
Benthic invertebrates	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8p. Results of Tree Swallow Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Media Concentration (mg/kg dw) Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	5450	1318	NOAEL	157	8.4
Antimony	2.37	2.37	0.541	na	NA	NA
Arsenic	5.84	0.74	0.19	Eco-SSL	2.24	0.086
Barium	407	1628	366	NOAEL	208.3	1.8
Beryllium	0.905	0.18	0.045	na	NA	NA
Cadmium	3.24	9.96	2.2	Eco-SSL	1.47	1.5
Chromium	27.3	12.83	3.0	Eco-SSL	2.66	1.1
Cobalt	7.26	7.26	1.7	Eco-SSL	7.61	0.22
Copper	112	45.57	11	Eco-SSL	4.05	2.6
Iron	22600	24860	5667	na	NA	NA
Lead	167	11.02	3.2	Eco-SSL	1.63	2.0
Manganese	353	575.4	130	NOAEL	179	0.73
Mercury	0.343	0.98	0.22	NOAEL	0.018	12
Molybdenum	3.8	10.75	2.4	NOAEL	6	0.40
Nickel	18.4	2.75	0.70	Eco-SSL	6.71	0.10
Selenium	1.08	7.05	1.6	Eco-SSL	0.29	5.5
Silver	0.959	0.17	0.043	Eco-SSL	2.02	0.021
Thallium	0.44	0.44	0.10	NOAEL	0.48	0.21
Vanadium	42.5	14.03	3.3	Eco-SSL	0.344	9.7
Zinc	1060	186.7	47	Eco-SSL	66.1	0.70
Pesticides						
Aldrin	0.0045	0.012	0.0028	NOAEL	0.008	0.34
Total Chlordane	0.00094	0.0088	0.0020	NOAEL	0.6	0.0033
alpha-Chlordane	0.0045	0.0036	0.00082	NOAEL	0.6	0.0014
gamma-Chlordane	0.0045	0.0019	0.00045	NOAEL	0.6	0.00074
Total DDx	0.00136	0.0539	0.012	Eco-SSL	0.227	0.053
delta-BHC	0.0045	0.0054	0.0012	NOAEL	1.6	0.00077
Dieldrin	0.0087	0.0034	0.00080	Eco-SSL	0.0709	0.011
Endrin	0.0087	0.0038	0.00089	NOAEL	0.012	0.075
Endrin aldehyde	0.0087	0.0086	0.0020	NOAEL	0.012	0.16
Endrin ketone	0.0087	0.0054	0.0013	NOAEL	0.012	0.10
Heptachlor	0.0045	0.0066	0.0015	NOAEL	0.1	0.015
Heptachlor epoxide	0.0045	0.0027	0.00063	NOAEL	0.1	0.0063
Hexachlorobenzene	0.00094	0.016	0.0036	NOAEL	0.24	0.015
Hexachlorobutadiene	0.00094	0.0070	0.0016	NOAEL	1.7	0.00092
Methoxychlor	0.052	0.0066	0.0017	NOAEL	34.6	0.000049
cis-Nonachlor	0.00094	0.0016	0.00035	NOAEL	0.6	0.00059
trans-Nonachlor	0.00094	0.0038	0.00086	NOAEL	0.6	0.0014
Oxychlordane	0.00094	0.0059	0.0013	NOAEL	0.6	0.0022
PAHs						
Benzo(a)pyrene	0.00161	0.027	0.0061	NOAEL	0.28	0.022
Total PAHs	0.0384	1.40	0.31	NOAEL	40	0.0078
Total HPAHs	0.0215	0.42	0.094	NOAEL	0.14	0.67
Total LPAHs	0.0144	0.83	0.18	NOAEL	7.7	0.024
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.16	NOAEL	1.1	0.14
Butyl benzyl phthalate	0.0034	0.21	0.047	NOAEL	0.11	0.43
Di-n-butyl phthalate	0.24	0.75	0.17	NOAEL	1.1	0.15
Di-n-octylphthalate	0.24	0.11	0.026	NOAEL	1.1	0.024
Pentachlorophenol	0.61	0.019	0.0070	Eco-SSL	6.73	0.0010
PCBs						
Total PCB congeners	0.00421	0.26	0.057	NOAEL	0.29	0.20
PCB TEQ, birds	0.00000033	0.000035	0.0000078	NOAEL	0.000014	0.56
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.00010	0.000022	NOAEL	0.000014	1.5
Total TEQ						
Total TEQ, birds	0.0000062	0.00013	0.000029	NOAEL	0.000014	2.1

Refined COPC Screen Assumptions	
Receptor	Tree Swallow
Body weight (kg)	0.20
Food ingestion rate (kg/day dw)	0.0045
Sediment ingestion rate (kg/day dw)	0.000090
Dietary Composition	
Emergent insects	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8q. Results of Tundra Swan Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Aquatic Plants	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	6677	334	NOAEL	157	2.1
Antimony	2.37	1.8	0.079	na	NA	NA
Arsenic	5.84	4.1	0.18	Eco-SSL	2.24	0.080
Barium	407	186	8.6	NOAEL	208.3	0.041
Beryllium	0.905	0.76	0.033	na	NA	NA
Cadmium	3.24	2.4	0.10	Eco-SSL	1.47	0.071
Chromium	27.3	16	0.73	Eco-SSL	2.66	0.27
Cobalt	7.26	5.0	0.22	Eco-SSL	7.61	0.029
Copper	112	58	2.7	Eco-SSL	4.05	0.65
Iron	22600	6898	345	na	NA	NA
Lead	167	83	3.8	Eco-SSL	1.63	2.3
Manganese	353	163	7.6	NOAEL	179	0.042
Mercury	0.343	0.32	0.014	NOAEL	0.018	0.76
Molybdenum	3.8	2.8	0.12	NOAEL	6	0.020
Nickel	18.4	11	0.51	Eco-SSL	6.71	0.076
Selenium	1.08	0.89	0.039	Eco-SSL	0.29	0.13
Silver	0.959	0.80	0.035	Eco-SSL	2.02	0.017
Thallium	0.44	0.40	0.017	NOAEL	0.48	0.036
Vanadium	42.5	24	1.1	Eco-SSL	0.344	3.2
Zinc	1060	439	21	Eco-SSL	66.1	0.31
Pesticides						
Aldrin	0.0045	0.0122	0.00049	NOAEL	0.008	0.062
Total Chlordane	0.00094	0.00878	0.00035	NOAEL	0.6	0.00058
alpha-Chlordane	0.0045	0.00356	0.00015	NOAEL	0.6	0.00026
gamma-Chlordane	0.0045	0.0019	0.000089	NOAEL	0.6	0.00015
Total DDx	0.00136	0.0539	0.0021	Eco-SSL	0.227	0.0093
delta-BHC	0.0045	0.00541	0.00023	NOAEL	1.6	0.00014
Dieldrin	0.0087	0.0034	0.00016	Eco-SSL	0.0709	0.0023
Endrin	0.0087	0.00382	0.00018	NOAEL	0.012	0.015
Endrin aldehyde	0.0087	0.00856	0.00036	NOAEL	0.012	0.030
Endrin ketone	0.0087	0.00544	0.00024	NOAEL	0.012	0.020
Heptachlor	0.0045	0.00656	0.00027	NOAEL	0.1	0.0027
Heptachlor epoxide	0.0045	0.00272	0.00012	NOAEL	0.1	0.0012
Hexachlorobenzene	0.00094	0.0162	0.00064	NOAEL	0.24	0.0027
Hexachlorobutadiene	0.00094	0.00699	0.00028	NOAEL	1.7	0.00016
Methoxychlor	0.052	0.00656	0.00043	NOAEL	34.6	0.000012
cis-Nonachlor	0.00094	0.00156	0.000064	NOAEL	0.6	0.00011
trans-Nonachlor	0.00094	0.00381	0.00015	NOAEL	0.6	0.00025
Oxychlordane	0.00094	0.00592	0.00024	NOAEL	0.6	0.00039
PAHs						
Benzo(a)pyrene	0.00161	0.00149	0.000064	NOAEL	0.28	0.00023
Total PAHs	0.0384	0.05	0.0021	NOAEL	40	0.000052
Total HPAHs	0.0215	0.00185	0.00014	NOAEL	0.14	0.0010
Total LPAHs	0.0144	0.0294	0.0012	NOAEL	7.7	0.00016
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.028	NOAEL	1.1	0.025
Butyl benzyl phthalate	0.0034	0.21	0.0083	NOAEL	0.11	0.075
Di-n-butyl phthalate	0.24	0.746	0.030	NOAEL	1.1	0.027
Di-n-octylphthalate	0.24	0.113	0.0052	NOAEL	1.1	0.0048
Pentachlorophenol	0.61	0.0192	0.0028	Eco-SSL	6.73	0.00041
PCBs						
Total PCB congeners	0.00421	0.111	0.0044	NOAEL	0.29	0.015
PCB TEQ, birds	0.000000327	0.0000061	0.00000024	NOAEL	0.000014	0.017
Dioxins/Furans						
Dioxin TEQ, birds	0.00000589	0.000010	0.00000041	NOAEL	0.000014	0.029
Total TEQ						
Total TEQ, birds	0.00000622	0.0000127	0.00000052	NOAEL	0.000014	0.037

Refined COPC Screen Assumptions	
Receptor	Tundra Swan
Body weight (kg)	6.8
Food ingestion rate (kg/day dw)	0.27
Sediment ingestion rate (kg/day dw)	0.022
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8r. Summary of Avian Receptor Dietary Screen HQs for the Transitional CSM Unit

COI	Bald Eagle	Belted Kingfisher	Canada Goose	Great Blue Heron	Lesser Scaup	Mallard	Osprey	Spotted Sandpiper	Tree Swallow	Tundra Swan
Metals/Metalloids										
Aluminum	0.18	0.64	2.9	0.78	1.7	2.1	0.26	13	8.4	2.1
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.028	0.11	0.11	0.047	0.15	0.092	0.042	0.50	0.086	0.080
Barium	0.0043	0.049	0.056	0.016	0.31	0.21	0.0064	1.8	1.8	0.041
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.015	0.082	0.097	0.031	0.49	0.47	0.023	3.9	1.5	0.071
Chromium	0.054	0.20	0.37	0.11	0.25	0.28	0.079	1.5	1.1	0.27
Cobalt	0.0023	0.0099	0.039	0.0068	0.034	0.041	0.0033	0.25	0.22	0.029
Copper	0.10	2.1	0.89	0.37	3.1	3.9	0.14	33	2.6	0.65
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.20	0.62	3.2	0.66	2.3	2.9	0.30	18	2.0	2.3
Manganese	0.0067	0.059	0.057	0.019	0.94	0.10	0.0099	0.78	0.73	0.042
Mercury	1.7	4.3	1.0	2.1	1.6	1.8	2.5	13	12	0.76
Molybdenum	0.0027	0.077	0.027	0.011	0.077	0.056	0.0039	0.42	0.40	0.020
Nickel	0.012	0.049	0.10	0.027	0.163	0.20	0.018	1.5	0.10	0.076
Selenium	0.36	1.0	0.18	0.46	0.78	0.67	0.53	5.5	5.5	0.13
Silver	0.00099	0.010	0.023	0.0037	0.012	0.012	0.0015	0.037	0.021	0.017
Thallium	0.020	0.054	0.048	0.028	0.036	0.044	0.029	0.24	0.21	0.036
Vanadium	0.21	0.76	4.3	0.75	2.2	2.9	0.30	14	9.7	3.2
Zinc	0.092	0.28	0.43	0.18	2.6	3.1	0.13	27	0.70	0.31
Pesticides										
Aldrin	0.076	0.24	0.084	0.10	0.085	0.075	0.11	0.36	0.34	0.062
Total Chlordane	0.00072	0.0023	0.00079	0.00091	0.00081	0.00071	0.0011	0.0033	0.0033	0.00058
alpha-Chlordane	0.00030	0.00096	0.00035	0.00041	0.00034	0.00030	0.00044	0.0016	0.0014	0.00026
gamma-Chlordane	0.00016	0.00052	0.00020	0.00023	0.00019	0.00016	0.00024	0.0010	0.00074	0.00015
Total DDx	0.012	0.037	0.013	0.015	0.013	0.012	0.017	0.052	0.053	0.0093
delta-BHC	0.00017	0.00054	0.00019	0.00022	0.00019	0.00017	0.00025	0.00085	0.00077	0.00014
Dieldrin	0.0025	0.0079	0.0031	0.0036	0.0029	0.0025	0.0037	0.015	0.011	0.0023
Endrin	0.016	0.052	0.020	0.023	0.019	0.017	0.024	0.098	0.075	0.015
Endrin aldehyde	0.036	0.11	0.041	0.048	0.041	0.036	0.053	0.18	0.16	0.030
Endrin ketone	0.023	0.074	0.027	0.032	0.027	0.023	0.034	0.13	0.10	0.020
Heptachlor	0.0033	0.010	0.0037	0.0043	0.0037	0.0033	0.0048	0.016	0.015	0.0027
Heptachlor epoxide	0.0014	0.0044	0.0017	0.0019	0.0016	0.0014	0.0020	0.0077	0.0063	0.0012
Hexachlorobenzene	0.0033	0.011	0.0036	0.0042	0.0037	0.0033	0.0049	0.015	0.015	0.0027
Hexachlorobutadiene	0.00020	0.00065	0.00022	0.00026	0.00023	0.00020	0.00030	0.00092	0.00092	0.00016
Methoxychlor	0.000011	0.000035	0.000017	0.000019	0.000014	0.000012	0.000016	0.00010	0.000049	0.000012
cis-Nonachlor	0.00013	0.00041	0.00015	0.00017	0.00015	0.00013	0.00019	0.00063	0.00059	0.00011
trans-Nonachlor	0.00031	0.0010	0.00035	0.00040	0.00035	0.00031	0.00046	0.0015	0.0014	0.00025
Oxychlordane	0.00049	0.0016	0.00053	0.00062	0.00055	0.00048	0.00072	0.0022	0.0022	0.00039
PAHs										
Benzo(a)pyrene	0.00027	0.0017	0.00031	0.00042	0.0039	0.0025	0.00039	0.022	0.022	0.00023
Total PAHs	0.000062	0.00052	0.000071	0.00011	0.0014	0.00089	0.000092	0.0077	0.0078	0.000052
Total HPAHs	0.00080	0.033	0.0014	0.0040	0.116	0.074	0.0012	0.66	0.67	0.0010
Total LPAHs	0.00019	0.0016	0.00021	0.00032	0.0042	0.0027	0.00028	0.024	0.024	0.00016
SVOCs										
bis(2-Ethylhexyl)phthalate	0.031	0.10	0.034	0.040	0.035	0.031	0.046	0.15	0.14	0.025
Butyl benzyl phthalate	0.094	0.30	0.10	0.12	0.10	0.093	0.14	0.42	0.43	0.075
Di-n-butyl phthalate	0.034	0.11	0.037	0.043	0.038	0.033	0.049	0.16	0.15	0.027
Di-n-octylphthalate	0.0053	0.017	0.0064	0.0075	0.0062	0.0053	0.0078	0.031	0.024	0.0048
Pentachlorophenol	0.00023	0.00073	0.00055	0.00065	0.00039	0.00028	0.00034	0.0042	0.0010	0.00041
PCBs										
Total PCB congeners	0.019	0.060	0.021	0.024	0.027	0.026	0.028	0.15	0.20	0.015
PCB TEQ, birds	0.021	0.069	0.023	0.027	0.053	0.057	0.032	0.42	0.56	0.017
Dioxins/Furans										
Dioxin TEQ, birds	0.036	0.11	0.040	0.046	0.13	0.15	0.052	1.2	1.5	0.029
Total TEQ										
Total TEQ, birds	0.045	0.14	0.050	0.058	0.17	0.20	0.066	1.6	2.1	0.037

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8s. Results of Brown Bat Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	21800	5450	1099	NOAEL	34	32
Antimony	2.37	2.37	0.45	Eco-SSL	0.059	7.6
Arsenic	5.84	0.74	0.16	Eco-SSL	1.04	0.15
Barium	407	1628	305	Eco-SSL	51.8	5.9
Beryllium	0.905	0.18	0.037	Eco-SSL	0.532	0.070
Cadmium	3.24	9.96	1.9	Eco-SSL	0.77	2.4
Chromium	27.3	12.83	2.5	Eco-SSL	2.4	1.0
Cobalt	7.26	7.26	1.4	Eco-SSL	7.33	0.19
Copper	112	45.57	8.9	Eco-SSL	5.6	1.6
Iron	22600	24860	4725	na	NA	NA
Lead	167	11.02	2.7	Eco-SSL	4.7	0.57
Manganese	353	575.4	109	Eco-SSL	51.5	2.1
Mercury	0.343	0.98	0.19	NOAEL	0.0017	109
Molybdenum	3.8	10.75	2.0	NOAEL	0.258	7.8
Nickel	18.4	2.75	0.58	Eco-SSL	1.7	0.34
Selenium	1.08	7.05	1.3	Eco-SSL	0.143	9.2
Silver	0.959	0.17	0.036	Eco-SSL	6.02	0.0059
Thallium	0.44	0.44	0.084	NOAEL	0.74	0.11
Vanadium	42.5	14.03	2.8	Eco-SSL	4.16	0.67
Zinc	1060	186.72	39	Eco-SSL	75.4	0.51
Pesticides						
Aldrin	0.0045	0.012	0.0023	NOAEL	0.83	0.0028
Total Chlordane	0.00094	0.0088	0.0016	NOAEL	0.08	0.021
alpha-Chlordane	0.0045	0.0036	0.00068	NOAEL	0.08	0.0085
gamma-Chlordane	0.0045	0.0019	0.00037	NOAEL	0.08	0.0046
Total DDx	0.00136	0.0539	0.010	Eco-SSL	0.147	0.068
delta-BHC	0.0045	0.0054	0.0010	NOAEL	6.1	0.00017
Dieldrin	0.0087	0.0034	0.00067	Eco-SSL	0.015	0.044
Endrin	0.0087	0.0038	0.00075	NOAEL	0.18	0.0041
Endrin aldehyde	0.0087	0.0086	0.0016	NOAEL	0.18	0.0091
Endrin ketone	0.0087	0.0054	0.0010	NOAEL	0.18	0.0058
Heptachlor	0.0045	0.0066	0.0012	NOAEL	1	0.0012
Heptachlor epoxide	0.0045	0.0027	0.00052	NOAEL	1	0.00052
Hexachlorobenzene	0.00094	0.016	0.0030	NOAEL	0.026	0.12
Hexachlorobutadiene	0.00094	0.0070	0.0013	NOAEL	2	0.00065
Methoxychlor	0.052	0.0066	0.0014	NOAEL	5.6	0.00025
cis-Nonachlor	0.00094	0.0016	0.00029	NOAEL	2.5	0.00012
trans-Nonachlor	0.00094	0.0038	0.00071	NOAEL	2.5	0.00029
Oxychlordane	0.00094	0.0059	0.0011	NOAEL	0.18	0.0062
PAHs						
Benzo(a)pyrene	0.00161	0.027	0.0051	NOAEL	2	0.0026
Total PAHs	0.0384	1.40	0.26	na	NA	NA
Total HPAHs	0.0215	0.42	0.079	Eco-SSL	0.615	0.13
Total LPAHs	0.0144	0.83	0.15	Eco-SSL	65.6	0.0024
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.13	NOAEL	44	0.0029
Butyl benzyl phthalate	0.0034	0.21	0.039	NOAEL	831	0.000047
Di-n-butyl phthalate	0.24	0.75	0.14	NOAEL	16	0.0088
Di-n-octylphthalate	0.24	0.11	0.022	NOAEL	44	0.00050
Pentachlorophenol	0.61	0.02	0.0059	Eco-SSL	8.42	0.00070
PCBs						
Total PCB congeners	0.0042	0.26	0.048	NOAEL	0.0089	5.4
PCB TEQ, mammals	0.000000086	0.0000092	0.0000017	NOAEL	0.0000010	1.7
Dioxins/Furans						
Dioxin TEQ, mammals	0.0000010	0.000016	0.0000030	NOAEL	0.0000010	3.0
Total TEQ						
Total TEQ, mammals	0.0000011	0.000025	0.0000047	NOAEL	0.0000010	4.7

Refined COPC Screen Assumptions	
Receptor	Brown Bat
Body weight (kg)	0.0075
Food ingestion rate (kg/day dw)	0.0014
Sediment ingestion rate (kg/day dw)	0.000028
Dietary Composition	
Emergent insects	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8t. Results of Mink Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Fish				
Metals/Metalloids							
Aluminum	21800	414	134	62	NOAEL	34	1.8
Antimony	2.37	0.0615	0.0916	0.010	Eco-SSL	0.059	0.18
Arsenic	5.84	2.09	1.18	0.078	Eco-SSL	1.04	0.075
Barium	407	196	10.2	2.5	Eco-SSL	51.8	0.047
Beryllium	0.905	0.0175	0.00729	0.0027	Eco-SSL	0.532	0.0050
Cadmium	3.24	1.62	0.394	0.034	Eco-SSL	0.77	0.044
Chromium	27.3	4.1	2.37	0.19	Eco-SSL	2.4	0.081
Cobalt	7.26	0.719	0.205	0.031	Eco-SSL	7.33	0.0042
Copper	112	187	5.65	1.5	Eco-SSL	5.6	0.26
Iron	22600	680	363	76	na	NA	NA
Lead	167	2.21	3.33	0.58	Eco-SSL	4.7	0.12
Manganese	353	186	17.4	2.6	Eco-SSL	51.5	0.050
Mercury	0.343	0.104	0.615	0.029	NOAEL	0.0017	17
Molybdenum	3.8	10.8	0.251	0.074	NOAEL	0.258	0.29
Nickel	18.4	3.01	1.31	0.12	Eco-SSL	1.7	0.074
Selenium	1.08	1.21	2.12	0.10	Eco-SSL	0.143	0.73
Silver	0.959	0.377	0.0214	0.0052	Eco-SSL	6.02	0.00087
Thallium	0.44	0.0763	0.184	0.0097	NOAEL	0.74	0.013
Vanadium	42.5	1.53	0.585	0.14	Eco-SSL	4.16	0.034
Zinc	1060	75.9	102	7.6	Eco-SSL	75.4	0.10
Pesticides							
Aldrin	0.0045	0.0122	0.0122	0.00062	NOAEL	0.83	0.00075
Total Chlordane	0.00094	0.00878	0.00878	0.00044	NOAEL	0.08	0.0055
alpha-Chlordane	0.0045	0.00356	0.00356	0.00019	NOAEL	0.08	0.0024
gamma-Chlordane	0.0045	0.0019	0.0019	0.00011	NOAEL	0.08	0.0013
Total DDx	0.00136	0.0539	0.0539	0.0027	Eco-SSL	0.147	0.018
delta-BHC	0.0045	0.00541	0.00541	0.00028	NOAEL	6.1	0.000046
Dieldrin	0.0087	0.0034	0.0034	0.00019	Eco-SSL	0.015	0.013
Endrin	0.0087	0.00382	0.00382	0.00021	NOAEL	0.18	0.0012
Endrin aldehyde	0.0087	0.00856	0.00856	0.00045	NOAEL	0.18	0.0025
Endrin ketone	0.0087	0.00544	0.00544	0.00029	NOAEL	0.18	0.0016
Heptachlor	0.0045	0.00656	0.00656	0.00034	NOAEL	1	0.00034
Heptachlor epoxide	0.0045	0.00272	0.00272	0.00015	NOAEL	1	0.00015
Hexachlorobenzene	0.00094	0.0162	0.0162	0.00081	NOAEL	0.026	0.031
Hexachlorobutadiene	0.00094	0.00699	0.00699	0.00035	NOAEL	2	0.00018
Methoxychlor	0.052	0.00656	0.00656	0.00046	NOAEL	5.6	0.000082
cis-Nonachlor	0.00094	0.00156	0.00156	0.000080	NOAEL	2.5	0.000032
trans-Nonachlor	0.00094	0.00381	0.00381	0.00019	NOAEL	2.5	0.000077
Oxychlordane	0.00094	0.00592	0.00592	0.00030	NOAEL	0.18	0.0017
PAHs							
Benzo(a)pyrene	0.00161	0.0073	0.00149	0.00011	NOAEL	2	0.000054
Total PAHs	0.0384	0.37	0.05	0.0042	na	NA	NA
Total HPAHs	0.0215	0.11	0.00185	0.00069	Eco-SSL	0.615	0.0011
Total LPAHs	0.0144	0.22	0.0294	0.0025	Eco-SSL	65.6	0.000037
SVOCs							
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.035	NOAEL	44	0.00080
Butyl benzyl phthalate	0.0034	0.21	0.21	0.010	NOAEL	831	0.000013
Di-n-butyl phthalate	0.24	0.746	0.746	0.038	NOAEL	16	0.0024
Di-n-octylphthalate	0.24	0.113	0.113	0.0062	NOAEL	44	0.00014
Pentachlorophenol	0.61	0.0192	0.0192	0.0025	Eco-SSL	8.42	0.00029
PCBs							
Total PCB congeners	0.00421	0.111	0.111	0.0055	NOAEL	0.0089	0.62
PCB TEQ, mammals	0.000000086	0.00000317	0.00000317	0.00000016	NOAEL	0.0000010	0.16
Dioxins/Furans							
Dioxin TEQ, mammals	0.000000979	0.0000026	0.0000026	0.00000013	NOAEL	0.0000010	0.13
Total TEQ							
Total TEQ, mammals	0.00000107	0.00000606	0.00000606	0.00000030	NOAEL	0.0000010	0.30

Refined COPC Screen Assumptions	
Receptor	Mink
Body weight (kg)	0.85
Food ingestion rate (kg/day dw)	0.043
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Crayfish	10%
Fish	90%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8u. Results of Dietary Screen for Muskrat Transitional CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose	SL TRV		HQ
	Sediment	Aquatic Plants	(mg/kg bw/d)	Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	21800	6677	537	NOAEL	34	16
Antimony	2.37	1.8	0.13	Eco-SSL	0.059	2.3
Arsenic	5.84	4.1	0.30	Eco-SSL	1.04	0.29
Barium	407	186	14	Eco-SSL	51.8	0.28
Beryllium	0.905	0.76	0.056	Eco-SSL	0.532	0.10
Cadmium	3.24	2.4	0.18	Eco-SSL	0.77	0.23
Chromium	27.3	16	1.2	Eco-SSL	2.4	0.51
Cobalt	7.26	5.0	0.37	Eco-SSL	7.33	0.050
Copper	112	58	4.4	Eco-SSL	5.6	0.79
Iron	22600	6898	555	na	NA	NA
Lead	167	83	6.3	Eco-SSL	4.7	1.3
Manganese	353	163	13	Eco-SSL	51.5	0.24
Mercury	0.343	0.32	0.023	NOAEL	0.0017	14
Molybdenum	3.8	2.8	0.20	NOAEL	0.258	0.79
Nickel	18.4	11	0.85	Eco-SSL	1.7	0.50
Selenium	1.08	0.89	0.065	Eco-SSL	0.143	0.46
Silver	0.959	0.80	0.059	Eco-SSL	6.02	0.010
Thallium	0.44	0.40	0.029	NOAEL	0.74	0.039
Vanadium	42.5	24	1.8	Eco-SSL	4.16	0.44
Zinc	1060	439	34	Eco-SSL	75.4	0.45
Pesticides						
Aldrin	0.0045	0.0122	0.00086	NOAEL	0.83	0.0010
Total Chlordane	0.00094	0.00878	0.00061	NOAEL	0.08	0.0076
alpha-Chlordane	0.0045	0.00356	0.00026	NOAEL	0.08	0.0033
gamma-Chlordane	0.0045	0.0019	0.00015	NOAEL	0.08	0.0018
Total DDx	0.00136	0.0539	0.0037	Eco-SSL	0.147	0.025
delta-BHC	0.0045	0.00541	0.00039	NOAEL	6.1	0.000064
Dieldrin	0.0087	0.0034	0.00027	Eco-SSL	0.015	0.018
Endrin	0.0087	0.00382	0.00029	NOAEL	0.18	0.0016
Endrin aldehyde	0.0087	0.00856	0.00062	NOAEL	0.18	0.0035
Endrin ketone	0.0087	0.00544	0.00041	NOAEL	0.18	0.0023
Heptachlor	0.0045	0.00656	0.00047	NOAEL	1	0.00047
Heptachlor epoxide	0.0045	0.00272	0.00020	NOAEL	1	0.00020
Hexachlorobenzene	0.00094	0.0162	0.0011	NOAEL	0.026	0.043
Hexachlorobutadiene	0.00094	0.00699	0.00049	NOAEL	2	0.00024
Methoxychlor	0.052	0.00656	0.00063	NOAEL	5.6	0.00011
cis-Nonachlor	0.00094	0.00156	0.00011	NOAEL	2.5	0.000044
trans-Nonachlor	0.00094	0.00381	0.00027	NOAEL	2.5	0.00011
Oxychlordane	0.00094	0.00592	0.00041	NOAEL	0.18	0.0023
PAHs						
Benzo(a)pyrene	0.00161	0.00149	0.00011	NOAEL	2	0.000054
Total PAHs	0.0384	0.05	0.0036	na	NA	NA
Total HPAHs	0.0215	0.00185	0.00020	Eco-SSL	0.615	0.00033
Total LPAHs	0.0144	0.0294	0.0021	Eco-SSL	65.6	0.000032
SVOCs						
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.049	NOAEL	44	0.0011
Butyl benzyl phthalate	0.0034	0.21	0.015	NOAEL	831	0.000017
Di-n-butyl phthalate	0.24	0.746	0.052	NOAEL	16	0.0033
Di-n-octylphthalate	0.24	0.113	0.0086	NOAEL	44	0.00020
Pentachlorophenol	0.61	0.0192	0.0034	Eco-SSL	8.42	0.00041
PCBs						
Total PCB congeners	0.00421	0.111	0.0077	NOAEL	0.0089	0.86
PCB TEQ, mammals	0.000000086	0.00000317	0.00000022	NOAEL	0.0000010	0.22
Dioxins/Furans						
Dioxin TEQ, mammals	0.000000979	0.0000026	0.00000018	NOAEL	0.0000010	0.18
Total TEQ						
Total TEQ, mammals	0.00000107	0.00000606	0.00000042	NOAEL	0.0000010	0.42

Refined COPC Screen Assumptions	
Receptor	Muskrat
Body weight (kg)	0.87
Food ingestion rate (kg/day dw)	0.064
Sediment ingestion rate (kg/day dw)	0.0030
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-8v. Results of River Otter Dietary Screen for the Transitional CSM Unit

COI	Media Concentration (mg/kg dw)				Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Mussels	Fish				
Metals/Metalloids								
Aluminum	21800	414	742	134	43	NOAEL	34	1.3
Antimony	2.37	0.0615	0.157	0.0916	0.0071	Eco-SSL	0.059	0.12
Arsenic	5.84	2.09	9.13	1.18	0.059	Eco-SSL	1.04	0.056
Barium	407	196	1560	10.2	2.7	Eco-SSL	51.8	0.053
Beryllium	0.905	0.0175	0.0676	0.00729	0.0019	Eco-SSL	0.532	0.0035
Cadmium	3.24	1.62	9.11	0.394	0.029	Eco-SSL	0.77	0.038
Chromium	27.3	4.1	6.16	2.37	0.14	Eco-SSL	2.4	0.056
Cobalt	7.26	0.719	1.57	0.205	0.022	Eco-SSL	7.33	0.0030
Copper	112	187	13.6	5.65	1.0	Eco-SSL	5.6	0.18
Iron	22600	680	3250	363	54	na	NA	NA
Lead	167	2.21	11.7	3.33	0.40	Eco-SSL	4.7	0.085
Manganese	353	186	8000	17.4	7.2	Eco-SSL	51.5	0.14
Mercury	0.343	0.104	0.122	0.615	0.019	NOAEL	0.0017	11
Molybdenum	3.8	10.8	10.8	0.251	0.058	NOAEL	0.258	0.22
Nickel	18.4	3.01	3.51	1.31	0.083	Eco-SSL	1.7	0.049
Selenium	1.08	1.21	3.64	2.12	0.072	Eco-SSL	0.143	0.50
Silver	0.959	0.377	0.372	0.0214	0.0038	Eco-SSL	6.02	0.00063
Thallium	0.44	0.0763	0.0982	0.184	0.0066	NOAEL	0.74	0.0089
Vanadium	42.5	1.53	1.89	0.585	0.096	Eco-SSL	4.16	0.023
Zinc	1060	75.9	331	102	5.3	Eco-SSL	75.4	0.071
Pesticides								
Aldrin	0.0045	0.0122	0.0122	0.0122	0.00042	NOAEL	0.83	0.00051
Total Chlordane	0.00094	0.00878	0.00878	0.00878	0.00030	NOAEL	0.08	0.0038
alpha-Chlordane	0.0045	0.00356	0.00356	0.00356	0.00013	NOAEL	0.08	0.0016
gamma-Chlordane	0.0045	0.0019	0.0019	0.0019	0.000072	NOAEL	0.08	0.00090
Total DDx	0.00136	0.0539	0.0539	0.0539	0.0018	Eco-SSL	0.147	0.012
delta-BHC	0.0045	0.00541	0.00541	0.00541	0.00019	NOAEL	6.1	0.000031
Dieldrin	0.0087	0.0034	0.0034	0.0034	0.00013	Eco-SSL	0.015	0.0087
Endrin	0.0087	0.00382	0.00382	0.00382	0.00014	NOAEL	0.18	0.00080
Endrin aldehyde	0.0087	0.00856	0.00856	0.00856	0.00031	NOAEL	0.18	0.0017
Endrin ketone	0.0087	0.00544	0.00544	0.00544	0.00020	NOAEL	0.18	0.0011
Heptachlor	0.0045	0.00656	0.00656	0.00656	0.00023	NOAEL	1	0.00023
Heptachlor epoxide	0.0045	0.00272	0.00272	0.00272	0.00010	NOAEL	1	0.00010
Hexachlorobenzene	0.00094	0.0162	0.0162	0.0162	0.00055	NOAEL	0.026	0.021
Hexachlorobutadiene	0.00094	0.00699	0.00699	0.00699	0.00024	NOAEL	2	0.00012
Methoxychlor	0.052	0.00656	0.00656	0.00656	0.00031	NOAEL	5.6	0.000056
cis-Nonachlor	0.00094	0.00156	0.00156	0.00156	0.000055	NOAEL	2.5	0.000022
trans-Nonachlor	0.00094	0.00381	0.00381	0.00381	0.00013	NOAEL	2.5	0.000053
Oxychlordane	0.00094	0.00592	0.00592	0.00592	0.00020	NOAEL	0.18	0.0011
PAHs								
Benzo(a)pyrene	0.00161	0.0073	0.0073	0.00149	0.000077	NOAEL	2	0.000039
Total PAHs	0.0384	0.37	0.37	0.05	0.0031	na	NA	NA
Total HPAHs	0.0215	0.11	0.11	0.00185	0.00055	Eco-SSL	0.615	0.00089
Total LPAHs	0.0144	0.22	0.22	0.0294	0.0018	Eco-SSL	65.6	0.000027
SVOCs								
bis(2-Ethylhexyl)phthalate	0.24	0.69	0.69	0.69	0.024	NOAEL	44	0.00054
Butyl benzyl phthalate	0.0034	0.21	0.21	0.21	0.0072	NOAEL	831	0.0000086
Di-n-butyl phthalate	0.24	0.746	0.746	0.746	0.026	NOAEL	16	0.0016
Di-n-octylphthalate	0.24	0.113	0.113	0.113	0.0043	NOAEL	44	0.00010
Pentachlorophenol	0.61	0.0192	0.0192	0.0192	0.0017	Eco-SSL	8.42	0.00020
PCBs								
Total PCB congeners	0.00421	0.111	0.111	0.111	0.0038	NOAEL	0.0089	0.43
PCB TEQ, mammals	0.000000086	0.00000317	0.00000317	0.00000317	0.00000011	NOAEL	0.0000010	0.11
Dioxins/Furans								
Dioxin TEQ, mammals	0.000000979	0.0000026	0.0000026	0.0000026	0.000000090	NOAEL	0.0000010	0.090
Total TEQ								
Total TEQ, mammals	0.00000107	0.00000606	0.00000606	0.00000606	0.00000021	NOAEL	0.0000010	0.21

Refined COPC Screen Assumptions	
Receptor	River Otter
Body weight (kg)	8.6
Food ingestion rate (kg/day dw)	0.29
Sediment ingestion rate (kg/day dw)	0.015
Dietary Composition	
Crayfish	10%
Mussels	2%
Fish	88%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-8w. Summary of Mammalian Receptor Dietary Screen HQs for the Transitional CSM Unit

COI	Brown Bat	Mink	Muskrat	River Otter
Metals/Metalloids				
Aluminum	32	1.8	16	1.3
Antimony	7.6	0.18	2.3	0.12
Arsenic	0.15	0.075	0.29	0.056
Barium	5.9	0.047	0.28	0.053
Beryllium	0.070	0.0050	0.10	0.0035
Cadmium	2.4	0.044	0.23	0.038
Chromium	1.0	0.081	0.51	0.056
Cobalt	0.19	0.0042	0.050	0.0030
Copper	1.6	0.26	0.79	0.18
Iron	NA	NA	NA	NA
Lead	0.57	0.12	1.3	0.085
Manganese	2.1	0.050	0.24	0.14
Mercury	109	17	14	11
Molybdenum	7.8	0.288	0.79	0.224
Nickel	0.34	0.074	0.50	0.049
Selenium	9.2	0.73	0.46	0.50
Silver	0.0059	0.00087	0.010	0.00063
Thallium	0.11	0.013	0.039	0.0089
Vanadium	0.67	0.034	0.44	0.023
Zinc	0.51	0.10	0.45	0.071
Pesticides				
Aldrin	0.0028	0.00075	0.0010	0.00051
Total Chlordane	0.021	0.0055	0.0076	0.0038
alpha-Chlordane	0.0085	0.0024	0.0033	0.0016
gamma-Chlordane	0.0046	0.0013	0.0018	0.00090
Total DDx	0.068	0.018	0.025	0.012
delta-BHC	0.00017	0.000046	0.000064	0.000031
Dieldrin	0.044	0.013	0.018	0.0087
Endrin	0.0041	0.0012	0.0016	0.00080
Endrin aldehyde	0.0091	0.0025	0.0035	0.0017
Endrin ketone	0.0058	0.0016	0.0023	0.0011
Heptachlor	0.0012	0.00034	0.00047	0.00023
Heptachlor epoxide	0.00052	0.00015	0.00020	0.00010
Hexachlorobenzene	0.12	0.031	0.043	0.021
Hexachlorobutadiene	0.00065	0.00018	0.00024	0.00012
Methoxychlor	0.00025	0.000082	0.00011	0.000056
cis-Nonachlor	0.00012	0.000032	0.000044	0.000022
trans-Nonachlor	0.00029	0.000077	0.00011	0.000053
Oxychlordane	0.0062	0.0017	0.0023	0.0011
PAHs				
Benzo(a)pyrene	0.0026	0.000054	0.000054	0.000039
Total PAHs	NA	NA	NA	NA
Total HPAHs	0.13	0.0011	0.00033	0.00089
Total LPAHs	0.0024	0.000037	0.000032	0.000027
SVOCs				
bis(2-Ethylhexyl)phthalate	0.0029	0.00080	0.0011	0.00054
Butyl benzyl phthalate	0.000047	0.000013	0.000017	0.0000086
Di-n-butyl phthalate	0.0088	0.0024	0.0033	0.0016
Di-n-octylphthalate	0.00050	0.00014	0.00020	0.00010
Pentachlorophenol	0.00070	0.00029	0.00041	0.00020
PCBs				
Total PCB congeners	5.4	0.62	0.86	0.43
PCB TEQ, mammals	1.7	0.16	0.22	0.11
Dioxins/Furans				
Dioxin TEQ, mammals	3.0	0.13	0.18	0.090
Total TEQ				
Total TEQ, mammals	4.7	0.30	0.42	0.21

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9a. Results of Bull Trout Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
	Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	15900	121	3.1	NOAEL	67	0.046	280	NOAEL	2232	0.13
Antimony	0.937	0.191	0.0022	na	NA	NA	0.20	na	NA	NA
Arsenic	6	1.22	0.014	NOAEL	0.4	0.035	1.3	NOAEL	20	0.064
Barium	210	11.3	0.15	na	NA	NA	13	na	NA	NA
Beryllium	0.755	0.0152	0.00025	na	NA	NA	0.023	na	NA	NA
Cadmium	1.55	0.466	0.0053	NOAEL	0.002	2.7	0.48	NOAEL	0.1	4.8
Chromium	22.2	11.6	0.13	NOAEL	0.037	3.5	12	NOAEL	2	5.9
Cobalt	6.91	0.299	0.0041	na	NA	NA	0.37	na	NA	NA
Copper	23.3	7.38	0.084	NOAEL	0.24	0.35	7.6	NOAEL	8	0.95
Iron	18300	180	4.0	na	NA	NA	363	na	NA	NA
Lead	79.7	1.32	0.023	NOAEL	12.4	0.0019	2.1	NOAEL	728	0.0029
Manganese	455	15.2	0.22	na	NA	NA	20	na	NA	NA
Mercury	0.19	0.622	0.0069	NOAEL	0.005	1.4	0.62	NOAEL	0.2	3.1
Molybdenum	1.53	0.207	0.0025	NOAEL	45	0.000055	0.22	NOAEL	1500	0.00015
Nickel	17.1	6.86	0.078	NOAEL	1.4	0.055	7.0	NOAEL	70	0.10
Selenium	0.959	1.62	0.018	NOAEL	0.1	0.18	1.6	NOAEL	3.9	0.42
Silver	0.339	0.0391	0.00047	NOAEL	70	0.0000067	0.042	NOAEL	3000	0.000014
Thallium	0.433	0.185	0.0021	na	NA	NA	0.19	na	NA	NA
Uranium	3	0.0245	0.0006	NOAEL	300	0.0000020	0.05	NOAEL	10000	0.0000055
Vanadium	29.8	0.733	0.011	NOAEL	0.036	0.32	1.0	NOAEL	1.2	0.86
Zinc	214	97	1.1	NOAEL	19	0.058	99	NOAEL	1000	0.10
PAHs										
Benzo(a)pyrene	0.000972	0.00262	0.000029	NOAEL	0.66	0.000044	0.0026	NOAEL	47	0.000056
Total PAHs	0.0505	0.136	0.0015	NOAEL	6.1	0.00025	0.14	NOAEL	324	0.00042
Total HPAHs	0.0143	0.00911	0.00010	NOAEL	6.1	0.000017	0.0093	NOAEL	324	0.000029
Total LPAHs	0.0104	0.132	0.0015	NOAEL	6.1	0.00024	0.13	NOAEL	324	0.00041

Refined COPC Screen Assumptions

Receptor	Bull Trout
Body weight (kg)	7.0
Food ingestion rate (kg/day dw)	0.077
Sediment ingestion rate (kg/day dw)	0.00077
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-9b. Results of Chinook Salmon Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Dose-Based Screen				Concentration-Based Screen			
	Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids										
Aluminum	15900	3975	61	NOAEL	67	0.91	4134	NOAEL	2232	1.9
Antimony	0.937	0.94	0.0140	na	NA	NA	0.95	na	NA	NA
Arsenic	6	4.14	0.062	NOAEL	0.4	0.16	4.20	NOAEL	20	0.21
Barium	210	840	12	na	NA	NA	842	na	NA	NA
Beryllium	0.755	0.15	0.0023	na	NA	NA	0.16	na	NA	NA
Cadmium	1.55	12.4	0.183	NOAEL	0.002	92	12.4	NOAEL	0.1	124
Chromium	22.2	10	0.16	NOAEL	0.037	4.3	11	NOAEL	2	5.3
Cobalt	6.91	6.9	0.10	na	NA	NA	7.0	na	NA	NA
Copper	23.3	122	1.81	NOAEL	0.24	7.6	123	NOAEL	8	15
Iron	18300	20130	300	na	NA	NA	20313	na	NA	NA
Lead	79.7	48.6	0.731	NOAEL	12.4	0.059	49.4	NOAEL	728	0.068
Manganese	455	742	11	na	NA	NA	746	na	NA	NA
Mercury	0.19	0.55	0.0081	NOAEL	0.005	1.6	0.55	NOAEL	0.2	2.7
Molybdenum	1.53	4.3	0.064	NOAEL	45	0.0014	4.3	NOAEL	1500	0.0029
Nickel	17.1	39.7	0.589	NOAEL	1.4	0.42	39.8	NOAEL	70	0.57
Selenium	0.959	6.3	0.093	NOAEL	0.1	0.93	6.3	NOAEL	3.9	1.6
Silver	0.339	0.061	0.0010	NOAEL	70	0.000014	0.064	NOAEL	3000	0.000021
Thallium	0.433	0.43	0.0065	na	NA	NA	0.44	na	NA	NA
Uranium	3	3.00	0.045	NOAEL	300	0.00015	3.0	NOAEL	10000	0.00030
Vanadium	29.8	9.8	0.15	NOAEL	0.036	4.2	10	NOAEL	1.2	8.4
Zinc	214	1611	23.9	NOAEL	19	1.3	1614	NOAEL	1000	1.6
PAHs										
Benzo(a)pyrene	0.000972	0.017	0.00024	NOAEL	0.66	0.00037	0.017	NOAEL	47	0.00035
Total PAHs	0.0505	1.8	0.027	NOAEL	6.1	0.0045	1.8	NOAEL	324	0.0057
Total HPAHs	0.0143	0.28	0.0041	NOAEL	6.1	0.00068	0.28	NOAEL	324	0.00087
Total LPAHs	0.0104	0.60	0.0088	NOAEL	6.1	0.0014	0.60	NOAEL	324	0.0018

Refined COPC Screen Assumptions	
Receptor	Chinook Salmon
Body weight (kg)	1.0
Food ingestion rate (kg/day dw)	0.015
Sediment ingestion rate (kg/day dw)	0.00015
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Benthic invertebrates	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

SL TRV - screening-level toxicity reference value

Table 4-9c. Results of Largescale Sucker Dietary Screen for the Lacustrine CSM Unit

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	15900	5026	3975	98	NOAEL	67	1.5	5773	NOAEL	2232	2.6
Antimony	0.937	0.784	0.94	0.016	na	NA	NA	0.94	na	NA	NA
Arsenic	6	4.17	4.14	0.079	NOAEL	0.4	0.20	4.64	NOAEL	20	0.23
Barium	210	102	840	8.3	na	NA	NA	488	na	NA	NA
Beryllium	0.755	0.646	0.15	0.0078	na	NA	NA	0.46	na	NA	NA
Cadmium	1.55	1.23	12.4	0.118	NOAEL	0.002	59	6.9	NOAEL	0.1	69
Chromium	22.2	13.5	10	0.23	NOAEL	0.037	6.3	14	NOAEL	2	6.9
Cobalt	6.91	4.74	6.9	0.11	na	NA	NA	6.4	na	NA	NA
Copper	23.3	14.1	122	1.19	NOAEL	0.24	5.0	70.1	NOAEL	8	8.8
Iron	18300	5704	20130	244	na	NA	NA	14381	na	NA	NA
Lead	79.7	42.8	48.6	0.88	NOAEL	12.4	0.071	52.1	NOAEL	728	0.072
Manganese	455	205	742	8.6	na	NA	NA	510	na	NA	NA
Mercury	0.19	0.187	0.55	0.0065	NOAEL	0.005	1.3	0.38	NOAEL	0.2	1.9
Molybdenum	1.53	1.22	4.3	0.049	NOAEL	45	0.0011	2.90	NOAEL	1500	0.0019
Nickel	17.1	10.7	39.7	0.45	NOAEL	1.4	0.32	26.6	NOAEL	70	0.38
Selenium	0.959	0.801	6.3	0.061	NOAEL	0.1	0.61	3.6	NOAEL	3.9	0.93
Silver	0.339	0.314	0.061	0.0036	NOAEL	70	0.000052	0.21	NOAEL	3000	0.000072
Thallium	0.433	0.392	0.43	0.0076	na	NA	NA	0.45	na	NA	NA
Uranium	3	2.24	3.00	0.048	NOAEL	300	0.00016	2.86	NOAEL	10000	0.00029
Vanadium	29.8	17.7	9.8	0.27	NOAEL	0.036	7.6	16	NOAEL	1.2	13
Zinc	214	104	1611	14.8	NOAEL	19	0.78	875	NOAEL	1000	0.87
PAHs											
Benzo(a)pyrene	0.000972	0.00262	0.017	0.00016	NOAEL	0.66	0.00025	0.0096	NOAEL	47	0.00021
Total PAHs	0.0505	0.136	1.8	0.017	NOAEL	6.1	0.0028	1.00	NOAEL	324	0.0031
Total HPAHs	0.0143	0.00911	0.28	0.0025	NOAEL	6.1	0.00041	0.15	NOAEL	324	0.00045
Total LPAHs	0.0104	0.132	0.60	0.0062	NOAEL	6.1	0.0010	0.37	NOAEL	324	0.0011

Refined COPC Screen Assumptions	
Receptor	Largescale Sucker
Body weight (kg)	0.4
Food ingestion rate (kg/day dw)	0.0068
Sediment ingestion rate (kg/day dw)	0.00054
Sediment ingestion as percent of food	0.0800
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Table 4-9d. Results of Prickly Sculpin Dietary Screen for the Lacustrine CSM Unit

	Media Concentration (mg/kg dw)			Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Benthic Invertebrates	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids											
Aluminum	15900	3975	121	95	NOAEL	67	1.4	4385	NOAEL	2232	2.0
Antimony	0.937	0.94	0.191	0.020	na	NA	NA	0.91	na	NA	NA
Arsenic	6	4.14	1.22	0.090	NOAEL	0.4	0.22	4.1	NOAEL	20	0.21
Barium	210	840	11.3	17	na	NA	NA	768	na	NA	NA
Beryllium	0.755	0.15	0.0152	0.0038	na	NA	NA	0.18	na	NA	NA
Cadmium	1.55	12.4	0.466	0.24	NOAEL	0.002	122	11.3	NOAEL	0.1	113
Chromium	22.2	10	11.6	0.25	NOAEL	0.037	6.8	12	NOAEL	2	5.8
Cobalt	6.91	6.9	0.299	0.14	na	NA	NA	6.6	na	NA	NA
Copper	23.3	122	7.38	2.43	NOAEL	0.24	10	112	NOAEL	8	14
Iron	18300	20130	180	413	na	NA	NA	19050	na	NA	NA
Lead	79.7	48.6	1.32	1.04	NOAEL	12.4	0.084	47.9	NOAEL	728	0.066
Manganese	455	742	15.2	15.0	na	NA	NA	692	na	NA	NA
Mercury	0.19	0.5	0.622	0.012	NOAEL	0.005	2.4	0.56	NOAEL	0.2	2.8
Molybdenum	1.53	4.3	0.207	0.087	NOAEL	45	0.0019	4.0	NOAEL	1500	0.0027
Nickel	17.1	39.7	6.86	0.807	NOAEL	1.4	0.58	37.2	NOAEL	70	0.53
Selenium	0.959	6.3	1.62	0.13	NOAEL	0.1	1.3	5.8	NOAEL	3.9	1.5
Silver	0.339	0.061	0.0391	0.0016	NOAEL	70	0.000023	0.076	NOAEL	3000	0.000025
Thallium	0.433	0.43	0.185	0.0093	na	NA	NA	0.43	na	NA	NA
Uranium	3	3.0	0.0245	0.062	NOAEL	300	0.00021	2.9	NOAEL	10000	0.00029
Vanadium	29.8	9.8	0.733	0.23	NOAEL	0.036	6.3	10	NOAEL	1.2	8.7
Zinc	214	1611	97	31.9	NOAEL	19	1.7	1471	NOAEL	1000	1.5
PAHs											
Benzo(a)pyrene	0.000972	0.017	0.00262	0.00033	NOAEL	0.66	0.00050	0.015	NOAEL	47	0.00032
Total PAHs	0.0505	1.85	0.136	0.036	NOAEL	6.1	0.0060	1.68	NOAEL	324	0.0052
Total HPAHs	0.0143	0.28	0.00911	0.0055	NOAEL	6.1	0.00090	0.25	NOAEL	324	0.00078
Total LPAHs	0.0104	0.60	0.132	0.012	NOAEL	6.1	0.0020	0.55	NOAEL	324	0.0017

Refined COPC Screen Assumptions	
Receptor	Prickly Sculpin
Body weight (kg)	0.078
Food ingestion rate (kg/day dw)	0.0017
Sediment ingestion rate (kg/day dw)	0.000085
Sediment ingestion as percent of food	0.0500
Dietary Composition	
Fish	10%
Benthic invertebrates	90%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Table 4-9e. Results of White Sturgeon Dietary Screen for the Lacustrine CSM Unit

	Media Concentration (mg/kg dw)						Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Aquatic Plants	Benthic Invertebrates	Crayfish	Mussels	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids														
Aluminum	15900	5026	3975	637	2460	121	82	NOAEL	67	1.2	10058	NOAEL	2232	4.5
Antimony	0.937	0.784	0.94	0.0688	0.0483	0.191	0.0071	na	NA	NA	0.86	na	NA	NA
Arsenic	6	4.17	4.14	1.13	8.16	1.22	0.046	NOAEL	0.4	0.11	5.6	NOAEL	20	0.28
Barium	210	102	840	284	1060	11.3	2.7	na	NA	NA	335	na	NA	NA
Beryllium	0.755	0.646	0.15	0.0217	0.0998	0.0152	0.0041	na	NA	NA	0.50	na	NA	NA
Cadmium	1.55	1.23	12.4	1.29	8.85	0.466	0.031	NOAEL	0.002	16	3.8	NOAEL	0.1	38
Chromium	22.2	13.5	10	4.47	9.48	11.6	0.19	NOAEL	0.037	5.2	24	NOAEL	2	12
Cobalt	6.91	4.74	6.9	0.578	1.59	0.299	0.046	na	NA	NA	5.6	na	NA	NA
Copper	23.3	14.1	122	120	10.4	7.38	0.36	NOAEL	0.24	1.5	44	NOAEL	8	5.5
Iron	18300	5704	20130	563	3490	180	117	na	NA	NA	14273	na	NA	NA
Lead	79.7	42.8	48.6	1.84	2.56	1.32	0.46	NOAEL	12.4	0.037	56	NOAEL	728	0.077
Manganese	455	205	742	119	7800	15.2	6.5	na	NA	NA	795	na	NA	NA
Mercury	0.19	0.187	0.5	0.0953	0.0912	0.622	0.0053	NOAEL	0.005	1.1	0.65	NOAEL	0.2	3.3
Molybdenum	1.53	1.22	4.3	4.3299	4.3299	0.207	0.018	NOAEL	45	0.00039	2.1	NOAEL	1500	0.0014
Nickel	17.1	10.7	39.7	2.42	5.02	6.86	0.18	NOAEL	1.4	0.13	22	NOAEL	70	0.31
Selenium	0.959	0.801	6.3	0.92	2.69	1.62	0.024	NOAEL	0.1	0.24	2.9	NOAEL	3.9	0.75
Silver	0.339	0.314	0.061	0.338	0.377	0.0391	0.0022	NOAEL	70	0.000032	0.27	NOAEL	3000	0.000091
Thallium	0.433	0.392	0.43	0.0676	0.0743	0.185	0.0039	na	NA	NA	0.47	na	NA	NA
Uranium	3	2.24	3.0	3.00	3.00	0.0245	0.0210	NOAEL	300	0.000070	2.6	NOAEL	10000	0.00026
Vanadium	29.8	17.7	9.8	1.43	4.08	0.733	0.16	NOAEL	0.036	4.6	20	NOAEL	1.2	17
Zinc	214	104	1611	82	376	97	4.0	NOAEL	19	0.21	488	NOAEL	1000	0.49
PAHs														
Benzo(a)pyrene	0.000972	0.00262	0.017	0.0044	0.0044	0.00262	0.000054	NOAEL	0.66	0.000082	0.0066	NOAEL	47	0.00014
Total PAHs	0.0505	0.136	1.85	0.49	0.49	0.136	0.0049	NOAEL	6.1	0.00080	0.59	NOAEL	324	0.0018
Total HPAHs	0.0143	0.00911	0.28	0.074	0.074	0.00911	0.00070	NOAEL	6.1	0.00011	0.085	NOAEL	324	0.00026
Total LPAHs	0.0104	0.132	0.60	0.16	0.16	0.132	0.0021	NOAEL	6.1	0.00034	0.25	NOAEL	324	0.00078

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Refined COPC Screen Assumptions	
Receptor	White Sturgeon
Body weight (kg)	51
Food ingestion rate (kg/day dw)	0.418
Sediment ingestion rate (kg/day dw)	0.234
Sediment ingestion as percent of food	0.56
Dietary Composition	
Crayfish	3%
Mussels	5%
Fish	70%
Aquatic plants	5%
Benthic invertebrtes	17%

Table 4-9f. Results of Yellow Perch Dietary Screen for the Lacustrine CSM Unit

	Media Concentration (mg/kg dw)				Dose-Based Screen				Concentration-Based Screen			
COI	Sediment	Benthic Invertebrates	Crayfish	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ	Concentration (mg/kg dw)	Type of SL TRV	SL TRV (mg/kg_{diet})	HQ
Metals/Metalloids												
Aluminum	15900	3975	637	121	18	NOAEL	67	0.26	936	NOAEL	2232	0.42
Antimony	0.937	0.94	0.0688	0.191	0.0056	na	NA	NA	0.29	na	NA	NA
Arsenic	6	4.14	1.13	1.22	0.032	NOAEL	0.4	0.081	1.70	NOAEL	20	0.085
Barium	210	840	284	11.3	3.4	na	NA	NA	179	na	NA	NA
Beryllium	0.755	0.15	0.0217	0.0152	0.00084	na	NA	NA	0.044	na	NA	NA
Cadmium	1.55	12.4	1.29	0.466	0.045	NOAEL	0.002	23	2.4	NOAEL	0.1	24
Chromium	22.2	10	4.47	11.6	0.20	NOAEL	0.037	5.4	10.6	NOAEL	2	5.3
Cobalt	6.91	6.9	0.578	0.299	0.027	na	NA	NA	1.4	na	NA	NA
Copper	23.3	122	120	7.38	0.79	NOAEL	0.24	3.3	42	NOAEL	8	5.2
Iron	18300	20130	563	180	65	na	NA	NA	3413	na	NA	NA
Lead	79.7	48.6	1.84	1.32	0.176	NOAEL	12.4	0.014	9.3	NOAEL	728	0.013
Manganese	455	742	119	15.2	2.7	na	NA	NA	144	na	NA	NA
Mercury	0.19	0.5	0.0953	0.622	0.010	NOAEL	0.005	2.0	0.53	NOAEL	0.2	2.7
Molybdenum	1.53	4.3	4.3299	0.207	0.028	NOAEL	45	0.00062	1.46	NOAEL	1500	0.00097
Nickel	17.1	39.7	2.42	6.86	0.21	NOAEL	1.4	0.15	11.3	NOAEL	70	0.16
Selenium	0.959	6.3	0.92	1.62	0.042	NOAEL	0.1	0.42	2.2	NOAEL	3.9	0.57
Silver	0.339	0.061	0.338	0.0391	0.0017	NOAEL	70	0.000025	0.091	NOAEL	3000	0.000030
Thallium	0.433	0.43	0.0676	0.185	0.0040	na	NA	NA	0.21	na	NA	NA
Uranium	3	3.0	3.00	0.0245	0.0180	NOAEL	300	0.000060	0.95	NOAEL	10000	0.000095
Vanadium	29.8	9.8	1.43	0.733	0.047	NOAEL	0.036	1.3	2.5	NOAEL	1.2	2.1
Zinc	214	1611	82	97	6.1	NOAEL	19	0.32	324	NOAEL	1000	0.32
PAHs												
Benzo(a)pyrene	0.000972	0.017	0.0044	0.00262	0.00013	NOAEL	0.66	0.00020	0.0068	NOAEL	47	0.00014
Total PAHs	0.0505	1.85	0.49	0.136	0.012	NOAEL	6.1	0.0020	0.65	NOAEL	324	0.0020
Total HPAHs	0.0143	0.28	0.074	0.00911	0.0017	NOAEL	6.1	0.00028	0.091	NOAEL	324	0.00028
Total LPAHs	0.0104	0.60	0.16	0.132	0.0052	NOAEL	6.1	0.00085	0.27	NOAEL	324	0.00084

Refined COPC Screen Assumptions	
Receptor	Yellow Perch
Body weight (kg)	0.19
Food ingestion rate (kg/day dw)	0.0036
Sediment ingestion rate (kg/day dw)	0.000036
Sediment ingestion as percent of food	0.0100
Dietary Composition	
Crayfish	15%
Fish	70%
Benthic invertebrates	15%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
COI - chemical of interest
CSM - conceptual site model
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
SL TRV - screening-level toxicity reference value

Table 4-9g. Summary of Fish Receptor Dietary Screen HQs for the Lacustrine CSM Unit

	Dose-Based HQs						Concentration-Based HQs					
COI	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch	Bull Trout	Chinook Salmon	Largescale Sucker	Prickly Sculpin	White Sturgeon	Yellow Perch
Metals/Metalloids												
Aluminum	0.046	0.91	1.5	1.4	1.2	0.26	0.13	1.9	2.6	2.0	4.5	0.42
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.035	0.16	0.20	0.22	0.11	0.081	0.064	0.21	0.23	0.21	0.28	0.085
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	2.7	92	59	122	16	23	4.8	124	69	113	38	24
Chromium	3.5	4.3	6.3	6.8	5.2	5.4	5.9	5.3	6.9	5.8	12	5.3
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	0.35	7.6	5.0	10	1.5	3.3	0.95	15	8.8	14	5.5	5.2
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.0019	0.059	0.071	0.084	0.037	0.014	0.0029	0.068	0.072	0.066	0.077	0.013
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	1.4	1.6	1.3	2.4	1.1	2.0	3.1	2.7	1.9	2.8	3.3	2.7
Molybdenum	0.000055	0.0014	0.0011	0.0019	0.00039	0.00062	0.00015	0.0029	0.0019	0.0027	0.0014	0.00097
Nickel	0.055	0.42	0.32	0.58	0.13	0.15	0.10	0.57	0.38	0.53	0.31	0.16
Selenium	0.18	0.93	0.61	1.3	0.24	0.42	0.42	1.6	0.93	1.5	0.75	0.57
Silver	0.0000067	0.000014	0.000052	0.000023	0.000032	0.000025	0.000014	0.000021	0.000072	0.000025	0.000091	0.000030
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Uranium	0.0000020	0.00015	0.00016	0.00021	0.000070	0.000060	0.0000055	0.00030	0.00029	0.00029	0.00026	0.000095
Vanadium	0.32	4.2	7.6	6.3	4.6	1.3	0.86	8.4	13	8.7	17	2.1
Zinc	0.058	1.3	0.78	1.7	0.21	0.32	0.10	1.6	0.87	1.5	0.49	0.32
PAHs												
Benzo(a)pyrene	0.000044	0.00037	0.00025	0.00050	0.000082	0.00020	0.000056	0.00035	0.00021	0.00032	0.00014	0.00014
Total PAHs	0.00025	0.0045	0.0028	0.0060	0.00080	0.0020	0.00042	0.0057	0.0031	0.0052	0.0018	0.0020
Total HPAHs	0.000017	0.00068	0.00041	0.00090	0.00011	0.00028	0.000029	0.00087	0.00045	0.00078	0.00026	0.00028
Total LPAHs	0.00024	0.0014	0.0010	0.0020	0.00034	0.00085	0.00041	0.0018	0.0011	0.0017	0.00078	0.00084

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

COI - chemical of interest

CSM - conceptual site model

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

Table 4-9h. Results of Bald Eagle Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose (mg/kg bw/d)	SL TRV		HQ
	Sediment	Fish		Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	15900	121	22	NOAEL	157	0.14
Antimony	0.937	0.191	0.010	na	NA	NA
Arsenic	6	1.22	0.066	Eco-SSL	2.24	0.029
Barium	210	11.3	0.76	NOAEL	208.3	0.0037
Beryllium	0.755	0.0152	0.0015	na	NA	NA
Cadmium	1.55	0.466	0.024	Eco-SSL	1.47	0.017
Chromium	22.2	11.6	0.59	Eco-SSL	2.66	0.22
Cobalt	6.91	0.299	0.022	Eco-SSL	7.61	0.0028
Copper	23.3	7.38	0.39	Eco-SSL	4.05	0.095
Iron	18300	180	27	na	NA	NA
Lead	79.7	1.32	0.14	Eco-SSL	1.63	0.088
Manganese	455	15.2	1.2	NOAEL	179	0.0067
Mercury	0.19	0.622	0.031	NOAEL	0.018	1.7
Molybdenum	1.53	0.207	0.012	NOAEL	6	0.0019
Nickel	17.1	6.86	0.35	Eco-SSL	6.71	0.053
Selenium	0.959	1.62	0.081	Eco-SSL	0.29	0.28
Silver	0.339	0.0391	0.0023	Eco-SSL	2.02	0.0011
Thallium	0.433	0.185	0.010	NOAEL	0.48	0.020
Vanadium	29.8	0.733	0.065	Eco-SSL	0.344	0.19
Zinc	214	97	5.0	Eco-SSL	66.1	0.075
Pesticides						
Aldrin	0.0037	0.0064	0.00032	NOAEL	0.008	0.040
Total Chlordane	0.00275	0.0118	0.00058	NOAEL	0.6	0.00097
alpha-Chlordane	0.0011	0.00306	0.00015	NOAEL	0.6	0.00025
gamma-Chlordane	0.00084	0.00236	0.00012	NOAEL	0.6	0.00019
Total DDx	0.0141	0.0671	0.0033	Eco-SSL	0.227	0.015
delta-BHC	0.0037	0.00177	0.000091	NOAEL	1.6	0.000057
Dieldrin	0.0072	0.00335	0.00017	Eco-SSL	0.0709	0.0024
Endrin	0.0072	0.00664	0.00033	NOAEL	0.012	0.028
Endrin aldehyde	0.0072	0.00193	0.00010	NOAEL	0.012	0.0085
Endrin ketone	0.0072	0.0102	0.00051	NOAEL	0.012	0.042
Heptachlor	0.0037	0.00995	0.00049	NOAEL	0.1	0.0049
Heptachlor epoxide	0.0037	0.00418	0.00021	NOAEL	0.1	0.0021
Hexachlorobenzene	0.0016	0.0214	0.0011	NOAEL	0.24	0.0044
Hexachlorobutadiene	0.0026	0.00463	0.00023	NOAEL	1.7	0.00014
Methoxychlor	0.0024	0.0114	0.00056	NOAEL	34.6	0.000016
cis-Nonachlor	0.0026	0.00263	0.00013	NOAEL	0.6	0.00022
trans-Nonachlor	0.001	0.00283	0.00014	NOAEL	0.6	0.00023
Oxychlordane	0.0026	0.00322	0.00016	NOAEL	0.6	0.00027
PAHs						
Benzo(a)pyrene	0.000972	0.00262	0.00013	NOAEL	0.28	0.00046
Total PAHs	0.0505	0.136	0.0067	NOAEL	40	0.00017
Total HPAHs	0.0143	0.00911	0.00046	NOAEL	0.14	0.0033
Total LPAHs	0.0104	0.132	0.0065	NOAEL	7.7	0.00084
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	0.35	NOAEL	1.1	0.32
Butyl benzyl phthalate	0.0038	0.21	0.010	NOAEL	0.11	0.094
Di-n-butyl phthalate	0.24	1.02	0.050	NOAEL	1.1	0.046
Di-n-octylphthalate	0.24	0.0685	0.0036	NOAEL	1.1	0.0033
Pentachlorophenol	0.6	0.0305	0.0021	Eco-SSL	6.73	0.00031
PCBs						
Total PCB congeners	0.141	0.172	0.0086	NOAEL	0.29	0.030
PCB TEQ, birds	na	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000011	0.00000055	NOAEL	0.000014	0.039
Total TEQ						
Total TEQ, birds	na	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Bald Eagle
Body weight (kg)	4.68
Food ingestion rate (kg/day dw)	0.23
Sediment ingestion rate (kg/day dw)	0.0046
Dietary Composition	
Fish	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9i. Results of Belted Kingfisher Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Crayfish	Fish	Total Dose (mg/kg bw/d)	SL TRV Type of SL TRV	(mg/kg bw/d)	HQ
Metals/Metalloids							
Aluminum	15900	637	121	89	NOAEL	157	0.57
Antimony	0.937	0.0688	0.191	0.028	na	NA	NA
Arsenic	6	1.13	1.22	0.21	Eco-SSL	2.24	0.093
Barium	210	284	11.3	13	NOAEL	208.3	0.063
Beryllium	0.755	0.0217	0.0152	0.0050	na	NA	NA
Cadmium	1.55	1.29	0.466	0.11	Eco-SSL	1.47	0.075
Chromium	22.2	4.47	11.6	1.6	Eco-SSL	2.66	0.61
Cobalt	6.91	0.578	0.299	0.080	Eco-SSL	7.61	0.010
Copper	23.3	120	7.38	5.7	Eco-SSL	4.05	1.4
Iron	18300	563	180	101	na	NA	NA
Lead	79.7	1.84	1.32	0.48	Eco-SSL	1.63	0.29
Manganese	455	119	15.2	7.9	NOAEL	179	0.044
Mercury	0.19	0.0953	0.622	0.078	NOAEL	0.018	4.3
Molybdenum	1.53	4.33	0.207	0.20	NOAEL	6	0.033
Nickel	17.1	2.42	6.86	0.96	Eco-SSL	6.71	0.14
Selenium	0.959	0.92	1.62	0.23	Eco-SSL	0.29	0.79
Silver	0.339	0.338	0.0391	0.019	Eco-SSL	2.02	0.0094
Thallium	0.433	0.0676	0.185	0.026	NOAEL	0.48	0.054
Vanadium	29.8	1.43	0.733	0.24	Eco-SSL	0.344	0.69
Zinc	214	82	97	15	Eco-SSL	66.1	0.23
Pesticides							
Aldrin	0.0037	0.0064	0.0064	0.0010	NOAEL	0.008	0.13
Total Chlordane	0.00275	0.0118	0.0118	0.0019	NOAEL	0.6	0.0031
alpha-Chlordane	0.0011	0.00306	0.00306	0.00049	NOAEL	0.6	0.00081
gamma-Chlordane	0.00084	0.00236	0.00236	0.00037	NOAEL	0.6	0.00062
Total DDx	0.0141	0.0671	0.0671	0.011	Eco-SSL	0.227	0.047
delta-BHC	0.0037	0.00177	0.00177	0.00029	NOAEL	1.6	0.00018
Dieldrin	0.0072	0.00335	0.00335	0.00055	Eco-SSL	0.0709	0.0078
Endrin	0.0072	0.00664	0.00664	0.0011	NOAEL	0.012	0.089
Endrin aldehyde	0.0072	0.00193	0.00193	0.00033	NOAEL	0.012	0.027
Endrin ketone	0.0072	0.0102	0.0102	0.0016	NOAEL	0.012	0.14
Heptachlor	0.0037	0.00995	0.00995	0.0016	NOAEL	0.1	0.016
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00067	NOAEL	0.1	0.0067
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0034	NOAEL	0.24	0.014
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00074	NOAEL	1.7	0.00043
Methoxychlor	0.0024	0.0114	0.0114	0.0018	NOAEL	34.6	0.000052
cis-Nonachlor	0.0026	0.00263	0.00263	0.00042	NOAEL	0.6	0.00070
trans-Nonachlor	0.001	0.00283	0.00283	0.00045	NOAEL	0.6	0.00075
Oxychlordane	0.0026	0.00322	0.00322	0.00052	NOAEL	0.6	0.00086
PAHs							
Benzo(a)pyrene	0.000972	0.0044	0.00262	0.00096	NOAEL	0.28	0.0034
Total PAHs	0.0505	0.49	0.136	0.089	NOAEL	40	0.0022
Total HPAHs	0.0143	0.074	0.00911	0.012	NOAEL	0.14	0.087
Total LPAHs	0.0104	0.16	0.132	0.039	NOAEL	7.7	0.0051
SVOCs							
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	1.1	NOAEL	1.1	1.0
Butyl benzyl phthalate	0.0038	0.21	0.21	0.033	NOAEL	0.11	0.30
Di-n-butyl phthalate	0.24	1.02	1.02	0.16	NOAEL	1.1	0.15
Di-n-octylphthalate	0.24	0.0685	0.0685	0.012	NOAEL	1.1	0.010
Pentachlorophenol	0.6	0.0305	0.0305	0.0067	Eco-SSL	6.73	0.00099
PCBs							
Total PCB congeners	0.141	0.172	0.172	0.028	NOAEL	0.29	0.095
PCB TEQ, birds	na	0.0000105	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans							
Dioxin TEQ, birds	0.00000402	0.000011	0.000011	0.0000017	NOAEL	0.000014	0.12
Total TEQ							
Total TEQ, birds	na	0.0000201	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Belted Kingfisher
Body weight (kg)	0.15
Food ingestion rate (kg/day dw)	0.023
Sediment ingestion rate (kg/day dw)	0.00047
Dietary Composition	
Crayfish	25%
Fish	75%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9j. Results of Canada Goose Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose (mg/kg bw/d)	SL TRV		HQ
	Sediment	Aquatic Plants		Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	15900	5026	338	NOAEL	157	2.2
Antimony	0.937	0.78	0.046	na	NA	NA
Arsenic	6	4.2	0.25	Eco-SSL	2.24	0.11
Barium	210	102	6	NOAEL	208.3	0.031
Beryllium	0.755	0.65	0.038	na	NA	NA
Cadmium	1.55	1.2	0.073	Eco-SSL	1.47	0.050
Chromium	22.2	14	0.82	Eco-SSL	2.66	0.31
Cobalt	6.91	4.7	0.28	Eco-SSL	7.61	0.037
Copper	23.3	14	0.86	Eco-SSL	4.05	0.21
Iron	18300	5704	385	na	NA	NA
Lead	79.7	43	2.6	Eco-SSL	1.63	1.6
Manganese	455	205	13	NOAEL	179	0.072
Mercury	0.19	0.19	0.011	NOAEL	0.018	0.60
Molybdenum	1.53	1.2	0.072	NOAEL	6	0.012
Nickel	17.1	11	0.65	Eco-SSL	6.71	0.10
Selenium	0.959	0.80	0.047	Eco-SSL	0.29	0.16
Silver	0.339	0.31	0.018	Eco-SSL	2.02	0.0091
Thallium	0.433	0.39	0.023	NOAEL	0.48	0.048
Vanadium	29.8	18	1.1	Eco-SSL	0.344	3.1
Zinc	214	104	6.5	Eco-SSL	66.1	0.10
Pesticides						
Aldrin	0.0037	0.0064	0.00036	NOAEL	0.008	0.045
Total Chlordane	0.00275	0.0118	0.00064	NOAEL	0.6	0.0011
alpha-Chlordane	0.0011	0.00306	0.00017	NOAEL	0.6	0.00028
gamma-Chlordane	0.00084	0.00236	0.00013	NOAEL	0.6	0.00022
Total DDx	0.0141	0.0671	0.0036	Eco-SSL	0.227	0.016
delta-BHC	0.0037	0.00177	0.00011	NOAEL	1.6	0.000069
Dieldrin	0.0072	0.00335	0.00021	Eco-SSL	0.0709	0.0030
Endrin	0.0072	0.00664	0.00039	NOAEL	0.012	0.032
Endrin aldehyde	0.0072	0.00193	0.00013	NOAEL	0.012	0.011
Endrin ketone	0.0072	0.0102	0.00058	NOAEL	0.012	0.048
Heptachlor	0.0037	0.00995	0.00055	NOAEL	0.1	0.0055
Heptachlor epoxide	0.0037	0.00418	0.00024	NOAEL	0.1	0.0024
Hexachlorobenzene	0.0016	0.0214	0.0012	NOAEL	0.24	0.0048
Hexachlorobutadiene	0.0026	0.00463	0.00026	NOAEL	1.7	0.00015
Methoxychlor	0.0024	0.0114	0.00062	NOAEL	34.6	0.000018
cis-Nonachlor	0.0026	0.00263	0.00015	NOAEL	0.6	0.00025
trans-Nonachlor	0.001	0.00283	0.00016	NOAEL	0.6	0.00026
Oxychlordane	0.0026	0.00322	0.00018	NOAEL	0.6	0.00031
PAHs						
Benzo(a)pyrene	0.000972	0.00262	0.00014	NOAEL	0.28	0.00052
Total PAHs	0.0505	0.136	0.0075	NOAEL	40	0.00019
Total HPAHs	0.0143	0.00911	0.00055	NOAEL	0.14	0.0039
Total LPAHs	0.0104	0.132	0.0071	NOAEL	7.7	0.00092
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	0.38	NOAEL	1.1	0.34
Butyl benzyl phthalate	0.0038	0.2	0.011	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.24	1.02	0.056	NOAEL	1.1	0.051
Di-n-octylphthalate	0.24	0.0685	0.0047	NOAEL	1.1	0.0043
Pentachlorophenol	0.6	0.0305	0.0043	Eco-SSL	6.73	0.00063
PCBs						
Total PCB congeners	0.141	0.172	0.010	NOAEL	0.29	0.034
PCB TEQ, birds	na	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000011	0.00000061	NOAEL	0.000014	0.043
Total TEQ						
Total TEQ, birds	na	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Canada Goose
Body weight (kg)	2.6
Food ingestion rate (kg/day dw)	0.14
Sediment ingestion rate (kg/day dw)	0.011
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9k. Results of Great Blue Heron Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	SL TRV		HQ
	Sediment	Crayfish	Fish		Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids							
Aluminum	15900	637	121	91	NOAEL	157	0.58
Antimony	0.937	0.0688	0.191	0.016	na	NA	NA
Arsenic	6	1.13	1.22	0.11	Eco-SSL	2.24	0.047
Barium	210	284	11.3	2.6	NOAEL	208.3	0.013
Beryllium	0.755	0.0217	0.0152	0.0049	na	NA	NA
Cadmium	1.55	1.29	0.466	0.039	Eco-SSL	1.47	0.027
Chromium	22.2	4.47	11.6	0.81	Eco-SSL	2.66	0.30
Cobalt	6.91	0.58	0.299	0.055	Eco-SSL	7.61	0.0072
Copper	23.3	120	7.38	0.92	Eco-SSL	4.05	0.23
Iron	18300	563	180	107	na	NA	NA
Lead	79.7	1.84	1.32	0.50	Eco-SSL	1.63	0.30
Manganese	455	119	15.2	3.6	NOAEL	179	0.020
Mercury	0.19	0.095	0.622	0.038	NOAEL	0.018	2.1
Molybdenum	1.53	4.33	0.207	0.033	NOAEL	6	0.0056
Nickel	17.1	2.42	6.86	0.50	Eco-SSL	6.71	0.074
Selenium	0.959	0.92	1.62	0.10	Eco-SSL	0.29	0.35
Silver	0.339	0.34	0.0391	0.0051	Eco-SSL	2.02	0.0025
Thallium	0.433	0.068	0.185	0.013	NOAEL	0.48	0.028
Vanadium	29.8	1.43	0.733	0.20	Eco-SSL	0.344	0.59
Zinc	214	82.0	97	7.0	Eco-SSL	66.1	0.11
Pesticides							
Aldrin	0.0037	0.0064	0.0064	0.00041	NOAEL	0.008	0.052
Total Chlordane	0.00275	0.0118	0.0118	0.00074	NOAEL	0.6	0.0012
alpha-Chlordane	0.0011	0.00306	0.00306	0.00019	NOAEL	0.6	0.00032
gamma-Chlordane	0.00084	0.00236	0.00236	0.00015	NOAEL	0.6	0.00025
Total DDx	0.0141	0.0671	0.0671	0.0042	Eco-SSL	0.227	0.019
delta-BHC	0.0037	0.00177	0.00177	0.00013	NOAEL	1.6	0.000080
Dieldrin	0.0072	0.00335	0.00335	0.00024	Eco-SSL	0.0709	0.0034
Endrin	0.0072	0.00664	0.00664	0.00045	NOAEL	0.012	0.037
Endrin aldehyde	0.0072	0.00193	0.00193	0.00016	NOAEL	0.012	0.013
Endrin ketone	0.0072	0.0102	0.0102	0.00067	NOAEL	0.012	0.056
Heptachlor	0.0037	0.00995	0.00995	0.00063	NOAEL	0.1	0.0063
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00028	NOAEL	0.1	0.0028
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0013	NOAEL	0.24	0.0055
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00030	NOAEL	1.7	0.00018
Methoxychlor	0.0024	0.0114	0.0114	0.00072	NOAEL	34.6	0.000021
cis-Nonachlor	0.0026	0.00263	0.00263	0.00018	NOAEL	0.6	0.00029
trans-Nonachlor	0.001	0.00283	0.00283	0.00018	NOAEL	0.6	0.00030
Oxychlordane	0.0026	0.00322	0.00322	0.00021	NOAEL	0.6	0.00035
PAHs							
Benzo(a)pyrene	0.000972	0.0044	0.00262	0.00017	NOAEL	0.28	0.00061
Total PAHs	0.0505	0.49	0.136	0.0097	NOAEL	40	0.00024
Total HPAHs	0.0143	0.074	0.00911	0.00084	NOAEL	0.14	0.0060
Total LPAHs	0.0104	0.16	0.132	0.0083	NOAEL	7.7	0.0011
SVOCs							
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	0.44	NOAEL	1.1	0.398
Butyl benzyl phthalate	0.0038	0.21	0.21	0.013	NOAEL	0.11	0.12
Di-n-butyl phthalate	0.24	1.02	1.02	0.064	NOAEL	1.1	0.058
Di-n-octylphthalate	0.24	0.0685	0.0685	0.0055	NOAEL	1.1	0.0050
Pentachlorophenol	0.6	0.0305	0.0305	0.0050	Eco-SSL	6.73	0.00074
PCBs							
Total PCB congeners	0.141	0.172	0.172	0.011	NOAEL	0.29	0.039
PCB TEQ, birds	na	0.0000105	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans							
Dioxin TEQ, birds	0.00000402	0.000011	0.000011	0.00000070	NOAEL	0.000014	0.050
Total TEQ							
Total TEQ, birds	na	0.0000201	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Great Blue Heron
Body weight (kg)	2.39
Food ingestion rate (kg/day dw)	0.15
Sediment ingestion rate (kg/day dw)	0.012
Dietary Composition	
Crayfish	5%
Fish	95%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9l. Results of Lesser Scaup Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Aquatic Plants	Benthic Invertebrates	Mussels	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids									
Aluminum	15900	5026	3975	2460	121	234	NOAEL	157	1.5
Antimony	0.937	0.78	0.94	0.0483	0.191	0.033	na	NA	NA
Arsenic	6	4.2	4.14	8.16	1.22	0.31	Eco-SSL	2.24	0.14
Barium	210	102	840	1060	11.3	38	NOAEL	208.3	0.18
Beryllium	0.755	0.65	0.15	0.0998	0.0152	0.016	na	NA	NA
Cadmium	1.55	1.2	12.38	8.85	0.466	0.43	Eco-SSL	1.47	0.29
Chromium	22.2	14	10.43	9.48	11.6	0.66	Eco-SSL	2.66	0.25
Cobalt	6.91	4.7	6.91	1.59	0.299	0.25	Eco-SSL	7.61	0.032
Copper	23.3	14	122	10.4	7.38	2.8	Eco-SSL	4.05	0.70
Iron	18300	5704	20130	3490	180	580	na	NA	NA
Lead	79.7	43	48.6	2.56	1.32	1.78	Eco-SSL	1.63	1.1
Manganese	455	205	742	7800	15.2	168	NOAEL	179	0.94
Mercury	0.19	0.19	0.55	0.0912	0.622	0.017	NOAEL	0.018	0.94
Molybdenum	1.53	1.2	4.33	4.33	0.207	0.19	NOAEL	6	0.031
Nickel	17.1	11	39.67	5.02	6.86	1.07	Eco-SSL	6.71	0.16
Selenium	0.959	0.80	6.26	2.69	1.62	0.19	Eco-SSL	0.29	0.65
Silver	0.339	0.31	0.0610	0.377	0.0391	0.014	Eco-SSL	2.02	0.0068
Thallium	0.433	0.39	0.43	0.0743	0.185	0.017	NOAEL	0.48	0.035
Vanadium	29.8	18	9.83	4.08	0.733	0.59	Eco-SSL	0.344	1.7
Zinc	214	104	1611	376	97	40	Eco-SSL	66.1	0.61
Pesticides									
Aldrin	0.0037	0.0064	0.0064	0.0064	0.0064	0.00036	NOAEL	0.008	0.045
Total Chlordane	0.00275	0.0118	0.0118	0.0118	0.0118	0.00065	NOAEL	0.6	0.0011
alpha-Chlordane	0.0011	0.00306	0.00306	0.00306	0.00306	0.00017	NOAEL	0.6	0.00028
gamma-Chlordane	0.00084	0.00236	0.00236	0.00236	0.00236	0.00013	NOAEL	0.6	0.00022
Total DDx	0.0141	0.0671	0.0671	0.0671	0.0671	0.0037	Eco-SSL	0.227	0.016
delta-BHC	0.0037	0.00177	0.00177	0.00177	0.00177	0.00011	NOAEL	1.6	0.000067
Dieldrin	0.0072	0.00335	0.00335	0.00335	0.00335	0.00020	Eco-SSL	0.0709	0.0029
Endrin	0.0072	0.00664	0.00664	0.00664	0.00664	0.00038	NOAEL	0.012	0.032
Endrin aldehyde	0.0072	0.00193	0.00193	0.00193	0.00193	0.00012	NOAEL	0.012	0.010
Endrin ketone	0.0072	0.0102	0.0102	0.0102	0.0102	0.00058	NOAEL	0.012	0.048
Heptachlor	0.0037	0.00995	0.00995	0.00995	0.00995	0.00056	NOAEL	0.1	0.0056
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00418	0.00418	0.00024	NOAEL	0.1	0.0024
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0214	0.0214	0.0012	NOAEL	0.24	0.0049
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00463	0.00463	0.00026	NOAEL	1.7	0.00015
Methoxychlor	0.0024	0.0114	0.0114	0.0114	0.0114	0.00063	NOAEL	34.6	0.000018
cis-Nonachlor	0.0026	0.00263	0.00263	0.00263	0.00263	0.00015	NOAEL	0.6	0.00025
trans-Nonachlor	0.001	0.00283	0.00283	0.00283	0.00283	0.00016	NOAEL	0.6	0.00026
Oxychlordane	0.0026	0.00322	0.00322	0.00322	0.00322	0.00018	NOAEL	0.6	0.00031
PAHs									
Benzo(a)pyrene	0.000972	0.00262	0.017	0.0044	0.00262	0.00068	NOAEL	0.28	0.0024
Total PAHs	0.0505	0.136	1.85	0.49	0.136	0.073	NOAEL	40	0.0018
Total HPAHs	0.0143	0.00911	0.28	0.074	0.00911	0.011	NOAEL	0.14	0.078
Total LPAHs	0.0104	0.132	0.60	0.16	0.132	0.025	NOAEL	7.7	0.0033
SVOCs									
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	7.08	7.08	0.39	NOAEL	1.1	0.35
Butyl benzyl phthalate	0.0038	0.2	0.21	0.21	0.21	0.012	NOAEL	0.11	0.10
Di-n-butyl phthalate	0.24	1.02	1.02	1.02	1.02	0.057	NOAEL	1.1	0.051
Di-n-octylphthalate	0.24	0.0685	0.0685	0.0685	0.0685	0.0044	NOAEL	1.1	0.0040
Pentachlorophenol	0.6	0.0305	0.0305	0.0305	0.0305	0.0032	Eco-SSL	6.73	0.00048
PCBs									
Total PCB congeners	0.141	0.172	6.63	0.158	0.172	0.13	NOAEL	0.29	0.46
PCB TEQ, birds	na	0.0000105	na	0.00000222	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans									
Dioxin TEQ, birds	0.00000402	0.000011	0.000051	0.00000247	0.000011	0.0000012	NOAEL	0.000014	0.087
Total TEQ									
Total TEQ, birds	na	0.0000201	na	0.00000466	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Lesser Scaup
Body weight (kg)	0.82
Food ingestion rate (kg/day dw)	0.045
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Aquatic plants	25%
Mussels	35%
Fish	5%
Benthic invertebrates	35%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9m. Results of Mallard Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Aquatic Plants	Benthic Invertebrates				
Metals/Metalloids							
Aluminum	15900	5026	3975	244	NOAEL	157	1.6
Antimony	0.937	0.78	0.94	0.043	na	NA	NA
Arsenic	6	4.2	4.14	0.21	Eco-SSL	2.24	0.094
Barium	210	102	840	23	NOAEL	208.3	0.11
Beryllium	0.755	0.65	0.15	0.021	na	NA	NA
Cadmium	1.55	1.2	12.4	0.33	Eco-SSL	1.47	0.23
Chromium	22.2	14	10.4	0.62	Eco-SSL	2.66	0.23
Cobalt	6.91	4.7	6.91	0.29	Eco-SSL	7.61	0.039
Copper	23.3	14	122	3.4	Eco-SSL	4.05	0.83
Iron	18300	5704	20130	657	na	NA	NA
Lead	79.7	43	48.6	2.3	Eco-SSL	1.63	1.4
Manganese	455	205	742	24	NOAEL	179	0.13
Mercury	0.19	0.19	0.55	0.018	NOAEL	0.018	1.0
Molybdenum	1.53	1.2	4.33	0.14	NOAEL	6	0.023
Nickel	17.1	11	39.7	1.25	Eco-SSL	6.71	0.19
Selenium	0.959	0.80	6.26	0.17	Eco-SSL	0.29	0.60
Silver	0.339	0.31	0.061	0.010	Eco-SSL	2.02	0.0048
Thallium	0.433	0.39	0.43	0.021	NOAEL	0.48	0.043
Vanadium	29.8	18	9.83	0.72	Eco-SSL	0.344	2.1
Zinc	214	104	1611	42.0	Eco-SSL	66.1	0.64
Pesticides							
Aldrin	0.0037	0.0064	0.0064	0.00032	NOAEL	0.008	0.040
Total Chlordane	0.00275	0.0118	0.0118	0.00058	NOAEL	0.6	0.0010
alpha-Chlordane	0.0011	0.00306	0.00306	0.00015	NOAEL	0.6	0.00025
gamma-Chlordane	0.00084	0.00236	0.00236	0.00012	NOAEL	0.6	0.00019
Total DDx	0.0141	0.0671	0.0671	0.0033	Eco-SSL	0.227	0.014
delta-BHC	0.0037	0.00177	0.00177	0.000092	NOAEL	1.6	0.000057
Dieldrin	0.0072	0.00335	0.00335	0.00017	Eco-SSL	0.0709	0.0025
Endrin	0.0072	0.00664	0.00664	0.00033	NOAEL	0.012	0.028
Endrin aldehyde	0.0072	0.00193	0.00193	0.00011	NOAEL	0.012	0.0088
Endrin ketone	0.0072	0.0102	0.0102	0.00051	NOAEL	0.012	0.042
Heptachlor	0.0037	0.00995	0.00995	0.00049	NOAEL	0.1	0.0049
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00021	NOAEL	0.1	0.0021
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0010	NOAEL	0.24	0.0043
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00023	NOAEL	1.7	0.00013
Methoxychlor	0.0024	0.0114	0.0114	0.00056	NOAEL	34.6	0.000016
cis-Nonachlor	0.0026	0.00263	0.00263	0.00013	NOAEL	0.6	0.00022
trans-Nonachlor	0.001	0.00283	0.00283	0.00014	NOAEL	0.6	0.00023
Oxychlordane	0.0026	0.00322	0.00322	0.00016	NOAEL	0.6	0.00027
PAHs							
Benzo(a)pyrene	0.000972	0.00262	0.017	0.00047	NOAEL	0.28	0.0017
Total PAHs	0.0505	0.136	1.85	0.048	NOAEL	40	0.0012
Total HPAHs	0.0143	0.00911	0.28	0.0071	NOAEL	0.14	0.050
Total LPAHs	0.0104	0.132	0.60	0.018	NOAEL	7.7	0.0023
SVOCs							
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	0.34	NOAEL	1.1	0.31
Butyl benzyl phthalate	0.0038	0.2	0.21	0.010	NOAEL	0.11	0.093
Di-n-butyl phthalate	0.24	1.02	1.02	0.050	NOAEL	1.1	0.045
Di-n-octylphthalate	0.24	0.0685	0.07	0.0037	NOAEL	1.1	0.0034
Pentachlorophenol	0.6	0.0305	0.03	0.0024	Eco-SSL	6.73	0.00036
PCBs							
Total PCB congeners	0.141	0.172	6.63	0.17	NOAEL	0.29	0.57
PCB TEQ, birds	na	0.0000105	na	na	NOAEL	0.000014	NA
Dioxins/Furans							
Dioxin TEQ, birds	0.00000402	0.000011	0.000051	0.0000015	NOAEL	0.000014	0.11
Total TEQ							
Total TEQ, birds	na	0.0000201	na	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Mallard
Body weight (kg)	1.13
Food ingestion rate (kg/day dw)	0.055
Sediment ingestion rate (kg/day dw)	0.0011
Dietary Composition	
Aquatic plants	50%
Benthic invertebrates	50%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9n. Results of Osprey Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Fish	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15900	121	32	NOAEL	157	0.20
Antimony	0.937	0.191	0.015	na	NA	NA
Arsenic	6	1.22	0.097	Eco-SSL	2.24	0.043
Barium	210	11.3	1.1	NOAEL	208.3	0.0054
Beryllium	0.755	0.0152	0.0022	na	NA	NA
Cadmium	1.55	0.466	0.036	Eco-SSL	1.47	0.024
Chromium	22.2	11.6	0.87	Eco-SSL	2.66	0.33
Cobalt	6.91	0.299	0.032	Eco-SSL	7.61	0.0042
Copper	23.3	7.38	0.57	Eco-SSL	4.05	0.14
Iron	18300	180	40	na	NA	NA
Lead	79.7	1.32	0.21	Eco-SSL	1.63	0.13
Manganese	455	15.2	1.8	NOAEL	179	0.010
Mercury	0.19	0.622	0.045	NOAEL	0.018	2.5
Molybdenum	1.53	0.207	0.017	NOAEL	6	0.0029
Nickel	17.1	6.86	0.52	Eco-SSL	6.71	0.078
Selenium	0.959	1.62	0.12	Eco-SSL	0.29	0.41
Silver	0.339	0.0391	0.0033	Eco-SSL	2.02	0.0016
Thallium	0.433	0.185	0.014	NOAEL	0.48	0.029
Vanadium	29.8	0.733	0.096	Eco-SSL	0.344	0.28
Zinc	214	97	7.3	Eco-SSL	66.1	0.11
Pesticides						
Aldrin	0.0037	0.0064	0.00047	NOAEL	0.008	0.059
Total Chlordane	0.00275	0.0118	0.00086	NOAEL	0.6	0.0014
alpha-Chlordane	0.0011	0.00306	0.00022	NOAEL	0.6	0.00037
gamma-Chlordane	0.00084	0.00236	0.00017	NOAEL	0.6	0.00029
Total DDx	0.0141	0.0671	0.0049	Eco-SSL	0.227	0.021
delta-BHC	0.0037	0.00177	0.00013	NOAEL	1.6	0.000083
Dieldrin	0.0072	0.00335	0.00025	Eco-SSL	0.0709	0.0036
Endrin	0.0072	0.00664	0.00049	NOAEL	0.012	0.041
Endrin aldehyde	0.0072	0.00193	0.00015	NOAEL	0.012	0.013
Endrin ketone	0.0072	0.0102	0.00075	NOAEL	0.012	0.062
Heptachlor	0.0037	0.00995	0.00073	NOAEL	0.1	0.0073
Heptachlor epoxide	0.0037	0.00418	0.00031	NOAEL	0.1	0.0031
Hexachlorobenzene	0.0016	0.0214	0.0016	NOAEL	0.24	0.0065
Hexachlorobutadiene	0.0026	0.00463	0.00034	NOAEL	1.7	0.00020
Methoxychlor	0.0024	0.0114	0.00083	NOAEL	34.6	0.000024
cis-Nonachlor	0.0026	0.00263	0.00019	NOAEL	0.6	0.00032
trans-Nonachlor	0.001	0.00283	0.00021	NOAEL	0.6	0.00034
Oxychlordane	0.0026	0.00322	0.00024	NOAEL	0.6	0.00039
PAHs						
Benzo(a)pyrene	0.000972	0.00262	0.00019	NOAEL	0.28	0.00068
Total PAHs	0.0505	0.136	0.0099	NOAEL	40	0.00025
Total HPAHs	0.0143	0.00911	0.00068	NOAEL	0.14	0.0049
Total LPAHs	0.0104	0.132	0.0096	NOAEL	7.7	0.0012
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	0.51	NOAEL	1.1	0.47
Butyl benzyl phthalate	0.0038	0.21	0.015	NOAEL	0.11	0.14
Di-n-butyl phthalate	0.24	1.02	0.074	NOAEL	1.1	0.067
Di-n-octylphthalate	0.24	0.0685	0.0053	NOAEL	1.1	0.0048
Pentachlorophenol	0.6	0.0305	0.0031	Eco-SSL	6.73	0.00046
PCBs						
Total PCB congeners	0.141	0.172	0.013	NOAEL	0.29	0.044
PCB TEQ, birds	na	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000011	0.00000080	NOAEL	0.000014	0.057
Total TEQ						
Total TEQ, birds	na	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Osprey
Body weight (kg)	1.49
Food ingestion rate (kg/day dw)	0.11
Sediment ingestion rate (kg/day dw)	0.0022
Dietary Composition	
Fish	100%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9o. Results of Spotted Sandpiper Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Benthic Invertebrates	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15900	3975	1496	NOAEL	157	9.5
Antimony	0.937	0.94	0.24	na	NA	NA
Arsenic	6	4.14	1.14	Eco-SSL	2.24	0.51
Barium	210	840	192	NOAEL	208.3	0.92
Beryllium	0.755	0.15	0.063	na	NA	NA
Cadmium	1.55	12.38	2.8	Eco-SSL	1.47	1.9
Chromium	22.2	10.43	3.2	Eco-SSL	2.66	1.2
Cobalt	6.91	6.91	1.8	Eco-SSL	7.61	0.23
Copper	23.3	122.3	27.7	Eco-SSL	4.05	6.8
Iron	18300	20130	5126	na	NA	NA
Lead	79.7	48.6	13.8	Eco-SSL	1.63	8.5
Manganese	455	742	180	NOAEL	179	1.0
Mercury	0.19	0.55	0.13	NOAEL	0.018	7.0
Molybdenum	1.53	4.33	1.0	NOAEL	6	0.17
Nickel	17.1	39.67	9.4	Eco-SSL	6.71	1.4
Selenium	0.959	6.26	1.4	Eco-SSL	0.29	4.9
Silver	0.339	0.061	0.027	Eco-SSL	2.02	0.013
Thallium	0.433	0.43	0.11	NOAEL	0.48	0.23
Vanadium	29.8	9.83	3.3	Eco-SSL	0.344	9.7
Zinc	214	1611	361	Eco-SSL	66.1	5.5
Pesticides						
Aldrin	0.0037	0.0064	0.0015	NOAEL	0.008	0.19
Total Chlordane	0.00275	0.0118	0.0027	NOAEL	0.6	0.0045
alpha-Chlordane	0.0011	0.0031	0.00071	NOAEL	0.6	0.0012
gamma-Chlordane	0.00084	0.0024	0.00055	NOAEL	0.6	0.00092
Total DDx	0.0141	0.0671	0.015	Eco-SSL	0.227	0.067
delta-BHC	0.0037	0.0018	0.00053	NOAEL	1.6	0.00033
Dieldrin	0.0072	0.0034	0.0010	Eco-SSL	0.0709	0.014
Endrin	0.0072	0.0066	0.0017	NOAEL	0.012	0.14
Endrin aldehyde	0.0072	0.0019	0.00071	NOAEL	0.012	0.059
Endrin ketone	0.0072	0.0102	0.0025	NOAEL	0.012	0.21
Heptachlor	0.0037	0.0100	0.0023	NOAEL	0.1	0.023
Heptachlor epoxide	0.0037	0.0042	0.0011	NOAEL	0.1	0.011
Hexachlorobenzene	0.0016	0.0214	0.0047	NOAEL	0.24	0.020
Hexachlorobutadiene	0.0026	0.0046	0.0011	NOAEL	1.7	0.00066
Methoxychlor	0.0024	0.0114	0.0026	NOAEL	34.6	0.000075
cis-Nonachlor	0.0026	0.0026	0.00068	NOAEL	0.6	0.0011
trans-Nonachlor	0.001	0.0028	0.00066	NOAEL	0.6	0.0011
Oxychlordane	0.0026	0.0032	0.00081	NOAEL	0.6	0.0013
PAHs						
Benzo(a)pyrene	0.000972	0.017	0.0037	NOAEL	0.28	0.013
Total PAHs	0.0505	1.85	0.41	NOAEL	40	0.010
Total HPAHs	0.0143	0.28	0.062	NOAEL	0.14	0.44
Total LPAHs	0.0104	0.60	0.13	NOAEL	7.7	0.017
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	1.6	NOAEL	1.1	1.4
Butyl benzyl phthalate	0.0038	0.21	0.046	NOAEL	0.11	0.42
Di-n-butyl phthalate	0.24	1.02	0.23	NOAEL	1.1	0.21
Di-n-octylphthalate	0.24	0.069	0.024	NOAEL	1.1	0.022
Pentachlorophenol	0.6	0.031	0.030	Eco-SSL	6.73	0.0045
PCBs						
Total PCB congeners	0.141	6.63	1.46	NOAEL	0.29	5.0
PCB TEQ, birds	na	na	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000051	0.000011	NOAEL	0.000014	0.81
Total TEQ						
Total TEQ, birds	na	na	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Spotted Sandpiper
Body weight (kg)	0.04
Food ingestion rate (kg/day dw)	0.01
Sediment ingestion rate (kg/day dw)	0.0017
Dietary Composition	
Benthic invertebrates	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9p. Results of Tree Swallow Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Media Concentration (mg/kg dw) Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15900	3975	961	NOAEL	157	6.1
Antimony	0.937	0.94	0.21	na	NA	NA
Arsenic	6	0.76	0.20	Eco-SSL	2.24	0.088
Barium	210	840.0	189	NOAEL	208.3	0.91
Beryllium	0.755	0.15	0.037	na	NA	NA
Cadmium	1.55	4.76	1.1	Eco-SSL	1.47	0.73
Chromium	22.2	10.43	2.4	Eco-SSL	2.66	0.92
Cobalt	6.91	6.91	1.6	Eco-SSL	7.61	0.21
Copper	23.3	29.45	6.7	Eco-SSL	4.05	1.7
Iron	18300	20130	4589	na	NA	NA
Lead	79.7	5.26	1.5	Eco-SSL	1.63	0.94
Manganese	455	741.65	168	NOAEL	179	0.94
Mercury	0.19	0.55	0.12	NOAEL	0.018	6.8
Molybdenum	1.53	4.33	0.98	NOAEL	6	0.16
Nickel	17.1	2.61	0.66	Eco-SSL	6.71	0.10
Selenium	0.959	6.26	1.4	Eco-SSL	0.29	4.8
Silver	0.339	0.061	0.015	Eco-SSL	2.02	0.0075
Thallium	0.433	0.43	0.099	NOAEL	0.48	0.21
Vanadium	29.8	9.83	2.3	Eco-SSL	0.344	6.8
Zinc	214	152.6	35	Eco-SSL	66.1	0.53
Pesticides						
Aldrin	0.0037	0.0064	0.0014	NOAEL	0.008	0.18
Total Chlordane	0.00275	0.012	0.0027	NOAEL	0.6	0.0044
alpha-Chlordane	0.0011	0.0031	0.00069	NOAEL	0.6	0.0012
gamma-Chlordane	0.00084	0.0024	0.00053	NOAEL	0.6	0.00089
Total DDx	0.0141	0.067	0.015	Eco-SSL	0.227	0.066
delta-BHC	0.0037	0.0018	0.00041	NOAEL	1.6	0.00026
Dieldrin	0.0072	0.0034	0.0008	Eco-SSL	0.0709	0.011
Endrin	0.0072	0.0066	0.0015	NOAEL	0.012	0.13
Endrin aldehyde	0.0072	0.0019	0.00046	NOAEL	0.012	0.039
Endrin ketone	0.0072	0.010	0.0023	NOAEL	0.012	0.19
Heptachlor	0.0037	0.010	0.0022	NOAEL	0.1	0.022
Heptachlor epoxide	0.0037	0.0042	0.0010	NOAEL	0.1	0.010
Hexachlorobenzene	0.0016	0.021	0.0048	NOAEL	0.24	0.020
Hexachlorobutadiene	0.0026	0.0046	0.0010	NOAEL	1.7	0.00062
Methoxychlor	0.0024	0.011	0.0026	NOAEL	34.6	0.000074
cis-Nonachlor	0.0026	0.0026	0.00060	NOAEL	0.6	0.0010
trans-Nonachlor	0.001	0.0028	0.00064	NOAEL	0.6	0.0011
Oxychlordane	0.0026	0.0032	0.00073	NOAEL	0.6	0.0012
PAHs						
Benzo(a)pyrene	0.000972	0.017	0.0037	NOAEL	0.28	0.013
Total PAHs	0.0505	1.85	0.41	NOAEL	40	0.010
Total HPAHs	0.0143	0.28	0.063	NOAEL	0.14	0.45
Total LPAHs	0.0104	0.60	0.13	NOAEL	7.7	0.017
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	1.6	NOAEL	1.1	1.4
Butyl benzyl phthalate	0.0038	0.21	0.047	NOAEL	0.11	0.43
Di-n-butyl phthalate	0.24	1.02	0.23	NOAEL	1.1	0.21
Di-n-octylphthalate	0.24	0.069	0.016	NOAEL	1.1	0.015
Pentachlorophenol	0.6	0.031	0.010	Eco-SSL	6.73	0.0014
PCBs						
Total PCB congeners	0.141	8.62	1.92	NOAEL	0.29	6.6
PCB TEQ, birds	na	na	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000066	0.000015	NOAEL	0.000014	1.1
Total TEQ						
Total TEQ, birds	na	na	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Tree Swallow
Body weight (kg)	0.020
Food ingestion rate (kg/day dw)	0.0045
Sediment ingestion rate (kg/day dw)	0.000090
Dietary Composition	
Emergent insects	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9q. Results of Tundra Swan Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose (mg/kg bw/d)	SL TRV		HQ
	Sediment	Aquatic Plants		Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	15900	5026	250	NOAEL	157	1.6
Antimony	0.937	0.78	0.034	na	NA	NA
Arsenic	6	4.2	0.18	Eco-SSL	2.24	0.082
Barium	210	102	4.7	NOAEL	208.3	0.023
Beryllium	0.755	0.65	0.028	na	NA	NA
Cadmium	1.55	1.2	0.054	Eco-SSL	1.47	0.036
Chromium	22.2	14	0.61	Eco-SSL	2.66	0.23
Cobalt	6.91	4.7	0.21	Eco-SSL	7.61	0.027
Copper	23.3	14	0.63	Eco-SSL	4.05	0.16
Iron	18300	5704	284	na	NA	NA
Lead	79.7	43	1.9	Eco-SSL	1.63	1.2
Manganese	455	205	10	NOAEL	179	0.053
Mercury	0.19	0.19	0.0080	NOAEL	0.018	0.44
Molybdenum	1.53	1.2	0.053	NOAEL	6	0.0088
Nickel	17.1	11	0.48	Eco-SSL	6.71	0.071
Selenium	0.959	0.80	0.035	Eco-SSL	0.29	0.12
Silver	0.339	0.31	0.013	Eco-SSL	2.02	0.0067
Thallium	0.433	0.39	0.017	NOAEL	0.48	0.035
Vanadium	29.8	18	0.79	Eco-SSL	0.344	2.3
Zinc	214	104	4.8	Eco-SSL	66.1	0.073
Pesticides						
Aldrin	0.0037	0.0064	0.00026	NOAEL	0.008	0.033
Total Chlordane	0.00275	0.0118	0.00047	NOAEL	0.6	0.00079
alpha-Chlordane	0.0011	0.00306	0.00012	NOAEL	0.6	0.00021
gamma-Chlordane	0.00084	0.00236	0.00010	NOAEL	0.6	0.00016
Total DDx	0.0141	0.0671	0.0027	Eco-SSL	0.227	0.012
delta-BHC	0.0037	0.00177	0.000082	NOAEL	1.6	0.000051
Dieldrin	0.0072	0.00335	0.00016	Eco-SSL	0.0709	0.0022
Endrin	0.0072	0.00664	0.00028	NOAEL	0.012	0.024
Endrin aldehyde	0.0072	0.00193	0.00010	NOAEL	0.012	0.0083
Endrin ketone	0.0072	0.0102	0.00042	NOAEL	0.012	0.035
Heptachlor	0.0037	0.00995	0.00040	NOAEL	0.1	0.0040
Heptachlor epoxide	0.0037	0.00418	0.00018	NOAEL	0.1	0.0018
Hexachlorobenzene	0.0016	0.0214	0.00085	NOAEL	0.24	0.0035
Hexachlorobutadiene	0.0026	0.00463	0.00019	NOAEL	1.7	0.00011
Methoxychlor	0.0024	0.0114	0.00046	NOAEL	34.6	0.000013
cis-Nonachlor	0.0026	0.00263	0.00011	NOAEL	0.6	0.00019
trans-Nonachlor	0.001	0.00283	0.00011	NOAEL	0.6	0.00019
Oxychlordane	0.0026	0.00322	0.00014	NOAEL	0.6	0.00023
PAHs						
Benzo(a)pyrene	0.000972	0.00262	0.00011	NOAEL	0.28	0.00038
Total PAHs	0.0505	0.136	0.0055	NOAEL	40	0.00014
Total HPAHs	0.0143	0.00911	0.00040	NOAEL	0.14	0.0029
Total LPAHs	0.0104	0.132	0.0052	NOAEL	7.7	0.00068
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	0.28	NOAEL	1.1	0.25
Butyl benzyl phthalate	0.0038	0.2	0.0083	NOAEL	0.11	0.075
Di-n-butyl phthalate	0.24	1.0	0.041	NOAEL	1.1	0.037
Di-n-octylphthalate	0.24	0.069	0.0035	NOAEL	1.1	0.0032
Pentachlorophenol	0.6	0.031	0.0032	Eco-SSL	6.73	0.00047
PCBs						
Total PCB congeners	0.141	0.17	0.0072	NOAEL	0.29	0.025
PCB TEQ, birds	na	0.0000105	na	NOAEL	0.000014	NA
Dioxins/Furans						
Dioxin TEQ, birds	0.00000402	0.000011	0.00000045	NOAEL	0.000014	0.032
Total TEQ						
Total TEQ, birds	na	0.0000201	na	NOAEL	0.000014	NA

Refined COPC Screen Assumptions	
Receptor	Tundra Swan
Body weight (kg)	6.8
Food ingestion rate (kg/day dw)	0.27
Sediment ingestion rate (kg/day dw)	0.022
Dietary Composition	
Aquatic plants	100%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9r. Summary of Avian Receptor Dietary Screen HQs for the Lacustrine CSM Unit

COI	Bald Eagle	Belted Kingfisher	Canada Goose	Great Blue Heron	Lesser Scaup	Mallard	Osprey	Spotted Sandpiper	Tree Swallow	Tundra Swan
Metals/Metalloids										
Aluminum	0.14	0.57	2.2	0.58	1.5	1.6	0.20	9.5	6.1	1.6
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.029	0.093	0.11	0.047	0.14	0.094	0.043	0.51	0.088	0.082
Barium	0.0037	0.063	0.031	0.013	0.18	0.11	0.0054	0.92	0.91	0.023
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.017	0.075	0.050	0.027	0.29	0.23	0.024	1.9	0.73	0.036
Chromium	0.22	0.61	0.31	0.30	0.25	0.23	0.33	1.2	0.92	0.23
Cobalt	0.0028	0.010	0.037	0.0072	0.032	0.039	0.0042	0.23	0.21	0.027
Copper	0.095	1.4	0.21	0.23	0.70	0.83	0.14	6.8	1.7	0.16
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.088	0.29	1.6	0.30	1.1	1.4	0.13	8.5	0.94	1.2
Manganese	0.0067	0.044	0.072	0.020	0.94	0.13	0.010	1.0	0.94	0.053
Mercury	1.7	4.3	0.60	2.1	0.94	1.0	2.5	7.0	6.8	0.44
Molybdenum	0.0019	0.033	0.012	0.0056	0.031	0.023	0.0029	0.17	0.16	0.0088
Nickel	0.053	0.14	0.10	0.074	0.16	0.19	0.078	1.4	0.10	0.071
Selenium	0.28	0.79	0.16	0.35	0.65	0.60	0.41	4.9	4.8	0.12
Silver	0.0011	0.0094	0.0091	0.0025	0.0068	0.0048	0.0016	0.013	0.0075	0.0067
Thallium	0.020	0.054	0.048	0.028	0.035	0.043	0.029	0.23	0.21	0.035
Vanadium	0.19	0.69	3.1	0.59	1.7	2.1	0.28	9.7	6.8	2.3
Zinc	0.075	0.23	0.10	0.11	0.61	0.64	0.11	5.5	0.53	0.073
Pesticides										
Aldrin	0.040	0.13	0.045	0.052	0.045	0.040	0.059	0.19	0.18	0.033
Total Chlordane	0.00097	0.0031	0.0011	0.0012	0.0011	0.0010	0.0014	0.0045	0.0044	0.00079
alpha-Chlordane	0.00025	0.00081	0.00028	0.00032	0.00028	0.00025	0.00037	0.0012	0.0012	0.00021
gamma-Chlordane	0.00019	0.00062	0.00022	0.00025	0.00022	0.00019	0.00029	0.00092	0.00089	0.00016
Total DDx	0.015	0.047	0.016	0.019	0.016	0.014	0.021	0.067	0.066	0.012
delta-BHC	0.000057	0.00018	0.000069	0.000080	0.000067	0.000057	0.000083	0.00033	0.00026	0.000051
Dieldrin	0.0024	0.0078	0.0030	0.0034	0.0029	0.0025	0.0036	0.014	0.011	0.0022
Endrin	0.028	0.089	0.032	0.037	0.032	0.028	0.041	0.14	0.13	0.024
Endrin aldehyde	0.0085	0.027	0.011	0.013	0.010	0.0088	0.013	0.059	0.039	0.0083
Endrin ketone	0.042	0.14	0.048	0.056	0.048	0.042	0.062	0.21	0.19	0.035
Heptachlor	0.0049	0.016	0.0055	0.0063	0.0056	0.0049	0.0073	0.023	0.022	0.0040
Heptachlor epoxide	0.0021	0.0067	0.0024	0.0028	0.0024	0.0021	0.0031	0.011	0.010	0.0018
Hexachlorobenzene	0.0044	0.014	0.0048	0.0055	0.0049	0.0043	0.0065	0.020	0.020	0.0035
Hexachlorobutadiene	0.00014	0.00043	0.00015	0.00018	0.00015	0.00013	0.00020	0.00066	0.00062	0.00011
Methoxychlor	0.000016	0.000052	0.000018	0.000021	0.000018	0.000016	0.000024	0.000075	0.000074	0.000013
cis-Nonachlor	0.00022	0.00070	0.00025	0.00029	0.00025	0.00022	0.00032	0.0011	0.0010	0.00019
trans-Nonachlor	0.00023	0.00075	0.00026	0.00030	0.00026	0.00023	0.00034	0.0011	0.0011	0.00019
Oxychlordane	0.00027	0.00086	0.00031	0.00035	0.00031	0.00027	0.00039	0.0013	0.0012	0.00023
PAHs										
Benzo(a)pyrene	0.00046	0.0034	0.00052	0.00061	0.0024	0.0017	0.00068	0.013	0.013	0.00038
Total PAHs	0.00017	0.0022	0.00019	0.00024	0.0018	0.0012	0.00025	0.010	0.010	0.00014
Total HPAHs	0.0033	0.087	0.0039	0.0060	0.078	0.050	0.0049	0.44	0.45	0.0029
Total LPAHs	0.00084	0.0051	0.00092	0.0011	0.0033	0.0023	0.0012	0.017	0.017	0.00068
SVOCs										
bis(2-Ethylhexyl)phthalate	0.32	1.0	0.34	0.40	0.35	0.31	0.47	1.4	1.4	0.25
Butyl benzyl phthalate	0.094	0.30	0.10	0.12	0.10	0.093	0.14	0.42	0.43	0.075
Di-n-butyl phthalate	0.046	0.15	0.051	0.058	0.051	0.045	0.067	0.21	0.21	0.037
Di-n-octylphthalate	0.0033	0.010	0.0043	0.0050	0.0040	0.0034	0.0048	0.022	0.015	0.0032
Pentachlorophenol	0.00031	0.00099	0.00063	0.00074	0.00048	0.00036	0.00046	0.0045	0.0014	0.00047
PCBs										
Total PCB congeners	0.030	0.095	0.034	0.039	0.46	0.57	0.044	5.0	6.6	0.025
PCB TEQ, birds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dioxins/Furans										
Dioxin TEQ, birds	0.039	0.12	0.043	0.050	0.087	0.11	0.057	0.81	1.1	0.032
Total TEQ										
Total TEQ, birds	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9s. Results of Brown Bat Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw) Sediment	Emergent Insects	Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
Metals/Metalloids						
Aluminum	15900	3975	801	NOAEL	34	24
Antimony	0.937	0.94	0.18	Eco-SSL	0.059	3.0
Arsenic	6	0.76	0.16	Eco-SSL	1.04	0.16
Barium	210	840	158	Eco-SSL	51.8	3.0
Beryllium	0.755	0.15	0.031	Eco-SSL	0.532	0.058
Cadmium	1.55	4.76	0.89	Eco-SSL	0.77	1.2
Chromium	22.2	10.43	2.0	Eco-SSL	2.4	0.83
Cobalt	6.91	6.91	1.3	Eco-SSL	7.33	0.18
Copper	23.3	29.45	5.6	Eco-SSL	5.6	1.0
Iron	18300	20130	3826	na	NA	NA
Lead	79.7	5.26	1.3	Eco-SSL	4.7	0.27
Manganese	455	742	140	Eco-SSL	51.5	2.7
Mercury	0.19	0.55	0.10	NOAEL	0.0017	60
Molybdenum	1.53	4.33	0.81	NOAEL	0.258	3.2
Nickel	17.1	2.61	0.55	Eco-SSL	1.7	0.32
Selenium	0.959	6.26	1.2	Eco-SSL	0.143	8.2
Silver	0.339	0.061	0.013	Eco-SSL	6.02	0.0021
Thallium	0.433	0.43	0.082	NOAEL	0.74	0.11
Vanadium	29.8	9.83	1.9	Eco-SSL	4.16	0.47
Zinc	214	153	29	Eco-SSL	75.4	0.39
Pesticides						
Aldrin	0.0037	0.0064	0.0012	NOAEL	0.83	0.0015
Total Chlordane	0.00275	0.0118	0.0022	NOAEL	0.08	0.028
alpha-Chlordane	0.0011	0.0031	0.00058	NOAEL	0.08	0.0072
gamma-Chlordane	0.00084	0.0024	0.00044	NOAEL	0.08	0.0055
Total DDx	0.0141	0.0671	0.013	Eco-SSL	0.147	0.086
delta-BHC	0.0037	0.0018	0.00034	NOAEL	6.1	0.000056
Dieldrin	0.0072	0.0034	0.00065	Eco-SSL	0.015	0.043
Endrin	0.0072	0.0066	0.0013	NOAEL	0.18	0.0070
Endrin aldehyde	0.0072	0.0019	0.00039	NOAEL	0.18	0.0022
Endrin ketone	0.0072	0.0102	0.0019	NOAEL	0.18	0.011
Heptachlor	0.0037	0.0100	0.0019	NOAEL	1	0.0019
Heptachlor epoxide	0.0037	0.0042	0.00079	NOAEL	1	0.00079
Hexachlorobenzene	0.0016	0.0214	0.0040	NOAEL	0.026	0.15
Hexachlorobutadiene	0.0026	0.0046	0.00087	NOAEL	2	0.00044
Methoxychlor	0.0024	0.0114	0.0021	NOAEL	5.6	0.00038
cis-Nonachlor	0.0026	0.0026	0.00050	NOAEL	2.5	0.00020
trans-Nonachlor	0.001	0.0028	0.00053	NOAEL	2.5	0.00021
Oxychlordane	0.0026	0.0032	0.00061	NOAEL	0.18	0.0034
PAHs						
Benzo(a)pyrene	0.000972	0.017	0.0031	NOAEL	2	0.0015
Total PAHs	0.0505	1.85	0.35	na	na	NA
Total HPAHs	0.0143	0.28	0.052	Eco-SSL	0.615	0.085
Total LPAHs	0.0104	0.60	0.11	Eco-SSL	65.6	0.0017
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	1.3	NOAEL	44	0.030
Butyl benzyl phthalate	0.0038	0.21	0.039	NOAEL	831	0.000047
Di-n-butyl phthalate	0.24	1.02	0.19	NOAEL	16	0.012
Di-n-octylphthalate	0.24	0.069	0.014	NOAEL	44	0.00031
Pentachlorophenol	0.6	0.031	0.0079	Eco-SSL	8.42	0.00094
PCBs						
Total PCB congeners	0.141	8.62	1.61	NOAEL	0.0089	180
PCB TEQ, mammals	na	na	na	NOAEL	0.000001	NA
Dioxins/Furans						
Dioxin TEQ, mammals	0.000000758	0.000012	0.0000023	NOAEL	0.000001	2.3
Total TEQ						
Total TEQ, mammals	na	na	na	NOAEL	0.000001	NA

Refined COPC Screen Assumptions	
Receptor	Brown Bat
Body weight (kg)	0.0075
Food ingestion rate (kg/day dw)	0.0014
Sediment ingestion rate (kg/day dw)	0.000028
Dietary Composition	
Emergent insects	100%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9t. Results of Mink Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)			Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Fish				
Metals/Metalloids							
Aluminum	15900	637	121	48	NOAEL	34	1.4
Antimony	0.937	0.0688	0.191	0.011	Eco-SSL	0.059	0.19
Arsenic	6	1.13	1.22	0.075	Eco-SSL	1.04	0.072
Barium	210	284	11.3	2.4	Eco-SSL	51.8	0.047
Beryllium	0.755	0.0217	0.0152	0.0027	Eco-SSL	0.532	0.0050
Cadmium	1.55	1.29	0.466	0.031	Eco-SSL	0.77	0.041
Chromium	22.2	4.47	11.6	0.60	Eco-SSL	2.4	0.25
Cobalt	6.91	0.578	0.299	0.034	Eco-SSL	7.33	0.0046
Copper	23.3	120	7.38	0.99	Eco-SSL	5.6	0.18
Iron	18300	563	180	57	na	NA	NA
Lead	79.7	1.84	1.32	0.27	Eco-SSL	4.7	0.057
Manganese	455	119	15.2	2.4	Eco-SSL	51.5	0.047
Mercury	0.19	0.0953	0.622	0.029	NOAEL	0.0017	17
Molybdenum	1.53	4.33	0.207	0.035	NOAEL	0.258	0.13
Nickel	17.1	2.42	6.86	0.36	Eco-SSL	1.7	0.21
Selenium	0.959	0.92	1.62	0.080	Eco-SSL	0.143	0.56
Silver	0.339	0.338	0.0391	0.0043	Eco-SSL	6.02	0.00071
Thallium	0.433	0.0676	0.185	0.0097	NOAEL	0.74	0.013
Vanadium	29.8	1.43	0.733	0.11	Eco-SSL	4.16	0.027
Zinc	214	82	97	5.3	Eco-SSL	75.4	0.070
Pesticides							
Aldrin	0.0037	0.0064	0.0064	0.00033	NOAEL	0.83	0.00040
Total Chlordane	0.00275	0.0118	0.0118	0.00060	NOAEL	0.08	0.0074
alpha-Chlordane	0.0011	0.00306	0.00306	0.00016	NOAEL	0.08	0.0019
gamma-Chlordane	0.00084	0.00236	0.00236	0.00012	NOAEL	0.08	0.0015
Total DDx	0.0141	0.0671	0.0671	0.0034	Eco-SSL	0.147	0.023
delta-BHC	0.0037	0.00177	0.00177	0.00010	NOAEL	6.1	0.000016
Dieldrin	0.0072	0.00335	0.00335	0.00019	Eco-SSL	0.015	0.012
Endrin	0.0072	0.00664	0.00664	0.00035	NOAEL	0.18	0.0019
Endrin aldehyde	0.0072	0.00193	0.00193	0.00011	NOAEL	0.18	0.00063
Endrin ketone	0.0072	0.0102	0.0102	0.00053	NOAEL	0.18	0.0029
Heptachlor	0.0037	0.00995	0.00995	0.00051	NOAEL	1	0.00051
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00022	NOAEL	1	0.00022
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0011	NOAEL	0.026	0.041
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00024	NOAEL	2	0.00012
Methoxychlor	0.0024	0.0114	0.0114	0.00057	NOAEL	5.6	0.00010
cis-Nonachlor	0.0026	0.00263	0.00263	0.00014	NOAEL	2.5	0.000055
trans-Nonachlor	0.001	0.00283	0.00283	0.00014	NOAEL	2.5	0.000057
Oxychlordane	0.0026	0.00322	0.00322	0.00017	NOAEL	0.18	0.00093
PAHs							
Benzo(a)pyrene	0.000972	0.00438	0.00262	0.00014	NOAEL	2	0.000071
Total PAHs	0.0505	0.490	0.136	0.0087	na	na	NA
Total HPAHs	0.0143	0.0744	0.00911	0.00082	Eco-SSL	0.615	0.0013
Total LPAHs	0.0104	0.159	0.132	0.0067	Eco-SSL	65.6	0.00010
SVOCs							
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	0.35	NOAEL	44	0.0080
Butyl benzyl phthalate	0.0038	0.21	0.21	0.010	NOAEL	831	0.000013
Di-n-butyl phthalate	0.24	1.02	1.02	0.051	NOAEL	16	0.0032
Di-n-octylphthalate	0.24	0.0685	0.0685	0.0040	NOAEL	44	0.000091
Pentachlorophenol	0.6	0.0305	0.0305	0.0030	Eco-SSL	8.42	0.00036
PCBs							
Total PCB congeners	0.141	0.172	0.172	0.0089	NOAEL	0.0089	1.0
PCB TEQ, mammals	na	0.00000583	0.00000583	na	NOAEL	0.000001	NA
Dioxins/Furans							
Dioxin TEQ, mammals	0.000000758	0.0000026	0.0000026	0.00000013	NOAEL	0.000001	0.13
Total TEQ							
Total TEQ, mammals	na	0.00000691	0.00000691	na	NOAEL	0.000001	NA

Refined COPC Screen Assumptions	
Receptor	Mink
Body weight (kg)	0.85
Food ingestion rate (kg/day dw)	0.043
Sediment ingestion rate (kg/day dw)	0.0021
Dietary Composition	
Crayfish	10%
Fish	90%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9u. Results of Muskrat Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)		Total Dose (mg/kg bw/d)	SL TRV		HQ
	Sediment	Aquatic Plants		Type of SL TRV	(mg/kg bw/d)	
Metals/Metalloids						
Aluminum	15900	5026	403	NOAEL	34	12
Antimony	0.937	0.78	0.058	Eco-SSL	0.059	0.97
Arsenic	6	4.2	0.31	Eco-SSL	1.04	0.30
Barium	210	102	7.8	Eco-SSL	51.8	0.15
Beryllium	0.755	0.65	0.047	Eco-SSL	0.532	0.089
Cadmium	1.55	1.2	0.091	Eco-SSL	0.77	0.12
Chromium	22.2	14	1.0	Eco-SSL	2.4	0.42
Cobalt	6.91	4.7	0.35	Eco-SSL	7.33	0.048
Copper	23.3	14	1.1	Eco-SSL	5.6	0.19
Iron	18300	5704	458	na	NA	NA
Lead	79.7	43	3.2	Eco-SSL	4.7	0.69
Manganese	455	205	16	Eco-SSL	51.5	0.31
Mercury	0.19	0.19	0.014	NOAEL	0.0017	8.0
Molybdenum	1.53	1.2	0.090	NOAEL	0.258	0.35
Nickel	17.1	11	0.80	Eco-SSL	1.7	0.47
Selenium	0.959	0.80	0.059	Eco-SSL	0.143	0.41
Silver	0.339	0.31	0.023	Eco-SSL	6.02	0.0038
Thallium	0.433	0.39	0.029	NOAEL	0.74	0.039
Vanadium	29.8	18	1.3	Eco-SSL	4.16	0.32
Zinc	214	104	7.9	Eco-SSL	75.4	0.11
Pesticides						
Aldrin	0.0037	0.0064	0.00046	NOAEL	0.83	0.00055
Total Chlordane	0.00275	0.0118	0.00083	NOAEL	0.08	0.010
alpha-Chlordane	0.0011	0.00306	0.00022	NOAEL	0.08	0.0027
gamma-Chlordane	0.00084	0.00236	0.00017	NOAEL	0.08	0.0021
Total DDx	0.0141	0.0671	0.0047	Eco-SSL	0.147	0.032
delta-BHC	0.0037	0.00177	0.00014	NOAEL	6.1	0.000022
Dieldrin	0.0072	0.00335	0.00026	Eco-SSL	0.015	0.017
Endrin	0.0072	0.00664	0.00048	NOAEL	0.18	0.0027
Endrin aldehyde	0.0072	0.00193	0.00016	NOAEL	0.18	0.00088
Endrin ketone	0.0072	0.0102	0.00073	NOAEL	0.18	0.0041
Heptachlor	0.0037	0.00995	0.00070	NOAEL	1	0.00070
Heptachlor epoxide	0.0037	0.00418	0.00030	NOAEL	1	0.00030
Hexachlorobenzene	0.0016	0.0214	0.0015	NOAEL	0.026	0.057
Hexachlorobutadiene	0.0026	0.00463	0.00033	NOAEL	2	0.00016
Methoxychlor	0.0024	0.0114	0.00080	NOAEL	5.6	0.00014
cis-Nonachlor	0.0026	0.00263	0.00019	NOAEL	2.5	0.000076
trans-Nonachlor	0.001	0.00283	0.00020	NOAEL	2.5	0.000080
Oxychlordane	0.0026	0.00322	0.00023	NOAEL	0.18	0.0013
PAHs						
Benzo(a)pyrene	0.000972	0.00262	0.00018	NOAEL	2	0.000092
Total PAHs	0.0505	0.136	0.0096	na	NA	NA
Total HPAHs	0.0143	0.00911	0.00068	Eco-SSL	0.615	0.0011
Total LPAHs	0.0104	0.132	0.0092	Eco-SSL	65.6	0.00014
SVOCs						
bis(2-Ethylhexyl)phthalate	0.079	7.08	0.49	NOAEL	44	0.011
Butyl benzyl phthalate	0.0038	0.21	0.015	NOAEL	831	0.000017
Di-n-butyl phthalate	0.24	1.02	0.071	NOAEL	16	0.0045
Di-n-octylphthalate	0.24	0.0685	0.0056	NOAEL	44	0.00013
Pentachlorophenol	0.6	0.0305	0.0042	Eco-SSL	8.42	0.00050
PCBs						
Total PCB congeners	0.141	0.172	0.012	NOAEL	0.0089	1.4
PCB TEQ, mammals	na	0.00000583	na	NOAEL	0.000001	NA
Dioxins/Furans						
Dioxin TEQ, mammals	0.000000758	0.0000026	0.00000018	NOAEL	0.000001	0.18
Total TEQ						
Total TEQ, mammals	na	0.00000691	na	NOAEL	0.000001	NA

Refined COPC Screen Assumptions	
Receptor	Muskrat
Body weight (kg)	0.87
Food ingestion rate (kg/day dw)	0.060
Sediment ingestion rate (kg/day dw)	0.0030
Dietary Composition	
Aquatic plants	100%

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

Eco-SSL - ecological soil screening level

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

na - not available

NOAEL - no-observed-adverse-effect level

PCB - polychlorinated biphenyl

SL TRV - screening-level toxicity reference value

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-9v. Results of River Otter Dietary Screen for the Lacustrine CSM Unit

COI	Media Concentration (mg/kg dw)				Total Dose (mg/kg bw/d)	Type of SL TRV	SL TRV (mg/kg bw/d)	HQ
	Sediment	Crayfish	Mussels	Fish				
Metals/Metalloids								
Aluminum	15900	637	2460	121	35	NOAEL	34	1.0
Antimony	0.937	0.0688	0.0483	0.191	0.0076	Eco-SSL	0.059	0.13
Arsenic	6	1.13	8.16	1.22	0.056	Eco-SSL	1.04	0.054
Barium	210	284	1060	11.3	2.4	Eco-SSL	51.8	0.046
Beryllium	0.755	0.0217	0.0998	0.0152	0.0019	Eco-SSL	0.532	0.0035
Cadmium	1.55	1.29	8.85	0.466	0.027	Eco-SSL	0.77	0.035
Chromium	22.2	4.47	9.48	11.6	0.41	Eco-SSL	2.4	0.17
Cobalt	6.91	0.578	1.59	0.299	0.024	Eco-SSL	7.33	0.0032
Copper	23.3	120	10.4	7.38	0.68	Eco-SSL	5.6	0.12
Iron	18300	563	3490	180	41	na	NA	NA
Lead	79.7	1.84	2.56	1.32	0.18	Eco-SSL	4.7	0.039
Manganese	455	119	7800	15.2	6.9	Eco-SSL	51.5	0.13
Mercury	0.19	0.0953	0.0912	0.622	0.019	NOAEL	0.0017	11
Molybdenum	1.53	4.33	4.33	0.207	0.026	NOAEL	0.258	0.10
Nickel	17.1	2.42	5.02	6.86	0.25	Eco-SSL	1.7	0.14
Selenium	0.959	0.92	2.69	1.62	0.055	Eco-SSL	0.143	0.39
Silver	0.339	0.338	0.377	0.0391	0.0032	Eco-SSL	6.02	0.00052
Thallium	0.433	0.0676	0.0743	0.185	0.0066	NOAEL	0.74	0.0089
Vanadium	29.8	1.43	4.08	0.733	0.080	Eco-SSL	4.16	0.019
Zinc	214	82	376	97	3.8	Eco-SSL	75.4	0.050
Pesticides								
Aldrin	0.0037	0.0064	0.0064	0.0064	0.00022	NOAEL	0.83	0.00027
Total Chlordane	0.00275	0.0118	0.0118	0.0118	0.00041	NOAEL	0.08	0.0051
alpha-Chlordane	0.0011	0.00306	0.00306	0.00306	0.00011	NOAEL	0.08	0.0013
gamma-Chlordane	0.00084	0.00236	0.00236	0.00236	0.000082	NOAEL	0.08	0.0010
Total DDx	0.0141	0.0671	0.0671	0.0671	0.0023	Eco-SSL	0.147	0.016
delta-BHC	0.0037	0.00177	0.00177	0.00177	0.000067	NOAEL	6.1	0.000011
Dieldrin	0.0072	0.00335	0.00335	0.00335	0.00013	Eco-SSL	0.015	0.0084
Endrin	0.0072	0.00664	0.00664	0.00664	0.00024	NOAEL	0.18	0.0013
Endrin aldehyde	0.0072	0.00193	0.00193	0.00193	0.000078	NOAEL	0.18	0.00043
Endrin ketone	0.0072	0.0102	0.0102	0.0102	0.00036	NOAEL	0.18	0.0020
Heptachlor	0.0037	0.00995	0.00995	0.00995	0.00034	NOAEL	1	0.00034
Heptachlor epoxide	0.0037	0.00418	0.00418	0.00418	0.00015	NOAEL	1	0.00015
Hexachlorobenzene	0.0016	0.0214	0.0214	0.0214	0.00073	NOAEL	0.026	0.028
Hexachlorobutadiene	0.0026	0.00463	0.00463	0.00463	0.00016	NOAEL	2	0.000081
Methoxychlor	0.0024	0.0114	0.0114	0.0114	0.00039	NOAEL	5.6	0.000070
cis-Nonachlor	0.0026	0.00263	0.00263	0.00263	0.000094	NOAEL	2.5	0.000038
trans-Nonachlor	0.001	0.00283	0.00283	0.00283	0.00010	NOAEL	2.5	0.000039
Oxychlordane	0.0026	0.00322	0.00322	0.00322	0.00011	NOAEL	0.18	0.00063
PAHs								
Benzo(a)pyrene	0.000972	0.0044	0.0044	0.00262	0.000098	NOAEL	2	0.000049
Total PAHs	0.0505	0.490	0.490	0.136	0.0062	na	NA	NA
Total HPAHs	0.0143	0.074	0.074	0.00911	0.00060	Eco-SSL	0.615	0.00098
Total LPAHs	0.0104	0.159	0.159	0.132	0.0046	Eco-SSL	65.6	0.000070
SVOCs								
bis(2-Ethylhexyl)phthalate	0.079	7.08	7.08	7.08	0.24	NOAEL	44	0.0055
Butyl benzyl phthalate	0.0038	0.21	0.21	0.21	0.0072	NOAEL	831	0.0000086
Di-n-butyl phthalate	0.24	1.02	1.02	1.02	0.035	NOAEL	16	0.0022
Di-n-octylphthalate	0.24	0.0685	0.0685	0.0685	0.0027	NOAEL	44	0.000062
Pentachlorophenol	0.6	0.0305	0.0305	0.0305	0.0021	Eco-SSL	8.42	0.00024
PCBs								
Total PCB congeners	0.141	0.172	0.158	0.172	0.0061	NOAEL	0.0089	0.68
PCB TEQ, mammals	na	0.00000583	0.000000661	0.00000583	na	NOAEL	0.000001	NA
Dioxins/Furans								
Dioxin TEQ, mammals	0.000000758	0.0000026	0.00000162	0.0000026	0.000000089	NOAEL	0.000001	0.089
Total TEQ								
Total TEQ, mammals	na	0.00000691	0.0000024	0.00000691	na	NOAEL	0.000001	NA

Refined COPC Screen Assumptions	
Receptor	River Otter
Body weight (kg)	8.6
Food ingestion rate (kg/day dw)	0.29
Sediment ingestion rate (kg/day dw)	0.015
Dietary Composition	
Crayfish	10%
Mussels	2%
Fish	88%

Notes:
Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4'-DDD, 4,4'-DDD, 2,4'-DDE, 4,4'-DDE, 2,4'-DDT, and 4,4'-DDT
Eco-SSL - ecological soil screening level
HQ - hazard quotient
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effect level
PCB - polychlorinated biphenyl
SL TRV - screening-level toxicity reference value
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table 4-9w. Summary of Mammalian Receptor Dietary Screen HQs for the Lacustrine CSM Unit

COI	Brown Bat	Mink	Muskrat	River Otter
Metals/Metalloids				
Aluminum	24	1.4	12	1.0
Antimony	3.0	0.19	0.97	0.13
Arsenic	0.16	0.072	0.30	0.054
Barium	3.0	0.047	0.15	0.046
Beryllium	0.058	0.0050	0.089	0.0035
Cadmium	1.2	0.041	0.12	0.035
Chromium	0.83	0.25	0.42	0.17
Cobalt	0.18	0.0046	0.048	0.0032
Copper	1.0	0.18	0.19	0.12
Iron	NA	NA	NA	NA
Lead	0.27	0.057	0.69	0.039
Manganese	2.7	0.047	0.31	0.13
Mercury	60	17	8.0	11
Molybdenum	3.2	0.13	0.35	0.10
Nickel	0.32	0.21	0.47	0.14
Selenium	8.2	0.56	0.41	0.39
Silver	0.0021	0.00071	0.0038	0.00052
Thallium	0.11	0.013	0.039	0.0089
Vanadium	0.47	0.027	0.32	0.019
Zinc	0.39	0.070	0.11	0.050
Pesticides				
Aldrin	0.0015	0.00040	0.00055	0.00027
Total Chlordane	0.028	0.0074	0.010	0.0051
alpha-Chlordane	0.0072	0.0019	0.0027	0.0013
gamma-Chlordane	0.0055	0.0015	0.0021	0.0010
Total DDx	0.086	0.023	0.032	0.016
delta-BHC	0.000056	0.000016	0.000022	0.000011
Dieldrin	0.043	0.012	0.017	0.0084
Endrin	0.0070	0.0019	0.0027	0.0013
Endrin aldehyde	0.0022	0.00063	0.00088	0.00043
Endrin ketone	0.011	0.0029	0.0041	0.0020
Heptachlor	0.0019	0.00051	0.00070	0.00034
Heptachlor epoxide	0.00079	0.00022	0.00030	0.00015
Hexachlorobenzene	0.15	0.041	0.057	0.028
Hexachlorobutadiene	0.00044	0.00012	0.00016	0.000081
Methoxychlor	0.00038	0.00010	0.00014	0.000070
cis-Nonachlor	0.00020	0.000055	0.000076	0.000038
trans-Nonachlor	0.00021	0.000057	0.000080	0.000039
Oxychlordane	0.0034	0.00093	0.0013	0.00063
PAHs				
Benzo(a)pyrene	0.0015	0.000071	0.000092	0.000049
Total PAHs	NA	NA	NA	NA
Total HPAHs	0.085	0.0013	0.0011	0.00098
Total LPAHs	0.0017	0.00010	0.00014	0.000070
SVOCs				
bis(2-Ethylhexyl)phthalate	0.030	0.0080	0.011	0.0055
Butyl benzyl phthalate	0.000047	0.000013	0.000017	0.0000086
Di-n-butyl phthalate	0.012	0.0032	0.0045	0.0022
Di-n-octylphthalate	0.00031	0.000091	0.00013	0.000062
Pentachlorophenol	0.00094	0.00036	0.00050	0.00024
PCBs				
Total PCB congeners	180	1.0	1.4	0.68
PCB TEQ, mammals	NA	NA	NA	NA
Dioxins/Furans				
Dioxin TEQ, mammals	2.33	0.13	0.18	0.089
Total TEQ				
Total TEQ, mammals	NA	NA	NA	NA

Notes:

Blue shading indicates chemical of potential concern (COPC) based on exposure point concentration (EPC) exceedance of benchmark.

BHC - beta-hexachlorocyclohexane

COI - chemical of interest

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HQ - hazard quotient

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table 4-10. Results of Maximum Concentration Screen for COIs in Upland Soil

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Plants															
Antimony	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	18	mg/kg	dw	171	171	100	5.28	31.4	15.1	15.1	0	0	46	27	1.7
Barium	1414	mg/kg	dw	171	171	100	56.2	1420	331	331	0	0	1	1	1
Beryllium	56.8	mg/kg	dw	171	171	100	0.21	0.98	0.473	0.473	0	0	0	0	0.017
Cadmium	32	mg/kg	dw	171	171	100	0.18	14.3	5.19	5.19	0	0	0	0	0.45
Chromium	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	13	mg/kg	dw	171	171	100	2.26	19.5	7.58	7.58	0	0	10	6	1.5
Copper	70	mg/kg	dw	171	171	100	8.22	758	41.5	41.5	0	0	12	7	11
Lead	120	mg/kg	dw	171	171	100	7.91	730	223	223	0	0	126	74	6.1
Manganese	220	mg/kg	dw	171	171	100	220	2350	896	896	0	0	171	100	11
Mercury	10	mg/kg	dw	171	171	100	0.007	0.317	0.079	0.079	0	0	0	0	0.032
Nickel	38	mg/kg	dw	171	171	100	5.59	59.4	20.3	20.3	0	0	10	6	1.6
Selenium	0.52	mg/kg	dw	171	170	99	0.08	3.32	0.388	0.386	0	0	29	17	6.4
Silver	560	mg/kg	dw	171	171	100	0.02	2.21	0.35	0.35	0	0	0	0	0.0039
Vanadium	100	mg/kg	dw	171	171	100	13.5	63.2	29.3	29.3	0	0	0	0	0.63
Zinc	160	mg/kg	dw	171	171	100	45	8640	511	511	0	0	146	85	54
Invertebrates															
Antimony	78	mg/kg	dw	171	171	100	0.17	14.9	3.17	3.17	0	0	0	0	0.19
Arsenic	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	330	mg/kg	dw	171	171	100	56.2	1420	331	331	0	0	65	38	4.3
Beryllium	40	mg/kg	dw	171	171	100	0.21	0.98	0.473	0.473	0	0	0	0	0.025
Cadmium	140	mg/kg	dw	171	171	100	0.18	14.3	5.19	5.19	0	0	0	0	0.1
Chromium	57	mg/kg	dw	171	171	100	7.32	78.7	20.4	20.4	0	0	1	1	1.4
Cobalt	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	80	mg/kg	dw	171	171	100	8.22	758	41.5	41.5	0	0	12	7	9.5
Lead	1700	mg/kg	dw	171	171	100	7.91	730	223	223	0	0	0	0	0.43
Manganese	450	mg/kg	dw	171	171	100	220	2350	896	896	0	0	140	82	5.2
Mercury	0.79	mg/kg	dw	171	171	100	0.007	0.317	0.079	0.079	0	0	0	0	0.4
Nickel	280	mg/kg	dw	171	171	100	5.59	59.4	20.3	20.3	0	0	0	0	0.21
Selenium	4.1	mg/kg	dw	171	170	99	0.08	3.32	0.388	0.386	0	0	0	0	0.81
Silver	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	120	mg/kg	dw	171	171	100	45	8640	511	511	0	0	159	93	72
Birds															
Antimony	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	43	mg/kg	dw	171	171	100	5.28	31.4	15.1	15.1	0	0	0	0	0.73
Barium	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	0.77	mg/kg	dw	171	171	100	0.18	14.3	5.19	5.19	0	0	163	95	19
Chromium	26	mg/kg	dw	171	171	100	7.32	78.7	20.4	20.4	0	0	36	21	3
Cobalt	120	mg/kg	dw	171	171	100	2.26	19.5	7.58	7.58	0	0	0	0	0.16
Copper	28	mg/kg	dw	171	171	100	8.22	758	41.5	41.5	0	0	34	20	27
Lead	11	mg/kg	dw	171	171	100	7.91	730	223	223	0	0	166	97	66
Manganese	4300	mg/kg	dw	171	171	100	220	2350	896	896	0	0	0	0	0.55
Mercury	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	210	mg/kg	dw	171	171	100	5.59	59.4	20.3	20.3	0	0	0	0	0.28
Selenium	1.2	mg/kg	dw	171	170	99	0.08	3.32	0.388	0.386	0	0	4	2	2.8
Silver	4.2	mg/kg	dw	171	171	100	0.02	2.21	0.35	0.35	0	0	0	0	0.53
Vanadium	7.8	mg/kg	dw	171	171	100	13.5	63.2	29.3	29.3	0	0	171	100	8.1
Zinc	46	mg/kg	dw	171	171	100	45	8640	511	511	0	0	169	99	190

Table 4-10. Results of Maximum Concentration Screen for COIs in Upland Soil

				Summary Statistics							Benchmark Comparison				
											Nondetected Values		Detected Values		
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Value	Max. Detected Value	Mean of Detected Values	Mean of All Values[a]	No. DLs > Benchmark	% DLs > Benchmark	No. > Benchmark	% > Benchmark	Max. HQ
Mammals															
Antimony	0.27	mg/kg	dw	171	171	100	0.17	14.9	3.17	3.17	0	0	167	98	55
Arsenic	46	mg/kg	dw	171	171	100	5.28	31.4	15.1	15.1	0	0	0	0	0.68
Barium	2000	mg/kg	dw	171	171	100	56.2	1420	331	331	0	0	0	0	0.71
Beryllium	21	mg/kg	dw	171	171	100	0.21	0.98	0.473	0.473	0	0	0	0	0.047
Cadmium	0.36	mg/kg	dw	171	171	100	0.18	14.3	5.19	5.19	0	0	165	96	40
Chromium	34	mg/kg	dw	171	171	100	7.32	78.7	20.4	20.4	0	0	14	8	2.3
Cobalt	230	mg/kg	dw	171	171	100	2.26	19.5	7.58	7.58	0	0	0	0	0.085
Copper	49	mg/kg	dw	171	171	100	8.22	758	41.5	41.5	0	0	16	9	15
Lead	56	mg/kg	dw	171	171	100	7.91	730	223	223	0	0	161	94	13
Manganese	4000	mg/kg	dw	171	171	100	220	2350	896	896	0	0	0	0	0.59
Mercury	na	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	130	mg/kg	dw	171	171	100	5.59	59.4	20.3	20.3	0	0	0	0	0.46
Selenium	0.63	mg/kg	dw	171	170	99	0.08	3.32	0.388	0.386	0	0	19	11	5.3
Silver	14	mg/kg	dw	171	171	100	0.02	2.21	0.35	0.35	0	0	0	0	0.16
Vanadium	280	mg/kg	dw	171	171	100	13.5	63.2	29.3	29.3	0	0	0	0	0.23
Zinc	79	mg/kg	dw	171	171	100	45	8640	511	511	0	0	164	96	110

Notes:

[a] Mean of nondetected values (one half of the detection limit) and detected values.

Blue shading indicates hazard quotients (HQs) ≥ 1.

This table only includes results for chemical of interest (COIs) with benchmarks available for screening. Results for all COIs are presented in Table 4-1.

DL - detection limit

na - not available

NA - not applicable

Table 6-1. Summary of COPCs Identified for Evaluation in the BERA

	Surface Water			Porewater		Sediment	Tissue	Diet			Soil			
COPC	Aquatic Plants and Benthic Invertebrates	Amphibians	Fish	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish[a]	Fish[b]	Aquatic-Dependent Birds[c]	Aquatic-Dependent Mammals[c]	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
Metals/Metalloids														
Aluminum	● (U, L)	● (U, T, L)	x	● (U, T, L)	● (U, T, L)	ns	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	●	ns	ns
Antimony	x	x	x	● (U)	● (U)	● (U, T, L)	● (U, T, L)	ns	ns	● (U, T, L)	ns	x	ns	●
Arsenic	x	x	x	x	x	● (U, T, L)	x	x	● (U)	x	●	ns	x	x
Barium	x	x	x	x	x	ns	ns	ns	● (U, T)	● (U, T, L)	x	●	ns	x
Beryllium	x	x	x	x	x	● (U, T, L)	ns	ns	ns	x	x	x	ns	x
Cadmium	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	x	●	●
Chromium	x	x	x	x	x	● (U, T, L)	● (U, L)	● (U, T, L)	● (U, T, L)	● (U, T)	ns	x	●	●
Cobalt	x	x	x	x	x	ns	ns	ns	x	x	●	ns	x	x
Copper	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U)	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	●	●	●
Iron	x	x	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	ns	ns	●	●	ns	ns
Lead	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	● (U, T, L)	● (U, T)	●	x	●	●
Manganese	x	x	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	● (U)	● (U, T, L)	●	●	x	x
Mercury	x	x	x	x	x	● (U, T, L)	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	x	ns	ns
Molybdenum	ns	ns	ns	ns	ns	ns	ns	x	● (U)	● (U, T, L)	ns	ns	ns	ns
Nickel	x	x	x	x	x	● (U, T, L)	x	x	● (U, T, L)	x	●	x	x	x
Selenium	x	x	x	● (U, L)	● (U, L)	ns	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	x	●	●
Silver	x	x	x	x	x	● (U, T, L)	x	x	x	x	x	ns	x	x
Vanadium	x	x	x	x	x	ns	ns	● (U, T, L)	● (U, T, L)	x	x	ns	●	x
Zinc	x	x	x	● (U, L)	● (U, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U)	●	●	●	●
Pesticides														
Methoxyclor	x	x	x	x	x	● (T)	x	ns	x	x	ns	ns	ns	ns
Total DDE	ns	ns	ns	ns	ns	● (L)	ns	ns	ns	ns	ns	ns	ns	ns
Total DDT	ns	ns	ns	ns	ns	● (L)	ns	ns	ns	ns	ns	ns	ns	ns
Total DDx	ns	ns	ns	ns	ns	● (L)	ns	ns	x	x	ns	ns	ns	ns
PAHs														
Total HPAHs	ns	ns	ns	ns	ns	ns	x	x	● (U)	x	ns	ns	ns	ns
SVOCs														
bis(2-Ethylhexyl)phthalate	ns	ns	ns	ns	ns	x	x	ns	● (L)	x	ns	ns	ns	ns
Di-n-butyl phthalate	ns	ns	ns	ns	ns	x	x	ns	● (U)	x	ns	ns	ns	ns
PCBs														
Total PCB congeners	x	x	x	ns	ns	ns	x	ns	● (L)	● (U, T, L)	ns	ns	ns	ns
PCB TEQ	ns	ns	ns	ns	ns	x[d]	x	ns	x	● (U)	ns	ns	ns	ns
Dioxin/Furans														
Dioxin/Furan TEQ	ns	ns	ns	ns	ns	● (U, L)	x	ns	● (U, T, L)	● (U)	ns	ns	ns	ns
Total TEQ	ns	ns	ns	ns	ns	● (U)	x	ns	● (U, T)	● (U)	ns	ns	ns	ns
Nutrients														
Ammonia as nitrogen	x	ns	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	ns	ns	ns	ns	ns	ns

Notes:

[a] Results are grouped together for small, medium, and large fish.

[b] Exceedance from either dose or dietary concentration.

[c] Results are grouped together for all bird receptors and all mammal receptors.

[d] Polychlorinated biphenyl (PCB) toxic equivalent (TEQ) and total TEQ were not screened in the Lacustrine Conceptual Site Model (CSM) Unit because sediment samples from this area were not analyzed for PCB congeners.

Highlighted cells indicate exceedances for a particular chemical exposure pathway and receptor; dot indicates exceedance with area(s) in parentheses, if applicable; x indicates no exceedance.

BERA - baseline ecological risk assessment

COPC - chemical of potential concern

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

L – Lacustrine CSM Unit

ns - not screened

SVOC - semivolatile organic compound

T – Transitional CSM Unit (revised)

U – Upper Reach Operable Unit

APPENDIX A

DATA SETS AND CALCULATION OF CHEMICAL SUMS

CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

AVS-SEM	acid-volatile sulfide-simultaneously extracted metals
BERA	baseline ecological risk assessment
CERC	Columbia Environmental Research Center
COI	chemical of interest
COPC	chemical of potential concern
CSM	conceptual site model
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DDDx	sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
DL	detection limit
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
FOD	frequency of detection
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
ICP/MS/SSE	inductively coupled plasma/mass spectroscopy/selective sequential extraction
sample ID	sample identification number
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
OC	organic carbon
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
RI/FS	remedial investigation and feasibility study
RM	river mile
Site	Upper Columbia River Site
SLERA	screening-level ecological risk assessment

TAI	Teck American Incorporated
TEF	toxic equivalency factor
TEQ	toxic equivalent
TOC	total organic carbon
95 UCL	95th percentile upper confidence limit on the mean
UCR	Upper Columbia River
USGS	U.S. Geological Survey

UNITS OF MEASURE

cm	centimeter(s)
dw	dry weight
ft	foot/feet
in.	inch(es)
m	meter(s)
mg/kg	milligram(s) per kilogram
mg/L	milligram(s) per liter
mm	millimeter(s)
ng/L	nanogram(s) per liter
pg/g	picogram(s) per gram
pg/L	picogram(s) per liter
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
µm	micrometer(s)
µmol/g	micromole(s) per gram
ww	wet weight

1 INTRODUCTION

This appendix describes the data used to conduct the screening calculations in the chemical of potential concern (COPC) refinement (Section 2) and discusses how data from chemical groups containing similar compounds were summed (Section 3).

Chemicals identified as COPCs as a result of this refinement to the screening-level ecological risk assessment (SLERA) will be evaluated in the baseline ecological risk assessment (BERA) as part of the remedial investigation and feasibility study (RI/FS) for the Upper Columbia River (UCR) site (the Site). For aquatic receptors, COPCs have been identified for three geographically defined areas that were initially established in the BERA work plan (Parametrix et al. 2011) to reflect the different physical and biological properties of the Site and summarized in a conceptual site model (CSM) for each area. The aquatic exposure areas were initially defined as follows:

- Riverine CSM Unit—river mile (RM) 711 to RM 745 (U.S.-Canada border)
- Transitional CSM Unit—RM 699 to RM 711
- Lacustrine CSM unit—Lake Roosevelt; RM 597 (Grand Coulee Dam) to RM 699.

On January 8, 2018, the U.S. Environmental Protection Agency (EPA) notified Teck American Incorporated (TAI) that the riverine portion of the UCR from the international border (RM 745) to Marcus Flats at RM 708 would be considered a separate operable unit (OU) defined as the Upper Reach OU (USEPA 2018). This Upper Reach OU consists of the previously defined Riverine CSM Unit plus 3 river miles (RM 711 to RM 708) from the previously defined Transitional CSM Unit, and the Transitional CSM Unit was changed to cover RM 699 to RM 708. Therefore, to reflect the site characteristics as much as possible and to be in alignment with the recent Upper Reach OU designation, this current COPC refinement was conducted by separating the site into the following three aquatic exposure units:

- Upper Reach OU—RM 708 to RM 745 (U.S.-Canada border)
- Revised Transitional CSM Unit—RM 699 to RM 708 (hereinafter referred to as the Transitional CSM Unit)
- Lacustrine CSM Unit—Lake Roosevelt; RM 597 (Grand Coulee Dam) to RM 699.

These refined aquatic exposure area definitions form the geographical boundaries for the aquatic exposure COPC refinements, data groups evaluated, and screening calculations discussed herein.

Most of the data previously included in the SLERA are also included in this COPC refinement, with exceptions noted in the sections that follow. A thorough data quality review has not been conducted for some of the older data sets in this document; rather, it has been assumed that these data are adequate for the purposes of this screening. A full data usability assessment will be conducted prior to including any data in the BERA.

2 SITE MEDIA DATA SETS EVALUATED

This section describes, by media type, the data sets used in the COPC refinement. Only data collected after 1995, when the release of slag from the Teck operations in the Trail, British Columbia smelter into the Upper Columbia River was discontinued (USEPA and TAI 2008), were considered for inclusion in this COPC refinement. The data sets included in this screening are listed in Table A-1.

2.1 SURFACE WATER

Most of the surface water data are from the three investigations conducted by TAI in 2009 and 2010 for the RI/FS (Exponent and Parametrix 2013). Historical data from the Northport, Washington monitoring station were also collected by the Washington State Department of Ecology (Ecology) and the U.S. Geological Survey (USGS). The most recent year of data available from each of these historical investigations at the time the SLERA was conducted (the 2007 Ecology data and the 2000 USGS data, respectively[1]) was included in the COPC screening for the BERA.

During the 2009 to 2010 sampling, three discrete rounds of surface water sampling were conducted to assess concentrations of chemicals of interest (COIs) during various river conditions (Exponent and Parametrix 2013):

- Round 1 occurred from September 1 to October 20, 2009, during high-pool, low-flow river conditions.
- Round 2 occurred between February 23 and April 19, 2010, during low-flow, low-pool river conditions.
- Round 3 occurred between April 27 and June 17, 2010, during high-flow, rising-pool river conditions.

Four sample types were collected along each of nine transects within the Site[2]: 1) single-point, near-surface samples (i.e., 1 m below water surface) collected along each transect; 2) single-point, near-bottom samples (i.e., approximately 1 m above the river bottom) collected from the same locations as the near-surface samples, but at a deeper depth;

[1] These data are in the UCR database and are also available directly from the Ecology and USGS websites (https://fortress.wa.gov/ecy/eap/riverwq/station.asp?wria=61 and https://waterdata.usgs.gov/usa/nwis/qw).

[2] Additional samples were collected in Canada but were not used in this COPC refinement because they were obtained from locations outside the UCR Site boundary.

3) undisturbed[3], single-point nearshore samples collected near each riverbank (left and right) and from the middle of the water column in water approximately 0.5 m deep; and 4) disturbed[4] nearshore samples collected from approximately 0.25 m below the water surface near each riverbank (left and right) following sediment disturbance that would reflect typical shallow-water play (i.e., in 1-m-deep water) during recreation or other nearshore human activity. These data are described and summarized in the surface water data summary and data gap report (Exponent and Parametrix 2013).

Details on sampling methods for the historical data collected at the Northport monitoring station by Ecology and the USGS are not known because data reports were not available for review. A relatively small number of samples were collected—14 samples in the most recent data set used in this COPC refinement—compared to the 63 samples that have been collected in the Upper Reach OU for the RI/FS.

Summary statistics for surface water data for the Upper Reach OU and the transitional and lacustrine CSM units are presented in Tables A-2a to A-2c for undisturbed water and in Tables A-3a to A-3c for disturbed water. Both dissolved and total concentrations are presented because individual screening benchmarks are applicable to dissolved and total values. The summary statistics include the number of samples, frequency of detection, range of detected concentrations and detection limits, 95th percentile upper confidence limits (95 UCLs) on the mean, and selected exposure point concentrations (EPCs) for the COIs evaluated in the COPC screening.

2.2 POREWATER

The porewater data set used for the COPC refinement includes data from two studies conducted by the USGS that were used in the SLERA (Cox et al. 2005; Paulson et al. 2006), and data from the following four additional studies (Table A-1):

- Laboratory porewater data collected as part of toxicity tests conducted during the Phase I sediment study in 2005 (CH2M HILL and E&E 2006)
- Laboratory data collected by the USGS as part of toxicity tests conducted in 2013 (Ingersoll et al. 2016)
- Field and laboratory data collected by TAI for the Phase 2 sediment study (Windward et al. 2017)
- Field data collected by the USGS in 2015 (USGS 2017).

[3] Undisturbed surface water samples are samples that were not affected by sediment suspended during sampling.

[4] Disturbed surface water samples contain suspended sediments.

Porewater samples were identified as being located within either shallow- or deep-water areas in the transitional and lacustrine CSM exposure units. Shallow-water areas are defined in the BERA work plan (Section 4.5.1.1) (Parametrix et al. 2011) as < 80 ft below the full-pool elevation, and deep-water areas are defined as > 80 ft below the full-pool elevation (full pool is defined as 1,290 ft above mean sea level). Shallow-water areas may be exposed to air during lake-drawdown periods, influencing the types of ecological receptor groups that can use those areas. Samples were assigned to the "shallow" or "deep" water group based on where the sample locations were situated relative to the 1,210-ft elevation contour. The porewater data are limited to dissolved metals/metalloids.

Summary statistics for porewater data grouped by aquatic exposure unit, and by shallow and deep sample locations for the transitional and lacustrine CSM units, are presented in Tables A-4a to A-4e. These tables include the number of analyses, frequency of detection, the range of detected concentrations, and the range of detection limits (i.e., undetected values); 95 UCLs were not calculated for porewater data because they were screened on a point-by-point basis.

2.3 SEDIMENT

The sediment data set used for the COPC refinement includes data from 11 studies—the five studies that were included in the SLERA and sediment data from six additional studies (Table A-1), as follows:

- EPA's expanded site inspection conducted in 2001 (USEPA 2003)
- Ecology's reassessment of toxicity of Lake Roosevelt sediment conducted in 2001 (Era and Serdar 2001)
- USGS sediment sampling in 2002 (Cox et al. 2005)
- USGS sediment sampling in 2004 (Paulson et al. 2006)
- EPA's Phase I sediment sampling from 2005 (CH2M HILL and E&E 2006)
- Ecology's field reconnaissance and sediment sampling conducted in 2007 (Dowling 2007)
- TAI's beach sediment study conducted in 2009 and 2010 (Integral 2014)
- TAI's white sturgeon toxicity assessment conducted in 2010 (Cardno Entrix and HDR|HydroQual 2014)
- TAI's Phase 2 sediment study conducted in 2013 (Windward et al. 2017)
- USGS's Columbia Environmental Research Center toxicity evaluation conducted in 2013 (Ingersoll et al. 2016)
- TAI's Bossburg Flat Beach refined sediment and soil study conducted in 2015 (Windward 2016).

The refined COPC screening was consistent with the SLERA because it excluded some sediment samples considered to have been collected at locations outside of the Site (see Section 5-5 of the SLERA).

The sediment data set for the refined screening is intended to represent conditions in the top 6 in. (15 cm) of the sediment column[5]. Sediment core data were included if at least two-thirds of the core (or sample) was within the top 6 in. of sediment. In the transitional and lacustrine CSM units, only shallow-water data were included for fish and wildlife dietary calculations.

To avoid duplication of data, sediment data collected from discrete locations were not included in the calculation of EPCs for the fish and wildlife dietary evaluations if composite samples were collected at the same locations. Discrete sample data excluded for the purpose of the COPC screening are as follows:

- Three locations with discrete samples from EPA's Phase I sampling event (CH2M HILL and E&E 2006) were excluded because discrete samples overlapped with composite samples (642BSF, 700BSF, and 735BSF).
- Samples from the 0-to-6-in.-depth interval in the five sediment cores collected along a transect at each beach location during the beach sediment study (Integral 2014) were excluded because composite samples were also collected at each beach sample location.
- Samples from the 0-to-6-in.-depth interval in the sediment cores collected at each location during the Bossburg Flat beach sediment study (Windward 2016) were excluded because composite samples were also collected at each beach sample location.

Data described as "AVS-SEM" (acid-volatile sulfide-simultaneously extracted metals) or "ICP/MS/SSE" (inductively coupled plasma/mass spectroscopy selective sequential extraction) were also excluded from the data set used for the COPC screening. Evaluation of AVS-SEM sediment data has been deferred to the BERA because the analytical results were measured in only a few of the past studies, which limit their geographical applicability[6].

[5] Sample types include surface grab samples and cores. The thickness of the interval sampled can vary with collection technique.

[6] Both variables were measured extensively in field samples and the laboratory bioassays conducted as part of TAI's Phase 2 sediment study as well as during the USGS sediment studies.

As for the porewater, the sediment data were assigned to the "shallow" or "deep" water group based on the sample location relative to the 1,210-ft elevation contour.

Total organic carbon (TOC) measurements in sediment samples were used to derive sample-specific organic-carbon-normalized analyte concentrations for organic compounds because some of the sediment quality benchmarks for organic compounds are expressed on an organic-carbon-normalized basis. In most cases, TOC results were matched to analyte concentrations using sample identification numbers (sample IDs). However, the EPA study (CH2M HILL and E&E 2006) assigned different sample IDs to samples from the same sample station depending on which analysis was run, wherein TOC results were matched to analytical results based on the station IDs. Analytical results that could not be matched with a sample- or station-specific TOC concentration were excluded from the organic-carbon-normalized sediment analysis.

Summary statistics for dry weight sediment data are presented in Table A-5a for the Upper Reach OU, and in Tables A-5b to A-5e for sediment in shallow and deep areas of the transitional and lacustrine CSM units. Corresponding tables for the organic-carbon-normalized sediment data are presented in Tables A-6a to A-6e and in Tables A-7a to A-7c for sediment data used in the fish and wildlife dietary evaluation. These summary statistics include the number of samples, frequency of detection, range of detected concentrations and detection limits, 95 UCLs, and EPCs.

2.4 TISSUE

Benthic macroinvertebrate tissue data for this COPC screen are from TAI's macroinvertebrate tissue study conducted in 2016 (Windward 2018). Crayfish and mussels were collected from six areas in the river, and composite tissue samples were analyzed for metals and metalloids. A subset of composite mussel samples was also analyzed for polychlorinated biphenyls (PCBs) and dioxins and furans.[7]

Fish tissue data used for the refined COPC screening, which were included in the SLERA, are from the 2009 RI/FS sampling and the EPA's Phase I data collected in 2005, as follows:

- **TAI (Exponent et al. 2013).** In 2009, TAI collected fish from six different sampling areas in the river as part of the RI/FS. The species collected were burbot, kokanee, lake whitefish, largescale sucker, longnose sucker, mountain whitefish, pikeminnow, rainbow trout, sculpin, smallmouth bass, walleye, and yellow perch.

[7] A subset of crayfish samples was also analyzed for PCBs and dioxins and furans, but only the portion typically consumed by people was analyzed (i.e., whole body minus stomach and carapace), for use in the human health risk assessment.

Fish tissue samples were analyzed for metals and metalloids, semivolatile organic compounds, pesticides, polycyclic aromatic hydrocarbons (PAHs), PCBs, dioxins and furans, and polybrominated diphenyl ethers. Exponent et al. (2013) describes and summarizes these data in detail.

- **EPA (CH2M HILL and E&E 2007).** EPA's 2005 Phase I investigation collected composite samples of large fish (sizes ranging from 13 to 22 in. in length). These fish were separated into fillet and remainder fractions, and then analyzed for metals and metalloids, major anions (calcium, sodium), PCBs, and dioxins/furans. The species collected were burbot, largescale suckers, rainbow trout (hatchery and wild), walleye, northern pike, lake whitefish, and mountain whitefish. For the purpose of this refined COPC screening for the ecological risk assessment, the fillet and remainder tissue concentrations were converted to whole-body concentrations.

Summary statistics for tissue data (both wet and dry weights) in the three UCR aquatic exposure areas are presented in Tables A-8a to A-8f for benthic macroinvertebrates, Tables A-9a to A-9f for small fish, Tables A-10a to A-10f for medium fish, Tables A-11a to A-11f for large fish, and Tables A-12a to A-12c for fish by species. These tables include number of analyses, frequency of detection, range of detected concentrations, range of detection limits (i.e., undetected concentrations), 95 UCLs, and EPCs.

2.5 SOIL

Data used for the terrestrial COPC screening were collected during the 2014 upland soil study (Windward 2015). Soil samples for this study were collected from aerial deposition areas, relict floodplain deposition areas, and windblown sediment deposition areas. These samples were sieved and analyses for metals and metalloids were performed on < 2 mm and < 149 μm soil size fractions. Data for the < 2-mm fraction were collected for the BERA to evaluate exposure risks for ecological receptors and, therefore, were evaluated in the terrestrial COPC screening. Data for the < 149-μm fraction were collected for use in the human health risk assessment (Exponent et al. 2014; Windward 2015). Only surface soil data from the 0-to-6-in.-depth interval (0 to 15 cm) were included in the data set for this COPC screening. Soil data from the Bossburg Flat Beach study (Windward 2016) were not included because that study was focused on a specific area near the Young America Mill and mining operations, which is associated with known elevated lead concentrations. Consequently, the Bossburg soil data have been screened separately as presented in Appendix C.

The SLERA included data for three samples from a 1995 biomonitoring program associated with the Trail smelter, two samples collected between Northport and the United States/Canada border as part of a study associated with the Trail smelter, and six samples from the Le Roi removal action (Parametrix et al. 2010); all of these data were for discrete samples from each location. These data were not used in this COPC screening because the data have been superseded by an extensive sampling program conducted by TAI for the RI/FS upland soil study, which used an incremental compositing approach to cover sampling areas, each of which was approximately 25 acres in size (Windward 2015). In addition, data from the 2014 upland soil sampling event were intended for use in the ecological risk assessment for wildland areas. The Le Roi samples were not considered relevant for the terrestrial portion of the BERA because they were collected from residential and commercial areas.

Summary statistics for the UCR soil data are presented in Table A-13, which includes the number of samples, frequency of detection, and range of detected concentrations and detection limits; 95 UCLs were not calculated for soil data because the screening was conducted using maximum concentrations.

3 CALCULATION OF CHEMICAL SUMS

For chemical groups containing similar compounds (i.e., PCB congeners, PAHs, dichlorodiphenyltrichloroethane [DDT] and metabolites, chlordane and metabolites), the detected concentrations were summed and reported as total concentrations (Table A-14). For a single sample, the constituent chemicals in a group of similar compounds can be summed, assuming that 1) nondetected concentrations have a zero value (low bias), 2) nondetected concentrations are represented by the full detection limit (high bias), 3) nondetected concentrations are represented by one-half of the detection limit (intermediate), or 4) nondetected concentrations are treated using statistical methods for censored environmental data (e.g., Helsel 2012). Because there is uncertainty regardless of the summation protocol used, an intermediary step was selected and nondetected results were reported as one-half of the detection limit for the purpose of the COPC refinement.

Total coplanar PCB congeners and dioxin/furan congeners were also summed, but individual congeners were first adjusted for potency on a toxic equivalent (TEQ) basis by multiplying each congener concentration by its respective toxic equivalency factor and treating each nondetected congener as one-half the detection limit. The individual TEQs were then summed to derive a PCB TEQ, a dioxin/furan TEQ, and a total TEQ (sum of PCB and dioxin/furan TEQ). If none of the congeners within the toxicity-weighted total were detected, the total was flagged as nondetected. The standard World Health Organization toxic equivalency factors for fish, birds, and mammals, as presented in Vandenberg et al. (1998, 2006) were used to calculate TEQs (Table A-15).

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TABLES

Table A-1. Data Sets Used in the COPC Refinement

Data Collection Year	Study	Lead Party	Reference
Surface Water			
2009-2010	UCR surface water study	TAI	Exponent and Parametrix 2013
1996-2007	Ecology water quality monitoring at Northport	Ecology	Ecology 2007
2000	USGS water quality monitoring at Northport	USGS	USGS 2006
Porewater			
2015	USGS porewater sampling (field data)	USGS	USGS 2017
2013	Phase 2 sediment study (field and lab)	TAI	Windward et al. 2017
2013	USGS CERC toxicity evaluation (lab data)	USGS	Ingersoll et al. 2016
2005	Update to Phase 1 sediment sampling (lab)	EPA	CH2M Hill and E&E 2006
2004	USGS sediment and porewater sampling (field)	USGS	Paulson et al. 2006
2002	USGS sediment and porewater sampling (field)	USGS	Cox et al. 2005
Sediment			
2015	Bossburg Flat Beach refined sediment and soil study	TAI	Windward 2016
2013	Phase 2 sediment study	TAI	Windward et al. 2017
2013	USGS CERC toxicity evaluation	USGS	Ingersoll et al. 2016
2010	White sturgeon toxicity assessment	TAI	Cardno Entrix and HDR/HydroQual 2014
2009-2011	UCR beach sediment study	TAI	Integral 2014
2007	Field reconnaissance and sediment sampling	Ecology	Dowling 2007
2005	Phase I sediment sampling	EPA	CH2M Hill and E&E 2006
2004	USGS sediment and porewater sampling (field)	USGS	Paulson et al. 2006
2002	USGS sediment and porewater sampling (field)	USGS	Cox et al. 2005
2001	Reassessment of toxicity of Lake Roosevelt sediments	Ecology	Era and Serdar 2001
2001	UCR expanded site inspection	EPA	USEPA 2003
Tissue			
2016	Macroinvertebrate tissue study	TAI	Windward 2018
2009	Upper Columbia River fish tissue study	TAI	Exponent et al. 2013
2005	Phase I fish tissue sampling	EPA	CH2M Hill and E&E 2007
Soil			
2014	UCR soil study	TAI	Windward 2015

Notes:
CERC - Columbia Environmental Research Center
COPC - chemical of potential concern
Ecology - Washington State Department of Ecology
TAI - Teck American Incorporated
USGS - U.S. Geological Survey

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	53	15	28%	6.6	15.1	2.5	42	NA	NA	
Aluminum	µg/L	total	49	40	82%	9.7	224	10.9	54.3	51.3	51.3	
Antimony	µg/L	dissolved	53	47	89%	0.101	0.252	0.107	1	NA	NA	
Antimony	µg/L	total	49	48	98%	0.096	0.38	0.11	0.11	0.187	0.187	
Arsenic	µg/L	dissolved	60	38	63%	0.2	1	0.4	2	0.478	0.478	
Arsenic	µg/L	total	52	26	50%	0.3	0.7	0.2	0.8	NA	NA	
Inorganic arsenic	µg/L	dissolved	49	49	100%	0.104	0.593	NA	NA	NA	NA	
Inorganic arsenic	µg/L	total	49	49	100%	0.175	0.613	NA	NA	NA	NA	
Barium	µg/L	dissolved	53	53	100%	22.7	46	NA	NA	NA	NA	
Barium	µg/L	total	49	49	100%	23.7	49	NA	NA	37.8	37.8	
Beryllium	µg/L	dissolved	53	0	0%	NA	NA	0.003	1	NA	NA	
Beryllium	µg/L	total	49	1	2%	0.012	0.012	0.003	0.006	NC	0.012	M
Boron	µg/L	dissolved	37	4	11%	2.4	8.5	2	16	NA	NA	
Boron	µg/L	total	29	6	21%	4	9	2	11.9	NA	NA	
Cadmium	µg/L	dissolved	56	34	61%	0.008	0.031	0.012	1	0.0182	0.0182	
Cadmium	µg/L	total	52	33	63%	0.014	0.157	0.015	0.1	NA	NA	
Calcium	µg/L	dissolved	57	57	100%	16700	21300	NA	NA	NA	NA	
Calcium	µg/L	total	49	49	100%	17300	21400	NA	NA	NA	NA	
Chloride	mg/L	dissolved	8	8	100%	0.64	0.99	NA	NA	NA	NA	
Chloride	mg/L	total	49	24	49%	0.86	1.16	0.69	1.18	NA	NA	
Chromium	µg/L	dissolved	56	2	4%	0.26	0.49	0.03	0.8	NC	0.49	M
Chromium	µg/L	total	52	1	2%	0.6	0.6	0.04	0.5	NA	NA	
Cobalt	µg/L	dissolved	41	13	32%	0.031	0.423	0.023	1	NA	NA	
Cobalt	µg/L	total	37	26	70%	0.036	0.076	0.03	0.097	0.0552	0.0552	
Copper	µg/L	dissolved	56	27	48%	0.47	1.25	0.4	1	0.56	0.56	
Copper	µg/L	total	52	45	87%	0.49	4.31	0.47	0.78	NA	NA	
Gold	µg/L	dissolved	29	0	0%	NA	NA	0.03	0.07	NA	NA	
Gold	µg/L	total	29	0	0%	NA	NA	0.03	0.21	NA	NA	
Iron	µg/L	dissolved	57	10	18%	3.8	19.9	3	26.5	4.94	4.94	
Iron	µg/L	total	49	25	51%	28.4	686	18.9	88.1	NA	NA	
Lead	µg/L	dissolved	56	15	27%	0.024	0.166	0.012	1	0.0428	0.0428	
Lead	µg/L	total	52	38	73%	0.141	7.35	0.128	0.513	NA	NA	
Magnesium	µg/L	dissolved	57	57	100%	3850	5030	NA	NA	NA	NA	
Magnesium	µg/L	total	49	49	100%	4050	4990	NA	NA	NA	NA	
Manganese	µg/L	dissolved	53	25	47%	0.521	14.6	0.259	1.7	2.31	2.31	
Manganese	µg/L	total	49	44	90%	2.45	28.7	4.8	5.61	NA	NA	
Mercury	ng/L	dissolved	49	9	18%	0.09	0.97	0.11	0.65	0.234	0.234	
Mercury	ng/L	total	52	21	40%	0.3	9.44	0.37	5.07	NA	NA	
Molybdenum	µg/L	dissolved	53	44	83%	0.445	0.647	0.463	1	NA	NA	
Molybdenum	µg/L	total	49	44	90%	0.429	0.712	0.505	0.515	NA	NA	
Nickel	µg/L	dissolved	56	43	77%	0.22	1.63	0.19	1	0.567	0.567	
Nickel	µg/L	total	52	40	77%	0.29	0.91	0.24	0.58	NA	NA	
Potassium	µg/L	dissolved	57	57	100%	520	782	NA	NA	NA	NA	
Potassium	µg/L	total	49	49	100%	569	832	NA	NA	NA	NA	
Selenium	µg/L	dissolved	57	9	16%	0.4	0.6	0.3	2	NA	NA	
Selenium	µg/L	total	49	11	22%	0.3	0.6	0.3	0.6	0.357	0.357	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Silica	mg/L	dissolved	8	8	100%	3.41	6.81	NA	NA	NA	NA	
Silica	mg/L	total	49	45	92%	2.09	5.9	3.91	4.01	NA	NA	
Silicon	µg/L	dissolved	29	29	100%	1020	2780	NA	NA	NA	NA	
Silicon	µg/L	total	29	29	100%	1100	2890	NA	NA	NA	NA	
Silver	µg/L	dissolved	56	0	0%	NA	NA	0.004	1	NC	1	U
Silver	µg/L	total	52	1	2%	0.023	0.023	0.004	0.1	NA	NA	
Sodium	µg/L	dissolved	57	57	100%	1430	2320	NA	NA	NA	NA	
Sodium	µg/L	total	49	49	100%	1570	2500	NA	NA	NA	NA	
Thallium	µg/L	dissolved	49	0	0%	NA	NA	0.005	0.037	NA	NA	
Thallium	µg/L	total	49	0	0%	NA	NA	0.006	0.039	NC	0.039	U
Tin	µg/L	dissolved	28	0	0%	NA	NA	0.02	0.08	NA	NA	
Tin	µg/L	total	28	0	0%	NA	NA	0.02	0.05	NA	NA	
Uranium	µg/L	dissolved	53	49	92%	0.435	0.565	1	1	NA	NA	
Uranium	µg/L	total	49	49	100%	0.453	0.591	NA	NA	NA	NA	
Vanadium	µg/L	dissolved	57	26	46%	0.11	0.22	0.09	10	NA	NA	
Vanadium	µg/L	total	49	12	24%	0.21	0.8	0.14	0.37	0.222	0.222	
Zinc	µg/L	dissolved	56	10	18%	0.6	17	0.7	4.7	2.45	2.45	
Zinc	µg/L	total	52	15	29%	1.8	33	1	5	NA	NA	
Other Metals/Metalloids												
Bismuth	µg/L	dissolved	29	0	0%	NA	NA	0.005	0.005	NA	NA	
Bismuth	µg/L	total	29	5	17%	0.005	0.01	0.005	0.005	NA	NA	
Cerium	µg/L	dissolved	29	7	24%	0.009	0.012	0.009	0.009	NA	NA	
Cerium	µg/L	total	29	29	100%	0.02	0.186	NA	NA	NA	NA	
Cesium	µg/L	dissolved	29	28	97%	0.01	0.03	0.01	0.01	NA	NA	
Cesium	µg/L	total	29	29	100%	0.02	0.04	NA	NA	NA	NA	
Dysprosium	µg/L	dissolved	29	0	0%	NA	NA	0.007	0.007	NA	NA	
Dysprosium	µg/L	total	29	11	38%	0.008	0.016	0.007	0.007	NA	NA	
Erbium	µg/L	dissolved	29	0	0%	NA	NA	0.01	0.01	NA	NA	
Erbium	µg/L	total	29	0	0%	NA	NA	0.01	0.01	NA	NA	
Europium	µg/L	dissolved	29	22	76%	0.006	0.009	0.006	0.006	NA	NA	
Europium	µg/L	total	29	27	93%	0.006	0.013	0.006	0.006	NA	NA	
Gadolinium	µg/L	dissolved	29	0	0%	NA	NA	0.01	0.01	NA	NA	
Gadolinium	µg/L	total	29	9	31%	0.01	0.02	0.01	0.01	NA	NA	
Gallium	µg/L	dissolved	29	0	0%	NA	NA	0.02	0.02	NA	NA	
Gallium	µg/L	total	29	6	21%	0.02	0.04	0.02	0.02	NA	NA	
Germanium	µg/L	dissolved	29	8	28%	0.04	0.07	0.03	0.12	NA	NA	
Germanium	µg/L	total	29	8	28%	0.07	0.13	0.04	0.15	NA	NA	
Holmium	µg/L	dissolved	29	0	0%	NA	NA	0.009	0.009	NA	NA	
Holmium	µg/L	total	29	0	0%	NA	NA	0.009	0.009	NA	NA	
Indium	µg/L	dissolved	29	0	0%	NA	NA	0.006	0.006	NA	NA	
Indium	µg/L	total	29	1	3%	0.006	0.006	0.006	0.006	NA	NA	
Lanthanum	µg/L	dissolved	29	16	55%	0.006	0.02	0.006	0.006	NA	NA	
Lanthanum	µg/L	total	29	29	100%	0.016	0.122	NA	NA	NA	NA	
Lithium	µg/L	dissolved	37	6	16%	2	3	2	4.3	NA	NA	
Lithium	µg/L	total	29	7	24%	2.2	4.1	2	7.1	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Lutetium	µg/L	dissolved	29	0	0%	NA	NA	0.006	0.006	NA	NA	
Lutetium	µg/L	total	29	1	3%	0.006	0.006	0.006	0.006	NA	NA	
Neodymium	µg/L	dissolved	29	1	3%	0.03	0.03	0.02	0.02	NA	NA	
Neodymium	µg/L	total	29	16	55%	0.02	0.1	0.02	0.02	NA	NA	
Niobium	µg/L	dissolved	29	0	0%	NA	NA	0.01	0.08	NA	NA	
Niobium	µg/L	total	29	0	0%	NA	NA	0.01	0.11	NA	NA	
Praseodymium	µg/L	dissolved	29	0	0%	NA	NA	0.006	0.006	NA	NA	
Praseodymium	µg/L	total	29	14	48%	0.006	0.027	0.006	0.006	NA	NA	
Rubidium	µg/L	dissolved	29	28	97%	0.685	1.1	0.728	0.728	NA	NA	
Rubidium	µg/L	total	29	28	97%	0.782	1.12	0.81	0.81	NA	NA	
Samarium	µg/L	dissolved	29	0	0%	NA	NA	0.008	0.008	NA	NA	
Samarium	µg/L	total	29	10	34%	0.009	0.024	0.008	0.008	NA	NA	
Scandium	µg/L	dissolved	29	29	100%	0.121	1.17	NA	NA	NA	NA	
Scandium	µg/L	total	29	29	100%	0.146	1.27	NA	NA	NA	NA	
Strontium	µg/L	dissolved	37	37	100%	66.5	113	NA	NA	NA	NA	
Strontium	µg/L	total	29	29	100%	66.3	119	NA	NA	NA	NA	
Tantalum	µg/L	dissolved	29	6	21%	0.008	0.01	0.007	0.008	NA	NA	
Tantalum	µg/L	total	29	6	21%	0.01	0.012	0.007	0.016	NA	NA	
Tellurium	µg/L	dissolved	29	0	0%	NA	NA	0.05	0.05	NA	NA	
Tellurium	µg/L	total	29	1	3%	0.59	0.59	0.05	0.06	NA	NA	
Terbium	µg/L	dissolved	29	0	0%	NA	NA	0.007	0.007	NA	NA	
Terbium	µg/L	total	29	0	0%	NA	NA	0.007	0.007	NA	NA	
Thorium	µg/L	dissolved	29	0	0%	NA	NA	0.006	0.041	NA	NA	
Thorium	µg/L	total	29	9	31%	0.011	0.021	0.006	0.107	NA	NA	
Thulium	µg/L	dissolved	29	0	0%	NA	NA	0.008	0.008	NA	NA	
Thulium	µg/L	total	29	0	0%	NA	NA	0.008	0.008	NA	NA	
Titanium	µg/L	dissolved	29	0	0%	NA	NA	0.4	0.4	NA	NA	
Titanium	µg/L	total	29	11	38%	0.6	4.6	0.4	1.5	NA	NA	
Tungsten	µg/L	dissolved	29	2	7%	0.05	0.07	0.05	0.26	NA	NA	
Tungsten	µg/L	total	29	3	10%	0.05	0.08	0.05	0.28	NA	NA	
Ytterbium	µg/L	dissolved	29	0	0%	NA	NA	0.008	0.008	NA	NA	
Ytterbium	µg/L	total	29	1	3%	0.008	0.008	0.008	0.008	NA	NA	
Yttrium	µg/L	dissolved	29	22	76%	0.01	0.03	0.01	0.01	NA	NA	
Yttrium	µg/L	total	29	29	100%	0.02	0.09	NA	NA	NA	NA	
Zirconium	µg/L	dissolved	17	10	59%	0.03	0.05	0.03	0.03	NA	NA	
Zirconium	µg/L	total	17	13	76%	0.03	0.06	0.03	0.03	NA	NA	
Nutrients												
Ammonia as nitrogen	mg/L	total	55	11	20%	0.01	0.057	0.009	0.045	0.0163	0.0163	
Ammonia as nitrogen	mg/L	dissolved	8	7	88%	0.004	0.019	0.002	0.002	0.0122	0.0122	
Nitrate plus nitrite	mg/L	total	55	23	42%	0.058	0.124	0.009	0.082	NA	NA	
Phosphorus	mg/L	total	63	31	49%	0.0024	0.019	0.004	0.008	NA	NA	
Phosphorus (dissolved)	mg/L	dissolved	8	3	38%	0.003	0.003	0.006	0.006	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/L	total	19	0	0%	NA	NA	0.037	0.04	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	19	0	0%	NA	NA	0.016	0.018	NA	NA	
1,2-Dichlorobenzene	µg/L	total	19	0	0%	NA	NA	0.022	0.024	NA	NA	
1,3-Dichlorobenzene	µg/L	total	19	0	0%	NA	NA	0.021	0.023	NA	NA	
1,4-Dichlorobenzene	µg/L	total	19	0	0%	NA	NA	0.029	0.032	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
2,2'-oxybis(1-Chloropropane)	µg/L	total	19	0	0%	NA	NA	0.026	0.029	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	19	0	0%	NA	NA	0.031	0.034	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	19	0	0%	NA	NA	0.058	0.063	NA	NA	
2,4-Dichlorophenol	µg/L	total	19	0	0%	NA	NA	0.047	0.051	NA	NA	
2,4-Dimethylphenol	µg/L	total	17	0	0%	NA	NA	2.2	2.4	NA	NA	
2,4-Dinitrophenol	µg/L	total	19	0	0%	NA	NA	0.17	0.19	NA	NA	
2,4-Dinitrotoluene	µg/L	total	19	0	0%	NA	NA	0.018	0.02	NA	NA	
2,6-Dinitrotoluene	µg/L	total	19	0	0%	NA	NA	0.033	0.036	NA	NA	
2-Chloronaphthalene	µg/L	total	19	0	0%	NA	NA	0.041	0.045	NA	NA	
2-Chlorophenol	µg/L	total	19	0	0%	NA	NA	0.054	0.059	NA	NA	
2-Methylphenol	µg/L	total	19	0	0%	NA	NA	0.11	0.12	NA	NA	
2-Nitroaniline	µg/L	total	19	0	0%	NA	NA	0.024	0.026	NA	NA	
2-Nitrophenol	µg/L	total	19	0	0%	NA	NA	0.063	0.069	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	13	0	0%	NA	NA	0.43	0.47	NA	NA	
3-Nitroaniline	µg/L	total	19	0	0%	NA	NA	0.029	0.032	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	19	0	0%	NA	NA	0.025	0.028	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	19	0	0%	NA	NA	0.026	0.029	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	19	0	0%	NA	NA	0.037	0.04	NA	NA	
4-Chloroaniline	µg/L	total	19	1	5%	0.1	0.1	0.025	0.028	NA	NA	
4-Chlorophenyl-phenyl ether	µg/L	total	19	0	0%	NA	NA	0.027	0.03	NA	NA	
4-Methylphenol	µg/L	total	19	0	0%	NA	NA	0.12	0.13	NA	NA	
4-Nitroaniline	µg/L	total	19	0	0%	NA	NA	0.019	0.021	NA	NA	
4-Nitrophenol	µg/L	total	19	0	0%	NA	NA	0.28	0.31	NA	NA	
Acetophenone	µg/L	total	19	0	0%	NA	NA	0.16	0.18	NA	NA	
Benzaldehyde	µg/L	total	19	0	0%	NA	NA	0.046	0.05	NA	NA	
Benzoic acid	µg/L	total	19	4	21%	1.6	2.1	1.1	1.8	NA	NA	
Benzyl alcohol	µg/L	total	19	0	0%	NA	NA	0.073	0.079	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	19	0	0%	NA	NA	0.018	0.093	NA	NA	
bis(2-Chloroethoxy)methane	µg/L	total	19	0	0%	NA	NA	0.024	0.026	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	19	0	0%	NA	NA	0.035	0.038	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	19	0	0%	NA	NA	0.13	4.6	NA	NA	
Caprolactam	µg/L	total	19	0	0%	NA	NA	0.22	0.24	NA	NA	
Carbazole	ng/L	total	19	1	5%	5.5	5.5	0.39	1.7	NA	NA	
Dibenzofuran	µg/L	total	19	0	0%	NA	NA	0.018	0.02	NA	NA	
Diethyl phthalate	µg/L	total	19	3	16%	0.018	0.068	0.012	0.033	NA	NA	
Dimethyl phthalate	µg/L	total	19	0	0%	NA	NA	0.021	0.029	NA	NA	
Di-n-butyl phthalate	µg/L	total	19	0	0%	NA	NA	0.023	0.1	NA	NA	
Di-n-octylphthalate	µg/L	total	19	0	0%	NA	NA	0.018	0.02	NA	NA	
Hexachlorocyclopentadiene	µg/L	total	19	0	0%	NA	NA	0.19	0.21	NA	NA	
Hexachloroethane	µg/L	total	19	0	0%	NA	NA	0.024	0.026	NA	NA	
Isophorone	µg/L	total	19	0	0%	NA	NA	0.016	0.018	NA	NA	
Nitrobenzene	µg/L	total	19	0	0%	NA	NA	0.028	0.031	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	19	0	0%	NA	NA	0.037	0.04	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	19	0	0%	NA	NA	0.048	0.052	NA	NA	
Pentachlorophenol	µg/L	total	19	0	0%	NA	NA	0.34	0.37	NC	0.37	U
Phenol	µg/L	total	19	0	0%	NA	NA	0.063	0.069	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides												
2,4'-DDD	ng/L	total	19	0	0%	NA	NA	0.068	1.8	NA	NA	
2,4'-DDE	ng/L	total	19	0	0%	NA	NA	0.12	0.56	NA	NA	
2,4'-DDT	ng/L	total	19	0	0%	NA	NA	0.13	0.56	NA	NA	
4,4'-DDD	ng/L	total	19	0	0%	NA	NA	0.21	5.3	NA	NA	
4,4'-DDE	ng/L	total	19	0	0%	NA	NA	0.19	3.8	NA	NA	
4,4'-DDT	ng/L	total	19	0	0%	NA	NA	0.17	0.6	NC	0.6	U
Aldrin	ng/L	total	19	2	11%	0.56	0.65	0.11	0.6	NC	0.65	M
alpha-BHC	ng/L	total	19	0	0%	NA	NA	0.21	0.24	NA	NA	
alpha-BHC	ng/L	dissolved	8	0	0%	NA	NA	2	5	NA	NA	
alpha-Chlordane	ng/L	total	19	0	0%	NA	NA	0.27	2.4	NC	2.4	U
Atrazine	ng/L	dissolved	8	0	0%	NA	NA	1	8	NA	NA	
beta-BHC	ng/L	total	19	0	0%	NA	NA	0.41	0.46	NA	NA	
Chlordane	ng/L	total	19	0	0%	NA	NA	3.4	26	NA	NA	
cis-Nonachlor	ng/L	total	19	0	0%	NA	NA	0.14	0.53	NA	NA	
delta-BHC	ng/L	total	19	2	11%	0.18	0.23	0.14	0.31	NA	NA	
Dieldrin	ng/L	total	19	1	5%	0.52	0.52	0.37	0.54	NC	0.52	M
Dieldrin	ng/L	dissolved	8	0	0%	NA	NA	1	5	NC	5	U
Endosulfan I	ng/L	total	19	0	0%	NA	NA	0.25	0.53	NC	0.53	U
Endosulfan II	ng/L	total	19	3	16%	0.83	1.2	0.35	0.68	NC	1.2	M
Endosulfan sulfate	ng/L	total	19	0	0%	NA	NA	0.28	0.32	NA	NA	
Endrin	ng/L	total	19	1	5%	0.57	0.57	0.49	0.58	NC	0.57	M
Endrin aldehyde	ng/L	total	19	1	5%	0.68	0.68	0.21	0.66	NA	NA	
Endrin ketone	ng/L	total	19	0	0%	NA	NA	0.32	0.36	NA	NA	
gamma-BHC	ng/L	total	19	0	0%	NA	NA	0.47	0.53	NC	0.53	U
gamma-BHC	ng/L	dissolved	8	0	0%	NA	NA	4	4	NC	4	U
gamma-Chlordane	ng/L	total	19	0	0%	NA	NA	0.31	0.69	NA	NA	
Heptachlor	ng/L	total	19	0	0%	NA	NA	0.18	6.3	NC	6.3	U
Heptachlor epoxide	ng/L	total	19	0	0%	NA	NA	0.21	1.6	NC	1.6	U
Hexachlorobenzene	ng/L	total	19	1	5%	0.45	0.45	0.27	0.3	NA	NA	
Hexachlorobutadiene	ng/L	total	19	0	0%	NA	NA	0.095	0.13	NA	NA	
Methoxychlor	ng/L	total	19	0	0%	NA	NA	0.28	0.32	NC	0.32	U
Oxychlordane	ng/L	total	19	2	11%	0.52	3.3	0.069	13	NA	NA	
Total chlordane, 0 DL	ng/L	total	19	2	11%	0.52	3.3	0.31	13	NA	NA	
Total chlordane, 1/2 DL	ng/L	total	19	2	11%	0.935	3.99	0.31	13	NA	NA	
Total DDD, 0 DL	ng/L	total	19	0	0%	NA	NA	0.21	5.3	NA	NA	
Total DDD, 1/2 DL	ng/L	total	19	0	0%	NA	NA	0.21	5.3	NA	NA	
Total DDE, 0 DL	ng/L	total	19	0	0%	NA	NA	0.19	3.8	NA	NA	
Total DDE, 1/2 DL	ng/L	total	19	0	0%	NA	NA	0.19	3.8	NA	NA	
Total DDT, 0 DL	ng/L	total	19	0	0%	NA	NA	0.17	0.6	NA	NA	
Total DDT, 1/2 DL	ng/L	total	19	0	0%	NA	NA	0.17	0.6	NA	NA	
Total DDx, 0 DL	ng/L	total	19	0	0%	NA	NA	0.21	5.3	NA	NA	
Total DDx, 1/2 DL	ng/L	total	19	0	0%	NA	NA	0.21	5.3	NA	NA	
Toxaphene	ng/L	total	19	0	0%	NA	NA	9	160	NC	160	U
trans-Nonachlor	ng/L	total	19	0	0%	NA	NA	0.11	0.56	NA	NA	
2,6-Diethylaniline	ng/L	dissolved	8	0	0%	NA	NA	2	3	NA	NA	
2-Chloro-4-isopropylamino-6-amino-s-triazine	ng/L	dissolved	8	0	0%	NA	NA	2	6	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Acetochlor	ng/L	dissolved	8	0	0%	NA	NA	2	4	NA	NA	
Alachlor	ng/L	dissolved	8	0	0%	NA	NA	2	2	NA	NA	
Azinphos-methyl	ng/L	dissolved	8	0	0%	NA	NA	1	50	NA	NA	
Benfluralin	ng/L	dissolved	8	0	0%	NA	NA	2	10	NA	NA	
Butylate	ng/L	dissolved	8	0	0%	NA	NA	2	2	NA	NA	
Carbaryl	ng/L	dissolved	8	0	0%	NA	NA	3	41	NA	NA	
Carbofuran	ng/L	dissolved	8	0	0%	NA	NA	3	20	NA	NA	
Chlorpyrifos	ng/L	dissolved	8	0	0%	NA	NA	4	5	NA	NA	
cis-Permethrin	ng/L	dissolved	8	0	0%	NA	NA	5	6	NA	NA	
Cyanazine	ng/L	dissolved	8	0	0%	NA	NA	4	18	NA	NA	
Diazinon	ng/L	dissolved	8	0	0%	NA	NA	2	5	NA	NA	
Dimethyl tetrachloroterephthalate	ng/L	dissolved	8	1	13%	2	2	2	3	NA	NA	
Disulfoton	ng/L	dissolved	8	0	0%	NA	NA	20	20	NA	NA	
Ethalfluralin	ng/L	dissolved	8	0	0%	NA	NA	4	9	NA	NA	
Ethoprop	ng/L	dissolved	8	0	0%	NA	NA	3	5	NA	NA	
Ethyl di-n-prophylthiolcarbamate	ng/L	dissolved	8	0	0%	NA	NA	2	2	NA	NA	
Fonofos	ng/L	dissolved	8	0	0%	NA	NA	3	3	NA	NA	
Linuron	ng/L	dissolved	8	0	0%	NA	NA	2	35	NA	NA	
Malathion	ng/L	dissolved	8	0	0%	NA	NA	5	27	NA	NA	
Methyl parathion	ng/L	dissolved	8	0	0%	NA	NA	6	20	NA	NA	
Metolachlor	ng/L	dissolved	8	0	0%	NA	NA	2	13	NA	NA	
Metribuzin	ng/L	dissolved	8	0	0%	NA	NA	4	6	NA	NA	
Molinate	ng/L	dissolved	8	0	0%	NA	NA	2	4	NA	NA	
Napropamide	ng/L	dissolved	8	0	0%	NA	NA	3	7	NA	NA	
Parathion	ng/L	dissolved	8	0	0%	NA	NA	4	7	NA	NA	
Pebulate	ng/L	dissolved	8	0	0%	NA	NA	2	4	NA	NA	
Pendimethalin	ng/L	dissolved	8	0	0%	NA	NA	4	10	NA	NA	
Phorate	ng/L	dissolved	8	0	0%	NA	NA	2	11	NA	NA	
Prometon	ng/L	dissolved	8	0	0%	NA	NA	10	20	NA	NA	
Propachlor	ng/L	dissolved	8	0	0%	NA	NA	7	10	NA	NA	
Propanil	ng/L	dissolved	8	0	0%	NA	NA	4	11	NA	NA	
Propargite	ng/L	dissolved	8	0	0%	NA	NA	10	20	NA	NA	
Propyzamide	ng/L	dissolved	8	0	0%	NA	NA	3	4	NA	NA	
Simazine	ng/L	dissolved	8	0	0%	NA	NA	5	11	NA	NA	
Tebuthiuron	ng/L	dissolved	8	0	0%	NA	NA	10	20	NA	NA	
Terbacil	ng/L	dissolved	8	0	0%	NA	NA	7	34	NA	NA	
Terbufos	ng/L	dissolved	8	0	0%	NA	NA	10	20	NA	NA	
Thiobencarb	ng/L	dissolved	8	0	0%	NA	NA	2	5	NA	NA	
Triallate	ng/L	dissolved	8	0	0%	NA	NA	1	2	NA	NA	
Trifluralin	ng/L	dissolved	8	0	0%	NA	NA	2	9	NA	NA	
PAHs												
2-Methylnaphthalene	ng/L	total	19	0	0%	NA	NA	0.63	2.1	NA	NA	
Acenaphthene	ng/L	total	19	2	11%	0.48	0.57	0.36	0.87	NA	NA	
Acenaphthylene	ng/L	total	19	2	11%	0.48	0.66	0.37	0.42	NA	NA	
Anthracene	ng/L	total	19	0	0%	NA	NA	0.29	0.68	NA	NA	
Benzo(e)pyrene	ng/L	total	19	1	5%	1.1	1.1	0.49	0.77	NA	NA	
Benzo(a)anthracene	ng/L	total	19	2	11%	0.79	0.96	0.34	0.81	NA	NA	
Benzo(a)pyrene	ng/L	total	19	1	5%	0.58	0.58	0.41	2.1	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)												
Benzo(b)fluoranthene	ng/L	total	19	1	5%	0.79	0.79	0.25	0.62	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	19	2	11%	0.38	2.1	0.36	1.4	NA	NA	
Benzo(k)fluoranthene	ng/L	total	19	1	5%	0.5	0.5	0.41	0.46	NA	NA	
Chrysene	ng/L	total	19	0	0%	NA	NA	0.65	0.73	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	19	1	5%	0.81	0.81	0.45	0.6	NA	NA	
Dibenzothiophene	ng/L	total	19	0	0%	NA	NA	0.52	0.58	NA	NA	
Fluoranthene	ng/L	total	19	0	0%	NA	NA	0.46	2.4	NA	NA	
Fluorene	ng/L	total	19	1	5%	0.72	0.72	0.42	1.2	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	19	1	5%	1.4	1.4	0.44	0.91	NA	NA	
Naphthalene	ng/L	total	19	1	5%	44	44	8.8	55	NA	NA	
Perylene	ng/L	total	19	1	5%	0.77	0.77	0.36	0.43	NA	NA	
Phenanthrene	ng/L	total	19	0	0%	NA	NA	1.2	4.2	NA	NA	
Pyrene	ng/L	total	19	0	0%	NA	NA	0.78	1.6	NA	NA	
Total HPAHs, 0 DL	ng/L	total	19	2	11%	1.17	7.14	0.78	2.2	NA	NA	
Total HPAHs, 1/2 DL	ng/L	total	19	2	11%	3.56	9.51	0.78	2.2	NA	NA	
Total LPAHs, 0 DL	ng/L	total	19	5	26%	0.48	44.7	8.8	44	NA	NA	
Total LPAHs, 1/2 DL	ng/L	total	19	5	26%	12.9	47.1	8.8	44	NA	NA	
Total PAHs, 0 DL	ng/L	total	19	6	32%	0.48	44.7	8.8	44	NA	NA	
Total PAHs, 1/2 DL	ng/L	total	19	6	32%	15.5	49.8	8.8	44	NA	NA	
PCBs												
Total PCB congeners, 0 DL	pg/L	total	19	17	89%	0.806	39.3	1.64	9.7	17.8	17.8	
Total PCB congeners, 1/2 DL	pg/L	total	19	17	89%	26.6	91.3	1.64	9.7	59	59	
PBDEs												
PBDE 17	pg/L	total	13	0	0%	NA	NA	0.652	1.94	NA	NA	
PBDE 17 and 25	pg/L	total	6	0	0%	NA	NA	27.92	228.5	NA	NA	
PBDE 28 and 33	pg/L	total	19	0	0%	NA	NA	3.07	133.8	NA	NA	
PBDE 47	pg/L	total	19	1	5%	272	272	11.2	726	NA	NA	
PBDE 49	pg/L	total	19	3	16%	0.814	1.05	0.355	259.4	NA	NA	
PBDE 66	pg/L	total	19	1	5%	3.27	3.27	0.338	529.5	NA	NA	
PBDE 71	pg/L	total	19	0	0%	NA	NA	0.312	370.2	NA	NA	
PBDE 85	pg/L	total	19	1	5%	1.01	1.01	0.526	326.8	NA	NA	
PBDE 99	pg/L	total	19	1	5%	17.4	17.4	8.52	734	NA	NA	
PBDE 100	pg/L	total	19	0	0%	NA	NA	2.05	134	NA	NA	
PBDE 128	pg/L	total	19	0	0%	NA	NA	1.82	2380	NA	NA	
PBDE 138	pg/L	total	13	0	0%	NA	NA	0.942	2.24	NA	NA	
PBDE 138 and 166	pg/L	total	6	0	0%	NA	NA	140.6	1230	NA	NA	
PBDE 153	pg/L	total	19	3	16%	3.86	245	1.43	442.1	NA	NA	
PBDE 154	pg/L	total	19	3	16%	0.917	2.13	0.778	317.3	NA	NA	
PBDE 183	pg/L	total	6	0	0%	NA	NA	52.88	438.5	NA	NA	
PBDE 183 and 176	pg/L	total	13	1	8%	2.99	2.99	1.91	6.91	NA	NA	
PBDE 184	pg/L	total	19	0	0%	NA	NA	0.685	359.9	NA	NA	
PBDE 190	pg/L	total	4	0	0%	NA	NA	452.4	1520	NA	NA	
PBDE 190 and 171	pg/L	total	13	0	0%	NA	NA	1.14	3.44	NA	NA	
PBDE 191	pg/L	total	19	0	0%	NA	NA	1.01	970.4	NA	NA	

Table A-2a. Summary Statistics for Undisturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 200 and 203	pg/L	total	13	0	0%	NA	NA	0.146	9.65	NA	NA	
PBDE 203	pg/L	total	6	0	0%	NA	NA	74.16	935.3	NA	NA	
PBDE 206	pg/L	total	19	0	0%	NA	NA	6.02	5310	NA	NA	
PBDE 209	pg/L	total	19	0	0%	NA	NA	96.7	3880	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	30	4	13%	7.5	11.5	2.2	14.6	NA	NA	
Aluminum	µg/L	total	30	20	67%	10.5	125	8.8	30.6	43.4	43.4	
Antimony	µg/L	dissolved	30	27	90%	0.098	0.247	0.128	0.153	NA	NA	
Antimony	µg/L	total	30	30	100%	0.092	0.224	NA	NA	0.182	0.182	
Arsenic	µg/L	dissolved	30	16	53%	0.3	0.7	0.4	0.6	0.39	0.39	
Arsenic	µg/L	total	30	15	50%	0.3	0.5	0.3	0.7	NA	NA	
Inorganic arsenic	µg/L	dissolved	30	24	80%	0.176	0.515	0.199	0.298	NA	NA	
Inorganic arsenic	µg/L	total	30	24	80%	0.269	0.599	0.182	0.319	NA	NA	
Barium	µg/L	dissolved	30	30	100%	25.8	41.6	NA	NA	NA	NA	
Barium	µg/L	total	30	30	100%	23.9	41.8	NA	NA	36.2	36.2	
Beryllium	µg/L	dissolved	30	0	0%	NA	NA	0.006	0.006	NA	NA	
Beryllium	µg/L	total	30	4	13%	0.007	0.009	0.006	0.006	NC	0.009	M
Boron	µg/L	dissolved	30	1	3%	4.3	4.3	2	6.9	NA	NA	
Boron	µg/L	total	30	0	0%	NA	NA	2	8.3	NA	NA	
Cadmium	µg/L	dissolved	30	16	53%	0.007	0.026	0.008	0.029	0.0148	0.0148	
Cadmium	µg/L	total	30	16	53%	0.01	0.036	0.011	0.046	NA	NA	
Calcium	µg/L	dissolved	30	30	100%	16300	21500	NA	NA	NA	NA	
Calcium	µg/L	total	30	30	100%	15200	21000	NA	NA	NA	NA	
Chloride	mg/L	total	30	16	53%	0.73	1.14	0.74	1.46	NA	NA	
Chromium	µg/L	dissolved	30	0	0%	NA	NA	0.02	0.43	NC	0.43	U
Chromium	µg/L	total	30	1	3%	0.2	0.2	0.05	2.96	NA	NA	
Cobalt	µg/L	dissolved	28	10	36%	0.0333	0.04	0.049	1.08	NA	NA	
Cobalt	µg/L	total	28	14	50%	0.0387	0.13	0.053	0.09	0.0618	0.0618	
Copper	µg/L	dissolved	30	4	13%	0.61	0.7	0.49	0.81	NC	0.7	M
Copper	µg/L	total	30	16	53%	0.61	1	0.54	1	NA	NA	
Gold	µg/L	dissolved	30	0	0%	NA	NA	0.05	0.05	NA	NA	
Gold	µg/L	total	30	0	0%	NA	NA	0.05	0.09	NA	NA	
Iron	µg/L	dissolved	30	5	17%	3	4.4	3	45.8	NC	4.4	M
Iron	µg/L	total	30	15	50%	23.1	206	3	90.3	NA	NA	
Lead	µg/L	dissolved	30	5	17%	0.018	0.036	0.014	0.037	NC	0.036	M
Lead	µg/L	total	30	13	43%	0.145	0.524	0.113	0.306	NA	NA	
Magnesium	µg/L	dissolved	30	30	100%	4060	4910	NA	NA	NA	NA	
Magnesium	µg/L	total	30	30	100%	3640	5190	NA	NA	NA	NA	
Manganese	µg/L	dissolved	30	8	27%	0.669	2.81	0.155	2.91	0.955	0.955	
Manganese	µg/L	total	30	27	90%	2.76	7.92	2.96	4.77	NA	NA	
Mercury	ng/L	dissolved	30	8	27%	0.19	0.71	0.12	0.68	0.306	0.306	
Mercury	ng/L	total	30	13	43%	0.68	1.75	0.4	1.09	NA	NA	
Molybdenum	µg/L	dissolved	30	25	83%	0.43	0.661	0.54	0.615	NA	NA	
Molybdenum	µg/L	total	30	25	83%	0.448	0.704	0.546	0.612	NA	NA	
Nickel	µg/L	dissolved	30	12	40%	0.26	0.55	0.19	0.58	0.381	0.381	
Nickel	µg/L	total	30	15	50%	0.26	1.7	0.23	0.65	NA	NA	
Potassium	µg/L	dissolved	30	30	100%	587	738	NA	NA	NA	NA	
Potassium	µg/L	total	30	30	100%	588	802	NA	NA	NA	NA	
Selenium	µg/L	dissolved	30	4	13%	0.4	0.4	0.3	0.3	NA	NA	
Selenium	µg/L	total	30	4	13%	0.3	0.7	0.3	0.4	NC	0.7	M
Silica	mg/L	total	30	29	97%	3.21	6.22	3.42	3.42	NA	NA	
Silicon	µg/L	dissolved	30	30	100%	1620	3060	NA	NA	NA	NA	
Silicon	µg/L	total	30	30	100%	1680	3480	NA	NA	NA	NA	
Silver	µg/L	dissolved	30	0	0%	NA	NA	0.004	0.006	NC	0.006	U
Silver	µg/L	total	30	0	0%	NA	NA	0.004	0.024	NA	NA	
Sodium	µg/L	dissolved	30	30	100%	1860	2400	NA	NA	NA	NA	
Sodium	µg/L	total	30	30	100%	1710	2400	NA	NA	NA	NA	
Thallium	µg/L	dissolved	30	7	23%	0.016	0.025	0.006	0.022	NA	NA	
Thallium	µg/L	total	30	6	20%	0.015	0.025	0.006	0.026	0.0118	0.0118	

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Tin	µg/L	dissolved	30	0	0%	NA	NA	0.02	0.02	NA	NA	
Tin	µg/L	total	30	1	3%	0.48	0.48	0.02	0.03	NA	NA	
Uranium	µg/L	dissolved	30	30	100%	0.48	0.618	NA	NA	NA	NA	
Uranium	µg/L	total	30	30	100%	0.415	0.62	NA	NA	NA	NA	
Vanadium	µg/L	dissolved	30	24	80%	0.11	0.2	0.09	0.18	NA	NA	
Vanadium	µg/L	total	30	16	53%	0.15	0.45	0.06	0.23	0.212	0.212	
Zinc	µg/L	dissolved	30	1	3%	4.2	4.2	0.5	6	NC	4.2	M
Zinc	µg/L	total	30	4	13%	2.2	6	0.9	3.9	NA	NA	
Other Metals/Metalloids												
Bismuth	µg/L	dissolved	30	3	10%	0.006	0.006	0.005	0.005	NA	NA	
Bismuth	µg/L	total	30	7	23%	0.005	0.007	0.005	0.005	NA	NA	
Cerium	µg/L	dissolved	30	9	30%	0.009	0.033	0.009	0.009	NA	NA	
Cerium	µg/L	total	30	30	100%	0.022	0.242	NA	NA	NA	NA	
Cesium	µg/L	dissolved	30	27	90%	0.01	0.03	0.01	0.01	NA	NA	
Cesium	µg/L	total	30	30	100%	0.02	0.03	NA	NA	NA	NA	
Dysprosium	µg/L	dissolved	30	1	3%	0.007	0.007	0.007	0.007	NA	NA	
Dysprosium	µg/L	total	30	10	33%	0.008	0.016	0.007	0.007	NA	NA	
Erbium	µg/L	dissolved	30	0	0%	NA	NA	0.01	0.01	NA	NA	
Erbium	µg/L	total	30	0	0%	NA	NA	0.01	0.01	NA	NA	
Europium	µg/L	dissolved	30	26	87%	0.006	0.01	0.006	0.006	NA	NA	
Europium	µg/L	total	30	29	97%	0.00667	0.012	0.006	0.006	NA	NA	
Gadolinium	µg/L	dissolved	30	0	0%	NA	NA	0.01	0.01	NA	NA	
Gadolinium	µg/L	total	30	9	30%	0.01	0.02	0.01	0.01	NA	NA	
Gallium	µg/L	dissolved	30	0	0%	NA	NA	0.02	0.02	NA	NA	
Gallium	µg/L	total	30	4	13%	0.02	0.04	0.02	0.02	NA	NA	
Germanium	µg/L	dissolved	30	3	10%	0.06	0.15	0.03	0.34	NA	NA	
Germanium	µg/L	total	30	8	27%	0.07	0.26	0.04	0.17	NA	NA	
Holmium	µg/L	dissolved	30	0	0%	NA	NA	0.009	0.009	NA	NA	
Holmium	µg/L	total	30	0	0%	NA	NA	0.009	0.009	NA	NA	
Indium	µg/L	dissolved	30	0	0%	NA	NA	0.006	0.006	NA	NA	
Indium	µg/L	total	30	0	0%	NA	NA	0.006	0.006	NA	NA	
Lanthanum	µg/L	dissolved	30	21	70%	0.006	0.048	0.006	0.006	NA	NA	
Lanthanum	µg/L	total	30	30	100%	0.018	0.14	NA	NA	NA	NA	
Lithium	µg/L	dissolved	30	6	20%	2.1	3.4	2	5	NA	NA	
Lithium	µg/L	total	30	4	13%	2	4.9	2	6.1	NA	NA	
Lutetium	µg/L	dissolved	30	0	0%	NA	NA	0.006	0.006	NA	NA	
Lutetium	µg/L	total	30	0	0%	NA	NA	0.006	0.006	NA	NA	
Neodymium	µg/L	dissolved	30	6	20%	0.02	0.06	0.02	0.02	NA	NA	
Neodymium	µg/L	total	30	25	83%	0.02	0.12	0.02	0.02	NA	NA	
Niobium	µg/L	dissolved	30	1	3%	0.09	0.09	0.01	0.03	NA	NA	
Niobium	µg/L	total	30	0	0%	NA	NA	0.01	0.12	NA	NA	
Praseodymium	µg/L	dissolved	30	5	17%	0.006	0.013	0.006	0.006	NA	NA	
Praseodymium	µg/L	total	30	23	77%	0.006	0.033	0.006	0.006	NA	NA	
Rubidium	µg/L	dissolved	30	30	100%	0.682	0.964	NA	NA	NA	NA	
Rubidium	µg/L	total	30	30	100%	0.722	1.01	NA	NA	NA	NA	
Samarium	µg/L	dissolved	30	3	10%	0.012	0.014	0.008	0.008	NA	NA	
Samarium	µg/L	total	30	10	33%	0.008	0.026	0.008	0.008	NA	NA	
Scandium	µg/L	dissolved	30	30	100%	0.244	1.38	NA	NA	NA	NA	
Scandium	µg/L	total	30	30	100%	0.249	1.47	NA	NA	NA	NA	
Strontium	µg/L	dissolved	30	30	100%	76.7	125	NA	NA	NA	NA	
Strontium	µg/L	total	30	30	100%	78.1	121	NA	NA	NA	NA	
Tantalum	µg/L	dissolved	30	0	0%	NA	NA	0.008	0.015	NA	NA	
Tantalum	µg/L	total	30	0	0%	NA	NA	0.008	0.017	NA	NA	

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Tellurium	µg/L	dissolved	30	0	0%	NA	NA	0.03	0.05	NA	NA	
Tellurium	µg/L	total	30	0	0%	NA	NA	0.03	0.06	NA	NA	
Terbium	µg/L	dissolved	30	0	0%	NA	NA	0.007	0.007	NA	NA	
Terbium	µg/L	total	30	0	0%	NA	NA	0.007	0.007	NA	NA	
Thorium	µg/L	dissolved	30	4	13%	0.008	0.043	0.006	0.006	NA	NA	
Thorium	µg/L	total	30	22	73%	0.007	0.044	0.006	0.069	NA	NA	
Thulium	µg/L	dissolved	20	0	0%	NA	NA	0.008	0.008	NA	NA	
Thulium	µg/L	total	20	0	0%	NA	NA	0.008	0.008	NA	NA	
Titanium	µg/L	dissolved	30	1	3%	1.3	1.3	0.4	1.4	NA	NA	
Titanium	µg/L	total	30	15	50%	0.9	7.2	0.4	2.6	NA	NA	
Tungsten	µg/L	dissolved	30	1	3%	0.06	0.06	0.05	0.22	NA	NA	
Tungsten	µg/L	total	30	0	0%	NA	NA	0.05	0.15	NA	NA	
Ytterbium	µg/L	dissolved	30	0	0%	NA	NA	0.008	0.008	NA	NA	
Ytterbium	µg/L	total	30	2	7%	0.009	0.01	0.008	0.008	NA	NA	
Yttrium	µg/L	dissolved	30	30	100%	0.01	0.05	NA	NA	NA	NA	
Yttrium	µg/L	total	30	30	100%	0.02	0.09	NA	NA	NA	NA	
Zirconium	µg/L	dissolved	20	12	60%	0.03	0.09	0.03	0.03	NA	NA	
Zirconium	µg/L	total	20	14	70%	0.03	7.02	0.03	0.03	NA	NA	
Nutrients												
Ammonia as nitrogen	mg/L	total	30	1	3%	0.02	0.02	0.009	0.03	NC	0.02	M
Nitrate plus nitrite	mg/L	total	30	10	33%	0.08	0.124	0.009	0.057	NA	NA	
Phosphorus	mg/L	total	30	10	33%	0.007	0.011	0.004	0.009	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/L	total	9	0	0%	NA	NA	0.037	0.039	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.016	0.017	NA	NA	
1,2-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.022	0.023	NA	NA	
1,3-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.021	0.022	NA	NA	
1,4-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.029	0.03	NA	NA	
2,2'-oxybis(1-Chloropropane)	µg/L	total	9	0	0%	NA	NA	0.026	0.027	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	9	0	0%	NA	NA	0.031	0.032	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	9	0	0%	NA	NA	0.058	0.06	NA	NA	
2,4-Dichlorophenol	µg/L	total	9	0	0%	NA	NA	0.047	0.049	NA	NA	
2,4-Dimethylphenol	µg/L	total	9	0	0%	NA	NA	2.2	2.3	NA	NA	
2,4-Dinitrophenol	µg/L	total	9	0	0%	NA	NA	0.17	0.18	NA	NA	
2,4-Dinitrotoluene	µg/L	total	9	0	0%	NA	NA	0.018	0.019	NA	NA	
2,6-Dinitrotoluene	µg/L	total	9	0	0%	NA	NA	0.033	0.035	NA	NA	
2-Chloronaphthalene	µg/L	total	9	0	0%	NA	NA	0.041	0.043	NA	NA	
2-Chlorophenol	µg/L	total	9	0	0%	NA	NA	0.054	0.056	NA	NA	
2-Methylphenol	µg/L	total	9	0	0%	NA	NA	0.11	0.12	NA	NA	
2-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.024	0.025	NA	NA	
2-Nitrophenol	µg/L	total	9	0	0%	NA	NA	0.063	0.065	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	8	0	0%	NA	NA	0.43	0.45	NA	NA	
3-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.029	0.03	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	9	0	0%	NA	NA	0.025	0.026	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	9	0	0%	NA	NA	0.026	0.027	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	9	0	0%	NA	NA	0.037	0.039	NA	NA	
4-Chloroaniline	µg/L	total	9	0	0%	NA	NA	0.025	0.026	NA	NA	
4-Chlorophenyl-phenyl ether	µg/L	total	9	0	0%	NA	NA	0.027	0.028	NA	NA	
4-Methylphenol	µg/L	total	9	0	0%	NA	NA	0.12	0.13	NA	NA	
4-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.019	0.02	NA	NA	
4-Nitrophenol	µg/L	total	9	0	0%	NA	NA	0.28	0.29	NA	NA	
Acetophenone	µg/L	total	9	0	0%	NA	NA	0.16	0.17	NA	NA	
Benzaldehyde	µg/L	total	9	0	0%	NA	NA	0.046	0.048	NA	NA	

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
Benzoic acid	µg/L	total	9	0	0%	NA	NA	1.1	1.7	NA	NA	
Benzyl alcohol	µg/L	total	9	0	0%	NA	NA	0.073	0.076	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	9	0	0%	NA	NA	0.018	0.052	NA	NA	
bis(2-Chloroethoxy)methane	µg/L	total	9	0	0%	NA	NA	0.024	0.025	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	9	0	0%	NA	NA	0.035	0.037	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	9	2	22%	0.14	0.15	0.13	0.24	NA	NA	
Caprolactam	µg/L	total	9	0	0%	NA	NA	0.22	0.23	NA	NA	
Carbazole	ng/L	total	9	0	0%	NA	NA	0.39	1.3	NA	NA	
Dibenzofuran	µg/L	total	9	0	0%	NA	NA	0.018	0.019	NA	NA	
Diethyl phthalate	µg/L	total	9	0	0%	NA	NA	0.012	0.033	NA	NA	
Dimethyl phthalate	µg/L	total	9	0	0%	NA	NA	0.021	0.034	NA	NA	
Di-n-butyl phthalate	µg/L	total	9	1	11%	0.027	0.027	0.023	0.1	NA	NA	
Di-n-octylphthalate	µg/L	total	9	0	0%	NA	NA	0.018	0.019	NA	NA	
Hexachlorocyclopentadiene	µg/L	total	9	0	0%	NA	NA	0.19	0.2	NA	NA	
Hexachloroethane	µg/L	total	9	0	0%	NA	NA	0.024	0.025	NA	NA	
Isophorone	µg/L	total	9	0	0%	NA	NA	0.016	0.017	NA	NA	
Nitrobenzene	µg/L	total	9	0	0%	NA	NA	0.028	0.029	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	9	0	0%	NA	NA	0.037	0.039	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	9	0	0%	NA	NA	0.048	0.05	NA	NA	
Pentachlorophenol	µg/L	total	9	0	0%	NA	NA	0.34	0.36	NC	0.36	U
Phenol	µg/L	total	9	0	0%	NA	NA	0.063	0.065	NA	NA	
Pesticides												
2,4'-DDD	ng/L	total	9	0	0%	NA	NA	0.068	0.22	NA	NA	
2,4'-DDE	ng/L	total	9	0	0%	NA	NA	0.12	0.17	NA	NA	
2,4'-DDT	ng/L	total	9	0	0%	NA	NA	0.13	0.18	NA	NA	
4,4'-DDD	ng/L	total	9	0	0%	NA	NA	0.21	4.3	NA	NA	
4,4'-DDE	ng/L	total	9	0	0%	NA	NA	0.2	8.9	NA	NA	
4,4'-DDT	ng/L	total	9	0	0%	NA	NA	0.17	0.5	NC	0.5	U
Aldrin	ng/L	total	9	3	33%	0.36	0.66	0.11	0.62	NC	0.66	M
alpha-BHC	ng/L	total	9	0	0%	NA	NA	0.21	0.23	NA	NA	
alpha-Chlordane	ng/L	total	9	0	0%	NA	NA	0.27	3.5	NC	3.5	U
beta-BHC	ng/L	total	9	0	0%	NA	NA	0.41	0.44	NA	NA	
Chlordane	ng/L	total	9	0	0%	NA	NA	5	44	NA	NA	
cis-Nonachlor	ng/L	total	9	0	0%	NA	NA	0.14	0.53	NA	NA	
delta-BHC	ng/L	total	9	0	0%	NA	NA	0.14	0.5	NA	NA	
Dieldrin	ng/L	total	9	0	0%	NA	NA	0.37	0.39	NC	0.39	U
Endosulfan I	ng/L	total	9	0	0%	NA	NA	0.25	0.27	NC	0.27	U
Endosulfan II	ng/L	total	9	1	11%	0.94	0.94	0.35	0.95	NC	0.94	M
Endosulfan sulfate	ng/L	total	9	0	0%	NA	NA	0.28	0.3	NA	NA	
Endrin	ng/L	total	9	2	22%	0.693	0.77	0.49	0.65	NC	0.77	M
Endrin aldehyde	ng/L	total	9	1	11%	1.1	1.1	0.21	0.65	NA	NA	
Endrin ketone	ng/L	total	9	0	0%	NA	NA	0.32	0.34	NA	NA	
gamma-BHC	ng/L	total	9	0	0%	NA	NA	0.47	0.5	NC	0.5	U
gamma-Chlordane	ng/L	total	9	0	0%	NA	NA	0.31	0.33	NA	NA	
Heptachlor	ng/L	total	9	0	0%	NA	NA	0.18	0.79	NC	0.79	U
Heptachlor epoxide	ng/L	total	9	0	0%	NA	NA	0.21	0.23	NC	0.23	U
Hexachlorobenzene	ng/L	total	9	0	0%	NA	NA	0.27	0.29	NA	NA	
Hexachlorobutadiene	ng/L	total	9	0	0%	NA	NA	0.095	0.14	NA	NA	
Methoxychlor	ng/L	total	9	0	0%	NA	NA	0.28	0.3	NC	0.3	U
Oxychlordane	ng/L	total	9	0	0%	NA	NA	0.069	6.9	NA	NA	
Total chlordane, 0 DL	ng/L	total	9	0	0%	NA	NA	0.31	6.9	NA	NA	
Total chlordane, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.31	6.9	NA	NA	

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 0 DL	ng/L	total	9	0	0%	NA	NA	0.21	4.3	NA	NA	
Total DDD, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.21	4.3	NA	NA	
Total DDE, 0 DL	ng/L	total	9	0	0%	NA	NA	0.23	8.9	NA	NA	
Total DDE, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.23	8.9	NA	NA	
Total DDT, 0 DL	ng/L	total	9	0	0%	NA	NA	0.17	0.5	NA	NA	
Total DDT, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.17	0.5	NA	NA	
Total DDx, 0 DL	ng/L	total	9	0	0%	NA	NA	0.23	8.9	NA	NA	
Total DDx, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.23	8.9	NA	NA	
Toxaphene	ng/L	total	9	0	0%	NA	NA	44	170	NC	170	U
trans-Nonachlor	ng/L	total	9	0	0%	NA	NA	0.11	0.2	NA	NA	
PAHs												
2-Methylnaphthalene	ng/L	total	9	0	0%	NA	NA	0.61	3	NA	NA	
Acenaphthene	ng/L	total	9	3	33%	0.4	0.55	0.36	0.38	NA	NA	
Acenaphthylene	ng/L	total	9	1	11%	1.1	1.1	0.37	0.86	NA	NA	
Anthracene	ng/L	total	9	0	0%	NA	NA	0.29	0.31	NA	NA	
Benzo(e)pyrene	ng/L	total	9	0	0%	NA	NA	0.49	0.52	NA	NA	
Benzo(a)anthracene	ng/L	total	9	1	11%	0.79	0.79	0.34	0.36	NA	NA	
Benzo(a)pyrene	ng/L	total	9	0	0%	NA	NA	0.41	0.63	NA	NA	
Benzo(b)fluoranthene	ng/L	total	9	1	11%	0.37	0.37	0.25	0.27	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	9	0	0%	NA	NA	0.36	0.38	NA	NA	
Benzo(k)fluoranthene	ng/L	total	9	0	0%	NA	NA	0.41	0.44	NA	NA	
Chrysene	ng/L	total	9	0	0%	NA	NA	0.65	0.69	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	9	0	0%	NA	NA	0.45	0.48	NA	NA	
Dibenzothiophene	ng/L	total	9	0	0%	NA	NA	0.52	1.6	NA	NA	
Fluoranthene	ng/L	total	9	0	0%	NA	NA	0.46	3.9	NA	NA	
Fluorene	ng/L	total	9	0	0%	NA	NA	0.42	0.92	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	9	0	0%	NA	NA	0.44	0.47	NA	NA	
Naphthalene	ng/L	total	9	1	11%	33	33	7.8	28	NA	NA	
Perylene	ng/L	total	9	0	0%	NA	NA	0.36	0.38	NA	NA	
Phenanthrene	ng/L	total	9	0	0%	NA	NA	1.6	4.2	NA	NA	
Pyrene	ng/L	total	9	1	11%	3.8	3.8	0.78	1.2	NA	NA	
Total HPAHs, 0 DL	ng/L	total	9	2	22%	1.16	3.8	0.94	2.5	NA	NA	
Total HPAHs, 1/2 DL	ng/L	total	9	2	22%	4.18	7.41	0.94	2.5	NA	NA	
Total LPAHs, 0 DL	ng/L	total	9	5	56%	0.4	33	15	28	NA	NA	
Total LPAHs, 1/2 DL	ng/L	total	9	5	56%	7.23	34.9	15	28	NA	NA	
Total PAHs, 0 DL	ng/L	total	9	6	67%	0.4	33	15	28	NA	NA	
Total PAHs, 1/2 DL	ng/L	total	9	6	67%	10.5	37.5	15	28	NA	NA	
PCBs												
Total PCB congeners, 0 DL	pg/L	total	9	9	100%	0.678	24.1	NA	NA	0.65	0.65	
Total PCB congeners, 1/2 DL	pg/L	total	9	9	100%	27.2	83.1	NA	NA	68.1	68.1	
PBDEs												
PBDE 17	pg/L	total	6	0	0%	NA	NA	0.768	8.6	NA	NA	
PBDE 17 and 25	pg/L	total	3	0	0%	NA	NA	13.13	19.55	NA	NA	
PBDE 28 and 33	pg/L	total	9	0	0%	NA	NA	2.65	39.5	NA	NA	
PBDE 47	pg/L	total	9	0	0%	NA	NA	11.6	932	NA	NA	
PBDE 49	pg/L	total	9	1	11%	0.61	0.61	0.757	41.34	NA	NA	
PBDE 66	pg/L	total	9	0	0%	NA	NA	0.34	72.91	NA	NA	
PBDE 71	pg/L	total	9	0	0%	NA	NA	0.352	56.17	NA	NA	
PBDE 85	pg/L	total	9	0	0%	NA	NA	0.622	63.43	NA	NA	
PBDE 99	pg/L	total	9	0	0%	NA	NA	6.81	171	NA	NA	
PBDE 100	pg/L	total	9	0	0%	NA	NA	2.07	45.6	NA	NA	
PBDE 128	pg/L	total	9	0	0%	NA	NA	1.96	220.8	NA	NA	
PBDE 138	pg/L	total	6	0	0%	NA	NA	1.09	2.92	NA	NA	

Table A-2b. Summary Statistics for Undisturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 138 and 166	pg/L	total	3	0	0%	NA	NA	63.45	134.5	NA	NA	
PBDE 153	pg/L	total	9	2	22%	117	136	1.76	25.81	NA	NA	
PBDE 154	pg/L	total	9	0	0%	NA	NA	0.828	41.66	NA	NA	
PBDE 183	pg/L	total	3	0	0%	NA	NA	20.39	53.06	NA	NA	
PBDE 183 and 176	pg/L	total	6	0	0%	NA	NA	1.88	3.45	NA	NA	
PBDE 184	pg/L	total	9	0	0%	NA	NA	0.879	40.64	NA	NA	
PBDE 190 and 171	pg/L	total	6	0	0%	NA	NA	1.73	4.17	NA	NA	
PBDE 191	pg/L	total	9	0	0%	NA	NA	1.51	101.5	NA	NA	
PBDE 200 and 203	pg/L	total	6	0	0%	NA	NA	3.68	8.4	NA	NA	
PBDE 203	pg/L	total	3	0	0%	NA	NA	37.75	69.81	NA	NA	
PBDE 206	pg/L	total	9	0	0%	NA	NA	7.74	530.4	NA	NA	
PBDE 209	pg/L	total	9	0	0%	NA	NA	34.22	1140	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	114	28	25%	2.7	18.9	1.1	18.6	NA	NA	
Aluminum	µg/L	total	114	76	67%	8	620	6.2	29.9	63.5	63.5	
Antimony	µg/L	dissolved	114	113	99%	0.097	0.284	0.093	0.093	NA	NA	
Antimony	µg/L	total	114	114	100%	0.09	0.346	NA	NA	0.168	0.168	
Arsenic	µg/L	dissolved	114	59	52%	0.2	1.37	0.3	0.8	0.43	0.43	
Arsenic	µg/L	total	114	52	46%	0.2	1.4	0.3	0.9	NA	NA	
Inorganic arsenic	µg/L	dissolved	113	113	100%	0.251	1.19	NA	NA	NA	NA	
Inorganic arsenic	µg/L	total	113	109	96%	0.26	1.26	0.343	0.458	NA	NA	
Barium	µg/L	dissolved	114	114	100%	19.2	34.7	NA	NA	NA	NA	
Barium	µg/L	total	114	114	100%	19.3	37.3	NA	NA	30.2	30.2	
Beryllium	µg/L	dissolved	114	3	3%	0.006	0.0065	0.003	0.006	NA	NA	
Beryllium	µg/L	total	114	15	13%	0.006	0.136	0.003	0.006	0.011	0.011	
Boron	µg/L	dissolved	60	1	2%	2.85	2.85	2	7.9	NA	NA	
Boron	µg/L	total	60	2	3%	3.33	4.2	2	7.3	NA	NA	
Cadmium	µg/L	dissolved	114	59	52%	0.006	0.028	0.005	0.028	0.0119	0.0119	
Cadmium	µg/L	total	114	60	53%	0.008	0.051	0.01	0.158	NA	NA	
Calcium	µg/L	dissolved	114	114	100%	12100	21300	NA	NA	NA	NA	
Calcium	µg/L	total	114	114	100%	12000	21200	NA	NA	NA	NA	
Chloride	mg/L	total	114	71	62%	0.68	2.25	0.81	2.56	NA	NA	
Chromium	µg/L	dissolved	114	6	5%	0.05	0.24	0.02	0.47	0.0362	0.0362	
Chromium	µg/L	total	114	10	9%	0.06	1.62	0.02	1.05	NA	NA	
Cobalt	µg/L	dissolved	104	38	37%	0.027	0.042	0.035	0.585	NA	NA	
Cobalt	µg/L	total	107	70	65%	0.033	0.594	0.035	0.269	0.0724	0.0724	
Copper	µg/L	dissolved	113	40	35%	0.48	0.75	0.46	0.73	0.53	0.53	
Copper	µg/L	total	113	92	81%	0.52	17.1	0.48	0.76	NA	NA	
Gold	µg/L	dissolved	60	1	2%	0.07	0.07	0.05	0.13	NA	NA	
Gold	µg/L	total	60	1	2%	0.23	0.23	0.05	0.23	NA	NA	
Iron	µg/L	dissolved	106	2	2%	4	21.4	3	21.4	NC	21.4	M
Iron	µg/L	total	113	59	52%	4	1200	3	57	NA	NA	
Lead	µg/L	dissolved	114	18	16%	0.007	0.0253	0.005	0.052	0.00802	0.00802	
Lead	µg/L	total	114	27	24%	0.033	1.12	0.024	0.463	NA	NA	
Magnesium	µg/L	dissolved	114	114	100%	3930	6040	NA	NA	NA	NA	
Magnesium	µg/L	total	114	114	100%	3870	6100	NA	NA	NA	NA	
Manganese	µg/L	dissolved	114	33	29%	0.375	32.4	0.213	1.98	2.56	2.56	
Manganese	µg/L	total	114	93	82%	1.58	41.1	1.62	4.08	NA	NA	
Mercury	ng/L	dissolved	114	14	12%	0.27	0.81	0.08	0.75	0.184	0.184	
Mercury	ng/L	total	114	16	14%	0.47	1.91	0.09	1.32	NA	NA	
Molybdenum	µg/L	dissolved	114	110	96%	0.331	0.828	0.414	0.56	NA	NA	
Molybdenum	µg/L	total	114	96	84%	0.31	0.821	0.374	0.636	NA	NA	
Nickel	µg/L	dissolved	113	64	57%	0.29	0.66	0.24	0.65	0.46	0.46	
Nickel	µg/L	total	113	62	55%	0.36	1.79	0.23	1.42	NA	NA	
Potassium	µg/L	dissolved	114	114	100%	587	1350	NA	NA	NA	NA	
Potassium	µg/L	total	114	110	96%	535	1410	688	742	NA	NA	
Selenium	µg/L	dissolved	114	6	5%	0.3	0.4	0.3	0.8	NA	NA	
Selenium	µg/L	total	114	6	5%	0.3	0.4	0.3	0.7	0.309	0.309	
Silica	mg/L	total	114	113	99%	2.64	7.97	3.01	3.01	NA	NA	
Silicon	µg/L	dissolved	60	60	100%	1260	4420	NA	NA	NA	NA	
Silicon	µg/L	total	60	60	100%	1300	5170	NA	NA	NA	NA	
Silver	µg/L	dissolved	114	1	1%	0.004	0.004	0.004	0.006	NC	0.004	M
Silver	µg/L	total	114	10	9%	0.004	0.128	0.004	0.013	NA	NA	
Sodium	µg/L	dissolved	114	114	100%	1610	3610	NA	NA	NA	NA	
Sodium	µg/L	total	114	114	100%	1560	3650	NA	NA	NA	NA	

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Thallium	µg/L	dissolved	114	17	15%	0.01	0.036	0.005	0.032	NA	NA	
Thallium	µg/L	total	114	20	18%	0.01	0.148	0.005	0.04	0.0105	0.0105	
Tin	µg/L	dissolved	60	1	2%	0.03	0.03	0.02	0.03	NA	NA	
Tin	µg/L	total	60	6	10%	0.02	0.08	0.02	0.04	NA	NA	
Uranium	µg/L	dissolved	114	114	100%	0.427	0.979	NA	NA	NA	NA	
Uranium	µg/L	total	114	114	100%	0.427	0.965	NA	NA	NA	NA	
Vanadium	µg/L	dissolved	114	38	33%	0.11	0.433	0.1	0.44	NA	NA	
Vanadium	µg/L	total	114	45	39%	0.1	2.27	0.14	0.39	0.33	0.33	
Zinc	µg/L	dissolved	114	16	14%	0.9	12.5	0.2	10.1	1.27	1.27	
Zinc	µg/L	total	114	21	18%	1.18	15.1	0.4	13.9	NA	NA	
Other Metals/Metalloids												
Bismuth	µg/L	dissolved	60	1	2%	0.008	0.008	0.005	0.005	NA	NA	
Bismuth	µg/L	total	60	8	13%	0.005	0.04	0.005	0.01	NA	NA	
Cerium	µg/L	dissolved	60	22	37%	0.0117	0.041	0.009	0.009	NA	NA	
Cerium	µg/L	total	60	60	100%	0.017	1.09	NA	NA	NA	NA	
Cesium	µg/L	dissolved	60	47	78%	0.01	0.02	0.01	0.01	NA	NA	
Cesium	µg/L	total	60	60	100%	0.01	0.167	NA	NA	NA	NA	
Dysprosium	µg/L	dissolved	60	3	5%	0.007	0.008	0.007	0.007	NA	NA	
Dysprosium	µg/L	total	60	22	37%	0.007	0.064	0.007	0.007	NA	NA	
Erbium	µg/L	dissolved	60	0	0%	NA	NA	0.01	0.01	NA	NA	
Erbium	µg/L	total	60	3	5%	0.02	0.055	0.01	0.01	NA	NA	
Europium	µg/L	dissolved	60	36	60%	0.006	0.011	0.006	0.006	NA	NA	
Europium	µg/L	total	60	47	78%	0.006	0.0293	0.006	0.006	NA	NA	
Gadolinium	µg/L	dissolved	60	2	3%	0.01	0.01	0.01	0.01	NA	NA	
Gadolinium	µg/L	total	60	18	30%	0.01	0.145	0.01	0.01	NA	NA	
Gallium	µg/L	dissolved	60	0	0%	NA	NA	0.02	0.02	NA	NA	
Gallium	µg/L	total	60	12	20%	0.02	0.385	0.02	0.02	NA	NA	
Germanium	µg/L	dissolved	60	16	27%	0.03	0.44	0.02	0.26	NA	NA	
Germanium	µg/L	total	60	18	30%	0.03	0.52	0.02	0.23	NA	NA	
Holmium	µg/L	dissolved	60	0	0%	NA	NA	0.009	0.009	NA	NA	
Holmium	µg/L	total	60	1	2%	0.0185	0.0185	0.009	0.009	NA	NA	
Indium	µg/L	dissolved	60	0	0%	NA	NA	0.006	0.006	NA	NA	
Indium	µg/L	total	60	0	0%	NA	NA	0.006	0.006	NA	NA	
Lanthanum	µg/L	dissolved	60	35	58%	0.006	0.046	0.006	0.006	NA	NA	
Lanthanum	µg/L	total	60	60	100%	0.012	0.504	NA	NA	NA	NA	
Lithium	µg/L	dissolved	60	11	18%	2	3.3	2	5.2	NA	NA	
Lithium	µg/L	total	60	16	27%	2	5.9	2	7.3	NA	NA	
Lutetium	µg/L	dissolved	60	0	0%	NA	NA	0.006	0.006	NA	NA	
Lutetium	µg/L	total	60	1	2%	0.008	0.008	0.006	0.006	NA	NA	
Neodymium	µg/L	dissolved	60	15	25%	0.02	0.04	0.02	0.02	NA	NA	
Neodymium	µg/L	total	60	42	70%	0.02	0.477	0.02	0.02	NA	NA	
Niobium	µg/L	dissolved	60	4	7%	0.01	0.02	0.01	0.03	NA	NA	
Niobium	µg/L	total	60	2	3%	0.17	0.175	0.01	0.11	NA	NA	
Praseodymium	µg/L	dissolved	60	14	23%	0.006	0.0103	0.006	0.006	NA	NA	
Praseodymium	µg/L	total	60	38	63%	0.006	0.123	0.006	0.006	NA	NA	
Rubidium	µg/L	dissolved	60	60	100%	0.673	1.23	NA	NA	NA	NA	
Rubidium	µg/L	total	60	60	100%	0.697	1.94	NA	NA	NA	NA	
Samarium	µg/L	dissolved	60	6	10%	0.009	0.011	0.008	0.008	NA	NA	
Samarium	µg/L	total	60	25	42%	0.009	0.102	0.008	0.008	NA	NA	
Scandium	µg/L	dissolved	60	57	95%	0.229	1.42	0.57	1.12	NA	NA	
Scandium	µg/L	total	60	57	95%	0.231	1.91	0.583	1.17	NA	NA	

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	µg/L	dissolved	60	60	100%	47.7	111	NA	NA	NA	NA	
Strontium	µg/L	total	60	60	100%	46	110	NA	NA	NA	NA	
Tantalum	µg/L	dissolved	55	12	22%	0.008	0.012	0.008	0.017	NA	NA	
Tantalum	µg/L	total	55	10	18%	0.0085	0.012	0.008	0.017	NA	NA	
Tellurium	µg/L	dissolved	60	0	0%	NA	NA	0.03	0.06	NA	NA	
Tellurium	µg/L	total	60	0	0%	NA	NA	0.03	0.05	NA	NA	
Terbium	µg/L	dissolved	60	0	0%	NA	NA	0.007	0.007	NA	NA	
Terbium	µg/L	total	60	2	3%	0.008	0.02	0.007	0.007	NA	NA	
Thorium	µg/L	dissolved	60	7	12%	0.006	0.012	0.006	0.006	NA	NA	
Thorium	µg/L	total	60	30	50%	0.006	0.254	0.006	0.096	NA	NA	
Thulium	µg/L	dissolved	40	0	0%	NA	NA	0.008	0.008	NA	NA	
Thulium	µg/L	total	41	1	2%	0.009	0.009	0.008	0.008	NA	NA	
Titanium	µg/L	dissolved	60	3	5%	0.4	1.3	0.4	1.2	NA	NA	
Titanium	µg/L	total	60	18	30%	0.6	37	0.4	5.1	NA	NA	
Tungsten	µg/L	dissolved	60	0	0%	NA	NA	0.05	0.45	NA	NA	
Tungsten	µg/L	total	60	0	0%	NA	NA	0.05	0.29	NA	NA	
Ytterbium	µg/L	dissolved	60	0	0%	NA	NA	0.008	0.008	NA	NA	
Ytterbium	µg/L	total	60	5	8%	0.008	0.0445	0.008	0.008	NA	NA	
Yttrium	µg/L	dissolved	60	53	88%	0.01	0.05	0.01	0.01	NA	NA	
Yttrium	µg/L	total	60	60	100%	0.01	0.343	NA	NA	NA	NA	
Zirconium	µg/L	dissolved	40	17	43%	0.03	0.13	0.03	0.11	NA	NA	
Zirconium	µg/L	total	40	29	73%	0.03	0.305	0.03	0.12	NA	NA	
Nutrients												
Ammonia as nitrogen	mg/L	total	114	24	21%	0.014	0.04	0.009	0.05	0.0159	0.0159	
Nitrate plus nitrite	mg/L	total	114	41	36%	0.036	0.518	0.009	0.149	NA	NA	
Phosphorus	mg/L	total	114	38	33%	0.006	0.162	0.004	0.016	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/L	total	36	0	0%	NA	NA	0.037	0.04	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	36	2	6%	0.054	0.065	0.016	0.018	NA	NA	
1,2-Dichlorobenzene	µg/L	total	36	2	6%	0.035	0.039	0.022	0.024	NA	NA	
1,3-Dichlorobenzene	µg/L	total	36	0	0%	NA	NA	0.021	0.023	NA	NA	
1,4-Dichlorobenzene	µg/L	total	36	0	0%	NA	NA	0.029	0.032	NA	NA	
2,2'-oxybis(1-Chloropropane)	µg/L	total	36	0	0%	NA	NA	0.026	0.029	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	36	2	6%	0.042	0.046	0.031	0.034	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	36	1	3%	0.058	0.058	0.058	0.063	NA	NA	
2,4-Dichlorophenol	µg/L	total	36	0	0%	NA	NA	0.047	0.051	NA	NA	
2,4-Dimethylphenol	µg/L	total	36	0	0%	NA	NA	2.2	2.4	NA	NA	
2,4-Dinitrophenol	µg/L	total	36	0	0%	NA	NA	0.17	0.19	NA	NA	
2,4-Dinitrotoluene	µg/L	total	36	0	0%	NA	NA	0.018	0.02	NA	NA	
2,6-Dinitrotoluene	µg/L	total	36	0	0%	NA	NA	0.033	0.036	NA	NA	
2-Chloronaphthalene	µg/L	total	36	1	3%	0.043	0.043	0.041	0.045	NA	NA	
2-Chlorophenol	µg/L	total	36	2	6%	0.06	0.063	0.054	0.059	NA	NA	
2-Methylphenol	µg/L	total	36	0	0%	NA	NA	0.11	0.12	NA	NA	
2-Nitroaniline	µg/L	total	36	0	0%	NA	NA	0.024	0.026	NA	NA	
2-Nitrophenol	µg/L	total	36	0	0%	NA	NA	0.063	0.069	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	24	0	0%	NA	NA	0.43	0.47	NA	NA	
3-Nitroaniline	µg/L	total	36	0	0%	NA	NA	0.029	0.032	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	36	0	0%	NA	NA	0.025	0.028	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	36	0	0%	NA	NA	0.026	0.029	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	36	4	11%	0.068	0.12	0.037	0.04	NA	NA	
4-Chloroaniline	µg/L	total	36	0	0%	NA	NA	0.025	0.028	NA	NA	

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
4-Chlorophenyl-phenyl ether	µg/L	total	36	0	0%	NA	NA	0.027	0.03	NA	NA	
4-Methylphenol	µg/L	total	36	0	0%	NA	NA	0.12	0.13	NA	NA	
4-Nitroaniline	µg/L	total	36	0	0%	NA	NA	0.019	0.021	NA	NA	
4-Nitrophenol	µg/L	total	36	0	0%	NA	NA	0.28	0.31	NA	NA	
Acetophenone	µg/L	total	36	0	0%	NA	NA	0.16	0.18	NA	NA	
Benzaldehyde	µg/L	total	36	0	0%	NA	NA	0.046	0.069	NA	NA	
Benzoic acid	µg/L	total	36	7	19%	1.5	1.7	1.1	2.2	NA	NA	
Benzyl alcohol	µg/L	total	36	0	0%	NA	NA	0.073	0.14	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	36	2	6%	0.037	0.049	0.018	0.12	NA	NA	
bis(2-Chloroethoxy)methane	µg/L	total	36	0	0%	NA	NA	0.024	0.026	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	36	1	3%	0.06	0.06	0.035	0.038	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	36	2	6%	0.16	0.22	0.13	0.53	NA	NA	
Caprolactam	µg/L	total	36	0	0%	NA	NA	0.22	0.24	NA	NA	
Carbazole	ng/L	total	36	0	0%	NA	NA	0.39	1.4	NA	NA	
Dibenzofuran	µg/L	total	36	2	6%	0.024	0.033	0.018	0.02	NA	NA	
Diethyl phthalate	µg/L	total	36	4	11%	0.02	0.059	0.012	0.032	NA	NA	
Dimethyl phthalate	µg/L	total	36	5	14%	0.024	0.045	0.021	0.032	NA	NA	
Di-n-butyl phthalate	µg/L	total	36	0	0%	NA	NA	0.023	0.17	NA	NA	
Di-n-octylphthalate	µg/L	total	36	2	6%	0.15	0.2	0.018	0.02	NA	NA	
Hexachlorocyclopentadiene	µg/L	total	36	0	0%	NA	NA	0.19	0.21	NA	NA	
Hexachloroethane	µg/L	total	36	0	0%	NA	NA	0.024	0.026	NA	NA	
Isophorone	µg/L	total	36	1	3%	0.033	0.033	0.016	0.018	NA	NA	
Nitrobenzene	µg/L	total	36	0	0%	NA	NA	0.028	0.031	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	36	0	0%	NA	NA	0.037	0.04	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	36	0	0%	NA	NA	0.048	0.052	NA	NA	
Pentachlorophenol	µg/L	total	36	0	0%	NA	NA	0.34	0.37	NC	0.37	U
Phenol	µg/L	total	36	1	3%	0.1	0.1	0.063	0.13	NA	NA	
Pesticides												
2,4'-DDD	ng/L	total	36	0	0%	NA	NA	0.068	0.18	NA	NA	
2,4'-DDE	ng/L	total	36	0	0%	NA	NA	0.12	0.52	NA	NA	
2,4'-DDT	ng/L	total	36	0	0%	NA	NA	0.13	0.53	NA	NA	
4,4'-DDD	ng/L	total	36	0	0%	NA	NA	0.21	4.1	NA	NA	
4,4'-DDE	ng/L	total	36	0	0%	NA	NA	0.19	5	NA	NA	
4,4'-DDT	ng/L	total	36	1	3%	0.515	0.515	0.17	1.2	NC	0.515	M
Aldrin	ng/L	total	36	0	0%	NA	NA	0.11	0.52	NC	0.52	U
alpha-BHC	ng/L	total	36	0	0%	NA	NA	0.21	0.24	NA	NA	
alpha-Chlordane	ng/L	total	36	0	0%	NA	NA	0.27	1.6	NC	1.6	U
beta-BHC	ng/L	total	36	0	0%	NA	NA	0.41	0.46	NA	NA	
Chlordane	ng/L	total	36	0	0%	NA	NA	2.1	33	NA	NA	
cis-Nonachlor	ng/L	total	36	0	0%	NA	NA	0.14	0.56	NA	NA	
delta-BHC	ng/L	total	36	1	3%	0.24	0.24	0.14	0.27	NA	NA	
Dieldrin	ng/L	total	36	0	0%	NA	NA	0.37	0.5	NC	0.5	U
Endosulfan I	ng/L	total	36	0	0%	NA	NA	0.25	0.5	NC	0.5	U
Endosulfan II	ng/L	total	36	2	6%	1.2	1.3	0.35	0.76	NC	1.3	M
Endosulfan sulfate	ng/L	total	36	0	0%	NA	NA	0.28	0.32	NA	NA	
Endrin	ng/L	total	36	4	11%	0.61	0.76	0.49	0.82	NC	0.76	M
Endrin aldehyde	ng/L	total	36	8	22%	0.31	0.88	0.21	0.75	NA	NA	
Endrin ketone	ng/L	total	36	0	0%	NA	NA	0.32	0.36	NA	NA	
gamma-BHC	ng/L	total	36	0	0%	NA	NA	0.47	0.53	NC	0.53	U
gamma-Chlordane	ng/L	total	36	0	0%	NA	NA	0.31	0.35	NA	NA	

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Heptachlor	ng/L	total	36	0	0%	NA	NA	0.18	2.4	NC	2.4	U
Heptachlor epoxide	ng/L	total	36	0	0%	NA	NA	0.21	1.3	NC	1.3	U
Hexachlorobenzene	ng/L	total	36	3	8%	0.34	0.83	0.27	0.44	NA	NA	
Hexachlorobutadiene	ng/L	total	36	1	3%	0.25	0.25	0.095	0.13	NA	NA	
Methoxychlor	ng/L	total	36	0	0%	NA	NA	0.28	0.52	NC	0.52	U
Oxychlordane	ng/L	total	36	2	6%	0.21	0.29	0.069	9.2	NA	NA	
Total chlordane, 0 DL	ng/L	total	36	3	8%	0.2	0.29	0.31	9.2	NA	NA	
Total chlordane, 1/2 DL	ng/L	total	36	3	8%	0.655	0.87	0.31	9.2	NA	NA	
Total DDD, 0 DL	ng/L	total	36	0	0%	NA	NA	0.21	4.1	NA	NA	
Total DDD, 1/2 DL	ng/L	total	36	0	0%	NA	NA	0.21	4.1	NA	NA	
Total DDE, 0 DL	ng/L	total	36	0	0%	NA	NA	0.19	5	NA	NA	
Total DDE, 1/2 DL	ng/L	total	36	0	0%	NA	NA	0.19	5	NA	NA	
Total DDT, 0 DL	ng/L	total	36	1	3%	0.515	0.515	0.17	1.2	NA	NA	
Total DDT, 1/2 DL	ng/L	total	36	1	3%	0.683	0.683	0.17	1.2	NA	NA	
Total DDx, 0 DL	ng/L	total	36	1	3%	0.515	0.515	0.21	5	NA	NA	
Total DDx, 1/2 DL	ng/L	total	36	1	3%	1.08	1.08	0.21	5	NA	NA	
Toxaphene	ng/L	total	36	0	0%	NA	NA	29	130	NC	130	U
trans-Nonachlor	ng/L	total	36	1	3%	0.2	0.2	0.11	0.5	NA	NA	
PAHs												
2-Methylnaphthalene	ng/L	total	36	0	0%	NA	NA	0.42	2.2	NA	NA	
Acenaphthene	ng/L	total	36	4	11%	0.4	0.47	0.36	1.6	NA	NA	
Acenaphthylene	ng/L	total	36	1	3%	0.71	0.71	0.37	1.1	NA	NA	
Anthracene	ng/L	total	36	0	0%	NA	NA	0.29	0.31	NA	NA	
Benzo(e)pyrene	ng/L	total	36	3	8%	0.59	2.6	0.49	0.52	NA	NA	
Benzo(a)anthracene	ng/L	total	36	3	8%	0.72	1.4	0.34	1.1	NA	NA	
Benzo(a)pyrene	ng/L	total	36	2	6%	0.61	2.1	0.41	1.3	NA	NA	
Benzo(b)fluoranthene	ng/L	total	36	5	14%	0.33	1.8	0.25	0.27	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	36	5	14%	0.43	4.1	0.36	1.1	NA	NA	
Benzo(k)fluoranthene	ng/L	total	36	3	8%	0.46	1.4	0.41	0.44	NA	NA	
Chrysene	ng/L	total	36	2	6%	0.7	1.1	0.65	0.69	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	36	3	8%	0.6	1.8	0.45	0.5	NA	NA	
Dibenzothiophene	ng/L	total	36	0	0%	NA	NA	0.52	0.55	NA	NA	
Fluoranthene	ng/L	total	36	0	0%	NA	NA	0.46	2.1	NA	NA	
Fluorene	ng/L	total	36	2	6%	0.45	0.75	0.42	2	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	36	3	8%	0.62	2.6	0.44	0.65	NA	NA	
Naphthalene	ng/L	total	36	3	8%	9.2	27.3	1.6	77	NA	NA	
Perylene	ng/L	total	36	2	6%	0.64	1.8	0.36	0.38	NA	NA	
Phenanthrene	ng/L	total	36	0	0%	NA	NA	1.1	3.5	NA	NA	
Pyrene	ng/L	total	36	1	3%	1	1	0.78	1.6	NA	NA	
Total HPAHs, 0 DL	ng/L	total	36	7	19%	0.33	16.3	0.78	2	NA	NA	
Total HPAHs, 1/2 DL	ng/L	total	36	7	19%	3.04	18.2	0.78	2	NA	NA	
Total LPAHs, 0 DL	ng/L	total	36	9	25%	0.4	28.1	1.6	77	NA	NA	
Total LPAHs, 1/2 DL	ng/L	total	36	9	25%	9.55	30.3	1.6	77	NA	NA	
Total PAHs, 0 DL	ng/L	total	36	12	33%	0.33	28.5	1.6	77	NA	NA	
Total PAHs, 1/2 DL	ng/L	total	36	12	33%	12.8	35.6	1.6	77	NA	NA	
PCBs												
Total PCB congeners, 0 DL	pg/L	total	36	32	89%	0.057	116	1.16	10.6	30.3	30.3	
Total PCB congeners, 1/2 DL	pg/L	total	36	32	89%	17.6	169	1.16	10.6	69.2	69.2	

Table A-2c. Summary Statistics for Undisturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs												
PBDE 17	pg/L	total	23	9	39%	0.763	2.56	0.574	2.8	NA	NA	
PBDE 17 and 25	pg/L	total	12	1	8%	49	49	6.654	45.99	NA	NA	
PBDE 28 and 33	pg/L	total	36	0	0%	NA	NA	3.09	27.95	NA	NA	
PBDE 47	pg/L	total	36	1	3%	313	313	7.79	442	NA	NA	
PBDE 49	pg/L	total	35	8	23%	0.957	6.64	0.402	55.62	NA	NA	
PBDE 66	pg/L	total	33	10	30%	0.567	145	0.384	96.7	NA	NA	
PBDE 71	pg/L	total	33	0	0%	NA	NA	0.349	63.18	NA	NA	
PBDE 85	pg/L	total	34	5	15%	0.484	3.17	0.59	79.03	NA	NA	
PBDE 99	pg/L	total	36	0	0%	NA	NA	4.94	390	NA	NA	
PBDE 100	pg/L	total	36	3	8%	1.41	16.9	1.63	87.5	NA	NA	
PBDE 128	pg/L	total	33	0	0%	NA	NA	1.81	333.1	NA	NA	
PBDE 138	pg/L	total	21	0	0%	NA	NA	1.03	2.51	NA	NA	
PBDE 138 and 166	pg/L	total	12	0	0%	NA	NA	31.6	228.4	NA	NA	
PBDE 153	pg/L	total	36	0	0%	NA	NA	1.22	112.7	NA	NA	
PBDE 154	pg/L	total	35	1	3%	0.936	0.936	0.304	54.6	NA	NA	
PBDE 183	pg/L	total	12	0	0%	NA	NA	12.45	130.9	NA	NA	
PBDE 183 and 176	pg/L	total	24	3	13%	2.08	2.48	1.47	4.87	NA	NA	
PBDE 184	pg/L	total	33	0	0%	NA	NA	0.736	101.8	NA	NA	
PBDE 190	pg/L	total	11	0	0%	NA	NA	33.67	312.8	NA	NA	
PBDE 190 and 171	pg/L	total	21	0	0%	NA	NA	1.45	3.27	NA	NA	
PBDE 191	pg/L	total	33	0	0%	NA	NA	1.27	233.2	NA	NA	
PBDE 200 and 203	pg/L	total	21	0	0%	NA	NA	3.79	7.95	NA	NA	
PBDE 203	pg/L	total	12	0	0%	NA	NA	20.41	196	NA	NA	
PBDE 206	pg/L	total	33	1	3%	94.4	94.4	8.48	689.1	NA	NA	
PBDE 209	pg/L	total	33	2	6%	4100	4630	28.68	763	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	14	5	36%	8.03	8.53	2.6	4	NA	NA	
Aluminum	µg/L	total	14	14	100%	21.3	742	NA	NA	335	335	
Antimony	µg/L	dissolved	14	14	100%	0.104	0.303	NA	NA	NA	NA	
Antimony	µg/L	total	14	14	100%	0.112	2.87	NA	NA	1.5	1.5	
Arsenic	µg/L	dissolved	14	11	79%	0.267	0.7	0.5	0.6	NA	NA	
Arsenic	µg/L	total	14	8	57%	0.367	1.2	0.4	0.9	0.753	0.753	
Inorganic arsenic	µg/L	dissolved	14	14	100%	0.171	0.529	NA	NA	NA	NA	
Inorganic arsenic	µg/L	total	14	14	100%	0.227	1.09	NA	NA	NA	NA	
Barium	µg/L	dissolved	14	14	100%	23.2	43.1	NA	NA	NA	NA	
Barium	µg/L	total	14	14	100%	26.3	70	NA	NA	51.2	51.2	
Beryllium	µg/L	dissolved	14	0	0%	NA	NA	0.003	0.006	NA	NA	
Beryllium	µg/L	total	14	8	57%	0.007	0.0437	0.003	0.006	0.0215	0.0215	
Boron	µg/L	dissolved	3	0	0%	NA	NA	2	7.7	NA	NA	
Boron	µg/L	total	2	0	0%	NA	NA	5.9	8.6	NA	NA	
Cadmium	µg/L	dissolved	14	11	79%	0.0105	0.0273	0.014	0.018	NA	NA	
Cadmium	µg/L	total	14	13	93%	0.0173	0.519	0.026	0.026	0.184	0.184	
Calcium	µg/L	dissolved	14	14	100%	17500	20500	NA	NA	NA	NA	
Calcium	µg/L	total	14	14	100%	17800	22400	NA	NA	NA	NA	
Chromium	µg/L	dissolved	14	1	7%	0.1	0.1	0.04	0.14	NA	NA	
Chromium	µg/L	total	14	8	57%	0.35	1.87	0.1	0.21	0.89	0.89	
Cobalt	µg/L	dissolved	14	6	43%	0.03	0.19	0.048	0.108	NA	NA	
Cobalt	µg/L	total	14	14	100%	0.056	0.862	NA	NA	0.404	0.404	
Copper	µg/L	dissolved	14	10	71%	0.45	0.68	0.47	0.64	NA	NA	
Copper	µg/L	total	14	14	100%	0.773	30.9	NA	NA	16.6	16.6	
Gold	µg/L	dissolved	2	0	0%	NA	NA	0.03	0.05	NA	NA	
Gold	µg/L	total	2	0	0%	NA	NA	0.09	0.1	NA	NA	
Iron	µg/L	dissolved	14	4	29%	3.5	6.3	3	39.8	NA	NA	
Iron	µg/L	total	14	14	100%	47.5	2640	NA	NA	1490	1490	
Lead	µg/L	dissolved	14	4	29%	0.0227	0.329	0.016	0.044	NA	NA	
Lead	µg/L	total	14	14	100%	0.353	30.1	NA	NA	12.4	12.4	
Magnesium	µg/L	dissolved	14	14	100%	4150	4880	NA	NA	NA	NA	
Magnesium	µg/L	total	14	14	100%	4170	5790	NA	NA	NA	NA	
Manganese	µg/L	dissolved	14	11	79%	0.598	33.1	0.499	0.506	NA	NA	
Manganese	µg/L	total	14	14	100%	3.64	69.6	NA	NA	29.3	29.3	
Mercury	ng/L	dissolved	14	5	36%	0.393	0.633	0.19	0.55	NA	NA	
Mercury	ng/L	total	14	11	79%	1.15	115	0.28	0.94	94.5	94.5	
Molybdenum	µg/L	dissolved	14	14	100%	0.444	0.634	NA	NA	NA	NA	
Molybdenum	µg/L	total	14	14	100%	0.473	0.868	NA	NA	0.641	0.641	
Nickel	µg/L	dissolved	14	12	86%	0.347	0.577	0.17	0.19	NA	NA	
Nickel	µg/L	total	14	14	100%	0.35	1.97	NA	NA	1.01	1.01	
Potassium	µg/L	dissolved	14	14	100%	547	756	NA	NA	NA	NA	
Potassium	µg/L	total	14	14	100%	584	851	NA	NA	NA	NA	
Selenium	µg/L	dissolved	14	7	50%	0.3	0.5	0.3	0.4	NA	NA	
Selenium	µg/L	total	14	6	43%	0.3	0.5	0.3	0.4	0.386	0.386	
Silicon	µg/L	dissolved	3	3	100%	1410	1980	NA	NA	NA	NA	
Silicon	µg/L	total	2	2	100%	1450	1970	NA	NA	NA	NA	
Silver	µg/L	dissolved	14	0	0%	NA	NA	0.004	0.004	NA	NA	
Silver	µg/L	total	14	5	36%	0.0095	0.0857	0.004	0.026	NC	0.0857	M
Sodium	µg/L	dissolved	14	14	100%	1830	2300	NA	NA	NA	NA	
Sodium	µg/L	total	14	14	100%	1760	2310	NA	NA	NA	NA	
Thallium	µg/L	dissolved	14	2	14%	0.0167	0.0173	0.005	0.02	NA	NA	
Thallium	µg/L	total	14	4	29%	0.0203	0.061	0.005	0.048	NC	0.061	M

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Tin	µg/L	dissolved	2	0	0%	NA	NA	0.02	0.02	NA	NA	
Tin	µg/L	total	2	1	50%	0.06	0.06	0.02	0.02	NA	NA	
Uranium	µg/L	dissolved	14	14	100%	0.473	0.573	NA	NA	NA	NA	
Uranium	µg/L	total	14	14	100%	0.499	0.687	NA	NA	0.588	0.588	
Vanadium	µg/L	dissolved	14	9	64%	0.15	0.225	0.08	0.22	NA	NA	
Vanadium	µg/L	total	14	11	79%	0.217	2.22	0.23	0.32	0.907	0.907	
Zinc	µg/L	dissolved	14	6	43%	0.85	3.6	0.7	1.9	NA	NA	
Zinc	µg/L	total	14	13	93%	2.2	177	1.3	1.3	108	108	
Other Metals/Metalloids												
Bismuth	µg/L	dissolved	2	0	0%	NA	NA	0.005	0.005	NA	NA	
Bismuth	µg/L	total	2	0	0%	NA	NA	0.005	0.005	NA	NA	
Cerium	µg/L	dissolved	2	0	0%	NA	NA	0.009	0.009	NA	NA	
Cerium	µg/L	total	2	2	100%	0.039	0.119	NA	NA	NA	NA	
Cesium	µg/L	dissolved	2	2	100%	0.01	0.02	NA	NA	NA	NA	
Cesium	µg/L	total	2	2	100%	0.02	0.03	NA	NA	NA	NA	
Dysprosium	µg/L	dissolved	2	0	0%	NA	NA	0.007	0.007	NA	NA	
Dysprosium	µg/L	total	2	1	50%	0.014	0.014	0.007	0.007	NA	NA	
Erbium	µg/L	dissolved	2	0	0%	NA	NA	0.01	0.01	NA	NA	
Erbium	µg/L	total	2	0	0%	NA	NA	0.01	0.01	NA	NA	
Europium	µg/L	dissolved	2	1	50%	0.008	0.008	0.006	0.006	NA	NA	
Europium	µg/L	total	2	2	100%	0.009	0.015	NA	NA	NA	NA	
Gadolinium	µg/L	dissolved	2	0	0%	NA	NA	0.01	0.01	NA	NA	
Gadolinium	µg/L	total	2	1	50%	0.01	0.01	0.01	0.01	NA	NA	
Gallium	µg/L	dissolved	2	0	0%	NA	NA	0.02	0.02	NA	NA	
Gallium	µg/L	total	2	0	0%	NA	NA	0.02	0.02	NA	NA	
Germanium	µg/L	dissolved	2	0	0%	NA	NA	0.03	0.04	NA	NA	
Germanium	µg/L	total	2	0	0%	NA	NA	0.06	0.18	NA	NA	
Holmium	µg/L	dissolved	2	0	0%	NA	NA	0.009	0.009	NA	NA	
Holmium	µg/L	total	2	0	0%	NA	NA	0.009	0.009	NA	NA	
Indium	µg/L	dissolved	2	0	0%	NA	NA	0.006	0.006	NA	NA	
Indium	µg/L	total	2	1	50%	0.007	0.007	0.006	0.006	NA	NA	
Lanthanum	µg/L	dissolved	2	0	0%	NA	NA	0.006	0.006	NA	NA	
Lanthanum	µg/L	total	2	2	100%	0.026	0.068	NA	NA	NA	NA	
Lithium	µg/L	dissolved	3	1	33%	3.2	3.2	2	2.4	NA	NA	
Lithium	µg/L	total	2	0	0%	NA	NA	2	2.7	NA	NA	
Lutetium	µg/L	dissolved	2	0	0%	NA	NA	0.006	0.006	NA	NA	
Lutetium	µg/L	total	2	0	0%	NA	NA	0.006	0.006	NA	NA	
Neodymium	µg/L	dissolved	2	0	0%	NA	NA	0.02	0.02	NA	NA	
Neodymium	µg/L	total	2	2	100%	0.02	0.06	NA	NA	NA	NA	
Niobium	µg/L	dissolved	2	0	0%	NA	NA	0.01	0.04	NA	NA	
Niobium	µg/L	total	2	0	0%	NA	NA	0.03	0.04	NA	NA	
Praseodymium	µg/L	dissolved	2	0	0%	NA	NA	0.006	0.006	NA	NA	
Praseodymium	µg/L	total	2	1	50%	0.02	0.02	0.006	0.006	NA	NA	
Rubidium	µg/L	dissolved	2	2	100%	0.856	0.954	NA	NA	NA	NA	
Rubidium	µg/L	total	2	2	100%	0.897	1.03	NA	NA	NA	NA	
Samarium	µg/L	dissolved	2	0	0%	NA	NA	0.008	0.008	NA	NA	
Samarium	µg/L	total	2	1	50%	0.015	0.015	0.008	0.008	NA	NA	
Scandium	µg/L	dissolved	2	2	100%	0.175	0.336	NA	NA	NA	NA	
Scandium	µg/L	total	2	2	100%	0.21	0.381	NA	NA	NA	NA	
Strontium	µg/L	dissolved	3	3	100%	78.6	110	NA	NA	NA	NA	
Strontium	µg/L	total	2	2	100%	78.9	93.6	NA	NA	NA	NA	
Tantalum	µg/L	dissolved	2	0	0%	NA	NA	0.007	0.008	NA	NA	
Tantalum	µg/L	total	2	0	0%	NA	NA	0.007	0.008	NA	NA	

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Tellurium	µg/L	dissolved	2	0	0%	NA	NA	0.05	0.05	NA	NA	
Tellurium	µg/L	total	2	0	0%	NA	NA	0.05	0.09	NA	NA	
Terbium	µg/L	dissolved	2	0	0%	NA	NA	0.007	0.007	NA	NA	
Terbium	µg/L	total	2	0	0%	NA	NA	0.007	0.007	NA	NA	
Thorium	µg/L	dissolved	2	0	0%	NA	NA	0.006	0.009	NA	NA	
Thorium	µg/L	total	2	0	0%	NA	NA	0.006	0.056	NA	NA	
Thulium	µg/L	dissolved	2	0	0%	NA	NA	0.008	0.008	NA	NA	
Thulium	µg/L	total	2	0	0%	NA	NA	0.008	0.008	NA	NA	
Titanium	µg/L	dissolved	3	0	0%	NA	NA	0.4	0.4	NA	NA	
Titanium	µg/L	total	2	0	0%	NA	NA	1.5	1.7	NA	NA	
Tungsten	µg/L	dissolved	2	0	0%	NA	NA	0.07	0.1	NA	NA	
Tungsten	µg/L	total	2	0	0%	NA	NA	0.13	0.2	NA	NA	
Ytterbium	µg/L	dissolved	2	0	0%	NA	NA	0.008	0.008	NA	NA	
Ytterbium	µg/L	total	2	0	0%	NA	NA	0.008	0.008	NA	NA	
Yttrium	µg/L	dissolved	2	1	50%	0.01	0.01	0.01	0.01	NA	NA	
Yttrium	µg/L	total	2	2	100%	0.03	0.05	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/L	total	9	0	0%	NA	NA	0.037	0.037	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.016	0.016	NA	NA	
1,2-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.022	0.022	NA	NA	
1,3-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.021	0.021	NA	NA	
1,4-Dichlorobenzene	µg/L	total	9	0	0%	NA	NA	0.029	0.029	NA	NA	
2,2'-oxybis(1-Chloropropane)	µg/L	total	9	0	0%	NA	NA	0.026	0.026	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	8	0	0%	NA	NA	0.031	0.031	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	8	0	0%	NA	NA	0.058	0.058	NA	NA	
2,4-Dichlorophenol	µg/L	total	8	0	0%	NA	NA	0.047	0.047	NA	NA	
2,4-Dimethylphenol	µg/L	total	8	0	0%	NA	NA	2.2	2.2	NA	NA	
2,4-Dinitrophenol	µg/L	total	8	0	0%	NA	NA	0.17	0.17	NA	NA	
2,4-Dinitrotoluene	µg/L	total	9	0	0%	NA	NA	0.018	0.018	NA	NA	
2,6-Dinitrotoluene	µg/L	total	9	0	0%	NA	NA	0.033	0.033	NA	NA	
2-Chloronaphthalene	µg/L	total	9	0	0%	NA	NA	0.041	0.041	NA	NA	
2-Chlorophenol	µg/L	total	8	0	0%	NA	NA	0.054	0.054	NA	NA	
2-Methylphenol	µg/L	total	8	0	0%	NA	NA	0.11	0.11	NA	NA	
2-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.024	0.024	NA	NA	
2-Nitrophenol	µg/L	total	9	0	0%	NA	NA	0.063	0.063	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	8	0	0%	NA	NA	0.43	0.43	NA	NA	
3-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.029	0.029	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	8	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	9	0	0%	NA	NA	0.026	0.026	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	8	0	0%	NA	NA	0.037	0.037	NA	NA	
4-Chloroaniline	µg/L	total	9	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Chlorophenyl-phenyl ether	µg/L	total	9	0	0%	NA	NA	0.027	0.027	NA	NA	
4-Methylphenol	µg/L	total	8	0	0%	NA	NA	0.12	0.12	NA	NA	
4-Nitroaniline	µg/L	total	9	0	0%	NA	NA	0.019	0.019	NA	NA	
4-Nitrophenol	µg/L	total	8	0	0%	NA	NA	0.28	0.28	NA	NA	
Acetophenone	µg/L	total	9	0	0%	NA	NA	0.16	0.16	NA	NA	
Benzaldehyde	µg/L	total	9	0	0%	NA	NA	0.046	0.086	NA	NA	
Benzoic acid	µg/L	total	9	2	22%	1.63	1.8	1.1	1.6	NA	NA	
Benzyl alcohol	µg/L	total	8	1	13%	0.075	0.075	0.073	0.073	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	9	0	0%	NA	NA	0.018	0.018	NC	0.018	U
bis(2-Chloroethoxy)methane	µg/L	total	9	0	0%	NA	NA	0.024	0.024	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	9	0	0%	NA	NA	0.035	0.035	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	9	1	11%	0.72	0.72	0.13	6.1	NC	0.72	M

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
Caprolactam	µg/L	total	9	0	0%	NA	NA	0.22	0.22	NA	NA	
Carbazole	ng/L	total	9	0	0%	NA	NA	0.39	1.5	NA	NA	
Dibenzofuran	µg/L	total	9	0	0%	NA	NA	0.018	0.018	NA	NA	
Diethyl phthalate	µg/L	total	9	0	0%	NA	NA	0.012	0.023	NA	NA	
Dimethyl phthalate	µg/L	total	9	0	0%	NA	NA	0.021	0.021	NA	NA	
Di-n-butyl phthalate	µg/L	total	9	0	0%	NA	NA	0.023	0.077	NC	0.077	U
Di-n-octylphthalate	µg/L	total	9	0	0%	NA	NA	0.018	0.018	NC	0.018	U
Hexachlorocyclopentadiene	µg/L	total	9	0	0%	NA	NA	0.19	0.19	NA	NA	
Hexachloroethane	µg/L	total	9	0	0%	NA	NA	0.024	0.024	NA	NA	
Isophorone	µg/L	total	9	0	0%	NA	NA	0.016	0.016	NA	NA	
Nitrobenzene	µg/L	total	9	0	0%	NA	NA	0.028	0.028	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	9	0	0%	NA	NA	0.037	0.037	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	9	0	0%	NA	NA	0.048	0.048	NA	NA	
Pentachlorophenol	µg/L	total	8	0	0%	NA	NA	0.34	0.34	NC	0.34	U
Phenol	µg/L	total	8	0	0%	NA	NA	0.063	0.063	NA	NA	
Pesticides												
2,4'-DDD	ng/L	total	9	0	0%	NA	NA	0.068	0.21	NA	NA	
2,4'-DDE	ng/L	total	9	0	0%	NA	NA	0.12	0.13	NA	NA	
2,4'-DDT	ng/L	total	9	0	0%	NA	NA	0.13	0.49	NA	NA	
4,4'-DDD	ng/L	total	9	0	0%	NA	NA	0.21	3.6	NA	NA	
4,4'-DDE	ng/L	total	9	0	0%	NA	NA	0.19	3.7	NA	NA	
4,4'-DDT	ng/L	total	9	0	0%	NA	NA	0.17	0.75	NA	NA	
Aldrin	ng/L	total	9	2	22%	0.33	0.82	0.11	0.68	NC	0.82	M
alpha-BHC	ng/L	total	9	0	0%	NA	NA	0.21	0.66	NA	NA	
alpha-Chlordane	ng/L	total	9	1	11%	2.3	2.3	0.27	1.8	NC	2.3	M
beta-BHC	ng/L	total	9	0	0%	NA	NA	0.41	0.74	NA	NA	
Chlordane	ng/L	total	9	0	0%	NA	NA	3.9	26	NA	NA	
cis-Nonachlor	ng/L	total	9	0	0%	NA	NA	0.14	0.5	NC	0.5	U
delta-BHC	ng/L	total	9	1	11%	0.16	0.16	0.14	0.5	NC	0.16	M
Dieldrin	ng/L	total	9	0	0%	NA	NA	0.37	0.39	NC	0.39	U
Endosulfan I	ng/L	total	9	0	0%	NA	NA	0.25	0.49	NA	NA	
Endosulfan II	ng/L	total	9	0	0%	NA	NA	0.35	0.74	NA	NA	
Endosulfan sulfate	ng/L	total	9	0	0%	NA	NA	0.28	0.3	NA	NA	
Endrin	ng/L	total	9	0	0%	NA	NA	0.49	0.52	NC	0.52	U
Endrin aldehyde	ng/L	total	9	0	0%	NA	NA	0.21	0.95	NC	0.95	U
Endrin ketone	ng/L	total	9	0	0%	NA	NA	0.32	0.34	NC	0.34	U
gamma-BHC	ng/L	total	9	0	0%	NA	NA	0.47	0.5	NA	NA	
gamma-Chlordane	ng/L	total	9	0	0%	NA	NA	0.31	0.49	NC	0.49	U
Heptachlor	ng/L	total	9	0	0%	NA	NA	0.18	0.55	NC	0.55	U
Heptachlor epoxide	ng/L	total	9	0	0%	NA	NA	0.21	0.49	NC	0.49	U
Hexachlorobenzene	ng/L	total	9	2	22%	0.29	0.77	0.27	0.5	NC	0.77	M
Hexachlorobutadiene	ng/L	total	9	0	0%	NA	NA	0.095	0.5	NC	0.5	U
Methoxychlor	ng/L	total	9	0	0%	NA	NA	0.28	0.87	NC	0.87	U
Oxychlordane	ng/L	total	9	1	11%	1.83	1.83	0.093	9.2	NC	1.83	M
Total chlordane, 0 DL	ng/L	total	9	2	22%	1.83	2.3	0.49	9.2	NC	2.3	M
Total chlordane, 1/2 DL	ng/L	total	9	2	22%	2.28	6.38	0.49	9.2	NC	6.38	M
Total DDD, 0 DL	ng/L	total	9	0	0%	NA	NA	0.21	3.6	NA	NA	
Total DDD, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.21	3.6	NA	NA	
Total DDE, 0 DL	ng/L	total	9	0	0%	NA	NA	0.19	3.7	NA	NA	
Total DDE, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.19	3.7	NA	NA	
Total DDT, 0 DL	ng/L	total	9	0	0%	NA	NA	0.17	0.75	NA	NA	
Total DDT, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.17	0.75	NA	NA	

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	ng/L	total	9	0	0%	NA	NA	0.21	3.7	NC	3.7	U
Total DDx, 1/2 DL	ng/L	total	9	0	0%	NA	NA	0.21	3.7	NC	3.7	U
Toxaphene	ng/L	total	9	0	0%	NA	NA	16	160	NA	NA	
trans-Nonachlor	ng/L	total	9	0	0%	NA	NA	0.11	0.49	NC	0.49	U
PAHs												
2-Methylnaphthalene	ng/L	total	9	0	0%	NA	NA	0.41	6.9	NA	NA	
Acenaphthene	ng/L	total	9	2	22%	0.45	0.61	0.36	0.37	NA	NA	
Acenaphthylene	ng/L	total	9	2	22%	0.56	0.6	0.37	0.38	NA	NA	
Anthracene	ng/L	total	9	3	33%	0.41	1.8	0.29	0.3	NA	NA	
Benzo(e)pyrene	ng/L	total	9	2	22%	0.55	0.57	0.49	1.3	NA	NA	
Benzo(a)anthracene	ng/L	total	9	0	0%	NA	NA	0.34	1.3	NA	NA	
Benzo(a)pyrene	ng/L	total	9	0	0%	NA	NA	0.41	1.7	NC	1.7	U
Benzo(b)fluoranthene	ng/L	total	9	1	11%	0.55	0.55	0.25	2	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	9	2	22%	0.39	0.62	0.36	1.1	NA	NA	
Benzo(k)fluoranthene	ng/L	total	9	0	0%	NA	NA	0.41	0.58	NA	NA	
Chrysene	ng/L	total	9	1	11%	2	2	0.65	0.67	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	9	0	0%	NA	NA	0.45	0.46	NA	NA	
Dibenzothiophene	ng/L	total	9	0	0%	NA	NA	0.52	0.54	NA	NA	
Fluoranthene	ng/L	total	9	0	0%	NA	NA	0.47	2.6	NA	NA	
Fluorene	ng/L	total	9	2	22%	0.86	0.88	0.42	0.79	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	9	1	11%	0.67	0.67	0.44	0.94	NA	NA	
Naphthalene	ng/L	total	9	1	11%	52	52	12	36	NA	NA	
Perylene	ng/L	total	9	0	0%	NA	NA	0.36	0.37	NA	NA	
Phenanthrene	ng/L	total	9	0	0%	NA	NA	1.4	6.4	NA	NA	
Pyrene	ng/L	total	9	0	0%	NA	NA	0.78	1.9	NA	NA	
Total HPAHs, 0 DL	ng/L	total	9	3	33%	0.94	2	0.78	2.4	NC	2	M
Total HPAHs, 1/2 DL	ng/L	total	9	3	33%	4.26	8.29	0.78	2.4	NC	8.29	M
Total LPAHs, 0 DL	ng/L	total	9	5	56%	0.41	54.7	12	27	NC	54.7	M
Total LPAHs, 1/2 DL	ng/L	total	9	5	56%	12.1	57.6	12	27	NC	57.6	M
Total PAHs, 0 DL	ng/L	total	9	6	67%	0.41	54.7	12	20	179	54.7	M
Total PAHs, 1/2 DL	ng/L	total	9	6	67%	16.4	61.1	12	20	33.3	33.3	
PCBs												
Total PCB congeners, 0 DL	pg/L	total	9	9	100%	0.902	582	NA	NA	474	474	
Total PCB congeners, 1/2 DL	pg/L	total	9	9	100%	29.5	633	NA	NA	335	335	
PBDEs												
PBDE 17	pg/L	total	6	0	0%	NA	NA	0.569	1.11	NA	NA	
PBDE 17 and 25	pg/L	total	3	0	0%	NA	NA	78.76	208.5	NA	NA	
PBDE 28 and 33	pg/L	total	9	0	0%	NA	NA	3.08	123.5	NA	NA	
PBDE 47	pg/L	total	9	0	0%	NA	NA	11.4	737	NA	NA	
PBDE 49	pg/L	total	9	3	33%	0.594	1.09	0.622	161.5	NA	NA	
PBDE 66	pg/L	total	9	2	22%	0.571	0.765	0.344	329.7	NA	NA	
PBDE 71	pg/L	total	9	0	0%	NA	NA	0.316	230.5	NA	NA	
PBDE 85	pg/L	total	9	1	11%	0.386	0.386	0.453	224.9	NA	NA	
PBDE 99	pg/L	total	9	0	0%	NA	NA	9.29	143.7	NA	NA	
PBDE 100	pg/L	total	9	0	0%	NA	NA	1.99	78.83	NA	NA	
PBDE 128	pg/L	total	9	0	0%	NA	NA	1.51	1860	NA	NA	
PBDE 138	pg/L	total	6	1	17%	2.69	2.69	0.802	2.03	NA	NA	
PBDE 138 and 166	pg/L	total	3	0	0%	NA	NA	417	926.6	NA	NA	
PBDE 153	pg/L	total	9	1	11%	4.31	4.31	1.8	355.4	NA	NA	
PBDE 154	pg/L	total	9	2	22%	0.698	2.39	1.09	223.1	NA	NA	
PBDE 183	pg/L	total	3	1	33%	911	911	140.6	253.3	NA	NA	
PBDE 183 and 176	pg/L	total	6	0	0%	NA	NA	1.32	2.75	NA	NA	
PBDE 184	pg/L	total	9	0	0%	NA	NA	0.584	221.2	NA	NA	

Table A-3a. Summary Statistics for Disturbed Surface Water in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 190	pg/L	total	3	0	0%	NA	NA	465	838	NA	NA	
PBDE 190 and 171	pg/L	total	6	1	17%	4.26	4.26	1.23	2.9	NA	NA	
PBDE 191	pg/L	total	9	0	0%	NA	NA	1.08	570.5	NA	NA	
PBDE 200 and 203	pg/L	total	6	0	0%	NA	NA	2.18	5.56	NA	NA	
PBDE 203	pg/L	total	3	0	0%	NA	NA	355.8	568.3	NA	NA	
PBDE 206	pg/L	total	9	0	0%	NA	NA	5.48	4420	NA	NA	
PBDE 209	pg/L	total	9	3	33%	66.6	259	116	5090	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-3b. Summary Statistics for Disturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	6	2	33%	8.13	11.3	2.2	3.5	NA	NA	
Aluminum	µg/L	total	6	6	100%	55.2	819	NA	NA	1010	819	M
Antimony	µg/L	dissolved	6	4	67%	0.177	0.22	0.097	0.108	NA	NA	
Antimony	µg/L	total	6	6	100%	0.103	0.228	NA	NA	0.219	0.219	
Arsenic	µg/L	dissolved	6	2	33%	0.4	0.433	0.3	0.5	NA	NA	
Arsenic	µg/L	total	6	3	50%	0.467	1.1	0.5	0.5	NC	1.1	M
Inorganic arsenic	µg/L	dissolved	6	5	83%	0.338	0.551	0.174	0.174	NA	NA	
Inorganic arsenic	µg/L	total	6	5	83%	0.331	0.594	0.29	0.29	NA	NA	
Barium	µg/L	dissolved	6	6	100%	29.7	39.3	NA	NA	NA	NA	
Barium	µg/L	total	6	6	100%	31.8	44.3	NA	NA	42.2	42.2	
Beryllium	µg/L	dissolved	6	0	0%	NA	NA	0.006	0.006	NA	NA	
Beryllium	µg/L	total	6	4	67%	0.008	0.0413	0.006	0.006	NC	0.0413	M
Cadmium	µg/L	dissolved	6	4	67%	0.0085	0.0133	0.011	0.024	NA	NA	
Cadmium	µg/L	total	6	4	67%	0.0183	0.0427	0.036	0.047	NC	0.0427	M
Calcium	µg/L	dissolved	6	6	100%	17000	19700	NA	NA	NA	NA	
Calcium	µg/L	total	6	6	100%	17300	20800	NA	NA	NA	NA	
Chromium	µg/L	dissolved	6	0	0%	NA	NA	0.02	0.12	NA	NA	
Chromium	µg/L	total	6	3	50%	0.19	0.89	0.15	0.71	NC	0.89	M
Cobalt	µg/L	dissolved	6	3	50%	0.0333	0.104	0.054	0.095	NA	NA	
Cobalt	µg/L	total	6	5	83%	0.0983	1.16	0.075	0.075	NC	1.16	M
Copper	µg/L	dissolved	6	2	33%	0.663	0.703	0.51	0.54	NA	NA	
Copper	µg/L	total	6	5	83%	0.833	3.02	0.66	0.66	NC	3.02	M
Iron	µg/L	dissolved	6	0	0%	NA	NA	3	6.5	NA	NA	
Iron	µg/L	total	6	5	83%	139	1630	57.2	57.2	NC	1630	M
Lead	µg/L	dissolved	6	2	33%	0.0163	0.0187	0.013	0.031	NA	NA	
Lead	µg/L	total	6	5	83%	0.293	3.36	0.278	0.278	NC	3.36	M
Magnesium	µg/L	dissolved	6	6	100%	4250	4840	NA	NA	NA	NA	
Magnesium	µg/L	total	6	6	100%	4410	5490	NA	NA	NA	NA	
Manganese	µg/L	dissolved	6	4	67%	0.991	13.9	0.191	0.401	NA	NA	
Manganese	µg/L	total	6	6	100%	5.69	61	NA	NA	66.9	61	M
Mercury	ng/L	dissolved	6	2	33%	0.43	0.457	0.3	0.52	NA	NA	
Mercury	ng/L	total	6	6	100%	0.87	6.49	NA	NA	6.43	6.43	
Molybdenum	µg/L	dissolved	6	5	83%	0.492	0.649	0.58	0.58	NA	NA	
Molybdenum	µg/L	total	6	4	67%	0.463	0.569	0.436	0.609	NC	0.569	M
Nickel	µg/L	dissolved	6	2	33%	0.507	0.527	0.21	0.52	NA	NA	
Nickel	µg/L	total	6	5	83%	0.375	2.47	0.51	0.51	NC	2.47	M
Potassium	µg/L	dissolved	6	6	100%	618	748	NA	NA	NA	NA	
Potassium	µg/L	total	6	6	100%	690	1020	NA	NA	NA	NA	
Selenium	µg/L	dissolved	6	2	33%	0.3	0.4	0.3	0.3	NA	NA	
Selenium	µg/L	total	6	3	50%	0.3	0.4	0.3	0.3	NC	0.4	M
Silver	µg/L	dissolved	6	0	0%	NA	NA	0.004	0.004	NA	NA	
Silver	µg/L	total	6	0	0%	NA	NA	0.004	0.007	NC	0.007	U
Sodium	µg/L	dissolved	6	6	100%	1890	2370	NA	NA	NA	NA	
Sodium	µg/L	total	6	6	100%	1930	2470	NA	NA	NA	NA	
Thallium	µg/L	dissolved	6	1	17%	0.0113	0.0113	0.005	0.026	NA	NA	
Thallium	µg/L	total	6	2	33%	0.0127	0.037	0.007	0.022	NC	0.037	M
Uranium	µg/L	dissolved	6	6	100%	0.487	0.585	NA	NA	NA	NA	
Uranium	µg/L	total	6	6	100%	0.478	0.619	NA	NA	0.595	0.595	

Table A-3b. Summary Statistics for Disturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Vanadium	µg/L	dissolved	6	6	100%	0.15	0.215	NA	NA	NA	NA	
Vanadium	µg/L	total	6	6	100%	0.3	2.02	NA	NA	1.25	1.25	
Zinc	µg/L	dissolved	6	0	0%	NA	NA	0.5	1.5	NA	NA	
Zinc	µg/L	total	6	4	67%	2.77	15.9	1.4	2	NC	15.9	M
SVOCs												
1,1'-Biphenyl	µg/L	total	3	0	0%	NA	NA	0.037	0.037	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	3	0	0%	NA	NA	0.016	0.016	NA	NA	
1,2-Dichlorobenzene	µg/L	total	3	0	0%	NA	NA	0.022	0.022	NA	NA	
1,3-Dichlorobenzene	µg/L	total	3	0	0%	NA	NA	0.021	0.021	NA	NA	
1,4-Dichlorobenzene	µg/L	total	3	0	0%	NA	NA	0.029	0.029	NA	NA	
2,2'-oxybis(1-Chloropropane)	µg/L	total	3	0	0%	NA	NA	0.026	0.026	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	3	0	0%	NA	NA	0.031	0.031	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	3	0	0%	NA	NA	0.058	0.058	NA	NA	
2,4-Dichlorophenol	µg/L	total	3	0	0%	NA	NA	0.047	0.047	NA	NA	
2,4-Dimethylphenol	µg/L	total	3	0	0%	NA	NA	2.2	2.2	NA	NA	
2,4-Dinitrophenol	µg/L	total	3	0	0%	NA	NA	0.17	0.17	NA	NA	
2,4-Dinitrotoluene	µg/L	total	3	0	0%	NA	NA	0.018	0.018	NA	NA	
2,6-Dinitrotoluene	µg/L	total	3	0	0%	NA	NA	0.033	0.033	NA	NA	
2-Chloronaphthalene	µg/L	total	3	0	0%	NA	NA	0.041	0.041	NA	NA	
2-Chlorophenol	µg/L	total	3	0	0%	NA	NA	0.054	0.054	NA	NA	
2-Methylphenol	µg/L	total	3	0	0%	NA	NA	0.11	0.11	NA	NA	
2-Nitroaniline	µg/L	total	3	0	0%	NA	NA	0.024	0.024	NA	NA	
2-Nitrophenol	µg/L	total	3	0	0%	NA	NA	0.063	0.063	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	2	0	0%	NA	NA	0.43	0.43	NA	NA	
3-Nitroaniline	µg/L	total	3	0	0%	NA	NA	0.029	0.029	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	3	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	3	0	0%	NA	NA	0.026	0.026	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	3	0	0%	NA	NA	0.037	0.037	NA	NA	
4-Chloroaniline	µg/L	total	3	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Chlorophenyl-phenyl ether	µg/L	total	3	0	0%	NA	NA	0.027	0.027	NA	NA	
4-Methylphenol	µg/L	total	3	0	0%	NA	NA	0.12	0.12	NA	NA	
4-Nitroaniline	µg/L	total	3	0	0%	NA	NA	0.019	0.019	NA	NA	
4-Nitrophenol	µg/L	total	3	0	0%	NA	NA	0.28	0.28	NA	NA	
Acetophenone	µg/L	total	3	0	0%	NA	NA	0.16	0.16	NA	NA	
Benzaldehyde	µg/L	total	3	0	0%	NA	NA	0.046	0.046	NA	NA	
Benzoic acid	µg/L	total	3	0	0%	NA	NA	1.1	1.8	NA	NA	
Benzyl alcohol	µg/L	total	3	0	0%	NA	NA	0.073	0.073	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	3	0	0%	NA	NA	0.018	0.051	NC	0.051	U
bis(2-Chloroethoxy)methane	µg/L	total	3	0	0%	NA	NA	0.024	0.024	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	3	0	0%	NA	NA	0.035	0.035	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	3	0	0%	NA	NA	0.15	0.43	NC	0.43	U
Caprolactam	µg/L	total	3	0	0%	NA	NA	0.22	0.22	NA	NA	
Carbazole	ng/L	total	3	0	0%	NA	NA	0.39	1.3	NA	NA	
Dibenzofuran	µg/L	total	3	0	0%	NA	NA	0.018	0.018	NA	NA	
Diethyl phthalate	µg/L	total	3	0	0%	NA	NA	0.012	0.017	NA	NA	
Dimethyl phthalate	µg/L	total	3	0	0%	NA	NA	0.021	0.033	NA	NA	
Di-n-butyl phthalate	µg/L	total	3	0	0%	NA	NA	0.035	0.073	NC	0.073	U
Di-n-octylphthalate	µg/L	total	3	0	0%	NA	NA	0.018	0.018	NC	0.018	U
Hexachlorocyclopentadiene	µg/L	total	3	0	0%	NA	NA	0.19	0.19	NA	NA	
Hexachloroethane	µg/L	total	3	0	0%	NA	NA	0.024	0.024	NA	NA	

Table A-3b. Summary Statistics for Disturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
Isophorone	µg/L	total	3	0	0%	NA	NA	0.016	0.016	NA	NA	
Nitrobenzene	µg/L	total	3	0	0%	NA	NA	0.028	0.028	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	3	0	0%	NA	NA	0.037	0.037	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	3	0	0%	NA	NA	0.048	0.048	NA	NA	
Pentachlorophenol	µg/L	total	3	0	0%	NA	NA	0.34	0.34	NC	0.34	U
Phenol	µg/L	total	3	0	0%	NA	NA	0.063	0.063	NA	NA	
Pesticides												
2,4'-DDD	ng/L	total	3	0	0%	NA	NA	0.068	0.072	NA	NA	
2,4'-DDE	ng/L	total	3	0	0%	NA	NA	0.13	0.5	NA	NA	
2,4'-DDT	ng/L	total	3	0	0%	NA	NA	0.14	0.18	NA	NA	
4,4'-DDD	ng/L	total	3	0	0%	NA	NA	0.23	1.4	NA	NA	
4,4'-DDE	ng/L	total	3	0	0%	NA	NA	0.77	2.1	NA	NA	
4,4'-DDT	ng/L	total	3	0	0%	NA	NA	0.17	0.3	NA	NA	
Aldrin	ng/L	total	3	0	0%	NA	NA	0.11	0.24	NC	0.24	U
alpha-BHC	ng/L	total	3	0	0%	NA	NA	0.21	0.23	NA	NA	
alpha-Chlordane	ng/L	total	3	0	0%	NA	NA	0.27	0.57	NC	0.57	U
beta-BHC	ng/L	total	3	0	0%	NA	NA	0.41	0.44	NA	NA	
Chlordane	ng/L	total	3	0	0%	NA	NA	6.1	12	NA	NA	
cis-Nonachlor	ng/L	total	3	0	0%	NA	NA	0.14	0.15	NC	0.15	U
delta-BHC	ng/L	total	3	1	33%	0.36	0.36	0.14	0.15	NC	0.36	M
Dieldrin	ng/L	total	3	0	0%	NA	NA	0.37	0.39	NC	0.39	U
Endosulfan I	ng/L	total	3	0	0%	NA	NA	0.25	0.27	NA	NA	
Endosulfan II	ng/L	total	3	0	0%	NA	NA	0.53	0.69	NA	NA	
Endosulfan sulfate	ng/L	total	3	0	0%	NA	NA	0.28	0.3	NA	NA	
Endrin	ng/L	total	3	0	0%	NA	NA	0.49	0.52	NC	0.52	U
Endrin aldehyde	ng/L	total	3	0	0%	NA	NA	0.21	0.56	NC	0.56	U
Endrin ketone	ng/L	total	3	0	0%	NA	NA	0.32	0.34	NC	0.34	U
gamma-BHC	ng/L	total	3	0	0%	NA	NA	0.47	0.5	NA	NA	
gamma-Chlordane	ng/L	total	3	0	0%	NA	NA	0.31	0.33	NC	0.33	U
Heptachlor	ng/L	total	3	0	0%	NA	NA	0.18	0.19	NC	0.19	U
Heptachlor epoxide	ng/L	total	3	0	0%	NA	NA	0.21	0.23	NC	0.23	U
Hexachlorobenzene	ng/L	total	3	0	0%	NA	NA	0.27	0.29	NC	0.29	U
Hexachlorobutadiene	ng/L	total	3	0	0%	NA	NA	0.095	0.19	NC	0.19	U
Methoxychlor	ng/L	total	3	0	0%	NA	NA	0.28	0.3	NC	0.3	U
Oxychlordane	ng/L	total	3	0	0%	NA	NA	0.59	1.9	NC	1.9	U
Total chlordane, 0 DL	ng/L	total	3	0	0%	NA	NA	0.59	1.9	NC	1.9	U
Total chlordane, 1/2 DL	ng/L	total	3	0	0%	NA	NA	0.59	1.9	NC	1.9	U
Total DDD, 0 DL	ng/L	total	3	0	0%	NA	NA	0.23	1.4	NA	NA	
Total DDD, 1/2 DL	ng/L	total	3	0	0%	NA	NA	0.23	1.4	NA	NA	
Total DDE, 0 DL	ng/L	total	3	0	0%	NA	NA	0.77	2.1	NA	NA	
Total DDE, 1/2 DL	ng/L	total	3	0	0%	NA	NA	0.77	2.1	NA	NA	
Total DDT, 0 DL	ng/L	total	3	0	0%	NA	NA	0.18	0.3	NA	NA	
Total DDT, 1/2 DL	ng/L	total	3	0	0%	NA	NA	0.18	0.3	NA	NA	
Total DDx, 0 DL	ng/L	total	3	0	0%	NA	NA	0.77	2.1	NC	2.1	U
Total DDx, 1/2 DL	ng/L	total	3	0	0%	NA	NA	0.77	2.1	NC	2.1	U
Toxaphene	ng/L	total	3	0	0%	NA	NA	24	63	NA	NA	
trans-Nonachlor	ng/L	total	3	0	0%	NA	NA	0.12	0.13	NC	0.13	U

Table A-3b. Summary Statistics for Disturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs												
2-Methylnaphthalene	ng/L	total	3	0	0%	NA	NA	0.71	1.4	NA	NA	
Acenaphthene	ng/L	total	3	1	33%	0.38	0.38	0.36	0.36	NA	NA	
Acenaphthylene	ng/L	total	3	0	0%	NA	NA	0.37	0.37	NA	NA	
Anthracene	ng/L	total	3	0	0%	NA	NA	0.29	0.29	NA	NA	
Benzo(e)pyrene	ng/L	total	3	0	0%	NA	NA	0.49	0.49	NA	NA	
Benzo(a)anthracene	ng/L	total	3	0	0%	NA	NA	0.34	0.6	NA	NA	
Benzo(a)pyrene	ng/L	total	3	0	0%	NA	NA	0.41	0.63	NC	0.63	U
Benzo(b)fluoranthene	ng/L	total	3	0	0%	NA	NA	0.25	0.25	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	3	0	0%	NA	NA	0.36	0.36	NA	NA	
Benzo(k)fluoranthene	ng/L	total	3	0	0%	NA	NA	0.41	0.41	NA	NA	
Chrysene	ng/L	total	3	0	0%	NA	NA	0.65	0.65	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	3	0	0%	NA	NA	0.45	0.45	NA	NA	
Dibenzothiophene	ng/L	total	3	0	0%	NA	NA	0.52	0.52	NA	NA	
Fluoranthene	ng/L	total	3	0	0%	NA	NA	1.1	1.9	NA	NA	
Fluorene	ng/L	total	3	0	0%	NA	NA	0.42	0.87	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	3	0	0%	NA	NA	0.44	0.44	NA	NA	
Naphthalene	ng/L	total	3	0	0%	NA	NA	19	22	NA	NA	
Perylene	ng/L	total	3	0	0%	NA	NA	0.36	0.36	NA	NA	
Phenanthrene	ng/L	total	3	0	0%	NA	NA	1.6	2.4	NA	NA	
Pyrene	ng/L	total	3	0	0%	NA	NA	0.78	1.1	NA	NA	
Total HPAHs, 0 DL	ng/L	total	3	0	0%	NA	NA	1.1	1.9	NC	1.9	U
Total HPAHs, 1/2 DL	ng/L	total	3	0	0%	NA	NA	1.1	1.9	NC	1.9	U
Total LPAHs, 0 DL	ng/L	total	3	1	33%	0.38	0.38	19	20	NC	0.38	M
Total LPAHs, 1/2 DL	ng/L	total	3	1	33%	13.6	13.6	19	20	NC	13.6	M
Total PAHs, 0 DL	ng/L	total	3	1	33%	0.38	0.38	19	20	NC	0.38	M
Total PAHs, 1/2 DL	ng/L	total	3	1	33%	16.6	16.6	19	20	NC	16.6	M
PCBs												
Total PCB congeners, 0 DL	pg/L	total	3	2	67%	1.24	6.08	8.53	8.53	NC	6.08	M
Total PCB congeners, 1/2 DL	pg/L	total	3	2	67%	26.5	58	8.53	8.53	NC	58	M
PBDEs												
PBDE 17	pg/L	total	2	0	0%	NA	NA	0.75	1.79	NA	NA	
PBDE 17 and 25	pg/L	total	1	0	0%	NA	NA	19	19	NA	NA	
PBDE 28 and 33	pg/L	total	3	0	0%	NA	NA	3.26	11.59	NA	NA	
PBDE 47	pg/L	total	3	0	0%	NA	NA	14.7	332	NA	NA	
PBDE 49	pg/L	total	3	2	67%	0.531	0.702	36.16	36.16	NA	NA	
PBDE 66	pg/L	total	3	0	0%	NA	NA	0.531	63.77	NA	NA	
PBDE 71	pg/L	total	3	0	0%	NA	NA	0.505	49.13	NA	NA	
PBDE 85	pg/L	total	3	0	0%	NA	NA	0.686	64.21	NA	NA	
PBDE 99	pg/L	total	3	0	0%	NA	NA	12.6	424	NA	NA	
PBDE 100	pg/L	total	3	0	0%	NA	NA	2.48	88.4	NA	NA	
PBDE 128	pg/L	total	3	0	0%	NA	NA	2.31	187	NA	NA	
PBDE 138	pg/L	total	2	0	0%	NA	NA	1.28	2.55	NA	NA	
PBDE 138 and 166	pg/L	total	1	0	0%	NA	NA	178.2	178.2	NA	NA	
PBDE 153	pg/L	total	3	1	33%	6.14	6.14	1.75	54.54	NA	NA	
PBDE 154	pg/L	total	3	0	0%	NA	NA	1.16	51.9	NA	NA	
PBDE 183	pg/L	total	1	0	0%	NA	NA	47.15	47.15	NA	NA	
PBDE 183 and 176	pg/L	total	2	0	0%	NA	NA	2.07	2.47	NA	NA	
PBDE 184	pg/L	total	3	0	0%	NA	NA	1.11	36.11	NA	NA	
PBDE 190 and 171	pg/L	total	2	0	0%	NA	NA	2.05	3.47	NA	NA	
PBDE 191	pg/L	total	3	0	0%	NA	NA	1.8	90.2	NA	NA	

Table A-3b. Summary Statistics for Disturbed Surface Water in the Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 200 and 203	pg/L	total	2	0	0%	NA	NA	3.93	5.92	NA	NA	
PBDE 203	pg/L	total	1	0	0%	NA	NA	64.74	64.74	NA	NA	
PBDE 206	pg/L	total	3	0	0%	NA	NA	9.49	436.2	NA	NA	
PBDE 209	pg/L	total	3	0	0%	NA	NA	140.4	592	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-3c. Summary Statistics for Disturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	µg/L	dissolved	22	10	45%	2.3	28.4	1.5	13.9	NA	NA	
Aluminum	µg/L	total	22	21	95%	46.8	25400	28.1	28.1	6530	6530	
Antimony	µg/L	dissolved	22	22	100%	0.108	0.266	NA	NA	NA	NA	
Antimony	µg/L	total	22	22	100%	0.098	0.283	NA	NA	0.191	0.191	
Arsenic	µg/L	dissolved	22	15	68%	0.333	1.33	0.4	0.6	NA	NA	
Arsenic	µg/L	total	22	13	59%	0.267	3.93	0.5	0.8	1.35	1.35	
Inorganic arsenic	µg/L	dissolved	22	22	100%	0.247	1.25	NA	NA	NA	NA	
Inorganic arsenic	µg/L	total	22	22	100%	0.285	2.85	NA	NA	NA	NA	
Barium	µg/L	dissolved	22	22	100%	22.3	33.7	NA	NA	NA	NA	
Barium	µg/L	total	22	22	100%	25	932	NA	NA	254	254	
Beryllium	µg/L	dissolved	22	0	0%	NA	NA	0.003	0.006	NA	NA	
Beryllium	µg/L	total	22	19	86%	0.0075	1.34	0.003	0.007	0.349	0.349	
Cadmium	µg/L	dissolved	22	19	86%	0.008	0.0283	0.01	0.019	NA	NA	
Cadmium	µg/L	total	22	19	86%	0.0113	1.25	0.01	0.025	0.355	0.355	
Calcium	µg/L	dissolved	22	22	100%	14000	20900	NA	NA	NA	NA	
Calcium	µg/L	total	22	22	100%	14000	86000	NA	NA	NA	NA	
Chromium	µg/L	dissolved	22	3	14%	0.113	0.23	0.02	0.16	NA	NA	
Chromium	µg/L	total	22	15	68%	0.127	24.4	0.05	0.29	6.54	6.54	
Cobalt	µg/L	dissolved	22	12	55%	0.03	0.814	0.038	0.115	NA	NA	
Cobalt	µg/L	total	22	19	86%	0.126	31.7	0.046	0.091	8.04	8.04	
Copper	µg/L	dissolved	22	14	64%	0.523	0.71	0.49	0.62	NA	NA	
Copper	µg/L	total	22	21	95%	0.617	41	0.7	0.7	11.1	11.1	
Iron	µg/L	dissolved	22	3	14%	14.9	48.5	3	12.4	NA	NA	
Iron	µg/L	total	22	21	95%	64.3	43600	36.2	36.2	11300	11300	
Lead	µg/L	dissolved	22	8	36%	0.008	0.0503	0.005	0.028	NA	NA	
Lead	µg/L	total	22	18	82%	0.215	30.4	0.011	0.126	8.22	8.22	
Magnesium	µg/L	dissolved	22	22	100%	3970	6520	NA	NA	NA	NA	
Magnesium	µg/L	total	22	22	100%	3870	27600	NA	NA	NA	NA	
Manganese	µg/L	dissolved	22	13	59%	1.32	160	0.29	1.03	NA	NA	
Manganese	µg/L	total	22	21	95%	2.82	3090	2.69	2.69	782	782	
Mercury	ng/L	dissolved	22	3	14%	0.237	0.68	0.11	0.54	NA	NA	
Mercury	ng/L	total	22	13	59%	0.637	20.5	0.16	0.66	6.74	6.74	
Molybdenum	µg/L	dissolved	21	21	100%	0.386	0.697	NA	NA	NA	NA	
Molybdenum	µg/L	total	21	20	95%	0.344	0.632	0.489	0.489	0.536	0.536	
Nickel	µg/L	dissolved	22	21	95%	0.36	0.65	0.45	0.45	NA	NA	
Nickel	µg/L	total	22	21	95%	0.51	68	0.51	0.51	17.4	17.4	
Potassium	µg/L	dissolved	22	22	100%	591	1410	NA	NA	NA	NA	
Potassium	µg/L	total	22	22	100%	622	11400	NA	NA	NA	NA	
Selenium	µg/L	dissolved	22	2	9%	0.4	0.4	0.3	0.4	NA	NA	
Selenium	µg/L	total	22	4	18%	0.4	0.5	0.3	0.3	NC	0.5	M
Silver	µg/L	dissolved	22	1	5%	0.006	0.006	0.004	0.004	NA	NA	
Silver	µg/L	total	22	7	32%	0.005	0.184	0.004	0.004	0.0531	0.0531	
Sodium	µg/L	dissolved	22	22	100%	1670	3730	NA	NA	NA	NA	
Sodium	µg/L	total	22	22	100%	1650	5240	NA	NA	NA	NA	
Thallium	µg/L	dissolved	22	6	27%	0.011	0.0347	0.005	0.017	NA	NA	
Thallium	µg/L	total	22	12	55%	0.0143	0.288	0.011	0.026	0.0585	0.0585	
Uranium	µg/L	dissolved	22	22	100%	0.465	0.994	NA	NA	NA	NA	
Uranium	µg/L	total	22	22	100%	0.483	3.14	NA	NA	0.938	0.938	

Table A-3c. Summary Statistics for Disturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Vanadium	µg/L	dissolved	22	10	45%	0.217	0.457	0.16	0.43	NA	NA	
Vanadium	µg/L	total	22	22	100%	0.21	33	NA	NA	9	9	
Zinc	µg/L	dissolved	22	7	32%	0.733	10.3	0.3	4.1	NA	NA	
Zinc	µg/L	total	22	13	59%	1.93	85.2	0.8	4.7	24.2	24.2	
SVOCs												
1,1'-Biphenyl	µg/L	total	6	0	0%	NA	NA	0.037	0.037	NA	NA	
1,2,4-Trichlorobenzene	µg/L	total	6	0	0%	NA	NA	0.016	0.016	NA	NA	
1,2-Dichlorobenzene	µg/L	total	6	0	0%	NA	NA	0.022	0.022	NA	NA	
1,3-Dichlorobenzene	µg/L	total	6	0	0%	NA	NA	0.021	0.021	NA	NA	
1,4-Dichlorobenzene	µg/L	total	6	0	0%	NA	NA	0.029	0.029	NA	NA	
2,2'-oxybis(1-Chloropropane)	µg/L	total	6	0	0%	NA	NA	0.026	0.026	NA	NA	
2,4,5-Trichlorophenol	µg/L	total	6	0	0%	NA	NA	0.031	0.031	NA	NA	
2,4,6-Trichlorophenol	µg/L	total	6	0	0%	NA	NA	0.058	0.058	NA	NA	
2,4-Dichlorophenol	µg/L	total	6	0	0%	NA	NA	0.047	0.047	NA	NA	
2,4-Dimethylphenol	µg/L	total	6	0	0%	NA	NA	2.2	2.2	NA	NA	
2,4-Dinitrophenol	µg/L	total	6	0	0%	NA	NA	0.17	0.17	NA	NA	
2,4-Dinitrotoluene	µg/L	total	6	0	0%	NA	NA	0.018	0.018	NA	NA	
2,6-Dinitrotoluene	µg/L	total	6	0	0%	NA	NA	0.033	0.033	NA	NA	
2-Chloronaphthalene	µg/L	total	6	0	0%	NA	NA	0.041	0.041	NA	NA	
2-Chlorophenol	µg/L	total	6	0	0%	NA	NA	0.054	0.054	NA	NA	
2-Methylphenol	µg/L	total	6	0	0%	NA	NA	0.11	0.11	NA	NA	
2-Nitroaniline	µg/L	total	6	0	0%	NA	NA	0.024	0.024	NA	NA	
2-Nitrophenol	µg/L	total	6	0	0%	NA	NA	0.063	0.063	NA	NA	
3,3'-Dichlorobenzidine	µg/L	total	4	0	0%	NA	NA	0.43	0.43	NA	NA	
3-Nitroaniline	µg/L	total	6	0	0%	NA	NA	0.029	0.029	NA	NA	
4,6-Dinitro-2-methylphenol	µg/L	total	6	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Bromophenyl-phenylether	µg/L	total	6	0	0%	NA	NA	0.026	0.026	NA	NA	
4-Chloro-3-methylphenol	µg/L	total	6	1	17%	0.037	0.037	0.037	0.037	NA	NA	
4-Chloroaniline	µg/L	total	6	0	0%	NA	NA	0.025	0.025	NA	NA	
4-Chlorophenyl-phenyl ether	µg/L	total	6	0	0%	NA	NA	0.027	0.027	NA	NA	
4-Methylphenol	µg/L	total	6	0	0%	NA	NA	0.12	0.12	NA	NA	
4-Nitroaniline	µg/L	total	6	0	0%	NA	NA	0.019	0.019	NA	NA	
4-Nitrophenol	µg/L	total	6	0	0%	NA	NA	0.28	0.28	NA	NA	
Acetophenone	µg/L	total	6	0	0%	NA	NA	0.16	0.16	NA	NA	
Benzaldehyde	µg/L	total	6	0	0%	NA	NA	0.046	0.046	NA	NA	
Benzoic acid	µg/L	total	6	1	17%	1.5	1.5	1.1	1.8	NA	NA	
Benzyl alcohol	µg/L	total	6	0	0%	NA	NA	0.073	0.11	NA	NA	
Benzyl n-butyl phthalate	µg/L	total	6	0	0%	NA	NA	0.018	0.018	NC	0.018	U
bis(2-Chloroethoxy)methane	µg/L	total	6	0	0%	NA	NA	0.024	0.024	NA	NA	
bis(2-Chloroethyl)ether	µg/L	total	6	0	0%	NA	NA	0.035	0.035	NA	NA	
bis(2-Ethylhexyl)phthalate	µg/L	total	6	1	17%	0.14	0.14	0.13	0.55	NC	0.14	M
Caprolactam	µg/L	total	6	0	0%	NA	NA	0.22	0.22	NA	NA	
Carbazole	ng/L	total	6	0	0%	NA	NA	0.39	0.39	NA	NA	
Dibenzofuran	µg/L	total	6	0	0%	NA	NA	0.018	0.018	NA	NA	
Diethyl phthalate	µg/L	total	6	0	0%	NA	NA	0.012	0.012	NA	NA	
Dimethyl phthalate	µg/L	total	6	0	0%	NA	NA	0.021	0.034	NA	NA	
Di-n-butyl phthalate	µg/L	total	6	0	0%	NA	NA	0.023	0.065	NC	0.065	U
Di-n-octylphthalate	µg/L	total	6	0	0%	NA	NA	0.018	0.018	NC	0.018	U
Hexachlorocyclopentadiene	µg/L	total	6	0	0%	NA	NA	0.19	0.19	NA	NA	
Hexachloroethane	µg/L	total	6	0	0%	NA	NA	0.024	0.024	NA	NA	

Table A-3c. Summary Statistics for Disturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)												
Isophorone	µg/L	total	6	0	0%	NA	NA	0.016	0.016	NA	NA	
Nitrobenzene	µg/L	total	6	0	0%	NA	NA	0.028	0.028	NA	NA	
N-Nitrosodi-n-propylamine	µg/L	total	6	0	0%	NA	NA	0.037	0.037	NA	NA	
N-Nitrosodiphenylamine	µg/L	total	6	0	0%	NA	NA	0.048	0.048	NA	NA	
Pentachlorophenol	µg/L	total	6	0	0%	NA	NA	0.34	0.34	NC	0.34	U
Phenol	µg/L	total	6	0	0%	NA	NA	0.063	0.085	NA	NA	
Pesticides												
2,4'-DDD	ng/L	total	6	0	0%	NA	NA	0.068	0.11	NA	NA	
2,4'-DDE	ng/L	total	6	0	0%	NA	NA	0.12	0.13	NA	NA	
2,4'-DDT	ng/L	total	6	0	0%	NA	NA	0.13	0.34	NA	NA	
4,4'-DDD	ng/L	total	6	1	17%	1.2	1.2	0.21	3.3	NA	NA	
4,4'-DDE	ng/L	total	6	0	0%	NA	NA	0.19	5.3	NA	NA	
4,4'-DDT	ng/L	total	6	0	0%	NA	NA	0.17	0.18	NA	NA	
Aldrin	ng/L	total	6	0	0%	NA	NA	0.11	0.5	NC	0.5	U
alpha-BHC	ng/L	total	6	0	0%	NA	NA	0.21	0.22	NA	NA	
alpha-Chlordane	ng/L	total	6	0	0%	NA	NA	0.27	1.7	NC	1.7	U
beta-BHC	ng/L	total	6	0	0%	NA	NA	0.41	0.42	NA	NA	
Chlordane	ng/L	total	6	0	0%	NA	NA	3.6	29	NA	NA	
cis-Nonachlor	ng/L	total	6	0	0%	NA	NA	0.14	0.51	NC	0.51	U
delta-BHC	ng/L	total	6	0	0%	NA	NA	0.14	0.15	NC	0.15	U
Dieldrin	ng/L	total	6	0	0%	NA	NA	0.37	0.38	NC	0.38	U
Endosulfan I	ng/L	total	6	0	0%	NA	NA	0.25	0.26	NA	NA	
Endosulfan II	ng/L	total	6	0	0%	NA	NA	0.35	0.36	NA	NA	
Endosulfan sulfate	ng/L	total	6	0	0%	NA	NA	0.28	0.29	NA	NA	
Endrin	ng/L	total	6	0	0%	NA	NA	0.49	0.59	NC	0.59	U
Endrin aldehyde	ng/L	total	6	0	0%	NA	NA	0.21	0.51	NC	0.51	U
Endrin ketone	ng/L	total	6	0	0%	NA	NA	0.32	0.33	NC	0.33	U
gamma-BHC	ng/L	total	6	0	0%	NA	NA	0.47	0.48	NA	NA	
gamma-Chlordane	ng/L	total	6	0	0%	NA	NA	0.31	0.32	NC	0.32	U
Heptachlor	ng/L	total	6	0	0%	NA	NA	0.18	0.5	NC	0.5	U
Heptachlor epoxide	ng/L	total	6	0	0%	NA	NA	0.21	0.23	NC	0.23	U
Hexachlorobenzene	ng/L	total	6	0	0%	NA	NA	0.27	0.31	NC	0.31	U
Hexachlorobutadiene	ng/L	total	6	0	0%	NA	NA	0.095	0.13	NC	0.13	U
Methoxychlor	ng/L	total	6	0	0%	NA	NA	0.28	0.29	NC	0.29	U
Oxychlordane	ng/L	total	6	0	0%	NA	NA	0.14	4.8	NC	4.8	U
Total chlordane, 0 DL	ng/L	total	6	0	0%	NA	NA	0.49	4.8	NC	4.8	U
Total chlordane, 1/2 DL	ng/L	total	6	0	0%	NA	NA	0.49	4.8	NC	4.8	U
Total DDD, 0 DL	ng/L	total	6	1	17%	1.2	1.2	0.21	3.3	NA	NA	
Total DDD, 1/2 DL	ng/L	total	6	1	17%	1.23	1.23	0.21	3.3	NA	NA	
Total DDE, 0 DL	ng/L	total	6	0	0%	NA	NA	0.19	5.3	NA	NA	
Total DDE, 1/2 DL	ng/L	total	6	0	0%	NA	NA	0.19	5.3	NA	NA	
Total DDT, 0 DL	ng/L	total	6	0	0%	NA	NA	0.17	0.34	NA	NA	
Total DDT, 1/2 DL	ng/L	total	6	0	0%	NA	NA	0.17	0.34	NA	NA	
Total DDx, 0 DL	ng/L	total	6	1	17%	1.2	1.2	0.21	5.3	NC	1.2	M
Total DDx, 1/2 DL	ng/L	total	6	1	17%	2.25	2.25	0.21	5.3	NC	2.25	M
Toxaphene	ng/L	total	6	0	0%	NA	NA	32	76	NA	NA	
trans-Nonachlor	ng/L	total	6	0	0%	NA	NA	0.11	0.5	NC	0.5	U

Table A-3c. Summary Statistics for Disturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs												
2-Methylnaphthalene	ng/L	total	6	0	0%	NA	NA	0.7	2.2	NA	NA	
Acenaphthene	ng/L	total	6	0	0%	NA	NA	0.36	0.36	NA	NA	
Acenaphthylene	ng/L	total	6	0	0%	NA	NA	0.37	1.2	NA	NA	
Anthracene	ng/L	total	6	0	0%	NA	NA	0.29	0.29	NA	NA	
Benzo(e)pyrene	ng/L	total	6	0	0%	NA	NA	0.49	0.49	NA	NA	
Benzo(a)anthracene	ng/L	total	6	0	0%	NA	NA	0.34	0.34	NA	NA	
Benzo(a)pyrene	ng/L	total	6	0	0%	NA	NA	0.41	0.41	NC	0.41	U
Benzo(b)fluoranthene	ng/L	total	6	0	0%	NA	NA	0.25	0.25	NA	NA	
Benzo(g,h,i)perylene	ng/L	total	6	0	0%	NA	NA	0.36	0.36	NA	NA	
Benzo(k)fluoranthene	ng/L	total	6	0	0%	NA	NA	0.41	0.41	NA	NA	
Chrysene	ng/L	total	6	0	0%	NA	NA	0.65	0.65	NA	NA	
Dibenzo(a,h)anthracene	ng/L	total	6	0	0%	NA	NA	0.45	0.45	NA	NA	
Dibenzothiophene	ng/L	total	6	0	0%	NA	NA	0.52	0.52	NA	NA	
Fluoranthene	ng/L	total	6	0	0%	NA	NA	0.46	1.6	NA	NA	
Fluorene	ng/L	total	6	0	0%	NA	NA	0.42	0.65	NA	NA	
Indeno(1,2,3-cd)pyrene	ng/L	total	6	0	0%	NA	NA	0.44	0.44	NA	NA	
Naphthalene	ng/L	total	6	0	0%	NA	NA	2.4	34	NA	NA	
Perylene	ng/L	total	6	0	0%	NA	NA	0.36	0.36	NA	NA	
Phenanthrene	ng/L	total	6	0	0%	NA	NA	1.4	2.4	NA	NA	
Pyrene	ng/L	total	6	0	0%	NA	NA	0.78	0.78	NA	NA	
Total HPAHs, 0 DL	ng/L	total	6	0	0%	NA	NA	0.78	1.6	NC	1.6	U
Total HPAHs, 1/2 DL	ng/L	total	6	0	0%	NA	NA	0.78	1.6	NC	1.6	U
Total LPAHs, 0 DL	ng/L	total	6	0	0%	NA	NA	2.4	34	NC	34	U
Total LPAHs, 1/2 DL	ng/L	total	6	0	0%	NA	NA	2.4	34	NC	34	U
Total PAHs, 0 DL	ng/L	total	6	0	0%	NA	NA	2.4	34	NC	34	U
Total PAHs, 1/2 DL	ng/L	total	6	0	0%	NA	NA	2.4	34	NC	34	U
PCBs												
Total PCB congeners, 0 DL	pg/L	total	6	6	100%	0.657	26.1	NA	NA	21.2	21.2	
Total PCB congeners, 1/2 DL	pg/L	total	6	6	100%	28.6	93.5	NA	NA	80.9	80.9	
PBDEs												
PBDE 17	pg/L	total	4	2	50%	0.679	1.61	0.706	1.81	NA	NA	
PBDE 17 and 25	pg/L	total	2	0	0%	NA	NA	13.7	14.15	NA	NA	
PBDE 28 and 33	pg/L	total	6	0	0%	NA	NA	4.03	8.737	NA	NA	
PBDE 47	pg/L	total	6	0	0%	NA	NA	19.9	192	NA	NA	
PBDE 49	pg/L	total	6	2	33%	2.38	3.5	1.31	43.27	NA	NA	
PBDE 66	pg/L	total	6	1	17%	1.19	1.19	0.357	77.46	NA	NA	
PBDE 71	pg/L	total	6	0	0%	NA	NA	0.326	76.96	NA	NA	
PBDE 85	pg/L	total	6	0	0%	NA	NA	0.784	27.47	NA	NA	
PBDE 99	pg/L	total	6	0	0%	NA	NA	11.3	67.2	NA	NA	
PBDE 100	pg/L	total	6	0	0%	NA	NA	2.79	11.8	NA	NA	
PBDE 128	pg/L	total	6	0	0%	NA	NA	1.97	156.8	NA	NA	
PBDE 138	pg/L	total	4	1	25%	1.2	1.2	1.05	1.35	NA	NA	
PBDE 138 and 166	pg/L	total	2	0	0%	NA	NA	61.11	114	NA	NA	
PBDE 153	pg/L	total	6	0	0%	NA	NA	1.53	40.28	NA	NA	
PBDE 154	pg/L	total	6	1	17%	0.824	0.824	1.13	26.11	NA	NA	
PBDE 183	pg/L	total	2	0	0%	NA	NA	17.41	20.37	NA	NA	
PBDE 183 and 176	pg/L	total	4	1	25%	1.99	1.99	2.17	2.69	NA	NA	
PBDE 184	pg/L	total	6	0	0%	NA	NA	0.819	15.22	NA	NA	
PBDE 190	pg/L	total	2	0	0%	NA	NA	55.36	66.64	NA	NA	
PBDE 190 and 171	pg/L	total	4	0	0%	NA	NA	1.54	2.12	NA	NA	

Table A-3c. Summary Statistics for Disturbed Surface Water in the Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 191	pg/L	total	6	0	0%	NA	NA	1.36	43.38	NA	NA	
PBDE 200 and 203	pg/L	total	4	0	0%	NA	NA	3.37	5	NA	NA	
PBDE 203	pg/L	total	2	0	0%	NA	NA	36.11	38.86	NA	NA	
PBDE 206	pg/L	total	6	0	0%	NA	NA	11.5	292.6	NA	NA	
PBDE 209	pg/L	total	6	0	0%	NA	NA	52.13	478	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-4a. Summary Statistics for Porewater in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	µg/L	dissolved	319	168	53%	3	308	3.1	200
Antimony	µg/L	dissolved	318	238	75%	0.28	90.5	0.1	60
Arsenic	µg/L	dissolved	394	289	73%	0.26	78.3	1	10
Barium	µg/L	dissolved	319	319	100%	9.8	1210	NA	NA
Beryllium	µg/L	dissolved	319	9	3%	0.009	0.4	0.008	10
Cadmium	µg/L	dissolved	394	197	50%	0.01	3.3	0.01	10
Calcium	µg/L	dissolved	278	278	100%	4450	254000	NA	NA
Chloride	mg/L	total	108	77	71%	0.88	50	0.67	8.08
Chromium	µg/L	dissolved	319	125	39%	0.05	117	0.02	10
Cobalt	µg/L	dissolved	319	156	49%	0.03	5.9	0.051	50
Copper	µg/L	dissolved	394	329	84%	0.08	224	0.12	10
Iron	µg/L	dissolved	360	224	62%	5	78000	3.1	600
Lead	µg/L	dissolved	394	305	77%	0.046	250	0.018	10
Magnesium	µg/L	dissolved	278	278	100%	174	69000	NA	NA
Manganese	µg/L	dissolved	360	341	95%	0.2	6060	1	20
Mercury	µg/L	dissolved	24	13	54%	0.015	0.086	0.2	0.2
Molybdenum	µg/L	dissolved	153	81	53%	1.2	187	1	20
Nickel	µg/L	dissolved	391	238	61%	0.16	81.1	0.1	40
Potassium	µg/L	dissolved	278	278	100%	351	12800	NA	NA
Selenium	µg/L	dissolved	319	49	15%	0.4	20.7	0.4	35
Silica	mg/L	dissolved	84	84	100%	2.3	35.8	NA	NA
Silver	µg/L	dissolved	319	33	10%	0.007	5	0.005	15
Sodium	µg/L	dissolved	278	278	100%	976	23700	NA	NA
Thallium	µg/L	dissolved	319	32	10%	0.014	2.3	0.004	25
Uranium	µg/L	dissolved	108	75	69%	0.3	42.2	0.5	200
Vanadium	µg/L	dissolved	319	136	43%	0.114	21.6	0.07	50
Zinc	µg/L	dissolved	394	313	79%	1	540	0.46	279
Other Metals/Metalloids									
Bismuth	µg/L	dissolved	84	20	24%	0.3	2.6	0.2	2
Cerium	µg/L	dissolved	84	57	68%	0.01	0.24	0.01	0.1
Cesium	µg/L	dissolved	84	29	35%	0.02	0.1	0.02	0.2
Dysprosium	µg/L	dissolved	84	22	26%	0.005	0.07	0.005	0.05
Erbium	µg/L	dissolved	84	20	24%	0.005	0.077	0.005	0.05
Europium	µg/L	dissolved	84	31	37%	0.005	0.066	0.005	0.05
Gadolinium	µg/L	dissolved	84	29	35%	0.005	0.088	0.005	0.05
Gallium	µg/L	dissolved	84	19	23%	0.05	0.77	0.05	0.5
Germanium	µg/L	dissolved	84	40	48%	0.05	0.82	0.05	0.5
Holmium	µg/L	dissolved	84	6	7%	0.02	0.08	0.005	0.05

Table A-4a. Summary Statistics for Porewater in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Other Metals/Metalloids (continued)									
Lanthanum	µg/L	dissolved	84	53	63%	0.01	0.2	0.01	0.1
Lithium	µg/L	dissolved	84	4	5%	5.2	5.4	4.5	50
Lutetium	µg/L	dissolved	84	0	0%	NA	NA	0.1	1
Neodymium	µg/L	dissolved	84	44	52%	0.01	0.13	0.01	0.1
Niobium	µg/L	dissolved	84	0	0%	NA	NA	0.2	2
Praseodymium	µg/L	dissolved	84	20	24%	0.01	0.08	0.01	0.1
Rubidium	µg/L	dissolved	84	84	100%	0.21	4.92	NA	NA
Samarium	µg/L	dissolved	84	16	19%	0.01	0.08	0.01	0.1
Scandium	µg/L	dissolved	84	31	37%	0.6	3.3	0.6	6
Strontium	µg/L	dissolved	132	132	100%	79	920	NA	NA
Tantalum	µg/L	dissolved	84	0	0%	NA	NA	0.05	0.5
Terbium	µg/L	dissolved	84	5	6%	0.008	0.03	0.005	0.1
Thorium	µg/L	dissolved	84	0	0%	NA	NA	0.2	2
Thulium	µg/L	dissolved	84	6	7%	0.02	0.075	0.005	0.05
Titanium	µg/L	dissolved	84	18	21%	0.6	2	0.5	5
Tungsten	µg/L	dissolved	84	9	11%	0.5	5	0.5	5
Ytterbium	µg/L	dissolved	84	12	14%	0.01	0.07	0.01	0.1
Yttrium	µg/L	dissolved	84	48	57%	0.01	0.2	0.01	0.1
Zirconium	µg/L	dissolved	13	0	0%	NA	NA	1	1
Nutrients									
Ammonia as nitrogen	mg/L	unknown	28	28	100%	0.103	20.2	NA	NA
Phosphorus	mg/L	dissolved	153	78	51%	0.00001	0.3	0.00001	0.05

Notes:

FOD - frequency of detection

NA - not applicable

OU - operable unit

Table A-4b. Summary Statistics for Porewater in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	µg/L	dissolved	17	9	53%	5	366	3.9	184
Antimony	µg/L	dissolved	17	13	76%	0.23	1.8	60	60
Arsenic	µg/L	dissolved	23	20	87%	1.57	111	10	10
Barium	µg/L	dissolved	17	17	100%	64	370	NA	NA
Beryllium	µg/L	dissolved	17	3	18%	0.009	0.03	0.008	5
Cadmium	µg/L	dissolved	23	16	70%	0.013	4	0.005	5
Calcium	µg/L	dissolved	18	18	100%	19000	123000	NA	NA
Chloride	mg/L	total	11	4	36%	1.04	5.81	0.6	5.34
Chromium	µg/L	dissolved	17	13	76%	0.13	4	0.08	1
Cobalt	µg/L	dissolved	17	15	88%	0.267	3.19	50	50
Copper	µg/L	dissolved	23	21	91%	0.334	36.4	0.15	0.28
Iron	µg/L	dissolved	20	19	95%	120	16700	50	50
Lead	µg/L	dissolved	23	22	96%	0.095	50.8	10	10
Magnesium	µg/L	dissolved	18	18	100%	5.1	28300	NA	NA
Manganese	µg/L	dissolved	20	20	100%	580	3430	NA	NA
Mercury	µg/L	dissolved	4	3	75%	0.023	0.34	0.2	0.2
Molybdenum	µg/L	dissolved	3	1	33%	2.8	2.8	2	2
Nickel	µg/L	dissolved	23	15	65%	0.802	11.8	0.96	40
Potassium	µg/L	dissolved	18	18	100%	1.1	4510	NA	NA
Selenium	µg/L	dissolved	14	1	7%	1.2	1.2	0.4	35
Silver	µg/L	dissolved	17	5	29%	0.015	0.149	0.005	10
Sodium	µg/L	dissolved	18	17	94%	2.2	7890	3070	3070
Thallium	µg/L	dissolved	17	5	29%	0.034	0.1	0.002	25
Uranium	µg/L	dissolved	7	3	43%	0.16	0.22	200	200
Vanadium	µg/L	dissolved	17	11	65%	0.473	5.41	0.282	50
Zinc	µg/L	dissolved	23	15	65%	4.9	200	5	258
Other Metals/Metalloids									
Bismuth	µg/L	dissolved	3	0	0%	NA	NA	0.2	0.2
Cerium	µg/L	dissolved	3	3	100%	0.17	0.44	NA	NA
Cesium	µg/L	dissolved	3	3	100%	0.04	0.06	NA	NA
Gallium	µg/L	dissolved	3	0	0%	NA	NA	0.05	0.05
Lanthanum	µg/L	dissolved	3	3	100%	0.2	0.44	NA	NA
Lithium	µg/L	dissolved	3	3	100%	1.6	1.8	NA	NA
Niobium	µg/L	dissolved	3	0	0%	NA	NA	0.2	0.2
Rubidium	µg/L	dissolved	3	3	100%	2.3	3.7	NA	NA
Scandium	µg/L	dissolved	3	3	100%	4.6	5.7	NA	NA
Strontium	µg/L	dissolved	3	3	100%	290	470	NA	NA

Table A-4b. Summary Statistics for Porewater in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Other Metals/Metalloids (continued)									
Tantalum	µg/L	dissolved	3	0	0%	NA	NA	0.02	0.02
Thorium	µg/L	dissolved	3	0	0%	NA	NA	0.2	0.2
Titanium	µg/L	dissolved	3	2	67%	1.2	1.7	0.5	0.5
Yttrium	µg/L	dissolved	3	3	100%	0.2	0.42	NA	NA
Nutrients									
Ammonia as nitrogen	mg/L	unknown	2	2	100%	1.94	2.37	NA	NA
Phosphorus	mg/L	dissolved	153	78	51%	0.00001	0.3	0.00001	0.05

Notes:
CSM - conceptual site model
FOD - frequency of detection
NA - not applicable

Table A-4c. Summary Statistics for Porewater in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	µg/L	dissolved	13	8	62%	9.3	199	5.2	11.8
Antimony	µg/L	dissolved	13	13	100%	0.41	12.4	NA	NA
Arsenic	µg/L	dissolved	16	15	94%	0.16	14.7	1	1
Barium	µg/L	dissolved	13	13	100%	48.9	377	NA	NA
Beryllium	µg/L	dissolved	13	1	8%	0.011	0.011	0.008	0.019
Cadmium	µg/L	dissolved	16	13	81%	0.019	0.22	0.011	0.059
Calcium	µg/L	dissolved	5	5	100%	34700	84200	NA	NA
Chloride	mg/L	total	5	3	60%	1.46	10.5	0.66	0.83
Chromium	µg/L	dissolved	13	3	23%	0.18	0.36	0.04	0.15
Cobalt	µg/L	dissolved	13	12	92%	0.014	0.623	0.013	0.013
Copper	µg/L	dissolved	16	14	88%	0.22	26.2	0.3	0.68
Iron	µg/L	dissolved	15	11	73%	10.2	768	2.2	50
Lead	µg/L	dissolved	16	15	94%	0.07	5.4	0.118	0.118
Magnesium	µg/L	dissolved	5	5	100%	4890	14700	NA	NA
Manganese	µg/L	dissolved	15	13	87%	8.75	420	20	20
Nickel	µg/L	dissolved	16	13	81%	0.15	4.92	0.1	3.56
Potassium	µg/L	dissolved	5	5	100%	1410	6060	NA	NA
Selenium	µg/L	dissolved	13	0	0%	NA	NA	0.4	0.9
Silver	µg/L	dissolved	13	2	15%	0.027	0.068	0.009	0.012
Sodium	µg/L	dissolved	5	5	100%	5610	9810	NA	NA
Thallium	µg/L	dissolved	13	7	54%	0.04	0.119	0.004	0.042
Vanadium	µg/L	dissolved	13	12	92%	0.115	20.8	0.12	0.12
Zinc	µg/L	dissolved	16	13	81%	2.1	126	7.11	105
Other Metals/Metalloids									
Strontium	µg/L	dissolved	2	2	100%	220	290	NA	NA
Nutrients									
Ammonia as nitrogen	mg/L	unknown	1	1	100%	0.208	0.208	NA	NA

Notes:
CSM - conceptual site model
FOD - frequency of detection
NA - not applicable

Table A-4d. Summary Statistics for Porewater in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	µg/L	dissolved	140	74	53%	4.7	1040	2.1	526
Antimony	µg/L	dissolved	140	58	41%	0.12	2.39	0.02	60
Arsenic	µg/L	dissolved	173	153	88%	0.167	190	1	10
Barium	µg/L	dissolved	140	140	100%	34.5	384	NA	NA
Beryllium	µg/L	dissolved	140	2	1%	0.047	0.07	0.006	5
Cadmium	µg/L	dissolved	173	93	54%	0.009	130	0.005	5
Calcium	µg/L	dissolved	92	92	100%	16300	142000	NA	NA
Chloride	mg/L	total	52	35	67%	0.76	9.48	0.36	6.44
Chromium	µg/L	dissolved	140	97	69%	0.05	40.7	0.04	10
Cobalt	µg/L	dissolved	140	121	86%	0.072	7	0.1	50
Copper	µg/L	dissolved	173	123	71%	0.08	350	0.07	600
Iron	µg/L	dissolved	156	129	83%	9.2	16400	3.4	250
Lead	µg/L	dissolved	173	127	73%	0.009	3800	0.013	10
Magnesium	µg/L	dissolved	92	92	100%	3890	32500	NA	NA
Manganese	µg/L	dissolved	156	153	98%	4.7	12800	2.27	20
Mercury	µg/L	dissolved	24	9	38%	0.014	0.26	0.2	0.2
Molybdenum	µg/L	dissolved	15	3	20%	2.7	3.7	2	2
Nickel	µg/L	dissolved	169	138	82%	0.19	27.2	0.1	40
Potassium	µg/L	dissolved	92	92	100%	600	7050	NA	NA
Selenium	µg/L	dissolved	140	14	10%	0.3	17.7	0.3	35
Silica	mg/L	dissolved	15	15	100%	10.6	39.7	NA	NA
Silver	µg/L	dissolved	140	4	3%	0.008	0.092	0.004	15
Sodium	µg/L	dissolved	92	92	100%	1750	14000	NA	NA
Thallium	µg/L	dissolved	140	40	29%	0.009	6.8	0.002	25
Uranium	µg/L	dissolved	39	5	13%	0.5	0.9	0.5	200
Vanadium	µg/L	dissolved	140	118	84%	0.13	50.9	0.11	50
Zinc	µg/L	dissolved	173	88	51%	1.29	2600	0.23	263
Other Metals/Metalloids									
Bismuth	µg/L	dissolved	15	0	0%	NA	NA	0.2	0.2
Cerium	µg/L	dissolved	15	15	100%	0.11	0.83	NA	NA
Cesium	µg/L	dissolved	15	12	80%	0.03	0.07	0.02	0.02
Dysprosium	µg/L	dissolved	15	4	27%	0.06	0.09	0.04	0.04
Erbium	µg/L	dissolved	15	2	13%	0.03	0.053	0.025	0.025
Europium	µg/L	dissolved	15	0	0%	NA	NA	0.025	0.025
Gadolinium	µg/L	dissolved	15	11	73%	0.03	0.1	0.025	0.025
Gallium	µg/L	dissolved	15	10	67%	0.06	0.1	0.05	0.05
Germanium	µg/L	dissolved	15	0	0%	NA	NA	0.25	0.25
Holmium	µg/L	dissolved	15	0	0%	NA	NA	0.025	0.025

Table A-4d. Summary Statistics for Porewater in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Other Metals/Metalloids (continued)									
Lanthanum	µg/L	dissolved	15	13	87%	0.1	0.5	0.1	0.1
Lithium	µg/L	dissolved	15	1	7%	5	5	4.5	4.5
Lutetium	µg/L	dissolved	15	0	0%	NA	NA	0.5	0.5
Neodymium	µg/L	dissolved	15	12	80%	0.08	0.44	0.05	0.05
Niobium	µg/L	dissolved	15	0	0%	NA	NA	1	1
Praseodymium	µg/L	dissolved	15	7	47%	0.06	0.11	0.05	0.05
Rubidium	µg/L	dissolved	15	15	100%	1.31	3.12	NA	NA
Samarium	µg/L	dissolved	15	1	7%	0.1	0.1	0.09	0.09
Scandium	µg/L	dissolved	15	3	20%	3.1	4.5	3	3
Strontium	µg/L	dissolved	31	31	100%	90	330	NA	NA
Tantalum	µg/L	dissolved	15	1	7%	0.2	0.2	0.1	0.1
Terbium	µg/L	dissolved	15	0	0%	NA	NA	0.1	0.1
Thorium	µg/L	dissolved	15	0	0%	NA	NA	1	1
Thulium	µg/L	dissolved	15	0	0%	NA	NA	0.045	0.045
Titanium	µg/L	dissolved	15	6	40%	2.9	5.4	2.5	2.5
Tungsten	µg/L	dissolved	15	2	13%	0.6	1.3	0.5	0.5
Ytterbium	µg/L	dissolved	15	11	73%	0.03	0.06	0.025	0.025
Yttrium	µg/L	dissolved	15	15	100%	0.1	0.33	NA	NA
Zirconium	µg/L	dissolved	15	0	0%	NA	NA	1	1
Nutrients									
Ammonia as nitrogen	mg/L	unknown	13	13	100%	0.033	3.87	NA	NA
Phosphorus	mg/L	dissolved	153	78	51%	0.00001	0.3	0.00001	0.05

Notes:

CSM - conceptual site model

FOD - frequency of detection

NA - not applicable

Table A-4e. Summary Statistics for Porewater in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	µg/L	dissolved	149	65	44%	4.5	150	2.2	64.8
Antimony	µg/L	dissolved	149	45	30%	0.04	2	0.02	0.2
Arsenic	µg/L	dissolved	191	191	100%	2.9	139	NA	NA
Barium	µg/L	dissolved	149	149	100%	36.7	325	NA	NA
Beryllium	µg/L	dissolved	149	10	7%	0.02	0.034	0.006	0.05
Cadmium	µg/L	dissolved	191	57	30%	0.007	1.13	0.005	0.2
Calcium	µg/L	dissolved	97	97	100%	17400	75500	NA	NA
Chloride	mg/L	total	81	56	69%	0.73	30.1	0.62	10.3
Chromium	µg/L	dissolved	149	126	85%	0.05	3.36	0.05	1
Cobalt	µg/L	dissolved	149	148	99%	0.134	1.91	0.113	0.113
Copper	µg/L	dissolved	191	99	52%	0.07	14.9	0.07	0.5
Iron	µg/L	dissolved	171	170	99%	35.1	23700	26.7	26.7
Lead	µg/L	dissolved	191	179	94%	0.058	46.2	0.009	0.2
Magnesium	µg/L	dissolved	97	97	100%	4.8	20500	NA	NA
Manganese	µg/L	dissolved	171	171	100%	260	18600	NA	NA
Molybdenum	µg/L	dissolved	8	5	63%	1.9	3.5	2	2
Nickel	µg/L	dissolved	191	153	80%	0.17	5.74	0.36	3.53
Potassium	µg/L	dissolved	97	97	100%	1.6	2740	NA	NA
Selenium	µg/L	dissolved	141	6	4%	0.3	0.5	0.3	1.5
Silver	µg/L	dissolved	149	0	0%	NA	NA	0.004	3
Sodium	µg/L	dissolved	97	97	100%	2.4	8860	NA	NA
Thallium	µg/L	dissolved	149	10	7%	0.034	0.2	0.002	0.1
Uranium	µg/L	dissolved	8	8	100%	0.26	0.59	NA	NA
Vanadium	µg/L	dissolved	149	143	96%	0.24	7.18	0.27	0.5
Zinc	µg/L	dissolved	191	52	27%	3.28	96	0.26	411
Other Metals/Metalloids									
Bismuth	µg/L	dissolved	8	0	0%	NA	NA	0.2	0.2
Cerium	µg/L	dissolved	8	8	100%	0.08	0.59	NA	NA
Cesium	µg/L	dissolved	8	8	100%	0.13	0.23	NA	NA
Gallium	µg/L	dissolved	8	6	75%	0.07	0.2	0.05	0.05
Lanthanum	µg/L	dissolved	8	8	100%	0.08	0.42	NA	NA
Lithium	µg/L	dissolved	8	8	100%	1.2	1.8	NA	NA
Niobium	µg/L	dissolved	8	0	0%	NA	NA	0.2	0.2
Rubidium	µg/L	dissolved	8	8	100%	3.8	7.7	NA	NA
Scandium	µg/L	dissolved	8	8	100%	5.9	9.4	NA	NA
Strontium	µg/L	dissolved	22	22	100%	170	410	NA	NA
Tantalum	µg/L	dissolved	8	2	25%	0.05	0.05	0.02	0.02
Thorium	µg/L	dissolved	8	0	0%	NA	NA	0.2	0.2
Titanium	µg/L	dissolved	8	8	100%	0.5	3.7	NA	NA
Yttrium	µg/L	dissolved	8	8	100%	0.19	0.44	NA	NA

Table A-4e. Summary Statistics for Porewater in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Nutrients									
Ammonia as nitrogen	mg/L	unknown	18	18	100%	0.241	7.64	NA	NA
Phosphorus	mg/L	dissolved	153	78	51%	0.00001	0.3	0.00001	0.05

Notes:
CSM - conceptual site model
FOD - frequency of detection
NA - not applicable

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	mg/kg	dw	321	321	100%	3080	61300	NA	NA
Antimony	mg/kg	dw	290	282	97%	0.086	174	0.081	9.7
Arsenic	mg/kg	dw	333	325	98%	1.68	74.4	1.3	4.5
Barium	mg/kg	dw	300	300	100%	38.6	2800	NA	NA
Beryllium	mg/kg	dw	300	300	100%	0.1	2.4	NA	NA
Cadmium	mg/kg	dw	333	326	98%	0.004	18	0.06	0.62
Calcium	mg/kg	dw	300	300	100%	1860	99000	NA	NA
Chromium	mg/kg	dw	323	323	100%	7.29	250	NA	NA
Cobalt	mg/kg	dw	300	300	100%	2.66	88	NA	NA
Copper	mg/kg	dw	331	331	100%	6.9	3600	NA	NA
Iron	mg/kg	dw	321	321	100%	9190	320000	NA	NA
Lead	mg/kg	dw	333	332	100%	7.6	4870	7.9	7.9
Magnesium	mg/kg	dw	300	300	100%	2250	35600	NA	NA
Manganese	mg/kg	dw	300	300	100%	98.3	5710	NA	NA
Mercury	mg/kg	dw	311	304	98%	0.003	1.96	0.05	0.12
Molybdenum	mg/kg	dw	18	18	100%	1.8	54	NA	NA
Nickel	mg/kg	dw	321	321	100%	6.3	48.8	NA	NA
Potassium	mg/kg	dw	300	300	100%	570	21300	NA	NA
Selenium	mg/kg	dw	236	196	83%	0.08	23.2	0.03	5.1
Silver	mg/kg	dw	300	199	66%	0.033	12.6	0.26	3
Sodium	mg/kg	dw	300	291	97%	76.3	19300	95.5	243
Thallium	mg/kg	dw	302	189	63%	0.02	4	0.043	4.4
Uranium	mg/kg	dw	167	107	64%	1.01	127	7.2	34
Vanadium	mg/kg	dw	302	302	100%	11	101	NA	NA
Zinc	mg/kg	dw	331	331	100%	46.5	28200	NA	NA
Other Metals/Metalloids									
Bismuth	mg/kg	dw	12	11	92%	0.13	0.75	0.005	0.005
Cerium	mg/kg	dw	12	12	100%	47	85.4	NA	NA
Cesium	mg/kg	dw	12	12	100%	0.78	4.1	NA	NA
Gallium	mg/kg	dw	12	12	100%	13	35	NA	NA
Lanthanum	mg/kg	dw	12	12	100%	25	51.9	NA	NA
Lithium	mg/kg	dw	12	12	100%	17	27.5	NA	NA
Niobium	mg/kg	dw	1	1	100%	5	5	NA	NA
Rubidium	mg/kg	dw	12	12	100%	20	83	NA	NA
Scandium	mg/kg	dw	12	12	100%	6.2	10.9	NA	NA
Strontium	mg/kg	dw	12	12	100%	376	530	NA	NA
Thorium	mg/kg	dw	12	12	100%	6.3	17.8	NA	NA
Titanium	mg/kg	dw	12	12	100%	2000	3600	NA	NA
Yttrium	mg/kg	dw	12	12	100%	17.8	26.1	NA	NA

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SEM Metals/Metalloids									
Antimony	µmol/g	dw	71	46	65%	0.0006	0.1372	0.0007721	0.0475
Arsenic	µmol/g	dw	47	37	79%	0.008	0.088	0.01	0.034
Cadmium	µmol/g	dw	71	66	93%	0.00075	0.03429	0.0001335	0.007829
Chromium	µmol/g	dw	71	71	100%	0.0112	1.539	NA	NA
Copper	µmol/g	dw	65	64	98%	0.0224	15.41	0.0004406	0.0004406
Lead	µmol/g	dw	71	71	100%	0.0154	2.51	NA	NA
Mercury	µmol/g	dw	30	1	3%	0.00001346	0.00001346	0.000001346	0.00005
Nickel	µmol/g	dw	65	62	95%	0.00685	1.805	0.03066	0.04258
Zinc	µmol/g	dw	65	65	100%	0.119	171.3	NA	NA
Nutrients									
Phosphorus	mg/kg	dw	12	12	100%	570	1600	NA	NA
SVOCs									
1,1'-Biphenyl	µg/kg	dw	109	2	2%	2.15	2.45	1.9	230
1,2,4-Trichlorobenzene	µg/kg	dw	109	0	0%	NA	NA	2.6	230
1,2-Dichlorobenzene	µg/kg	dw	109	0	0%	NA	NA	2.9	230
1,3-Dichlorobenzene	µg/kg	dw	109	0	0%	NA	NA	3	230
1,4-Dichlorobenzene	µg/kg	dw	109	0	0%	NA	NA	2.9	230
2,2'-oxybis(1-Chloropropane)	µg/kg	dw	109	0	0%	NA	NA	2.6	230
2,4,5-Trichlorophenol	µg/kg	dw	109	0	0%	NA	NA	1.5	590
2,4,6-Trichlorophenol	µg/kg	dw	109	0	0%	NA	NA	1.4	230
2,4-Dichlorophenol	µg/kg	dw	109	0	0%	NA	NA	1	230
2,4-Dimethylphenol	µg/kg	dw	106	0	0%	NA	NA	5.5	230
2,4-Dinitrophenol	µg/kg	dw	86	0	0%	NA	NA	17	410
2,4-Dinitrotoluene	µg/kg	dw	109	0	0%	NA	NA	1.5	230
2,6-Dinitrotoluene	µg/kg	dw	109	0	0%	NA	NA	2	230
2-Chloronaphthalene	µg/kg	dw	109	0	0%	NA	NA	1.6	230
2-Chlorophenol	µg/kg	dw	109	0	0%	NA	NA	2	230
2-Methylphenol	µg/kg	dw	109	0	0%	NA	NA	1.5	230
2-Nitroaniline	µg/kg	dw	109	0	0%	NA	NA	3.2	590
2-Nitrophenol	µg/kg	dw	109	0	0%	NA	NA	1.5	230
3,3'-Dichlorobenzidine	µg/kg	dw	109	0	0%	NA	NA	3.7	230
3-Nitroaniline	µg/kg	dw	109	0	0%	NA	NA	2.5	590
4,6-Dinitro-2-methylphenol	µg/kg	dw	109	0	0%	NA	NA	1.4	590
4-Bromophenyl-phenylether	µg/kg	dw	109	0	0%	NA	NA	1.6	230
4-Chloro-3-methylphenol	µg/kg	dw	109	0	0%	NA	NA	1.4	230
4-Chloroaniline	µg/kg	dw	109	0	0%	NA	NA	1.9	230
4-Chlorophenyl-phenyl ether	µg/kg	dw	109	0	0%	NA	NA	1.4	230
4-Methylphenol	µg/kg	dw	109	2	2%	3	4.65	1.5	230

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
4-Nitroaniline	µg/kg	dw	109	0	0%	NA	NA	1.8	590
4-Nitrophenol	µg/kg	dw	109	0	0%	NA	NA	18	590
Acetophenone	µg/kg	dw	109	2	2%	25	26	12	230
Benzaldehyde	µg/kg	dw	109	2	2%	7.9	13	7.7	230
Benzoic acid	µg/kg	dw	78	1	1%	110	110	85	480
Benzyl alcohol	µg/kg	dw	109	1	1%	4.4	4.4	2.1	230
Benzyl n-butyl phthalate	µg/kg	dw	109	2	2%	3.4	6.9	3.2	230
bis(2-Chloroethoxy)methane	µg/kg	dw	109	0	0%	NA	NA	1.5	230
bis(2-Chloroethyl)ether	µg/kg	dw	109	0	0%	NA	NA	1.9	230
bis(2-Ethylhexyl)phthalate	µg/kg	dw	109	5	5%	20.5	205	11	230
Caprolactam	µg/kg	dw	109	1	1%	76	76	19	230
Carbazole	µg/kg	dw	109	1	1%	1.7	1.7	1.3	230
Dibenzofuran	µg/kg	dw	109	44	40%	0.2	10	1.2	11
Diethyl phthalate	µg/kg	dw	109	2	2%	1.6	50	1.3	230
Dimethyl phthalate	µg/kg	dw	109	0	0%	NA	NA	1	230
Di-n-butyl phthalate	µg/kg	dw	109	0	0%	NA	NA	7.9	230
Di-n-octylphthalate	µg/kg	dw	109	0	0%	NA	NA	1.7	230
Hexachlorocyclopentadiene	µg/kg	dw	9	0	0%	NA	NA	29	150
Hexachloroethane	µg/kg	dw	109	0	0%	NA	NA	3.1	230
Isophorone	µg/kg	dw	109	0	0%	NA	NA	1	230
Nitrobenzene	µg/kg	dw	109	0	0%	NA	NA	2.2	230
N-Nitrosodi-n-propylamine	µg/kg	dw	109	0	0%	NA	NA	2.4	230
N-Nitrosodiphenylamine	µg/kg	dw	109	0	0%	NA	NA	1.6	230
Pentachlorophenol	µg/kg	dw	109	0	0%	NA	NA	20	590
Perchlorocyclopentadiene	µg/kg	dw	100	0	0%	NA	NA	85	230
Phenol	µg/kg	dw	109	3	3%	2.4	8.05	2	230
Pesticides									
2,4'-DDD	µg/kg	dw	109	1	1%	0.16	0.16	0.13	1.5
2,4'-DDE	µg/kg	dw	109	2	2%	0.17	0.48	0.16	1.5
2,4'-DDT	µg/kg	dw	109	7	6%	0.069	0.27	0.058	1.5
4,4'-DDD	µg/kg	dw	121	0	0%	NA	NA	0.11	4
4,4'-DDE	µg/kg	dw	121	16	13%	0.072	0.65	0.11	4
4,4'-DDT	µg/kg	dw	121	28	23%	0.15	1.5	0.17	4
Aldrin	µg/kg	dw	121	1	1%	0.17	0.17	0.16	2.1
alpha-BHC	µg/kg	dw	121	1	1%	0.18	0.18	0.11	2.1
alpha-Chlordane	µg/kg	dw	121	0	0%	NA	NA	0.1	2.1
Atrazine	µg/kg	dw	100	0	0%	NA	NA	85	230
beta-BHC	µg/kg	dw	121	0	0%	NA	NA	0.18	2.1
Chlordane	µg/kg	dw	9	0	0%	NA	NA	1.9	4

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
cis-Nonachlor	µg/kg	dw	109	0	0%	NA	NA	0.12	0.72
delta-BHC	µg/kg	dw	121	0	0%	NA	NA	0.074	2.1
Dieldrin	µg/kg	dw	121	0	0%	NA	NA	0.14	4
Endosulfan I	µg/kg	dw	121	0	0%	NA	NA	0.063	2.1
Endosulfan II	µg/kg	dw	121	0	0%	NA	NA	0.14	4
Endosulfan sulfate	µg/kg	dw	121	0	0%	NA	NA	0.11	4
Endrin	µg/kg	dw	121	0	0%	NA	NA	0.094	4
Endrin aldehyde	µg/kg	dw	121	0	0%	NA	NA	0.12	4
Endrin ketone	µg/kg	dw	121	0	0%	NA	NA	0.093	4
gamma-BHC	µg/kg	dw	121	0	0%	NA	NA	0.08	2.1
gamma-Chlordane	µg/kg	dw	121	0	0%	NA	NA	0.09	2.1
Heptachlor	µg/kg	dw	121	0	0%	NA	NA	0.12	2.1
Heptachlor epoxide	µg/kg	dw	121	0	0%	NA	NA	0.084	2.1
Hexachlorobenzene	µg/kg	dw	109	5	5%	0.11	0.97	0.2	0.72
Hexachlorobutadiene	µg/kg	dw	109	0	0%	NA	NA	0.21	0.72
Methoxychlor	µg/kg	dw	121	3	2%	0.75	3.5	0.19	21
Mirex	µg/kg	dw	5	0	0%	NA	NA	0.099	0.099
Oxychlordane	µg/kg	dw	109	0	0%	NA	NA	0.085	0.72
Total chlordane, 0 DL	µg/kg	dw	109	0	0%	NA	NA	0.12	0.72
Total chlordane, 1/2 DL	µg/kg	dw	109	0	0%	NA	NA	0.12	0.72
Total DDD, 0 DL	µg/kg	dw	109	1	1%	0.16	0.16	0.13	1.5
Total DDD, 1/2 DL	µg/kg	dw	109	1	1%	0.43	0.43	0.13	1.5
Total DDE, 0 DL	µg/kg	dw	109	17	16%	0.072	0.84	0.16	1.5
Total DDE, 1/2 DL	µg/kg	dw	109	17	16%	0.25	1.13	0.16	1.5
Total DDT, 0 DL	µg/kg	dw	109	29	27%	0.15	1.76	0.17	1.5
Total DDT, 1/2 DL	µg/kg	dw	109	29	27%	0.245	1.76	0.17	1.5
Total DDx, 0 DL	µg/kg	dw	109	37	34%	0.115	2.22	0.17	1.5
Total DDx, 1/2 DL	µg/kg	dw	109	37	34%	0.765	3.54	0.17	1.5
Toxaphene	µg/kg	dw	121	0	0%	NA	NA	4.8	210
trans-Nonachlor	µg/kg	dw	109	0	0%	NA	NA	0.087	0.72
PAHs									
2-Methylnaphthalene	µg/kg	dw	114	96	84%	0.2	30	0.46	7
Acenaphthene	µg/kg	dw	109	13	12%	0.2	3	0.5	11
Acenaphthylene	µg/kg	dw	109	10	9%	0.2	9	0.56	12
Anthracene	µg/kg	dw	109	28	26%	0.2	7	0.55	12
Benzo(a)anthracene	µg/kg	dw	111	82	74%	0.2	32	0.72	7
Benzo(a)pyrene	µg/kg	dw	109	61	56%	0.4	16	0.76	8
Benzo(b)fluoranthene	µg/kg	dw	110	57	52%	0.2	38	0.92	8
Benzo(e)pyrene	µg/kg	dw	2	2	100%	0.62	0.66	NA	NA

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PAHs (continued)									
Benzo(g,h,i)perylene	µg/kg	dw	109	67	61%	0.2	9	0.85	11
Benzo(k)fluoranthene	µg/kg	dw	109	49	45%	0.2	30	0.87	13
Chrysene	µg/kg	dw	110	89	81%	0.2	77	0.8	7
Dibenzo(a,h)anthracene	µg/kg	dw	109	38	35%	0.2	4	0.8	7
Fluoranthene	µg/kg	dw	111	91	82%	0.2	200	0.98	7
Fluorene	µg/kg	dw	110	23	21%	0.2	4	0.61	11
Indeno(1,2,3-cd)pyrene	µg/kg	dw	109	60	55%	0.2	13	0.87	7
Naphthalene	µg/kg	dw	115	44	38%	0.73	42.5	0.4	6
Phenanthrene	µg/kg	dw	110	95	86%	0.2	72	1.4	7
Pyrene	µg/kg	dw	112	90	80%	0.2	110	0.76	7
Total HPAHs, 0 DL	µg/kg	dw	109	93	85%	0.2	528	0.98	7
Total HPAHs, 1/2 DL	µg/kg	dw	109	93	85%	5.03	528	0.98	7
Total LPAHs, 0 DL	µg/kg	dw	109	100	92%	0.2	123	4	7
Total LPAHs, 1/2 DL	µg/kg	dw	109	100	92%	2.7	123	4	7
Total PAHs, 0 DL	µg/kg	dw	109	101	93%	0.2	618	4	7
Total PAHs, 1/2 DL	µg/kg	dw	109	101	93%	6.87	618	4	7
PCBs									
Aroclor 1016	µg/kg	dw	121	0	0%	NA	NA	0.84	40
Aroclor 1221	µg/kg	dw	121	0	0%	NA	NA	2.1	82
Aroclor 1232	µg/kg	dw	121	0	0%	NA	NA	2.1	40
Aroclor 1242	µg/kg	dw	121	0	0%	NA	NA	0.84	40
Aroclor 1248	µg/kg	dw	121	0	0%	NA	NA	0.84	40
Aroclor 1254	µg/kg	dw	121	1	1%	2.7	2.7	0.84	40
Aroclor 1260	µg/kg	dw	121	0	0%	NA	NA	0.84	40
Aroclor 1262	µg/kg	dw	9	0	0%	NA	NA	2.1	2.1
Aroclor 1268	µg/kg	dw	9	0	0%	NA	NA	2.1	2.1
Total PCB Aroclors, 1/2 DL	µg/kg	dw	121	1	1%	11.1	11.1	2.1	82
Total PCB Aroclors, 0 DL	µg/kg	dw	121	1	1%	2.7	2.7	2.1	82
Total PCB congeners, 0 DL	pg/g	dw	5	5	100%	202	3460	NA	NA
Total PCB congeners, 1/2 DL	pg/g	dw	5	5	100%	485	3520	NA	NA
PCB TEQ, bird, 0 DL	pg/g	dw	5	5	100%	0.000471	0.214	NA	NA
PCB TEQ, bird, 1/2 DL	pg/g	dw	5	5	100%	0.107	0.414	NA	NA
PCB TEQ, fish, 0 DL	pg/g	dw	5	5	100%	0.0000918	0.00309	NA	NA
PCB TEQ, fish, 1/2 DL	pg/g	dw	5	5	100%	0.00151	0.0129	NA	NA
PCB TEQ, mammal, 0 DL	pg/g	dw	5	5	100%	0.000549	0.0458	NA	NA
PCB TEQ, mammal, 1/2 DL	pg/g	dw	5	5	100%	0.0231	0.272	NA	NA

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	dw	21	15	71%	1.47	11.4	0.226	1.14
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	dw	21	11	52%	0.333	5.18	0.0751	3.64
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	dw	21	1	5%	0.375	0.375	0.0318	1.41
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	dw	21	11	52%	0.0263	0.469	0.0337	1.51
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	dw	21	1	5%	0.191	0.191	0.0244	2.21
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	dw	21	8	38%	0.051	1	0.0347	1.97
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	dw	21	4	19%	0.0529	0.365	0.0271	2.23
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	dw	21	12	57%	0.036	1.21	0.0343	0.241
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	dw	21	1	5%	0.361	0.361	0.0219	1.17
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	dw	21	8	38%	0.0219	0.212	0.024	1.74
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	dw	21	10	48%	0.0259	0.563	0.0186	1.81
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	dw	21	1	5%	0.4	0.4	0.0237	1.18
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	dw	21	17	81%	0.0504	0.661	0.0342	1.35
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	dw	21	5	24%	0.178	0.28	0.0337	0.302
2,3,7,8-Tetrachlorodibenzofuran	pg/g	dw	21	20	95%	0.235	23.7	0.458	0.458
Octachlorodibenzodioxin	pg/g	dw	21	16	76%	4.15	87.1	1.28	5.73
Octachlorodibenzofuran	pg/g	dw	21	14	67%	0.751	9.1	0.129	5.02
Dioxin TEQ, bird, 0 DL	pg/g	dw	21	21	100%	0.128	24.9	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	21	21	100%	0.308	25	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	dw	21	21	100%	0.0118	2.16	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	21	21	100%	0.0782	2.24	NA	NA
Dioxin TEQ, mammal, 0 DL	pg/g	dw	21	21	100%	0.0235	3.38	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	21	21	100%	0.0835	3.42	NA	NA
Total TEQ, bird, 0 DL	pg/g	dw	5	5	100%	0.0646	12.2	NA	NA
Total TEQ, bird, 1/2 DL	pg/g	dw	5	5	100%	0.909	12.6	NA	NA
Total TEQ, fish, 0 DL	pg/g	dw	5	5	100%	0.0373	1.32	NA	NA
Total TEQ, fish, 1/2 DL	pg/g	dw	5	5	100%	0.256	2.25	NA	NA
Total TEQ, mammal, 0 DL	pg/g	dw	5	5	100%	0.027	1.82	NA	NA
Total TEQ, mammal, 1/2 DL	pg/g	dw	5	5	100%	0.47	2.22	NA	NA
PBDEs									
PBDE 17 and 25	pg/g	dw	5	2	40%	0.798	1.76	0.66	3.128
PBDE 28 and 33	pg/g	dw	5	0	0%	NA	NA	1.54	2.4
PBDE 47	pg/g	dw	5	4	80%	40.2	181	40.4	40.4
PBDE 49	pg/g	dw	5	3	60%	7.83	14.1	3.304	8.31
PBDE 66	pg/g	dw	5	3	60%	2.99	7.52	2.63	5.931
PBDE 71	pg/g	dw	5	1	20%	1.29	1.29	0.247	7.52
PBDE 85	pg/g	dw	5	3	60%	1.57	17.9	2.61	5.64
PBDE 99	pg/g	dw	5	3	60%	35.6	326	19.2	49.3
PBDE 100	pg/g	dw	5	4	80%	9.15	63.5	2.246	2.246

Table A-5a. Summary Statistics for Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PBDEs (continued)									
PBDE 128	pg/g	dw	5	0	0%	NA	NA	0.934	15.29
PBDE 138 and 166	pg/g	dw	5	2	40%	4.32	12.5	1.05	8.815
PBDE 153	pg/g	dw	5	4	80%	4.56	41.8	2.948	2.948
PBDE 154	pg/g	dw	5	4	80%	4.01	33.2	2.828	2.828
PBDE 183	pg/g	dw	5	4	80%	1.25	35.6	2.008	2.008
PBDE 184	pg/g	dw	5	1	20%	0.77	0.77	0.247	1.706
PBDE 190	pg/g	dw	5	0	0%	NA	NA	0.754	5.371
PBDE 191	pg/g	dw	5	0	0%	NA	NA	0.563	4.07
PBDE 203	pg/g	dw	5	2	40%	1.43	1.46	0.517	2.787
PBDE 206	pg/g	dw	5	0	0%	NA	NA	2.34	13.51
PBDE 209	pg/g	dw	5	2	40%	139	281	6.432	946

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SEM - simultaneously extracted metals

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	mg/kg	dw	111	111	100%	2530	81000	NA	NA
Antimony	mg/kg	dw	103	75	73%	0.048	7.2	0.029	14
Arsenic	mg/kg	dw	114	112	98%	0.91	26.2	2.3	2.8
Barium	mg/kg	dw	109	109	100%	29.6	1400	NA	NA
Beryllium	mg/kg	dw	109	109	100%	0.11	2.6	NA	NA
Cadmium	mg/kg	dw	114	110	96%	0.091	11	0.06	0.14
Calcium	mg/kg	dw	109	109	100%	1700	162000	NA	NA
Chromium	mg/kg	dw	111	111	100%	5.2	110	NA	NA
Cobalt	mg/kg	dw	109	109	100%	2.48	15.5	NA	NA
Copper	mg/kg	dw	114	114	100%	5.7	1110	NA	NA
Iron	mg/kg	dw	111	111	100%	5140	132400	NA	NA
Lead	mg/kg	dw	114	114	100%	3.3	500	NA	NA
Magnesium	mg/kg	dw	109	109	100%	1760	23400	NA	NA
Manganese	mg/kg	dw	109	109	100%	91.9	1000	NA	NA
Mercury	mg/kg	dw	109	95	87%	0.002	2.2	0.002	0.14
Molybdenum	mg/kg	dw	5	5	100%	1.4	3.8	NA	NA
Nickel	mg/kg	dw	111	111	100%	4.9	52.8	NA	NA
Potassium	mg/kg	dw	109	109	100%	504	28000	NA	NA
Selenium	mg/kg	dw	86	38	44%	0.2	5.4	0.2	7.7
Silver	mg/kg	dw	109	76	70%	0.02	5	0.048	3
Sodium	mg/kg	dw	109	99	91%	19.5	19000	90.5	337
Thallium	mg/kg	dw	109	72	66%	0.04	1.4	0.075	7.1
Uranium	mg/kg	dw	68	46	68%	0.375	11.5	16	57
Vanadium	mg/kg	dw	109	109	100%	7.7	110	NA	NA
Zinc	mg/kg	dw	114	114	100%	22.4	11300	NA	NA
Other Metals/Metalloids									
Bismuth	mg/kg	dw	5	5	100%	0.61	0.73	NA	NA
Cerium	mg/kg	dw	5	5	100%	88	96	NA	NA
Cesium	mg/kg	dw	5	5	100%	4.5	5.1	NA	NA
Gallium	mg/kg	dw	5	5	100%	17	18	NA	NA
Lanthanum	mg/kg	dw	5	5	100%	57	74	NA	NA
Lithium	mg/kg	dw	5	5	100%	31	33	NA	NA
Niobium	mg/kg	dw	5	5	100%	33	36.1	NA	NA
Rubidium	mg/kg	dw	5	5	100%	99	110	NA	NA
Scandium	mg/kg	dw	5	5	100%	13	13	NA	NA
Strontium	mg/kg	dw	3	3	100%	430	450	NA	NA
Tantalum	mg/kg	dw	5	5	100%	1.8	2.6	NA	NA
Thorium	mg/kg	dw	5	5	100%	13	14	NA	NA

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Other Metals/Metalloids (continued)									
Titanium	mg/kg	dw	5	5	100%	3500	4200	NA	NA
Ytterbium	mg/kg	dw	3	3	100%	2.9	3.2	NA	NA
Yttrium	mg/kg	dw	5	5	100%	33	50	NA	NA
SEM Metals/Metalloids									
Antimony	µmol/g	dw	11	5	45%	0.0021	0.0064	0.0008	0.003039
Arsenic	µmol/g	dw	7	7	100%	0.008	0.073	NA	NA
Cadmium	µmol/g	dw	11	11	100%	0.00075	0.05171	NA	NA
Chromium	µmol/g	dw	11	11	100%	0.0203	0.117	NA	NA
Copper	µmol/g	dw	11	11	100%	0.0531	2.014	NA	NA
Lead	µmol/g	dw	11	11	100%	0.0167	1.34	NA	NA
Mercury	µmol/g	dw	4	0	0%	NA	NA	0.000004287	0.000008974
Nickel	µmol/g	dw	11	11	100%	0.0233	0.146	NA	NA
Zinc	µmol/g	dw	11	11	100%	0.166	11.81	NA	NA
Nutrients									
Phosphorus	mg/kg	dw	5	5	100%	1600	1800	NA	NA
SVOCs									
1,1'-Biphenyl	µg/kg	dw	33	0	0%	NA	NA	1.9	240
1,2,4-Trichlorobenzene	µg/kg	dw	33	0	0%	NA	NA	2.6	240
1,2-Dichlorobenzene	µg/kg	dw	33	0	0%	NA	NA	2.9	240
1,3-Dichlorobenzene	µg/kg	dw	33	0	0%	NA	NA	3	240
1,4-Dichlorobenzene	µg/kg	dw	33	0	0%	NA	NA	2.9	240
2,2'-oxybis(1-Chloropropane)	µg/kg	dw	33	0	0%	NA	NA	2.6	240
2,4,5-Trichlorophenol	µg/kg	dw	33	0	0%	NA	NA	1.5	610
2,4,6-Trichlorophenol	µg/kg	dw	33	0	0%	NA	NA	1.4	240
2,4-Dichlorophenol	µg/kg	dw	33	0	0%	NA	NA	1	240
2,4-Dimethylphenol	µg/kg	dw	30	0	0%	NA	NA	5.5	240
2,4-Dinitrophenol	µg/kg	dw	27	0	0%	NA	NA	17	610
2,4-Dinitrotoluene	µg/kg	dw	33	0	0%	NA	NA	1.5	240
2,6-Dinitrotoluene	µg/kg	dw	33	0	0%	NA	NA	2	240
2-Chloronaphthalene	µg/kg	dw	33	0	0%	NA	NA	1.6	240
2-Chlorophenol	µg/kg	dw	33	0	0%	NA	NA	2	240
2-Methylphenol	µg/kg	dw	33	0	0%	NA	NA	1.5	240
2-Nitroaniline	µg/kg	dw	33	0	0%	NA	NA	3.2	610
2-Nitrophenol	µg/kg	dw	33	0	0%	NA	NA	1.5	240
3,3'-Dichlorobenzidine	µg/kg	dw	33	0	0%	NA	NA	3.7	240
3-Nitroaniline	µg/kg	dw	33	0	0%	NA	NA	2.5	610
4,6-Dinitro-2-methylphenol	µg/kg	dw	33	0	0%	NA	NA	1.4	610
4-Bromophenyl-phenylether	µg/kg	dw	33	0	0%	NA	NA	1.6	240

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
4-Chloro-3-methylphenol	µg/kg	dw	33	0	0%	NA	NA	1.4	240
4-Chloroaniline	µg/kg	dw	33	0	0%	NA	NA	1.9	240
4-Chlorophenyl-phenyl ether	µg/kg	dw	33	0	0%	NA	NA	1.4	240
4-Methylphenol	µg/kg	dw	33	3	9%	1.9	2.6	1.5	240
4-Nitroaniline	µg/kg	dw	33	0	0%	NA	NA	1.8	610
4-Nitrophenol	µg/kg	dw	33	0	0%	NA	NA	18	610
Acetophenone	µg/kg	dw	33	2	6%	15	22	12	240
Benzaldehyde	µg/kg	dw	33	0	0%	NA	NA	7.7	240
Benzoic acid	µg/kg	dw	23	0	0%	NA	NA	85	210
Benzyl alcohol	µg/kg	dw	33	0	0%	NA	NA	2.1	240
Benzyl n-butyl phthalate	µg/kg	dw	33	1	3%	3.4	3.4	3.2	240
bis(2-Chloroethoxy)methane	µg/kg	dw	33	0	0%	NA	NA	1.5	240
bis(2-Chloroethyl)ether	µg/kg	dw	33	1	3%	63	63	1.9	240
bis(2-Ethylhexyl)phthalate	µg/kg	dw	33	0	0%	NA	NA	7	240
Caprolactam	µg/kg	dw	33	0	0%	NA	NA	19	240
Carbazole	µg/kg	dw	33	1	3%	2	2	1.3	240
Dibenzofuran	µg/kg	dw	33	8	24%	0.2	2.2	1.2	12
Diethyl phthalate	µg/kg	dw	33	1	3%	1.4	1.4	1.3	240
Dimethyl phthalate	µg/kg	dw	33	0	0%	NA	NA	1.3	240
Di-n-butyl phthalate	µg/kg	dw	33	0	0%	NA	NA	7.9	240
Di-n-octylphthalate	µg/kg	dw	33	0	0%	NA	NA	1.7	240
Hexachlorocyclopentadiene	µg/kg	dw	6	0	0%	NA	NA	29	29
Hexachloroethane	µg/kg	dw	33	0	0%	NA	NA	3.1	240
Isophorone	µg/kg	dw	33	0	0%	NA	NA	1	240
Nitrobenzene	µg/kg	dw	33	0	0%	NA	NA	2.2	240
N-Nitrosodi-n-propylamine	µg/kg	dw	33	0	0%	NA	NA	2.4	240
N-Nitrosodiphenylamine	µg/kg	dw	33	0	0%	NA	NA	1.6	240
Pentachlorophenol	µg/kg	dw	33	0	0%	NA	NA	20	610
Perchlorocyclopentadiene	µg/kg	dw	27	0	0%	NA	NA	85	240
Phenol	µg/kg	dw	33	4	12%	2.6	4.8	2	240
Pesticides									
2,4'-DDD	µg/kg	dw	33	0	0%	NA	NA	0.13	1.9
2,4'-DDE	µg/kg	dw	33	0	0%	NA	NA	0.16	1.9
2,4'-DDT	µg/kg	dw	33	2	6%	0.28	0.7	0.058	1.9
4,4'-DDD	µg/kg	dw	41	0	0%	NA	NA	0.11	8.7
4,4'-DDE	µg/kg	dw	41	2	5%	0.3	0.43	0.11	8.7
4,4'-DDT	µg/kg	dw	41	6	15%	0.15	5.7	0.17	8.7
Aldrin	µg/kg	dw	41	0	0%	NA	NA	0.16	4.5

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
alpha-BHC	µg/kg	dw	41	0	0%	NA	NA	0.11	4.5
alpha-Chlordane	µg/kg	dw	41	0	0%	NA	NA	0.1	4.5
Atrazine	µg/kg	dw	27	0	0%	NA	NA	85	240
beta-BHC	µg/kg	dw	41	0	0%	NA	NA	0.18	4.5
Chlordane	µg/kg	dw	6	0	0%	NA	NA	1.9	1.9
cis-Nonachlor	µg/kg	dw	33	0	0%	NA	NA	0.12	0.94
delta-BHC	µg/kg	dw	41	0	0%	NA	NA	0.074	4.5
Dieldrin	µg/kg	dw	41	0	0%	NA	NA	0.14	8.7
Endosulfan I	µg/kg	dw	41	0	0%	NA	NA	0.063	4.5
Endosulfan II	µg/kg	dw	41	0	0%	NA	NA	0.14	8.7
Endosulfan sulfate	µg/kg	dw	41	0	0%	NA	NA	0.11	8.7
Endrin	µg/kg	dw	41	0	0%	NA	NA	0.094	8.7
Endrin aldehyde	µg/kg	dw	41	0	0%	NA	NA	0.12	8.7
Endrin ketone	µg/kg	dw	41	0	0%	NA	NA	0.093	8.7
gamma-BHC	µg/kg	dw	41	0	0%	NA	NA	0.08	4.5
gamma-Chlordane	µg/kg	dw	41	0	0%	NA	NA	0.09	4.5
Heptachlor	µg/kg	dw	41	0	0%	NA	NA	0.12	4.5
Heptachlor epoxide	µg/kg	dw	41	0	0%	NA	NA	0.084	4.5
Hexachlorobenzene	µg/kg	dw	33	0	0%	NA	NA	0.2	0.94
Hexachlorobutadiene	µg/kg	dw	33	0	0%	NA	NA	0.21	0.94
Methoxychlor	µg/kg	dw	41	4	10%	0.75	52	0.19	45
Oxychlordane	µg/kg	dw	33	0	0%	NA	NA	0.085	0.94
Total chlordane, 0 DL	µg/kg	dw	33	0	0%	NA	NA	0.12	0.94
Total chlordane, 1/2 DL	µg/kg	dw	33	0	0%	NA	NA	0.12	0.94
Total DDD, 0 DL	µg/kg	dw	33	0	0%	NA	NA	0.13	1.9
Total DDD, 1/2 DL	µg/kg	dw	33	0	0%	NA	NA	0.13	1.9
Total DDE, 0 DL	µg/kg	dw	33	2	6%	0.3	0.43	0.16	1.9
Total DDE, 1/2 DL	µg/kg	dw	33	2	6%	0.875	0.9	0.16	1.9
Total DDT, 0 DL	µg/kg	dw	33	6	18%	0.15	6.4	0.17	1.9
Total DDT, 1/2 DL	µg/kg	dw	33	6	18%	0.239	6.4	0.17	1.9
Total DDx, 0 DL	µg/kg	dw	33	6	18%	0.15	6.7	0.17	1.9
Total DDx, 1/2 DL	µg/kg	dw	33	6	18%	0.494	8.5	0.17	1.9
Toxaphene	µg/kg	dw	41	0	0%	NA	NA	4.8	450
trans-Nonachlor	µg/kg	dw	33	0	0%	NA	NA	0.087	0.94

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PAHs									
2-Methylnaphthalene	µg/kg	dw	33	11	33%	0.4	4.3	0.46	11
Acenaphthene	µg/kg	dw	33	0	0%	NA	NA	0.76	12
Acenaphthylene	µg/kg	dw	33	0	0%	NA	NA	0.59	12
Anthracene	µg/kg	dw	33	2	6%	0.7	0.76	0.58	12
Benzo(a)anthracene	µg/kg	dw	33	13	39%	0.4	3	0.72	10
Benzo(a)pyrene	µg/kg	dw	33	9	27%	0.6	2.8	0.76	11
Benzo(b)fluoranthene	µg/kg	dw	33	9	27%	0.8	5.7	0.92	12
Benzo(g,h,i)perylene	µg/kg	dw	33	13	39%	0.2	3.3	0.85	11
Benzo(k)fluoranthene	µg/kg	dw	33	8	24%	0.2	2	0.87	12
Chrysene	µg/kg	dw	33	24	73%	0.2	5.8	0.8	10
Dibenzo(a,h)anthracene	µg/kg	dw	33	3	9%	0.4	0.7	0.8	12
Fluoranthene	µg/kg	dw	33	18	55%	0.2	10	0.98	10
Fluorene	µg/kg	dw	33	3	9%	0.2	0.78	0.61	12
Indeno(1,2,3-cd)pyrene	µg/kg	dw	33	11	33%	0.2	3	0.87	12
Naphthalene	µg/kg	dw	33	12	36%	0.64	4	0.6	8.5
Phenanthrene	µg/kg	dw	33	16	48%	0.2	11	1.4	10
Pyrene	µg/kg	dw	33	23	70%	0.2	10	0.76	10
Total HPAHs, 0 DL	µg/kg	dw	33	26	79%	0.2	43.9	0.98	10
Total HPAHs, 1/2 DL	µg/kg	dw	33	26	79%	6.47	44.3	0.98	10
Total LPAHs, 0 DL	µg/kg	dw	33	18	55%	0.2	16.2	1.4	10
Total LPAHs, 1/2 DL	µg/kg	dw	33	18	55%	2.84	30.4	1.4	10
Total PAHs, 0 DL	µg/kg	dw	33	27	82%	0.2	60.1	1.4	10
Total PAHs, 1/2 DL	µg/kg	dw	33	27	82%	7.01	67.2	1.4	10
PCBs									
Aroclor 1016	µg/kg	dw	41	0	0%	NA	NA	0.85	87
Aroclor 1221	µg/kg	dw	41	0	0%	NA	NA	2.1	180
Aroclor 1232	µg/kg	dw	41	0	0%	NA	NA	2.1	87
Aroclor 1242	µg/kg	dw	41	0	0%	NA	NA	0.85	87
Aroclor 1248	µg/kg	dw	41	0	0%	NA	NA	0.85	87
Aroclor 1254	µg/kg	dw	41	0	0%	NA	NA	0.85	87
Aroclor 1260	µg/kg	dw	41	1	2%	2.6	2.6	0.85	87
Aroclor 1262	µg/kg	dw	6	0	0%	NA	NA	2.1	2.1
Aroclor 1268	µg/kg	dw	6	0	0%	NA	NA	2.1	2.1
Total PCB Aroclors, 1/2 DL	µg/kg	dw	41	1	2%	11	11	2.1	180
Total PCB Aroclors, 0 DL	µg/kg	dw	41	1	2%	2.6	2.6	2.1	180
Total PCB congeners, 0 DL	pg/g	dw	1	1	100%	4160	4160	NA	NA
Total PCB congeners, 1/2 DL	pg/g	dw	1	1	100%	4210	4210	NA	NA

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PCBs (continued)									
PCB TEQ, bird, 0 DL	pg/g	dw	1	1	100%	0.309	0.309	NA	NA
PCB TEQ, bird, 1/2 DL	pg/g	dw	1	1	100%	0.327	0.327	NA	NA
PCB TEQ, fish, 0 DL	pg/g	dw	1	1	100%	0.00501	0.00501	NA	NA
PCB TEQ, fish, 1/2 DL	pg/g	dw	1	1	100%	0.00512	0.00512	NA	NA
PCB TEQ, mammal, 0 DL	pg/g	dw	1	1	100%	0.0782	0.0782	NA	NA
PCB TEQ, mammal, 1/2 DL	pg/g	dw	1	1	100%	0.086	0.086	NA	NA
Dioxin/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	dw	5	2	40%	2.5	10.3	0.455	0.61
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	dw	5	1	20%	2.11	2.11	0.0784	0.369
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	dw	5	0	0%	NA	NA	0.0471	0.805
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	dw	5	2	40%	0.0486	0.0849	0.0462	0.295
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	dw	5	2	40%	0.0217	0.0467	0.025	0.174
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	dw	5	2	40%	0.0546	0.0829	0.051	0.305
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	dw	5	2	40%	0.033	0.0428	0.027	0.167
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	dw	5	0	0%	NA	NA	0.0489	0.305
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	dw	5	1	20%	0.0244	0.0244	0.0357	0.258
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	dw	5	1	20%	0.0337	0.0337	0.0425	0.224
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	dw	5	0	0%	NA	NA	0.021	0.164
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	dw	5	0	0%	NA	NA	0.0184	0.186
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	dw	5	0	0%	NA	NA	0.0342	0.159
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	dw	5	0	0%	NA	NA	0.0324	0.0932
2,3,7,8-Tetrachlorodibenzofuran	pg/g	dw	5	2	40%	0.0723	5.54	0.0777	0.0839
Octachlorodibenzodioxin	pg/g	dw	5	3	60%	4.97	84.9	5.45	5.91
Octachlorodibenzofuran	pg/g	dw	5	2	40%	0.996	7.64	0.147	0.243
Dioxin TEQ, bird, 0 DL	pg/g	dw	5	5	100%	0.00645	5.58	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	5	5	100%	0.116	5.89	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	dw	5	5	100%	0.00645	0.318	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	5	5	100%	0.0759	0.64	NA	NA
Dioxin TEQ, mammal, 0 DL	pg/g	dw	5	5	100%	0.00645	0.706	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	5	5	100%	0.0718	0.979	NA	NA
Total TEQ, bird, 0 DL	pg/g	dw	1	1	100%	5.89	5.89	NA	NA
Total TEQ, bird, 1/2 DL	pg/g	dw	1	1	100%	6.22	6.22	NA	NA
Total TEQ, fish, 0 DL	pg/g	dw	1	1	100%	0.323	0.323	NA	NA
Total TEQ, fish, 1/2 DL	pg/g	dw	1	1	100%	0.645	0.645	NA	NA
Total TEQ, mammal, 0 DL	pg/g	dw	1	1	100%	0.784	0.784	NA	NA
Total TEQ, mammal, 1/2 DL	pg/g	dw	1	1	100%	1.07	1.07	NA	NA

Table A-5b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PBDEs									
PBDE 17 and 25	pg/g	dw	1	1	100%	1	1	NA	NA
PBDE 28 and 33	pg/g	dw	1	0	0%	NA	NA	1.26	1.26
PBDE 47	pg/g	dw	1	1	100%	30.5	30.5	NA	NA
PBDE 49	pg/g	dw	1	1	100%	4.84	4.84	NA	NA
PBDE 66	pg/g	dw	1	0	0%	NA	NA	1.79	1.79
PBDE 71	pg/g	dw	1	1	100%	0.343	0.343	NA	NA
PBDE 85	pg/g	dw	1	0	0%	NA	NA	1.06	1.06
PBDE 99	pg/g	dw	1	1	100%	25.3	25.3	NA	NA
PBDE 100	pg/g	dw	1	1	100%	6.75	6.75	NA	NA
PBDE 128	pg/g	dw	1	0	0%	NA	NA	1.35	1.35
PBDE 138 and 166	pg/g	dw	1	0	0%	NA	NA	0.68	0.68
PBDE 153	pg/g	dw	1	1	100%	3.85	3.85	NA	NA
PBDE 154	pg/g	dw	1	1	100%	3.06	3.06	NA	NA
PBDE 183	pg/g	dw	1	1	100%	1.04	1.04	NA	NA
PBDE 184	pg/g	dw	1	0	0%	NA	NA	0.275	0.275
PBDE 190	pg/g	dw	1	0	0%	NA	NA	0.843	0.843
PBDE 191	pg/g	dw	1	0	0%	NA	NA	0.629	0.629
PBDE 203	pg/g	dw	1	0	0%	NA	NA	1.16	1.16
PBDE 206	pg/g	dw	1	0	0%	NA	NA	5.31	5.31
PBDE 209	pg/g	dw	1	0	0%	NA	NA	388	388

Notes:
0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
NA - not applicable
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SEM - simultaneously extracted metals
SVOC - semivolatile organic compound
TEQ - toxic equivalent

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	mg/kg	dw	13	13	100%	7670	20200	NA	NA
Antimony	mg/kg	dw	11	11	100%	5.2	36.5	NA	NA
Arsenic	mg/kg	dw	13	13	100%	5.8	21.3	NA	NA
Barium	mg/kg	dw	12	12	100%	348	1290	NA	NA
Beryllium	mg/kg	dw	12	12	100%	0.277	1.2	NA	NA
Cadmium	mg/kg	dw	13	13	100%	0.25	2.6	NA	NA
Calcium	mg/kg	dw	12	12	100%	13700	56700	NA	NA
Chromium	mg/kg	dw	13	13	100%	30.6	86.3	NA	NA
Cobalt	mg/kg	dw	12	12	100%	10	31.5	NA	NA
Copper	mg/kg	dw	13	13	100%	77.5	1540	NA	NA
Iron	mg/kg	dw	13	13	100%	23800	189000	NA	NA
Lead	mg/kg	dw	13	13	100%	99.9	954	NA	NA
Magnesium	mg/kg	dw	12	12	100%	4880	10300	NA	NA
Manganese	mg/kg	dw	12	12	100%	373	3470	NA	NA
Mercury	mg/kg	dw	13	13	100%	0.009	0.14	NA	NA
Molybdenum	mg/kg	dw	2	2	100%	20.2	22.1	NA	NA
Nickel	mg/kg	dw	13	13	100%	6.1	20.7	NA	NA
Potassium	mg/kg	dw	12	12	100%	1110	3470	NA	NA
Selenium	mg/kg	dw	8	6	75%	0.65	23.4	3.3	3.6
Silver	mg/kg	dw	12	5	42%	1.27	2.41	0.94	2.1
Sodium	mg/kg	dw	12	12	100%	184	1380	NA	NA
Thallium	mg/kg	dw	12	3	25%	0.089	0.13	0.087	5.2
Uranium	mg/kg	dw	7	3	43%	46.4	78.4	20.4	41.9
Vanadium	mg/kg	dw	12	12	100%	21.9	40.1	NA	NA
Zinc	mg/kg	dw	13	13	100%	521	19500	NA	NA
SEM Metals/Metalloids									
Antimony	µmol/g	dw	5	4	80%	0.0032	0.0235	0.0462	0.0462
Arsenic	µmol/g	dw	5	3	60%	0.007	0.043	0.02	0.15
Cadmium	µmol/g	dw	5	4	80%	0.0018	0.00822	0.0049	0.0049
Chromium	µmol/g	dw	5	5	100%	0.0553	0.525	NA	NA
Copper	µmol/g	dw	3	3	100%	0.385	2.07	NA	NA
Lead	µmol/g	dw	5	5	100%	0.0767	0.753	NA	NA
Mercury	µmol/g	dw	2	0	0%	NA	NA	0.00004	0.00005
Nickel	µmol/g	dw	3	3	100%	0.0196	0.0506	NA	NA
Zinc	µmol/g	dw	3	3	100%	7.51	91.3	NA	NA

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	µg/kg	dw	7	0	0%	NA	NA	86	170
1,2,4-Trichlorobenzene	µg/kg	dw	7	0	0%	NA	NA	86	170
1,2-Dichlorobenzene	µg/kg	dw	7	0	0%	NA	NA	86	170
1,3-Dichlorobenzene	µg/kg	dw	7	0	0%	NA	NA	86	170
1,4-Dichlorobenzene	µg/kg	dw	7	0	0%	NA	NA	86	170
2,2'-oxybis(1-Chloropropane)	µg/kg	dw	7	0	0%	NA	NA	86	170
2,4,5-Trichlorophenol	µg/kg	dw	7	0	0%	NA	NA	220	440
2,4,6-Trichlorophenol	µg/kg	dw	7	0	0%	NA	NA	86	170
2,4-Dichlorophenol	µg/kg	dw	7	0	0%	NA	NA	86	170
2,4-Dimethylphenol	µg/kg	dw	7	0	0%	NA	NA	86	170
2,4-Dinitrophenol	µg/kg	dw	6	0	0%	NA	NA	220	440
2,4-Dinitrotoluene	µg/kg	dw	7	0	0%	NA	NA	86	170
2,6-Dinitrotoluene	µg/kg	dw	7	0	0%	NA	NA	86	170
2-Chloronaphthalene	µg/kg	dw	7	0	0%	NA	NA	86	170
2-Chlorophenol	µg/kg	dw	7	0	0%	NA	NA	86	170
2-Methylphenol	µg/kg	dw	7	0	0%	NA	NA	86	170
2-Nitroaniline	µg/kg	dw	7	0	0%	NA	NA	220	440
2-Nitrophenol	µg/kg	dw	7	0	0%	NA	NA	86	170
3,3'-Dichlorobenzidine	µg/kg	dw	7	0	0%	NA	NA	86	170
3-Nitroaniline	µg/kg	dw	7	0	0%	NA	NA	220	440
4,6-Dinitro-2-methylphenol	µg/kg	dw	7	0	0%	NA	NA	220	440
4-Bromophenyl-phenylether	µg/kg	dw	7	0	0%	NA	NA	86	170
4-Chloro-3-methylphenol	µg/kg	dw	7	0	0%	NA	NA	86	170
4-Chloroaniline	µg/kg	dw	7	0	0%	NA	NA	86	170
4-Chlorophenyl-phenyl ether	µg/kg	dw	7	0	0%	NA	NA	86	170
4-Methylphenol	µg/kg	dw	7	0	0%	NA	NA	86	170
4-Nitroaniline	µg/kg	dw	7	0	0%	NA	NA	220	440
4-Nitrophenol	µg/kg	dw	7	0	0%	NA	NA	220	440
Acetophenone	µg/kg	dw	7	0	0%	NA	NA	86	170
Benzaldehyde	µg/kg	dw	7	0	0%	NA	NA	86	170
Benzoic acid	µg/kg	dw	5	0	0%	NA	NA	110	170
Benzyl alcohol	µg/kg	dw	7	0	0%	NA	NA	86	170
Benzyl n-butyl phthalate	µg/kg	dw	7	0	0%	NA	NA	86	170

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
bis(2-Chloroethoxy)methane	µg/kg	dw	7	0	0%	NA	NA	86	170
bis(2-Chloroethyl)ether	µg/kg	dw	7	0	0%	NA	NA	86	170
bis(2-Ethylhexyl)phthalate	µg/kg	dw	7	0	0%	NA	NA	86	170
Caprolactam	µg/kg	dw	7	0	0%	NA	NA	86	170
Carbazole	µg/kg	dw	7	0	0%	NA	NA	86	170
Dibenzofuran	µg/kg	dw	7	0	0%	NA	NA	4	12
Diethyl phthalate	µg/kg	dw	7	0	0%	NA	NA	86	170
Dimethyl phthalate	µg/kg	dw	7	0	0%	NA	NA	86	170
Di-n-butyl phthalate	µg/kg	dw	7	0	0%	NA	NA	86	170
Di-n-octylphthalate	µg/kg	dw	7	0	0%	NA	NA	86	170
Hexachloroethane	µg/kg	dw	7	0	0%	NA	NA	86	170
Isophorone	µg/kg	dw	7	0	0%	NA	NA	86	170
Nitrobenzene	µg/kg	dw	7	0	0%	NA	NA	86	170
N-Nitrosodi-n-propylamine	µg/kg	dw	7	0	0%	NA	NA	86	170
N-Nitrosodiphenylamine	µg/kg	dw	7	0	0%	NA	NA	86	170
Pentachlorophenol	µg/kg	dw	7	0	0%	NA	NA	220	440
Perchlorocyclopentadiene	µg/kg	dw	7	0	0%	NA	NA	86	170
Phenol	µg/kg	dw	7	0	0%	NA	NA	86	170
Pesticides									
2,4'-DDD	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
2,4'-DDE	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
2,4'-DDT	µg/kg	dw	7	1	14%	0.51	0.51	0.69	0.93
4,4'-DDD	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
4,4'-DDE	µg/kg	dw	7	1	14%	0.16	0.16	0.86	1.4
4,4'-DDT	µg/kg	dw	7	2	29%	0.14	3.1	0.69	0.93
Aldrin	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
alpha-BHC	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
alpha-Chlordane	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Atrazine	µg/kg	dw	7	0	0%	NA	NA	86	170
beta-BHC	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
cis-Nonachlor	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
delta-BHC	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Dieldrin	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Endosulfan I	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Endosulfan II	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Endosulfan sulfate	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Endrin	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Endrin aldehyde	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Endrin ketone	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
gamma-BHC	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
gamma-Chlordane	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Heptachlor	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Heptachlor epoxide	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Hexachlorobenzene	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Hexachlorobutadiene	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Methoxychlor	µg/kg	dw	7	0	0%	NA	NA	3.4	6.8
Oxychlordane	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Total chlordane, 0 DL	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Total chlordane, 1/2 DL	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
Total DDD, 0 DL	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Total DDD, 1/2 DL	µg/kg	dw	7	0	0%	NA	NA	0.69	1.4
Total DDE, 0 DL	µg/kg	dw	7	1	14%	0.16	0.16	0.86	1.4
Total DDE, 1/2 DL	µg/kg	dw	7	1	14%	0.505	0.505	0.86	1.4
Total DDT, 0 DL	µg/kg	dw	7	2	29%	0.14	3.61	0.69	0.93
Total DDT, 1/2 DL	µg/kg	dw	7	2	29%	0.605	3.61	0.69	0.93
Total DDx, 0 DL	µg/kg	dw	7	3	43%	0.14	3.61	0.86	0.93
Total DDx, 1/2 DL	µg/kg	dw	7	3	43%	1.89	6.41	0.86	0.93
Toxaphene	µg/kg	dw	7	0	0%	NA	NA	34	68
trans-Nonachlor	µg/kg	dw	7	0	0%	NA	NA	0.34	0.68
PAHs									
2-Methylnaphthalene	µg/kg	dw	9	6	67%	0.2	0.78	6	12
Acenaphthene	µg/kg	dw	7	0	0%	NA	NA	4	12
Acenaphthylene	µg/kg	dw	7	0	0%	NA	NA	4	12
Anthracene	µg/kg	dw	7	2	29%	0.4	0.7	4	9
Benzo(a)anthracene	µg/kg	dw	8	4	50%	0.2	1.1	4	9
Benzo(a)pyrene	µg/kg	dw	8	2	25%	0.2	0.84	4	11
Benzo(b)fluoranthene	µg/kg	dw	8	4	50%	0.2	1.1	4	9
Benzo(e)pyrene	µg/kg	dw	1	1	100%	0.78	0.78	NA	NA
Benzo(g,h,i)perylene	µg/kg	dw	8	4	50%	0.4	1	4	11
Benzo(k)fluoranthene	µg/kg	dw	7	2	29%	0.5	0.9	4	11
Chrysene	µg/kg	dw	8	6	75%	0.2	1	4	9
Dibenzo(a,h)anthracene	µg/kg	dw	7	1	14%	0.2	0.2	4	11

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PAHs (continued)									
Fluoranthene	µg/kg	dw	8	7	88%	0.2	3	4	4
Fluorene	µg/kg	dw	7	0	0%	NA	NA	4	12
Indeno(1,2,3-cd)pyrene	µg/kg	dw	7	4	57%	0.2	1	4	9
Naphthalene	µg/kg	dw	9	3	33%	1	4.4	1.6	4.7
Phenanthrene	µg/kg	dw	8	7	88%	0.4	2	4	4
Pyrene	µg/kg	dw	8	6	75%	0.4	2	4	9
Total HPAHs, 0 DL	µg/kg	dw	7	6	86%	1.4	8	4	4
Total HPAHs, 1/2 DL	µg/kg	dw	7	6	86%	5.8	43.5	4	4
Total LPAHs, 0 DL	µg/kg	dw	7	7	100%	0.2	5	NA	NA
Total LPAHs, 1/2 DL	µg/kg	dw	7	7	100%	12	27.8	NA	NA
Total PAHs, 0 DL	µg/kg	dw	7	7	100%	0.2	8.9	NA	NA
Total PAHs, 1/2 DL	µg/kg	dw	7	7	100%	31.6	64.8	NA	NA
PCBs									
Aroclor 1016	µg/kg	dw	7	0	0%	NA	NA	0.86	1.7
Aroclor 1221	µg/kg	dw	7	0	0%	NA	NA	3.5	6.9
Aroclor 1232	µg/kg	dw	7	0	0%	NA	NA	3.5	6.9
Aroclor 1242	µg/kg	dw	7	0	0%	NA	NA	0.86	1.7
Aroclor 1248	µg/kg	dw	7	0	0%	NA	NA	0.86	1.7
Aroclor 1254	µg/kg	dw	7	0	0%	NA	NA	0.86	1.7
Aroclor 1260	µg/kg	dw	7	0	0%	NA	NA	0.86	1.7
Total PCB Aroclors, 1/2 DL	µg/kg	dw	7	0	0%	NA	NA	3.5	6.9
Total PCB Aroclors, 0 DL	µg/kg	dw	7	0	0%	NA	NA	3.5	6.9
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.157	0.157
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0778	0.0778
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.135	0.135
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.0993	0.0993
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0475	0.0475
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.101	0.101
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0459	0.0459
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.101	0.101
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0808	0.0808
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.0669	0.0669
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0447	0.0447
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0462	0.0462
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.0403	0.0403

Table A-5c. Summary Statistics for Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	0.0627	0.0627
2,3,7,8-Tetrachlorodibenzofuran	pg/g	dw	1	1	100%	0.44	0.44	NA	NA
Octachlorodibenzodioxin	pg/g	dw	1	0	0%	NA	NA	1.16	1.16
Octachlorodibenzofuran	pg/g	dw	1	0	0%	NA	NA	0.249	0.249
Dioxin TEQ, bird, 0 DL	pg/g	dw	1	1	100%	0.44	0.44	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	1	1	100%	0.547	0.547	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	dw	1	1	100%	0.022	0.022	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	1	1	100%	0.136	0.136	NA	NA
Dioxin TEQ, mammal, 0 DL	pg/g	dw	1	1	100%	0.044	0.044	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	1	1	100%	0.144	0.144	NA	NA

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SEM - simultaneously extracted metals

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	mg/kg	dw	354	354	100%	1750	85000	NA	NA
Antimony	mg/kg	dw	275	214	78%	0.052	4.8	0.006	11.6
Arsenic	mg/kg	dw	355	342	96%	0.2	25	0.73	9.5
Barium	mg/kg	dw	345	345	100%	12.7	1240	NA	NA
Beryllium	mg/kg	dw	345	345	100%	0.0515	2.9	NA	NA
Cadmium	mg/kg	dw	355	301	85%	0.032	11.8	0.015	0.62
Calcium	mg/kg	dw	345	345	100%	667	45500	NA	NA
Chromium	mg/kg	dw	354	354	100%	1.2	109	NA	NA
Cobalt	mg/kg	dw	345	345	100%	0.906	19.8	NA	NA
Copper	mg/kg	dw	355	350	99%	0.8	111	6	8.7
Iron	mg/kg	dw	354	354	100%	2740	52000	NA	NA
Lead	mg/kg	dw	355	354	100%	2.19	841	1.1	1.1
Magnesium	mg/kg	dw	345	345	100%	800	23300	NA	NA
Manganese	mg/kg	dw	345	345	100%	42.6	3780	NA	NA
Mercury	mg/kg	dw	340	269	79%	0.002	2.4	0.002	0.14
Molybdenum	mg/kg	dw	12	12	100%	0.31	1.7	NA	NA
Nickel	mg/kg	dw	354	354	100%	0.68	50.1	NA	NA
Potassium	mg/kg	dw	345	345	100%	312	27500	NA	NA
Selenium	mg/kg	dw	284	67	24%	0.2	5.7	0.03	4.4
Silver	mg/kg	dw	326	189	58%	0.018	2.9	0.036	3
Sodium	mg/kg	dw	345	328	95%	26.3	23700	45.4	173
Thallium	mg/kg	dw	345	184	53%	0.0255	2.2	0.041	6.7
Uranium	mg/kg	dw	240	134	56%	0.345	13.4	6.4	38.7
Vanadium	mg/kg	dw	345	345	100%	3.75	125	NA	NA
Zinc	mg/kg	dw	355	355	100%	7.55	1460	NA	NA
Other Metals/Metalloids									
Bismuth	mg/kg	dw	12	12	100%	0.1	0.94	NA	NA
Cerium	mg/kg	dw	12	12	100%	53.3	111	NA	NA
Cesium	mg/kg	dw	12	12	100%	1.8	7.8	NA	NA
Gallium	mg/kg	dw	12	12	100%	15	22	NA	NA
Lanthanum	mg/kg	dw	12	12	100%	30.9	75.1	NA	NA
Lithium	mg/kg	dw	12	12	100%	15.4	45	NA	NA
Rubidium	mg/kg	dw	12	12	100%	89	130	NA	NA
Scandium	mg/kg	dw	12	12	100%	6.9	16.5	NA	NA
Strontium	mg/kg	dw	12	12	100%	249	601	NA	NA
Thorium	mg/kg	dw	12	12	100%	8.3	17.5	NA	NA
Titanium	mg/kg	dw	12	12	100%	1900	4500	NA	NA
Yttrium	mg/kg	dw	12	12	100%	12.9	51.6	NA	NA

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SEM Metals/Metalloids									
Antimony	µmol/g	dw	46	5	11%	0.00076	0.0037	0.0004107	0.0054
Arsenic	µmol/g	dw	21	20	95%	0.0029	0.068	0.002	0.002
Cadmium	µmol/g	dw	46	41	89%	0.000378	0.05622	0.00009	0.002758
Chromium	µmol/g	dw	46	46	100%	0.0019	0.0719	NA	NA
Copper	µmol/g	dw	46	44	96%	0.0131	0.506	0.0027	0.02046
Lead	µmol/g	dw	46	46	100%	0.0019	2.172	NA	NA
Mercury	µmol/g	dw	25	2	8%	8.974E-06	0.00001346	0.0000014	0.000005484
Nickel	µmol/g	dw	46	35	76%	0.00285	1.38	0.01005	0.1022
Zinc	µmol/g	dw	46	46	100%	0.0161	9.43	NA	NA
Nutrients									
Phosphorus	mg/kg	dw	12	12	100%	570	1600	NA	NA
SVOCs									
1,1'-Biphenyl	µg/kg	dw	143	0	0%	NA	NA	1.9	240
1,2,4-Trichlorobenzene	µg/kg	dw	143	0	0%	NA	NA	2.6	240
1,2-Dichlorobenzene	µg/kg	dw	143	0	0%	NA	NA	2.9	240
1,3-Dichlorobenzene	µg/kg	dw	143	0	0%	NA	NA	3	240
1,4-Dichlorobenzene	µg/kg	dw	143	0	0%	NA	NA	2.9	240
2,2'-oxybis(1-Chloropropane)	µg/kg	dw	143	0	0%	NA	NA	2.6	240
2,4,5-Trichlorophenol	µg/kg	dw	143	0	0%	NA	NA	1.5	600
2,4,6-Trichlorophenol	µg/kg	dw	143	0	0%	NA	NA	1.4	240
2,4-Dichlorophenol	µg/kg	dw	143	0	0%	NA	NA	1	240
2,4-Dimethylphenol	µg/kg	dw	143	0	0%	NA	NA	5.5	240
2,4-Dinitrophenol	µg/kg	dw	118	0	0%	NA	NA	17	600
2,4-Dinitrotoluene	µg/kg	dw	143	0	0%	NA	NA	1.5	240
2,6-Dinitrotoluene	µg/kg	dw	143	0	0%	NA	NA	2	240
2-Chloronaphthalene	µg/kg	dw	143	0	0%	NA	NA	1.6	240
2-Chlorophenol	µg/kg	dw	143	0	0%	NA	NA	2	240
2-Methylphenol	µg/kg	dw	143	0	0%	NA	NA	1.5	240
2-Nitroaniline	µg/kg	dw	143	0	0%	NA	NA	3.2	600
2-Nitrophenol	µg/kg	dw	143	0	0%	NA	NA	1.5	240
3,3'-Dichlorobenzidine	µg/kg	dw	143	0	0%	NA	NA	3.7	240
3-Nitroaniline	µg/kg	dw	143	0	0%	NA	NA	2.5	600
4,6-Dinitro-2-methylphenol	µg/kg	dw	143	0	0%	NA	NA	1.4	600
4-Bromophenyl-phenylether	µg/kg	dw	143	0	0%	NA	NA	1.6	240
4-Chloro-3-methylphenol	µg/kg	dw	143	0	0%	NA	NA	1.4	240
4-Chloroaniline	µg/kg	dw	143	0	0%	NA	NA	1.9	240
4-Chlorophenyl-phenyl ether	µg/kg	dw	143	0	0%	NA	NA	1.4	240
4-Methylphenol	µg/kg	dw	143	1	1%	200	200	1.5	240
4-Nitroaniline	µg/kg	dw	143	0	0%	NA	NA	1.8	600

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
4-Nitrophenol	µg/kg	dw	143	0	0%	NA	NA	18	600
Acetophenone	µg/kg	dw	143	0	0%	NA	NA	12	240
Benzaldehyde	µg/kg	dw	143	1	1%	21	21	7.7	240
Benzoic acid	µg/kg	dw	61	0	0%	NA	NA	85	600
Benzyl alcohol	µg/kg	dw	143	0	0%	NA	NA	2.1	240
Benzyl n-butyl phthalate	µg/kg	dw	143	1	1%	3.8	3.8	3.2	240
bis(2-Chloroethoxy)methane	µg/kg	dw	143	0	0%	NA	NA	1.5	240
bis(2-Chloroethyl)ether	µg/kg	dw	143	0	0%	NA	NA	1.9	240
bis(2-Ethylhexyl)phthalate	µg/kg	dw	143	4	3%	31	79	7	240
Caprolactam	µg/kg	dw	143	3	2%	43	150	19	240
Carbazole	µg/kg	dw	143	0	0%	NA	NA	1.3	240
Dibenzofuran	µg/kg	dw	143	3	2%	0.5	0.5	1.2	9
Diethyl phthalate	µg/kg	dw	143	0	0%	NA	NA	1.3	240
Dimethyl phthalate	µg/kg	dw	143	4	3%	1.4	1.7	1	240
Di-n-butyl phthalate	µg/kg	dw	143	0	0%	NA	NA	7.9	240
Di-n-octylphthalate	µg/kg	dw	143	0	0%	NA	NA	1.7	240
Hexachlorocyclopentadiene	µg/kg	dw	17	0	0%	NA	NA	29	30
Hexachloroethane	µg/kg	dw	143	0	0%	NA	NA	3.1	240
Isophorone	µg/kg	dw	143	0	0%	NA	NA	1	240
Nitrobenzene	µg/kg	dw	143	0	0%	NA	NA	2.2	240
N-Nitrosodi-n-propylamine	µg/kg	dw	143	0	0%	NA	NA	2.4	240
N-Nitrosodiphenylamine	µg/kg	dw	143	0	0%	NA	NA	1.6	240
Pentachlorophenol	µg/kg	dw	143	0	0%	NA	NA	20	600
Perchlorocyclopentadiene	µg/kg	dw	126	0	0%	NA	NA	83	240
Phenol	µg/kg	dw	143	6	4%	2	3.2	2	240
Pesticides									
2,4'-DDD	µg/kg	dw	143	0	0%	NA	NA	0.13	5.1
2,4'-DDE	µg/kg	dw	143	6	4%	0.09	17	0.16	1.9
2,4'-DDT	µg/kg	dw	143	13	9%	0.09	57	0.058	1.9
4,4'-DDD	µg/kg	dw	151	1	1%	2.1	2.1	0.11	7.2
4,4'-DDE	µg/kg	dw	151	17	11%	0.062	63	0.11	7.2
4,4'-DDT	µg/kg	dw	151	40	26%	0.08	200	0.17	7.2
Aldrin	µg/kg	dw	151	0	0%	NA	NA	0.16	3.7
alpha-BHC	µg/kg	dw	151	1	1%	0.23	0.23	0.11	3.7
alpha-Chlordane	µg/kg	dw	151	2	1%	0.41	1.1	0.1	3.7
Atrazine	µg/kg	dw	126	0	0%	NA	NA	83	240
beta-BHC	µg/kg	dw	151	0	0%	NA	NA	0.18	3.7
Chlordane	µg/kg	dw	17	0	0%	NA	NA	1.9	4
cis-Nonachlor	µg/kg	dw	143	0	0%	NA	NA	0.12	2.6

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
delta-BHC	µg/kg	dw	151	0	0%	NA	NA	0.074	3.7
Dieldrin	µg/kg	dw	151	0	0%	NA	NA	0.14	7.2
Endosulfan I	µg/kg	dw	151	0	0%	NA	NA	0.063	3.7
Endosulfan II	µg/kg	dw	151	0	0%	NA	NA	0.14	7.2
Endosulfan sulfate	µg/kg	dw	151	0	0%	NA	NA	0.11	7.2
Endrin	µg/kg	dw	151	0	0%	NA	NA	0.094	7.2
Endrin aldehyde	µg/kg	dw	151	0	0%	NA	NA	0.12	7.2
Endrin ketone	µg/kg	dw	151	0	0%	NA	NA	0.093	7.2
gamma-BHC	µg/kg	dw	151	0	0%	NA	NA	0.08	3.7
gamma-Chlordane	µg/kg	dw	151	2	1%	0.075	0.84	0.09	3.7
Heptachlor	µg/kg	dw	151	0	0%	NA	NA	0.12	3.7
Heptachlor epoxide	µg/kg	dw	151	0	0%	NA	NA	0.084	3.7
Hexachlorobenzene	µg/kg	dw	143	5	3%	0.092	8.5	0.2	2.6
Hexachlorobutadiene	µg/kg	dw	143	0	0%	NA	NA	0.21	2.6
Methoxychlor	µg/kg	dw	151	1	1%	2.4	2.4	0.19	37
Mirex	µg/kg	dw	1	0	0%	NA	NA	0.099	0.099
Oxychlordane	µg/kg	dw	143	0	0%	NA	NA	0.085	2.6
Total chlordane, 0 DL	µg/kg	dw	143	4	3%	0.075	1.94	0.12	2.6
Total chlordane, 1/2 DL	µg/kg	dw	143	4	3%	0.795	2.75	0.12	2.6
Total DDD, 0 DL	µg/kg	dw	143	1	1%	2.1	2.1	0.13	1.9
Total DDD, 1/2 DL	µg/kg	dw	143	1	1%	4.65	4.65	0.13	1.9
Total DDE, 0 DL	µg/kg	dw	143	17	12%	0.062	80	0.16	1.9
Total DDE, 1/2 DL	µg/kg	dw	143	17	12%	0.412	80	0.16	1.9
Total DDT, 0 DL	µg/kg	dw	143	40	28%	0.08	257	0.17	1.9
Total DDT, 1/2 DL	µg/kg	dw	143	40	28%	0.42	257	0.17	1.9
Total DDx, 0 DL	µg/kg	dw	143	42	29%	0.08	339	0.17	1.9
Total DDx, 1/2 DL	µg/kg	dw	143	42	29%	1.53	342	0.17	1.9
Toxaphene	µg/kg	dw	151	0	0%	NA	NA	4.8	370
trans-Nonachlor	µg/kg	dw	143	1	1%	1	1	0.087	2.6
PAHs									
2-Methylnaphthalene	µg/kg	dw	143	65	45%	0.2	1	0.46	8
Acenaphthene	µg/kg	dw	143	3	2%	0.4	0.9	0.76	12
Acenaphthylene	µg/kg	dw	143	1	1%	0.9	0.9	0.59	12
Anthracene	µg/kg	dw	143	2	1%	1	1.5	0.58	12
Benzo(a)anthracene	µg/kg	dw	143	26	18%	0.2	12	0.72	8
Benzo(a)pyrene	µg/kg	dw	143	11	8%	0.4	11	0.76	9
Benzo(b)fluoranthene	µg/kg	dw	143	17	12%	0.2	15.5	0.92	9
Benzo(g,h,i)perylene	µg/kg	dw	143	12	8%	0.2	7	0.85	9
Benzo(k)fluoranthene	µg/kg	dw	143	15	10%	0.2	10	0.87	9

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PAHs (continued)									
Chrysene	µg/kg	dw	143	42	29%	0.2	18	0.8	8
Dibenzo(a,h)anthracene	µg/kg	dw	143	3	2%	1	3	0.8	12
Fluoranthene	µg/kg	dw	143	41	29%	0.2	27	0.98	6
Fluorene	µg/kg	dw	143	1	1%	0.4	0.4	0.61	12
Indeno(1,2,3-cd)pyrene	µg/kg	dw	143	12	8%	0.2	11.5	0.87	9
Naphthalene	µg/kg	dw	143	45	31%	0.5	3	0.4	8.6
Phenanthrene	µg/kg	dw	143	36	25%	0.2	6	1.4	8
Pyrene	µg/kg	dw	143	37	26%	0.2	22	0.76	8
Total HPAHs, 0 DL	µg/kg	dw	143	51	36%	0.2	121	0.98	6
Total HPAHs, 1/2 DL	µg/kg	dw	143	51	36%	4.89	121	0.98	6
Total LPAHs, 0 DL	µg/kg	dw	143	76	53%	0.2	7.8	1.4	8.6
Total LPAHs, 1/2 DL	µg/kg	dw	143	76	53%	2.94	27.5	1.4	8.6
Total PAHs, 0 DL	µg/kg	dw	143	92	64%	0.2	129	1.4	6
Total PAHs, 1/2 DL	µg/kg	dw	143	92	64%	7.31	136	1.4	6
PCBs									
Aroclor 1016	µg/kg	dw	151	1	1%	25	25	0.83	72
Aroclor 1221	µg/kg	dw	151	0	0%	NA	NA	2.1	140
Aroclor 1232	µg/kg	dw	151	0	0%	NA	NA	2.1	72
Aroclor 1242	µg/kg	dw	151	0	0%	NA	NA	0.83	72
Aroclor 1248	µg/kg	dw	151	0	0%	NA	NA	0.83	72
Aroclor 1254	µg/kg	dw	151	1	1%	11	11	0.83	72
Aroclor 1260	µg/kg	dw	151	2	1%	5.9	9.4	0.83	72
Aroclor 1262	µg/kg	dw	17	0	0%	NA	NA	2.1	2.1
Aroclor 1268	µg/kg	dw	17	0	0%	NA	NA	2.1	2.1
Total PCB Aroclors, 1/2 DL	µg/kg	dw	151	2	1%	41.2	141	2.1	140
Total PCB Aroclors, 0 DL	µg/kg	dw	151	2	1%	16.9	34.4	2.1	140
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	dw	28	12	43%	0.947	9.24	0.102	2.03
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	dw	28	17	61%	0.0764	10.6	0.0465	0.352
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	dw	28	2	7%	0.0618	0.229	0.0536	0.156
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	dw	28	8	29%	0.0593	0.244	0.0481	0.163
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	dw	28	4	14%	0.0474	0.241	0.0181	0.156
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	dw	28	15	54%	0.0722	0.772	0.0519	0.123
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	dw	28	6	21%	0.019	0.202	0.0283	0.133
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	dw	28	10	36%	0.0671	0.265	0.0503	0.514
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	dw	28	2	7%	0.0368	0.1	0.0282	0.176
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	dw	28	5	18%	0.0423	0.27	0.0386	0.171
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	dw	28	2	7%	0.157	0.247	0.0204	0.0716

Table A-5d. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	dw	28	8	29%	0.0164	0.238	0.0277	0.17
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	dw	28	3	11%	0.0277	0.47	0.0242	0.189
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	dw	28	3	11%	0.0944	0.245	0.0352	0.103
2,3,7,8-Tetrachlorodibenzofuran	pg/g	dw	28	15	54%	0.295	15.8	0.0569	0.204
Octachlorodibenzodioxin	pg/g	dw	28	15	54%	4.02	75.2	1.58	7.89
Octachlorodibenzofuran	pg/g	dw	28	16	57%	0.155	4.51	0.0973	0.679
Dioxin TEQ, bird, 0 DL	pg/g	dw	28	26	93%	0.0013	16.8	0	0
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	28	26	93%	0.119	16.9	0.106	0.166
Dioxin TEQ, fish, 0 DL	pg/g	dw	28	26	93%	0.0013	1.64	0	0
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	28	26	93%	0.0763	1.73	0.0737	0.123
Dioxin TEQ, mammal, 0 DL	pg/g	dw	28	26	93%	0.00161	2.36	0	0
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	28	26	93%	0.0696	2.5	0.0693	0.112

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SEM - simultaneously extracted metals

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids									
Aluminum	mg/kg	dw	159	159	100%	7220	77000	NA	NA
Antimony	mg/kg	dw	107	94	88%	0.327	10	0.63	19.1
Arsenic	mg/kg	dw	163	159	98%	3.9	20.7	4	8.1
Barium	mg/kg	dw	145	145	100%	54.1	1500	NA	NA
Beryllium	mg/kg	dw	145	145	100%	0.42	2.8	NA	NA
Cadmium	mg/kg	dw	163	162	99%	0.08	16.2	0.08	0.08
Calcium	mg/kg	dw	145	145	100%	3400	51000	NA	NA
Chromium	mg/kg	dw	159	159	100%	8.8	110	NA	NA
Cobalt	mg/kg	dw	145	145	100%	4.6	21.6	NA	NA
Copper	mg/kg	dw	163	163	100%	11.1	329	NA	NA
Iron	mg/kg	dw	159	159	100%	13700	46000	NA	NA
Lead	mg/kg	dw	163	163	100%	6.1	841	NA	NA
Magnesium	mg/kg	dw	145	145	100%	3220	26000	NA	NA
Manganese	mg/kg	dw	145	145	100%	251	2510	NA	NA
Mercury	mg/kg	dw	155	153	99%	0.03	1.9	0.06	0.08
Molybdenum	mg/kg	dw	26	26	100%	0.69	7.6	NA	NA
Nickel	mg/kg	dw	159	159	100%	8.5	48	NA	NA
Potassium	mg/kg	dw	145	145	100%	1400	25000	NA	NA
Selenium	mg/kg	dw	123	110	89%	0.33	8.9	0.72	10.2
Silver	mg/kg	dw	132	60	45%	0.256	2.7	1	4.2
Sodium	mg/kg	dw	145	144	99%	77.8	22000	222	222
Thallium	mg/kg	dw	145	76	52%	0.351	1.9	0.82	10.5
Uranium	mg/kg	dw	89	29	33%	2.3	21.7	20.2	84.3
Vanadium	mg/kg	dw	145	145	100%	12.8	120	NA	NA
Zinc	mg/kg	dw	163	163	100%	38.4	2230	NA	NA
Other Metals/Metalloids									
Bismuth	mg/kg	dw	26	26	100%	0.19	0.8	NA	NA
Cerium	mg/kg	dw	26	26	100%	72	130	NA	NA
Cesium	mg/kg	dw	26	26	100%	1.8	7.2	NA	NA
Gallium	mg/kg	dw	26	26	100%	12	19	NA	NA
Lanthanum	mg/kg	dw	26	26	100%	47	120	NA	NA
Lithium	mg/kg	dw	26	26	100%	17	42	NA	NA
Niobium	mg/kg	dw	26	26	100%	16	32	NA	NA
Rubidium	mg/kg	dw	26	26	100%	72	120	NA	NA
Scandium	mg/kg	dw	26	26	100%	6.3	16	NA	NA
Strontium	mg/kg	dw	18	18	100%	250	600	NA	NA
Tantalum	mg/kg	dw	22	22	100%	1.2	1.7	NA	NA
Thorium	mg/kg	dw	26	26	100%	9.8	16	NA	NA
Titanium	mg/kg	dw	26	26	100%	3000	4400	NA	NA

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Other Metals/Metalloids (continued)									
Ytterbium	mg/kg	dw	18	18	100%	1.7	4.3	NA	NA
Yttrium	mg/kg	dw	26	26	100%	20	80	NA	NA
SEM Metals/Metalloids									
Antimony	µmol/g	dw	50	15	30%	0.0016	0.0137	0.0014	0.0075
Arsenic	µmol/g	dw	50	49	98%	0.013	0.047	0.0107	0.0107
Cadmium	µmol/g	dw	50	50	100%	0.00262	0.05474	NA	NA
Chromium	µmol/g	dw	50	50	100%	0.0162	0.133	NA	NA
Copper	µmol/g	dw	50	50	100%	0.0555	0.638	NA	NA
Lead	µmol/g	dw	50	50	100%	0.0619	1.37	NA	NA
Nickel	µmol/g	dw	50	50	100%	0.0236	0.134	NA	NA
Zinc	µmol/g	dw	50	50	100%	0.801	13.7	NA	NA
Nutrients									
Phosphorus	mg/kg	dw	25	25	100%	920	1800	NA	NA
SVOCs									
1,1'-Biphenyl	µg/kg	dw	63	0	0%	NA	NA	88	340
1,2,4-Trichlorobenzene	µg/kg	dw	63	0	0%	NA	NA	88	340
1,2-Dichlorobenzene	µg/kg	dw	63	0	0%	NA	NA	88	340
1,3-Dichlorobenzene	µg/kg	dw	63	0	0%	NA	NA	88	340
1,4-Dichlorobenzene	µg/kg	dw	63	0	0%	NA	NA	88	340
2,2'-oxybis(1-Chloropropane)	µg/kg	dw	63	0	0%	NA	NA	88	340
2,4,5-Trichlorophenol	µg/kg	dw	63	0	0%	NA	NA	220	870
2,4,6-Trichlorophenol	µg/kg	dw	63	0	0%	NA	NA	88	340
2,4-Dichlorophenol	µg/kg	dw	63	0	0%	NA	NA	88	340
2,4-Dimethylphenol	µg/kg	dw	63	0	0%	NA	NA	88	340
2,4-Dinitrophenol	µg/kg	dw	58	0	0%	NA	NA	250	870
2,4-Dinitrotoluene	µg/kg	dw	63	0	0%	NA	NA	88	340
2,6-Dinitrotoluene	µg/kg	dw	63	0	0%	NA	NA	88	340
2-Chloronaphthalene	µg/kg	dw	63	0	0%	NA	NA	88	340
2-Chlorophenol	µg/kg	dw	63	0	0%	NA	NA	88	340
2-Methylphenol	µg/kg	dw	63	0	0%	NA	NA	88	340
2-Nitroaniline	µg/kg	dw	63	0	0%	NA	NA	220	870
2-Nitrophenol	µg/kg	dw	63	0	0%	NA	NA	88	340
3,3'-Dichlorobenzidine	µg/kg	dw	63	0	0%	NA	NA	88	340
3-Nitroaniline	µg/kg	dw	63	0	0%	NA	NA	220	870
4,6-Dinitro-2-methylphenol	µg/kg	dw	63	0	0%	NA	NA	220	870
4-Bromophenyl-phenylether	µg/kg	dw	63	0	0%	NA	NA	88	340
4-Chloro-3-methylphenol	µg/kg	dw	63	0	0%	NA	NA	88	340
4-Chloroaniline	µg/kg	dw	63	0	0%	NA	NA	88	340
4-Chlorophenyl-phenyl ether	µg/kg	dw	63	0	0%	NA	NA	88	340

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
4-Methylphenol	µg/kg	dw	63	1	2%	120	120	88	340
4-Nitroaniline	µg/kg	dw	63	0	0%	NA	NA	220	870
4-Nitrophenol	µg/kg	dw	63	0	0%	NA	NA	220	870
Acetophenone	µg/kg	dw	63	0	0%	NA	NA	88	340
Benzaldehyde	µg/kg	dw	63	0	0%	NA	NA	88	340
Benzoic acid	µg/kg	dw	17	0	0%	NA	NA	140	570
Benzyl alcohol	µg/kg	dw	63	0	0%	NA	NA	88	340
Benzyl n-butyl phthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
bis(2-Chloroethoxy)methane	µg/kg	dw	63	0	0%	NA	NA	88	340
bis(2-Chloroethyl)ether	µg/kg	dw	63	0	0%	NA	NA	88	340
bis(2-Ethylhexyl)phthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
Caprolactam	µg/kg	dw	63	1	2%	50	50	88	340
Carbazole	µg/kg	dw	63	0	0%	NA	NA	88	340
Dibenzofuran	µg/kg	dw	63	19	30%	0.2	3	5	18
Diethyl phthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
Dimethyl phthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
Di-n-butyl phthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
Di-n-octylphthalate	µg/kg	dw	63	0	0%	NA	NA	88	340
Hexachloroethane	µg/kg	dw	63	0	0%	NA	NA	88	340
Isophorone	µg/kg	dw	63	0	0%	NA	NA	88	340
Nitrobenzene	µg/kg	dw	63	0	0%	NA	NA	88	340
N-Nitrosodi-n-propylamine	µg/kg	dw	63	0	0%	NA	NA	88	340
N-Nitrosodiphenylamine	µg/kg	dw	63	0	0%	NA	NA	88	340
Pentachlorophenol	µg/kg	dw	63	0	0%	NA	NA	220	870
Perchlorocyclopentadiene	µg/kg	dw	63	0	0%	NA	NA	88	340
Phenol	µg/kg	dw	63	0	0%	NA	NA	88	340
Pesticides									
2,4'-DDD	µg/kg	dw	63	0	0%	NA	NA	0.79	2.8
2,4'-DDE	µg/kg	dw	63	0	0%	NA	NA	0.79	2.8
2,4'-DDT	µg/kg	dw	63	2	3%	0.59	6.5	0.79	2.8
4,4'-DDD	µg/kg	dw	69	2	3%	0.35	2.1	0.79	6.2
4,4'-DDE	µg/kg	dw	69	5	7%	0.37	0.88	0.79	6.2
4,4'-DDT	µg/kg	dw	69	8	12%	0.15	20	0.79	6.2
Aldrin	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
alpha-BHC	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
alpha-Chlordane	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Atrazine	µg/kg	dw	63	0	0%	NA	NA	88	340
beta-BHC	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
cis-Nonachlor	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
delta-BHC	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Dieldrin	µg/kg	dw	69	0	0%	NA	NA	0.79	6.2
Endosulfan I	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Endosulfan II	µg/kg	dw	69	0	0%	NA	NA	0.79	6.2
Endosulfan sulfate	µg/kg	dw	69	0	0%	NA	NA	0.79	6.2
Endrin	µg/kg	dw	69	0	0%	NA	NA	0.79	6.2
Endrin aldehyde	µg/kg	dw	69	1	1%	0.42	0.42	0.77	6.2
Endrin ketone	µg/kg	dw	69	0	0%	NA	NA	0.79	6.2
gamma-BHC	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
gamma-Chlordane	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Heptachlor	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Heptachlor epoxide	µg/kg	dw	69	0	0%	NA	NA	0.39	3.2
Hexachlorobenzene	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
Hexachlorobutadiene	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
Methoxychlor	µg/kg	dw	69	0	0%	NA	NA	3.9	32
Oxychlordane	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
Total chlordane, 0 DL	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
Total chlordane, 1/2 DL	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
Total DDD, 0 DL	µg/kg	dw	63	2	3%	0.35	2.1	0.79	2.8
Total DDD, 1/2 DL	µg/kg	dw	63	2	3%	1.15	3	0.79	2.8
Total DDE, 0 DL	µg/kg	dw	63	5	8%	0.37	0.88	0.79	2.8
Total DDE, 1/2 DL	µg/kg	dw	63	5	8%	1.17	1.35	0.79	2.8
Total DDT, 0 DL	µg/kg	dw	63	8	13%	0.15	26.5	0.79	2.8
Total DDT, 1/2 DL	µg/kg	dw	63	8	13%	0.95	26.5	0.79	2.8
Total DDx, 0 DL	µg/kg	dw	63	11	17%	0.15	28.6	0.79	2.8
Total DDx, 1/2 DL	µg/kg	dw	63	11	17%	4.01	31.3	0.79	2.8
Toxaphene	µg/kg	dw	69	0	0%	NA	NA	39	320
trans-Nonachlor	µg/kg	dw	63	0	0%	NA	NA	0.39	1.4
PAHs									
2-Methylnaphthalene	µg/kg	dw	63	61	97%	0.3	5	7	11
Acenaphthene	µg/kg	dw	63	0	0%	NA	NA	4	18
Acenaphthylene	µg/kg	dw	63	0	0%	NA	NA	4	18
Anthracene	µg/kg	dw	63	2	3%	0.9	2	4	18
Benzo(a)anthracene	µg/kg	dw	63	42	67%	0.2	6	5	17
Benzo(a)pyrene	µg/kg	dw	63	16	25%	0.5	3	4	18
Benzo(b)fluoranthene	µg/kg	dw	63	11	17%	0.7	3	5	18
Benzo(g,h,i)perylene	µg/kg	dw	63	28	44%	0.4	3	5	18
Benzo(k)fluoranthene	µg/kg	dw	63	11	17%	0.6	3	5	18
Chrysene	µg/kg	dw	63	54	86%	0.3	12	5	16

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PAHs (continued)									
Dibenzo(a,h)anthracene	µg/kg	dw	63	8	13%	0.3	1	4	18
Fluoranthene	µg/kg	dw	63	59	94%	0.3	15	5	14
Fluorene	µg/kg	dw	63	4	6%	0.4	2	5	18
Indeno(1,2,3-cd)pyrene	µg/kg	dw	63	23	37%	0.35	3	4	16
Naphthalene	µg/kg	dw	63	50	79%	1	8	0.5	9
Phenanthrene	µg/kg	dw	63	60	95%	0.3	16	5	14
Pyrene	µg/kg	dw	63	53	84%	0.3	8	5	16
Total HPAHs, 0 DL	µg/kg	dw	63	59	94%	0.4	50	5	14
Total HPAHs, 1/2 DL	µg/kg	dw	63	59	94%	7.6	72.6	5	14
Total LPAHs, 0 DL	µg/kg	dw	63	62	98%	0.4	31	7	7
Total LPAHs, 1/2 DL	µg/kg	dw	63	62	98%	9.3	47.5	7	7
Total PAHs, 0 DL	µg/kg	dw	63	63	100%	0.4	81	NA	NA
Total PAHs, 1/2 DL	µg/kg	dw	63	63	100%	20.5	114	NA	NA
PCBs									
Aroclor 1016	µg/kg	dw	65	0	0%	NA	NA	0.97	62
Aroclor 1221	µg/kg	dw	65	0	0%	NA	NA	3.9	130
Aroclor 1232	µg/kg	dw	65	0	0%	NA	NA	3.9	62
Aroclor 1242	µg/kg	dw	65	0	0%	NA	NA	0.97	62
Aroclor 1248	µg/kg	dw	65	0	0%	NA	NA	0.97	62
Aroclor 1254	µg/kg	dw	65	1	2%	38	38	0.97	54
Aroclor 1260	µg/kg	dw	65	1	2%	17	17	0.97	54
Total PCB Aroclors, 1/2 DL	µg/kg	dw	65	1	2%	244	244	3.9	110
Total PCB Aroclors, 0 DL	µg/kg	dw	65	1	2%	55	55	3.9	110
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	dw	3	3	100%	10.4	20.2	NA	NA
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	dw	3	3	100%	2.02	4.92	NA	NA
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	dw	3	3	100%	0.103	0.224	NA	NA
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	dw	3	3	100%	0.213	0.369	NA	NA
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	dw	3	3	100%	0.312	0.513	NA	NA
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	dw	3	3	100%	0.866	2.17	NA	NA
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	dw	3	1	33%	0.364	0.364	0.208	0.353
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	dw	3	3	100%	0.543	1.33	NA	NA
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	dw	3	1	33%	0.184	0.184	0.15	0.19
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	dw	3	3	100%	0.181	0.408	NA	NA
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	dw	3	2	67%	0.465	0.626	0.288	0.288
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	dw	3	3	100%	0.211	0.45	NA	NA
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	dw	3	3	100%	0.498	1.13	NA	NA
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	dw	3	3	100%	0.282	0.592	NA	NA
2,3,7,8-Tetrachlorodibenzofuran	pg/g	dw	3	3	100%	17.4	52.5	NA	NA

Table A-5e. Summary Statistics for Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
Octachlorodibenzodioxin	pg/g	dw	3	3	100%	77.8	160	NA	NA
Octachlorodibenzofuran	pg/g	dw	3	3	100%	5.49	11.1	NA	NA
Dioxin TEQ, bird, 0 DL	pg/g	dw	3	3	100%	18.5	55	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	3	3	100%	18.6	55.1	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	dw	3	3	100%	1.79	4.61	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	3	3	100%	1.82	4.64	NA	NA
Dioxin TEQ, mammal, 0 DL	pg/g	dw	3	3	100%	2.72	7.38	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	3	3	100%	2.74	7.4	NA	NA

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SEM - simultaneously extracted metals

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-6a. Summary Statistics for Organic-Carbon-Normalized Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	mg/kg	OC	109	2	2%	0.156	0.314	0.126	299
1,2,4-Trichlorobenzene	mg/kg	OC	109	0	0%	NA	NA	0.172	299
1,2-Dichlorobenzene	mg/kg	OC	109	0	0%	NA	NA	0.192	299
1,3-Dichlorobenzene	mg/kg	OC	109	0	0%	NA	NA	0.199	299
1,4-Dichlorobenzene	mg/kg	OC	109	0	0%	NA	NA	0.192	299
2,2'-oxybis(1-Chloropropane)	mg/kg	OC	109	0	0%	NA	NA	0.172	299
2,4,5-Trichlorophenol	mg/kg	OC	109	0	0%	NA	NA	0.0993	741
2,4,6-Trichlorophenol	mg/kg	OC	109	0	0%	NA	NA	0.0927	299
2,4-Dichlorophenol	mg/kg	OC	109	0	0%	NA	NA	0.0662	299
2,4-Dimethylphenol	mg/kg	OC	106	0	0%	NA	NA	0.364	299
2,4-Dinitrophenol	mg/kg	OC	86	0	0%	NA	NA	1.13	741
2,4-Dinitrotoluene	mg/kg	OC	109	0	0%	NA	NA	0.0993	299
2,6-Dinitrotoluene	mg/kg	OC	109	0	0%	NA	NA	0.132	299
2-Chloronaphthalene	mg/kg	OC	109	0	0%	NA	NA	0.106	299
2-Chlorophenol	mg/kg	OC	109	0	0%	NA	NA	0.132	299
2-Methylphenol	mg/kg	OC	109	0	0%	NA	NA	0.0993	299
2-Nitroaniline	mg/kg	OC	109	0	0%	NA	NA	0.212	741
2-Nitrophenol	mg/kg	OC	109	0	0%	NA	NA	0.0993	299
3,3'-Dichlorobenzidine	mg/kg	OC	109	0	0%	NA	NA	0.245	299
3-Nitroaniline	mg/kg	OC	109	0	0%	NA	NA	0.166	741
4,6-Dinitro-2-methylphenol	mg/kg	OC	109	0	0%	NA	NA	0.0927	741
4-Bromophenyl-phenylether	mg/kg	OC	109	0	0%	NA	NA	0.106	299
4-Chloro-3-methylphenol	mg/kg	OC	109	0	0%	NA	NA	0.0927	299
4-Chloroaniline	mg/kg	OC	109	0	0%	NA	NA	0.126	299
4-Chlorophenyl-phenyl ether	mg/kg	OC	109	0	0%	NA	NA	0.0927	299
4-Methylphenol	mg/kg	OC	109	2	2%	0.337	0.385	0.0993	299
4-Nitroaniline	mg/kg	OC	109	0	0%	NA	NA	0.119	741
4-Nitrophenol	mg/kg	OC	109	0	0%	NA	NA	1.19	741
Acetophenone	mg/kg	OC	109	2	2%	1.81	4.08	1.54	299
Benzaldehyde	mg/kg	OC	109	2	2%	0.718	0.942	0.51	299
Benzoic acid	mg/kg	OC	78	1	1%	7.97	7.97	2.57	631
Benzyl alcohol	mg/kg	OC	109	1	1%	0.319	0.319	0.139	299
Benzyl n-butyl phthalate	mg/kg	OC	109	2	2%	0.309	0.5	0.212	299
bis(2-Chloroethoxy)methane	mg/kg	OC	109	0	0%	NA	NA	0.0993	299
bis(2-Chloroethyl)ether	mg/kg	OC	109	0	0%	NA	NA	0.126	299
bis(2-Ethylhexyl)phthalate	mg/kg	OC	109	5	5%	4.27	16.2	1.01	299
Caprolactam	mg/kg	OC	109	1	1%	85.7	85.7	1.26	299
Carbazole	mg/kg	OC	109	1	1%	0.123	0.123	0.0861	299
Dibenzofuran	mg/kg	OC	109	44	40%	0.023	1.48	0.0795	15.4
Diethyl phthalate	mg/kg	OC	109	2	2%	0.116	3.31	0.118	299
Dimethyl phthalate	mg/kg	OC	109	0	0%	NA	NA	0.0662	299

Table A-6a. Summary Statistics for Organic-Carbon-Normalized Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
Di-n-butyl phthalate	mg/kg	OC	109	0	0%	NA	NA	0.523	299
Di-n-octylphthalate	mg/kg	OC	109	0	0%	NA	NA	0.113	299
Hexachlorocyclopentadiene	mg/kg	OC	9	0	0%	NA	NA	1.92	12.8
Hexachloroethane	mg/kg	OC	109	0	0%	NA	NA	0.205	299
Isophorone	mg/kg	OC	109	0	0%	NA	NA	0.0662	299
Nitrobenzene	mg/kg	OC	109	0	0%	NA	NA	0.146	299
N-Nitrosodi-n-propylamine	mg/kg	OC	109	0	0%	NA	NA	0.159	299
N-Nitrosodiphenylamine	mg/kg	OC	109	0	0%	NA	NA	0.106	299
Pentachlorophenol	mg/kg	OC	109	0	0%	NA	NA	1.32	741
Perchlorocyclopentadiene	mg/kg	OC	100	0	0%	NA	NA	2.57	299
Phenol	mg/kg	OC	109	3	3%	0.159	0.583	0.263	299
Pesticides									
2,4'-DDD	mg/kg	OC	109	1	1%	0.0116	0.0116	0.00861	2.41
2,4'-DDE	mg/kg	OC	109	2	2%	0.00697	0.536	0.00879	2.41
2,4'-DDT	mg/kg	OC	109	7	6%	0.00879	0.145	0.00384	2.41
4,4'-DDD	mg/kg	OC	121	0	0%	NA	NA	0.00728	3.3
4,4'-DDE	mg/kg	OC	121	16	13%	0.00683	0.402	0.00728	3.3
4,4'-DDT	mg/kg	OC	121	28	23%	0.0128	1.09	0.00934	3.3
Aldrin	mg/kg	OC	121	1	1%	0.0462	0.0462	0.00879	1.7
alpha-BHC	mg/kg	OC	121	1	1%	0.0287	0.0287	0.00604	1.7
alpha-Chlordane	mg/kg	OC	121	0	0%	NA	NA	0.00549	1.7
Atrazine	mg/kg	OC	100	0	0%	NA	NA	2.57	299
beta-BHC	mg/kg	OC	121	0	0%	NA	NA	0.00989	1.7
Chlordane	mg/kg	OC	9	0	0%	NA	NA	0.126	0.841
cis-Nonachlor	mg/kg	OC	109	0	0%	NA	NA	0.00659	1.17
delta-BHC	mg/kg	OC	121	0	0%	NA	NA	0.00407	1.7
Dieldrin	mg/kg	OC	121	0	0%	NA	NA	0.00769	3.3
Endosulfan I	mg/kg	OC	121	0	0%	NA	NA	0.00346	1.7
Endosulfan II	mg/kg	OC	121	0	0%	NA	NA	0.00769	3.3
Endosulfan sulfate	mg/kg	OC	121	0	0%	NA	NA	0.00604	3.3
Endrin	mg/kg	OC	121	0	0%	NA	NA	0.00516	3.3
Endrin aldehyde	mg/kg	OC	121	0	0%	NA	NA	0.00659	3.3
Endrin ketone	mg/kg	OC	121	0	0%	NA	NA	0.00511	3.3
gamma-BHC	mg/kg	OC	121	0	0%	NA	NA	0.0044	1.7
gamma-Chlordane	mg/kg	OC	121	0	0%	NA	NA	0.00505	1.7
Heptachlor	mg/kg	OC	121	0	0%	NA	NA	0.00659	1.7
Heptachlor epoxide	mg/kg	OC	121	0	0%	NA	NA	0.00462	1.7
Hexachlorobenzene	mg/kg	OC	109	5	5%	0.013	0.345	0.00991	1.17
Hexachlorobutadiene	mg/kg	OC	109	0	0%	NA	NA	0.00991	1.17
Methoxychlor	mg/kg	OC	121	3	2%	0.159	2.31	0.0126	17
Mirex	mg/kg	OC	5	0	0%	NA	NA	0.00656	0.0213

Table A-6a. Summary Statistics for Organic-Carbon-Normalized Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Oxychlordane	mg/kg	OC	109	0	0%	NA	NA	0.00467	1.17
Total chlordane, 0 DL	mg/kg	OC	109	0	0%	NA	NA	0.00659	1.17
Total chlordane, 1/2 DL	mg/kg	OC	109	0	0%	NA	NA	0.00659	1.17
Total DDD, 0 DL	mg/kg	OC	109	1	1%	0.0116	0.0116	0.00861	2.41
Total DDD, 1/2 DL	mg/kg	OC	109	1	1%	0.0312	0.0312	0.00861	2.41
Total DDE, 0 DL	mg/kg	OC	109	17	16%	0.00683	0.938	0.0106	2.41
Total DDE, 1/2 DL	mg/kg	OC	109	17	16%	0.0181	0.938	0.0106	2.41
Total DDT, 0 DL	mg/kg	OC	109	29	27%	0.00879	1.09	0.0113	2.41
Total DDT, 1/2 DL	mg/kg	OC	109	29	27%	0.0135	2.01	0.0113	2.41
Total DDx, 0 DL	mg/kg	OC	109	37	34%	0.012	1.24	0.0113	2.41
Total DDx, 1/2 DL	mg/kg	OC	109	37	34%	0.0554	5.7	0.0113	2.41
Toxaphene	mg/kg	OC	121	0	0%	NA	NA	0.318	170
trans-Nonachlor	mg/kg	OC	109	0	0%	NA	NA	0.00478	1.17
PAHs									
2-Methylnaphthalene	mg/kg	OC	114	96	84%	0.0123	3.5	0.204	15.4
Acenaphthene	mg/kg	OC	109	13	12%	0.0246	0.629	0.0331	15.4
Acenaphthylene	mg/kg	OC	109	10	9%	0.0101	2.25	0.0371	15.4
Anthracene	mg/kg	OC	109	28	26%	0.0183	1.75	0.0364	15.4
Benzo(a)anthracene	mg/kg	OC	111	82	74%	0.023	3.46	0.0477	15.4
Benzo(a)pyrene	mg/kg	OC	109	61	56%	0.023	2.93	0.0503	15.4
Benzo(b)fluoranthene	mg/kg	OC	110	57	52%	0.0323	1.73	0.0609	15.4
Benzo(e)pyrene	mg/kg	OC	2	2	100%	0.16	0.52	NA	NA
Benzo(g,h,i)perylene	mg/kg	OC	109	67	61%	0.0493	2.03	0.0563	15.4
Benzo(k)fluoranthene	mg/kg	OC	109	49	45%	0.023	1.36	0.0576	15.4
Chrysene	mg/kg	OC	110	89	81%	0.0262	4.4	0.053	15.4
Dibenzo(a,h)anthracene	mg/kg	OC	109	38	35%	0.0266	0.943	0.053	15.4
Fluoranthene	mg/kg	OC	111	91	82%	0.0262	9.09	0.129	15.4
Fluorene	mg/kg	OC	110	23	21%	0.0183	0.71	0.0404	15.4
Indeno(1,2,3-cd)pyrene	mg/kg	OC	109	60	55%	0.0532	2.36	0.0576	15.4
Naphthalene	mg/kg	OC	115	44	38%	0.041	4.93	0.0532	12
Phenanthrene	mg/kg	OC	110	95	86%	0.0394	6.92	0.184	15.4
Pyrene	mg/kg	OC	112	90	80%	0.0323	6.29	0.0999	15.4
Total HPAHs, 0 DL	mg/kg	OC	109	93	85%	0.0524	28.3	0.129	15.4
Total HPAHs, 1/2 DL	mg/kg	OC	109	93	85%	0.333	40.9	0.129	15.4
Total LPAHs, 0 DL	mg/kg	OC	109	100	92%	0.0394	9.85	0.667	15.4
Total LPAHs, 1/2 DL	mg/kg	OC	109	100	92%	0.274	35.6	0.667	15.4
Total PAHs, 0 DL	mg/kg	OC	109	101	93%	0.0533	37.7	0.667	15.4
Total PAHs, 1/2 DL	mg/kg	OC	109	101	93%	0.607	76.9	0.667	15.4
PCBs									
Aroclor 1016	mg/kg	OC	121	0	0%	NA	NA	0.0257	33
Aroclor 1221	mg/kg	OC	121	0	0%	NA	NA	0.101	68

Table A-6a. Summary Statistics for Organic-Carbon-Normalized Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PCBs (continued)									
Aroclor 1232	mg/kg	OC	121	0	0%	NA	NA	0.101	33
Aroclor 1242	mg/kg	OC	121	0	0%	NA	NA	0.0257	33
Aroclor 1248	mg/kg	OC	121	0	0%	NA	NA	0.0257	33
Aroclor 1254	mg/kg	OC	121	1	1%	0.196	0.196	0.0257	33
Aroclor 1260	mg/kg	OC	121	0	0%	NA	NA	0.0257	33
Aroclor 1262	mg/kg	OC	9	0	0%	NA	NA	0.115	0.929
Aroclor 1268	mg/kg	OC	9	0	0%	NA	NA	0.115	0.929
Total PCB Aroclors, 1/2 DL	mg/kg	OC	121	1	1%	0.804	0.804	0.101	68
Total PCB Aroclors, 0 DL	mg/kg	OC	121	1	1%	0.196	0.196	0.101	68
Total PCB congeners, 0 DL	mg/kg	OC	5	5	100%	0.0134	0.31	NA	NA
Total PCB congeners, 1/2 DL	mg/kg	OC	5	5	100%	0.0321	0.319	NA	NA
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	OC	18	12	67%	0.000142	0.00112	0.0000755	0.00039
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	OC	18	10	56%	0.0000221	0.000322	0.0000258	0.000331
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	OC	18	1	6%	0.0000481	0.0000481	0.00000532	0.000128
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	OC	18	8	44%	0.00000662	0.0000601	0.00000861	0.000137
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	OC	18	1	6%	0.0000105	0.0000105	0.00000848	0.000201
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	OC	18	6	33%	0.0000263	0.000128	0.00000834	0.000179
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	18	4	22%	0.0000101	0.0000468	0.00000604	0.000203
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	OC	18	11	61%	0.0000189	0.00011	0.00000874	0.000029
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	OC	18	1	6%	0.0000463	0.0000463	0.00000327	0.000106
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	OC	18	7	39%	0.00000828	0.0000222	0.00000526	0.000158
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	OC	18	7	39%	0.0000109	0.0000722	0.00000626	0.000165
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	18	1	6%	0.0000513	0.0000513	0.0000064	0.000107
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	OC	18	14	78%	0.00000593	0.0000847	0.0000117	0.000123
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	OC	18	5	28%	0.00000911	0.0000215	0.00000351	0.0000326
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	OC	18	17	94%	0.0000599	0.00161	0.0000303	0.0000303
Octachlorodibenzodioxin	mg/kg	OC	18	13	72%	0.000901	0.00767	0.000379	0.00181
Octachlorodibenzofuran	mg/kg	OC	18	11	61%	0.0000923	0.00117	0.0000177	0.000456
Dioxin TEQ, bird, 0 DL	mg/kg	OC	18	18	100%	0.00000848	0.00169	NA	NA
Dioxin TEQ, bird, 1/2 DL	mg/kg	OC	18	18	100%	0.0000303	0.00169	NA	NA
Dioxin TEQ, fish, 0 DL	mg/kg	OC	18	18	100%	0.00000493	0.000168	NA	NA
Dioxin TEQ, fish, 1/2 DL	mg/kg	OC	18	18	100%	0.0000139	0.000218	NA	NA
Dioxin TEQ, mammal, 0 DL	mg/kg	OC	18	18	100%	0.00000352	0.000227	NA	NA
Dioxin TEQ, mammal, 1/2 DL	mg/kg	OC	18	18	100%	0.0000126	0.000277	NA	NA
PBDEs									
PBDE 17 and 25	mg/kg	OC	5	2	40%	0.000102	0.000128	0.0000536	0.000207
PBDE 28 and 33	mg/kg	OC	5	0	0%	NA	NA	0.0000874	0.000218
PBDE 47	mg/kg	OC	5	4	80%	0.00453	0.0131	0.00268	0.00268
PBDE 49	mg/kg	OC	5	3	60%	0.00043	0.00102	0.000219	0.00107
PBDE 66	mg/kg	OC	5	3	60%	0.000245	0.000545	0.000337	0.000393

Table A-6a. Summary Statistics for Organic-Carbon-Normalized Sediment in the Upper Reach OU

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PBDEs (continued)									
PBDE 71	mg/kg	OC	5	1	20%	0.0000935	0.0000935	0.0000136	0.000498
PBDE 85	mg/kg	OC	5	3	60%	0.000201	0.0013	0.000237	0.000374
PBDE 99	mg/kg	OC	5	3	60%	0.00456	0.0236	0.00127	0.00448
PBDE 100	mg/kg	OC	5	4	80%	0.00117	0.0046	0.000149	0.000149
PBDE 128	mg/kg	OC	5	0	0%	NA	NA	0.0000797	0.00101
PBDE 138 and 166	mg/kg	OC	5	2	40%	0.000237	0.000906	0.000135	0.000584
PBDE 153	mg/kg	OC	5	4	80%	0.000585	0.00303	0.000195	0.000195
PBDE 154	mg/kg	OC	5	4	80%	0.000514	0.00241	0.000187	0.000187
PBDE 183	mg/kg	OC	5	4	80%	0.0000951	0.00324	0.000133	0.000133
PBDE 184	mg/kg	OC	5	1	20%	0.0000558	0.0000558	0.0000273	0.000113
PBDE 190	mg/kg	OC	5	0	0%	NA	NA	0.0000687	0.000356
PBDE 191	mg/kg	OC	5	0	0%	NA	NA	0.0000515	0.00027
PBDE 203	mg/kg	OC	5	2	40%	0.0000802	0.000104	0.0000663	0.000185
PBDE 206	mg/kg	OC	5	0	0%	NA	NA	0.00017	0.000895
PBDE 209	mg/kg	OC	5	2	40%	0.0178	0.0204	0.000426	0.052

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OC - organic carbon

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-6b. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	mg/kg	OC	33	0	0%	NA	NA	0.188	216
1,2,4-Trichlorobenzene	mg/kg	OC	33	0	0%	NA	NA	0.257	216
1,2-Dichlorobenzene	mg/kg	OC	33	0	0%	NA	NA	0.287	216
1,3-Dichlorobenzene	mg/kg	OC	33	0	0%	NA	NA	0.297	216
1,4-Dichlorobenzene	mg/kg	OC	33	0	0%	NA	NA	0.287	216
2,2'-oxybis(1-Chloropropane)	mg/kg	OC	33	0	0%	NA	NA	0.257	216
2,4,5-Trichlorophenol	mg/kg	OC	33	0	0%	NA	NA	0.149	523
2,4,6-Trichlorophenol	mg/kg	OC	33	0	0%	NA	NA	0.139	216
2,4-Dichlorophenol	mg/kg	OC	33	0	0%	NA	NA	0.099	216
2,4-Dimethylphenol	mg/kg	OC	30	0	0%	NA	NA	0.545	216
2,4-Dinitrophenol	mg/kg	OC	27	0	0%	NA	NA	1.68	523
2,4-Dinitrotoluene	mg/kg	OC	33	0	0%	NA	NA	0.149	216
2,6-Dinitrotoluene	mg/kg	OC	33	0	0%	NA	NA	0.198	216
2-Chloronaphthalene	mg/kg	OC	33	0	0%	NA	NA	0.158	216
2-Chlorophenol	mg/kg	OC	33	0	0%	NA	NA	0.198	216
2-Methylphenol	mg/kg	OC	33	0	0%	NA	NA	0.149	216
2-Nitroaniline	mg/kg	OC	33	0	0%	NA	NA	0.317	523
2-Nitrophenol	mg/kg	OC	33	0	0%	NA	NA	0.149	216
3,3'-Dichlorobenzidine	mg/kg	OC	33	0	0%	NA	NA	0.366	216
3-Nitroaniline	mg/kg	OC	33	0	0%	NA	NA	0.248	523
4,6-Dinitro-2-methylphenol	mg/kg	OC	33	0	0%	NA	NA	0.139	523
4-Bromophenyl-phenylether	mg/kg	OC	33	0	0%	NA	NA	0.158	216
4-Chloro-3-methylphenol	mg/kg	OC	33	0	0%	NA	NA	0.139	216
4-Chloroaniline	mg/kg	OC	33	0	0%	NA	NA	0.188	216
4-Chlorophenyl-phenyl ether	mg/kg	OC	33	0	0%	NA	NA	0.139	216
4-Methylphenol	mg/kg	OC	33	3	9%	0.188	0.262	0.195	216
4-Nitroaniline	mg/kg	OC	33	0	0%	NA	NA	0.178	523
4-Nitrophenol	mg/kg	OC	33	0	0%	NA	NA	1.78	523
Acetophenone	mg/kg	OC	33	2	6%	1.6	2.21	1.19	216
Benzaldehyde	mg/kg	OC	33	0	0%	NA	NA	0.762	216
Benzoic acid	mg/kg	OC	23	0	0%	NA	NA	7.66	246
Benzyl alcohol	mg/kg	OC	33	0	0%	NA	NA	0.208	216
Benzyl n-butyl phthalate	mg/kg	OC	33	1	3%	0.362	0.362	0.317	216
bis(2-Chloroethoxy)methane	mg/kg	OC	33	0	0%	NA	NA	0.149	216
bis(2-Chloroethyl)ether	mg/kg	OC	33	1	3%	2.16	2.16	0.188	216
bis(2-Ethylhexyl)phthalate	mg/kg	OC	33	0	0%	NA	NA	0.693	216
Caprolactam	mg/kg	OC	33	0	0%	NA	NA	1.88	216
Carbazole	mg/kg	OC	33	1	3%	0.201	0.201	0.129	216
Dibenzofuran	mg/kg	OC	33	8	24%	0.023	0.221	0.128	10.8
Diethyl phthalate	mg/kg	OC	33	1	3%	0.149	0.149	0.129	216
Dimethyl phthalate	mg/kg	OC	33	0	0%	NA	NA	0.169	216

Table A-6b. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
Di-n-butyl phthalate	mg/kg	OC	33	0	0%	NA	NA	0.782	216
Di-n-octylphthalate	mg/kg	OC	33	0	0%	NA	NA	0.168	216
Hexachlorocyclopentadiene	mg/kg	OC	6	0	0%	NA	NA	2.87	74.4
Hexachloroethane	mg/kg	OC	33	0	0%	NA	NA	0.307	216
Isophorone	mg/kg	OC	33	0	0%	NA	NA	0.099	216
Nitrobenzene	mg/kg	OC	33	0	0%	NA	NA	0.218	216
N-Nitrosodi-n-propylamine	mg/kg	OC	33	0	0%	NA	NA	0.238	216
N-Nitrosodiphenylamine	mg/kg	OC	33	0	0%	NA	NA	0.158	216
Pentachlorophenol	mg/kg	OC	33	0	0%	NA	NA	1.98	523
Perchlorocyclopentadiene	mg/kg	OC	27	0	0%	NA	NA	6.23	216
Phenol	mg/kg	OC	33	4	12%	0.347	6.67	0.285	216
Pesticides									
2,4'-DDD	mg/kg	OC	33	0	0%	NA	NA	0.0129	1.68
2,4'-DDE	mg/kg	OC	33	0	0%	NA	NA	0.0158	1.68
2,4'-DDT	mg/kg	OC	33	2	6%	0.0619	0.215	0.00574	1.68
4,4'-DDD	mg/kg	OC	41	0	0%	NA	NA	0.0109	1.68
4,4'-DDE	mg/kg	OC	41	2	5%	0.0265	0.331	0.0109	1.68
4,4'-DDT	mg/kg	OC	41	6	15%	0.00905	1	0.0171	1.68
Aldrin	mg/kg	OC	41	0	0%	NA	NA	0.0158	0.829
alpha-BHC	mg/kg	OC	41	0	0%	NA	NA	0.0109	0.829
alpha-Chlordane	mg/kg	OC	41	0	0%	NA	NA	0.0099	0.829
Atrazine	mg/kg	OC	27	0	0%	NA	NA	6.23	216
beta-BHC	mg/kg	OC	41	0	0%	NA	NA	0.0178	0.829
Chlordane	mg/kg	OC	6	0	0%	NA	NA	0.188	4.87
cis-Nonachlor	mg/kg	OC	33	0	0%	NA	NA	0.0119	0.829
delta-BHC	mg/kg	OC	41	0	0%	NA	NA	0.00733	0.829
Dieldrin	mg/kg	OC	41	0	0%	NA	NA	0.0139	1.68
Endosulfan I	mg/kg	OC	41	0	0%	NA	NA	0.00624	0.829
Endosulfan II	mg/kg	OC	41	0	0%	NA	NA	0.0139	1.68
Endosulfan sulfate	mg/kg	OC	41	0	0%	NA	NA	0.0109	1.68
Endrin	mg/kg	OC	41	0	0%	NA	NA	0.00931	1.68
Endrin aldehyde	mg/kg	OC	41	0	0%	NA	NA	0.0119	1.68
Endrin ketone	mg/kg	OC	41	0	0%	NA	NA	0.00921	1.68
gamma-BHC	mg/kg	OC	41	0	0%	NA	NA	0.00792	0.829
gamma-Chlordane	mg/kg	OC	41	0	0%	NA	NA	0.00891	0.829
Heptachlor	mg/kg	OC	41	0	0%	NA	NA	0.0119	0.829
Heptachlor epoxide	mg/kg	OC	41	0	0%	NA	NA	0.00832	0.829
Hexachlorobenzene	mg/kg	OC	33	0	0%	NA	NA	0.0198	0.829
Hexachlorobutadiene	mg/kg	OC	33	0	0%	NA	NA	0.0208	0.829
Methoxychlor	mg/kg	OC	41	4	10%	1.59	7.16	0.0188	8.29
Oxychlordane	mg/kg	OC	33	0	0%	NA	NA	0.00842	0.829

Table A-6b. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Total chlordane, 0 DL	mg/kg	OC	33	0	0%	NA	NA	0.0119	0.829
Total chlordane, 1/2 DL	mg/kg	OC	33	0	0%	NA	NA	0.0119	0.829
Total DDD, 0 DL	mg/kg	OC	33	0	0%	NA	NA	0.0129	1.68
Total DDD, 1/2 DL	mg/kg	OC	33	0	0%	NA	NA	0.0129	1.68
Total DDE, 0 DL	mg/kg	OC	33	2	6%	0.0265	0.331	0.0158	1.68
Total DDE, 1/2 DL	mg/kg	OC	33	2	6%	0.0796	0.673	0.0158	1.68
Total DDT, 0 DL	mg/kg	OC	33	6	18%	0.00905	1.22	0.0171	1.68
Total DDT, 1/2 DL	mg/kg	OC	33	6	18%	0.0237	1.22	0.0171	1.68
Total DDx, 0 DL	mg/kg	OC	33	6	18%	0.00905	1.55	0.0171	1.68
Total DDx, 1/2 DL	mg/kg	OC	33	6	18%	0.0489	2.58	0.0171	1.68
Toxaphene	mg/kg	OC	41	0	0%	NA	NA	0.485	82.9
trans-Nonachlor	mg/kg	OC	33	0	0%	NA	NA	0.00861	0.829
PAHs									
2-Methylnaphthalene	mg/kg	OC	33	11	33%	0.0152	0.426	0.049	10.8
Acenaphthene	mg/kg	OC	33	0	0%	NA	NA	0.0752	10.8
Acenaphthylene	mg/kg	OC	33	0	0%	NA	NA	0.0584	10.8
Anthracene	mg/kg	OC	33	2	6%	0.0752	0.111	0.0584	10.8
Benzo(a)anthracene	mg/kg	OC	33	13	39%	0.0267	0.475	0.0767	10.8
Benzo(a)pyrene	mg/kg	OC	33	9	27%	0.0271	0.316	0.0809	10.8
Benzo(b)fluoranthene	mg/kg	OC	33	9	27%	0.113	0.573	0.098	10.8
Benzo(g,h,i)perylene	mg/kg	OC	33	13	39%	0.0305	0.976	0.11	10.8
Benzo(k)fluoranthene	mg/kg	OC	33	8	24%	0.0625	0.316	0.0927	10.8
Chrysene	mg/kg	OC	33	24	73%	0.0267	0.901	0.0852	8.37
Dibenzo(a,h)anthracene	mg/kg	OC	33	3	9%	0.0323	0.195	0.0792	10.8
Fluoranthene	mg/kg	OC	33	18	55%	0.0297	1.42	0.365	9.3
Fluorene	mg/kg	OC	33	3	9%	0.023	0.0791	0.0614	10.8
Indeno(1,2,3-cd)pyrene	mg/kg	OC	33	11	33%	0.0625	0.976	0.0927	10.8
Naphthalene	mg/kg	OC	33	12	36%	0.0305	1.64	0.265	8.47
Phenanthrene	mg/kg	OC	33	16	48%	0.0267	1.11	0.149	10.8
Pyrene	mg/kg	OC	33	23	70%	0.0297	1.01	0.365	8.42
Total HPAHs, 0 DL	mg/kg	OC	33	26	79%	0.113	4.75	0.365	8.37
Total HPAHs, 1/2 DL	mg/kg	OC	33	26	79%	0.689	39.5	0.365	8.37
Total LPAHs, 0 DL	mg/kg	OC	33	18	55%	0.0275	1.64	0.365	10.8
Total LPAHs, 1/2 DL	mg/kg	OC	33	18	55%	0.304	14.8	0.365	10.8
Total PAHs, 0 DL	mg/kg	OC	33	27	82%	0.199	6.05	0.365	8.37
Total PAHs, 1/2 DL	mg/kg	OC	33	27	82%	0.993	76.2	0.365	8.37
PCBs									
Aroclor 1016	mg/kg	OC	41	0	0%	NA	NA	0.0623	8.5
Aroclor 1221	mg/kg	OC	41	0	0%	NA	NA	0.208	18
Aroclor 1232	mg/kg	OC	41	0	0%	NA	NA	0.208	8.5
Aroclor 1242	mg/kg	OC	41	0	0%	NA	NA	0.0623	8.5

Table A-6b. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PCBs (continued)									
Aroclor 1248	mg/kg	OC	41	0	0%	NA	NA	0.0623	8.5
Aroclor 1254	mg/kg	OC	41	0	0%	NA	NA	0.0623	8.5
Aroclor 1260	mg/kg	OC	41	1	2%	0.257	0.257	0.0623	8.5
Aroclor 1262	mg/kg	OC	6	0	0%	NA	NA	0.208	5.38
Aroclor 1268	mg/kg	OC	6	0	0%	NA	NA	0.208	5.38
Total PCB Aroclors, 0 DL	mg/kg	OC	41	1	2%	0.257	0.257	0.211	18
Total PCB Aroclors, 1/2 DL	mg/kg	OC	41	1	2%	1.09	1.09	0.211	18
Total PCB congeners, 0 DL	mg/kg	OC	1	1	100%	0.412	0.412	NA	NA
Total PCB congeners, 1/2 DL	mg/kg	OC	1	1	100%	0.417	0.417	NA	NA
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	OC	2	1	50%	0.00102	0.00102	0.000974	0.000974
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	OC	2	1	50%	0.000209	0.000209	0.000171	0.000171
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	OC	2	0	0%	NA	NA	0.0000797	0.0000804
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	OC	2	0	0%	NA	NA	0.0000292	0.0000738
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	OC	2	0	0%	NA	NA	0.0000172	0.0000465
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	OC	2	0	0%	NA	NA	0.0000302	0.0000815
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	2	1	50%	0.0000527	0.0000527	0.0000165	0.0000165
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	OC	2	0	0%	NA	NA	0.0000302	0.0000781
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	OC	2	1	50%	0.000039	0.000039	0.0000255	0.0000255
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	OC	2	1	50%	0.0000538	0.0000538	0.0000222	0.0000222
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	OC	2	0	0%	NA	NA	0.0000162	0.0000399
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	2	0	0%	NA	NA	0.0000184	0.0000446
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	OC	2	0	0%	NA	NA	0.0000157	0.000058
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	OC	2	0	0%	NA	NA	0.00000923	0.0000585
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	OC	2	1	50%	0.000549	0.000549	0.000134	0.000134
Octachlorodibenzodioxin	mg/kg	OC	2	1	50%	0.00841	0.00841	0.00944	0.00944
Octachlorodibenzofuran	mg/kg	OC	2	1	50%	0.000756	0.000756	0.000388	0.000388
Dioxin TEQ, bird, 0 DL	mg/kg	OC	2	2	100%	0.0000629	0.000552	NA	NA
Dioxin TEQ, bird, 1/2 DL	mg/kg	OC	2	2	100%	0.000203	0.000583	NA	NA
Dioxin TEQ, fish, 0 DL	mg/kg	OC	2	2	100%	0.0000315	0.0000629	NA	NA
Dioxin TEQ, fish, 1/2 DL	mg/kg	OC	2	2	100%	0.0000634	0.000137	NA	NA
Dioxin TEQ, mammal, 0 DL	mg/kg	OC	2	2	100%	0.0000629	0.0000699	NA	NA
Dioxin TEQ, mammal, 1/2 DL	mg/kg	OC	2	2	100%	0.0000969	0.000132	NA	NA
PBDEs									
PBDE 17 and 25	mg/kg	OC	1	1	100%	0.000099	0.000099	NA	NA
PBDE 28 and 33	mg/kg	OC	1	0	0%	NA	NA	0.000125	0.000125
PBDE 47	mg/kg	OC	1	1	100%	0.00302	0.00302	NA	NA
PBDE 49	mg/kg	OC	1	1	100%	0.000479	0.000479	NA	NA
PBDE 66	mg/kg	OC	1	0	0%	NA	NA	0.000177	0.000177
PBDE 71	mg/kg	OC	1	1	100%	0.000034	0.000034	NA	NA
PBDE 85	mg/kg	OC	1	0	0%	NA	NA	0.000105	0.000105

Table A-6b. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
PBDEs (continued)									
PBDE 99	mg/kg	OC	1	1	100%	0.0025	0.0025	NA	NA
PBDE 100	mg/kg	OC	1	1	100%	0.000668	0.000668	NA	NA
PBDE 128	mg/kg	OC	1	0	0%	NA	NA	0.000134	0.000134
PBDE 138 and 166	mg/kg	OC	1	0	0%	NA	NA	0.0000673	0.0000673
PBDE 153	mg/kg	OC	1	1	100%	0.000381	0.000381	NA	NA
PBDE 154	mg/kg	OC	1	1	100%	0.000303	0.000303	NA	NA
PBDE 183	mg/kg	OC	1	1	100%	0.000103	0.000103	NA	NA
PBDE 184	mg/kg	OC	1	0	0%	NA	NA	0.0000272	0.0000272
PBDE 190	mg/kg	OC	1	0	0%	NA	NA	0.0000835	0.0000835
PBDE 191	mg/kg	OC	1	0	0%	NA	NA	0.0000623	0.0000623
PBDE 203	mg/kg	OC	1	0	0%	NA	NA	0.000115	0.000115
PBDE 206	mg/kg	OC	1	0	0%	NA	NA	0.000526	0.000526
PBDE 209	mg/kg	OC	1	0	0%	NA	NA	0.0384	0.0384

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OC - organic carbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-6c. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	mg/kg	OC	7	0	0%	NA	NA	7.05	161
1,2,4-Trichlorobenzene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
1,2-Dichlorobenzene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
1,3-Dichlorobenzene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
1,4-Dichlorobenzene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,2'-oxybis(1-Chloropropane)	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,4,5-Trichlorophenol	mg/kg	OC	7	0	0%	NA	NA	18.3	412
2,4,6-Trichlorophenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,4-Dichlorophenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,4-Dimethylphenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,4-Dinitrophenol	mg/kg	OC	6	0	0%	NA	NA	18.3	412
2,4-Dinitrotoluene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2,6-Dinitrotoluene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2-Chloronaphthalene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2-Chlorophenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2-Methylphenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
2-Nitroaniline	mg/kg	OC	7	0	0%	NA	NA	18.3	412
2-Nitrophenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
3,3'-Dichlorobenzidine	mg/kg	OC	7	0	0%	NA	NA	7.05	161
3-Nitroaniline	mg/kg	OC	7	0	0%	NA	NA	18.3	412
4,6-Dinitro-2-methylphenol	mg/kg	OC	7	0	0%	NA	NA	18.3	412
4-Bromophenyl-phenylether	mg/kg	OC	7	0	0%	NA	NA	7.05	161
4-Chloro-3-methylphenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
4-Chloroaniline	mg/kg	OC	7	0	0%	NA	NA	7.05	161
4-Chlorophenyl-phenyl ether	mg/kg	OC	7	0	0%	NA	NA	7.05	161
4-Methylphenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
4-Nitroaniline	mg/kg	OC	7	0	0%	NA	NA	18.3	412
4-Nitrophenol	mg/kg	OC	7	0	0%	NA	NA	18.3	412
Acetophenone	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Benzaldehyde	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Benzoic acid	mg/kg	OC	5	0	0%	NA	NA	7.05	150
Benzyl alcohol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Benzyl n-butyl phthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
bis(2-Chloroethoxy)methane	mg/kg	OC	7	0	0%	NA	NA	7.05	161
bis(2-Chloroethyl)ether	mg/kg	OC	7	0	0%	NA	NA	7.05	161
bis(2-Ethylhexyl)phthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Caprolactam	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Carbazole	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Dibenzofuran	mg/kg	OC	7	0	0%	NA	NA	0.373	15
Diethyl phthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Dimethyl phthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Di-n-butyl phthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Di-n-octylphthalate	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Hexachloroethane	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Isophorone	mg/kg	OC	7	0	0%	NA	NA	7.05	161

Table A-6c. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
Nitrobenzene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
N-Nitrosodi-n-propylamine	mg/kg	OC	7	0	0%	NA	NA	7.05	161
N-Nitrosodiphenylamine	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Pentachlorophenol	mg/kg	OC	7	0	0%	NA	NA	18.3	412
Perchlorocyclopentadiene	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Phenol	mg/kg	OC	7	0	0%	NA	NA	7.05	161
Pesticides									
2,4'-DDD	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
2,4'-DDE	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
2,4'-DDT	mg/kg	OC	7	1	14%	0.0212	0.0212	0.216	1.29
4,4'-DDD	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
4,4'-DDE	mg/kg	OC	7	1	14%	0.3	0.3	0.0581	1.17
4,4'-DDT	mg/kg	OC	7	2	29%	0.0325	0.129	0.321	1.29
Aldrin	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
alpha-BHC	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
alpha-Chlordane	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Atrazine	mg/kg	OC	7	0	0%	NA	NA	7.05	161
beta-BHC	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
cis-Nonachlor	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
delta-BHC	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Dieldrin	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Endosulfan I	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Endosulfan II	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Endosulfan sulfate	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Endrin	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Endrin aldehyde	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Endrin ketone	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
gamma-BHC	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
gamma-Chlordane	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Heptachlor	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Heptachlor epoxide	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Hexachlorobenzene	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Hexachlorobutadiene	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Methoxychlor	mg/kg	OC	7	0	0%	NA	NA	0.282	6.37
Oxychlordane	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Total chlordane, 0 DL	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Total chlordane, 1/2 DL	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
Total DDD, 0 DL	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Total DDD, 1/2 DL	mg/kg	OC	7	0	0%	NA	NA	0.0581	1.29
Total DDE, 0 DL	mg/kg	OC	7	1	14%	0.3	0.3	0.0581	1.17
Total DDE, 1/2 DL	mg/kg	OC	7	1	14%	0.946	0.946	0.0581	1.17
Total DDT, 0 DL	mg/kg	OC	7	2	29%	0.0325	0.15	0.321	1.29
Total DDT, 1/2 DL	mg/kg	OC	7	2	29%	0.14	0.15	0.321	1.29
Total DDx, 0 DL	mg/kg	OC	7	3	43%	0.0325	0.3	0.321	1.17

Table A-6c. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Total DDx, 1/2 DL	mg/kg	OC	7	3	43%	0.266	3.54	0.321	1.17
Toxaphene	mg/kg	OC	7	0	0%	NA	NA	2.82	63.7
trans-Nonachlor	mg/kg	OC	7	0	0%	NA	NA	0.0282	0.637
PAHs									
2-Methylnaphthalene	mg/kg	OC	9	6	67%	0.0124	0.43	1.39	15
Acenaphthene	mg/kg	OC	7	0	0%	NA	NA	0.373	15
Acenaphthylene	mg/kg	OC	7	0	0%	NA	NA	0.373	15
Anthracene	mg/kg	OC	7	2	29%	0.332	0.546	0.373	7.49
Benzo(a)anthracene	mg/kg	OC	8	4	50%	0.116	0.55	0.373	7.49
Benzo(a)pyrene	mg/kg	OC	8	2	25%	0.0948	0.42	0.373	15
Benzo(b)fluoranthene	mg/kg	OC	8	4	50%	0.116	0.55	0.373	7.49
Benzo(e)pyrene	mg/kg	OC	1	1	100%	0.39	0.39	NA	NA
Benzo(g,h,i)perylene	mg/kg	OC	8	4	50%	0.149	0.44	0.373	15
Benzo(k)fluoranthene	mg/kg	OC	7	2	29%	0.116	0.427	0.373	15
Chrysene	mg/kg	OC	8	6	75%	0.149	0.5	0.373	7.49
Dibenzo(a,h)anthracene	mg/kg	OC	7	1	14%	0.0948	0.0948	0.373	15
Fluoranthene	mg/kg	OC	8	7	88%	0.124	1.22	7.49	7.49
Fluorene	mg/kg	OC	7	0	0%	NA	NA	0.373	15
Indeno(1,2,3-cd)pyrene	mg/kg	OC	7	4	57%	0.116	0.407	0.373	7.49
Naphthalene	mg/kg	OC	9	3	33%	0.0415	1.64	0.8	6.74
Phenanthrene	mg/kg	OC	8	7	88%	0.083	0.9	7.49	7.49
Pyrene	mg/kg	OC	8	6	75%	0.149	0.813	0.373	7.49
Total HPAHs, 0 DL	mg/kg	OC	7	6	86%	0.124	3.25	7.49	7.49
Total HPAHs, 1/2 DL	mg/kg	OC	7	6	86%	1.8	31.9	7.49	7.49
Total LPAHs, 0 DL	mg/kg	OC	7	7	100%	0.137	2.46	NA	NA
Total LPAHs, 1/2 DL	mg/kg	OC	7	7	100%	0.884	32.5	NA	NA
Total PAHs, 0 DL	mg/kg	OC	7	7	100%	0.261	4.37	NA	NA
Total PAHs, 1/2 DL	mg/kg	OC	7	7	100%	2.69	64.4	NA	NA
PCBs									
Aroclor 1016	mg/kg	OC	7	0	0%	NA	NA	0.0705	1.61
Aroclor 1221	mg/kg	OC	7	0	0%	NA	NA	0.286	6.55
Aroclor 1232	mg/kg	OC	7	0	0%	NA	NA	0.286	6.55
Aroclor 1242	mg/kg	OC	7	0	0%	NA	NA	0.0705	1.61
Aroclor 1248	mg/kg	OC	7	0	0%	NA	NA	0.0705	1.61
Aroclor 1254	mg/kg	OC	7	0	0%	NA	NA	0.0705	1.61
Aroclor 1260	mg/kg	OC	7	0	0%	NA	NA	0.0705	1.61
Total PCB Aroclors, 1/2 DL	mg/kg	OC	7	0	0%	NA	NA	0.286	6.55
Total PCB Aroclors, 0 DL	mg/kg	OC	7	0	0%	NA	NA	0.286	6.55

Table A-6c. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Transitional CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000294	0.000294
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000146	0.000146
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000253	0.000253
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000186	0.000186
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000089	0.000089
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000189	0.000189
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000086	0.000086
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000189	0.000189
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000151	0.000151
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000125	0.000125
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.0000837	0.0000837
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.0000865	0.0000865
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.0000755	0.0000755
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.000117	0.000117
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	OC	1	1	100%	0.000824	0.000824	NA	NA
Octachlorodibenzodioxin	mg/kg	OC	1	0	0%	NA	NA	0.00217	0.00217
Octachlorodibenzofuran	mg/kg	OC	1	0	0%	NA	NA	0.000466	0.000466
Dioxin TEQ, bird, 0 DL	mg/kg	OC	1	1	100%	0.000824	0.000824	NA	NA
Dioxin TEQ, bird, 1/2 DL	mg/kg	OC	1	1	100%	0.00102	0.00102	NA	NA
Dioxin TEQ, fish, 0 DL	mg/kg	OC	1	1	100%	0.0000412	0.0000412	NA	NA
Dioxin TEQ, fish, 1/2 DL	mg/kg	OC	1	1	100%	0.000255	0.000255	NA	NA
Dioxin TEQ, mammal, 0 DL	mg/kg	OC	1	1	100%	0.0000824	0.0000824	NA	NA
Dioxin TEQ, mammal, 1/2 DL	mg/kg	OC	1	1	100%	0.00027	0.00027	NA	NA

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OC - organic carbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-6d. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	mg/kg	OC	143	0	0%	NA	NA	0.447	336
1,2,4-Trichlorobenzene	mg/kg	OC	143	0	0%	NA	NA	0.612	336
1,2-Dichlorobenzene	mg/kg	OC	143	0	0%	NA	NA	0.682	336
1,3-Dichlorobenzene	mg/kg	OC	143	0	0%	NA	NA	0.706	336
1,4-Dichlorobenzene	mg/kg	OC	143	0	0%	NA	NA	0.682	336
2,2'-oxybis(1-Chloropropane)	mg/kg	OC	143	0	0%	NA	NA	0.612	336
2,4,5-Trichlorophenol	mg/kg	OC	143	0	0%	NA	NA	0.353	840
2,4,6-Trichlorophenol	mg/kg	OC	143	0	0%	NA	NA	0.329	336
2,4-Dichlorophenol	mg/kg	OC	143	0	0%	NA	NA	0.235	336
2,4-Dimethylphenol	mg/kg	OC	143	0	0%	NA	NA	1.29	336
2,4-Dinitrophenol	mg/kg	OC	118	0	0%	NA	NA	4	840
2,4-Dinitrotoluene	mg/kg	OC	143	0	0%	NA	NA	0.353	336
2,6-Dinitrotoluene	mg/kg	OC	143	0	0%	NA	NA	0.471	336
2-Chloronaphthalene	mg/kg	OC	143	0	0%	NA	NA	0.376	336
2-Chlorophenol	mg/kg	OC	143	0	0%	NA	NA	0.471	336
2-Methylphenol	mg/kg	OC	143	0	0%	NA	NA	0.353	336
2-Nitroaniline	mg/kg	OC	143	0	0%	NA	NA	0.753	840
2-Nitrophenol	mg/kg	OC	143	0	0%	NA	NA	0.353	336
3,3'-Dichlorobenzidine	mg/kg	OC	143	0	0%	NA	NA	0.871	336
3-Nitroaniline	mg/kg	OC	143	0	0%	NA	NA	0.588	840
4,6-Dinitro-2-methylphenol	mg/kg	OC	143	0	0%	NA	NA	0.329	840
4-Bromophenyl-phenylether	mg/kg	OC	143	0	0%	NA	NA	0.376	336
4-Chloro-3-methylphenol	mg/kg	OC	143	0	0%	NA	NA	0.329	336
4-Chloroaniline	mg/kg	OC	143	0	0%	NA	NA	0.447	336
4-Chlorophenyl-phenyl ether	mg/kg	OC	143	0	0%	NA	NA	0.329	336
4-Methylphenol	mg/kg	OC	143	1	1%	6.29	6.29	0.353	336
4-Nitroaniline	mg/kg	OC	143	0	0%	NA	NA	0.424	840
4-Nitrophenol	mg/kg	OC	143	0	0%	NA	NA	4.24	840
Acetophenone	mg/kg	OC	143	0	0%	NA	NA	2.82	336
Benzaldehyde	mg/kg	OC	143	1	1%	25.6	25.6	1.81	336
Benzoic acid	mg/kg	OC	61	0	0%	NA	NA	6.19	632
Benzyl alcohol	mg/kg	OC	143	0	0%	NA	NA	0.494	336
Benzyl n-butyl phthalate	mg/kg	OC	143	1	1%	2.15	2.15	0.753	336
bis(2-Chloroethoxy)methane	mg/kg	OC	143	0	0%	NA	NA	0.353	336
bis(2-Chloroethyl)ether	mg/kg	OC	143	0	0%	NA	NA	0.447	336
bis(2-Ethylhexyl)phthalate	mg/kg	OC	143	4	3%	11.9	130	1.65	336
Caprolactam	mg/kg	OC	143	3	2%	6.01	40.5	3.18	336
Carbazole	mg/kg	OC	143	0	0%	NA	NA	0.306	336
Dibenzofuran	mg/kg	OC	143	3	2%	0.0299	0.0938	0.145	15.3
Diethyl phthalate	mg/kg	OC	143	0	0%	NA	NA	0.306	336
Dimethyl phthalate	mg/kg	OC	143	4	3%	0.353	7.73	0.565	336
Di-n-butyl phthalate	mg/kg	OC	143	0	0%	NA	NA	1.86	336
Di-n-octylphthalate	mg/kg	OC	143	0	0%	NA	NA	0.4	336
Hexachlorocyclopentadiene	mg/kg	OC	17	0	0%	NA	NA	6.82	132
Hexachloroethane	mg/kg	OC	143	0	0%	NA	NA	0.729	336

Table A-6d. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
Isophorone	mg/kg	OC	143	0	0%	NA	NA	0.235	336
Nitrobenzene	mg/kg	OC	143	0	0%	NA	NA	0.518	336
N-Nitrosodi-n-propylamine	mg/kg	OC	143	0	0%	NA	NA	0.565	336
N-Nitrosodiphenylamine	mg/kg	OC	143	0	0%	NA	NA	0.376	336
Pentachlorophenol	mg/kg	OC	143	0	0%	NA	NA	4.71	840
Perchlorocyclopentadiene	mg/kg	OC	126	0	0%	NA	NA	3.18	336
Phenol	mg/kg	OC	143	6	4%	0.706	5.35	0.913	336
Pesticides									
2,4'-DDD	mg/kg	OC	143	0	0%	NA	NA	0.0249	2.85
2,4'-DDE	mg/kg	OC	143	6	4%	0.0594	1.53	0.0249	2.85
2,4'-DDT	mg/kg	OC	143	13	9%	0.118	5.14	0.0136	2.85
4,4'-DDD	mg/kg	OC	151	1	1%	0.189	0.189	0.0249	3.6
4,4'-DDE	mg/kg	OC	151	17	11%	0.0249	5.68	0.0249	3.6
4,4'-DDT	mg/kg	OC	151	40	26%	0.0255	18	0.0249	3.6
Aldrin	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
alpha-BHC	mg/kg	OC	151	1	1%	0.424	0.424	0.0124	1.9
alpha-Chlordane	mg/kg	OC	151	2	1%	0.866	1.86	0.0124	1.9
Atrazine	mg/kg	OC	126	0	0%	NA	NA	3.18	336
beta-BHC	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
Chlordane	mg/kg	OC	17	0	0%	NA	NA	0.447	8.64
cis-Nonachlor	mg/kg	OC	143	0	0%	NA	NA	0.0124	1.35
delta-BHC	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
Dieldrin	mg/kg	OC	151	0	0%	NA	NA	0.0249	3.6
Endosulfan I	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
Endosulfan II	mg/kg	OC	151	0	0%	NA	NA	0.0249	3.6
Endosulfan sulfate	mg/kg	OC	151	0	0%	NA	NA	0.0249	3.6
Endrin	mg/kg	OC	151	0	0%	NA	NA	0.0221	3.6
Endrin aldehyde	mg/kg	OC	151	0	0%	NA	NA	0.0249	3.6
Endrin ketone	mg/kg	OC	151	0	0%	NA	NA	0.0219	3.6
gamma-BHC	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
gamma-Chlordane	mg/kg	OC	151	2	1%	0.063	0.661	0.0124	1.9
Heptachlor	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
Heptachlor epoxide	mg/kg	OC	151	0	0%	NA	NA	0.0124	1.9
Hexachlorobenzene	mg/kg	OC	143	5	3%	0.00828	1.58	0.0124	1.35
Hexachlorobutadiene	mg/kg	OC	143	0	0%	NA	NA	0.0124	1.35
Methoxychlor	mg/kg	OC	151	1	1%	1.74	1.74	0.0447	19
Mirex	mg/kg	OC	1	0	0%	NA	NA	0.0379	0.0379
Oxychlordane	mg/kg	OC	143	0	0%	NA	NA	0.0124	3.14
Total chlordane, 0 DL	mg/kg	OC	143	4	3%	0.063	1.86	0.0124	1.54
Total chlordane, 1/2 DL	mg/kg	OC	143	4	3%	0.668	4.11	0.0124	1.54
Total DDD, 0 DL	mg/kg	OC	143	1	1%	0.189	0.189	0.0249	2.85
Total DDD, 1/2 DL	mg/kg	OC	143	1	1%	0.419	0.419	0.0249	2.85
Total DDE, 0 DL	mg/kg	OC	143	17	12%	0.0249	7.21	0.0249	3.14
Total DDE, 1/2 DL	mg/kg	OC	143	17	12%	0.101	7.21	0.0249	3.14

Table A-6d. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Total DDT, 0 DL	mg/kg	OC	143	40	28%	0.0255	23.2	0.0249	2.85
Total DDT, 1/2 DL	mg/kg	OC	143	40	28%	0.115	23.2	0.0249	2.85
Total DDx, 0 DL	mg/kg	OC	143	42	29%	0.0255	30.5	0.0249	3.14
Total DDx, 1/2 DL	mg/kg	OC	143	42	29%	0.292	30.8	0.0249	3.14
Toxaphene	mg/kg	OC	151	0	0%	NA	NA	1.13	190
trans-Nonachlor	mg/kg	OC	143	1	1%	0.595	0.595	0.0124	1.35
PAHs									
2-Methylnaphthalene	mg/kg	OC	143	65	45%	0.022	1.53	0.108	14
Acenaphthene	mg/kg	OC	143	3	2%	0.0557	0.374	0.145	15.3
Acenaphthylene	mg/kg	OC	143	1	1%	0.486	0.486	0.139	15.3
Anthracene	mg/kg	OC	143	2	1%	0.0434	0.139	0.136	15.3
Benzo(a)anthracene	mg/kg	OC	143	26	18%	0.022	1.67	0.169	15.3
Benzo(a)pyrene	mg/kg	OC	143	11	8%	0.0265	1.53	0.179	15.3
Benzo(b)fluoranthene	mg/kg	OC	143	17	12%	0.031	4.98	0.216	15.3
Benzo(g,h,i)perylene	mg/kg	OC	143	12	8%	0.0309	0.746	0.2	15.3
Benzo(k)fluoranthene	mg/kg	OC	143	15	10%	0.0265	2.49	0.205	15.3
Chrysene	mg/kg	OC	143	42	29%	0.0314	4.98	0.188	15.3
Dibenzo(a,h)anthracene	mg/kg	OC	143	3	2%	0.0723	0.418	0.188	15.3
Fluoranthene	mg/kg	OC	143	41	29%	0.0314	3.76	0.231	15.3
Fluorene	mg/kg	OC	143	1	1%	0.0557	0.0557	0.144	15.3
Indeno(1,2,3-cd)pyrene	mg/kg	OC	143	12	8%	0.0434	1.11	0.205	15.3
Naphthalene	mg/kg	OC	143	45	31%	0.0578	3.33	0.0354	14.8
Phenanthrene	mg/kg	OC	143	36	25%	0.0314	1.08	0.329	15.3
Pyrene	mg/kg	OC	143	37	26%	0.031	3.06	0.179	15.3
Total HPAHs, 0 DL	mg/kg	OC	143	51	36%	0.0484	16.9	0.231	15.3
Total HPAHs, 1/2 DL	mg/kg	OC	143	51	36%	0.752	61	0.231	15.3
Total LPAHs, 0 DL	mg/kg	OC	143	76	53%	0.0434	4.33	0.329	14.8
Total LPAHs, 1/2 DL	mg/kg	OC	143	76	53%	0.428	46.6	0.329	14.8
Total PAHs, 0 DL	mg/kg	OC	143	92	64%	0.0517	18	0.329	14
Total PAHs, 1/2 DL	mg/kg	OC	143	92	64%	1.46	123	0.329	14
PCBs									
Aroclor 1016	mg/kg	OC	151	1	1%	1.5	1.5	0.0535	36
Aroclor 1221	mg/kg	OC	151	0	0%	NA	NA	0.214	73
Aroclor 1232	mg/kg	OC	151	0	0%	NA	NA	0.214	36
Aroclor 1242	mg/kg	OC	151	0	0%	NA	NA	0.0535	36
Aroclor 1248	mg/kg	OC	151	0	0%	NA	NA	0.0535	36
Aroclor 1254	mg/kg	OC	151	1	1%	1.2	1.2	0.0535	36
Aroclor 1260	mg/kg	OC	151	2	1%	0.563	0.67	0.0535	36
Aroclor 1262	mg/kg	OC	17	0	0%	NA	NA	0.494	9.55
Aroclor 1268	mg/kg	OC	17	0	0%	NA	NA	0.494	9.55
Total PCB Aroclors, 1/2 DL	mg/kg	OC	151	2	1%	2.47	16	0.214	73
Total PCB Aroclors, 0 DL	mg/kg	OC	151	2	1%	1.9	2.06	0.214	73

Table A-6d. Summary Statistics for Organic-Carbon-Normalized Sediment in the Shallow Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	OC	25	11	44%	0.000297	0.00677	0.000175	0.00215
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	OC	25	16	64%	0.0000508	0.00573	0.000041	0.00022
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	OC	25	2	8%	0.0000101	0.0000852	0.0000118	0.000279
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	OC	25	8	32%	0.0000108	0.000309	0.0000169	0.000237
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	OC	25	4	16%	0.0000107	0.000196	0.00000688	0.000145
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	OC	25	13	52%	0.000021	0.000508	0.0000468	0.000227
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	25	6	24%	0.00000894	0.000141	0.00000577	0.000142
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	OC	25	9	36%	0.0000222	0.000241	0.0000176	0.000361
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	OC	25	2	8%	0.0000079	0.0000272	0.00000664	0.000222
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	OC	25	5	20%	0.00000785	0.0000285	0.00000955	0.000236
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	OC	25	2	8%	0.0000109	0.000217	0.00000777	0.000102
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	25	7	28%	0.0000105	0.000064	0.00000776	0.000152
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	OC	25	3	12%	0.0000194	0.000337	0.00001	0.000105
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	OC	25	3	12%	0.0000102	0.000207	0.0000101	0.000185
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	OC	25	12	48%	0.000196	0.012	0.0000566	0.000366
Octachlorodibenzodioxin	mg/kg	OC	25	14	56%	0.00239	0.045	0.00141	0.0128
Octachlorodibenzofuran	mg/kg	OC	25	15	60%	0.000114	0.00292	0.0000787	0.000613
Dioxin TEQ, bird, 0 DL	mg/kg	OC	25	23	92%	0.00000143	0.0126	0	0
Dioxin TEQ, bird, 1/2 DL	mg/kg	OC	25	23	92%	0.000096	0.0128	0.000125	0.000134
Dioxin TEQ, fish, 0 DL	mg/kg	OC	25	23	92%	0.00000143	0.00114	0	0
Dioxin TEQ, fish, 1/2 DL	mg/kg	OC	25	23	92%	0.0000404	0.00127	0.0000925	0.0000934
Dioxin TEQ, mammal, 0 DL	mg/kg	OC	25	23	92%	0.00000235	0.00171	0	0
Dioxin TEQ, mammal, 1/2 DL	mg/kg	OC	25	23	92%	0.0000545	0.00186	0.0000842	0.0000878

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OC - organic carbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-6e. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs									
1,1'-Biphenyl	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
1,2,4-Trichlorobenzene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
1,2-Dichlorobenzene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
1,3-Dichlorobenzene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
1,4-Dichlorobenzene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,2'-oxybis(1-Chloropropane)	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,4,5-Trichlorophenol	mg/kg	OC	63	0	0%	NA	NA	14.6	144
2,4,6-Trichlorophenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,4-Dichlorophenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,4-Dimethylphenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,4-Dinitrophenol	mg/kg	OC	58	0	0%	NA	NA	14.6	144
2,4-Dinitrotoluene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2,6-Dinitrotoluene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2-Chloronaphthalene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2-Chlorophenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2-Methylphenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
2-Nitroaniline	mg/kg	OC	63	0	0%	NA	NA	14.6	144
2-Nitrophenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
3,3'-Dichlorobenzidine	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
3-Nitroaniline	mg/kg	OC	63	0	0%	NA	NA	14.6	144
4,6-Dinitro-2-methylphenol	mg/kg	OC	63	0	0%	NA	NA	14.6	144
4-Bromophenyl-phenylether	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
4-Chloro-3-methylphenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
4-Chloroaniline	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
4-Chlorophenyl-phenyl ether	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
4-Methylphenol	mg/kg	OC	63	1	2%	7.27	7.27	5.9	55.7
4-Nitroaniline	mg/kg	OC	63	0	0%	NA	NA	14.6	144
4-Nitrophenol	mg/kg	OC	63	0	0%	NA	NA	14.6	144
Acetophenone	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Benzaldehyde	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Benzoic acid	mg/kg	OC	17	0	0%	NA	NA	6.82	31.1
Benzyl alcohol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Benzyl n-butyl phthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
bis(2-Chloroethoxy)methane	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
bis(2-Chloroethyl)ether	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
bis(2-Ethylhexyl)phthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Caprolactam	mg/kg	OC	63	1	2%	9.73	9.73	5.9	55.7
Carbazole	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Dibenzofuran	mg/kg	OC	63	19	30%	0.0265	0.297	0.28	2.87
Diethyl phthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Dimethyl phthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Di-n-butyl phthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Di-n-octylphthalate	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Hexachloroethane	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Isophorone	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7

Table A-6e. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
SVOCs (continued)									
Nitrobenzene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
N-Nitrosodi-n-propylamine	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
N-Nitrosodiphenylamine	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Pentachlorophenol	mg/kg	OC	63	0	0%	NA	NA	14.6	144
Perchlorocyclopentadiene	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Phenol	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
Pesticides									
2,4'-DDD	mg/kg	OC	63	0	0%	NA	NA	0.0497	0.454
2,4'-DDE	mg/kg	OC	63	0	0%	NA	NA	0.0497	0.454
2,4'-DDT	mg/kg	OC	63	2	3%	0.187	0.392	0.0497	0.454
4,4'-DDD	mg/kg	OC	69	2	3%	0.0233	0.127	0.0497	4.5
4,4'-DDE	mg/kg	OC	69	5	7%	0.0307	0.279	0.0497	4.5
4,4'-DDT	mg/kg	OC	69	8	12%	0.011	1.2	0.053	4.5
Aldrin	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
alpha-BHC	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
alpha-Chlordane	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Atrazine	mg/kg	OC	63	0	0%	NA	NA	5.9	55.7
beta-BHC	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
cis-Nonachlor	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
delta-BHC	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Dieldrin	mg/kg	OC	69	0	0%	NA	NA	0.0497	4.5
Endosulfan I	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Endosulfan II	mg/kg	OC	69	0	0%	NA	NA	0.0497	4.5
Endosulfan sulfate	mg/kg	OC	69	0	0%	NA	NA	0.0497	4.5
Endrin	mg/kg	OC	69	0	0%	NA	NA	0.0497	4.5
Endrin aldehyde	mg/kg	OC	69	1	1%	0.0356	0.0356	0.0497	4.5
Endrin ketone	mg/kg	OC	69	0	0%	NA	NA	0.0497	4.5
gamma-BHC	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
gamma-Chlordane	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Heptachlor	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Heptachlor epoxide	mg/kg	OC	69	0	0%	NA	NA	0.0233	2.3
Hexachlorobenzene	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
Hexachlorobutadiene	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
Methoxychlor	mg/kg	OC	69	0	0%	NA	NA	0.233	23
Oxychlordane	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
Total chlordane, 0 DL	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
Total chlordane, 1/2 DL	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
Total DDD, 0 DL	mg/kg	OC	63	2	3%	0.0233	0.127	0.0497	0.454
Total DDD, 1/2 DL	mg/kg	OC	63	2	3%	0.0767	0.181	0.0497	0.454
Total DDE, 0 DL	mg/kg	OC	63	5	8%	0.0307	0.279	0.0497	0.454
Total DDE, 1/2 DL	mg/kg	OC	63	5	8%	0.084	0.429	0.0497	0.454
Total DDT, 0 DL	mg/kg	OC	63	8	13%	0.011	1.6	0.053	0.454
Total DDT, 1/2 DL	mg/kg	OC	63	8	13%	0.0559	1.6	0.053	0.454
Total DDx, 0 DL	mg/kg	OC	63	11	17%	0.011	1.72	0.053	0.454

Table A-6e. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Pesticides (continued)									
Total DDx, 1/2 DL	mg/kg	OC	63	11	17%	0.155	1.93	0.053	0.454
Toxaphene	mg/kg	OC	69	0	0%	NA	NA	2.33	230
trans-Nonachlor	mg/kg	OC	63	0	0%	NA	NA	0.0233	0.224
PAHs									
2-Methylnaphthalene	mg/kg	OC	63	61	97%	0.025	0.495	0.667	1.36
Acenaphthene	mg/kg	OC	63	0	0%	NA	NA	0.28	2.87
Acenaphthylene	mg/kg	OC	63	0	0%	NA	NA	0.28	2.87
Anthracene	mg/kg	OC	63	2	3%	0.0462	0.198	0.28	2.87
Benzo(a)anthracene	mg/kg	OC	63	42	67%	0.0248	0.594	0.625	2.87
Benzo(a)pyrene	mg/kg	OC	63	16	25%	0.0248	0.297	0.341	2.87
Benzo(b)fluoranthene	mg/kg	OC	63	11	17%	0.0497	0.287	0.28	2.87
Benzo(g,h,i)perylene	mg/kg	OC	63	28	44%	0.0316	0.297	0.28	2.87
Benzo(k)fluoranthene	mg/kg	OC	63	11	17%	0.0373	0.27	0.28	2.87
Chrysene	mg/kg	OC	63	54	86%	0.0294	1.19	0.625	2.87
Dibenzo(a,h)anthracene	mg/kg	OC	63	8	13%	0.0194	0.0905	0.28	2.87
Fluoranthene	mg/kg	OC	63	59	94%	0.025	1.49	0.667	2.87
Fluorene	mg/kg	OC	63	4	6%	0.0409	0.144	0.28	2.87
Indeno(1,2,3-cd)pyrene	mg/kg	OC	63	23	37%	0.0248	0.297	0.341	2.87
Naphthalene	mg/kg	OC	63	50	79%	0.0538	0.792	0.0973	2.3
Phenanthrene	mg/kg	OC	63	60	95%	0.0242	1.58	0.833	2.87
Pyrene	mg/kg	OC	63	53	84%	0.0294	0.792	0.625	2.87
Total HPAHs, 0 DL	mg/kg	OC	63	59	94%	0.025	4.95	0.667	2.87
Total HPAHs, 1/2 DL	mg/kg	OC	63	59	94%	0.472	6.58	0.667	2.87
Total LPAHs, 0 DL	mg/kg	OC	63	62	98%	0.05	3.07	1.36	1.36
Total LPAHs, 1/2 DL	mg/kg	OC	63	62	98%	0.745	8.56	1.36	1.36
Total PAHs, 0 DL	mg/kg	OC	63	63	100%	0.075	8.02	NA	NA
Total PAHs, 1/2 DL	mg/kg	OC	63	63	100%	1.34	22.9	NA	NA
PCBs									
Aroclor 1016	mg/kg	OC	65	0	0%	NA	NA	0.059	45
Aroclor 1221	mg/kg	OC	65	0	0%	NA	NA	0.236	92
Aroclor 1232	mg/kg	OC	65	0	0%	NA	NA	0.236	45
Aroclor 1242	mg/kg	OC	65	0	0%	NA	NA	0.059	45
Aroclor 1248	mg/kg	OC	65	0	0%	NA	NA	0.059	45
Aroclor 1254	mg/kg	OC	65	1	2%	2.8	2.8	0.059	45
Aroclor 1260	mg/kg	OC	65	1	2%	1.3	1.3	0.059	45
Total PCB Aroclors, 1/2 DL	mg/kg	OC	65	1	2%	18	18	0.236	92
Total PCB Aroclors, 0 DL	mg/kg	OC	65	1	2%	4.1	4.1	0.236	92
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.000612	0.00171	NA	NA
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	OC	3	3	100%	0.00012	0.000417	NA	NA
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	OC	3	3	100%	0.00000696	0.0000182	NA	NA
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.000011	0.0000313	NA	NA
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	OC	3	3	100%	0.0000159	0.0000445	NA	NA
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.0000388	0.000184	NA	NA

Table A-6e. Summary Statistics for Organic-Carbon-Normalized Sediment in the Deep Lacustrine CSM Unit

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	3	1	33%	0.0000113	0.0000113	0.0000297	0.0000299
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.0000242	0.000113	NA	NA
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	OC	3	1	33%	0.00000571	0.00000571	0.0000161	0.0000214
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.0000102	0.0000346	NA	NA
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	OC	3	2	67%	0.0000144	0.0000531	0.0000411	0.0000411
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	OC	3	3	100%	0.000014	0.0000336	NA	NA
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	OC	3	3	100%	0.0000254	0.0000958	NA	NA
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.0000156	0.0000502	NA	NA
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	OC	3	3	100%	0.00087	0.00445	NA	NA
Octachlorodibenzodioxin	mg/kg	OC	3	3	100%	0.00497	0.0117	NA	NA
Octachlorodibenzofuran	mg/kg	OC	3	3	100%	0.000345	0.000783	NA	NA
Dioxin TEQ, bird, 0 DL	mg/kg	OC	3	3	100%	0.000932	0.00466	NA	NA
Dioxin TEQ, bird, 1/2 DL	mg/kg	OC	3	3	100%	0.000932	0.00467	NA	NA
Dioxin TEQ, fish, 0 DL	mg/kg	OC	3	3	100%	0.000096	0.000391	NA	NA
Dioxin TEQ, fish, 1/2 DL	mg/kg	OC	3	3	100%	0.000096	0.000393	NA	NA
Dioxin TEQ, mammal, 0 DL	mg/kg	OC	3	3	100%	0.000142	0.000625	NA	NA
Dioxin TEQ, mammal, 1/2 DL	mg/kg	OC	3	3	100%	0.000142	0.000627	NA	NA

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

NA - not applicable

OC - organic carbon

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A-7a. Summary Statistics for Sediment in the Upper Reach OU for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	230	230	100	3080	61300	NA	NA	15000	15000	
Antimony	mg/kg	dw	203	196	96.6	0.128	174	0.47	9.7	34.1	34.1	
Arsenic	mg/kg	dw	242	234	96.7	2	74.4	1.3	4.5	13.2	13.2	
Barium	mg/kg	dw	213	213	100	69.2	2800	NA	NA	859	859	
Beryllium	mg/kg	dw	213	213	100	0.12	2.4	NA	NA	0.701	0.701	
Cadmium	mg/kg	dw	242	235	97.1	0.004	18	0.06	0.62	3.02	3.02	
Chromium	mg/kg	dw	232	232	100	9.8	250	NA	NA	61.8	61.8	
Cobalt	mg/kg	dw	213	213	100	4.2	88	NA	NA	27	27	
Copper	mg/kg	dw	240	240	100	11	3600	NA	NA	982	982	
Iron	mg/kg	dw	230	230	100	9880	320000	NA	NA	94300	94300	
Lead	mg/kg	dw	242	241	99.6	12.5	3020	7.9	7.9	428	428	
Manganese	mg/kg	dw	213	213	100	129	5710	NA	NA	1770	1770	
Mercury	mg/kg	dw	223	218	97.8	0.003	1.9	0.05	0.12	0.313	0.313	
Molybdenum	mg/kg	dw	15	15	100	1.8	54	NA	NA	47.8	47.8	
Nickel	mg/kg	dw	230	230	100	6.3	48.8	NA	NA	14.5	14.5	
Selenium	mg/kg	dw	158	124	78.5	0.09	23.2	0.1	5.1	2.58	2.58	
Silver	mg/kg	dw	213	121	56.8	0.048	12.6	0.26	3	2.04	2.04	
Thallium	mg/kg	dw	215	118	54.9	0.02	4	0.043	4.4	0.383	0.383	
Uranium	mg/kg	dw	157	98	62.4	1.01	127	7.2	34	16.3	16.3	
Vanadium	mg/kg	dw	215	215	100	11	101	NA	NA	32.5	32.5	
Zinc	mg/kg	dw	240	240	100	47.3	28200	NA	NA	7680	7680	
SVOCs												
Benzyl n-butyl phthalate	µg/kg	dw	102	2	2	3.4	6.9	3.2	230	NC	6.9	M
bis(2-Ethylhexyl)phthalate	µg/kg	dw	102	5	4.9	20.5	205	11	230	NC	205	M
Di-n-butyl phthalate	µg/kg	dw	102	0	0	NA	NA	7.9	230	NC	230	U
Di-n-octylphthalate	µg/kg	dw	102	0	0	NA	NA	1.7	230	NC	230	U
Pentachlorophenol	µg/kg	dw	102	0	0	NA	NA	20	590	NC	590	U
Pesticides												
Aldrin	µg/kg	dw	114	1	0.9	0.17	0.17	0.16	2.1	NC	0.17	M
alpha-Chlordane	µg/kg	dw	114	0	0	NA	NA	0.1	2.1	NC	2.1	U
cis-Nonachlor	µg/kg	dw	102	0	0	NA	NA	0.12	0.72	NC	0.72	U
delta-BHC	µg/kg	dw	114	0	0	NA	NA	0.074	2.1	NC	2.1	U
Dieldrin	µg/kg	dw	114	0	0	NA	NA	0.14	4	NC	4	U
Endrin	µg/kg	dw	114	0	0	NA	NA	0.094	4	NC	4	U
Endrin aldehyde	µg/kg	dw	114	0	0	NA	NA	0.12	4	NC	4	U
Endrin ketone	µg/kg	dw	114	0	0	NA	NA	0.093	4	NC	4	U
gamma-Chlordane	µg/kg	dw	114	0	0	NA	NA	0.09	2.1	NC	2.1	U
Heptachlor	µg/kg	dw	114	0	0	NA	NA	0.12	2.1	NC	2.1	U
Heptachlor epoxide	µg/kg	dw	114	0	0	NA	NA	0.084	2.1	NC	2.1	U
Hexachlorobenzene	µg/kg	dw	102	5	4.9	0.11	0.97	0.2	0.72	NC	0.97	M
Hexachlorobutadiene	µg/kg	dw	102	0	0	NA	NA	0.21	0.72	NC	0.72	U
Methoxychlor	µg/kg	dw	114	3	2.6	0.75	3.5	0.19	21	NC	3.5	M
Oxychlordane	µg/kg	dw	102	0	0	NA	NA	0.085	0.72	NC	0.72	U
Total chlordane, 0 DL	µg/kg	dw	102	0	0	NA	NA	0.12	0.72	NC	0.72	U
Total chlordane, 1/2 DL	µg/kg	dw	102	0	0	NA	NA	0.12	0.72	NC	0.72	U

Table A-7a. Summary Statistics for Sediment in the Upper Reach OU for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	µg/kg	dw	102	37	36.3	0.115	2.22	0.17	1.5	0.443	0.443	
Total DDx, 1/2 DL	µg/kg	dw	102	37	36.3	0.765	3.54	0.17	1.5	1.18	1.18	
trans-Nonachlor	µg/kg	dw	102	0	0	NA	NA	0.087	0.72	NC	0.72	U
PAHs												
Benzo(a)pyrene	µg/kg	dw	102	58	56.9	0.4	16	0.76	8	3.4	3.4	
Total HPAHs, 0 DL	µg/kg	dw	102	88	86.3	0.2	528	0.98	7	34.5	34.5	
Total HPAHs, 1/2 DL	µg/kg	dw	102	88	86.3	5.03	528	0.98	7	52.8	52.8	
Total LPAHs, 0 DL	µg/kg	dw	102	95	93.1	0.2	123	4	7	11.7	11.7	
Total LPAHs, 1/2 DL	µg/kg	dw	102	95	93.1	2.7	123	4	7	24.1	24.1	
Total PAHs, 0 DL	µg/kg	dw	102	95	93.1	0.2	618	4	7	52.2	52.2	
Total PAHs, 1/2 DL	µg/kg	dw	102	95	93.1	6.87	618	4	7	76.4	76.4	
PCBs												
Total PCB Aroclors, 1/2 DL	µg/kg	dw	114	1	0.9	11.1	11.1	2.1	82	NC	11.1	M
Total PCB Aroclors, 0 DL	µg/kg	dw	114	1	0.9	2.7	2.7	2.1	82	NC	2.7	M
Total PCB congeners, 0 DL	pg/g	dw	5	5	100	202	3460	NA	NA	NC	3460	M
Total PCB congeners, 1/2 DL	pg/g	dw	5	5	100	485	3520	NA	NA	NC	3520	M
Dioxins/Furans												
Dioxin TEQ, bird, 0 DL	pg/g	dw	20	20	100	0.128	24.9	NA	NA	12.8	12.8	
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	20	20	100	0.308	25	NA	NA	13	13	
Dioxin TEQ, fish, 0 DL	pg/g	dw	20	20	100	0.0118	2.16	NA	NA	0.91	0.91	
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	20	20	100	0.0782	2.24	NA	NA	1.43	1.43	
Dioxin TEQ, mammal, 0 DL	pg/g	dw	20	20	100	0.0235	3.38	NA	NA	1.73	1.73	
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	20	20	100	0.0835	3.42	NA	NA	1.96	1.96	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-7b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	80	80	100	2530	81000	NA	NA	21800	21800	
Antimony	mg/kg	dw	72	51	70.8	0.048	7.2	0.072	14	2.37	2.37	
Arsenic	mg/kg	dw	83	81	97.6	0.95	26.2	2.3	2.8	5.84	5.84	
Barium	mg/kg	dw	78	78	100	29.6	1400	NA	NA	407	407	
Beryllium	mg/kg	dw	78	78	100	0.11	2.6	NA	NA	0.905	0.905	
Cadmium	mg/kg	dw	83	79	95.2	0.11	11	0.06	0.14	3.24	3.24	
Chromium	mg/kg	dw	80	80	100	5.2	110	NA	NA	27.3	27.3	
Cobalt	mg/kg	dw	78	78	100	2.6	15.5	NA	NA	7.26	7.26	
Copper	mg/kg	dw	83	83	100	5.7	1110	NA	NA	112	112	
Iron	mg/kg	dw	80	80	100	5140	132400	NA	NA	22600	22600	
Lead	mg/kg	dw	83	83	100	3.9	500	NA	NA	167	167	
Manganese	mg/kg	dw	78	78	100	91.9	1000	NA	NA	353	353	
Mercury	mg/kg	dw	78	65	83.3	0.002	2.2	0.002	0.14	0.343	0.343	
Molybdenum	mg/kg	dw	5	5	100	1.4	3.8	NA	NA	NC	3.8	M
Nickel	mg/kg	dw	80	80	100	4.9	52.8	NA	NA	18.4	18.4	
Selenium	mg/kg	dw	56	25	44.6	0.2	5.4	0.2	7.7	1.08	1.08	
Silver	mg/kg	dw	78	49	62.8	0.045	5	0.32	3	0.959	0.959	
Thallium	mg/kg	dw	78	43	55.1	0.057	1.4	0.78	7.1	0.44	0.44	
Uranium	mg/kg	dw	67	46	68.7	0.375	11.5	16	57	2.78	2.78	
Vanadium	mg/kg	dw	78	78	100	7.7	110	NA	NA	42.5	42.5	
Zinc	mg/kg	dw	83	83	100	22.4	11300	NA	NA	1060	1060	
SVOCs												
Benzyl n-butyl phthalate	µg/kg	dw	32	1	3.1	3.4	3.4	3.2	240	NC	3.4	M
bis(2-Ethylhexyl)phthalate	µg/kg	dw	32	0	0	NA	NA	7	240	NC	240	U
Di-n-butyl phthalate	µg/kg	dw	32	0	0	NA	NA	7.9	240	NC	240	U
Di-n-octylphthalate	µg/kg	dw	32	0	0	NA	NA	1.7	240	NC	240	U
Pentachlorophenol	µg/kg	dw	32	0	0	NA	NA	20	610	NC	610	U
Pesticides												
Aldrin	µg/kg	dw	40	0	0	NA	NA	0.16	4.5	NC	4.5	U
alpha-Chlordane	µg/kg	dw	40	0	0	NA	NA	0.1	4.5	NC	4.5	U
cis-Nonachlor	µg/kg	dw	32	0	0	NA	NA	0.12	0.94	NC	0.94	U
delta-BHC	µg/kg	dw	40	0	0	NA	NA	0.074	4.5	NC	4.5	U
Dieldrin	µg/kg	dw	40	0	0	NA	NA	0.14	8.7	NC	8.7	U
Endrin	µg/kg	dw	40	0	0	NA	NA	0.094	8.7	NC	8.7	U
Endrin aldehyde	µg/kg	dw	40	0	0	NA	NA	0.12	8.7	NC	8.7	U
Endrin ketone	µg/kg	dw	40	0	0	NA	NA	0.093	8.7	NC	8.7	U
gamma-Chlordane	µg/kg	dw	40	0	0	NA	NA	0.09	4.5	NC	4.5	U
Heptachlor	µg/kg	dw	40	0	0	NA	NA	0.12	4.5	NC	4.5	U
Heptachlor epoxide	µg/kg	dw	40	0	0	NA	NA	0.084	4.5	NC	4.5	U
Hexachlorobenzene	µg/kg	dw	32	0	0	NA	NA	0.2	0.94	NC	0.94	U
Hexachlorobutadiene	µg/kg	dw	32	0	0	NA	NA	0.21	0.94	NC	0.94	U
Methoxychlor	µg/kg	dw	40	4	10	0.75	52	0.19	45	NC	52	M
Oxychlordane	µg/kg	dw	32	0	0	NA	NA	0.085	0.94	NC	0.94	U
Total chlordane, 0 DL	µg/kg	dw	32	0	0	NA	NA	0.12	0.94	NC	0.94	U
Total chlordane, 1/2 DL	µg/kg	dw	32	0	0	NA	NA	0.12	0.94	NC	0.94	U

Table A-7b. Summary Statistics for Sediment in the Shallow Transitional CSM Unit for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	µg/kg	dw	32	6	18.8	0.15	6.7	0.17	1.9	1.42	1.42	
Total DDx, 1/2 DL	µg/kg	dw	32	6	18.8	0.494	8.5	0.17	1.9	1.36	1.36	
trans-Nonachlor	µg/kg	dw	32	0	0	NA	NA	0.087	0.94	NC	0.94	U
PAHs												
Benzo(a)pyrene	µg/kg	dw	32	9	28.1	0.6	2.8	0.76	11	1.61	1.61	
Total HPAHs, 0 DL	µg/kg	dw	32	25	78.1	0.2	43.9	0.98	10	12.3	12.3	
Total HPAHs, 1/2 DL	µg/kg	dw	32	25	78.1	6.47	44.3	0.98	10	21.5	21.5	
Total LPAHs, 0 DL	µg/kg	dw	32	18	56.2	0.2	16.2	1.4	10	5.18	5.18	
Total LPAHs, 1/2 DL	µg/kg	dw	32	18	56.2	2.84	30.4	1.4	10	14.4	14.4	
Total PAHs, 0 DL	µg/kg	dw	32	26	81.2	0.2	60.1	1.4	10	21.5	21.5	
Total PAHs, 1/2 DL	µg/kg	dw	32	26	81.2	7.01	67.2	1.4	10	38.4	38.4	
PCBs												
Total PCB Aroclors, 1/2 DL	µg/kg	dw	40	1	2.5	11	11	2.1	180	NC	11	M
Total PCB Aroclors, 0 DL	µg/kg	dw	40	1	2.5	2.6	2.6	2.1	180	NC	2.6	M
Total PCB congeners, 0 DL	pg/g	dw	1	1	100	4160	4160	NA	NA	NC	4160	M
Total PCB congeners, 1/2 DL	pg/g	dw	1	1	100	4210	4210	NA	NA	NC	4210	M
Dioxins/Furans												
Dioxin TEQ, bird, 0 DL	pg/g	dw	4	4	100	0.00645	5.58	NA	NA	NC	5.58	M
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	4	4	100	0.116	5.89	NA	NA	NC	5.89	M
Dioxin TEQ, fish, 0 DL	pg/g	dw	4	4	100	0.00645	0.318	NA	NA	NC	0.318	M
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	4	4	100	0.0759	0.64	NA	NA	NC	0.64	M
Dioxin TEQ, mammal, 0 DL	pg/g	dw	4	4	100	0.00645	0.706	NA	NA	NC	0.706	M
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	4	4	100	0.0718	0.979	NA	NA	NC	0.979	M

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-7c. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	268	268	100	1750	85000	NA	NA	15900	15900	
Antimony	mg/kg	dw	189	135	71.4	0.119	4.8	0.006	11.6	0.937	0.937	
Arsenic	mg/kg	dw	269	256	95.2	0.2	25	0.73	9.5	6	6	
Barium	mg/kg	dw	259	259	100	12.7	1240	NA	NA	210	210	
Beryllium	mg/kg	dw	259	259	100	0.0515	2.9	NA	NA	0.755	0.755	
Cadmium	mg/kg	dw	269	224	83.3	0.032	11.8	0.015	0.62	1.55	1.55	
Chromium	mg/kg	dw	268	268	100	1.2	109	NA	NA	22.2	22.2	
Cobalt	mg/kg	dw	259	259	100	0.906	19.8	NA	NA	6.91	6.91	
Copper	mg/kg	dw	269	264	98.1	0.8	111	6	8.7	23.3	23.3	
Iron	mg/kg	dw	268	268	100	2740	52000	NA	NA	18300	18300	
Lead	mg/kg	dw	269	268	99.6	2.19	841	1.1	1.1	79.7	79.7	
Manganese	mg/kg	dw	259	259	100	42.6	3780	NA	NA	455	455	
Mercury	mg/kg	dw	254	189	74.4	0.002	2.4	0.002	0.14	0.19	0.19	
Molybdenum	mg/kg	dw	12	12	100	0.31	1.7	NA	NA	1.53	1.53	
Nickel	mg/kg	dw	268	268	100	0.68	50.1	NA	NA	17.1	17.1	
Selenium	mg/kg	dw	199	64	32.2	0.2	5.7	0.03	4.4	0.959	0.959	
Silver	mg/kg	dw	240	113	47.1	0.018	2.9	0.036	3	0.339	0.339	
Thallium	mg/kg	dw	259	113	43.6	0.0255	2.2	0.064	6.7	0.433	0.433	
Uranium	mg/kg	dw	239	133	55.6	0.345	13.4	6.4	38.7	3	3	
Vanadium	mg/kg	dw	259	259	100	3.75	125	NA	NA	29.8	29.8	
Zinc	mg/kg	dw	269	269	100	7.55	1460	NA	NA	214	214	
SVOCs												
Benzyl n-butyl phthalate	µg/kg	dw	142	1	0.7	3.8	3.8	3.2	240	NC	3.8	M
bis(2-Ethylhexyl)phthalate	µg/kg	dw	142	4	2.8	31	79	7	240	NC	79	M
Di-n-butyl phthalate	µg/kg	dw	142	0	0	NA	NA	7.9	240	NC	240	U
Di-n-octylphthalate	µg/kg	dw	142	0	0	NA	NA	1.7	240	NC	240	U
Pentachlorophenol	µg/kg	dw	142	0	0	NA	NA	20	600	NC	600	U
Pesticides												
Aldrin	µg/kg	dw	150	0	0	NA	NA	0.16	3.7	NC	3.7	U
alpha-Chlordane	µg/kg	dw	150	2	1.3	0.41	1.1	0.1	3.7	NC	1.1	M
cis-Nonachlor	µg/kg	dw	142	0	0	NA	NA	0.12	2.6	NC	2.6	U
delta-BHC	µg/kg	dw	150	0	0	NA	NA	0.074	3.7	NC	3.7	U
Dieldrin	µg/kg	dw	150	0	0	NA	NA	0.14	7.2	NC	7.2	U
Endrin	µg/kg	dw	150	0	0	NA	NA	0.094	7.2	NC	7.2	U
Endrin aldehyde	µg/kg	dw	150	0	0	NA	NA	0.12	7.2	NC	7.2	U
Endrin ketone	µg/kg	dw	150	0	0	NA	NA	0.093	7.2	NC	7.2	U
gamma-Chlordane	µg/kg	dw	150	2	1.3	0.075	0.84	0.09	3.7	NC	0.84	M
Heptachlor	µg/kg	dw	150	0	0	NA	NA	0.12	3.7	NC	3.7	U
Heptachlor epoxide	µg/kg	dw	150	0	0	NA	NA	0.084	3.7	NC	3.7	U
Hexachlorobenzene	µg/kg	dw	142	4	2.8	0.092	1.6	0.2	2.6	NC	1.6	M
Hexachlorobutadiene	µg/kg	dw	142	0	0	NA	NA	0.21	2.6	NC	2.6	U
Methoxychlor	µg/kg	dw	150	1	0.7	2.4	2.4	0.19	37	NC	2.4	M
Oxychlordane	µg/kg	dw	142	0	0	NA	NA	0.085	2.6	NC	2.6	U
Total chlordane, 0 DL	µg/kg	dw	142	4	2.8	0.075	1.94	0.12	2.6	NC	1.94	M
Total chlordane, 1/2 DL	µg/kg	dw	142	4	2.8	0.795	2.75	0.12	2.6	NC	2.75	M
Total DDx, 0 DL	µg/kg	dw	142	41	28.9	0.08	339	0.17	1.9	13.5	13.5	
Total DDx, 1/2 DL	µg/kg	dw	142	41	28.9	1.53	342	0.17	1.9	14.1	14.1	
trans-Nonachlor	µg/kg	dw	142	1	0.7	1	1	0.087	2.6	NC	1	M

Table A-7c. Summary Statistics for Sediment in the Shallow Lacustrine CSM Unit for the Fish and Wildlife Dietary Screen

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs												
Benzo(a)pyrene	µg/kg	dw	142	10	7	0.4	11	0.76	9	0.972	0.972	
Total HPAHs, 0 DL	µg/kg	dw	142	50	35.2	0.2	121	0.98	6	2.63	2.63	
Total HPAHs, 1/2 DL	µg/kg	dw	142	50	35.2	4.89	121	0.98	6	14.3	14.3	
Total LPAHs, 0 DL	µg/kg	dw	142	76	53.5	0.2	7.8	1.4	8.6	1.87	1.87	
Total LPAHs, 1/2 DL	µg/kg	dw	142	76	53.5	2.94	27.5	1.4	8.6	10.4	10.4	
Total PAHs, 0 DL	µg/kg	dw	142	91	64.1	0.2	129	1.4	6	9.21	9.21	
Total PAHs, 1/2 DL	µg/kg	dw	142	91	64.1	7.31	136	1.4	6	50.5	50.5	
PCBs												
Total PCB Aroclors, 1/2 DL	µg/kg	dw	150	2	1.3	41.2	141	2.1	140	NC	141	M
Total PCB Aroclors, 0 DL	µg/kg	dw	150	2	1.3	16.9	34.4	2.1	140	NC	34.4	M
Dioxins/Furans												
Dioxin TEQ, bird, 0 DL	pg/g	dw	27	25	92.6	0.0013	16.8	0	0	4.03	4.03	
Dioxin TEQ, bird, 1/2 DL	pg/g	dw	27	25	92.6	0.119	16.9	0.106	0.166	4.02	4.02	
Dioxin TEQ, fish, 0 DL	pg/g	dw	27	25	92.6	0.0013	1.64	0	0	0.382	0.382	
Dioxin TEQ, fish, 1/2 DL	pg/g	dw	27	25	92.6	0.0763	1.73	0.0737	0.123	0.312	0.312	
Dioxin TEQ, mammal, 0 DL	pg/g	dw	27	25	92.6	0.00161	2.36	0	0	0.559	0.559	
Dioxin TEQ, mammal, 1/2 DL	pg/g	dw	27	25	92.6	0.0696	2.5	0.0693	0.112	0.758	0.758	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-8a. Summary Statistics for Benthic Macroinvertebrates in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Crayfish									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	6	6	100%	22.7	72.3	NA	NA
Antimony	mg/kg	ww	6	6	100%	0.0198	0.0859	NA	NA
Arsenic	mg/kg	ww	6	6	100%	0.24	0.395	NA	NA
Barium	mg/kg	ww	6	6	100%	21.2	48.3	NA	NA
Beryllium	mg/kg	ww	6	5	83%	0.000957	0.00306	0.0016	0.0016
Cadmium	mg/kg	ww	6	6	100%	0.208	0.516	NA	NA
Calcium	mg/kg	ww	6	6	100%	29800	42600	NA	NA
Chromium	mg/kg	ww	6	6	100%	0.177	1.29	NA	NA
Cobalt	mg/kg	ww	6	6	100%	0.0576	0.186	NA	NA
Copper	mg/kg	ww	6	6	100%	21.3	53.5	NA	NA
Iron	mg/kg	ww	6	6	100%	52.1	156	NA	NA
Lead	mg/kg	ww	6	6	100%	0.276	1.34	NA	NA
Magnesium	mg/kg	ww	6	6	100%	394	706	NA	NA
Manganese	mg/kg	ww	6	6	100%	9.53	61.6	NA	NA
Mercury	µg/kg	ww	6	6	100%	14.3	21.2	NA	NA
Nickel	mg/kg	ww	6	6	100%	0.219	1.06	NA	NA
Potassium	mg/kg	ww	6	6	100%	1540	2100	NA	NA
Selenium	mg/kg	ww	6	6	100%	0.202	0.372	NA	NA
Silver	mg/kg	ww	6	6	100%	0.0417	0.101	NA	NA
Sodium	mg/kg	ww	6	6	100%	2030	2320	NA	NA
Thallium	mg/kg	ww	6	6	100%	0.0103	0.023	NA	NA
Vanadium	mg/kg	ww	6	6	100%	0.0854	0.243	NA	NA
Zinc	mg/kg	ww	6	6	100%	17.6	27.3	NA	NA
Mussels									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	12	12	100%	7.62	161	NA	NA
Antimony	mg/kg	ww	12	5	42%	0.017	0.201	0.004	0.014
Arsenic	mg/kg	ww	12	12	100%	0.46	1.29	NA	NA
Inorganic arsenic	mg/kg	ww	6	1	17%	0.0387	0.0387	0.0058	0.0088
Barium	mg/kg	ww	12	12	100%	28.3	144	NA	NA
Beryllium	mg/kg	ww	12	12	100%	0.0021	0.0116	NA	NA
Cadmium	mg/kg	ww	12	12	100%	0.399	0.975	NA	NA
Calcium	mg/kg	ww	12	12	100%	1880	6870	NA	NA
Chromium	mg/kg	ww	12	12	100%	0.247	1.73	NA	NA
Cobalt	mg/kg	ww	12	12	100%	0.0436	0.205	NA	NA
Copper	mg/kg	ww	12	12	100%	0.78	3.73	NA	NA
Iron	mg/kg	ww	12	12	100%	51.5	420	NA	NA
Lead	mg/kg	ww	12	12	100%	0.174	1.44	NA	NA
Magnesium	mg/kg	ww	12	12	100%	57.2	230	NA	NA

Table A-8a. Summary Statistics for Benthic Macroinvertebrates in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids (continued)									
Manganese	mg/kg	ww	12	12	100%	185	499	NA	NA
Mercury	µg/kg	ww	12	12	100%	5.61	16.9	NA	NA
Methyl mercury	µg/kg	ww	6	6	100%	0.8	4	NA	NA
Nickel	mg/kg	ww	12	12	100%	0.148	0.879	NA	NA
Potassium	mg/kg	ww	12	12	100%	108	244	NA	NA
Selenium	mg/kg	ww	12	12	100%	0.17	0.62	NA	NA
Silver	mg/kg	ww	12	12	100%	0.0087	0.045	NA	NA
Sodium	mg/kg	ww	12	12	100%	231	415	NA	NA
Thallium	mg/kg	ww	12	7	58%	0.0037	0.013	0.0023	0.0041
Vanadium	mg/kg	ww	12	12	100%	0.026	0.462	NA	NA
Zinc	mg/kg	ww	12	12	100%	11.5	45.8	NA	NA
PCBs									
Total PCB congeners, 0 DL	pg/g	ww	5	5	100%	478	1010	NA	NA
Total PCB congeners, 1/2 DL	pg/g	ww	5	5	100%	479	1010	NA	NA
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	5	1	20%	0.0758	0.0758	0.0578	0.157
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	5	1	20%	0.18	0.18	0.0118	0.0467
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0132	0.0598
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	5	0	0%	NA	NA	0.0407	0.133
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0108	0.0482
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	5	0	0%	NA	NA	0.0396	0.142
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0106	0.0453
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	5	1	20%	0.183	0.183	0.0396	0.147
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0154	0.0669
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	5	0	0%	NA	NA	0.0174	0.0836
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0116	0.0677
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0119	0.0532
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0101	0.0749
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	5	0	0%	NA	NA	0.00996	0.0539
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	5	0	0%	NA	NA	0.0142	0.0733
Octachlorodibenzodioxin	pg/g	ww	5	3	60%	0.348	0.661	0.368	0.497
Octachlorodibenzofuran	pg/g	ww	5	1	20%	0.0971	0.0971	0.0372	0.104
Dioxin TEQ, bird, 0 DL	pg/g	ww	5	5	100%	0.00000971	0.0201	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	5	5	100%	0.0323	0.157	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	ww	5	5	100%	0.00000971	0.00363	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	5	5	100%	0.0301	0.129	NA	NA

Table A-8a. Summary Statistics for Benthic Macroinvertebrates in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
Dioxin TEQ, mammal, 0 DL	pg/g	ww	5	5	100%	0.0000291	0.0201	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	5	5	100%	0.0255	0.109	NA	NA

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

FOD - frequency of detection

NA - not applicable

OU - operable unit

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

Table A-8b. Summary Statistics for Benthic Macroinvertebrates in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Crayfish									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	6	6	100%	52.9	144	NA	NA
Antimony	mg/kg	ww	6	1	17%	0.016	0.016	0.007	0.016
Arsenic	mg/kg	ww	6	6	100%	0.29	0.69	NA	NA
Barium	mg/kg	ww	6	6	100%	41	66.4	NA	NA
Beryllium	mg/kg	ww	6	6	100%	0.0024	0.0065	NA	NA
Cadmium	mg/kg	ww	6	6	100%	0.208	0.478	NA	NA
Calcium	mg/kg	ww	6	6	100%	34800	45200	NA	NA
Chromium	mg/kg	ww	6	6	100%	0.416	1.48	NA	NA
Cobalt	mg/kg	ww	6	6	100%	0.0988	0.236	NA	NA
Copper	mg/kg	ww	6	6	100%	24	59	NA	NA
Iron	mg/kg	ww	6	6	100%	96	250	NA	NA
Lead	mg/kg	ww	6	6	100%	0.175	0.696	NA	NA
Magnesium	mg/kg	ww	6	6	100%	500	650	NA	NA
Manganese	mg/kg	ww	6	6	100%	16.2	76	NA	NA
Mercury	µg/kg	ww	6	6	100%	13.8	34.3	NA	NA
Nickel	mg/kg	ww	6	6	100%	0.328	1.16	NA	NA
Potassium	mg/kg	ww	6	6	100%	1950	2700	NA	NA
Selenium	mg/kg	ww	6	6	100%	0.27	0.4	NA	NA
Silver	mg/kg	ww	6	6	100%	0.0717	0.126	NA	NA
Sodium	mg/kg	ww	6	6	100%	2030	2390	NA	NA
Thallium	mg/kg	ww	6	6	100%	0.012	0.0235	NA	NA
Vanadium	mg/kg	ww	6	6	100%	0.183	0.524	NA	NA
Zinc	mg/kg	ww	6	6	100%	19.2	23.5	NA	NA
Mussels									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	6	6	100%	7.88	60.1	NA	NA
Antimony	mg/kg	ww	6	0	0%	NA	NA	0.007	0.011
Arsenic	mg/kg	ww	6	6	100%	0.4	0.72	NA	NA
Barium	mg/kg	ww	6	6	100%	39	83.4	NA	NA
Beryllium	mg/kg	ww	6	6	100%	0.0032	0.0046	NA	NA
Cadmium	mg/kg	ww	6	6	100%	0.339	0.611	NA	NA
Calcium	mg/kg	ww	6	6	100%	2660	6520	NA	NA
Chromium	mg/kg	ww	6	6	100%	0.187	0.536	NA	NA
Cobalt	mg/kg	ww	6	6	100%	0.0605	0.104	NA	NA
Copper	mg/kg	ww	6	6	100%	0.673	1.57	NA	NA
Iron	mg/kg	ww	6	6	100%	113	215	NA	NA
Lead	mg/kg	ww	6	6	100%	0.348	0.694	NA	NA
Magnesium	mg/kg	ww	6	6	100%	68.8	102	NA	NA

Table A-8b. Summary Statistics for Benthic Macroinvertebrates in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Common Metals/Metalloids (continued)									
Manganese	mg/kg	ww	6	6	100%	253	435	NA	NA
Mercury	µg/kg	ww	6	6	100%	5.17	8.99	NA	NA
Nickel	mg/kg	ww	6	6	100%	0.062	0.289	NA	NA
Potassium	mg/kg	ww	6	6	100%	75.6	174	NA	NA
Selenium	mg/kg	ww	6	6	100%	0.15	0.39	NA	NA
Silver	mg/kg	ww	6	6	100%	0.0087	0.0269	NA	NA
Sodium	mg/kg	ww	6	6	100%	271	354	NA	NA
Thallium	mg/kg	ww	6	5	83%	0.0046	0.0107	0.0027	0.0027
Vanadium	mg/kg	ww	6	6	100%	0.036	0.164	NA	NA
Zinc	mg/kg	ww	6	6	100%	11.7	22.2	NA	NA

Notes:

CSM - conceptual site model

FOD - frequency of detection

NA - not applicable

Table A-8c. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Clams									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	1	1	100%	515	515	NA	NA
Antimony	mg/kg	ww	1	0	0%	NA	NA	0.0184	0.0184
Arsenic	mg/kg	ww	1	1	100%	1.12	1.12	NA	NA
Inorganic arsenic	mg/kg	ww	1	1	100%	0.164	0.164	NA	NA
Barium	mg/kg	ww	1	1	100%	6.52	6.52	NA	NA
Beryllium	mg/kg	ww	1	1	100%	0.0176	0.0176	NA	NA
Cadmium	mg/kg	ww	1	1	100%	0.694	0.694	NA	NA
Calcium	mg/kg	ww	1	1	100%	999	999	NA	NA
Chromium	mg/kg	ww	1	1	100%	1.32	1.32	NA	NA
Cobalt	mg/kg	ww	1	1	100%	0.223	0.223	NA	NA
Copper	mg/kg	ww	1	1	100%	3.62	3.62	NA	NA
Iron	mg/kg	ww	1	1	100%	375	375	NA	NA
Lead	mg/kg	ww	1	1	100%	0.961	0.961	NA	NA
Magnesium	mg/kg	ww	1	1	100%	222	222	NA	NA
Manganese	mg/kg	ww	1	1	100%	8.07	8.07	NA	NA
Mercury	µg/kg	ww	1	1	100%	6.33	6.33	NA	NA
Methyl mercury	µg/kg	ww	1	1	100%	3.5	3.5	NA	NA
Nickel	mg/kg	ww	1	1	100%	0.616	0.616	NA	NA
Potassium	mg/kg	ww	1	1	100%	259	259	NA	NA
Selenium	mg/kg	ww	1	1	100%	0.5	0.5	NA	NA
Silver	mg/kg	ww	1	1	100%	0.0203	0.0203	NA	NA
Sodium	mg/kg	ww	1	1	100%	305	305	NA	NA
Thallium	mg/kg	ww	1	1	100%	0.0248	0.0248	NA	NA
Vanadium	mg/kg	ww	1	1	100%	0.836	0.836	NA	NA
Zinc	mg/kg	ww	1	1	100%	52.8	52.8	NA	NA
PCBs									
Total PCB congeners, 0 DL	pg/g	ww	1	1	100%	2350	2350	NA	NA
Total PCB congeners, 1/2 DL	pg/g	ww	1	1	100%	2360	2360	NA	NA
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.162	0.162
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0599	0.0599
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0737	0.0737
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.0898	0.0898
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0362	0.0362
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.0937	0.0937
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0357	0.0357
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.0915	0.0915
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0491	0.0491
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.0693	0.0693
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0515	0.0515
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.037	0.037

Table A-8c. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.0482	0.0482
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	1	0	0%	NA	NA	0.0509	0.0509
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	1	1	100%	0.218	0.218	NA	NA
Octachlorodibenzodioxin	pg/g	ww	1	1	100%	0.911	0.911	NA	NA
Octachlorodibenzofuran	pg/g	ww	1	0	0%	NA	NA	0.165	0.165
Dioxin TEQ, bird, 0 DL	pg/g	ww	1	1	100%	0.218	0.218	NA	NA
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	1	1	100%	0.321	0.321	NA	NA
Dioxin TEQ, fish, 0 DL	pg/g	ww	1	1	100%	0.011	0.011	NA	NA
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	1	1	100%	0.116	0.116	NA	NA
Dioxin TEQ, mammal, 0 DL	pg/g	ww	1	1	100%	0.0221	0.0221	NA	NA
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	1	1	100%	0.113	0.113	NA	NA
Crayfish									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	18	18	100%	74.5	356	NA	NA
Antimony	mg/kg	ww	18	0	0%	NA	NA	0.0058	0.0218
Arsenic	mg/kg	ww	18	18	100%	0.19	0.49	NA	NA
Barium	mg/kg	ww	18	18	100%	55.6	136	NA	NA
Beryllium	mg/kg	ww	18	18	100%	0.003	0.0127	NA	NA
Cadmium	mg/kg	ww	18	18	100%	0.141	0.592	NA	NA
Calcium	mg/kg	ww	18	18	100%	36300	58300	NA	NA
Chromium	mg/kg	ww	18	18	100%	0.43	2.34	NA	NA
Cobalt	mg/kg	ww	18	18	100%	0.0846	0.268	NA	NA
Copper	mg/kg	ww	18	18	100%	23.9	48.6	NA	NA
Iron	mg/kg	ww	18	18	100%	76	308	NA	NA
Lead	mg/kg	ww	18	18	100%	0.193	1.64	NA	NA
Magnesium	mg/kg	ww	18	18	100%	570	936	NA	NA
Manganese	mg/kg	ww	18	18	100%	15.9	55.8	NA	NA
Mercury	µg/kg	ww	18	18	100%	12.6	43.1	NA	NA
Nickel	mg/kg	ww	18	18	100%	0.333	1.2	NA	NA
Potassium	mg/kg	ww	18	18	100%	1610	2310	NA	NA
Selenium	mg/kg	ww	18	18	100%	0.187	0.355	NA	NA
Silver	mg/kg	ww	18	18	100%	0.0573	0.13	NA	NA
Sodium	mg/kg	ww	18	18	100%	1890	2360	NA	NA
Thallium	mg/kg	ww	18	18	100%	0.0137	0.0276	NA	NA
Vanadium	mg/kg	ww	18	18	100%	0.186	0.696	NA	NA
Zinc	mg/kg	ww	18	18	100%	19.6	30.2	NA	NA

Table A-8c. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Mussels									
Common Metals/Metalloids									
Aluminum	mg/kg	ww	18	18	100%	20.7	470	NA	NA
Antimony	mg/kg	ww	18	9	50%	0.002	0.006	0.001	0.011
Arsenic	mg/kg	ww	18	18	100%	0.345	1.61	NA	NA
Inorganic arsenic	mg/kg	ww	12	12	100%	0.0311	0.101	NA	NA
Barium	mg/kg	ww	18	18	100%	46.3	83.3	NA	NA
Beryllium	mg/kg	ww	18	18	100%	0.0028	0.0197	NA	NA
Cadmium	mg/kg	ww	18	18	100%	0.404	0.965	NA	NA
Calcium	mg/kg	ww	18	18	100%	3350	9470	NA	NA
Chromium	mg/kg	ww	18	18	100%	0.274	1.48	NA	NA
Cobalt	mg/kg	ww	18	18	100%	0.0608	0.226	NA	NA
Copper	mg/kg	ww	18	18	100%	0.328	1.75	NA	NA
Iron	mg/kg	ww	18	18	100%	125	590	NA	NA
Lead	mg/kg	ww	18	18	100%	0.0861	0.455	NA	NA
Magnesium	mg/kg	ww	18	18	100%	60.4	387	NA	NA
Manganese	mg/kg	ww	18	18	100%	336	670	NA	NA
Mercury	µg/kg	ww	18	18	100%	3.17	14.2	NA	NA
Methyl mercury	µg/kg	ww	12	12	100%	0.8	3.2	NA	NA
Nickel	mg/kg	ww	18	18	100%	0.125	0.775	NA	NA
Potassium	mg/kg	ww	18	18	100%	57.5	312	NA	NA
Selenium	mg/kg	ww	18	18	100%	0.11	0.41	NA	NA
Silver	mg/kg	ww	18	18	100%	0.0092	0.0546	NA	NA
Sodium	mg/kg	ww	18	18	100%	194	341	NA	NA
Thallium	mg/kg	ww	18	16	89%	0.0021	0.0156	0.0029	0.0044
Vanadium	mg/kg	ww	18	18	100%	0.066	0.948	NA	NA
Zinc	mg/kg	ww	18	18	100%	12.8	42.2	NA	NA
PCBs									
Total PCB congeners, 0 DL	pg/g	ww	11	11	100%	621	16100	NA	NA
Total PCB congeners, 1/2 DL	pg/g	ww	11	11	100%	626	16100	NA	NA
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	10	2	20%	0.133	0.187	0.0555	0.483
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0236	0.164
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0314	0.162
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	10	0	0%	NA	NA	0.0541	0.281
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0217	0.126
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	10	0	0%	NA	NA	0.0558	0.285
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0201	0.127
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	10	0	0%	NA	NA	0.0575	0.298
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	10	1	10%	0.0665	0.0665	0.03	0.188
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	10	0	0%	NA	NA	0.0565	0.159
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0478	0.216
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0224	0.144

Table A-8c. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Dioxins/Furans (continued)									
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.048	0.222
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	10	0	0%	NA	NA	0.0251	0.142
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0305	0.175
Octachlorodibenzodioxin	pg/g	ww	10	6	60%	0.346	1.12	0.384	0.569
Octachlorodibenzofuran	pg/g	ww	10	0	0%	NA	NA	0.0725	0.449
Dioxin TEQ, bird, 0 DL	pg/g	ww	10	7	70%	0.0000488	0.00336	0	0
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	10	7	70%	0.117	0.365	0.119	0.382
Dioxin TEQ, fish, 0 DL	pg/g	ww	10	7	70%	0.0000488	0.00336	0	0
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	10	7	70%	0.0916	0.265	0.0979	0.301
Dioxin TEQ, mammal, 0 DL	pg/g	ww	10	7	70%	0.000146	0.00343	0	0
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	10	7	70%	0.0788	0.221	0.085	0.257

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

CSM - conceptual site model

FOD - frequency of detection

NA - not applicable

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

Table A-8d. Summary Statistics for Benthic Macroinvertebrates in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Crayfish												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	6	6	100%	103	259	NA	NA	208	208	
Antimony	mg/kg	dw	6	6	100%	0.0912	0.308	NA	NA	0.23	0.23	
Arsenic	mg/kg	dw	6	6	100%	1.09	1.32	NA	NA	1.27	1.27	
Barium	mg/kg	dw	6	6	100%	85.5	173	NA	NA	153	153	
Beryllium	mg/kg	dw	6	5	83%	0.00374	0.011	0.00737	0.00737	NC	0.011	M
Cadmium	mg/kg	dw	6	6	100%	0.675	1.85	NA	NA	1.53	1.53	
Calcium	mg/kg	dw	6	6	100%	114000	153000	NA	NA	NA	NA	
Chromium	mg/kg	dw	6	6	100%	0.816	4.31	NA	NA	3.16	3.16	
Cobalt	mg/kg	dw	6	6	100%	0.265	0.667	NA	NA	0.522	0.522	
Copper	mg/kg	dw	6	6	100%	98.2	190	NA	NA	179	179	
Iron	mg/kg	dw	6	6	100%	218	559	NA	NA	430	430	
Lead	mg/kg	dw	6	6	100%	1.08	4.8	NA	NA	3.33	3.33	
Magnesium	mg/kg	dw	6	6	100%	1540	2290	NA	NA	NA	NA	
Manganese	mg/kg	dw	6	6	100%	37.2	221	NA	NA	184	184	
Mercury	mg/kg	dw	6	6	100%	0.0478	0.0977	NA	NA	0.0786	0.0786	
Nickel	mg/kg	dw	6	6	100%	1.01	3.55	NA	NA	2.74	2.74	
Potassium	mg/kg	dw	6	6	100%	6290	7100	NA	NA	NA	NA	
Selenium	mg/kg	dw	6	6	100%	0.724	1.21	NA	NA	1.16	1.16	
Silver	mg/kg	dw	6	6	100%	0.166	0.354	NA	NA	0.338	0.338	
Sodium	mg/kg	dw	6	6	100%	6590	10000	NA	NA	NA	NA	
Thallium	mg/kg	dw	6	6	100%	0.0475	0.0769	NA	NA	0.0716	0.0716	
Vanadium	mg/kg	dw	6	6	100%	0.386	0.871	NA	NA	0.768	0.768	
Zinc	mg/kg	dw	6	6	100%	69.6	95.3	NA	NA	89.8	89.8	
Mussels												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	12	12	100%	119	1150	NA	NA	656	656	
Antimony	mg/kg	dw	12	5	42%	0.213	1.41	0.0627	0.191	NC	1.41	M
Arsenic	mg/kg	dw	12	12	100%	6.5	10.6	NA	NA	9.2	9.2	
Inorganic arsenic	mg/kg	dw	6	1	17%	0.206	0.206	0.0875	0.166	NA	NA	
Barium	mg/kg	dw	12	12	100%	296	1240	NA	NA	776	776	
Beryllium	mg/kg	dw	12	12	100%	0.0317	0.1	NA	NA	0.0663	0.0663	
Cadmium	mg/kg	dw	12	12	100%	3.97	10.6	NA	NA	8.14	8.14	
Calcium	mg/kg	dw	12	12	100%	17900	99900	NA	NA	NA	NA	
Chromium	mg/kg	dw	12	12	100%	2.76	14.9	NA	NA	7.58	7.58	
Cobalt	mg/kg	dw	12	12	100%	0.664	1.77	NA	NA	1.15	1.15	
Copper	mg/kg	dw	12	12	100%	11.8	26.1	NA	NA	18.2	18.2	
Iron	mg/kg	dw	12	12	100%	777	2940	NA	NA	2330	2330	
Lead	mg/kg	dw	12	12	100%	2.73	10.9	NA	NA	7.58	7.58	
Magnesium	mg/kg	dw	12	12	100%	863	1220	NA	NA	NA	NA	
Manganese	mg/kg	dw	12	12	100%	1630	5360	NA	NA	4070	4070	
Mercury	mg/kg	dw	12	12	100%	0.0897	0.133	NA	NA	0.106	0.106	
Methyl mercury	mg/kg	dw	6	6	100%	0.0151	0.0213	NA	NA	NA	NA	
Nickel	mg/kg	dw	12	12	100%	1.99	7.58	NA	NA	4.14	4.14	
Potassium	mg/kg	dw	12	12	100%	1220	2560	NA	NA	NA	NA	
Selenium	mg/kg	dw	12	12	100%	2.54	4.54	NA	NA	3.79	3.79	
Silver	mg/kg	dw	12	12	100%	0.139	0.335	NA	NA	0.264	0.264	
Sodium	mg/kg	dw	12	12	100%	1350	5480	NA	NA	NA	NA	

Table A-8d. Summary Statistics for Benthic Macroinvertebrates in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Thallium	mg/kg	dw	12	7	58%	0.0538	0.0701	0.0361	0.0558	0.0598	0.0598	
Vanadium	mg/kg	dw	12	12	100%	0.408	2.8	NA	NA	1.84	1.84	
Zinc	mg/kg	dw	12	12	100%	183	343	NA	NA	280	280	
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	5	5	100%	0.00904	0.0152	NA	NA	NC	0.0152	M
Total PCB congeners, 1/2 DL	mg/kg	dw	5	5	100%	0.00905	0.0152	NA	NA	NC	0.0152	M
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	5	1	20%	0.00000143	0.00000143	0.000000906	0.00000239	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	5	1	20%	0.00000274	0.00000274	0.000000223	0.000000704	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.00000025	0.000000902	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	5	0	0%	NA	NA	0.000000769	0.00000201	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000204	0.000000727	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	5	0	0%	NA	NA	0.000000749	0.00000214	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.0000002	0.000000683	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	5	1	20%	0.00000279	0.00000279	0.000000749	0.00000222	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000291	0.00000101	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	5	0	0%	NA	NA	0.000000329	0.00000131	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000219	0.00000104	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000225	0.000000802	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000191	0.00000113	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	5	0	0%	NA	NA	0.000000188	0.000000824	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	5	0	0%	NA	NA	0.000000268	0.00000115	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	5	3	60%	0.00000658	0.00000997	0.0000056	0.00000657	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	5	1	20%	0.00000128	0.00000128	0.000000703	0.00000158	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	5	5	100%	1.28E-10	0.000000306	NA	NA	NC	3.06E-07	M
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	5	5	100%	0.000000611	0.00000246	NA	NA	NC	2.46E-06	M
Dioxin TEQ, fish, 0 DL	mg/kg	dw	5	5	100%	1.28E-10	5.53E-08	NA	NA	NC	5.53E-08	M
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	5	5	100%	0.000000569	0.00000195	NA	NA	NC	1.95E-06	M
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	5	5	100%	3.84E-10	0.000000306	NA	NA	NC	3.06E-07	M
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	5	5	100%	0.000000482	0.00000165	NA	NA	NC	1.65E-06	M

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

FOD - frequency of detection

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

Table A-8e. Summary Statistics for Benthic Macroinvertebrates in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Crayfish												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	6	6	100%	203	472	NA	NA	414	414	
Antimony	mg/kg	dw	6	1	17%	0.0615	0.0615	0.023	0.0521	NC	0.0615	M
Arsenic	mg/kg	dw	6	6	100%	1.01	2.65	NA	NA	2.09	2.09	
Barium	mg/kg	dw	6	6	100%	134	215	NA	NA	196	196	
Beryllium	mg/kg	dw	6	6	100%	0.00923	0.0213	NA	NA	0.0175	0.0175	
Cadmium	mg/kg	dw	6	6	100%	0.673	1.66	NA	NA	1.62	1.62	
Calcium	mg/kg	dw	6	6	100%	114000	153000	NA	NA	NA	NA	
Chromium	mg/kg	dw	6	6	100%	1.6	4.85	NA	NA	4.1	4.1	
Cobalt	mg/kg	dw	6	6	100%	0.371	0.774	NA	NA	0.719	0.719	
Copper	mg/kg	dw	6	6	100%	78.7	195	NA	NA	187	187	
Iron	mg/kg	dw	6	6	100%	369	814	NA	NA	680	680	
Lead	mg/kg	dw	6	6	100%	0.574	2.6	NA	NA	2.21	2.21	
Magnesium	mg/kg	dw	6	6	100%	1790	2100	NA	NA	NA	NA	
Manganese	mg/kg	dw	6	6	100%	54.9	248	NA	NA	186	186	
Mercury	mg/kg	dw	6	6	100%	0.0452	0.132	NA	NA	0.104	0.104	
Nickel	mg/kg	dw	6	6	100%	1.26	3.8	NA	NA	3.01	3.01	
Potassium	mg/kg	dw	6	6	100%	6810	8740	NA	NA	NA	NA	
Selenium	mg/kg	dw	6	6	100%	1.02	1.29	NA	NA	1.21	1.21	
Silver	mg/kg	dw	6	6	100%	0.261	0.408	NA	NA	0.377	0.377	
Sodium	mg/kg	dw	6	6	100%	6660	9190	NA	NA	NA	NA	
Thallium	mg/kg	dw	6	6	100%	0.0391	0.0904	NA	NA	0.0763	0.0763	
Vanadium	mg/kg	dw	6	6	100%	0.704	1.72	NA	NA	1.53	1.53	
Zinc	mg/kg	dw	6	6	100%	63	76.1	NA	NA	75.9	75.9	
Mussels												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	6	6	100%	160	744	NA	NA	742	742	
Antimony	mg/kg	dw	6	0	0%	NA	NA	0.0798	0.157	NC	0.157	U
Arsenic	mg/kg	dw	6	6	100%	5.99	11.5	NA	NA	9.13	9.13	
Barium	mg/kg	dw	6	6	100%	370	1700	NA	NA	1560	1560	
Beryllium	mg/kg	dw	6	6	100%	0.0339	0.0813	NA	NA	0.0676	0.0676	
Cadmium	mg/kg	dw	6	6	100%	5.07	12.4	NA	NA	9.11	9.11	
Calcium	mg/kg	dw	6	6	100%	41000	91900	NA	NA	NA	NA	
Chromium	mg/kg	dw	6	6	100%	3.8	6.42	NA	NA	6.16	6.16	
Cobalt	mg/kg	dw	6	6	100%	0.555	2.11	NA	NA	1.57	1.57	
Copper	mg/kg	dw	6	6	100%	11.6	14.4	NA	NA	13.6	13.6	
Iron	mg/kg	dw	6	6	100%	1040	4370	NA	NA	3250	3250	
Lead	mg/kg	dw	6	6	100%	3.3	14.1	NA	NA	11.7	11.7	
Magnesium	mg/kg	dw	6	6	100%	936	1400	NA	NA	NA	NA	
Manganese	mg/kg	dw	6	6	100%	2390	8840	NA	NA	8000	8000	
Mercury	mg/kg	dw	6	6	100%	0.0744	0.157	NA	NA	0.122	0.122	
Nickel	mg/kg	dw	6	6	100%	1.26	3.51	NA	NA	3.53	3.51	M
Potassium	mg/kg	dw	6	6	100%	1540	2130	NA	NA	NA	NA	
Selenium	mg/kg	dw	6	6	100%	2.3	4.27	NA	NA	3.64	3.64	

Table A-8e. Summary Statistics for Benthic Macroinvertebrates in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)												
Silver	mg/kg	dw	6	6	100%	0.133	0.547	NA	NA	0.372	0.372	
Sodium	mg/kg	dw	6	6	100%	2490	6300	NA	NA	NA	NA	
Thallium	mg/kg	dw	6	5	83%	0.0706	0.0982	0.0549	0.0549	NC	0.0982	M
Vanadium	mg/kg	dw	6	6	100%	0.732	2.03	NA	NA	1.89	1.89	
Zinc	mg/kg	dw	6	6	100%	179	451	NA	NA	331	331	

Notes:

95 UCL - 95th percentile upper confidence limit on the mean

CSM - conceptual site model

FOD - frequency of detection

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

U - EPC is maximum undetected value

Table A-8f. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Clams												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	1	1	100%	3930	3930	NA	NA	NC	3930	M
Antimony	mg/kg	dw	1	0	0%	NA	NA	0.14	0.14	NC	0.14	U
Arsenic	mg/kg	dw	1	1	100%	8.55	8.55	NA	NA	NC	8.55	M
Inorganic arsenic	mg/kg	dw	1	1	100%	1.25	1.25	NA	NA	NA	NA	
Barium	mg/kg	dw	1	1	100%	49.8	49.8	NA	NA	NC	49.8	M
Beryllium	mg/kg	dw	1	1	100%	0.134	0.134	NA	NA	NC	0.134	M
Cadmium	mg/kg	dw	1	1	100%	5.3	5.3	NA	NA	NC	5.3	M
Calcium	mg/kg	dw	1	1	100%	7630	7630	NA	NA	NA	NA	
Chromium	mg/kg	dw	1	1	100%	10.1	10.1	NA	NA	NC	10.1	M
Cobalt	mg/kg	dw	1	1	100%	1.7	1.7	NA	NA	NC	1.7	M
Copper	mg/kg	dw	1	1	100%	27.6	27.6	NA	NA	NC	27.6	M
Iron	mg/kg	dw	1	1	100%	2860	2860	NA	NA	NC	2860	M
Lead	mg/kg	dw	1	1	100%	7.34	7.34	NA	NA	NC	7.34	M
Magnesium	mg/kg	dw	1	1	100%	1690	1690	NA	NA	NA	NA	
Manganese	mg/kg	dw	1	1	100%	61.6	61.6	NA	NA	NC	61.6	M
Mercury	mg/kg	dw	1	1	100%	0.0483	0.0483	NA	NA	NC	0.0483	M
Methyl mercury	mg/kg	dw	1	1	100%	0.0267	0.0267	NA	NA	NA	NA	
Nickel	mg/kg	dw	1	1	100%	4.7	4.7	NA	NA	NC	4.7	M
Potassium	mg/kg	dw	1	1	100%	1980	1980	NA	NA	NA	NA	
Selenium	mg/kg	dw	1	1	100%	3.82	3.82	NA	NA	NC	3.82	M
Silver	mg/kg	dw	1	1	100%	0.155	0.155	NA	NA	NC	0.155	M
Sodium	mg/kg	dw	1	1	100%	2330	2330	NA	NA	NA	NA	
Thallium	mg/kg	dw	1	1	100%	0.189	0.189	NA	NA	NC	0.189	M
Vanadium	mg/kg	dw	1	1	100%	6.38	6.38	NA	NA	NC	6.38	M
Zinc	mg/kg	dw	1	1	100%	403	403	NA	NA	NC	403	M
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	1	1	100%	0.0179	0.0179	NA	NA	NC	0.0179	M
Total PCB congeners, 1/2 DL	mg/kg	dw	1	1	100%	0.018	0.018	NA	NA	NC	0.018	M
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.00000124	0.00000124	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000457	0.000000457	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000563	0.000000563	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.000000685	0.000000685	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000276	0.000000276	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.000000715	0.000000715	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000273	0.000000273	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.000000698	0.000000698	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000375	0.000000375	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.000000529	0.000000529	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000393	0.000000393	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000282	0.000000282	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.000000368	0.000000368	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	1	0	0%	NA	NA	0.000000389	0.000000389	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	1	1	100%	0.00000166	0.00000166	NA	NA	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	1	1	100%	0.00000695	0.00000695	NA	NA	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	1	0	0%	NA	NA	0.00000126	0.00000126	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	1	1	100%	0.00000166	0.00000166	NA	NA	NC	1.66E-06	M
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	1	1	100%	0.00000245	0.00000245	NA	NA	NC	2.45E-06	M
Dioxin TEQ, fish, 0 DL	mg/kg	dw	1	1	100%	0.000000084	0.000000084	NA	NA	NC	8.4E-08	M
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	1	1	100%	0.000000885	0.000000885	NA	NA	NC	8.85E-07	M
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	1	1	100%	0.000000169	0.000000169	NA	NA	NC	1.69E-07	M
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	1	1	100%	0.000000863	0.000000863	NA	NA	NC	8.63E-07	M

Table A-8f. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Crayfish												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	18	18	100%	236	1020	NA	NA	637	637	
Antimony	mg/kg	dw	18	0	0%	NA	NA	0.0172	0.0688	NC	0.0688	U
Arsenic	mg/kg	dw	18	18	100%	0.688	1.53	NA	NA	1.13	1.13	
Barium	mg/kg	dw	18	18	100%	173	442	NA	NA	284	284	
Beryllium	mg/kg	dw	18	18	100%	0.0086	0.0363	NA	NA	0.0217	0.0217	
Cadmium	mg/kg	dw	18	18	100%	0.439	1.92	NA	NA	1.29	1.29	
Calcium	mg/kg	dw	18	18	100%	125000	188000	NA	NA	NA	NA	
Chromium	mg/kg	dw	18	18	100%	1.56	7.22	NA	NA	4.47	4.47	
Cobalt	mg/kg	dw	18	18	100%	0.28	0.766	NA	NA	0.578	0.578	
Copper	mg/kg	dw	18	18	100%	74.5	162	NA	NA	120	120	
Iron	mg/kg	dw	18	18	100%	244	900	NA	NA	563	563	
Lead	mg/kg	dw	18	18	100%	0.637	5.17	NA	NA	1.84	1.84	
Magnesium	mg/kg	dw	18	18	100%	1880	3040	NA	NA	NA	NA	
Manganese	mg/kg	dw	18	18	100%	50.4	174	NA	NA	119	119	
Mercury	mg/kg	dw	18	18	100%	0.036	0.139	NA	NA	0.0953	0.0953	
Nickel	mg/kg	dw	18	18	100%	1.07	3.7	NA	NA	2.42	2.42	
Potassium	mg/kg	dw	18	18	100%	5190	7170	NA	NA	NA	NA	
Selenium	mg/kg	dw	18	18	100%	0.603	1.23	NA	NA	0.92	0.92	
Silver	mg/kg	dw	18	18	100%	0.179	0.415	NA	NA	0.338	0.338	
Sodium	mg/kg	dw	18	18	100%	5900	7560	NA	NA	NA	NA	
Thallium	mg/kg	dw	18	18	100%	0.0442	0.0882	NA	NA	0.0676	0.0676	
Vanadium	mg/kg	dw	18	18	100%	0.598	2.11	NA	NA	1.43	1.43	
Zinc	mg/kg	dw	18	18	100%	63.3	100	NA	NA	82	82	
Mussels												
Common Metals/Metalloids												
Aluminum	mg/kg	dw	18	18	100%	440	3040	NA	NA	2460	2460	
Antimony	mg/kg	dw	18	9	50%	0.022	0.0754	0.0249	0.0756	0.0483	0.0483	
Arsenic	mg/kg	dw	18	18	100%	5.61	9.16	NA	NA	8.16	8.16	
Inorganic arsenic	mg/kg	dw	12	12	100%	0.36	1.35	NA	NA	NA	NA	
Barium	mg/kg	dw	18	18	100%	364	1430	NA	NA	1060	1060	
Beryllium	mg/kg	dw	18	18	100%	0.0498	0.143	NA	NA	0.0998	0.0998	
Cadmium	mg/kg	dw	18	18	100%	5.13	12.1	NA	NA	8.85	8.85	
Calcium	mg/kg	dw	18	18	100%	34400	105000	NA	NA	NA	NA	
Chromium	mg/kg	dw	18	18	100%	6.22	13	NA	NA	9.48	9.48	
Cobalt	mg/kg	dw	18	18	100%	0.758	2.05	NA	NA	1.59	1.59	
Copper	mg/kg	dw	18	18	100%	8.5	11.2	NA	NA	10.4	10.4	
Iron	mg/kg	dw	18	18	100%	1380	4350	NA	NA	3490	3490	
Lead	mg/kg	dw	18	18	100%	1.55	3.16	NA	NA	2.56	2.56	
Magnesium	mg/kg	dw	18	18	100%	1220	2270	NA	NA	NA	NA	
Manganese	mg/kg	dw	18	18	100%	3260	9920	NA	NA	7800	7800	
Mercury	mg/kg	dw	18	18	100%	0.0746	0.106	NA	NA	0.0912	0.0912	
Methyl mercury	mg/kg	dw	12	12	100%	0.0123	0.0327	NA	NA	NA	NA	
Nickel	mg/kg	dw	18	18	100%	3.11	6.93	NA	NA	5.02	5.02	
Potassium	mg/kg	dw	18	18	100%	1360	2150	NA	NA	NA	NA	
Selenium	mg/kg	dw	18	18	100%	2.18	3.23	NA	NA	2.69	2.69	
Silver	mg/kg	dw	18	18	100%	0.213	0.534	NA	NA	0.377	0.377	
Sodium	mg/kg	dw	18	18	100%	1030	6820	NA	NA	NA	NA	
Thallium	mg/kg	dw	18	16	89%	0.0551	0.0879	0.0605	0.0679	0.0743	0.0743	
Vanadium	mg/kg	dw	18	18	100%	1.46	6.18	NA	NA	4.08	4.08	
Zinc	mg/kg	dw	18	18	100%	224	466	NA	NA	376	376	

Table A-8f. Summary Statistics for Benthic Macroinvertebrates in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	11	11	100%	0.00798	0.215	NA	NA	0.158	0.158	
Total PCB congeners, 1/2 DL	mg/kg	dw	11	11	100%	0.00802	0.215	NA	NA	0.158	0.158	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	10	2	20%	0.00000205	0.00000206	0.00000066	0.00000534	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000342	0.00000181	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000476	0.00000187	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	10	0	0%	NA	NA	0.000000761	0.00000372	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000273	0.00000139	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	10	0	0%	NA	NA	0.000000792	0.00000377	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000253	0.0000014	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	10	0	0%	NA	NA	0.000000817	0.00000394	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	10	1	10%	0.00000139	0.00000139	0.000000377	0.00000208	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	10	0	0%	NA	NA	0.000000521	0.0000021	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000402	0.00000239	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000281	0.00000159	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000403	0.00000246	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	10	0	0%	NA	NA	0.000000336	0.00000188	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.00000043	0.00000231	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	10	6	60%	0.00000584	0.0000124	0.00000422	0.00000665	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	10	0	0%	NA	NA	0.000000992	0.00000497	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	10	7	70%	5.84E-10	7.01E-08	0	0	7.84E-08	7.01E-08	M
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	10	7	70%	0.00000141	0.00000404	0.000001	0.00000505	0.00000247	2.47E-06	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	10	7	70%	5.84E-10	7.01E-08	0	0	7.84E-08	7.01E-08	M
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	10	7	70%	0.0000011	0.00000293	0.000000823	0.00000398	0.00000189	1.89E-06	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	10	7	70%	1.75E-09	7.16E-08	0	0	2.61E-08	2.61E-08	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	10	7	70%	0.00000096	0.00000244	0.000000714	0.0000034	0.00000162	1.62E-06	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

CSM - conceptual site model

FOD - frequency of detection

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

U - EPC is maximum undetected value

Table A-9a. Summary Statistics for Small Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	13	13	100%	2.4	139	NA	NA	64.5	64.5	
Antimony	mg/kg	ww	13	11	85%	0.01	0.21	0.0058	0.0064	0.0908	0.0908	
Arsenic	mg/kg	ww	13	12	92%	0.019	0.23	0.055	0.055	0.13	0.13	
Barium	mg/kg	ww	13	13	100%	0.739	12.8	NA	NA	4.77	4.77	
Beryllium	mg/kg	ww	13	6	46%	0.001	0.0063	0.0009	0.001	0.00252	0.00252	
Boron	mg/kg	ww	4	0	0%	NA	NA	0.07	0.53	NA	NA	
Cadmium	mg/kg	ww	13	13	100%	0.023	0.127	NA	NA	0.0875	0.0875	
Calcium	mg/kg	ww	13	13	100%	4380	11800	NA	NA	NA	NA	
Chromium	mg/kg	ww	13	13	100%	0.15	6.31	NA	NA	2.54	2.54	
Cobalt	mg/kg	ww	13	11	85%	0.0251	0.122	0.0725	0.114	0.0634	0.0634	
Copper	mg/kg	ww	13	13	100%	0.925	2.79	NA	NA	1.81	1.81	
Gold	mg/kg	ww	4	0	0%	NA	NA	0.007	0.008	NA	NA	
Iron	mg/kg	ww	13	13	100%	10	270	NA	NA	NA	NA	
Lead	mg/kg	ww	13	13	100%	0.0577	2.4	NA	NA	0.893	0.893	
Magnesium	mg/kg	ww	13	13	100%	300	590	NA	NA	NA	NA	
Manganese	mg/kg	ww	13	13	100%	1.4	10.7	NA	NA	8.03	8.03	
Mercury	µg/kg	ww	13	13	100%	10	52.9	NA	NA	28.3	28.3	
Molybdenum	mg/kg	ww	13	4	31%	0.02	0.331	0.02	0.094	NA	NA	
Nickel	mg/kg	ww	13	13	100%	0.19	2.84	NA	NA	1.14	1.14	
Potassium	mg/kg	ww	13	13	100%	2300	3390	NA	NA	NA	NA	
Selenium	mg/kg	ww	13	13	100%	0.217	0.874	NA	NA	0.595	0.595	
Silver	mg/kg	ww	13	8	62%	0.00133	0.0242	0.0005	0.0038	0.0138	0.0138	
Sodium	mg/kg	ww	13	13	100%	532	1020	NA	NA	NA	NA	
Thallium	mg/kg	ww	13	13	100%	0.00917	0.0519	NA	NA	0.0306	0.0306	
Tin	mg/kg	ww	4	2	50%	0.0315	0.037	0.01	0.01	NA	NA	
Uranium	mg/kg	ww	13	13	100%	0.0005	0.0398	NA	NA	NA	NA	
Vanadium	mg/kg	ww	13	10	77%	0.02	0.465	0.02	0.02	0.182	0.182	
Zinc	mg/kg	ww	13	13	100%	17	46.3	NA	NA	31.6	31.6	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	4	2	50%	0.001	0.0015	0.0007	0.0008	NA	NA	
Cerium	mg/kg	ww	4	4	100%	0.0046	0.213	NA	NA	NA	NA	
Cesium	mg/kg	ww	4	4	100%	0.014	0.0324	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	4	2	50%	0.00845	0.01	0.0007	0.0008	NA	NA	
Erbium	mg/kg	ww	4	2	50%	0.00445	0.0058	0.0007	0.0008	NA	NA	
Europium	mg/kg	ww	4	2	50%	0.0041	0.0044	0.0007	0.0008	NA	NA	
Gadolinium	mg/kg	ww	4	2	50%	0.015	0.0155	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	4	4	100%	0.0035	0.0316	NA	NA	NA	NA	
Germanium	mg/kg	ww	4	4	100%	0.574	0.864	NA	NA	NA	NA	
Holmium	mg/kg	ww	4	2	50%	0.0015	0.002	0.0005	0.0005	NA	NA	
Indium	mg/kg	ww	4	2	50%	0.002	0.0074	0.0007	0.0008	NA	NA	
Lanthanum	mg/kg	ww	4	4	100%	0.0028	0.116	NA	NA	NA	NA	
Lithium	mg/kg	ww	4	0	0%	NA	NA	0.07	0.08	NA	NA	
Lutetium	mg/kg	ww	4	2	50%	0.0005	0.0007	0.0005	0.0005	NA	NA	
Neodymium	mg/kg	ww	4	4	100%	0.002	0.0949	NA	NA	NA	NA	
Niobium	mg/kg	ww	4	2	50%	0.0305	0.032	0.002	0.005	NA	NA	
Praseodymium	mg/kg	ww	4	2	50%	0.022	0.0254	0.0007	0.0008	NA	NA	
Rubidium	mg/kg	ww	4	4	100%	2.76	5.11	NA	NA	NA	NA	
Samarium	mg/kg	ww	4	2	50%	0.0155	0.016	0.001	0.002	NA	NA	
Scandium	mg/kg	ww	4	4	100%	0.01	0.0342	NA	NA	NA	NA	

Table A-9a. Summary Statistics for Small Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	mg/kg	ww	4	4	100%	4.93	18	NA	NA	NA	NA	
Tellurium	mg/kg	ww	4	0	0%	NA	NA	0.007	0.008	NA	NA	
Terbium	mg/kg	ww	4	2	50%	0.002	0.002	0.0007	0.0008	NA	NA	
Thorium	mg/kg	ww	4	2	50%	0.0329	0.0811	0.001	0.001	NA	NA	
Thulium	mg/kg	ww	2	0	0%	NA	NA	0.0007	0.0008	NA	NA	
Titanium	mg/kg	ww	4	4	100%	0.13	5.3	NA	NA	NA	NA	
Tungsten	mg/kg	ww	4	0	0%	NA	NA	0.007	0.028	NA	NA	
Ytterbium	mg/kg	ww	4	2	50%	0.00325	0.005	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	4	4	100%	0.002	0.0582	NA	NA	NA	NA	
Zirconium	mg/kg	ww	4	4	100%	0.0043	0.0547	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	4	2	50%	0.42	1.9	0.51	2.9	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	4	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	4	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	4	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	4	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	4	0	0%	NA	NA	210	210	NC	210	U
Dibenzofuran	µg/kg	ww	4	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	4	0	0%	NA	NA	20	450	NC	450	U
Di-n-octylphthalate	µg/kg	ww	4	0	0%	NA	NA	9	370	NC	370	U
Hexachlorocyclopentadiene	µg/kg	ww	4	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	4	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	4	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	4	0	0%	NA	NA	0.73	3.7	NA	NA	
2,4'-DDE	µg/kg	ww	4	0	0%	NA	NA	0.68	1.9	NA	NA	
2,4'-DDT	µg/kg	ww	4	1	25%	0.865	0.865	0.8	1.9	NA	NA	
4,4'-DDD	µg/kg	ww	4	0	0%	NA	NA	0.55	2.8	NA	NA	
4,4'-DDE	µg/kg	ww	4	3	75%	0.82	1.3	6.7	6.7	NA	NA	
4,4'-DDT	µg/kg	ww	4	0	0%	NA	NA	0.49	2.5	NA	NA	
Aldrin	µg/kg	ww	4	0	0%	NA	NA	0.74	3.7	NC	3.7	U
alpha-Chlordane	µg/kg	ww	4	1	25%	2.4	2.4	0.25	0.47	NC	2.4	M
Chlordane	µg/kg	ww	4	0	0%	NA	NA	11	40	NA	NA	
cis-Nonachlor	µg/kg	ww	4	1	25%	2.2	2.2	0.29	1.5	NC	2.2	M
delta-BHC	µg/kg	ww	4	0	0%	NA	NA	0.2	1	NC	1	U
Dieldrin	µg/kg	ww	4	0	0%	NA	NA	0.26	1.1	NC	1.1	U
Endrin	µg/kg	ww	4	0	0%	NA	NA	0.28	1.4	NC	1.4	U
Endrin aldehyde	µg/kg	ww	4	0	0%	NA	NA	0.62	3.1	NC	3.1	U
Endrin ketone	µg/kg	ww	4	0	0%	NA	NA	0.39	2	NC	2	U
gamma-Chlordane	µg/kg	ww	4	0	0%	NA	NA	0.38	1.5	NC	1.5	U
Heptachlor	µg/kg	ww	4	0	0%	NA	NA	0.5	1.9	NC	1.9	U
Heptachlor epoxide	µg/kg	ww	4	0	0%	NA	NA	0.29	0.9	NC	0.9	U
Hexachlorobenzene	µg/kg	ww	4	3	75%	0.88	1.1	1.9	1.9	NC	1.1	M
Hexachlorobutadiene	µg/kg	ww	4	1	25%	0.68	0.68	0.3	1.5	NC	0.68	M
Methoxychlor	µg/kg	ww	4	0	0%	NA	NA	0.48	2.4	NC	2.4	U
Oxychlordane	µg/kg	ww	4	0	0%	NA	NA	0.39	12	NC	12	U
Total chlordane, 0 DL	µg/kg	ww	4	2	50%	2.2	2.4	0.39	0.72	NC	2.4	M
Total chlordane, 1/2 DL	µg/kg	ww	4	2	50%	3.3	10.6	0.39	0.72	NC	10.6	M
Total DDD, 0 DL	µg/kg	ww	4	0	0%	NA	NA	0.73	3.7	NA	NA	

Table A-9a. Summary Statistics for Small Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 1/2 DL	µg/kg	ww	4	0	0%	NA	NA	0.73	3.7	NA	NA	
Total DDE, 0 DL	µg/kg	ww	4	3	75%	0.82	1.3	6.7	6.7	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	4	3	75%	1.22	1.65	6.7	6.7	NA	NA	
Total DDT, 0 DL	µg/kg	ww	4	1	25%	0.865	0.865	1	2.5	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	4	1	25%	1.33	1.33	1	2.5	NA	NA	
Total DDx, 0 DL	µg/kg	ww	4	3	75%	0.82	1.88	6.7	6.7	NC	1.88	M
Total DDx, 1/2 DL	µg/kg	ww	4	3	75%	2.61	4.31	6.7	6.7	NC	4.31	M
Toxaphene	µg/kg	ww	4	0	0%	NA	NA	25	65	NA	NA	
trans-Nonachlor	µg/kg	ww	4	0	0%	NA	NA	0.38	1.4	NC	1.4	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	4	4	100%	2.4	48	NA	NA	NA	NA	
Acenaphthene	µg/kg	ww	4	4	100%	0.21	2	NA	NA	NA	NA	
Acenaphthylene	µg/kg	ww	4	4	100%	0.35	45	NA	NA	NA	NA	
Anthracene	µg/kg	ww	4	2	50%	2	5.2	0.38	0.38	NA	NA	
Benzo(a)anthracene	µg/kg	ww	4	0	0%	NA	NA	0.32	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	4	0	0%	NA	NA	0.13	0.31	NC	0.31	U
Benzo(b)fluoranthene	µg/kg	ww	4	0	0%	NA	NA	0.28	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	4	0	0%	NA	NA	0.12	0.29	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	4	0	0%	NA	NA	0.19	0.46	NA	NA	
Chrysene	µg/kg	ww	4	0	0%	NA	NA	0.4	1	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	4	0	0%	NA	NA	0.09	0.23	NA	NA	
Fluoranthene	µg/kg	ww	4	0	0%	NA	NA	0.3	5.6	NA	NA	
Fluorene	µg/kg	ww	4	4	100%	0.41	6.4	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	4	0	0%	NA	NA	0.2	0.5	NA	NA	
Naphthalene	µg/kg	ww	4	4	100%	1.8	99	NA	NA	NA	NA	
Phenanthrene	µg/kg	ww	4	4	100%	1.1	13	NA	NA	NA	NA	
Pyrene	µg/kg	ww	4	0	0%	NA	NA	0.24	0.6	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	4	0	0%	NA	NA	0.4	5.6	NC	5.6	U
Total HPAHs, 1/2 DL	µg/kg	ww	4	0	0%	NA	NA	0.4	5.6	NC	5.6	U
Total LPAHs, 0 DL	µg/kg	ww	4	4	100%	6.27	219	NA	NA	NC	219	M
Total LPAHs, 1/2 DL	µg/kg	ww	4	4	100%	6.46	219	NA	NA	NC	219	M
Total PAHs, 0 DL	µg/kg	ww	4	4	100%	6.27	219	NA	NA	NC	219	M
Total PAHs, 1/2 DL	µg/kg	ww	4	4	100%	7.6	224	NA	NA	NC	224	M
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	13	13	100%	6150	15100	NA	NA	9990	9990	
Total PCB congeners, 1/2 DL	pg/g	ww	13	13	100%	6590	15400	NA	NA	10500	10500	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	13	5	38%	0.147	0.361	0.09	1.74	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	13	1	8%	0.0629	0.0629	0.0488	1.53	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	13	0	0%	NA	NA	0.0531	1.5	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	13	1	8%	0.21	0.21	0.0561	1.88	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	13	0	0%	NA	NA	0.0324	1.03	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	13	0	0%	NA	NA	0.0575	1.91	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	13	2	15%	0.0884	0.0926	0.0319	1.04	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	13	0	0%	NA	NA	0.0562	1.91	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	13	0	0%	NA	NA	0.0477	1.45	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	13	0	0%	NA	NA	0.0436	0.865	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	13	0	0%	NA	NA	0.0459	1.77	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	13	3	23%	0.11	0.156	0.0457	1.01	NA	NA	

Table A-9a. Summary Statistics for Small Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	13	0	0%	NA	NA	0.0453	1.79	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	13	0	0%	NA	NA	0.0537	0.986	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	13	12	92%	0.135	0.425	0.805	0.805	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	13	1	8%	1.28	1.28	0.584	3.65	NA	NA	
Octachlorodibenzofuran	pg/g	ww	13	1	8%	0.24	0.24	0.0959	2.48	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	13	12	92%	0.146	0.425	0	0	0.317	0.317	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	13	12	92%	0.232	0.565	2.71	2.71	0.506	0.506	
Dioxin TEQ, fish, 0 DL	pg/g	ww	13	12	92%	0.00963	0.05	0	0	0.0246	0.0246	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	13	12	92%	0.104	0.279	2.17	2.17	0.219	0.219	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	13	12	92%	0.0186	0.0491	0	0	0.0365	0.0365	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	13	12	92%	0.0987	0.253	1.8	1.8	0.206	0.206	
PBDEs												
PBDE 17	pg/g	ww	4	4	100%	2.71	10.8	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	4	4	100%	72.3	92	NA	NA	NA	NA	
PBDE 47	pg/g	ww	4	4	100%	2420	3200	NA	NA	NA	NA	
PBDE 49	pg/g	ww	4	4	100%	62.6	147	NA	NA	NA	NA	
PBDE 66	pg/g	ww	4	4	100%	1.1	112	NA	NA	NA	NA	
PBDE 71	pg/g	ww	4	0	0%	NA	NA	0.0666	0.187	NA	NA	
PBDE 85	pg/g	ww	4	4	100%	0.77	9.27	NA	NA	NA	NA	
PBDE 99	pg/g	ww	4	4	100%	15.1	2830	NA	NA	NA	NA	
PBDE 100	pg/g	ww	4	4	100%	366	759	NA	NA	NA	NA	
PBDE 128	pg/g	ww	4	0	0%	NA	NA	0.222	0.737	NA	NA	
PBDE 138	pg/g	ww	4	4	100%	0.37	4.32	NA	NA	NA	NA	
PBDE 153	pg/g	ww	4	4	100%	31.8	240	NA	NA	NA	NA	
PBDE 154	pg/g	ww	4	4	100%	91.2	192	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	4	4	100%	2.06	7.9	NA	NA	NA	NA	
PBDE 184	pg/g	ww	4	4	100%	0.49	1.19	NA	NA	NA	NA	
PBDE 190 and 171	pg/g	ww	4	0	0%	NA	NA	0.225	0.731	NA	NA	
PBDE 191	pg/g	ww	4	0	0%	NA	NA	0.193	0.629	NA	NA	
PBDE 200 and 203	pg/g	ww	4	2	50%	0.701	2.8	0.463	0.724	NA	NA	
PBDE 206	pg/g	ww	4	4	100%	6.41	25	NA	NA	NA	NA	
PBDE 209	pg/g	ww	4	4	100%	222	1580	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-9b. Summary Statistics for Small Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	8	8	100%	4.25	47.8	NA	NA	32.2	32.2	
Antimony	mg/kg	ww	8	6	75%	0.00415	0.0379	0.0036	0.0039	0.0219	0.0219	
Arsenic	mg/kg	ww	8	8	100%	0.062	0.21	NA	NA	0.167	0.167	
Barium	mg/kg	ww	8	8	100%	0.529	2.64	NA	NA	1.85	1.85	
Beryllium	mg/kg	ww	8	3	38%	0.001	0.00167	0.0009	0.001	NC	0.00167	M
Boron	mg/kg	ww	2	0	0%	NA	NA	0.07	0.2	NA	NA	
Cadmium	mg/kg	ww	8	8	100%	0.017	0.135	NA	NA	0.0856	0.0856	
Calcium	mg/kg	ww	8	8	100%	4710	9430	NA	NA	NA	NA	
Chromium	mg/kg	ww	8	8	100%	0.17	0.645	NA	NA	0.473	0.473	
Cobalt	mg/kg	ww	8	7	88%	0.0275	0.07	0.054	0.054	0.0495	0.0495	
Copper	mg/kg	ww	8	8	100%	0.589	2.06	NA	NA	1.42	1.42	
Gold	mg/kg	ww	2	0	0%	NA	NA	0.007	0.008	NA	NA	
Iron	mg/kg	ww	8	8	100%	9.2	110	NA	NA	NA	NA	
Lead	mg/kg	ww	8	8	100%	0.011	0.178	NA	NA	0.112	0.112	
Magnesium	mg/kg	ww	8	8	100%	324	415	NA	NA	NA	NA	
Manganese	mg/kg	ww	8	8	100%	1.25	6.52	NA	NA	4.26	4.26	
Mercury	µg/kg	ww	8	8	100%	21.6	118	NA	NA	70.2	70.2	
Molybdenum	mg/kg	ww	8	3	38%	0.02	0.062	0.026	0.033	NA	NA	
Nickel	mg/kg	ww	8	8	100%	0.17	0.389	NA	NA	0.322	0.322	
Potassium	mg/kg	ww	8	8	100%	2590	3410	NA	NA	NA	NA	
Selenium	mg/kg	ww	8	8	100%	0.27	0.69	NA	NA	0.512	0.512	
Silver	mg/kg	ww	8	3	38%	0.001	0.0049	0.0005	0.002	NC	0.0049	M
Sodium	mg/kg	ww	8	8	100%	704	977	NA	NA	NA	NA	
Thallium	mg/kg	ww	8	8	100%	0.014	0.0596	NA	NA	0.0457	0.0457	
Tin	mg/kg	ww	2	2	100%	0.007	0.09	NA	NA	NA	NA	
Uranium	mg/kg	ww	8	8	100%	0.0007	0.0058	NA	NA	NA	NA	
Vanadium	mg/kg	ww	8	7	88%	0.02	0.274	0.02	0.02	0.144	0.144	
Zinc	mg/kg	ww	8	8	100%	14.8	30	NA	NA	25.5	25.5	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	2	0	0%	NA	NA	0.0007	0.0008	NA	NA	
Cerium	mg/kg	ww	2	2	100%	0.0133	0.0887	NA	NA	NA	NA	
Cesium	mg/kg	ww	2	2	100%	0.022	0.0227	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	2	1	50%	0.004	0.004	0.0008	0.0008	NA	NA	
Erbium	mg/kg	ww	2	1	50%	0.002	0.002	0.0008	0.0008	NA	NA	
Europium	mg/kg	ww	2	1	50%	0.002	0.002	0.0008	0.0008	NA	NA	
Gadolinium	mg/kg	ww	2	1	50%	0.0062	0.0062	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	2	2	100%	0.00517	0.016	NA	NA	NA	NA	
Germanium	mg/kg	ww	2	2	100%	0.565	0.645	NA	NA	NA	NA	
Holmium	mg/kg	ww	2	1	50%	0.0007	0.0007	0.0005	0.0005	NA	NA	
Indium	mg/kg	ww	2	1	50%	0.0007	0.0007	0.0008	0.0008	NA	NA	
Lanthanum	mg/kg	ww	2	2	100%	0.00727	0.0482	NA	NA	NA	NA	
Lithium	mg/kg	ww	2	0	0%	NA	NA	0.07	0.08	NA	NA	
Lutetium	mg/kg	ww	2	0	0%	NA	NA	0.0005	0.0005	NA	NA	
Neodymium	mg/kg	ww	2	2	100%	0.00563	0.0408	NA	NA	NA	NA	
Niobium	mg/kg	ww	2	1	50%	0.01	0.01	0.003	0.003	NA	NA	
Praseodymium	mg/kg	ww	2	2	100%	0.00167	0.01	NA	NA	NA	NA	
Rubidium	mg/kg	ww	2	2	100%	3.43	4.15	NA	NA	NA	NA	
Samarium	mg/kg	ww	2	1	50%	0.0077	0.0077	0.002	0.002	NA	NA	
Scandium	mg/kg	ww	2	2	100%	0.0177	0.02	NA	NA	NA	NA	
Strontium	mg/kg	ww	2	2	100%	13.4	16.4	NA	NA	NA	NA	
Tellurium	mg/kg	ww	2	0	0%	NA	NA	0.007	0.008	NA	NA	
Terbium	mg/kg	ww	2	1	50%	0.0007	0.0007	0.0008	0.0008	NA	NA	

Table A-9b. Summary Statistics for Small Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Thorium	mg/kg	ww	2	2	100%	0.00237	0.018	NA	NA	NA	NA	
Thulium	mg/kg	ww	1	0	0%	NA	NA	0.0008	0.0008	NA	NA	
Titanium	mg/kg	ww	2	2	100%	0.295	2.4	NA	NA	NA	NA	
Tungsten	mg/kg	ww	2	0	0%	NA	NA	0.005	0.01	NA	NA	
Ytterbium	mg/kg	ww	2	1	50%	0.001	0.001	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	2	2	100%	0.00337	0.021	NA	NA	NA	NA	
Zirconium	mg/kg	ww	2	2	100%	0.00667	0.0356	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	2	0	0%	NA	NA	0.34	0.6	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	2	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	2	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	2	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	2	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	2	0	0%	NA	NA	210	210	NC	210	U
Dibenzofuran	µg/kg	ww	2	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	2	0	0%	NA	NA	58	660	NC	660	U
Di-n-octylphthalate	µg/kg	ww	2	0	0%	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	µg/kg	ww	2	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	2	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	2	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	2	0	0%	NA	NA	0.73	1.5	NA	NA	
2,4'-DDE	µg/kg	ww	2	0	0%	NA	NA	0.37	0.72	NA	NA	
2,4'-DDT	µg/kg	ww	2	0	0%	NA	NA	0.16	0.31	NA	NA	
4,4'-DDD	µg/kg	ww	2	0	0%	NA	NA	0.55	1.1	NA	NA	
4,4'-DDE	µg/kg	ww	2	1	50%	1.33	1.33	0.87	0.87	NA	NA	
4,4'-DDT	µg/kg	ww	2	0	0%	NA	NA	0.49	0.95	NA	NA	
Aldrin	µg/kg	ww	2	0	0%	NA	NA	0.74	1.5	NC	1.5	U
alpha-Chlordane	µg/kg	ww	2	0	0%	NA	NA	0.25	0.49	NC	0.49	U
Chlordane	µg/kg	ww	2	0	0%	NA	NA	3.9	8.7	NA	NA	
cis-Nonachlor	µg/kg	ww	2	0	0%	NA	NA	0.29	0.56	NC	0.56	U
delta-BHC	µg/kg	ww	2	0	0%	NA	NA	0.2	0.39	NC	0.39	U
Dieldrin	µg/kg	ww	2	1	50%	0.84	0.84	0.2	0.2	NC	0.84	M
Endrin	µg/kg	ww	2	0	0%	NA	NA	0.28	0.55	NC	0.55	U
Endrin aldehyde	µg/kg	ww	2	0	0%	NA	NA	0.62	1.2	NC	1.2	U
Endrin ketone	µg/kg	ww	2	0	0%	NA	NA	0.39	0.76	NC	0.76	U
gamma-Chlordane	µg/kg	ww	2	0	0%	NA	NA	0.26	0.51	NC	0.51	U
Heptachlor	µg/kg	ww	2	0	0%	NA	NA	0.27	1.2	NC	1.2	U
Heptachlor epoxide	µg/kg	ww	2	0	0%	NA	NA	0.18	0.35	NC	0.35	U
Hexachlorobenzene	µg/kg	ww	2	1	50%	0.6	0.6	0.72	0.72	NC	0.6	M
Hexachlorobutadiene	µg/kg	ww	2	0	0%	NA	NA	0.4	0.58	NC	0.58	U
Methoxychlor	µg/kg	ww	2	0	0%	NA	NA	0.48	0.93	NC	0.93	U
Oxychlordane	µg/kg	ww	2	0	0%	NA	NA	0.39	0.76	NC	0.76	U
Total chlordane, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.39	0.76	NC	0.76	U
Total chlordane, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.39	0.76	NC	0.76	U
Total DDD, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.73	1.5	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.73	1.5	NA	NA	
Total DDE, 0 DL	µg/kg	ww	2	1	50%	1.33	1.33	0.87	0.87	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	2	1	50%	1.58	1.58	0.87	0.87	NA	NA	
Total DDT, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.49	0.95	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.49	0.95	NA	NA	

Table A-9b. Summary Statistics for Small Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	µg/kg	ww	2	1	50%	1.33	1.33	1.5	1.5	NC	1.33	M
Total DDx, 1/2 DL	µg/kg	ww	2	1	50%	2.83	2.83	1.5	1.5	NC	2.83	M
Toxaphene	µg/kg	ww	2	0	0%	NA	NA	16	64	NA	NA	
trans-Nonachlor	µg/kg	ww	2	0	0%	NA	NA	0.27	0.53	NC	0.53	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	2	2	100%	1.1	1.5	NA	NA	NA	NA	
Acenaphthene	µg/kg	ww	2	2	100%	0.54	1.1	NA	NA	NA	NA	
Acenaphthylene	µg/kg	ww	2	1	50%	0.28	0.28	0.24	0.24	NA	NA	
Anthracene	µg/kg	ww	2	0	0%	NA	NA	0.38	4.2	NA	NA	
Benzo(a)anthracene	µg/kg	ww	2	0	0%	NA	NA	0.32	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	2	0	0%	NA	NA	0.13	0.31	NC	0.31	U
Benzo(b)fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.28	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	2	0	0%	NA	NA	0.12	0.29	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.19	0.46	NA	NA	
Chrysene	µg/kg	ww	2	0	0%	NA	NA	0.4	1	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	2	0	0%	NA	NA	0.09	0.23	NA	NA	
Fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.3	0.75	NA	NA	
Fluorene	µg/kg	ww	2	1	50%	0.4	0.4	0.48	0.48	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	2	0	0%	NA	NA	0.2	0.5	NA	NA	
Naphthalene	µg/kg	ww	2	1	50%	1.4	1.4	1.4	1.4	NA	NA	
Phenanthrene	µg/kg	ww	2	0	0%	NA	NA	0.64	1.6	NA	NA	
Pyrene	µg/kg	ww	2	0	0%	NA	NA	0.24	0.6	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.4	1	NC	1	U
Total HPAHs, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.4	1	NC	1	U
Total LPAHs, 0 DL	µg/kg	ww	2	2	100%	1.05	4	NA	NA	NC	4	M
Total LPAHs, 1/2 DL	µg/kg	ww	2	2	100%	4.64	7.26	NA	NA	NC	7.26	M
Total PAHs, 0 DL	µg/kg	ww	2	2	100%	1.05	4	NA	NA	NC	4	M
Total PAHs, 1/2 DL	µg/kg	ww	2	2	100%	7.83	10.1	NA	NA	NC	10.1	M
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	8	8	100%	3480	8530	NA	NA	7030	7030	
Total PCB congeners, 1/2 DL	pg/g	ww	8	8	100%	4010	8950	NA	NA	7490	7490	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	8	5	63%	0.124	0.194	0.205	1.48	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0382	0.722	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0404	0.749	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0498	1.58	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0288	0.572	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0523	1.97	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0284	0.587	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0504	1.75	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0395	0.895	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0459	0.977	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0471	1.11	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0308	0.703	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.042	1.05	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0528	0.785	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	8	4	50%	0.284	0.476	0.202	0.552	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.578	2.76	NA	NA	
Octachlorodibenzofuran	pg/g	ww	8	2	25%	0.176	0.183	0.095	1.89	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	8	5	63%	0.000166	0.476	0	0	NC	0.476	M
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	8	5	63%	0.287	0.584	0.375	1.86	NC	0.584	M

Table A-9b. Summary Statistics for Small Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Dioxin TEQ, fish, 0 DL	pg/g	ww	8	5	63%	0.000166	0.024	0	0	NC	0.024	M
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	8	5	63%	0.117	0.171	0.227	1.62	NC	0.171	M
Dioxin TEQ, mammal, 0 DL	pg/g	ww	8	5	63%	0.00153	0.0491	0	0	NC	0.0491	M
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	8	5	63%	0.12	0.159	0.208	1.39	NC	0.159	M
PBDEs												
PBDE 17	pg/g	ww	2	2	100%	5.27	9.34	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	2	2	100%	66.4	84	NA	NA	NA	NA	
PBDE 47	pg/g	ww	2	2	100%	2050	2710	NA	NA	NA	NA	
PBDE 49	pg/g	ww	2	2	100%	70.6	133	NA	NA	NA	NA	
PBDE 66	pg/g	ww	2	2	100%	1.86	67.4	NA	NA	NA	NA	
PBDE 71	pg/g	ww	2	0	0%	NA	NA	0.0617	0.121	NA	NA	
PBDE 85	pg/g	ww	2	2	100%	1.17	1.91	NA	NA	NA	NA	
PBDE 99	pg/g	ww	2	2	100%	24.8	991	NA	NA	NA	NA	
PBDE 100	pg/g	ww	2	2	100%	268	399	NA	NA	NA	NA	
PBDE 128	pg/g	ww	2	0	0%	NA	NA	0.382	0.436	NA	NA	
PBDE 138	pg/g	ww	2	2	100%	0.36	0.612	NA	NA	NA	NA	
PBDE 153	pg/g	ww	2	2	100%	35.9	85.6	NA	NA	NA	NA	
PBDE 154	pg/g	ww	2	2	100%	72.1	97	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	2	2	100%	1.96	3.34	NA	NA	NA	NA	
PBDE 184	pg/g	ww	2	2	100%	0.445	0.622	NA	NA	NA	NA	
PBDE 190 and 171	pg/g	ww	2	0	0%	NA	NA	0.245	0.263	NA	NA	
PBDE 191	pg/g	ww	2	0	0%	NA	NA	0.211	0.226	NA	NA	
PBDE 200 and 203	pg/g	ww	2	1	50%	1.58	1.58	0.563	0.563	NA	NA	
PBDE 206	pg/g	ww	2	2	100%	6.35	8.12	NA	NA	NA	NA	
PBDE 209	pg/g	ww	2	2	100%	220	365	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-9c. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	13	13	100%	4.59	56.4	NA	NA	26.4	26.4	
Antimony	mg/kg	ww	13	8	62%	0.0039	0.102	0.002	0.0066	0.0483	0.0483	
Arsenic	mg/kg	ww	13	13	100%	0.079	0.3	NA	NA	0.215	0.215	
Barium	mg/kg	ww	13	13	100%	0.498	4.09	NA	NA	2.15	2.15	
Beryllium	mg/kg	ww	13	2	15%	0.002	0.0035	0.0009	0.001	NC	0.0035	M
Boron	mg/kg	ww	6	1	17%	0.56	0.56	0.1	0.66	NA	NA	
Cadmium	mg/kg	ww	13	13	100%	0.014	0.292	NA	NA	0.112	0.112	
Calcium	mg/kg	ww	13	13	100%	6950	11700	NA	NA	NA	NA	
Chromium	mg/kg	ww	13	13	100%	0.13	5.76	NA	NA	2.85	2.85	
Cobalt	mg/kg	ww	13	13	100%	0.022	0.143	NA	NA	0.0732	0.0732	
Copper	mg/kg	ww	13	13	100%	0.538	3.27	NA	NA	1.84	1.84	
Gold	mg/kg	ww	6	0	0%	NA	NA	0.007	0.008	NA	NA	
Iron	mg/kg	ww	13	13	100%	9.5	114	NA	NA	NA	NA	
Lead	mg/kg	ww	13	11	85%	0.014	0.145	0.019	0.032	0.056	0.056	
Magnesium	mg/kg	ww	13	13	100%	336	642	NA	NA	NA	NA	
Manganese	mg/kg	ww	13	13	100%	1.57	8.1	NA	NA	3.65	3.65	
Mercury	µg/kg	ww	13	13	100%	19.9	127	NA	NA	62.2	62.2	
Molybdenum	mg/kg	ww	13	9	69%	0.01	0.13	0.02	0.033	NA	NA	
Nickel	mg/kg	ww	13	12	92%	0.17	3.12	0.747	0.747	1.7	1.7	
Potassium	mg/kg	ww	13	13	100%	2720	5200	NA	NA	NA	NA	
Selenium	mg/kg	ww	13	13	100%	0.322	0.432	NA	NA	0.387	0.387	
Silver	mg/kg	ww	13	1	8%	0.009	0.009	0.0005	0.003	NC	0.009	M
Sodium	mg/kg	ww	13	13	100%	797	1290	NA	NA	NA	NA	
Thallium	mg/kg	ww	13	13	100%	0.022	0.0606	NA	NA	0.0453	0.0453	
Tin	mg/kg	ww	6	3	50%	0.009	0.21	0.005	0.03	NA	NA	
Uranium	mg/kg	ww	13	12	92%	0.0007	0.0094	0.0005	0.0005	NA	NA	
Vanadium	mg/kg	ww	13	12	92%	0.02	0.34	0.02	0.02	0.171	0.171	
Zinc	mg/kg	ww	13	13	100%	13.1	39.3	NA	NA	23.5	23.5	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	6	2	33%	0.0007	0.001	0.0007	0.0008	NA	NA	
Cerium	mg/kg	ww	6	6	100%	0.0088	0.271	NA	NA	NA	NA	
Cesium	mg/kg	ww	6	6	100%	0.019	0.0443	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	6	3	50%	0.0008	0.011	0.0007	0.0008	NA	NA	
Erbium	mg/kg	ww	6	2	33%	0.0008	0.0062	0.0007	0.0008	NA	NA	
Europium	mg/kg	ww	6	2	33%	0.001	0.005	0.0007	0.0008	NA	NA	
Gadolinium	mg/kg	ww	6	2	33%	0.002	0.018	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	6	6	100%	0.0047	0.0403	NA	NA	NA	NA	
Germanium	mg/kg	ww	6	6	100%	0.448	1.15	NA	NA	NA	NA	
Holmium	mg/kg	ww	6	1	17%	0.002	0.002	0.0005	0.0005	NA	NA	
Indium	mg/kg	ww	6	1	17%	0.0007	0.0007	0.0007	0.0008	NA	NA	
Lanthanum	mg/kg	ww	6	6	100%	0.0048	0.144	NA	NA	NA	NA	
Lithium	mg/kg	ww	6	0	0%	NA	NA	0.07	0.08	NA	NA	
Lutetium	mg/kg	ww	6	1	17%	0.0007	0.0007	0.0005	0.0005	NA	NA	
Neodymium	mg/kg	ww	6	6	100%	0.0043	0.115	NA	NA	NA	NA	
Niobium	mg/kg	ww	6	1	17%	0.005	0.005	0.002	0.02	NA	NA	
Praseodymium	mg/kg	ww	6	6	100%	0.001	0.0311	NA	NA	NA	NA	
Rubidium	mg/kg	ww	6	6	100%	2.95	8.51	NA	NA	NA	NA	

Table A-9c. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Samarium	mg/kg	ww	6	2	33%	0.0033	0.021	0.001	0.002	NA	NA	
Scandium	mg/kg	ww	6	6	100%	0.015	0.0508	NA	NA	NA	NA	
Strontium	mg/kg	ww	6	6	100%	9.26	19.9	NA	NA	NA	NA	
Tellurium	mg/kg	ww	6	0	0%	NA	NA	0.007	0.008	NA	NA	
Terbium	mg/kg	ww	6	1	17%	0.002	0.002	0.0007	0.0008	NA	NA	
Thorium	mg/kg	ww	6	6	100%	0.001	0.0267	NA	NA	NA	NA	
Thulium	mg/kg	ww	5	0	0%	NA	NA	0.0007	0.0008	NA	NA	
Titanium	mg/kg	ww	6	6	100%	0.24	5.8	NA	NA	NA	NA	
Tungsten	mg/kg	ww	6	1	17%	0.02	0.02	0.005	0.01	NA	NA	
Ytterbium	mg/kg	ww	6	1	17%	0.005	0.005	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	6	6	100%	0.0032	0.0568	NA	NA	NA	NA	
Zirconium	mg/kg	ww	6	6	100%	0.0062	0.0718	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	6	0	0%	NA	NA	0.24	0.89	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	6	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	6	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	6	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	6	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	6	0	0%	NA	NA	210	210	NC	210	U
Dibenzofuran	µg/kg	ww	6	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	6	0	0%	NA	NA	81	280	NC	280	U
Di-n-octylphthalate	µg/kg	ww	6	0	0%	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	µg/kg	ww	6	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	6	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	6	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	6	0	0%	NA	NA	0.73	3.7	NA	NA	
2,4'-DDE	µg/kg	ww	6	0	0%	NA	NA	0.37	1.9	NA	NA	
2,4'-DDT	µg/kg	ww	6	3	50%	0.49	2.1	0.29	0.8	NA	NA	
4,4'-DDD	µg/kg	ww	6	0	0%	NA	NA	0.55	2.8	NA	NA	
4,4'-DDE	µg/kg	ww	6	4	67%	1.5	4.7	2	2.3	NA	NA	
4,4'-DDT	µg/kg	ww	6	0	0%	NA	NA	0.49	2.5	NA	NA	
Aldrin	µg/kg	ww	6	0	0%	NA	NA	0.74	3.7	NC	3.7	U
alpha-Chlordane	µg/kg	ww	6	0	0%	NA	NA	0.25	1.3	NC	1.3	U
Chlordane	µg/kg	ww	6	0	0%	NA	NA	5.8	20	NA	NA	
cis-Nonachlor	µg/kg	ww	6	0	0%	NA	NA	0.29	1.5	NC	1.5	U
delta-BHC	µg/kg	ww	6	0	0%	NA	NA	0.2	1	NC	1	U
Dieldrin	µg/kg	ww	6	2	33%	0.28	0.77	0.2	1	NC	0.77	M
Endrin	µg/kg	ww	6	0	0%	NA	NA	0.28	1.4	NC	1.4	U
Endrin aldehyde	µg/kg	ww	6	0	0%	NA	NA	0.62	3.1	NC	3.1	U
Endrin ketone	µg/kg	ww	6	0	0%	NA	NA	0.39	2	NC	2	U
gamma-Chlordane	µg/kg	ww	6	0	0%	NA	NA	0.26	1.3	NC	1.3	U
Heptachlor	µg/kg	ww	6	0	0%	NA	NA	0.27	1.4	NC	1.4	U
Heptachlor epoxide	µg/kg	ww	6	1	17%	0.29	0.29	0.18	0.9	NC	0.29	M
Hexachlorobenzene	µg/kg	ww	6	3	50%	0.72	1.8	1.9	1.9	NC	1.8	M
Hexachlorobutadiene	µg/kg	ww	6	0	0%	NA	NA	0.3	1.5	NC	1.5	U
Methoxychlor	µg/kg	ww	6	0	0%	NA	NA	0.48	2.4	NC	2.4	U
Oxychlordane	µg/kg	ww	6	0	0%	NA	NA	0.39	3.2	NC	3.2	U
Total chlordane, 0 DL	µg/kg	ww	6	0	0%	NA	NA	0.39	3.2	NC	3.2	U
Total chlordane, 1/2 DL	µg/kg	ww	6	0	0%	NA	NA	0.39	3.2	NC	3.2	U
Total DDD, 0 DL	µg/kg	ww	6	0	0%	NA	NA	0.73	3.7	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	6	0	0%	NA	NA	0.73	3.7	NA	NA	

Table A-9c. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDE, 0 DL	µg/kg	ww	6	4	67%	1.5	4.7	2	2.3	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	6	4	67%	1.69	5.65	2	2.3	NA	NA	
Total DDT, 0 DL	µg/kg	ww	6	3	50%	0.49	2.1	0.49	2.5	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	6	3	50%	0.83	3.35	0.49	2.5	NA	NA	
Total DDx, 0 DL	µg/kg	ww	6	4	67%	1.99	6.8	2	3.7	NC	6.8	M
Total DDx, 1/2 DL	µg/kg	ww	6	4	67%	3.16	12.3	2	3.7	NC	12.3	M
Toxaphene	µg/kg	ww	6	0	0%	NA	NA	21	65	NA	NA	
trans-Nonachlor	µg/kg	ww	6	0	0%	NA	NA	0.27	1.4	NC	1.4	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	6	5	83%	1	13	1.6	1.6	NA	NA	
Acenaphthene	µg/kg	ww	6	5	83%	0.44	0.75	0.11	0.11	NA	NA	
Acenaphthylene	µg/kg	ww	6	5	83%	0.6	4.2	0.094	0.094	NA	NA	
Anthracene	µg/kg	ww	6	1	17%	0.43	0.43	0.38	3.9	NA	NA	
Benzo(a)anthracene	µg/kg	ww	6	0	0%	NA	NA	0.16	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	6	0	0%	NA	NA	0.061	0.31	NC	0.31	U
Benzo(b)fluoranthene	µg/kg	ww	6	0	0%	NA	NA	0.14	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	6	0	0%	NA	NA	0.058	0.29	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	6	0	0%	NA	NA	0.092	0.46	NA	NA	
Chrysene	µg/kg	ww	6	0	0%	NA	NA	0.2	1	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	6	0	0%	NA	NA	0.045	0.23	NA	NA	
Fluoranthene	µg/kg	ww	6	0	0%	NA	NA	0.15	0.75	NA	NA	
Fluorene	µg/kg	ww	6	4	67%	0.59	1.1	0.19	0.48	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	6	0	0%	NA	NA	0.1	0.5	NA	NA	
Naphthalene	µg/kg	ww	6	4	67%	12	15	1.4	2.3	NA	NA	
Phenanthrene	µg/kg	ww	6	2	33%	1.2	2.1	0.64	1.8	NA	NA	
Pyrene	µg/kg	ww	6	0	0%	NA	NA	0.12	0.6	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	6	0	0%	NA	NA	0.2	1	NC	1	U
Total HPAHs, 1/2 DL	µg/kg	ww	6	0	0%	NA	NA	0.2	1	NC	1	U
Total LPAHs, 0 DL	µg/kg	ww	6	6	100%	1	34.3	NA	NA	32.2	32.2	
Total LPAHs, 1/2 DL	µg/kg	ww	6	6	100%	2.41	34.3	NA	NA	32.7	32.7	
Total PAHs, 0 DL	µg/kg	ww	6	6	100%	1	34.3	NA	NA	32.2	32.2	
Total PAHs, 1/2 DL	µg/kg	ww	6	6	100%	3.54	34.8	NA	NA	33.6	33.6	
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	11	11	100%	3030	12700	NA	NA	8180	8180	
Total PCB congeners, 1/2 DL	pg/g	ww	11	11	100%	3780	13400	NA	NA	8680	8680	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	11	3	27%	0.0921	0.148	0.079	1.99	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	11	2	18%	0.0345	0.0472	0.0344	1.07	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0342	1.14	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	11	0	0%	NA	NA	0.055	1.65	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0254	0.78	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	11	0	0%	NA	NA	0.056	1.77	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0246	0.798	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	11	0	0%	NA	NA	0.0525	1.78	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0363	1.06	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	11	0	0%	NA	NA	0.0422	1.51	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0391	1.52	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.027	0.813	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.036	1.41	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	11	0	0%	NA	NA	0.0478	0.986	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	11	7	64%	0.295	1.14	0.175	0.906	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	11	1	9%	0.471	0.471	0.432	3.68	NA	NA	

Table A-9c. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Octachlorodibenzofuran	pg/g	ww	11	0	0%	NA	NA	0.0804	2.71	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	11	7	64%	0.295	1.14	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	11	7	64%	0.371	1.97	0.212	2.73	1.24	1.24	
Dioxin TEQ, fish, 0 DL	pg/g	ww	11	7	64%	0.0152	0.057	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	11	7	64%	0.0909	1.13	0.119	2.23	0.672	0.672	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	11	7	64%	0.0308	0.114	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	11	7	64%	0.0964	1.02	0.109	1.92	0.613	0.613	
PBDEs												
PBDE 17	pg/g	ww	6	6	100%	4.85	11	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	6	6	100%	50.6	195	NA	NA	NA	NA	
PBDE 47	pg/g	ww	6	6	100%	1940	8150	NA	NA	NA	NA	
PBDE 49	pg/g	ww	6	6	100%	93.3	322	NA	NA	NA	NA	
PBDE 66	pg/g	ww	6	6	100%	2.47	131	NA	NA	NA	NA	
PBDE 71	pg/g	ww	6	0	0%	NA	NA	0.0468	0.16	NA	NA	
PBDE 85	pg/g	ww	6	6	100%	0.708	5.89	NA	NA	NA	NA	
PBDE 99	pg/g	ww	6	6	100%	28.7	1350	NA	NA	NA	NA	
PBDE 100	pg/g	ww	6	6	100%	294	1430	NA	NA	NA	NA	
PBDE 128	pg/g	ww	6	0	0%	NA	NA	0.22	0.43	NA	NA	
PBDE 138	pg/g	ww	6	5	83%	0.362	1.15	0.235	0.235	NA	NA	
PBDE 153	pg/g	ww	6	6	100%	34.5	321	NA	NA	NA	NA	
PBDE 154	pg/g	ww	6	6	100%	68.8	366	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	6	5	83%	2.74	4.51	1.58	1.58	NA	NA	
PBDE 184	pg/g	ww	6	5	83%	0.271	1.44	1.19	1.19	NA	NA	
PBDE 190 and 171	pg/g	ww	6	0	0%	NA	NA	0.145	0.403	NA	NA	
PBDE 191	pg/g	ww	6	0	0%	NA	NA	0.125	0.347	NA	NA	
PBDE 200 and 203	pg/g	ww	6	3	50%	1.44	1.68	0.283	0.74	NA	NA	
PBDE 206	pg/g	ww	6	5	83%	5.82	22.5	1.21	1.21	NA	NA	
PBDE 209	pg/g	ww	6	6	100%	83.3	1400	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-9d. Summary Statistics for Small Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	13	13	100%	9.23	556	NA	NA	269	269	
Antimony	mg/kg	dw	13	11	85%	0.0395	0.808	0.0241	0.026	0.351	0.351	
Arsenic	mg/kg	dw	13	12	92%	0.0772	0.92	0.261	0.261	0.526	0.526	
Barium	mg/kg	dw	13	13	100%	2.92	51.2	NA	NA	22.4	22.4	
Beryllium	mg/kg	dw	13	6	46%	0.00474	0.0252	0.00385	0.00415	0.0104	0.0104	
Boron	mg/kg	dw	4	0	0%	NA	NA	0.303	2.2	NA	NA	
Cadmium	mg/kg	dw	13	13	100%	0.0954	0.502	NA	NA	0.352	0.352	
Calcium	mg/kg	dw	13	13	100%	17300	46600	NA	NA	NA	NA	
Chromium	mg/kg	dw	13	13	100%	0.6	26.9	NA	NA	13.8	13.8	
Cobalt	mg/kg	dw	13	11	85%	0.108	0.488	0.314	0.485	0.272	0.272	
Copper	mg/kg	dw	13	13	100%	3.84	11	NA	NA	7.42	7.42	
Gold	mg/kg	dw	4	0	0%	NA	NA	0.029	0.0316	NA	NA	
Iron	mg/kg	dw	13	13	100%	40	1080	NA	NA	646	646	
Lead	mg/kg	dw	13	13	100%	0.222	9.6	NA	NA	3.67	3.67	
Magnesium	mg/kg	dw	13	13	100%	1190	2360	NA	NA	NA	NA	
Manganese	mg/kg	dw	13	13	100%	5.38	42.8	NA	NA	34	34	
Mercury	mg/kg	dw	13	13	100%	0.0433	0.209	NA	NA	0.114	0.114	
Molybdenum	mg/kg	dw	13	4	31%	0.0813	1.57	0.0813	0.362	NC	1.57	M
Nickel	mg/kg	dw	13	13	100%	0.751	12.1	NA	NA	6.88	6.88	
Potassium	mg/kg	dw	13	13	100%	10600	14500	NA	NA	NA	NA	
Selenium	mg/kg	dw	13	13	100%	1.03	3.36	NA	NA	2.39	2.39	
Silver	mg/kg	dw	13	8	62%	0.00541	0.0957	0.00203	0.015	0.0482	0.0482	
Sodium	mg/kg	dw	13	13	100%	2190	4030	NA	NA	NA	NA	
Thallium	mg/kg	dw	13	13	100%	0.0362	0.211	NA	NA	0.125	0.125	
Tin	mg/kg	dw	4	2	50%	0.134	0.16	0.0395	0.0415	NA	NA	
Uranium	mg/kg	dw	13	13	100%	0.00207	0.159	NA	NA	0.0628	0.0628	
Vanadium	mg/kg	dw	13	10	77%	0.0791	1.86	0.0769	0.0813	0.749	0.749	
Zinc	mg/kg	dw	13	13	100%	69.1	185	NA	NA	131	131	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	4	2	50%	0.00433	0.00638	0.0029	0.00316	NA	NA	
Cerium	mg/kg	dw	4	4	100%	0.0182	0.906	NA	NA	NA	NA	
Cesium	mg/kg	dw	4	4	100%	0.0553	0.138	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	4	2	50%	0.036	0.0433	0.0029	0.00316	NA	NA	
Erbium	mg/kg	dw	4	2	50%	0.0189	0.0251	0.0029	0.00316	NA	NA	
Europium	mg/kg	dw	4	2	50%	0.0174	0.019	0.0029	0.00316	NA	NA	
Gadolinium	mg/kg	dw	4	2	50%	0.0649	0.066	0.00791	0.0083	NA	NA	
Gallium	mg/kg	dw	4	4	100%	0.0138	0.137	NA	NA	NA	NA	
Germanium	mg/kg	dw	4	4	100%	2.38	3.74	NA	NA	NA	NA	
Holmium	mg/kg	dw	4	2	50%	0.00638	0.00866	0.00198	0.00207	NA	NA	
Indium	mg/kg	dw	4	2	50%	0.00851	0.032	0.0029	0.00316	NA	NA	
Lanthanum	mg/kg	dw	4	4	100%	0.0111	0.494	NA	NA	NA	NA	
Lithium	mg/kg	dw	4	0	0%	NA	NA	0.29	0.316	NA	NA	
Lutetium	mg/kg	dw	4	2	50%	0.00213	0.00303	0.00198	0.00207	NA	NA	
Neodymium	mg/kg	dw	4	4	100%	0.00791	0.404	NA	NA	NA	NA	
Niobium	mg/kg	dw	4	2	50%	0.13	0.139	0.0083	0.0198	NA	NA	
Praseodymium	mg/kg	dw	4	2	50%	0.0952	0.108	0.0029	0.00316	NA	NA	
Rubidium	mg/kg	dw	4	4	100%	10.9	21.2	NA	NA	NA	NA	
Samarium	mg/kg	dw	4	2	50%	0.066	0.0693	0.00415	0.00791	NA	NA	
Scandium	mg/kg	dw	4	4	100%	0.0415	0.146	NA	NA	NA	NA	
Strontium	mg/kg	dw	4	4	100%	19.5	76.6	NA	NA	NA	NA	

Table A-9d. Summary Statistics for Small Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Tellurium	mg/kg	dw	4	0	0%	NA	NA	0.029	0.0316	NA	NA	
Terbium	mg/kg	dw	4	2	50%	0.00851	0.00866	0.0029	0.00316	NA	NA	
Thorium	mg/kg	dw	4	2	50%	0.14	0.351	0.00395	0.00415	NA	NA	
Thulium	mg/kg	dw	2	0	0%	NA	NA	0.0029	0.00316	NA	NA	
Titanium	mg/kg	dw	4	4	100%	0.539	22.9	NA	NA	NA	NA	
Tungsten	mg/kg	dw	4	0	0%	NA	NA	0.029	0.121	NA	NA	
Ytterbium	mg/kg	dw	4	2	50%	0.0138	0.0216	0.00395	0.00415	NA	NA	
Yttrium	mg/kg	dw	4	4	100%	0.00791	0.252	NA	NA	NA	NA	
Zirconium	mg/kg	dw	4	4	100%	0.0178	0.237	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	4	2	50%	0.00182	0.00809	0.00212	0.0115	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	4	0	0%	NA	NA	0.0249	0.0273	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	4	0	0%	NA	NA	0.0162	0.0177	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	4	0	0%	NA	NA	0.0182	0.0199	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	4	0	0%	NA	NA	0.83	0.909	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	4	0	0%	NA	NA	0.83	0.909	NC	0.909	U
Dibenzofuran	mg/kg	dw	4	0	0%	NA	NA	0.0174	0.019	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	4	0	0%	NA	NA	0.0791	1.87	NC	1.87	U
Di-n-octylphthalate	mg/kg	dw	4	0	0%	NA	NA	0.0373	1.46	NC	1.46	U
Hexachlorocyclopentadiene	mg/kg	dw	4	0	0%	NA	NA	1.38	1.52	NA	NA	
Hexachloroethane	mg/kg	dw	4	0	0%	NA	NA	0.0632	0.0693	NA	NA	
Pentachlorophenol	mg/kg	dw	4	0	0%	NA	NA	0.0178	0.0195	NC	0.0195	U
Pesticides												
2,4'-DDD	mg/kg	dw	4	0	0%	NA	NA	0.00289	0.0154	NA	NA	
2,4'-DDE	mg/kg	dw	4	0	0%	NA	NA	0.00289	0.00788	NA	NA	
2,4'-DDT	mg/kg	dw	4	1	25%	0.00368	0.00368	0.00332	0.00823	NA	NA	
4,4'-DDD	mg/kg	dw	4	0	0%	NA	NA	0.00217	0.0116	NA	NA	
4,4'-DDE	mg/kg	dw	4	3	75%	0.00324	0.00563	0.0278	0.0278	NA	NA	
4,4'-DDT	mg/kg	dw	4	0	0%	NA	NA	0.00194	0.0104	NA	NA	
Aldrin	mg/kg	dw	4	0	0%	NA	NA	0.00292	0.0154	NC	0.0154	U
alpha-Chlordane	mg/kg	dw	4	1	25%	0.00996	0.00996	0.000988	0.00203	NC	0.00996	M
Chlordane	mg/kg	dw	4	0	0%	NA	NA	0.0435	0.166	NA	NA	
cis-Nonachlor	mg/kg	dw	4	1	25%	0.00952	0.00952	0.00115	0.00622	NC	0.00952	M
delta-BHC	mg/kg	dw	4	0	0%	NA	NA	0.000791	0.00415	NC	0.00415	U
Dieldrin	mg/kg	dw	4	0	0%	NA	NA	0.00103	0.00476	NC	0.00476	U
Endrin	mg/kg	dw	4	0	0%	NA	NA	0.00111	0.00581	NC	0.00581	U
Endrin aldehyde	mg/kg	dw	4	0	0%	NA	NA	0.00245	0.0129	NC	0.0129	U
Endrin ketone	mg/kg	dw	4	0	0%	NA	NA	0.00154	0.0083	NC	0.0083	U
gamma-Chlordane	mg/kg	dw	4	0	0%	NA	NA	0.0015	0.00622	NC	0.00622	U
Heptachlor	mg/kg	dw	4	0	0%	NA	NA	0.00213	0.00823	NC	0.00823	U
Heptachlor epoxide	mg/kg	dw	4	0	0%	NA	NA	0.00115	0.00373	NC	0.00373	U
Hexachlorobenzene	mg/kg	dw	4	3	75%	0.00374	0.00435	0.00788	0.00788	NC	0.00435	M
Hexachlorobutadiene	mg/kg	dw	4	1	25%	0.00289	0.00289	0.00119	0.00622	NC	0.00289	M
Methoxychlor	mg/kg	dw	4	0	0%	NA	NA	0.0019	0.00996	NC	0.00996	U
Oxychlordane	mg/kg	dw	4	0	0%	NA	NA	0.00154	0.0498	NC	0.0498	U
Total chlordane, 0 DL	mg/kg	dw	4	2	50%	0.00952	0.00996	0.00154	0.00306	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	4	2	50%	0.0143	0.044	0.00154	0.00306	NC	0.044	M
Total DDD, 0 DL	mg/kg	dw	4	0	0%	NA	NA	0.00289	0.0154	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	4	0	0%	NA	NA	0.00289	0.0154	NA	NA	
Total DDE, 0 DL	mg/kg	dw	4	3	75%	0.00324	0.00563	0.0278	0.0278	NA	NA	

Table A-9d. Summary Statistics for Small Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDE, 1/2 DL	mg/kg	dw	4	3	75%	0.00482	0.00714	0.0278	0.0278	NA	NA	
Total DDT, 0 DL	mg/kg	dw	4	1	25%	0.00368	0.00368	0.00395	0.0104	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	4	1	25%	0.00566	0.00566	0.00395	0.0104	NA	NA	
Total DDx, 0 DL	mg/kg	dw	4	3	75%	0.00324	0.008	0.0278	0.0278	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	4	3	75%	0.0103	0.0187	0.0278	0.0278	NC	0.0187	M
Toxaphene	mg/kg	dw	4	0	0%	NA	NA	0.106	0.27	NA	NA	
trans-Nonachlor	mg/kg	dw	4	0	0%	NA	NA	0.0015	0.00581	NC	0.00581	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	4	4	100%	0.0104	0.19	NA	NA	NA	NA	
Acenaphthene	mg/kg	dw	4	4	100%	0.000909	0.00791	NA	NA	NA	NA	
Acenaphthylene	mg/kg	dw	4	4	100%	0.00152	0.178	NA	NA	NA	NA	
Anthracene	mg/kg	dw	4	2	50%	0.00851	0.0206	0.00158	0.00165	NA	NA	
Benzo(a)anthracene	mg/kg	dw	4	0	0%	NA	NA	0.00133	0.00316	NA	NA	
Benzo(a)pyrene	mg/kg	dw	4	0	0%	NA	NA	0.000539	0.00123	NC	0.00123	U
Benzo(b)fluoranthene	mg/kg	dw	4	0	0%	NA	NA	0.00116	0.00277	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	4	0	0%	NA	NA	0.000498	0.00115	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	4	0	0%	NA	NA	0.000788	0.00182	NA	NA	
Chrysene	mg/kg	dw	4	0	0%	NA	NA	0.00166	0.00395	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	4	0	0%	NA	NA	0.000373	0.000909	NA	NA	
Fluoranthene	mg/kg	dw	4	0	0%	NA	NA	0.00124	0.0221	NA	NA	
Fluorene	mg/kg	dw	4	4	100%	0.00177	0.0253	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	4	0	0%	NA	NA	0.00083	0.00198	NA	NA	
Naphthalene	mg/kg	dw	4	4	100%	0.00779	0.391	NA	NA	NA	NA	
Phenanthrene	mg/kg	dw	4	4	100%	0.00476	0.0514	NA	NA	NA	NA	
Pyrene	mg/kg	dw	4	0	0%	NA	NA	0.000996	0.00255	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	4	0	0%	NA	NA	0.00166	0.0221	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	4	0	0%	NA	NA	0.00166	0.0221	NC	0.0221	U
Total LPAHs, 0 DL	mg/kg	dw	4	4	100%	0.0271	0.866	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	4	4	100%	0.028	0.866	NA	NA	NC	0.866	M
Total PAHs, 0 DL	mg/kg	dw	4	4	100%	0.0271	0.866	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	4	4	100%	0.0329	0.885	NA	NA	NC	0.885	M
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	13	13	100%	0.0243	0.0597	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	13	13	100%	0.0274	0.0609	NA	NA	0.0429	0.0429	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	13	5	38%	0.000000581	0.00000147	0.000000373	0.00000707	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	13	1	8%	0.000000252	0.000000252	0.000000193	0.00000622	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	13	0	0%	NA	NA	0.00000021	0.0000061	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	13	1	8%	0.000000854	0.000000854	0.000000222	0.00000764	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	13	0	0%	NA	NA	0.000000134	0.00000419	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	13	0	0%	NA	NA	0.000000227	0.00000776	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	13	2	15%	0.000000356	0.000000366	0.000000132	0.00000423	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	13	0	0%	NA	NA	0.000000222	0.00000776	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	13	0	0%	NA	NA	0.000000198	0.00000589	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	13	0	0%	NA	NA	0.000000181	0.00000352	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	13	0	0%	NA	NA	0.00000019	0.0000072	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	13	3	23%	0.000000456	0.000000634	0.000000184	0.00000411	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	13	0	0%	NA	NA	0.000000186	0.00000728	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	13	0	0%	NA	NA	0.000000223	0.00000401	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	13	12	92%	0.00000056	0.00000201	0.00000327	0.00000327	NA	NA	

Table A-9d. Summary Statistics for Small Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Octachlorodibenzodioxin	mg/kg	dw	13	1	8%	0.00000516	0.00000516	0.00000231	0.0000148	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	13	1	8%	0.000000996	0.000000996	0.000000379	0.0000101	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	13	12	92%	0.000000606	0.00000201	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	13	12	92%	0.000000963	0.00000268	0.000011	0.000011	0.00000211	0.00000211	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	13	12	92%	3.85E-08	0.000000203	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	13	12	92%	0.000000432	0.00000113	0.00000882	0.00000882	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	13	12	92%	7.44E-08	0.000000201	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	13	12	92%	0.00000041	0.000000996	0.00000732	0.00000732	0.000000847	0.000000847	
PBDEs												
PBDE 17	mg/kg	dw	4	4	100%	0.0000107	0.000046	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	4	4	100%	0.000286	0.000391	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	4	4	100%	0.0105	0.0133	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	4	4	100%	0.000271	0.000581	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	4	4	100%	0.00000468	0.000443	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	4	0	0%	NA	NA	0.000000276	0.00000081	NA	NA	
PBDE 85	mg/kg	dw	4	4	100%	0.00000328	0.0000366	NA	NA	NA	NA	
PBDE 99	mg/kg	dw	4	4	100%	0.0000643	0.0112	NA	NA	NA	NA	
PBDE 100	mg/kg	dw	4	4	100%	0.00158	0.003	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	4	0	0%	NA	NA	0.000000921	0.00000319	NA	NA	
PBDE 138	mg/kg	dw	4	4	100%	0.0000016	0.0000171	NA	NA	NA	NA	
PBDE 153	mg/kg	dw	4	4	100%	0.000137	0.000949	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	4	4	100%	0.000388	0.000763	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	4	4	100%	0.00000877	0.0000312	NA	NA	NA	NA	
PBDE 184	mg/kg	dw	4	4	100%	0.00000209	0.0000047	NA	NA	NA	NA	
PBDE 190 and 171	mg/kg	dw	4	0	0%	NA	NA	0.000000934	0.00000316	NA	NA	
PBDE 191	mg/kg	dw	4	0	0%	NA	NA	0.000000801	0.00000272	NA	NA	
PBDE 200 and 203	mg/kg	dw	4	2	50%	0.00000298	0.0000111	0.00000192	0.00000313	NA	NA	
PBDE 206	mg/kg	dw	4	4	100%	0.0000253	0.000106	NA	NA	NA	NA	
PBDE 209	mg/kg	dw	4	4	100%	0.000877	0.00672	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-9e. Summary Statistics for Small Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	8	8	100%	16.6	209	NA	NA	134	134	
Antimony	mg/kg	dw	8	6	75%	0.0174	0.166	0.0138	0.0152	0.0916	0.0916	
Arsenic	mg/kg	dw	8	8	100%	0.241	0.917	NA	NA	0.685	0.685	
Barium	mg/kg	dw	8	8	100%	2.21	10.7	NA	NA	7.58	7.58	
Beryllium	mg/kg	dw	8	3	38%	0.00394	0.00729	0.00364	0.00389	NC	0.00729	M
Boron	mg/kg	dw	2	0	0%	NA	NA	0.283	0.766	NA	NA	
Cadmium	mg/kg	dw	8	8	100%	0.0723	0.59	NA	NA	0.358	0.358	
Calcium	mg/kg	dw	8	8	100%	19700	36700	NA	NA	NA	NA	
Chromium	mg/kg	dw	8	8	100%	0.618	2.54	NA	NA	1.92	1.92	
Cobalt	mg/kg	dw	8	7	88%	0.117	0.306	0.219	0.219	0.205	0.205	
Copper	mg/kg	dw	8	8	100%	2.29	8.11	NA	NA	5.65	5.65	
Gold	mg/kg	dw	2	0	0%	NA	NA	0.0283	0.0307	NA	NA	
Iron	mg/kg	dw	8	8	100%	39.1	433	NA	NA	363	363	
Lead	mg/kg	dw	8	8	100%	0.04	0.721	NA	NA	0.455	0.455	
Magnesium	mg/kg	dw	8	8	100%	1360	1680	NA	NA	NA	NA	
Manganese	mg/kg	dw	8	8	100%	4.73	26.4	NA	NA	17.4	17.4	
Mercury	mg/kg	dw	8	8	100%	0.0891	0.429	NA	NA	0.269	0.269	
Molybdenum	mg/kg	dw	8	3	38%	0.0851	0.251	0.109	0.144	NC	0.251	M
Nickel	mg/kg	dw	8	8	100%	0.711	1.53	NA	NA	1.31	1.31	
Potassium	mg/kg	dw	8	8	100%	10200	14000	NA	NA	NA	NA	
Selenium	mg/kg	dw	8	8	100%	1.05	2.51	NA	NA	2	2	
Silver	mg/kg	dw	8	3	38%	0.00364	0.0214	0.00192	0.00837	NC	0.0214	M
Sodium	mg/kg	dw	8	8	100%	2560	3740	NA	NA	NA	NA	
Thallium	mg/kg	dw	8	8	100%	0.0509	0.232	NA	NA	0.184	0.184	
Tin	mg/kg	dw	2	2	100%	0.0283	0.345	NA	NA	NA	NA	
Uranium	mg/kg	dw	8	8	100%	0.00298	0.0228	NA	NA	0.0157	0.0157	
Vanadium	mg/kg	dw	8	7	88%	0.0766	1.08	0.0727	0.0727	0.585	0.585	
Zinc	mg/kg	dw	8	8	100%	63	114	NA	NA	102	102	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	2	0	0%	NA	NA	0.00283	0.00307	NA	NA	
Cerium	mg/kg	dw	2	2	100%	0.051	0.359	NA	NA	NA	NA	
Cesium	mg/kg	dw	2	2	100%	0.087	0.0891	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	2	1	50%	0.0162	0.0162	0.00307	0.00307	NA	NA	
Erbium	mg/kg	dw	2	1	50%	0.0081	0.0081	0.00307	0.00307	NA	NA	
Europium	mg/kg	dw	2	1	50%	0.0081	0.0081	0.00307	0.00307	NA	NA	
Gadolinium	mg/kg	dw	2	1	50%	0.0251	0.0251	0.00766	0.00766	NA	NA	
Gallium	mg/kg	dw	2	2	100%	0.0198	0.0648	NA	NA	NA	NA	
Germanium	mg/kg	dw	2	2	100%	2.16	2.61	NA	NA	NA	NA	
Holmium	mg/kg	dw	2	1	50%	0.00283	0.00283	0.00192	0.00192	NA	NA	
Indium	mg/kg	dw	2	1	50%	0.00283	0.00283	0.00307	0.00307	NA	NA	
Lanthanum	mg/kg	dw	2	2	100%	0.0279	0.195	NA	NA	NA	NA	
Lithium	mg/kg	dw	2	0	0%	NA	NA	0.283	0.307	NA	NA	
Lutetium	mg/kg	dw	2	0	0%	NA	NA	0.00192	0.00202	NA	NA	
Neodymium	mg/kg	dw	2	2	100%	0.0216	0.165	NA	NA	NA	NA	
Niobium	mg/kg	dw	2	1	50%	0.0405	0.0405	0.0115	0.0115	NA	NA	
Praseodymium	mg/kg	dw	2	2	100%	0.0064	0.0405	NA	NA	NA	NA	
Rubidium	mg/kg	dw	2	2	100%	13.9	15.9	NA	NA	NA	NA	
Samarium	mg/kg	dw	2	1	50%	0.0312	0.0312	0.00766	0.00766	NA	NA	
Scandium	mg/kg	dw	2	2	100%	0.0678	0.081	NA	NA	NA	NA	
Strontium	mg/kg	dw	2	2	100%	51.3	66.4	NA	NA	NA	NA	
Tellurium	mg/kg	dw	2	0	0%	NA	NA	0.0283	0.0307	NA	NA	

Table A-9e. Summary Statistics for Small Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Terbium	mg/kg	dw	2	1	50%	0.00283	0.00283	0.00307	0.00307	NA	NA	
Thorium	mg/kg	dw	2	2	100%	0.00908	0.0729	NA	NA	NA	NA	
Thulium	mg/kg	dw	1	0	0%	NA	NA	0.00307	0.00307	NA	NA	
Titanium	mg/kg	dw	2	2	100%	1.13	9.72	NA	NA	NA	NA	
Tungsten	mg/kg	dw	2	0	0%	NA	NA	0.0192	0.0405	NA	NA	
Ytterbium	mg/kg	dw	2	1	50%	0.00405	0.00405	0.00383	0.00383	NA	NA	
Yttrium	mg/kg	dw	2	2	100%	0.0129	0.085	NA	NA	NA	NA	
Zirconium	mg/kg	dw	2	2	100%	0.0256	0.144	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	2	0	0%	NA	NA	0.0013	0.00243	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	2	0	0%	NA	NA	0.0241	0.0255	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	2	0	0%	NA	NA	0.0157	0.0166	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	2	0	0%	NA	NA	0.0176	0.0186	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	2	0	0%	NA	NA	0.805	0.85	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	2	0	0%	NA	NA	0.805	0.85	NC	0.85	U
Dibenzofuran	mg/kg	dw	2	0	0%	NA	NA	0.0169	0.0178	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	2	0	0%	NA	NA	0.222	2.67	NC	2.67	U
Di-n-octylphthalate	mg/kg	dw	2	0	0%	NA	NA	0.0345	0.0364	NC	0.0364	U
Hexachlorocyclopentadiene	mg/kg	dw	2	0	0%	NA	NA	1.34	1.42	NA	NA	
Hexachloroethane	mg/kg	dw	2	0	0%	NA	NA	0.0613	0.0648	NA	NA	
Pentachlorophenol	mg/kg	dw	2	0	0%	NA	NA	0.0172	0.0182	NC	0.0182	U
Pesticides												
2,4'-DDD	mg/kg	dw	2	0	0%	NA	NA	0.0028	0.00607	NA	NA	
2,4'-DDE	mg/kg	dw	2	0	0%	NA	NA	0.00142	0.00291	NA	NA	
2,4'-DDT	mg/kg	dw	2	0	0%	NA	NA	0.000613	0.00126	NA	NA	
4,4'-DDD	mg/kg	dw	2	0	0%	NA	NA	0.00211	0.00445	NA	NA	
4,4'-DDE	mg/kg	dw	2	1	50%	0.0051	0.0051	0.00352	0.00352	NA	NA	
4,4'-DDT	mg/kg	dw	2	0	0%	NA	NA	0.00188	0.00385	NA	NA	
Aldrin	mg/kg	dw	2	0	0%	NA	NA	0.00284	0.00607	NC	0.00607	U
alpha-Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.000958	0.00198	NC	0.00198	U
Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.0149	0.0352	NA	NA	
cis-Nonachlor	mg/kg	dw	2	0	0%	NA	NA	0.00111	0.00227	NC	0.00227	U
delta-BHC	mg/kg	dw	2	0	0%	NA	NA	0.000766	0.00158	NC	0.00158	U
Dieldrin	mg/kg	dw	2	1	50%	0.0034	0.0034	0.000766	0.000766	NC	0.0034	M
Endrin	mg/kg	dw	2	0	0%	NA	NA	0.00107	0.00223	NC	0.00223	U
Endrin aldehyde	mg/kg	dw	2	0	0%	NA	NA	0.00238	0.00486	NC	0.00486	U
Endrin ketone	mg/kg	dw	2	0	0%	NA	NA	0.00149	0.00308	NC	0.00308	U
gamma-Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.000996	0.00206	NC	0.00206	U
Heptachlor	mg/kg	dw	2	0	0%	NA	NA	0.00103	0.00486	NC	0.00486	U
Heptachlor epoxide	mg/kg	dw	2	0	0%	NA	NA	0.00069	0.00142	NC	0.00142	U
Hexachlorobenzene	mg/kg	dw	2	1	50%	0.0023	0.0023	0.00291	0.00291	NC	0.0023	M
Hexachlorobutadiene	mg/kg	dw	2	0	0%	NA	NA	0.00153	0.00235	NC	0.00235	U
Methoxychlor	mg/kg	dw	2	0	0%	NA	NA	0.00184	0.00377	NC	0.00377	U
Oxychlordane	mg/kg	dw	2	0	0%	NA	NA	0.00149	0.00308	NC	0.00308	U
Total chlordane, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00149	0.00308	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00149	0.00308	NC	0.00308	U
Total DDD, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.0028	0.00607	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.0028	0.00607	NA	NA	
Total DDE, 0 DL	mg/kg	dw	2	1	50%	0.0051	0.0051	0.00352	0.00352	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	2	1	50%	0.00605	0.00605	0.00352	0.00352	NA	NA	
Total DDT, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00188	0.00385	NA	NA	

Table A-9e. Summary Statistics for Small Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDT, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00188	0.00385	NA	NA	
Total DDx, 0 DL	mg/kg	dw	2	1	50%	0.0051	0.0051	0.00607	0.00607	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	2	1	50%	0.0108	0.0108	0.00607	0.00607	NC	0.0108	M
Toxaphene	mg/kg	dw	2	0	0%	NA	NA	0.0613	0.259	NA	NA	
trans-Nonachlor	mg/kg	dw	2	0	0%	NA	NA	0.00103	0.00215	NC	0.00215	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	2	2	100%	0.00421	0.00607	NA	NA	NA	NA	
Acenaphthene	mg/kg	dw	2	2	100%	0.00207	0.00445	NA	NA	NA	NA	
Acenaphthylene	mg/kg	dw	2	1	50%	0.00107	0.00107	0.000972	0.000972	NA	NA	
Anthracene	mg/kg	dw	2	0	0%	NA	NA	0.00146	0.017	NA	NA	
Benzo(a)anthracene	mg/kg	dw	2	0	0%	NA	NA	0.00123	0.00324	NA	NA	
Benzo(a)pyrene	mg/kg	dw	2	0	0%	NA	NA	0.000498	0.00126	NC	0.00126	U
Benzo(b)fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.00107	0.00283	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	2	0	0%	NA	NA	0.00046	0.00117	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.000728	0.00186	NA	NA	
Chrysene	mg/kg	dw	2	0	0%	NA	NA	0.00153	0.00405	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	2	0	0%	NA	NA	0.000345	0.000931	NA	NA	
Fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.00115	0.00304	NA	NA	
Fluorene	mg/kg	dw	2	1	50%	0.00153	0.00153	0.00194	0.00194	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	2	0	0%	NA	NA	0.000766	0.00202	NA	NA	
Naphthalene	mg/kg	dw	2	1	50%	0.00567	0.00567	0.00536	0.00536	NA	NA	
Phenanthrene	mg/kg	dw	2	0	0%	NA	NA	0.00245	0.00648	NA	NA	
Pyrene	mg/kg	dw	2	0	0%	NA	NA	0.00092	0.00243	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00153	0.00405	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00153	0.00405	NC	0.00405	U
Total LPAHs, 0 DL	mg/kg	dw	2	2	100%	0.00402	0.0162	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	2	2	100%	0.0178	0.0294	NA	NA	NC	0.0294	M
Total PAHs, 0 DL	mg/kg	dw	2	2	100%	0.00402	0.0162	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	2	2	100%	0.03	0.0409	NA	NA	NC	0.0409	M
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	8	8	100%	0.0141	0.0336	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	8	8	100%	0.0162	0.0352	NA	NA	0.0297	0.0297	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	8	5	63%	0.000000541	0.000000705	0.00000083	0.00000576	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000146	0.0000029	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000155	0.00000291	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000191	0.00000615	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.00000011	0.00000223	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.0000002	0.00000767	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000109	0.00000228	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000193	0.00000681	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000151	0.00000348	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000176	0.0000038	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.00000018	0.00000472	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000118	0.00000274	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000161	0.00000447	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000202	0.00000334	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	8	4	50%	0.00000109	0.00000187	0.000000845	0.00000217	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.00000218	0.0000107	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	8	2	25%	0.000000693	0.000000766	0.000000352	0.00000735	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	8	5	63%	6.95E-10	0.00000187	0	0	NA	NA	

Table A-9e. Summary Statistics for Small Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	8	5	63%	0.0000012	0.0000023	0.00000152	0.00000745	NC	0.0000023	M
Dioxin TEQ, fish, 0 DL	mg/kg	dw	8	5	63%	6.95E-10	9.45E-08	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	8	5	63%	0.000000433	0.000000715	0.000000919	0.0000063	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	8	5	63%	6.4E-09	0.000000193	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	8	5	63%	0.00000044	0.000000665	0.000000842	0.00000541	NC	6.65E-07	M
PBDEs												
PBDE 17	mg/kg	dw	2	2	100%	0.0000202	0.0000378	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	2	2	100%	0.000254	0.00034	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	2	2	100%	0.0083	0.0104	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	2	2	100%	0.000286	0.00051	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	2	2	100%	0.00000753	0.000258	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	2	0	0%	NA	NA	0.000000236	0.00000049	NA	NA	
PBDE 85	mg/kg	dw	2	2	100%	0.00000474	0.00000732	NA	NA	NA	NA	
PBDE 99	mg/kg	dw	2	2	100%	0.0001	0.0038	NA	NA	NA	NA	
PBDE 100	mg/kg	dw	2	2	100%	0.00109	0.00153	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	2	0	0%	NA	NA	0.00000146	0.00000177	NA	NA	
PBDE 138	mg/kg	dw	2	2	100%	0.00000146	0.00000234	NA	NA	NA	NA	
PBDE 153	mg/kg	dw	2	2	100%	0.000145	0.000328	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	2	2	100%	0.000292	0.000372	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	2	2	100%	0.00000794	0.0000128	NA	NA	NA	NA	
PBDE 184	mg/kg	dw	2	2	100%	0.0000018	0.00000238	NA	NA	NA	NA	
PBDE 190 and 171	mg/kg	dw	2	0	0%	NA	NA	0.000000939	0.00000106	NA	NA	
PBDE 191	mg/kg	dw	2	0	0%	NA	NA	0.000000808	0.000000915	NA	NA	
PBDE 200 and 203	mg/kg	dw	2	1	50%	0.00000605	0.00000605	0.00000228	0.00000228	NA	NA	
PBDE 206	mg/kg	dw	2	2	100%	0.0000243	0.0000329	NA	NA	NA	NA	
PBDE 209	mg/kg	dw	2	2	100%	0.000843	0.00148	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-9f. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	13	13	100%	18.9	245	NA	NA	110	110	
Antimony	mg/kg	dw	13	8	62%	0.016	0.403	0.00823	0.0262	0.191	0.191	
Arsenic	mg/kg	dw	13	13	100%	0.31	1.3	NA	NA	0.875	0.875	
Barium	mg/kg	dw	13	13	100%	2.05	17.8	NA	NA	8.85	8.85	
Beryllium	mg/kg	dw	13	2	15%	0.0082	0.0152	0.00379	0.00412	NC	0.0152	M
Boron	mg/kg	dw	6	1	17%	2.41	2.41	0.397	2.6	NA	NA	
Cadmium	mg/kg	dw	13	13	100%	0.0576	1.27	NA	NA	0.466	0.466	
Calcium	mg/kg	dw	13	13	100%	28600	50900	NA	NA	NA	NA	
Chromium	mg/kg	dw	13	13	100%	0.51	23.6	NA	NA	11.6	11.6	
Cobalt	mg/kg	dw	13	13	100%	0.0905	0.622	NA	NA	0.299	0.299	
Copper	mg/kg	dw	13	13	100%	2.06	12.4	NA	NA	7.38	7.38	
Gold	mg/kg	dw	6	0	0%	NA	NA	0.0285	0.0317	NA	NA	
Iron	mg/kg	dw	13	13	100%	39.1	496	NA	NA	180	180	
Lead	mg/kg	dw	13	11	85%	0.0551	0.63	0.0754	0.121	0.234	0.234	
Magnesium	mg/kg	dw	13	13	100%	1330	2790	NA	NA	NA	NA	
Manganese	mg/kg	dw	13	13	100%	6.46	35.2	NA	NA	15.2	15.2	
Mercury	mg/kg	dw	13	13	100%	0.0824	0.547	NA	NA	0.258	0.258	
Molybdenum	mg/kg	dw	13	9	69%	0.0412	0.533	0.0787	0.131	0.207	0.207	
Nickel	mg/kg	dw	13	12	92%	0.7	12.8	2.94	2.94	6.86	6.86	
Potassium	mg/kg	dw	13	13	100%	10700	22600	NA	NA	NA	NA	
Selenium	mg/kg	dw	13	13	100%	1.25	1.82	NA	NA	1.58	1.58	
Silver	mg/kg	dw	13	1	8%	0.0391	0.0391	0.00189	0.0118	NC	0.0391	M
Sodium	mg/kg	dw	13	13	100%	3150	5610	NA	NA	NA	NA	
Thallium	mg/kg	dw	13	13	100%	0.0902	0.254	NA	NA	0.185	0.185	
Tin	mg/kg	dw	6	3	50%	0.0391	0.795	0.0216	0.119	NA	NA	
Uranium	mg/kg	dw	13	12	92%	0.00285	0.0409	0.00206	0.00206	0.0245	0.0245	
Vanadium	mg/kg	dw	13	12	92%	0.0766	1.48	0.0823	0.0823	0.733	0.733	
Zinc	mg/kg	dw	13	13	100%	53.9	171	NA	NA	97	97	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	6	2	33%	0.00304	0.00394	0.00285	0.00317	NA	NA	
Cerium	mg/kg	dw	6	6	100%	0.0349	1.18	NA	NA	NA	NA	
Cesium	mg/kg	dw	6	6	100%	0.0754	0.191	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	6	3	50%	0.00303	0.0478	0.00285	0.00317	NA	NA	
Erbium	mg/kg	dw	6	2	33%	0.00315	0.027	0.00285	0.00317	NA	NA	
Europium	mg/kg	dw	6	2	33%	0.00394	0.0217	0.00285	0.00317	NA	NA	
Gadolinium	mg/kg	dw	6	2	33%	0.00787	0.0783	0.00758	0.00862	NA	NA	
Gallium	mg/kg	dw	6	6	100%	0.0191	0.175	NA	NA	NA	NA	
Germanium	mg/kg	dw	6	6	100%	1.93	5	NA	NA	NA	NA	
Holmium	mg/kg	dw	6	1	17%	0.0087	0.0087	0.00189	0.00216	NA	NA	
Indium	mg/kg	dw	6	1	17%	0.00302	0.00302	0.00285	0.00317	NA	NA	
Lanthanum	mg/kg	dw	6	6	100%	0.019	0.626	NA	NA	NA	NA	
Lithium	mg/kg	dw	6	0	0%	NA	NA	0.285	0.317	NA	NA	
Lutetium	mg/kg	dw	6	1	17%	0.00304	0.00304	0.00189	0.00216	NA	NA	
Neodymium	mg/kg	dw	6	6	100%	0.0171	0.5	NA	NA	NA	NA	
Niobium	mg/kg	dw	6	1	17%	0.0197	0.0197	0.00862	0.087	NA	NA	
Praseodymium	mg/kg	dw	6	6	100%	0.00397	0.135	NA	NA	NA	NA	
Rubidium	mg/kg	dw	6	6	100%	11.7	36.7	NA	NA	NA	NA	
Samarium	mg/kg	dw	6	2	33%	0.013	0.0913	0.00407	0.00794	NA	NA	
Scandium	mg/kg	dw	6	6	100%	0.061	0.221	NA	NA	NA	NA	
Strontium	mg/kg	dw	6	6	100%	39.9	86.5	NA	NA	NA	NA	
Tellurium	mg/kg	dw	6	0	0%	NA	NA	0.0285	0.0317	NA	NA	

Table A-9f. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Terbium	mg/kg	dw	6	1	17%	0.0087	0.0087	0.00285	0.00317	NA	NA	
Thorium	mg/kg	dw	6	6	100%	0.00407	0.116	NA	NA	NA	NA	
Thulium	mg/kg	dw	5	0	0%	NA	NA	0.00285	0.00317	NA	NA	
Titanium	mg/kg	dw	6	6	100%	0.976	25.2	NA	NA	NA	NA	
Tungsten	mg/kg	dw	6	1	17%	0.087	0.087	0.0197	0.0407	NA	NA	
Ytterbium	mg/kg	dw	6	1	17%	0.0217	0.0217	0.00379	0.00431	NA	NA	
Yttrium	mg/kg	dw	6	6	100%	0.013	0.247	NA	NA	NA	NA	
Zirconium	mg/kg	dw	6	6	100%	0.0252	0.312	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	6	0	0%	NA	NA	0.00104	0.00384	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	6	0	0%	NA	NA	0.0239	0.0274	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	6	0	0%	NA	NA	0.0155	0.0178	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	6	0	0%	NA	NA	0.0174	0.02	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	6	0	0%	NA	NA	0.795	0.913	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	6	0	0%	NA	NA	0.795	0.913	NC	0.913	U
Dibenzofuran	mg/kg	dw	6	0	0%	NA	NA	0.0167	0.0191	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	6	0	0%	NA	NA	0.327	1.22	NC	1.22	U
Di-n-octylphthalate	mg/kg	dw	6	0	0%	NA	NA	0.0341	0.0391	NC	0.0391	U
Hexachlorocyclopentadiene	mg/kg	dw	6	0	0%	NA	NA	1.33	1.52	NA	NA	
Hexachloroethane	mg/kg	dw	6	0	0%	NA	NA	0.0606	0.0696	NA	NA	
Pentachlorophenol	mg/kg	dw	6	0	0%	NA	NA	0.017	0.0196	NC	0.0196	U
Pesticides												
2,4'-DDD	mg/kg	dw	6	0	0%	NA	NA	0.00277	0.0159	NA	NA	
2,4'-DDE	mg/kg	dw	6	0	0%	NA	NA	0.0014	0.00819	NA	NA	
2,4'-DDT	mg/kg	dw	6	3	50%	0.00186	0.00905	0.00114	0.00325	NA	NA	
4,4'-DDD	mg/kg	dw	6	0	0%	NA	NA	0.00208	0.0121	NA	NA	
4,4'-DDE	mg/kg	dw	6	4	67%	0.00568	0.0203	0.00787	0.00913	NA	NA	
4,4'-DDT	mg/kg	dw	6	0	0%	NA	NA	0.00193	0.0108	NA	NA	
Aldrin	mg/kg	dw	6	0	0%	NA	NA	0.0028	0.0159	NC	0.0159	U
alpha-Chlordane	mg/kg	dw	6	0	0%	NA	NA	0.000947	0.0056	NC	0.0056	U
Chlordane	mg/kg	dw	6	0	0%	NA	NA	0.022	0.0862	NA	NA	
cis-Nonachlor	mg/kg	dw	6	0	0%	NA	NA	0.0011	0.00647	NC	0.00647	U
delta-BHC	mg/kg	dw	6	0	0%	NA	NA	0.000758	0.00431	NC	0.00431	U
Dieldrin	mg/kg	dw	6	2	33%	0.0011	0.00335	0.000758	0.00431	NC	0.00335	M
Endrin	mg/kg	dw	6	0	0%	NA	NA	0.00106	0.00603	NC	0.00603	U
Endrin aldehyde	mg/kg	dw	6	0	0%	NA	NA	0.00235	0.0134	NC	0.0134	U
Endrin ketone	mg/kg	dw	6	0	0%	NA	NA	0.00148	0.00862	NC	0.00862	U
gamma-Chlordane	mg/kg	dw	6	0	0%	NA	NA	0.000985	0.0056	NC	0.0056	U
Heptachlor	mg/kg	dw	6	0	0%	NA	NA	0.00102	0.00603	NC	0.00603	U
Heptachlor epoxide	mg/kg	dw	6	1	17%	0.00114	0.00114	0.000682	0.00388	NC	0.00114	M
Hexachlorobenzene	mg/kg	dw	6	3	50%	0.00273	0.00783	0.00754	0.00819	NC	0.00783	M
Hexachlorobutadiene	mg/kg	dw	6	0	0%	NA	NA	0.00114	0.00647	NC	0.00647	U
Methoxychlor	mg/kg	dw	6	0	0%	NA	NA	0.00182	0.0103	NC	0.0103	U
Oxychlordane	mg/kg	dw	6	0	0%	NA	NA	0.00148	0.013	NC	0.013	U
Total chlordane, 0 DL	mg/kg	dw	6	0	0%	NA	NA	0.00148	0.013	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	6	0	0%	NA	NA	0.00148	0.013	NC	0.013	U
Total DDD, 0 DL	mg/kg	dw	6	0	0%	NA	NA	0.00277	0.0159	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	6	0	0%	NA	NA	0.00277	0.0159	NA	NA	
Total DDE, 0 DL	mg/kg	dw	6	4	67%	0.00568	0.0203	0.00787	0.00913	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	6	4	67%	0.0064	0.0244	0.00787	0.00913	NA	NA	
Total DDT, 0 DL	mg/kg	dw	6	3	50%	0.00186	0.00905	0.00193	0.0102	NA	NA	

Table A-9f. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDT, 1/2 DL	mg/kg	dw	6	3	50%	0.00314	0.0144	0.00193	0.0102	NA	NA	
Total DDx, 0 DL	mg/kg	dw	6	4	67%	0.00754	0.0293	0.00787	0.0147	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	6	4	67%	0.012	0.053	0.00787	0.0147	NC	0.053	M
Toxaphene	mg/kg	dw	6	0	0%	NA	NA	0.0827	0.28	NA	NA	
trans-Nonachlor	mg/kg	dw	6	0	0%	NA	NA	0.00102	0.00603	NC	0.00603	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	6	5	83%	0.00435	0.056	0.0065	0.0065	NA	NA	
Acenaphthene	mg/kg	dw	6	5	83%	0.0019	0.00295	0.000478	0.000478	NA	NA	
Acenaphthylene	mg/kg	dw	6	5	83%	0.00244	0.0181	0.000409	0.000409	NA	NA	
Anthracene	mg/kg	dw	6	1	17%	0.00185	0.00185	0.0015	0.0159	NA	NA	
Benzo(a)anthracene	mg/kg	dw	6	0	0%	NA	NA	0.00069	0.00325	NA	NA	
Benzo(a)pyrene	mg/kg	dw	6	0	0%	NA	NA	0.000263	0.00126	NC	0.00126	U
Benzo(b)fluoranthene	mg/kg	dw	6	0	0%	NA	NA	0.000603	0.00285	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	6	0	0%	NA	NA	0.00025	0.00118	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	6	0	0%	NA	NA	0.000397	0.00187	NA	NA	
Chrysene	mg/kg	dw	6	0	0%	NA	NA	0.000862	0.00407	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	6	0	0%	NA	NA	0.000194	0.000935	NA	NA	
Fluoranthene	mg/kg	dw	6	0	0%	NA	NA	0.000647	0.00305	NA	NA	
Fluorene	mg/kg	dw	6	4	67%	0.00223	0.00474	0.000826	0.00195	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	6	0	0%	NA	NA	0.000431	0.00203	NA	NA	
Naphthalene	mg/kg	dw	6	4	67%	0.0472	0.0595	0.00609	0.00935	NA	NA	
Phenanthrene	mg/kg	dw	6	2	33%	0.00472	0.00905	0.00278	0.00732	NA	NA	
Pyrene	mg/kg	dw	6	0	0%	NA	NA	0.000517	0.00244	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	6	0	0%	NA	NA	0.000862	0.00407	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	6	0	0%	NA	NA	0.000862	0.00407	NC	0.00407	U
Total LPAHs, 0 DL	mg/kg	dw	6	6	100%	0.00435	0.148	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	6	6	100%	0.0105	0.148	NA	NA	0.132	0.132	
Total PAHs, 0 DL	mg/kg	dw	6	6	100%	0.00435	0.148	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	6	6	100%	0.0154	0.15	NA	NA	0.136	0.136	
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	11	11	100%	0.0128	0.0547	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	11	11	100%	0.0149	0.0578	NA	NA	0.0358	0.0358	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	11	3	27%	0.000000365	0.000000583	0.000000299	0.00000762	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	11	2	18%	0.000000137	0.000000186	0.00000014	0.00000421	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000136	0.00000449	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	11	0	0%	NA	NA	0.000000218	0.0000065	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000101	0.00000307	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	11	0	0%	NA	NA	0.000000222	0.00000697	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	9.76E-08	0.00000314	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	11	0	0%	NA	NA	0.000000208	0.00000701	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000144	0.00000417	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	11	0	0%	NA	NA	0.000000172	0.00000594	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000155	0.00000598	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000107	0.0000032	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000143	0.00000555	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	11	0	0%	NA	NA	0.00000019	0.00000378	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	11	7	64%	0.00000117	0.00000469	0.000000663	0.00000357	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	11	1	9%	0.00000199	0.00000199	0.00000171	0.0000145	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	11	0	0%	NA	NA	0.000000327	0.0000107	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	11	7	64%	0.00000117	0.00000469	0	0	NA	NA	

Table A-9f. Summary Statistics for Small Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	11	7	64%	0.00000147	0.00000849	0.000000803	0.0000107	5.11E-06	5.11E-06	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	11	7	64%	6.03E-08	0.000000235	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	11	7	64%	0.000000361	0.00000487	0.000000451	0.00000878	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	11	7	64%	0.000000122	0.000000469	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	11	7	64%	0.000000383	0.0000044	0.000000413	0.00000756	0.0000026	0.0000026	
PBDEs												
PBDE 17	mg/kg	dw	6	6	100%	0.0000197	0.0000478	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	6	6	100%	0.000201	0.000768	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	6	6	100%	0.00789	0.0351	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	6	6	100%	0.000406	0.00139	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	6	6	100%	0.0000107	0.000565	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	6	0	0%	NA	NA	0.000000184	0.000000696	NA	NA	
PBDE 85	mg/kg	dw	6	6	100%	0.00000268	0.0000254	NA	NA	NA	NA	
PBDE 99	mg/kg	dw	6	6	100%	0.000125	0.00511	NA	NA	NA	NA	
PBDE 100	mg/kg	dw	6	6	100%	0.00128	0.00616	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	6	0	0%	NA	NA	0.000000866	0.00000171	NA	NA	
PBDE 138	mg/kg	dw	6	5	83%	0.00000137	0.00000496	0.00000102	0.00000102	NA	NA	
PBDE 153	mg/kg	dw	6	6	100%	0.00015	0.00138	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	6	6	100%	0.000299	0.00158	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	6	5	83%	0.0000118	0.0000178	0.00000687	0.00000687	NA	NA	
PBDE 184	mg/kg	dw	6	5	83%	0.00000118	0.00000571	0.00000513	0.00000513	NA	NA	
PBDE 190 and 171	mg/kg	dw	6	0	0%	NA	NA	0.000000575	0.00000175	NA	NA	
PBDE 191	mg/kg	dw	6	0	0%	NA	NA	0.000000496	0.00000151	NA	NA	
PBDE 200 and 203	mg/kg	dw	6	3	50%	0.00000545	0.00000726	0.00000112	0.00000301	NA	NA	
PBDE 206	mg/kg	dw	6	5	83%	0.0000229	0.0000978	0.0000048	0.0000048	NA	NA	
PBDE 209	mg/kg	dw	6	6	100%	0.000331	0.00609	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10a. Summary Statistics for Medium Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	9	9	100%	0.69	43.3	NA	NA	26.3	26.3	
Antimony	mg/kg	ww	9	9	100%	0.0058	0.0888	NA	NA	0.059	0.059	
Arsenic	mg/kg	ww	9	8	89%	0.091	0.19	0.1	0.1	0.154	0.154	
Barium	mg/kg	ww	9	9	100%	0.404	4.38	NA	NA	2.76	2.76	
Beryllium	mg/kg	ww	9	3	33%	0.001	0.0026	0.001	0.002	NC	0.0026	M
Boron	mg/kg	ww	4	0	0%	NA	NA	0.05	0.3	NA	NA	
Cadmium	mg/kg	ww	9	9	100%	0.026	0.237	NA	NA	0.161	0.161	
Calcium	mg/kg	ww	9	9	100%	3640	12700	NA	NA	NA	NA	
Chromium	mg/kg	ww	9	8	89%	0.043	0.549	0.02	0.02	0.412	0.412	
Cobalt	mg/kg	ww	9	9	100%	0.023	0.111	NA	NA	0.064	0.064	
Copper	mg/kg	ww	9	9	100%	0.698	2.18	NA	NA	1.73	1.73	
Gold	mg/kg	ww	4	0	0%	NA	NA	0.007	0.008	NA	NA	
Iron	mg/kg	ww	9	9	100%	15.3	116	NA	NA	NA	NA	
Lead	mg/kg	ww	9	9	100%	0.01	2.02	NA	NA	1.67	1.67	
Magnesium	mg/kg	ww	9	9	100%	289	549	NA	NA	NA	NA	
Manganese	mg/kg	ww	9	9	100%	0.459	6.67	NA	NA	4.04	4.04	
Mercury	µg/kg	ww	9	9	100%	12.1	124	NA	NA	62.3	62.3	
Molybdenum	mg/kg	ww	9	2	22%	0.0167	0.02	0.009	0.051	NA	NA	
Nickel	mg/kg	ww	9	9	100%	0.074	0.38	NA	NA	0.227	0.227	
Potassium	mg/kg	ww	9	9	100%	2840	4420	NA	NA	NA	NA	
Selenium	mg/kg	ww	9	8	89%	0.403	0.824	0.303	0.303	0.646	0.646	
Silver	mg/kg	ww	9	6	67%	0.001	0.0058	0.002	0.0043	0.00457	0.00457	
Sodium	mg/kg	ww	9	9	100%	611	951	NA	NA	NA	NA	
Thallium	mg/kg	ww	9	9	100%	0.0086	0.0442	NA	NA	0.0332	0.0332	
Tin	mg/kg	ww	4	0	0%	NA	NA	0.003	0.028	NA	NA	
Uranium	mg/kg	ww	9	8	89%	0.0006	0.018	0.0006	0.0006	NA	NA	
Vanadium	mg/kg	ww	9	9	100%	0.02	0.15	NA	NA	0.0988	0.0988	
Zinc	mg/kg	ww	9	9	100%	19.4	30.5	NA	NA	26.1	26.1	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	4	2	50%	0.00133	0.002	0.0008	0.0008	NA	NA	
Cerium	mg/kg	ww	4	4	100%	0.0058	0.172	NA	NA	NA	NA	
Cesium	mg/kg	ww	4	4	100%	0.0143	0.0285	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	4	3	75%	0.001	0.007	0.0008	0.0008	NA	NA	
Erbium	mg/kg	ww	4	2	50%	0.00313	0.0035	0.0008	0.0008	NA	NA	
Europium	mg/kg	ww	4	3	75%	0.0008	0.00293	0.0008	0.0008	NA	NA	
Gadolinium	mg/kg	ww	4	3	75%	0.002	0.013	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	4	4	100%	0.00493	0.0213	NA	NA	NA	NA	
Germanium	mg/kg	ww	4	4	100%	0.577	0.777	NA	NA	NA	NA	
Holmium	mg/kg	ww	4	2	50%	0.000967	0.001	0.0005	0.0006	NA	NA	
Indium	mg/kg	ww	4	2	50%	0.002	0.0071	0.0008	0.0008	NA	NA	
Lanthanum	mg/kg	ww	4	4	100%	0.00533	0.104	NA	NA	NA	NA	
Lithium	mg/kg	ww	4	3	75%	0.09	0.2	0.07	0.07	NA	NA	
Lutetium	mg/kg	ww	4	0	0%	NA	NA	0.0005	0.0006	NA	NA	
Neodymium	mg/kg	ww	4	4	100%	0.00407	0.0763	NA	NA	NA	NA	
Niobium	mg/kg	ww	4	1	25%	0.02	0.02	0.003	0.02	NA	NA	
Praseodymium	mg/kg	ww	4	4	100%	0.001	0.02	NA	NA	NA	NA	
Rubidium	mg/kg	ww	4	4	100%	2.67	3.61	NA	NA	NA	NA	
Samarium	mg/kg	ww	4	3	75%	0.002	0.013	0.002	0.002	NA	NA	
Scandium	mg/kg	ww	4	2	50%	0.022	0.025	0.018	0.019	NA	NA	

Table A-10a. Summary Statistics for Medium Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	mg/kg	ww	4	4	100%	3.93	14.2	NA	NA	NA	NA	
Tellurium	mg/kg	ww	4	0	0%	NA	NA	0.007	0.008	NA	NA	
Terbium	mg/kg	ww	4	2	50%	0.001	0.001	0.0008	0.0008	NA	NA	
Thorium	mg/kg	ww	4	4	100%	0.002	0.0175	NA	NA	NA	NA	
Thulium	mg/kg	ww	2	0	0%	NA	NA	0.0007	0.0007	NA	NA	
Titanium	mg/kg	ww	4	4	100%	0.251	3.23	NA	NA	NA	NA	
Tungsten	mg/kg	ww	4	1	25%	0.008	0.008	0.006	0.035	NA	NA	
Ytterbium	mg/kg	ww	4	2	50%	0.0028	0.003	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	4	4	100%	0.00277	0.039	NA	NA	NA	NA	
Zirconium	mg/kg	ww	4	4	100%	0.005	0.0344	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	4	0	0%	NA	NA	0.35	1.7	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	4	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	4	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	4	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	4	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	4	0	0%	NA	NA	210	210	NC	210	U
Dibenzofuran	µg/kg	ww	4	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	4	1	25%	2000	2000	20	270	NC	2000	M
Di-n-octylphthalate	µg/kg	ww	4	0	0%	NA	NA	9	570	NC	570	U
Hexachlorocyclopentadiene	µg/kg	ww	4	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	4	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	4	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	4	0	0%	NA	NA	0.73	0.73	NA	NA	
2,4'-DDE	µg/kg	ww	4	0	0%	NA	NA	0.37	0.37	NA	NA	
2,4'-DDT	µg/kg	ww	4	2	50%	0.78	0.883	0.91	0.98	NA	NA	
4,4'-DDD	µg/kg	ww	4	0	0%	NA	NA	0.55	0.55	NA	NA	
4,4'-DDE	µg/kg	ww	4	4	100%	1.2	4.2	NA	NA	NA	NA	
4,4'-DDT	µg/kg	ww	4	1	25%	2	2	0.49	0.65	NA	NA	
Aldrin	µg/kg	ww	4	0	0%	NA	NA	0.74	0.74	NC	0.74	U
alpha-Chlordane	µg/kg	ww	4	0	0%	NA	NA	0.25	0.25	NC	0.25	U
Chlordane	µg/kg	ww	4	0	0%	NA	NA	3.4	4.6	NA	NA	
cis-Nonachlor	µg/kg	ww	4	0	0%	NA	NA	0.29	0.29	NC	0.29	U
delta-BHC	µg/kg	ww	4	0	0%	NA	NA	0.2	0.2	NC	0.2	U
Dieldrin	µg/kg	ww	4	1	25%	0.24	0.24	0.2	0.2	NC	0.24	M
Endosulfan sulfate	µg/kg	ww	2	0	0%	NA	NA	0.53	0.53	NA	NA	
Endrin	µg/kg	ww	4	0	0%	NA	NA	0.28	0.28	NC	0.28	U
Endrin aldehyde	µg/kg	ww	4	0	0%	NA	NA	0.62	0.62	NC	0.62	U
Endrin ketone	µg/kg	ww	4	0	0%	NA	NA	0.39	1.1	NC	1.1	U
gamma-Chlordane	µg/kg	ww	4	0	0%	NA	NA	0.26	0.26	NC	0.26	U
Heptachlor	µg/kg	ww	4	0	0%	NA	NA	0.27	0.44	NC	0.44	U
Heptachlor epoxide	µg/kg	ww	4	0	0%	NA	NA	0.18	0.35	NC	0.35	U
Hexachlorobenzene	µg/kg	ww	4	2	50%	1.1	3.6	0.86	0.91	NC	3.6	M
Hexachlorobutadiene	µg/kg	ww	4	0	0%	NA	NA	0.3	0.98	NC	0.98	U
Methoxychlor	µg/kg	ww	4	0	0%	NA	NA	0.48	0.48	NC	0.48	U
Oxychlordane	µg/kg	ww	4	0	0%	NA	NA	0.39	0.39	NC	0.39	U
Total chlordane, 0 DL	µg/kg	ww	4	0	0%	NA	NA	0.39	0.39	NC	0.39	U
Total chlordane, 1/2 DL	µg/kg	ww	4	0	0%	NA	NA	0.39	0.39	NC	0.39	U

Table A-10a. Summary Statistics for Medium Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 0 DL	µg/kg	ww	4	0	0%	NA	NA	0.73	0.73	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	4	0	0%	NA	NA	0.73	0.73	NA	NA	
Total DDE, 0 DL	µg/kg	ww	4	4	100%	1.2	4.2	NA	NA	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	4	4	100%	1.39	4.39	NA	NA	NA	NA	
Total DDT, 0 DL	µg/kg	ww	4	3	75%	0.78	2	0.98	0.98	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	4	3	75%	1.03	2.46	0.98	0.98	NA	NA	
Total DDx, 0 DL	µg/kg	ww	4	4	100%	1.67	6.2	NA	NA	NC	6.2	M
Total DDx, 1/2 DL	µg/kg	ww	4	4	100%	3.05	7.48	NA	NA	NC	7.48	M
Toxaphene	µg/kg	ww	4	0	0%	NA	NA	20	32	NA	NA	
trans-Nonachlor	µg/kg	ww	4	0	0%	NA	NA	0.27	0.27	NC	0.27	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	4	3	75%	1.6	27	0.63	0.63	NA	NA	
Acenaphthene	µg/kg	ww	4	4	100%	0.26	1.37	NA	NA	NA	NA	
Acenaphthylene	µg/kg	ww	4	3	75%	0.15	28	0.094	0.094	NA	NA	
Anthracene	µg/kg	ww	4	1	25%	1.7	1.7	0.38	0.95	NA	NA	
Benzo(a)anthracene	µg/kg	ww	4	0	0%	NA	NA	0.16	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	4	1	25%	0.53	0.53	0.061	0.13	NC	0.53	M
Benzo(b)fluoranthene	µg/kg	ww	4	0	0%	NA	NA	0.14	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	4	1	25%	0.65	0.65	0.058	0.12	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	4	1	25%	0.62	0.62	0.092	0.19	NA	NA	
Chrysene	µg/kg	ww	4	0	0%	NA	NA	0.2	18	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	4	0	0%	NA	NA	0.045	0.23	NA	NA	
Fluoranthene	µg/kg	ww	4	0	0%	NA	NA	0.16	3.2	NA	NA	
Fluorene	µg/kg	ww	4	4	100%	0.27	4.4	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	4	1	25%	0.83	0.83	0.1	0.2	NA	NA	
Naphthalene	µg/kg	ww	4	3	75%	1.4	50	0.93	0.93	NA	NA	
Phenanthrene	µg/kg	ww	4	4	100%	0.49	8.8	NA	NA	NA	NA	
Pyrene	µg/kg	ww	4	0	0%	NA	NA	0.12	4.3	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	4	1	25%	2.63	2.63	0.2	4.3	NC	2.63	M
Total HPAHs, 1/2 DL	µg/kg	ww	4	1	25%	13.8	13.8	0.2	4.3	NC	13.8	M
Total LPAHs, 0 DL	µg/kg	ww	4	4	100%	1.17	121	NA	NA	NC	121	M
Total LPAHs, 1/2 DL	µg/kg	ww	4	4	100%	2.19	121	NA	NA	NC	121	M
Total PAHs, 0 DL	µg/kg	ww	4	4	100%	1.17	121	NA	NA	NC	121	M
Total PAHs, 1/2 DL	µg/kg	ww	4	4	100%	2.75	126	NA	NA	NC	126	M
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	9	9	100%	6260	17700	NA	NA	12400	12400	
Total PCB congeners, 1/2 DL	pg/g	ww	9	9	100%	6760	17800	NA	NA	12500	12500	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	9	1	11%	0.412	0.412	0.106	1.7	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	9	1	11%	0.204	0.204	0.0935	0.727	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0922	0.766	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	9	0	0%	NA	NA	0.0849	1.76	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0351	0.573	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	9	0	0%	NA	NA	0.0681	1.77	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0507	0.528	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	9	0	0%	NA	NA	0.0828	2.04	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0774	0.826	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	9	0	0%	NA	NA	0.0439	0.867	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0318	0.802	NA	NA	

Table A-10a. Summary Statistics for Medium Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	9	0	0%	NA	NA	0.0547	0.608	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	9	3	33%	0.0456	0.0726	0.0646	0.744	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	9	1	11%	0.108	0.108	0.0366	1.01	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	9	8	89%	0.43	0.992	0.897	0.897	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	9	5	56%	0.293	0.853	0.0752	6.96	NA	NA	
Octachlorodibenzofuran	pg/g	ww	9	1	11%	0.482	0.482	0.0317	2.64	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	9	8	89%	0.43	1.15	0	0	0.844	0.844	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	9	8	89%	0.647	1.55	2.09	2.09	1.25	1.25	
Dioxin TEQ, fish, 0 DL	pg/g	ww	9	8	89%	0.0215	0.184	0	0	0.111	0.111	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	9	8	89%	0.149	1.01	1.76	1.76	0.972	0.972	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	9	8	89%	0.043	0.223	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	9	8	89%	0.165	0.896	1.53	1.53	0.855	0.855	
PBDEs												
PBDE 17	pg/g	ww	4	4	100%	1.97	13.3	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	4	4	100%	65.7	265	NA	NA	NA	NA	
PBDE 47	pg/g	ww	4	4	100%	2330	5300	NA	NA	NA	NA	
PBDE 49	pg/g	ww	4	4	100%	82	182	NA	NA	NA	NA	
PBDE 66	pg/g	ww	4	4	100%	1.91	135	NA	NA	NA	NA	
PBDE 71	pg/g	ww	4	0	0%	NA	NA	0.0441	0.457	NA	NA	
PBDE 85	pg/g	ww	4	3	75%	1.42	9.11	0.889	0.889	NA	NA	
PBDE 99	pg/g	ww	4	2	50%	2920	4210	5.84	6.53	NA	NA	
PBDE 100	pg/g	ww	4	4	100%	322	1230	NA	NA	NA	NA	
PBDE 128	pg/g	ww	4	0	0%	NA	NA	0.185	1.15	NA	NA	
PBDE 138	pg/g	ww	4	3	75%	0.201	9.26	0.121	0.121	NA	NA	
PBDE 153	pg/g	ww	4	4	100%	24.3	454	NA	NA	NA	NA	
PBDE 154	pg/g	ww	4	4	100%	67.7	337	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	4	3	75%	4.77	42.1	0.803	0.803	NA	NA	
PBDE 184	pg/g	ww	4	3	75%	0.495	11.5	0.0682	0.0682	NA	NA	
PBDE 190 and 171	pg/g	ww	4	1	25%	1.05	1.05	0.141	1.01	NA	NA	
PBDE 191	pg/g	ww	4	0	0%	NA	NA	0.121	0.95	NA	NA	
PBDE 200 and 203	pg/g	ww	4	2	50%	1.23	4.05	0.292	2.41	NA	NA	
PBDE 206	pg/g	ww	4	1	25%	4.14	4.14	2.97	3.65	NA	NA	
PBDE 209	pg/g	ww	4	4	100%	70.6	197	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
OU - operable unit
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10b. Summary Statistics for Medium Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	8	8	100%	1.3	26.9	NA	NA	15.7	15.7	
Antimony	mg/kg	ww	8	8	100%	0.0027	0.012	NA	NA	0.00912	0.00912	
Arsenic	mg/kg	ww	8	7	88%	0.075	0.173	0.05	0.05	0.143	0.143	
Barium	mg/kg	ww	8	8	100%	0.294	1.53	NA	NA	1.47	1.47	
Beryllium	mg/kg	ww	8	1	13%	0.001	0.001	0.0009	0.001	NC	0.001	M
Boron	mg/kg	ww	4	0	0%	NA	NA	0.05	0.2	NA	NA	
Cadmium	mg/kg	ww	8	8	100%	0.009	0.0549	NA	NA	0.0437	0.0437	
Calcium	mg/kg	ww	8	8	100%	3750	9070	NA	NA	NA	NA	
Chromium	mg/kg	ww	8	7	88%	0.028	0.287	0.02	0.02	0.163	0.163	
Cobalt	mg/kg	ww	8	8	100%	0.022	0.0395	NA	NA	0.036	0.036	
Copper	mg/kg	ww	8	8	100%	0.411	1.53	NA	NA	1.15	1.15	
Gold	mg/kg	ww	4	0	0%	NA	NA	0.007	0.02	NA	NA	
Iron	mg/kg	ww	8	8	100%	8.1	34.1	NA	NA	NA	NA	
Lead	mg/kg	ww	8	8	100%	0.0061	0.101	NA	NA	0.0929	0.0929	
Magnesium	mg/kg	ww	8	8	100%	293	406	NA	NA	NA	NA	
Manganese	mg/kg	ww	8	8	100%	0.58	5.14	NA	NA	2.95	2.95	
Mercury	µg/kg	ww	8	8	100%	30.9	133	NA	NA	90.5	90.5	
Molybdenum	mg/kg	ww	8	3	38%	0.007	0.03	0.01	0.035	NA	NA	
Nickel	mg/kg	ww	8	8	100%	0.07	0.19	NA	NA	0.172	0.172	
Potassium	mg/kg	ww	8	8	100%	3090	3500	NA	NA	NA	NA	
Selenium	mg/kg	ww	8	7	88%	0.37	0.558	0.399	0.399	0.482	0.482	
Silver	mg/kg	ww	8	4	50%	0.003	0.0044	0.0006	0.002	NC	0.0044	M
Sodium	mg/kg	ww	8	8	100%	607	859	NA	NA	NA	NA	
Thallium	mg/kg	ww	8	8	100%	0.0088	0.0493	NA	NA	0.0398	0.0398	
Tin	mg/kg	ww	4	0	0%	NA	NA	0.002	0.005	NA	NA	
Uranium	mg/kg	ww	8	4	50%	0.0006	0.0054	0.0005	0.0006	NA	NA	
Vanadium	mg/kg	ww	8	5	63%	0.02	0.0793	0.02	0.02	NC	0.0793	M
Zinc	mg/kg	ww	8	8	100%	13.2	21.2	NA	NA	20.1	20.1	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	4	2	50%	0.001	0.002	0.0007	0.0007	NA	NA	
Cerium	mg/kg	ww	4	2	50%	0.0027	0.08	0.001	0.001	NA	NA	
Cesium	mg/kg	ww	4	4	100%	0.017	0.0315	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	4	1	25%	0.003	0.003	0.0007	0.0008	NA	NA	
Erbium	mg/kg	ww	4	1	25%	0.001	0.001	0.0007	0.0008	NA	NA	
Europium	mg/kg	ww	4	1	25%	0.001	0.001	0.0007	0.0008	NA	NA	
Gadolinium	mg/kg	ww	4	1	25%	0.0047	0.0047	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	4	4	100%	0.0033	0.01	NA	NA	NA	NA	
Germanium	mg/kg	ww	4	4	100%	0.342	0.546	NA	NA	NA	NA	
Holmium	mg/kg	ww	4	1	25%	0.0005	0.0005	0.0005	0.0006	NA	NA	
Indium	mg/kg	ww	4	1	25%	0.001	0.001	0.0007	0.0008	NA	NA	
Lanthanum	mg/kg	ww	4	4	100%	0.0008	0.0457	NA	NA	NA	NA	
Lithium	mg/kg	ww	4	3	75%	0.2	0.3	0.07	0.07	NA	NA	
Lutetium	mg/kg	ww	4	0	0%	NA	NA	0.0005	0.0006	NA	NA	
Neodymium	mg/kg	ww	4	2	50%	0.002	0.0311	0.001	0.001	NA	NA	
Niobium	mg/kg	ww	4	0	0%	NA	NA	0.002	0.02	NA	NA	
Praseodymium	mg/kg	ww	4	1	25%	0.0089	0.0089	0.0007	0.0008	NA	NA	
Rubidium	mg/kg	ww	3	3	100%	3.66	6.59	NA	NA	NA	NA	
Samarium	mg/kg	ww	4	1	25%	0.0047	0.0047	0.001	0.002	NA	NA	
Scandium	mg/kg	ww	4	1	25%	0.019	0.019	0.014	0.02	NA	NA	

Table A-10b. Summary Statistics for Medium Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	mg/kg	ww	4	4	100%	3.91	13	NA	NA	NA	NA	
Tellurium	mg/kg	ww	4	0	0%	NA	NA	0.007	0.008	NA	NA	
Terbium	mg/kg	ww	4	0	0%	NA	NA	0.0007	0.0008	NA	NA	
Thorium	mg/kg	ww	4	2	50%	0.002	0.0082	0.001	0.001	NA	NA	
Thulium	mg/kg	ww	1	0	0%	NA	NA	0.0007	0.0007	NA	NA	
Titanium	mg/kg	ww	1	1	100%	1.54	1.54	NA	NA	NA	NA	
Tungsten	mg/kg	ww	4	0	0%	NA	NA	0.005	0.02	NA	NA	
Ytterbium	mg/kg	ww	4	1	25%	0.001	0.001	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	4	1	25%	0.015	0.015	0.001	0.002	NA	NA	
Zirconium	mg/kg	ww	4	3	75%	0.02	0.406	0.003	0.003	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	2	0	0%	NA	NA	0.42	0.6	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	2	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	2	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	2	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	2	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	2	0	0%	NA	NA	210	210	NC	210	U
Dibenzofuran	µg/kg	ww	2	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	2	0	0%	NA	NA	340	2100	NC	2100	U
Di-n-octylphthalate	µg/kg	ww	2	0	0%	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	µg/kg	ww	2	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	2	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	2	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	2	0	0%	NA	NA	0.73	0.73	NA	NA	
2,4'-DDE	µg/kg	ww	2	0	0%	NA	NA	0.37	0.37	NA	NA	
2,4'-DDT	µg/kg	ww	2	0	0%	NA	NA	0.16	0.16	NA	NA	
4,4'-DDD	µg/kg	ww	2	0	0%	NA	NA	0.55	0.55	NA	NA	
4,4'-DDE	µg/kg	ww	2	1	50%	1.3	1.3	1.7	1.7	NA	NA	
4,4'-DDT	µg/kg	ww	2	0	0%	NA	NA	0.49	0.63	NA	NA	
Aldrin	µg/kg	ww	2	0	0%	NA	NA	0.74	1.2	NC	1.2	U
alpha-Chlordane	µg/kg	ww	2	0	0%	NA	NA	0.25	0.25	NC	0.25	U
Chlordane	µg/kg	ww	2	0	0%	NA	NA	4.3	9.6	NA	NA	
cis-Nonachlor	µg/kg	ww	2	0	0%	NA	NA	0.29	0.29	NC	0.29	U
delta-BHC	µg/kg	ww	2	0	0%	NA	NA	0.2	0.2	NC	0.2	U
Dieldrin	µg/kg	ww	2	0	0%	NA	NA	0.2	0.2	NC	0.2	U
Endosulfan sulfate	µg/kg	ww	1	0	0%	NA	NA	0.53	0.53	NA	NA	
Endrin	µg/kg	ww	2	0	0%	NA	NA	0.28	0.28	NC	0.28	U
Endrin aldehyde	µg/kg	ww	2	0	0%	NA	NA	0.62	0.62	NC	0.62	U
Endrin ketone	µg/kg	ww	2	0	0%	NA	NA	0.39	0.39	NC	0.39	U
gamma-Chlordane	µg/kg	ww	2	0	0%	NA	NA	0.26	0.26	NC	0.26	U
Heptachlor	µg/kg	ww	2	0	0%	NA	NA	0.27	0.96	NC	0.96	U
Heptachlor epoxide	µg/kg	ww	2	1	50%	0.26	0.26	0.18	0.18	NC	0.26	M
Hexachlorobenzene	µg/kg	ww	2	0	0%	NA	NA	0.96	1.3	NC	1.3	U
Hexachlorobutadiene	µg/kg	ww	2	0	0%	NA	NA	0.3	0.3	NC	0.3	U
Methoxychlor	µg/kg	ww	2	0	0%	NA	NA	0.48	0.48	NC	0.48	U
Oxychlordane	µg/kg	ww	2	0	0%	NA	NA	0.39	0.39	NC	0.39	U
Total chlordane, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.39	0.39	NC	0.39	U
Total chlordane, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.39	0.39	NC	0.39	U

Table A-10b. Summary Statistics for Medium Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.73	0.73	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.73	0.73	NA	NA	
Total DDE, 0 DL	µg/kg	ww	2	1	50%	1.3	1.3	1.7	1.7	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	2	1	50%	1.49	1.49	1.7	1.7	NA	NA	
Total DDT, 0 DL	µg/kg	ww	2	0	0%	NA	NA	0.49	0.63	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	0.49	0.63	NA	NA	
Total DDx, 0 DL	µg/kg	ww	2	1	50%	1.3	1.3	1.7	1.7	NC	1.3	M
Total DDx, 1/2 DL	µg/kg	ww	2	1	50%	2.52	2.52	1.7	1.7	NC	2.52	M
Toxaphene	µg/kg	ww	2	0	0%	NA	NA	23	26	NA	NA	
trans-Nonachlor	µg/kg	ww	2	0	0%	NA	NA	0.27	0.27	NC	0.27	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	2	1	50%	3.2	3.2	0.68	0.68	NA	NA	
Acenaphthene	µg/kg	ww	2	1	50%	0.56	0.56	0.26	0.26	NA	NA	
Acenaphthylene	µg/kg	ww	2	1	50%	0.2	0.2	0.24	0.24	NA	NA	
Anthracene	µg/kg	ww	2	0	0%	NA	NA	2.5	3.7	NA	NA	
Benzo(a)anthracene	µg/kg	ww	2	0	0%	NA	NA	0.16	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	2	0	0%	NA	NA	0.061	0.31	NC	0.31	U
Benzo(b)fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.14	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	2	0	0%	NA	NA	0.058	0.29	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.092	0.46	NA	NA	
Chrysene	µg/kg	ww	2	0	0%	NA	NA	1	17	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	2	0	0%	NA	NA	0.045	0.23	NA	NA	
Fluoranthene	µg/kg	ww	2	0	0%	NA	NA	0.15	0.75	NA	NA	
Fluorene	µg/kg	ww	2	1	50%	0.74	0.74	0.48	0.48	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	2	0	0%	NA	NA	0.1	0.5	NA	NA	
Naphthalene	µg/kg	ww	2	0	0%	NA	NA	0.88	1.3	NA	NA	
Phenanthrene	µg/kg	ww	2	1	50%	1.5	1.5	1.7	1.7	NA	NA	
Pyrene	µg/kg	ww	2	0	0%	NA	NA	0.12	0.6	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	2	0	0%	NA	NA	1	17	NC	17	U
Total HPAHs, 1/2 DL	µg/kg	ww	2	0	0%	NA	NA	1	17	NC	17	U
Total LPAHs, 0 DL	µg/kg	ww	2	2	100%	3	3.2	NA	NA	NC	3.2	M
Total LPAHs, 1/2 DL	µg/kg	ww	2	2	100%	5.03	7.04	NA	NA	NC	7.04	M
Total PAHs, 0 DL	µg/kg	ww	2	2	100%	3	3.2	NA	NA	NC	3.2	M
Total PAHs, 1/2 DL	µg/kg	ww	2	2	100%	9.86	14	NA	NA	NC	14	M
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	8	8	100%	3510	7800	NA	NA	7310	7310	
Total PCB congeners, 1/2 DL	pg/g	ww	8	8	100%	4050	7890	NA	NA	7410	7410	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	8	2	25%	0.173	0.412	0.115	1.15	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.028	0.52	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0645	0.505	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0986	0.772	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0462	0.279	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0801	0.749	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0467	0.3	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.094	0.76	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0688	0.44	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	8	0	0%	NA	NA	0.0527	0.479	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.056	0.488	NA	NA	

Table A-10b. Summary Statistics for Medium Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0509	0.313	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	8	0	0%	NA	NA	0.0528	0.43	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	8	1	13%	0.0724	0.0724	0.0384	0.564	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	8	7	88%	0.297	0.751	0.697	0.697	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	8	5	63%	0.219	0.692	0.146	2.54	NA	NA	
Octachlorodibenzofuran	pg/g	ww	8	2	25%	0.183	0.212	0.0552	1.47	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	8	7	88%	0.198	0.751	0	0	0.524	0.524	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	8	7	88%	0.467	1.24	0.484	0.484	0.857	0.857	
Dioxin TEQ, fish, 0 DL	pg/g	ww	8	7	88%	0.01	0.0434	0	0	0.0312	0.0312	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	8	7	88%	0.134	0.932	0.161	0.161	0.726	0.726	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	8	7	88%	0.021	0.0752	0	0	0.0566	0.0566	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	8	7	88%	0.14	0.82	0.157	0.157	0.641	0.641	
PBDEs												
PBDE 17	pg/g	ww	2	2	100%	8.91	13.4	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	2	2	100%	115	137	NA	NA	NA	NA	
PBDE 47	pg/g	ww	2	2	100%	2910	6530	NA	NA	NA	NA	
PBDE 49	pg/g	ww	2	2	100%	127	264	NA	NA	NA	NA	
PBDE 66	pg/g	ww	2	2	100%	6.08	115	NA	NA	NA	NA	
PBDE 71	pg/g	ww	2	0	0%	NA	NA	0.0738	0.277	NA	NA	
PBDE 85	pg/g	ww	2	2	100%	0.742	3.51	NA	NA	NA	NA	
PBDE 99	pg/g	ww	2	2	100%	68.6	2150	NA	NA	NA	NA	
PBDE 100	pg/g	ww	2	2	100%	442	1280	NA	NA	NA	NA	
PBDE 128	pg/g	ww	2	0	0%	NA	NA	0.238	0.386	NA	NA	
PBDE 138	pg/g	ww	2	1	50%	0.744	0.744	0.275	0.275	NA	NA	
PBDE 153	pg/g	ww	2	2	100%	56.6	349	NA	NA	NA	NA	
PBDE 154	pg/g	ww	2	2	100%	109	307	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	2	0	0%	NA	NA	0.821	2.81	NA	NA	
PBDE 184	pg/g	ww	2	2	100%	0.625	3.42	NA	NA	NA	NA	
PBDE 190 and 171	pg/g	ww	2	0	0%	NA	NA	0.175	0.202	NA	NA	
PBDE 191	pg/g	ww	2	0	0%	NA	NA	0.151	0.188	NA	NA	
PBDE 200 and 203	pg/g	ww	2	0	0%	NA	NA	0.325	0.704	NA	NA	
PBDE 206	pg/g	ww	2	2	100%	5.42	5.53	NA	NA	NA	NA	
PBDE 209	pg/g	ww	2	2	100%	186	415	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10c. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	15	15	100%	1.1	54.3	NA	NA	29.6	29.6	
Antimony	mg/kg	ww	15	14	93%	0.002	0.021	0.002	0.002	0.0112	0.0112	
Arsenic	mg/kg	ww	15	15	100%	0.075	0.258	NA	NA	0.157	0.157	
Barium	mg/kg	ww	15	15	100%	0.425	2.01	NA	NA	1.05	1.05	
Beryllium	mg/kg	ww	15	2	13%	0.002	0.002	0.0009	0.001	NC	0.002	M
Boron	mg/kg	ww	10	0	0%	NA	NA	0.05	0.5	NA	NA	
Cadmium	mg/kg	ww	15	15	100%	0.0111	0.0804	NA	NA	0.0413	0.0413	
Calcium	mg/kg	ww	15	15	100%	2720	9440	NA	NA	NA	NA	
Chromium	mg/kg	ww	15	12	80%	0.02	0.35	0.02	0.02	0.213	0.213	
Cobalt	mg/kg	ww	15	15	100%	0.02	0.0686	NA	NA	0.0418	0.0418	
Copper	mg/kg	ww	15	15	100%	0.427	2.09	NA	NA	1.23	1.23	
Gold	mg/kg	ww	10	0	0%	NA	NA	0.007	0.01	NA	NA	
Iron	mg/kg	ww	15	15	100%	6.3	63	NA	NA	NA	NA	
Lead	mg/kg	ww	15	12	80%	0.0064	0.0683	0.0088	0.01	0.0325	0.0325	
Magnesium	mg/kg	ww	15	15	100%	293	423	NA	NA	NA	NA	
Manganese	mg/kg	ww	15	15	100%	0.59	4.4	NA	NA	2.12	2.12	
Mercury	µg/kg	ww	15	15	100%	20.7	140	NA	NA	85.2	85.2	
Molybdenum	mg/kg	ww	15	8	53%	0.008	0.06	0.01	0.028	NA	NA	
Nickel	mg/kg	ww	15	15	100%	0.063	0.2	NA	NA	0.158	0.158	
Potassium	mg/kg	ww	15	15	100%	2670	3600	NA	NA	NA	NA	
Selenium	mg/kg	ww	15	15	100%	0.23	0.516	NA	NA	0.425	0.425	
Silver	mg/kg	ww	15	6	40%	0.003	0.0052	0.0005	0.0028	0.00307	0.00307	
Sodium	mg/kg	ww	15	15	100%	590	894	NA	NA	NA	NA	
Thallium	mg/kg	ww	15	15	100%	0.021	0.0542	NA	NA	0.039	0.039	
Tin	mg/kg	ww	10	1	10%	0.083	0.083	0.002	0.005	NA	NA	
Uranium	mg/kg	ww	15	14	93%	0.0005	0.0046	0.0005	0.0005	NA	NA	
Vanadium	mg/kg	ww	15	11	73%	0.02	0.13	0.02	0.02	0.0565	0.0565	
Zinc	mg/kg	ww	15	15	100%	12.1	24	NA	NA	18.9	18.9	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	10	4	40%	0.0008	0.002	0.0007	0.0009	NA	NA	
Cerium	mg/kg	ww	10	8	80%	0.0015	0.133	0.001	0.001	NA	NA	
Cesium	mg/kg	ww	10	10	100%	0.015	0.0492	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	10	2	20%	0.0041	0.0051	0.0007	0.0009	NA	NA	
Erbium	mg/kg	ww	10	2	20%	0.002	0.0026	0.0007	0.0009	NA	NA	
Europium	mg/kg	ww	10	2	20%	0.002	0.002	0.0007	0.0009	NA	NA	
Gadolinium	mg/kg	ww	10	2	20%	0.0061	0.009	0.002	0.002	NA	NA	
Gallium	mg/kg	ww	10	10	100%	0.0037	0.02	NA	NA	NA	NA	
Germanium	mg/kg	ww	10	10	100%	0.31	0.618	NA	NA	NA	NA	
Holmium	mg/kg	ww	10	2	20%	0.0008	0.0009	0.0005	0.0006	NA	NA	
Indium	mg/kg	ww	10	0	0%	NA	NA	0.0007	0.0009	NA	NA	
Lanthanum	mg/kg	ww	10	8	80%	0.00133	0.0709	0.0008	0.0008	NA	NA	
Lithium	mg/kg	ww	10	9	90%	0.08	0.3	0.07	0.07	NA	NA	
Lutetium	mg/kg	ww	10	0	0%	NA	NA	0.0005	0.0006	NA	NA	
Neodymium	mg/kg	ww	10	8	80%	0.001	0.0566	0.001	0.001	NA	NA	
Niobium	mg/kg	ww	10	1	10%	0.026	0.026	0.002	0.01	NA	NA	
Praseodymium	mg/kg	ww	10	5	50%	0.001	0.015	0.0007	0.0009	NA	NA	
Rubidium	mg/kg	ww	10	10	100%	2.7	8.72	NA	NA	NA	NA	
Samarium	mg/kg	ww	10	2	20%	0.0074	0.01	0.001	0.002	NA	NA	
Scandium	mg/kg	ww	10	2	20%	0.025	0.0291	0.014	0.023	NA	NA	
Strontium	mg/kg	ww	10	10	100%	5.16	13.4	NA	NA	NA	NA	

Table A-10c. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Tellurium	mg/kg	ww	10	0	0%	NA	NA	0.007	0.009	NA	NA	
Terbium	mg/kg	ww	10	2	20%	0.0008	0.001	0.0007	0.0009	NA	NA	
Thorium	mg/kg	ww	10	6	60%	0.002	0.02	0.001	0.001	NA	NA	
Thulium	mg/kg	ww	2	0	0%	NA	NA	0.0007	0.0008	NA	NA	
Titanium	mg/kg	ww	7	7	100%	0.027	3.3	NA	NA	NA	NA	
Tungsten	mg/kg	ww	10	0	0%	NA	NA	0.005	0.061	NA	NA	
Ytterbium	mg/kg	ww	10	2	20%	0.002	0.002	0.001	0.001	NA	NA	
Yttrium	mg/kg	ww	10	5	50%	0.003	0.025	0.001	0.002	NA	NA	
Zirconium	mg/kg	ww	10	7	70%	0.0048	0.0441	0.001	0.002	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	7	0	0%	NA	NA	0.45	0.67	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	7	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	7	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	7	0	0%	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	7	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	7	1	14%	1700	1700	210	210	NC	1700	M
Dibenzofuran	µg/kg	ww	7	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	7	0	0%	NA	NA	130	2200	NC	2200	U
Di-n-octylphthalate	µg/kg	ww	7	0	0%	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	µg/kg	ww	7	0	0%	NA	NA	350	350	NA	NA	
Hexachloroethane	µg/kg	ww	7	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	7	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	7	0	0%	NA	NA	0.73	1.5	NA	NA	
2,4'-DDE	µg/kg	ww	7	0	0%	NA	NA	0.37	1	NA	NA	
2,4'-DDT	µg/kg	ww	7	4	57%	0.69	1.8	0.16	0.99	NA	NA	
4,4'-DDD	µg/kg	ww	7	0	0%	NA	NA	0.55	1.1	NA	NA	
4,4'-DDE	µg/kg	ww	7	4	57%	1.1	5.9	2	2.3	NA	NA	
4,4'-DDT	µg/kg	ww	7	4	57%	0.99	2.5	0.49	0.52	NA	NA	
Aldrin	µg/kg	ww	7	0	0%	NA	NA	0.74	2.2	NC	2.2	U
alpha-Chlordane	µg/kg	ww	7	1	14%	0.78	0.78	0.25	0.5	NC	0.78	M
Chlordane	µg/kg	ww	7	0	0%	NA	NA	3.3	16	NA	NA	
cis-Nonachlor	µg/kg	ww	7	0	0%	NA	NA	0.29	0.58	NC	0.58	U
delta-BHC	µg/kg	ww	7	0	0%	NA	NA	0.2	0.42	NC	0.42	U
Dieldrin	µg/kg	ww	7	0	0%	NA	NA	0.2	0.4	NC	0.4	U
Endosulfan sulfate	µg/kg	ww	5	0	0%	NA	NA	0.53	1.1	NA	NA	
Endrin	µg/kg	ww	7	0	0%	NA	NA	0.28	0.56	NC	0.56	U
Endrin aldehyde	µg/kg	ww	7	0	0%	NA	NA	0.62	1.3	NC	1.3	U
Endrin ketone	µg/kg	ww	7	0	0%	NA	NA	0.39	0.78	NC	0.78	U
gamma-Chlordane	µg/kg	ww	7	0	0%	NA	NA	0.26	0.52	NC	0.52	U
Heptachlor	µg/kg	ww	7	1	14%	0.79	0.79	0.27	1	NC	0.79	M
Heptachlor epoxide	µg/kg	ww	7	2	29%	0.4	1.1	0.18	0.18	NC	1.1	M
Hexachlorobenzene	µg/kg	ww	7	3	43%	2.9	5	0.37	1	NC	5	M
Hexachlorobutadiene	µg/kg	ww	7	0	0%	NA	NA	0.3	2	NC	2	U
Methoxychlor	µg/kg	ww	7	0	0%	NA	NA	0.48	0.96	NC	0.96	U
Oxychlordane	µg/kg	ww	7	0	0%	NA	NA	0.39	0.78	NC	0.78	U
Total chlordane, 0 DL	µg/kg	ww	7	1	14%	0.78	0.78	0.39	1	NC	0.78	M
Total chlordane, 1/2 DL	µg/kg	ww	7	1	14%	1.75	1.75	0.39	1	NC	1.75	M
Total DDD, 0 DL	µg/kg	ww	7	0	0%	NA	NA	0.73	1.5	NA	NA	

Table A-10c. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 1/2 DL	µg/kg	ww	7	0	0%	NA	NA	0.73	1.5	NA	NA	
Total DDE, 0 DL	µg/kg	ww	7	4	57%	1.1	5.9	2	2.3	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	7	4	57%	1.29	6.27	2	2.3	NA	NA	
Total DDT, 0 DL	µg/kg	ww	7	4	57%	1.15	4.3	0.49	0.99	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	7	4	57%	1.36	4.3	0.49	0.99	NA	NA	
Total DDx, 0 DL	µg/kg	ww	7	6	86%	1.1	10.2	2.1	2.1	6.11	6.11	
Total DDx, 1/2 DL	µg/kg	ww	7	6	86%	2.25	11.9	2.1	2.1	7.62	7.62	
Toxaphene	µg/kg	ww	7	0	0%	NA	NA	22	41	NA	NA	
trans-Nonachlor	µg/kg	ww	7	0	0%	NA	NA	0.27	1	NC	1	U
PAHs												
2-Methylnaphthalene	µg/kg	ww	7	7	100%	1	3.83	NA	NA	NA	NA	
Acenaphthene	µg/kg	ww	7	6	86%	0.25	0.87	0.26	0.26	NA	NA	
Acenaphthylene	µg/kg	ww	7	6	86%	0.32	1.6	0.24	0.24	NA	NA	
Anthracene	µg/kg	ww	7	0	0%	NA	NA	0.19	8.9	NA	NA	
Benzo(a)anthracene	µg/kg	ww	7	0	0%	NA	NA	0.16	0.8	NA	NA	
Benzo(a)pyrene	µg/kg	ww	7	0	0%	NA	NA	0.061	0.31	NC	0.31	U
Benzo(b)fluoranthene	µg/kg	ww	7	0	0%	NA	NA	0.14	0.7	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	7	0	0%	NA	NA	0.058	0.95	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	7	0	0%	NA	NA	0.092	0.46	NA	NA	
Chrysene	µg/kg	ww	7	0	0%	NA	NA	0.2	2.9	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	7	0	0%	NA	NA	0.045	0.93	NA	NA	
Fluoranthene	µg/kg	ww	7	0	0%	NA	NA	0.15	1.2	NA	NA	
Fluorene	µg/kg	ww	7	4	57%	0.327	0.68	0.095	0.48	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	7	0	0%	NA	NA	0.1	1.2	NA	NA	
Naphthalene	µg/kg	ww	7	5	71%	1.8	5.7	0.77	2.5	NA	NA	
Phenanthrene	µg/kg	ww	7	4	57%	0.443	2.6	0.44	1.6	NA	NA	
Pyrene	µg/kg	ww	7	0	0%	NA	NA	0.12	0.6	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	7	0	0%	NA	NA	0.2	2.9	NC	2.9	U
Total HPAHs, 1/2 DL	µg/kg	ww	7	0	0%	NA	NA	0.2	2.9	NC	2.9	U
Total LPAHs, 0 DL	µg/kg	ww	7	7	100%	2.7	12.6	NA	NA	9.65	9.65	
Total LPAHs, 1/2 DL	µg/kg	ww	7	7	100%	6.22	13.5	NA	NA	11.5	11.5	
Total PAHs, 0 DL	µg/kg	ww	7	7	100%	2.7	12.6	NA	NA	9.65	9.65	
Total PAHs, 1/2 DL	µg/kg	ww	7	7	100%	6.78	17.5	NA	NA	13.8	13.8	
PCBs												
Total PCB congeners, 0 DL	pg/g	ww	15	15	100%	2690	45400	NA	NA	17100	17100	
Total PCB congeners, 1/2 DL	pg/g	ww	15	15	100%	3190	45500	NA	NA	16800	16800	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	15	2	13%	0.712	3.97	0.0936	1.03	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	15	2	13%	0.151	0.536	0.0661	0.554	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	15	0	0%	NA	NA	0.0381	0.62	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	15	0	0%	NA	NA	0.0125	0.886	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	15	0	0%	NA	NA	0.0398	0.334	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	15	0	0%	NA	NA	0.067	0.918	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	15	0	0%	NA	NA	0.0476	0.331	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	15	1	7%	0.00945	0.00945	0.0707	0.892	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	15	0	0%	NA	NA	0.0677	0.536	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	15	0	0%	NA	NA	0.0606	0.546	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	15	1	7%	0.0572	0.0572	0.0459	0.61	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	15	0	0%	NA	NA	0.0531	0.355	NA	NA	

Table A-10c. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	15	2	13%	0.0561	0.0841	0.0482	0.607	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	15	0	0%	NA	NA	0.018	0.587	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	15	13	87%	0.341	2.07	0.424	0.645	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	15	10	67%	0.135	36	0.116	1.87	NA	NA	
Octachlorodibenzofuran	pg/g	ww	15	5	33%	0.0867	2.03	0.0499	1.83	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	15	13	87%	0.341	2.07	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	15	13	87%	0.445	2.25	1.14	1.3	1.56	1.56	
Dioxin TEQ, fish, 0 DL	pg/g	ww	15	13	87%	0.0171	0.104	0	0	0.0584	0.0584	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	15	13	87%	0.121	0.268	0.96	0.985	0.19	0.19	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	15	13	87%	0.0342	0.207	0	0	0.114	0.114	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	15	13	87%	0.124	0.349	0.826	0.827	0.232	0.232	
PBDEs												
PBDE 17	pg/g	ww	7	7	100%	8.11	37.2	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	7	7	100%	104	230	NA	NA	NA	NA	
PBDE 47	pg/g	ww	7	7	100%	2830	13500	NA	NA	NA	NA	
PBDE 49	pg/g	ww	7	7	100%	112	538	NA	NA	NA	NA	
PBDE 66	pg/g	ww	7	7	100%	7.97	192	NA	NA	NA	NA	
PBDE 71	pg/g	ww	7	0	0%	NA	NA	0.0708	0.573	NA	NA	
PBDE 85	pg/g	ww	7	5	71%	0.469	6.66	0.525	0.668	NA	NA	
PBDE 99	pg/g	ww	7	5	71%	804	1880	12.4	14.3	NA	NA	
PBDE 100	pg/g	ww	7	7	100%	401	1920	NA	NA	NA	NA	
PBDE 128	pg/g	ww	7	0	0%	NA	NA	0.23	0.949	NA	NA	
PBDE 138	pg/g	ww	7	2	29%	1.47	2.15	0.12	0.588	NA	NA	
PBDE 153	pg/g	ww	7	7	100%	69	400	NA	NA	NA	NA	
PBDE 154	pg/g	ww	7	7	100%	139	460	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	7	0	0%	NA	NA	1.28	25.8	NA	NA	
PBDE 184	pg/g	ww	7	6	86%	0.655	9.65	0.509	0.509	NA	NA	
PBDE 190 and 171	pg/g	ww	7	0	0%	NA	NA	0.134	0.586	NA	NA	
PBDE 191	pg/g	ww	7	0	0%	NA	NA	0.115	0.546	NA	NA	
PBDE 200 and 203	pg/g	ww	7	2	29%	3.35	3.8	0.296	1.49	NA	NA	
PBDE 206	pg/g	ww	7	4	57%	2.14	5.72	2.52	3.86	NA	NA	
PBDE 209	pg/g	ww	7	6	86%	66.6	267	36.1	36.1	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10d. Summary Statistics for Medium Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	9	9	100%	2.51	187	NA	NA	210	187	M
Antimony	mg/kg	dw	9	9	100%	0.0188	0.223	NA	NA	0.138	0.138	
Arsenic	mg/kg	dw	9	8	89%	0.321	0.819	0.251	0.251	0.601	0.601	
Barium	mg/kg	dw	9	9	100%	1.17	18.9	NA	NA	11.2	11.2	
Beryllium	mg/kg	dw	9	3	33%	0.00478	0.0112	0.00283	0.00503	NC	0.0112	M
Boron	mg/kg	dw	4	0	0%	NA	NA	0.216	1.05	NA	NA	
Cadmium	mg/kg	dw	9	9	100%	0.0945	0.671	NA	NA	0.381	0.381	
Calcium	mg/kg	dw	9	9	100%	12800	42900	NA	NA	NA	NA	
Chromium	mg/kg	dw	9	8	89%	0.15	2.37	0.0727	0.0727	1.11	1.11	
Cobalt	mg/kg	dw	9	9	100%	0.0836	0.314	NA	NA	0.222	0.222	
Copper	mg/kg	dw	9	9	100%	1.98	7.93	NA	NA	6.3	6.3	
Gold	mg/kg	dw	4	0	0%	NA	NA	0.0281	0.0319	NA	NA	
Iron	mg/kg	dw	9	9	100%	43.3	500	NA	NA	432	432	
Lead	mg/kg	dw	9	9	100%	0.0364	9.67	NA	NA	8.16	8.16	
Magnesium	mg/kg	dw	9	9	100%	1040	1860	NA	NA	NA	NA	
Manganese	mg/kg	dw	9	9	100%	1.67	31.9	NA	NA	25	25	
Mercury	mg/kg	dw	9	9	100%	0.0377	0.312	NA	NA	0.19	0.19	
Molybdenum	mg/kg	dw	9	2	22%	0.0586	0.0797	0.0283	0.22	NC	0.0797	M
Nickel	mg/kg	dw	9	9	100%	0.269	1.03	NA	NA	0.795	0.795	
Potassium	mg/kg	dw	9	9	100%	10100	14100	NA	NA	NA	NA	
Selenium	mg/kg	dw	9	8	89%	1.41	2.49	1.45	1.45	2.09	2.09	
Silver	mg/kg	dw	9	6	67%	0.00283	0.025	0.00503	0.0171	0.019	0.019	
Sodium	mg/kg	dw	9	9	100%	2040	3810	NA	NA	NA	NA	
Thallium	mg/kg	dw	9	9	100%	0.0377	0.132	NA	NA	0.115	0.115	
Tin	mg/kg	dw	4	0	0%	NA	NA	0.0105	0.121	NA	NA	
Uranium	mg/kg	dw	9	8	89%	0.00218	0.0776	0.0021	0.0021	0.0384	0.0384	
Vanadium	mg/kg	dw	9	9	100%	0.0699	0.647	NA	NA	0.637	0.637	
Zinc	mg/kg	dw	9	9	100%	65.2	129	NA	NA	102	102	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	4	2	50%	0.00573	0.00862	0.00281	0.00319	NA	NA	
Cerium	mg/kg	dw	4	4	100%	0.0204	0.741	NA	NA	NA	NA	
Cesium	mg/kg	dw	4	4	100%	0.0502	0.123	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	4	3	75%	0.00398	0.0302	0.00281	0.00281	NA	NA	
Erbium	mg/kg	dw	4	2	50%	0.0135	0.0151	0.00281	0.00319	NA	NA	
Europium	mg/kg	dw	4	3	75%	0.00319	0.0126	0.00281	0.00281	NA	NA	
Gadolinium	mg/kg	dw	4	3	75%	0.00797	0.056	0.00702	0.00702	NA	NA	
Gallium	mg/kg	dw	4	4	100%	0.0173	0.0918	NA	NA	NA	NA	
Germanium	mg/kg	dw	4	4	100%	2.02	3.35	NA	NA	NA	NA	
Holmium	mg/kg	dw	4	2	50%	0.00417	0.00431	0.00199	0.00211	NA	NA	
Indium	mg/kg	dw	4	2	50%	0.00862	0.0306	0.00281	0.00319	NA	NA	
Lanthanum	mg/kg	dw	4	4	100%	0.0187	0.448	NA	NA	NA	NA	
Lithium	mg/kg	dw	4	3	75%	0.388	0.797	0.302	0.302	NA	NA	
Lutetium	mg/kg	dw	4	0	0%	NA	NA	0.00199	0.00216	NA	NA	
Neodymium	mg/kg	dw	4	4	100%	0.0143	0.329	NA	NA	NA	NA	
Niobium	mg/kg	dw	4	1	25%	0.0862	0.0862	0.0105	0.0862	NA	NA	
Praseodymium	mg/kg	dw	4	4	100%	0.00351	0.0862	NA	NA	NA	NA	
Rubidium	mg/kg	dw	4	4	100%	9.37	15.6	NA	NA	NA	NA	
Samarium	mg/kg	dw	4	3	75%	0.00797	0.056	0.00702	0.00702	NA	NA	
Scandium	mg/kg	dw	4	2	50%	0.0948	0.108	0.0632	0.0757	NA	NA	

Table A-10d. Summary Statistics for Medium Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	mg/kg	dw	4	4	100%	13.8	61.2	NA	NA	NA	NA	
Tellurium	mg/kg	dw	4	0	0%	NA	NA	0.0281	0.0319	NA	NA	
Terbium	mg/kg	dw	4	2	50%	0.00431	0.00431	0.00281	0.00319	NA	NA	
Thorium	mg/kg	dw	4	4	100%	0.00797	0.0754	NA	NA	NA	NA	
Thulium	mg/kg	dw	2	0	0%	NA	NA	0.00302	0.00302	NA	NA	
Titanium	mg/kg	dw	4	4	100%	0.881	13.9	NA	NA	NA	NA	
Tungsten	mg/kg	dw	4	1	25%	0.0319	0.0319	0.0211	0.151	NA	NA	
Ytterbium	mg/kg	dw	4	2	50%	0.0121	0.0129	0.00351	0.00398	NA	NA	
Yttrium	mg/kg	dw	4	4	100%	0.00972	0.168	NA	NA	NA	NA	
Zirconium	mg/kg	dw	4	4	100%	0.0199	0.148	NA	NA	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	4	0	0%	NA	NA	0.00139	0.00733	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	4	0	0%	NA	NA	0.0221	0.0272	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	4	0	0%	NA	NA	0.0144	0.0177	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	4	0	0%	NA	NA	0.0161	0.0198	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	4	0	0%	NA	NA	0.737	0.905	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	4	0	0%	NA	NA	0.737	0.905	NC	0.905	U
Dibenzofuran	mg/kg	dw	4	0	0%	NA	NA	0.0154	0.019	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	4	1	25%	7.02	7.02	0.0797	1.16	NC	7.02	M
Di-n-octylphthalate	mg/kg	dw	4	0	0%	NA	NA	0.0316	2.46	NC	2.46	U
Hexachlorocyclopentadiene	mg/kg	dw	4	0	0%	NA	NA	1.23	1.51	NA	NA	
Hexachloroethane	mg/kg	dw	4	0	0%	NA	NA	0.0561	0.069	NA	NA	
Pentachlorophenol	mg/kg	dw	4	0	0%	NA	NA	0.0158	0.0194	NC	0.0194	U
Pesticides												
2,4'-DDD	mg/kg	dw	4	0	0%	NA	NA	0.00256	0.00315	NA	NA	
2,4'-DDE	mg/kg	dw	4	0	0%	NA	NA	0.0013	0.00159	NA	NA	
2,4'-DDT	mg/kg	dw	4	2	50%	0.0031	0.00336	0.00363	0.00422	NA	NA	
4,4'-DDD	mg/kg	dw	4	0	0%	NA	NA	0.00193	0.00237	NA	NA	
4,4'-DDE	mg/kg	dw	4	4	100%	0.00517	0.0167	NA	NA	NA	NA	
4,4'-DDT	mg/kg	dw	4	1	25%	0.00797	0.00797	0.00175	0.0028	NA	NA	
Aldrin	mg/kg	dw	4	0	0%	NA	NA	0.0026	0.00319	NC	0.00319	U
alpha-Chlordane	mg/kg	dw	4	0	0%	NA	NA	0.000877	0.00108	NC	0.00108	U
Chlordane	mg/kg	dw	4	0	0%	NA	NA	0.0123	0.0198	NA	NA	
cis-Nonachlor	mg/kg	dw	4	0	0%	NA	NA	0.00102	0.00125	NC	0.00125	U
delta-BHC	mg/kg	dw	4	0	0%	NA	NA	0.000702	0.000862	NC	0.000862	U
Dieldrin	mg/kg	dw	4	1	25%	0.00103	0.00103	0.000702	0.000862	NC	0.00103	M
Endosulfan sulfate	mg/kg	dw	2	0	0%	NA	NA	0.00186	0.00211	NA	NA	
Endrin	mg/kg	dw	4	0	0%	NA	NA	0.000982	0.00121	NC	0.00121	U
Endrin aldehyde	mg/kg	dw	4	0	0%	NA	NA	0.00218	0.00267	NC	0.00267	U
Endrin ketone	mg/kg	dw	4	0	0%	NA	NA	0.00137	0.00438	NC	0.00438	U
gamma-Chlordane	mg/kg	dw	4	0	0%	NA	NA	0.000912	0.00112	NC	0.00112	U
Heptachlor	mg/kg	dw	4	0	0%	NA	NA	0.00108	0.00177	NC	0.00177	U
Heptachlor epoxide	mg/kg	dw	4	0	0%	NA	NA	0.000632	0.00151	NC	0.00151	U
Hexachlorobenzene	mg/kg	dw	4	2	50%	0.00474	0.0126	0.00363	0.00371	NC	0.0126	M
Hexachlorobutadiene	mg/kg	dw	4	0	0%	NA	NA	0.00105	0.00422	NC	0.00422	U
Methoxychlor	mg/kg	dw	4	0	0%	NA	NA	0.00168	0.00207	NC	0.00207	U
Oxychlordane	mg/kg	dw	4	0	0%	NA	NA	0.00137	0.00168	NC	0.00168	U
Total chlordane, 0 DL	mg/kg	dw	4	0	0%	NA	NA	0.00137	0.00168	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	4	0	0%	NA	NA	0.00137	0.00168	NC	0.00168	U

Table A-10d. Summary Statistics for Medium Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 0 DL	mg/kg	dw	4	0	0%	NA	NA	0.00256	0.00315	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	4	0	0%	NA	NA	0.00256	0.00315	NA	NA	
Total DDE, 0 DL	mg/kg	dw	4	4	100%	0.00517	0.0167	NA	NA	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	4	4	100%	0.00599	0.0175	NA	NA	NA	NA	
Total DDT, 0 DL	mg/kg	dw	4	3	75%	0.0031	0.00797	0.00422	0.00422	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	4	3	75%	0.00414	0.0098	0.00422	0.00422	NA	NA	
Total DDx, 0 DL	mg/kg	dw	4	4	100%	0.0072	0.0247	NA	NA	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	4	4	100%	0.0131	0.0298	NA	NA	NC	0.0298	M
Toxaphene	mg/kg	dw	4	0	0%	NA	NA	0.0862	0.127	NA	NA	
trans-Nonachlor	mg/kg	dw	4	0	0%	NA	NA	0.000947	0.00116	NC	0.00116	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	4	3	75%	0.0069	0.116	0.00251	0.00251	NA	NA	
Acenaphthene	mg/kg	dw	4	4	100%	0.00104	0.00481	NA	NA	NA	NA	
Acenaphthylene	mg/kg	dw	4	3	75%	0.000598	0.121	0.000405	0.000405	NA	NA	
Anthracene	mg/kg	dw	4	1	25%	0.00733	0.00733	0.00164	0.00333	NA	NA	
Benzo(a)anthracene	mg/kg	dw	4	0	0%	NA	NA	0.000637	0.00281	NA	NA	
Benzo(a)pyrene	mg/kg	dw	4	1	25%	0.00186	0.00186	0.000243	0.00056	NC	0.00186	M
Benzo(b)fluoranthene	mg/kg	dw	4	0	0%	NA	NA	0.000558	0.00246	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	4	1	25%	0.00228	0.00228	0.000231	0.000517	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	4	1	25%	0.00218	0.00218	0.000367	0.000819	NA	NA	
Chrysene	mg/kg	dw	4	0	0%	NA	NA	0.000797	0.0632	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	4	0	0%	NA	NA	0.000179	0.000807	NA	NA	
Fluoranthene	mg/kg	dw	4	0	0%	NA	NA	0.000637	0.0138	NA	NA	
Fluorene	mg/kg	dw	4	4	100%	0.00108	0.019	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	4	1	25%	0.00291	0.00291	0.000398	0.000862	NA	NA	
Naphthalene	mg/kg	dw	4	3	75%	0.00603	0.216	0.00371	0.00371	NA	NA	
Phenanthrene	mg/kg	dw	4	4	100%	0.00195	0.0379	NA	NA	NA	NA	
Pyrene	mg/kg	dw	4	0	0%	NA	NA	0.000478	0.0185	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	4	1	25%	0.00923	0.00923	0.000797	0.0185	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	4	1	25%	0.0484	0.0484	0.000797	0.0185	NC	0.0484	M
Total LPAHs, 0 DL	mg/kg	dw	4	4	100%	0.00466	0.522	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	4	4	100%	0.00873	0.522	NA	NA	NC	0.522	M
Total PAHs, 0 DL	mg/kg	dw	4	4	100%	0.00466	0.522	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	4	4	100%	0.011	0.543	NA	NA	NC	0.543	M
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	9	9	100%	0.0239	0.0705	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	9	9	100%	0.0242	0.0709	NA	NA	0.0453	0.0453	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	9	1	11%	0.00000144	0.00000144	0.000000414	0.00000733	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	9	1	11%	0.000000513	0.000000513	0.000000341	0.00000313	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.000000307	0.0000033	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	9	0	0%	NA	NA	0.000000297	0.00000759	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.00000014	0.00000247	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	9	0	0%	NA	NA	0.000000238	0.00000763	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.000000182	0.00000228	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	9	0	0%	NA	NA	0.00000029	0.00000879	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.000000228	0.00000356	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	9	0	0%	NA	NA	0.000000153	0.00000374	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.000000112	0.00000346	NA	NA	

Table A-10d. Summary Statistics for Medium Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	9	0	0%	NA	NA	0.000000188	0.00000262	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	9	3	33%	0.000000159	0.000000255	0.000000162	0.00000321	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	9	1	11%	0.00000043	0.00000043	0.000000098	0.00000435	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	9	8	89%	0.00000171	0.00000395	0.00000387	0.00000387	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	9	5	56%	0.00000103	0.00000298	0.000000273	0.00003	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	9	1	11%	0.00000121	0.00000121	0.000000111	0.0000114	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	9	8	89%	0.00000173	0.00000458	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	9	8	89%	0.00000203	0.00000668	0.00000901	0.00000901	0.00000517	0.00000517	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	9	8	89%	9.15E-08	0.000000733	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	9	8	89%	0.000000405	0.00000473	0.00000759	0.00000759	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	9	8	89%	0.000000178	0.000000888	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	9	8	89%	0.000000442	0.0000041	0.00000659	0.00000659	0.00000388	0.00000388	
PBDEs												
PBDE 17	mg/kg	dw	4	4	100%	0.00000691	0.0000573	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	4	4	100%	0.000231	0.00106	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	4	4	100%	0.01	0.0211	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	4	4	100%	0.000353	0.000725	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	4	4	100%	0.00000823	0.000538	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	4	0	0%	NA	NA	0.00000019	0.0000016	NA	NA	
PBDE 85	mg/kg	dw	4	3	75%	0.00000612	0.000032	0.00000383	0.00000383	NA	NA	
PBDE 99	mg/kg	dw	4	2	50%	0.0116	0.0148	0.0000252	0.0000281	NA	NA	
PBDE 100	mg/kg	dw	4	4	100%	0.00139	0.0049	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	4	0	0%	NA	NA	0.000000797	0.00000404	NA	NA	
PBDE 138	mg/kg	dw	4	3	75%	0.000000866	0.0000325	0.000000522	0.000000522	NA	NA	
PBDE 153	mg/kg	dw	4	4	100%	0.000105	0.00159	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	4	4	100%	0.000292	0.00134	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	4	3	75%	0.0000206	0.000168	0.00000346	0.00000346	NA	NA	
PBDE 184	mg/kg	dw	4	3	75%	0.00000213	0.0000404	0.000000294	0.000000294	NA	NA	
PBDE 190 and 171	mg/kg	dw	4	1	25%	0.00000368	0.00000368	0.000000608	0.00000402	NA	NA	
PBDE 191	mg/kg	dw	4	0	0%	NA	NA	0.000000522	0.00000378	NA	NA	
PBDE 200 and 203	mg/kg	dw	4	2	50%	0.0000053	0.0000161	0.00000126	0.00000846	NA	NA	
PBDE 206	mg/kg	dw	4	1	25%	0.0000178	0.0000178	0.0000128	0.0000141	NA	NA	
PBDE 209	mg/kg	dw	4	4	100%	0.000281	0.000849	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
OU - operable unit
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10e. Summary Statistics for Medium Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	8	8	100%	4.64	109	NA	NA	63.1	63.1	
Antimony	mg/kg	dw	8	8	100%	0.0109	0.0467	NA	NA	0.0345	0.0345	
Arsenic	mg/kg	dw	8	7	88%	0.27	0.724	0.182	0.182	0.565	0.565	
Barium	mg/kg	dw	8	8	100%	1.06	6.19	NA	NA	5.63	5.63	
Beryllium	mg/kg	dw	8	1	13%	0.00405	0.00405	0.00357	0.00407	NC	0.00405	M
Boron	mg/kg	dw	4	0	0%	NA	NA	0.202	0.722	NA	NA	
Cadmium	mg/kg	dw	8	8	100%	0.0321	0.23	NA	NA	0.171	0.171	
Calcium	mg/kg	dw	8	8	100%	13500	34400	NA	NA	NA	NA	
Chromium	mg/kg	dw	8	7	88%	0.109	1.16	0.0722	0.0722	0.65	0.65	
Cobalt	mg/kg	dw	8	8	100%	0.0856	0.154	NA	NA	0.14	0.14	
Copper	mg/kg	dw	8	8	100%	1.52	5.88	NA	NA	4.35	4.35	
Gold	mg/kg	dw	4	0	0%	NA	NA	0.0285	0.081	NA	NA	
Iron	mg/kg	dw	8	8	100%	28.9	138	NA	NA	104	104	
Lead	mg/kg	dw	8	8	100%	0.0219	0.423	NA	NA	0.381	0.381	
Magnesium	mg/kg	dw	8	8	100%	1090	1670	NA	NA	NA	NA	
Manganese	mg/kg	dw	8	8	100%	2.09	20.8	NA	NA	11.9	11.9	
Mercury	mg/kg	dw	8	8	100%	0.119	0.475	NA	NA	0.335	0.335	
Molybdenum	mg/kg	dw	8	3	38%	0.0285	0.107	0.036	0.142	NC	0.107	M
Nickel	mg/kg	dw	8	8	100%	0.252	0.772	NA	NA	0.675	0.675	
Potassium	mg/kg	dw	8	8	100%	11600	13900	NA	NA	NA	NA	
Selenium	mg/kg	dw	8	7	88%	1.44	2.03	1.67	1.67	1.82	1.82	
Silver	mg/kg	dw	8	4	50%	0.0109	0.0158	0.00214	0.0081	NC	0.0158	M
Sodium	mg/kg	dw	8	8	100%	2190	3590	NA	NA	NA	NA	
Thallium	mg/kg	dw	8	8	100%	0.032	0.182	NA	NA	0.15	0.15	
Tin	mg/kg	dw	4	0	0%	NA	NA	0.00813	0.0202	NA	NA	
Uranium	mg/kg	dw	8	4	50%	0.00214	0.0196	0.00195	0.00217	NC	0.0196	M
Vanadium	mg/kg	dw	8	5	63%	0.0778	0.332	0.0714	0.0813	NC	0.332	M
Zinc	mg/kg	dw	8	8	100%	51.1	81.6	NA	NA	76.6	76.6	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	4	2	50%	0.00361	0.00714	0.00283	0.00285	NA	NA	
Cerium	mg/kg	dw	4	2	50%	0.011	0.324	0.00357	0.00361	NA	NA	
Cesium	mg/kg	dw	4	4	100%	0.0688	0.128	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	4	1	25%	0.0121	0.0121	0.00285	0.00289	NA	NA	
Erbium	mg/kg	dw	4	1	25%	0.00405	0.00405	0.00285	0.00289	NA	NA	
Europium	mg/kg	dw	4	1	25%	0.00405	0.00405	0.00285	0.00289	NA	NA	
Gadolinium	mg/kg	dw	4	1	25%	0.019	0.019	0.00714	0.00813	NA	NA	
Gallium	mg/kg	dw	4	4	100%	0.0119	0.0405	NA	NA	NA	NA	
Germanium	mg/kg	dw	4	4	100%	1.36	1.97	NA	NA	NA	NA	
Holmium	mg/kg	dw	4	1	25%	0.00202	0.00202	0.00203	0.00217	NA	NA	
Indium	mg/kg	dw	4	1	25%	0.00361	0.00361	0.00283	0.00286	NA	NA	
Lanthanum	mg/kg	dw	4	4	100%	0.00289	0.185	NA	NA	NA	NA	
Lithium	mg/kg	dw	4	3	75%	0.722	1.1	0.283	0.283	NA	NA	
Lutetium	mg/kg	dw	4	0	0%	NA	NA	0.00202	0.00217	NA	NA	
Neodymium	mg/kg	dw	4	2	50%	0.00813	0.126	0.00357	0.00361	NA	NA	
Niobium	mg/kg	dw	4	0	0%	NA	NA	0.00813	0.081	NA	NA	
Praseodymium	mg/kg	dw	4	1	25%	0.036	0.036	0.00285	0.00289	NA	NA	
Rubidium	mg/kg	dw	3	3	100%	13.2	26.8	NA	NA	NA	NA	
Samarium	mg/kg	dw	4	1	25%	0.019	0.019	0.00407	0.00722	NA	NA	
Scandium	mg/kg	dw	4	1	25%	0.0769	0.0769	0.0569	0.0722	NA	NA	

Table A-10e. Summary Statistics for Medium Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Strontium	mg/kg	dw	4	4	100%	14.1	52.6	NA	NA	NA	NA	
Tellurium	mg/kg	dw	4	0	0%	NA	NA	0.0283	0.0289	NA	NA	
Terbium	mg/kg	dw	4	0	0%	NA	NA	0.00283	0.00289	NA	NA	
Thorium	mg/kg	dw	4	2	50%	0.00722	0.0332	0.00357	0.00407	NA	NA	
Thulium	mg/kg	dw	1	0	0%	NA	NA	0.00283	0.00283	NA	NA	
Titanium	mg/kg	dw	1	1	100%	6.23	6.23	NA	NA	NA	NA	
Tungsten	mg/kg	dw	4	0	0%	NA	NA	0.0203	0.0714	NA	NA	
Ytterbium	mg/kg	dw	4	1	25%	0.00405	0.00405	0.00357	0.00407	NA	NA	
Yttrium	mg/kg	dw	4	1	25%	0.0607	0.0607	0.00407	0.00722	NA	NA	
Zirconium	mg/kg	dw	4	3	75%	0.081	1.65	0.0108	0.0108	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	2	0	0%	NA	NA	0.0015	0.00243	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	2	0	0%	NA	NA	0.0225	0.0255	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	2	0	0%	NA	NA	0.0146	0.0166	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	2	0	0%	NA	NA	0.0164	0.0186	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	2	0	0%	NA	NA	0.75	0.85	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	2	0	0%	NA	NA	0.75	0.85	NC	0.85	U
Dibenzofuran	mg/kg	dw	2	0	0%	NA	NA	0.0157	0.0178	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	2	0	0%	NA	NA	1.38	7.5	NC	7.5	U
Di-n-octylphthalate	mg/kg	dw	2	0	0%	NA	NA	0.0321	0.0364	NC	0.0364	U
Hexachlorocyclopentadiene	mg/kg	dw	2	0	0%	NA	NA	1.25	1.42	NA	NA	
Hexachloroethane	mg/kg	dw	2	0	0%	NA	NA	0.0571	0.0648	NA	NA	
Pentachlorophenol	mg/kg	dw	2	0	0%	NA	NA	0.0161	0.0182	NC	0.0182	U
Pesticides												
2,4'-DDD	mg/kg	dw	2	0	0%	NA	NA	0.00261	0.00296	NA	NA	
2,4'-DDE	mg/kg	dw	2	0	0%	NA	NA	0.00132	0.0015	NA	NA	
2,4'-DDT	mg/kg	dw	2	0	0%	NA	NA	0.000571	0.000648	NA	NA	
4,4'-DDD	mg/kg	dw	2	0	0%	NA	NA	0.00196	0.00223	NA	NA	
4,4'-DDE	mg/kg	dw	2	1	50%	0.00526	0.00526	0.00607	0.00607	NA	NA	
4,4'-DDT	mg/kg	dw	2	0	0%	NA	NA	0.00175	0.00255	NA	NA	
Aldrin	mg/kg	dw	2	0	0%	NA	NA	0.003	0.00429	NC	0.00429	U
alpha-Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.000893	0.00101	NC	0.00101	U
Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.0154	0.0389	NA	NA	
cis-Nonachlor	mg/kg	dw	2	0	0%	NA	NA	0.00104	0.00117	NC	0.00117	U
delta-BHC	mg/kg	dw	2	0	0%	NA	NA	0.000714	0.00081	NC	0.00081	U
Dieldrin	mg/kg	dw	2	0	0%	NA	NA	0.000714	0.00081	NC	0.00081	U
Endosulfan sulfate	mg/kg	dw	1	0	0%	NA	NA	0.00189	0.00189	NA	NA	
Endrin	mg/kg	dw	2	0	0%	NA	NA	0.001	0.00113	NC	0.00113	U
Endrin aldehyde	mg/kg	dw	2	0	0%	NA	NA	0.00221	0.00251	NC	0.00251	U
Endrin ketone	mg/kg	dw	2	0	0%	NA	NA	0.00139	0.00158	NC	0.00158	U
gamma-Chlordane	mg/kg	dw	2	0	0%	NA	NA	0.000929	0.00105	NC	0.00105	U
Heptachlor	mg/kg	dw	2	0	0%	NA	NA	0.000964	0.00389	NC	0.00389	U
Heptachlor epoxide	mg/kg	dw	2	1	50%	0.000929	0.000929	0.000729	0.000729	NC	0.000929	M
Hexachlorobenzene	mg/kg	dw	2	0	0%	NA	NA	0.00343	0.00526	NC	0.00526	U
Hexachlorobutadiene	mg/kg	dw	2	0	0%	NA	NA	0.00107	0.00121	NC	0.00121	U
Methoxychlor	mg/kg	dw	2	0	0%	NA	NA	0.00171	0.00194	NC	0.00194	U
Oxychlordane	mg/kg	dw	2	0	0%	NA	NA	0.00139	0.00158	NC	0.00158	U
Total chlordane, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00139	0.00158	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00139	0.00158	NC	0.00158	U

Table A-10e. Summary Statistics for Medium Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDD, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00261	0.00296	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00261	0.00296	NA	NA	
Total DDE, 0 DL	mg/kg	dw	2	1	50%	0.00526	0.00526	0.00607	0.00607	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	2	1	50%	0.00603	0.00603	0.00607	0.00607	NA	NA	
Total DDT, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00175	0.00255	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00175	0.00255	NA	NA	
Total DDx, 0 DL	mg/kg	dw	2	1	50%	0.00526	0.00526	0.00607	0.00607	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	2	1	50%	0.0102	0.0102	0.00607	0.00607	NC	0.0102	M
Toxaphene	mg/kg	dw	2	0	0%	NA	NA	0.0929	0.0931	NA	NA	
trans-Nonachlor	mg/kg	dw	2	0	0%	NA	NA	0.000964	0.00109	NC	0.00109	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	2	1	50%	0.013	0.013	0.00243	0.00243	NA	NA	
Acenaphthene	mg/kg	dw	2	1	50%	0.002	0.002	0.00105	0.00105	NA	NA	
Acenaphthylene	mg/kg	dw	2	1	50%	0.000714	0.000714	0.000972	0.000972	NA	NA	
Anthracene	mg/kg	dw	2	0	0%	NA	NA	0.00893	0.015	NA	NA	
Benzo(a)anthracene	mg/kg	dw	2	0	0%	NA	NA	0.000571	0.00324	NA	NA	
Benzo(a)pyrene	mg/kg	dw	2	0	0%	NA	NA	0.000218	0.00126	NC	0.00126	U
Benzo(b)fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.0005	0.00283	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	2	0	0%	NA	NA	0.000207	0.00117	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.000329	0.00186	NA	NA	
Chrysene	mg/kg	dw	2	0	0%	NA	NA	0.00405	0.0607	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	2	0	0%	NA	NA	0.000161	0.000931	NA	NA	
Fluoranthene	mg/kg	dw	2	0	0%	NA	NA	0.000536	0.00304	NA	NA	
Fluorene	mg/kg	dw	2	1	50%	0.00264	0.00264	0.00194	0.00194	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	2	0	0%	NA	NA	0.000357	0.00202	NA	NA	
Naphthalene	mg/kg	dw	2	0	0%	NA	NA	0.00314	0.00526	NA	NA	
Phenanthrene	mg/kg	dw	2	1	50%	0.00536	0.00536	0.00688	0.00688	NA	NA	
Pyrene	mg/kg	dw	2	0	0%	NA	NA	0.000429	0.00243	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	2	0	0%	NA	NA	0.00405	0.0607	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	2	0	0%	NA	NA	0.00405	0.0607	NC	0.0607	U
Total LPAHs, 0 DL	mg/kg	dw	2	2	100%	0.0107	0.013	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	2	2	100%	0.018	0.0285	NA	NA	NC	0.0285	M
Total PAHs, 0 DL	mg/kg	dw	2	2	100%	0.0107	0.013	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	2	2	100%	0.0399	0.05	NA	NA	NC	0.05	M
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	8	8	100%	0.0147	0.03	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	8	8	100%	0.0169	0.0304	NA	NA	0.0279	0.0279	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	8	2	25%	0.000000724	0.0000015	0.000000415	0.00000466	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000117	0.00000211	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.00000027	0.00000204	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000359	0.00000313	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000167	0.00000113	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000291	0.00000303	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000195	0.00000121	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000342	0.00000308	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.00000025	0.00000178	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	8	0	0%	NA	NA	0.000000188	0.00000194	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000203	0.00000198	NA	NA	

Table A-10e. Summary Statistics for Medium Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.000000209	0.00000127	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	8	0	0%	NA	NA	0.00000019	0.00000174	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	8	1	13%	0.000000263	0.000000263	0.000000138	0.00000228	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	8	7	88%	0.00000124	0.0000027	0.00000271	0.00000271	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	8	5	63%	0.000000791	0.00000252	0.000000593	0.0000103	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	8	2	25%	0.000000658	0.000000771	0.000000199	0.00000595	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	8	7	88%	0.000000828	0.0000027	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	8	7	88%	0.0000019	0.00000502	0.00000188	0.00000188	0.00000336	0.00000336	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	8	7	88%	4.18E-08	0.000000158	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	8	7	88%	0.000000484	0.00000377	0.000000626	0.000000626	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	8	7	88%	8.79E-08	0.000000271	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	8	7	88%	0.000000505	0.00000332	0.000000611	0.000000611	0.0000026	0.0000026	
PBDEs												
PBDE 17	mg/kg	dw	2	2	100%	0.0000318	0.0000543	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	2	2	100%	0.000411	0.000555	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	2	2	100%	0.0118	0.0233	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	2	2	100%	0.000514	0.000943	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	2	2	100%	0.0000246	0.000411	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	2	0	0%	NA	NA	0.000000299	0.000000989	NA	NA	
PBDE 85	mg/kg	dw	2	2	100%	0.00000265	0.0000142	NA	NA	NA	NA	
PBDE 99	mg/kg	dw	2	2	100%	0.000278	0.00768	NA	NA	NA	NA	
PBDE 100	mg/kg	dw	2	2	100%	0.00179	0.00457	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	2	0	0%	NA	NA	0.000000964	0.00000138	NA	NA	
PBDE 138	mg/kg	dw	2	1	50%	0.00000301	0.00000301	0.000000982	0.000000982	NA	NA	
PBDE 153	mg/kg	dw	2	2	100%	0.000229	0.00125	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	2	2	100%	0.000441	0.0011	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	2	0	0%	NA	NA	0.00000332	0.00001	NA	NA	
PBDE 184	mg/kg	dw	2	2	100%	0.00000253	0.0000122	NA	NA	NA	NA	
PBDE 190 and 171	mg/kg	dw	2	0	0%	NA	NA	0.000000709	0.000000721	NA	NA	
PBDE 191	mg/kg	dw	2	0	0%	NA	NA	0.000000611	0.000000671	NA	NA	
PBDE 200 and 203	mg/kg	dw	2	0	0%	NA	NA	0.00000132	0.00000251	NA	NA	
PBDE 206	mg/kg	dw	2	2	100%	0.0000194	0.0000224	NA	NA	NA	NA	
PBDE 209	mg/kg	dw	2	2	100%	0.000664	0.00168	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-10f. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	15	15	100%	4.18	232	NA	NA	121	121	
Antimony	mg/kg	dw	15	14	93%	0.00725	0.0766	0.00749	0.00749	0.0407	0.0407	
Arsenic	mg/kg	dw	15	15	100%	0.281	1.01	NA	NA	0.599	0.599	
Barium	mg/kg	dw	15	15	100%	1.59	8.59	NA	NA	4.11	4.11	
Beryllium	mg/kg	dw	15	2	13%	0.00784	0.00855	0.00341	0.00395	NC	0.00855	M
Boron	mg/kg	dw	10	0	0%	NA	NA	0.214	2.08	NA	NA	
Cadmium	mg/kg	dw	15	15	100%	0.0398	0.282	NA	NA	0.155	0.155	
Calcium	mg/kg	dw	15	15	100%	9930	35300	NA	NA	NA	NA	
Chromium	mg/kg	dw	15	12	80%	0.0702	1.5	0.0733	0.0763	0.858	0.858	
Cobalt	mg/kg	dw	15	15	100%	0.0733	0.269	NA	NA	0.16	0.16	
Copper	mg/kg	dw	15	15	100%	1.53	7.63	NA	NA	4.59	4.59	
Gold	mg/kg	dw	10	0	0%	NA	NA	0.0287	0.0362	NA	NA	
Iron	mg/kg	dw	15	15	100%	24	269	NA	NA	163	163	
Lead	mg/kg	dw	15	12	80%	0.024	0.244	0.033	0.0362	0.123	0.123	
Magnesium	mg/kg	dw	15	15	100%	1050	1520	NA	NA	NA	NA	
Manganese	mg/kg	dw	15	15	100%	2.21	18.8	NA	NA	8.43	8.43	
Mercury	mg/kg	dw	15	15	100%	0.0885	0.496	NA	NA	0.32	0.32	
Molybdenum	mg/kg	dw	15	8	53%	0.0304	0.217	0.0365	0.11	0.0815	0.0815	
Nickel	mg/kg	dw	15	15	100%	0.23	0.784	NA	NA	0.605	0.605	
Potassium	mg/kg	dw	15	15	100%	10700	13100	NA	NA	NA	NA	
Selenium	mg/kg	dw	15	15	100%	0.842	1.85	NA	NA	1.6	1.6	
Silver	mg/kg	dw	15	6	40%	0.0128	0.0191	0.00187	0.011	0.0115	0.0115	
Sodium	mg/kg	dw	15	15	100%	2320	3520	NA	NA	NA	NA	
Thallium	mg/kg	dw	15	15	100%	0.0861	0.185	NA	NA	0.146	0.146	
Tin	mg/kg	dw	10	1	10%	0.291	0.291	0.00833	0.0214	NA	NA	
Uranium	mg/kg	dw	15	14	93%	0.00187	0.018	0.0019	0.0019	0.0105	0.0105	
Vanadium	mg/kg	dw	15	11	73%	0.0702	0.556	0.0683	0.076	0.222	0.222	
Zinc	mg/kg	dw	15	15	100%	42.7	85.7	NA	NA	70.3	70.3	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	10	4	40%	0.00316	0.00784	0.0029	0.00316	NA	NA	
Cerium	mg/kg	dw	10	8	80%	0.00625	0.568	0.00375	0.0038	NA	NA	
Cesium	mg/kg	dw	10	10	100%	0.0526	0.2	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	10	2	20%	0.0161	0.0218	0.00287	0.00316	NA	NA	
Erbium	mg/kg	dw	10	2	20%	0.00784	0.0111	0.00287	0.00316	NA	NA	
Europium	mg/kg	dw	10	2	20%	0.00784	0.00855	0.00287	0.00316	NA	NA	
Gadolinium	mg/kg	dw	10	2	20%	0.0239	0.0385	0.00683	0.00833	NA	NA	
Gallium	mg/kg	dw	10	10	100%	0.0141	0.0855	NA	NA	NA	NA	
Germanium	mg/kg	dw	10	10	100%	1.16	2.17	NA	NA	NA	NA	
Holmium	mg/kg	dw	10	2	20%	0.00314	0.00385	0.00179	0.00217	NA	NA	
Indium	mg/kg	dw	10	0	0%	NA	NA	0.00287	0.00316	NA	NA	
Lanthanum	mg/kg	dw	10	8	80%	0.00554	0.303	0.003	0.00304	NA	NA	
Lithium	mg/kg	dw	10	9	90%	0.314	1.19	0.299	0.299	NA	NA	
Lutetium	mg/kg	dw	10	0	0%	NA	NA	0.00179	0.00217	NA	NA	
Neodymium	mg/kg	dw	10	8	80%	0.00417	0.242	0.00375	0.0038	NA	NA	
Niobium	mg/kg	dw	10	1	10%	0.111	0.111	0.00833	0.0392	NA	NA	
Praseodymium	mg/kg	dw	10	5	50%	0.00351	0.0641	0.0029	0.00307	NA	NA	
Rubidium	mg/kg	dw	10	10	100%	9.47	36.3	NA	NA	NA	NA	
Samarium	mg/kg	dw	10	2	20%	0.029	0.0427	0.00417	0.00791	NA	NA	
Scandium	mg/kg	dw	10	2	20%	0.107	0.114	0.0583	0.087	NA	NA	
Strontium	mg/kg	dw	10	10	100%	18.1	50.2	NA	NA	NA	NA	
Tellurium	mg/kg	dw	10	0	0%	NA	NA	0.0287	0.0316	NA	NA	
Terbium	mg/kg	dw	10	2	20%	0.00314	0.00427	0.00287	0.00316	NA	NA	

Table A-10f. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Thorium	mg/kg	dw	10	6	60%	0.00702	0.0855	0.00341	0.00417	NA	NA	
Thulium	mg/kg	dw	2	0	0%	NA	NA	0.00299	0.00314	NA	NA	
Titanium	mg/kg	dw	7	7	100%	0.113	14.1	NA	NA	NA	NA	
Tungsten	mg/kg	dw	10	0	0%	NA	NA	0.019	0.221	NA	NA	
Ytterbium	mg/kg	dw	10	2	20%	0.00784	0.00855	0.00341	0.00417	NA	NA	
Yttrium	mg/kg	dw	10	5	50%	0.0119	0.107	0.00417	0.0076	NA	NA	
Zirconium	mg/kg	dw	10	7	70%	0.0168	0.173	0.0038	0.00833	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	7	0	0%	NA	NA	0.00163	0.00263	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	7	0	0%	NA	NA	0.0226	0.0269	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	7	0	0%	NA	NA	0.0147	0.0175	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	7	0	0%	NA	NA	0.0165	0.0197	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	7	0	0%	NA	NA	0.753	0.897	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	7	1	14%	7.08	7.08	0.753	0.897	NC	7.08	M
Dibenzofuran	mg/kg	dw	7	0	0%	NA	NA	0.0158	0.0188	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	7	0	0%	NA	NA	0.556	7.97	NC	7.97	U
Di-n-octylphthalate	mg/kg	dw	7	0	0%	NA	NA	0.0323	0.0385	NC	0.0385	U
Hexachlorocyclopentadiene	mg/kg	dw	7	0	0%	NA	NA	1.25	1.5	NA	NA	
Hexachloroethane	mg/kg	dw	7	0	0%	NA	NA	0.0573	0.0684	NA	NA	
Pentachlorophenol	mg/kg	dw	7	0	0%	NA	NA	0.0161	0.0192	NC	0.0192	U
Pesticides												
2,4'-DDD	mg/kg	dw	7	0	0%	NA	NA	0.00262	0.0057	NA	NA	
2,4'-DDE	mg/kg	dw	7	0	0%	NA	NA	0.00133	0.00375	NA	NA	
2,4'-DDT	mg/kg	dw	7	4	57%	0.0025	0.00684	0.000684	0.00388	NA	NA	
4,4'-DDD	mg/kg	dw	7	0	0%	NA	NA	0.00197	0.00418	NA	NA	
4,4'-DDE	mg/kg	dw	7	4	57%	0.0047	0.0224	0.00725	0.00824	NA	NA	
4,4'-DDT	mg/kg	dw	7	4	57%	0.00358	0.00979	0.00192	0.00209	NA	NA	
Aldrin	mg/kg	dw	7	0	0%	NA	NA	0.00277	0.00789	NC	0.00789	U
alpha-Chlordane	mg/kg	dw	7	1	14%	0.00306	0.00306	0.000896	0.0019	NC	0.00306	M
Chlordane	mg/kg	dw	7	0	0%	NA	NA	0.0138	0.0608	NA	NA	
cis-Nonachlor	mg/kg	dw	7	0	0%	NA	NA	0.00104	0.00221	NC	0.00221	U
delta-BHC	mg/kg	dw	7	0	0%	NA	NA	0.000717	0.00165	NC	0.00165	U
Dieldrin	mg/kg	dw	7	0	0%	NA	NA	0.000717	0.00152	NC	0.00152	U
Endosulfan sulfate	mg/kg	dw	5	0	0%	NA	NA	0.0019	0.00418	NA	NA	
Endrin	mg/kg	dw	7	0	0%	NA	NA	0.001	0.00213	NC	0.00213	U
Endrin aldehyde	mg/kg	dw	7	0	0%	NA	NA	0.00222	0.00494	NC	0.00494	U
Endrin ketone	mg/kg	dw	7	0	0%	NA	NA	0.0014	0.00297	NC	0.00297	U
gamma-Chlordane	mg/kg	dw	7	0	0%	NA	NA	0.000932	0.00198	NC	0.00198	U
Heptachlor	mg/kg	dw	7	1	14%	0.00283	0.00283	0.00101	0.00427	NC	0.00283	M
Heptachlor epoxide	mg/kg	dw	7	2	29%	0.00143	0.00418	0.000652	0.000769	NC	0.00418	M
Hexachlorobenzene	mg/kg	dw	7	3	43%	0.011	0.0214	0.00154	0.00388	NC	0.0214	M
Hexachlorobutadiene	mg/kg	dw	7	0	0%	NA	NA	0.00118	0.0076	NC	0.0076	U
Methoxychlor	mg/kg	dw	7	0	0%	NA	NA	0.00172	0.00365	NC	0.00365	U
Oxychlordane	mg/kg	dw	7	0	0%	NA	NA	0.0014	0.00297	NC	0.00297	U
Total chlordane, 0 DL	mg/kg	dw	7	1	14%	0.00306	0.00306	0.00163	0.00375	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	7	1	14%	0.00686	0.00686	0.00163	0.00375	NC	0.00686	M
Total DDD, 0 DL	mg/kg	dw	7	0	0%	NA	NA	0.00262	0.0057	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	7	0	0%	NA	NA	0.00262	0.0057	NA	NA	
Total DDE, 0 DL	mg/kg	dw	7	4	57%	0.0047	0.0224	0.00725	0.00824	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	7	4	57%	0.00551	0.0238	0.00725	0.00824	NA	NA	
Total DDT, 0 DL	mg/kg	dw	7	4	57%	0.00412	0.0163	0.00195	0.00388	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	7	4	57%	0.00487	0.0163	0.00195	0.00388	NA	NA	

Table A-10f. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	mg/kg	dw	7	6	86%	0.00412	0.0388	0.00787	0.00787	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	7	6	86%	0.00962	0.0452	0.00787	0.00787	0.0296	0.0296	
Toxaphene	mg/kg	dw	7	0	0%	NA	NA	0.0917	0.156	NA	NA	
trans-Nonachlor	mg/kg	dw	7	0	0%	NA	NA	0.00113	0.00388	NC	0.00388	U
PAHs												
2-Methylnaphthalene	mg/kg	dw	7	7	100%	0.00362	0.0137	NA	NA	NA	NA	
Acenaphthene	mg/kg	dw	7	6	86%	0.00104	0.00341	0.00111	0.00111	NA	NA	
Acenaphthylene	mg/kg	dw	7	6	86%	0.00116	0.00573	0.00103	0.00103	NA	NA	
Anthracene	mg/kg	dw	7	0	0%	NA	NA	0.000722	0.0349	NA	NA	
Benzo(a)anthracene	mg/kg	dw	7	0	0%	NA	NA	0.000573	0.00342	NA	NA	
Benzo(a)pyrene	mg/kg	dw	7	0	0%	NA	NA	0.000219	0.00132	NC	0.00132	U
Benzo(b)fluoranthene	mg/kg	dw	7	0	0%	NA	NA	0.000502	0.00299	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	7	0	0%	NA	NA	0.000208	0.00373	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	7	0	0%	NA	NA	0.00033	0.00197	NA	NA	
Chrysene	mg/kg	dw	7	0	0%	NA	NA	0.000717	0.0109	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	7	0	0%	NA	NA	0.000161	0.00365	NA	NA	
Fluoranthene	mg/kg	dw	7	0	0%	NA	NA	0.000543	0.00471	NA	NA	
Fluorene	mg/kg	dw	7	4	57%	0.00136	0.00267	0.000361	0.00205	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	7	0	0%	NA	NA	0.000358	0.00471	NA	NA	
Naphthalene	mg/kg	dw	7	5	71%	0.00652	0.0204	0.00329	0.0098	NA	NA	
Phenanthrene	mg/kg	dw	7	4	57%	0.00185	0.0102	0.00167	0.00684	NA	NA	
Pyrene	mg/kg	dw	7	0	0%	NA	NA	0.00043	0.00256	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	7	0	0%	NA	NA	0.000725	0.0109	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	7	0	0%	NA	NA	0.000725	0.0109	NC	0.0109	U
Total LPAHs, 0 DL	mg/kg	dw	7	7	100%	0.0115	0.0452	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	7	7	100%	0.0225	0.0525	NA	NA	0.0438	0.0438	
Total PAHs, 0 DL	mg/kg	dw	7	7	100%	0.0115	0.0452	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	7	7	100%	0.0246	0.0686	NA	NA	0.0532	0.0532	
PCBs												
Total PCB congeners, 0 DL	mg/kg	dw	15	15	100%	0.0115	0.155	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	15	15	100%	0.0136	0.155	NA	NA	0.0834	0.0834	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	15	2	13%	0.00000297	0.0000144	0.000000357	0.00000404	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	15	2	13%	0.000000629	0.00000194	0.000000242	0.00000217	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.00000014	0.00000243	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	15	0	0%	NA	NA	4.68E-08	0.00000379	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.000000143	0.00000131	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	15	0	0%	NA	NA	0.000000245	0.0000036	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.000000174	0.0000013	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	15	1	7%	3.54E-08	3.54E-08	0.000000258	0.0000035	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.000000247	0.0000021	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	15	0	0%	NA	NA	0.00000022	0.00000214	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	15	1	7%	0.000000217	0.000000217	0.000000165	0.00000261	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.000000194	0.00000139	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	15	2	13%	0.000000222	0.00000035	0.000000169	0.00000259	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	15	0	0%	NA	NA	6.52E-08	0.00000251	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	15	13	87%	0.00000122	0.00000706	0.00000166	0.00000276	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	15	10	67%	0.000000513	0.00013	0.000000423	0.00000733	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	15	5	33%	0.000000304	0.00000736	0.00000019	0.00000718	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	15	13	87%	0.00000122	0.00000706	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	15	13	87%	0.00000159	0.00000768	0.00000447	0.00000556	5.76E-06	5.76E-06	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	15	13	87%	6.13E-08	0.000000355	0	0	NA	NA	

Table A-10f. Summary Statistics for Medium Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	15	13	87%	0.000000444	0.000000954	0.00000376	0.00000421	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	15	13	87%	0.000000123	0.000000706	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	15	13	87%	0.000000444	0.00000119	0.00000324	0.00000353	8.6E-07	8.6E-07	
PBDEs												
PBDE 17	mg/kg	dw	7	7	100%	0.0000304	0.000146	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	7	7	100%	0.00039	0.000902	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	7	7	100%	0.0121	0.0563	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	7	7	100%	0.000479	0.00205	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	7	7	100%	0.0000341	0.00073	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	7	0	0%	NA	NA	0.000000303	0.00000215	NA	NA	
PBDE 85	mg/kg	dw	7	5	71%	0.00000168	0.0000259	0.0000019	0.0000025	NA	NA	
PBDE 99	mg/kg	dw	7	5	71%	0.00291	0.00715	0.000053	0.0000561	NA	NA	
PBDE 100	mg/kg	dw	7	7	100%	0.00171	0.00779	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	7	0	0%	NA	NA	0.000000902	0.00000361	NA	NA	
PBDE 138	mg/kg	dw	7	2	29%	0.00000613	0.00000817	0.000000471	0.0000022	NA	NA	
PBDE 153	mg/kg	dw	7	7	100%	0.000295	0.00167	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	7	7	100%	0.000594	0.00192	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	7	0	0%	NA	NA	0.00000502	0.0000966	NA	NA	
PBDE 184	mg/kg	dw	7	6	86%	0.0000028	0.0000367	0.000002	0.000002	NA	NA	
PBDE 190 and 171	mg/kg	dw	7	0	0%	NA	NA	0.000000516	0.00000219	NA	NA	
PBDE 191	mg/kg	dw	7	0	0%	NA	NA	0.000000451	0.00000204	NA	NA	
PBDE 200 and 203	mg/kg	dw	7	2	29%	0.0000125	0.0000158	0.00000116	0.00000567	NA	NA	
PBDE 206	mg/kg	dw	7	4	57%	0.00000839	0.0000207	0.00000944	0.0000147	NA	NA	
PBDE 209	mg/kg	dw	7	6	86%	0.000249	0.000967	0.000137	0.000137	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11a. Summary Statistics for Large Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	110	92	84%	0.739	400.6	0.918	4.8	41.2	41.2	
Antimony	mg/kg	ww	110	58	53%	0.0024	1.4	0.00252	0.1471	0.107	0.107	
Arsenic	mg/kg	ww	110	107	97%	0.0467	0.827	0.0606	0.0997	0.189	0.189	
Barium	mg/kg	ww	110	110	100%	0.324	38.81	NA	NA	4.13	4.13	
Beryllium	mg/kg	ww	110	15	14%	0.000732	0.02218	0.000893	0.00752	0.0101	0.0101	
Boron	mg/kg	ww	23	0	0%	NA	NA	0.0446	0.221	NA	NA	
Cadmium	mg/kg	ww	110	107	97%	0.0134	0.638	0.0158	0.01695	0.169	0.169	
Calcium	mg/kg	ww	110	110	100%	889	15000	NA	NA	NA	NA	
Chromium	mg/kg	ww	110	107	97%	0.0154	8.218	0.02	0.0248	1.2	1.2	
Cobalt	mg/kg	ww	110	106	96%	0.0148	1.178	0.01059	0.01653	0.089	0.089	
Copper	mg/kg	ww	110	110	100%	0.283	48.49	NA	NA	4.4	4.4	
Gold	mg/kg	ww	23	0	0%	NA	NA	0.00731	0.0248	NA	NA	
Iron	mg/kg	ww	110	110	100%	6.9	4101	NA	NA	NA	NA	
Lead	mg/kg	ww	110	110	100%	0.00621	14.37	NA	NA	2.48	2.48	
Magnesium	mg/kg	ww	110	110	100%	257	429.9	NA	NA	NA	NA	
Manganese	mg/kg	ww	110	110	100%	0.381	85.22	NA	NA	9.22	9.22	
Mercury	µg/kg	ww	100	100	100%	16.9	222	NA	NA	118	118	
Molybdenum	mg/kg	ww	60	31	52%	0.00604	0.114	0.00547	0.0355	NA	NA	
Nickel	mg/kg	ww	110	110	100%	0.048	5.203	NA	NA	0.585	0.585	
Potassium	mg/kg	ww	110	110	100%	2550	4260	NA	NA	NA	NA	
Selenium	mg/kg	ww	110	110	100%	0.162	1.22	NA	NA	0.567	0.567	
Silver	mg/kg	ww	110	43	39%	0.00112	0.1663	0.000466	0.09234	0.0134	0.0134	
Sodium	mg/kg	ww	110	110	100%	534	1536	NA	NA	NA	NA	
Thallium	mg/kg	ww	110	53	48%	0.00278	0.0421	0.00209	0.09234	0.0218	0.0218	
Tin	mg/kg	ww	23	15	65%	0.00171	0.136	0.00265	0.0046	NA	NA	
Uranium	mg/kg	ww	110	96	87%	0.000427	0.09756	0.000508	0.00237	NA	NA	
Vanadium	mg/kg	ww	110	57	52%	0.0145	0.8024	0.0153	0.1471	0.128	0.128	
Zinc	mg/kg	ww	110	110	100%	10	359.3	NA	NA	44.8	44.8	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	23	8	35%	0.000586	0.00111	0.000693	0.001	NA	NA	
Cerium	mg/kg	ww	23	14	61%	0.00125	0.189	0.001	0.002	NA	NA	
Cesium	mg/kg	ww	23	23	100%	0.00949	0.0642	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	23	9	39%	0.000624	0.00862	0.000695	0.001	NA	NA	
Erbium	mg/kg	ww	23	7	30%	0.000643	0.00307	0.000693	0.001	NA	NA	
Europium	mg/kg	ww	23	11	48%	0.000624	0.00334	0.000515	0.001	NA	NA	
Gadolinium	mg/kg	ww	23	8	35%	0.0012	0.0178	0.00148	0.00263	NA	NA	
Gallium	mg/kg	ww	23	20	87%	0.00151	0.0416	0.002	0.00263	NA	NA	
Germanium	mg/kg	ww	23	23	100%	0.283	1.35	NA	NA	NA	NA	
Holmium	mg/kg	ww	23	4	17%	0.000479	0.00122	0.000446	0.000827	NA	NA	
Indium	mg/kg	ww	23	9	39%	0.000707	0.0321	0.000693	0.001	NA	NA	
Lanthanum	mg/kg	ww	23	17	74%	0.00066	0.0854	0.000754	0.001	NA	NA	
Lithium	mg/kg	ww	23	16	70%	0.0532	0.368	0.0695	0.1	NA	NA	
Lutetium	mg/kg	ww	23	0	0%	NA	NA	0.000446	0.000827	NA	NA	
Neodymium	mg/kg	ww	23	14	61%	0.000709	0.0792	0.000915	0.00163	NA	NA	
Niobium	mg/kg	ww	23	4	17%	0.0063	0.0141	0.00253	0.01	NA	NA	
Praseodymium	mg/kg	ww	23	11	48%	0.000716	0.023	0.000695	0.001	NA	NA	
Rubidium	mg/kg	ww	23	23	100%	2.33	6.88	NA	NA	NA	NA	
Samarium	mg/kg	ww	23	7	30%	0.00226	0.0203	0.00148	0.00263	NA	NA	
Scandium	mg/kg	ww	23	13	57%	0.00723	0.0391	0.00666	0.0115	NA	NA	
Strontium	mg/kg	ww	23	23	100%	3.48	18.5	NA	NA	NA	NA	
Tellurium	mg/kg	ww	23	0	0%	NA	NA	0.00693	0.01	NA	NA	
Terbium	mg/kg	ww	23	3	13%	0.000629	0.0023	0.000693	0.001	NA	NA	
Thorium	mg/kg	ww	23	8	35%	0.00135	0.0119	0.000951	0.00233	NA	NA	

Table A-11a. Summary Statistics for Large Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Thulium	mg/kg	ww	15	0	0%	NA	NA	0.000693	0.000956	NA	NA	
Titanium	mg/kg	ww	19	16	84%	0.03	2.66	0.02	0.0363	NA	NA	
Tungsten	mg/kg	ww	23	2	9%	0.02	0.0286	0.00551	0.0322	NA	NA	
Ytterbium	mg/kg	ww	23	3	13%	0.00109	0.00297	0.000951	0.002	NA	NA	
Yttrium	mg/kg	ww	23	14	61%	0.00127	0.0304	0.00154	0.00263	NA	NA	
Zirconium	mg/kg	ww	23	17	74%	0.000767	0.135	0.00285	0.00652	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	23	2	9%	0.626	0.905	0.279	1.5	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	23	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	23	0	0%	NA	NA	4.1	4.2	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	23	4	17%	5.55	7.93	4.6	10.8	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	23	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	23	1	4%	155	155	210	331	NC	155	M
Dibenzofuran	µg/kg	ww	23	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	23	7	30%	64.7	207	30.8	7960	104	104	
Di-n-octylphthalate	µg/kg	ww	23	4	17%	22.4	29.5	9	9	NC	29.5	M
Hexachlorocyclopentadiene	µg/kg	ww	23	0	0%	NA	NA	300	350	NA	NA	
Hexachloroethane	µg/kg	ww	23	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	23	0	0%	NA	NA	4.5	11	NC	11	U
Pesticides												
2,4'-DDD	µg/kg	ww	23	1	4%	5.02	5.02	0.73	4.23	NA	NA	
2,4'-DDE	µg/kg	ww	23	2	9%	1.16	1.46	0.37	3.01	NA	NA	
2,4'-DDT	µg/kg	ww	23	19	83%	0.405	6.48	1.01	5.58	NA	NA	
4,4'-DDD	µg/kg	ww	23	5	22%	0.464	2.22	0.55	3.19	NA	NA	
4,4'-DDE	µg/kg	ww	23	23	100%	1.19	77.5	NA	NA	NA	NA	
4,4'-DDT	µg/kg	ww	23	14	61%	1.07	8.87	0.717	19.4	NA	NA	
Aldrin	µg/kg	ww	23	3	13%	1.37	2.55	0.74	4.29	NC	2.55	M
alpha-Chlordane	µg/kg	ww	23	6	26%	0.189	1.31	0.25	2.55	0.536	0.536	
Chlordane	µg/kg	ww	23	0	0%	NA	NA	4.83	38.5	NA	NA	
cis-Nonachlor	µg/kg	ww	23	1	4%	1.05	1.05	0.29	1.97	NC	1.05	M
delta-BHC	µg/kg	ww	23	1	4%	2.18	2.18	0.2	3.43	NC	2.18	M
Dieldrin	µg/kg	ww	23	3	13%	0.361	0.834	0.2	1.16	NC	0.834	M
Endosulfan sulfate	µg/kg	ww	12	2	17%	0.435	0.573	0.53	3.07	NA	NA	
Endrin	µg/kg	ww	23	0	0%	NA	NA	0.28	1.62	NC	1.62	U
Endrin aldehyde	µg/kg	ww	23	0	0%	NA	NA	0.62	3.6	NC	3.6	U
Endrin ketone	µg/kg	ww	23	0	0%	NA	NA	0.39	3.02	NC	3.02	U
gamma-Chlordane	µg/kg	ww	23	11	48%	0.299	3.39	0.26	1.51	1	1	
Heptachlor	µg/kg	ww	23	3	13%	0.74	1.43	0.27	2.05	NC	1.43	M
Heptachlor epoxide	µg/kg	ww	23	4	17%	0.298	0.997	0.18	1.04	NC	0.997	M
Hexachlorobenzene	µg/kg	ww	23	17	74%	0.542	7.78	0.541	3.66	2.74	2.74	
Hexachlorobutadiene	µg/kg	ww	23	0	0%	NA	NA	0.3	5.47	NC	5.47	U
Methoxychlor	µg/kg	ww	23	0	0%	NA	NA	0.48	2.78	NC	2.78	U
Oxychlordane	µg/kg	ww	23	6	26%	0.515	2.06	0.39	2.26	0.921	0.921	
Total chlordane, 0 DL	µg/kg	ww	23	16	70%	0.555	6.79	0.765	2.63	2.31	2.31	
Total chlordane, 1/2 DL	µg/kg	ww	23	16	70%	1.16	7.7	0.765	2.63	3.18	3.18	
Total DDD, 0 DL	µg/kg	ww	23	5	22%	0.503	7.24	0.73	4.23	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	23	5	22%	0.709	7.24	0.73	4.23	NA	NA	
Total DDE, 0 DL	µg/kg	ww	23	23	100%	1.19	77.5	NA	NA	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	23	23	100%	1.36	78	NA	NA	NA	NA	
Total DDT, 0 DL	µg/kg	ww	23	20	87%	0.918	9.81	1.19	19.4	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	23	20	87%	1.03	10.7	1.19	19.4	NA	NA	
Total DDx, 0 DL	µg/kg	ww	23	23	100%	1.26	84.7	NA	NA	21.5	21.5	
Total DDx, 1/2 DL	µg/kg	ww	23	23	100%	2.39	97.9	NA	NA	25	25	

Table A-11a. Summary Statistics for Large Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Toxaphene	µg/kg	ww	23	0	0%	NA	NA	31.1	138	NA	NA	
trans-Nonachlor	µg/kg	ww	23	13	57%	0.364	2.49	0.395	1.57	1.09	1.09	
PAHs												
2-Methylnaphthalene	µg/kg	ww	23	21	91%	0.587	16	0.742	0.801	NA	NA	
Acenaphthene	µg/kg	ww	23	20	87%	0.185	2.16	0.279	0.5	NA	NA	
Acenaphthylene	µg/kg	ww	23	19	83%	0.0357	13.3	0.0614	0.252	NA	NA	
Anthracene	µg/kg	ww	23	10	43%	0.151	1.97	0.19	9.8	NA	NA	
Benzo(a)anthracene	µg/kg	ww	23	1	4%	0.242	0.242	0.16	18	NA	NA	
Benzo(a)pyrene	µg/kg	ww	23	1	4%	1.15	1.15	0.061	0.411	NC	1.15	M
Benzo(b)fluoranthene	µg/kg	ww	23	0	0%	NA	NA	0.14	1.6	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	23	2	9%	0.169	0.447	0.058	1.51	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	23	0	0%	NA	NA	0.092	1.75	NA	NA	
Chrysene	µg/kg	ww	23	0	0%	NA	NA	0.2	2.37	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	23	2	9%	0.151	0.361	0.045	2.01	NA	NA	
Fluoranthene	µg/kg	ww	23	6	26%	0.105	1.13	0.15	1.54	NA	NA	
Fluorene	µg/kg	ww	23	23	100%	0.135	2.61	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	23	2	9%	0.18	0.518	0.1	1.87	NA	NA	
Naphthalene	µg/kg	ww	23	16	70%	0.636	36.6	0.325	1.85	NA	NA	
Phenanthrene	µg/kg	ww	23	22	96%	0.462	6.88	2.53	2.53	NA	NA	
Pyrene	µg/kg	ww	23	2	9%	0.413	1.6	0.12	5.86	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	23	8	35%	0.124	2.73	0.2	18.1	0.838	0.838	
Total HPAHs, 1/2 DL	µg/kg	ww	23	8	35%	0.252	6.47	0.2	18.1	1.54	1.54	
Total LPAHs, 0 DL	µg/kg	ww	23	23	100%	0.963	72.1	NA	NA	33.9	33.9	
Total LPAHs, 1/2 DL	µg/kg	ww	23	23	100%	2.66	72.1	NA	NA	34.9	34.9	
Total PAHs, 0 DL	µg/kg	ww	23	23	100%	0.963	74.8	NA	NA	34.7	34.7	
Total PAHs, 1/2 DL	µg/kg	ww	23	23	100%	3.76	75.3	NA	NA	38.9	38.9	
PCBs												
Aroclor 1016	µg/kg	ww	40	2	5%	14	14	1.4	49	NA	NA	
Aroclor 1221	µg/kg	ww	40	0	0%	NA	NA	1.4	49	NA	NA	
Aroclor 1232	µg/kg	ww	40	0	0%	NA	NA	2.85	98	NA	NA	
Aroclor 1242	µg/kg	ww	40	0	0%	NA	NA	1.4	49	NA	NA	
Aroclor 1248	µg/kg	ww	40	0	0%	NA	NA	1.4	49	NA	NA	
Aroclor 1254	µg/kg	ww	15	10	67%	3	27	1.4	2.19	NA	NA	
Aroclor 1254/1260	µg/kg	ww	25	25	100%	15	419	NA	NA	NA	NA	
Aroclor 1260	µg/kg	ww	15	15	100%	2.5	56	NA	NA	NA	NA	
Aroclor 1262	µg/kg	ww	35	0	0%	NA	NA	10	49	NA	NA	
Aroclor 1268	µg/kg	ww	35	0	0%	NA	NA	10	49	NA	NA	
Total PCB Aroclors, 1/2 DL	µg/kg	ww	40	40	100%	22.4	615	NA	NA	154	154	
Total PCB Aroclors, 0 DL	µg/kg	ww	40	40	100%	5.5	419	NA	NA	89.8	89.8	
Total PCB congeners, 0 DL	pg/g	ww	69	69	100%	6490	381000	NA	NA	61300	61300	
Total PCB congeners, 1/2 DL	pg/g	ww	69	69	100%	7000	382000	NA	NA	84500	84500	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	100	57	57%	0.0679	2.92	0.0772	3.8	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	100	18	18%	0.0311	0.88	0.0264	0.588	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	100	0	0%	NA	NA	0.0236	0.816	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	100	10	10%	0.0388	0.273	0.0353	0.752	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	100	9	9%	0.0276	0.0956	0.0171	0.515	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	100	37	37%	0.0318	0.543	0.0365	0.753	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	100	30	30%	0.0352	0.497	0.0309	0.496	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	100	13	13%	0.0374	0.275	0.0354	0.774	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	100	1	1%	0.0956	0.0956	0.0228	0.744	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	100	39	39%	0.042	0.55	0.0321	0.772	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	100	32	32%	0.0308	0.478	0.0319	0.625	NA	NA	

Table A-11a. Summary Statistics for Large Fish in the Upper Reach OU by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	100	9	9%	0.058	0.4	0.0209	0.416	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	100	35	35%	0.0356	0.656	0.0323	0.628	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	100	11	11%	0.0496	0.21	0.0294	0.576	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	100	100	100%	0.264	11.5	NA	NA	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	100	42	42%	0.13	19.8	0.229	6.82	NA	NA	
Octachlorodibenzofuran	pg/g	ww	100	10	10%	0.0379	1.72	0.0385	1.8	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	100	100	100%	0.269	12	NA	NA	3.07	3.07	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	100	100	100%	0.332	12.6	NA	NA	3.38	3.38	
Dioxin TEQ, fish, 0 DL	pg/g	ww	100	100	100%	0.0154	1.3	NA	NA	0.273	0.273	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	100	100	100%	0.0816	1.45	NA	NA	0.544	0.544	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	100	100	100%	0.0314	1.58	NA	NA	0.377	0.377	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	100	100	100%	0.0868	1.9	NA	NA	0.614	0.614	
PBDEs												
PBDE 17	pg/g	ww	22	22	100%	2.36	85.2	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	22	22	100%	70.8	4850	NA	NA	NA	NA	
PBDE 47	pg/g	ww	22	22	100%	2730	79100	NA	NA	NA	NA	
PBDE 49	pg/g	ww	22	22	100%	67.6	2530	NA	NA	NA	NA	
PBDE 66	pg/g	ww	22	21	95%	0.677	1050	0.0775	0.0775	NA	NA	
PBDE 71	pg/g	ww	22	0	0%	NA	NA	0.0602	0.143	NA	NA	
PBDE 85	pg/g	ww	22	22	100%	0.638	131	NA	NA	NA	NA	
PBDE 99	pg/g	ww	22	19	86%	13.7	25200	6.93	7.65	NA	NA	
PBDE 100	pg/g	ww	22	22	100%	456	11300	NA	NA	NA	NA	
PBDE 128	pg/g	ww	22	2	9%	0.767	0.988	0.192	0.711	NA	NA	
PBDE 138	pg/g	ww	22	17	77%	0.344	15	0.12	0.572	NA	NA	
PBDE 153	pg/g	ww	22	22	100%	35.1	2270	NA	NA	NA	NA	
PBDE 154	pg/g	ww	22	22	100%	125	3540	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	22	18	82%	1.58	50.6	0.527	1.15	NA	NA	
PBDE 184	pg/g	ww	22	21	95%	0.264	20.5	0.169	0.169	NA	NA	
PBDE 190 and 171	pg/g	ww	22	8	36%	0.323	1.26	0.131	0.639	NA	NA	
PBDE 191	pg/g	ww	22	3	14%	0.185	0.764	0.113	0.539	NA	NA	
PBDE 200 and 203	pg/g	ww	22	16	73%	1.06	6.1	0.238	2.33	NA	NA	
PBDE 206	pg/g	ww	22	13	59%	1.8	59.5	1.56	7.45	NA	NA	
PBDE 209	pg/g	ww	22	21	95%	99.9	4050	101	101	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11b. Summary Statistics for Large Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	72	67	93%	0.52	51.02	2.94	3.792	16.3	16.3	
Antimony	mg/kg	ww	72	40	56%	0.00227	0.1123	0.00584	0.1269	0.0148	0.0148	
Arsenic	mg/kg	ww	72	72	100%	0.063	0.7171	NA	NA	0.287	0.287	
Barium	mg/kg	ww	72	72	100%	0.289	6.115	NA	NA	2.44	2.44	
Beryllium	mg/kg	ww	72	9	13%	0.00123	0.005801	0.000903	0.00652	0.0015	0.0015	
Boron	mg/kg	ww	15	0	0%	NA	NA	0.0503	0.146	NA	NA	
Cadmium	mg/kg	ww	72	72	100%	0.00484	0.391	NA	NA	0.0991	0.0991	
Calcium	mg/kg	ww	72	72	100%	3480	12750	NA	NA	NA	NA	
Chromium	mg/kg	ww	72	68	94%	0.0225	3.021	0.02	0.146	0.618	0.618	
Cobalt	mg/kg	ww	72	72	100%	0.0166	0.0899	NA	NA	0.0365	0.0365	
Copper	mg/kg	ww	72	70	97%	0.263	2.57	0.612	0.628	1.03	1.03	
Gold	mg/kg	ww	15	0	0%	NA	NA	0.00705	0.00951	NA	NA	
Iron	mg/kg	ww	72	72	100%	7	93.07	NA	NA	NA	NA	
Lead	mg/kg	ww	72	72	100%	0.00373	4.202	NA	NA	0.835	0.835	
Magnesium	mg/kg	ww	72	72	100%	257	447	NA	NA	NA	NA	
Manganese	mg/kg	ww	72	72	100%	0.235	8.285	NA	NA	2.67	2.67	
Mercury	µg/kg	ww	67	67	100%	35	293	NA	NA	157	157	
Molybdenum	mg/kg	ww	43	12	28%	0.00452	0.0546	0.00557	0.0426	NA	NA	
Nickel	mg/kg	ww	72	70	97%	0.0568	2.043	0.113	0.186	0.322	0.322	
Potassium	mg/kg	ww	72	72	100%	2530	3830	NA	NA	NA	NA	
Selenium	mg/kg	ww	72	70	97%	0.306	0.8747	0.401	0.423	0.564	0.564	
Silver	mg/kg	ww	72	22	31%	0.000446	0.00992	0.000503	0.07889	0.00274	0.00274	
Sodium	mg/kg	ww	72	72	100%	595	1550	NA	NA	NA	NA	
Thallium	mg/kg	ww	72	39	54%	0.00385	0.0459	0.00639	0.07889	0.0237	0.0237	
Tin	mg/kg	ww	15	7	47%	0.00209	0.00716	0.00251	0.00345	NA	NA	
Uranium	mg/kg	ww	72	66	92%	0.000413	0.02577	0.000548	0.00143	NA	NA	
Vanadium	mg/kg	ww	72	42	58%	0.0147	0.2289	0.0151	0.1269	0.0765	0.0765	
Zinc	mg/kg	ww	72	72	100%	10.5	24.5	NA	NA	17.1	17.1	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	15	9	60%	0.000542	0.00145	0.000709	0.000897	NA	NA	
Cerium	mg/kg	ww	15	12	80%	0.000739	0.0442	0.00151	0.00166	NA	NA	
Cesium	mg/kg	ww	15	15	100%	0.00943	0.0494	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	15	5	33%	0.000655	0.00363	0.000709	0.000897	NA	NA	
Erbium	mg/kg	ww	15	4	27%	0.00071	0.00187	0.000709	0.000897	NA	NA	
Europium	mg/kg	ww	15	5	33%	0.00071	0.00198	0.000753	0.000897	NA	NA	
Gadolinium	mg/kg	ww	15	5	33%	0.00142	0.0059	0.00151	0.00261	NA	NA	
Gallium	mg/kg	ww	15	15	100%	0.00196	0.0127	NA	NA	NA	NA	
Germanium	mg/kg	ww	15	15	100%	0.309	0.597	NA	NA	NA	NA	
Holmium	mg/kg	ww	15	1	7%	0.000617	0.000617	0.000453	0.00069	NA	NA	
Indium	mg/kg	ww	15	0	0%	NA	NA	0.000705	0.000947	NA	NA	
Lanthanum	mg/kg	ww	15	14	93%	0.000659	0.0438	0.000864	0.000864	NA	NA	
Lithium	mg/kg	ww	15	8	53%	0.116	0.416	0.0705	0.237	NA	NA	
Lutetium	mg/kg	ww	15	0	0%	NA	NA	0.000453	0.00069	NA	NA	
Neodymium	mg/kg	ww	15	9	60%	0.0013	0.0328	0.000903	0.001	NA	NA	
Niobium	mg/kg	ww	15	1	7%	0.0155	0.0155	0.00253	0.0115	NA	NA	
Praseodymium	mg/kg	ww	15	8	53%	0.000682	0.00853	0.000753	0.000897	NA	NA	
Rubidium	mg/kg	ww	15	15	100%	2.6	5.86	NA	NA	NA	NA	
Samarium	mg/kg	ww	15	5	33%	0.00142	0.00638	0.00151	0.002	NA	NA	
Scandium	mg/kg	ww	15	12	80%	0.00715	0.0286	0.0107	0.0207	NA	NA	
Strontium	mg/kg	ww	15	15	100%	3.94	22.5	NA	NA	NA	NA	
Tellurium	mg/kg	ww	15	0	0%	NA	NA	0.00705	0.00947	NA	NA	
Terbium	mg/kg	ww	15	1	7%	0.00118	0.00118	0.000705	0.000947	NA	NA	
Thorium	mg/kg	ww	15	6	40%	0.00201	0.0149	0.001	0.00531	NA	NA	
Thulium	mg/kg	ww	11	0	0%	NA	NA	0.000753	0.000947	NA	NA	

Table A-11b. Summary Statistics for Large Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Titanium	mg/kg	ww	14	9	64%	0.0865	2.12	0.0251	0.0266	NA	NA	
Tungsten	mg/kg	ww	15	1	7%	0.0192	0.0192	0.00548	0.0592	NA	NA	
Ytterbium	mg/kg	ww	15	1	7%	0.00172	0.00172	0.001	0.00166	NA	NA	
Yttrium	mg/kg	ww	15	9	60%	0.00145	0.0186	0.00151	0.002	NA	NA	
Zirconium	mg/kg	ww	14	8	57%	0.00401	0.0396	0.00289	0.00753	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	15	0	0%	NA	NA	0.314	0.955	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	15	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	15	0	0%	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	15	2	13%	5.96	6.9	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	15	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	15	2	13%	170	191	210	308	NC	191	M
Dibenzofuran	µg/kg	ww	15	0	0%	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	15	5	33%	14.8	208	19.3	8070	NC	208	M
Di-n-octylphthalate	µg/kg	ww	15	3	20%	18.6	30.1	9	22.9	NC	30.1	M
Hexachlorocyclopentadiene	µg/kg	ww	15	0	0%	NA	NA	300	350	NA	NA	
Hexachloroethane	µg/kg	ww	15	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	15	0	0%	NA	NA	4.5	4.5	NC	4.5	U
Pesticides												
2,4'-DDD	µg/kg	ww	15	1	7%	1.17	1.17	0.73	2.89	NA	NA	
2,4'-DDE	µg/kg	ww	15	0	0%	NA	NA	0.37	1.47	NA	NA	
2,4'-DDT	µg/kg	ww	15	13	87%	0.484	2.11	0.51	0.58	NA	NA	
4,4'-DDD	µg/kg	ww	15	3	20%	0.462	1.19	0.55	2.18	NA	NA	
4,4'-DDE	µg/kg	ww	15	14	93%	2.43	17.7	2.88	2.88	NA	NA	
4,4'-DDT	µg/kg	ww	15	6	40%	1.08	2.27	1.45	2.18	NA	NA	
Aldrin	µg/kg	ww	15	0	0%	NA	NA	0.74	2.93	NC	2.93	U
alpha-Chlordane	µg/kg	ww	15	4	27%	0.225	1.1	0.25	1.01	NC	1.1	M
Chlordane	µg/kg	ww	15	0	0%	NA	NA	4.85	26.1	NA	NA	
cis-Nonachlor	µg/kg	ww	15	1	7%	0.519	0.519	0.29	1.16	NC	0.519	M
delta-BHC	µg/kg	ww	15	3	20%	0.49	1.44	0.2	3.25	NC	1.44	M
Dieldrin	µg/kg	ww	15	3	20%	0.196	0.368	0.2	0.78	NC	0.368	M
Endosulfan sulfate	µg/kg	ww	10	0	0%	NA	NA	0.53	1.68	NA	NA	
Endrin	µg/kg	ww	15	0	0%	NA	NA	0.28	1.09	NC	1.09	U
Endrin aldehyde	µg/kg	ww	15	0	0%	NA	NA	0.62	2.44	NC	2.44	U
Endrin ketone	µg/kg	ww	15	0	0%	NA	NA	0.39	1.55	NC	1.55	U
gamma-Chlordane	µg/kg	ww	15	2	13%	0.376	0.53	0.26	1.01	NC	0.53	M
Heptachlor	µg/kg	ww	15	3	20%	0.508	2.02	0.27	1.08	NC	2.02	M
Heptachlor epoxide	µg/kg	ww	15	2	13%	0.338	0.904	0.18	0.705	NC	0.904	M
Hexachlorobenzene	µg/kg	ww	15	9	60%	0.804	13.2	0.693	1.47	6.19	6.19	
Hexachlorobutadiene	µg/kg	ww	15	0	0%	NA	NA	0.3	2.32	NC	2.32	U
Methoxychlor	µg/kg	ww	15	0	0%	NA	NA	0.48	1.87	NC	1.87	U
Oxychlordane	µg/kg	ww	15	2	13%	1.11	1.64	0.39	2.3	NC	1.64	M
Total chlordane, 0 DL	µg/kg	ww	15	10	67%	0.233	3.87	1.07	2.3	1.71	1.71	
Total chlordane, 1/2 DL	µg/kg	ww	15	10	67%	0.568	5.27	1.07	2.3	2.62	2.62	
Total DDD, 0 DL	µg/kg	ww	15	3	20%	0.506	1.78	0.73	2.89	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	15	3	20%	0.696	1.78	0.73	2.89	NA	NA	
Total DDE, 0 DL	µg/kg	ww	15	14	93%	2.43	17.7	2.88	2.88	NA	NA	
Total DDE, 1/2 DL	µg/kg	ww	15	14	93%	3.03	18.4	2.88	2.88	NA	NA	
Total DDT, 0 DL	µg/kg	ww	15	13	87%	0.895	4.04	1.59	1.81	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	15	13	87%	1.02	4.17	1.59	1.81	NA	NA	
Total DDx, 0 DL	µg/kg	ww	15	14	93%	2.7	17.7	3.01	3.01	9.65	9.65	
Total DDx, 1/2 DL	µg/kg	ww	15	14	93%	6.31	22	3.01	3.01	15.7	15.7	
Toxaphene	µg/kg	ww	15	0	0%	NA	NA	25.8	50.7	NA	NA	
trans-Nonachlor	µg/kg	ww	15	6	40%	0.194	2.73	0.27	1.08	1.16	1.16	

Table A-11b. Summary Statistics for Large Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs												
2-Methylnaphthalene	µg/kg	ww	15	7	47%	0.358	0.979	0.252	0.86	NA	NA	
Acenaphthene	µg/kg	ww	15	15	100%	0.117	1.1	NA	NA	NA	NA	
Acenaphthylene	µg/kg	ww	15	14	93%	0.0617	0.564	0.227	0.227	NA	NA	
Anthracene	µg/kg	ww	15	2	13%	0.342	0.912	0.31	14.3	NA	NA	
Benzo(a)anthracene	µg/kg	ww	15	0	0%	NA	NA	0.16	12.3	NA	NA	
Benzo(a)pyrene	µg/kg	ww	15	0	0%	NA	NA	0.061	0.412	NC	0.412	U
Benzo(b)fluoranthene	µg/kg	ww	15	0	0%	NA	NA	0.14	0.946	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	15	0	0%	NA	NA	0.058	0.392	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	15	0	0%	NA	NA	0.092	0.622	NA	NA	
Chrysene	µg/kg	ww	15	0	0%	NA	NA	0.2	2.7	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	15	0	0%	NA	NA	0.045	0.304	NA	NA	
Fluoranthene	µg/kg	ww	15	2	13%	0.31	0.315	0.221	1.01	NA	NA	
Fluorene	µg/kg	ww	15	15	100%	0.195	1.35	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	15	0	0%	NA	NA	0.1	0.676	NA	NA	
Naphthalene	µg/kg	ww	15	4	27%	1.03	2.9	0.451	1.35	NA	NA	
Phenanthrene	µg/kg	ww	15	13	87%	0.785	8.46	0.993	1.46	NA	NA	
Pyrene	µg/kg	ww	15	0	0%	NA	NA	0.12	0.811	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	15	2	13%	0.386	0.397	0.252	12.3	NC	0.397	M
Total HPAHs, 1/2 DL	µg/kg	ww	15	2	13%	0.565	0.578	0.252	12.3	NC	0.578	M
Total LPAHs, 0 DL	µg/kg	ww	15	15	100%	1.08	8.79	NA	NA	5.32	5.32	
Total LPAHs, 1/2 DL	µg/kg	ww	15	15	100%	3.12	12.9	NA	NA	7.42	7.42	
Total PAHs, 0 DL	µg/kg	ww	15	15	100%	1.08	8.79	NA	NA	5.33	5.33	
Total PAHs, 1/2 DL	µg/kg	ww	15	15	100%	4.15	17	NA	NA	9.8	9.8	
PCBs												
Aroclor 1016	µg/kg	ww	24	0	0%	NA	NA	8.02	14	NA	NA	
Aroclor 1221	µg/kg	ww	24	0	0%	NA	NA	10	14	NA	NA	
Aroclor 1232	µg/kg	ww	24	0	0%	NA	NA	18.3	28	NA	NA	
Aroclor 1242	µg/kg	ww	24	0	0%	NA	NA	10	14	NA	NA	
Aroclor 1248	µg/kg	ww	24	0	0%	NA	NA	10	14	NA	NA	
Aroclor 1254	µg/kg	ww	4	3	75%	7.45	20	11	11	NA	NA	
Aroclor 1254/1260	µg/kg	ww	22	22	100%	6.36	68	NA	NA	NA	NA	
Aroclor 1260	µg/kg	ww	3	3	100%	13.5	36	NA	NA	NA	NA	
Aroclor 1262	µg/kg	ww	24	0	0%	NA	NA	10	14	NA	NA	
Aroclor 1268	µg/kg	ww	24	0	0%	NA	NA	10	14	NA	NA	
Total PCB Aroclors, 1/2 DL	µg/kg	ww	24	24	100%	48	109	NA	NA	75.2	75.2	
Total PCB Aroclors, 0 DL	µg/kg	ww	24	24	100%	6.46	68	NA	NA	29	29	
Total PCB congeners, 0 DL	pg/g	ww	49	49	100%	6390	109000	NA	NA	30400	30400	
Total PCB congeners, 1/2 DL	pg/g	ww	49	49	100%	6960	109000	NA	NA	30600	30600	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	67	31	46%	0.0528	0.681	0.0535	2.15	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	67	11	16%	0.0317	0.111	0.0267	1.03	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	67	0	0%	NA	NA	0.025	1.16	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	67	6	9%	0.0423	0.23	0.0417	1.16	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	67	5	7%	0.0243	0.0588	0.0203	0.625	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	67	23	34%	0.0465	0.416	0.0425	1.17	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	67	12	18%	0.0333	0.12	0.0207	0.622	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	67	2	3%	0.0849	0.101	0.041	1.2	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	67	0	0%	NA	NA	0.0263	0.861	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	67	19	28%	0.0538	1.47	0.0475	1.22	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	67	10	15%	0.0412	0.131	0.0371	0.851	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	67	2	3%	0.0331	0.0992	0.0219	0.633	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	67	23	34%	0.0542	0.479	0.0408	0.67	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	67	6	9%	0.0519	0.118	0.0322	0.568	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	67	66	99%	0.385	4.15	1.16	1.16	NA	NA	

Table A-11b. Summary Statistics for Large Fish in the Transitional CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Octachlorodibenzodioxin	pg/g	ww	67	31	46%	0.105	4.29	0.157	11	NA	NA	
Octachlorodibenzofuran	pg/g	ww	67	5	7%	0.048	0.7	0.0356	2.11	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	67	66	99%	0.385	4.49	0	0	2.61	2.61	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	67	66	99%	0.478	5.53	1.29	1.29	2.72	2.72	
Dioxin TEQ, fish, 0 DL	pg/g	ww	67	66	99%	0.0192	1.8	0	0	0.365	0.365	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	67	66	99%	0.106	2.51	0.771	0.771	0.727	0.727	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	67	66	99%	0.0385	1.8	0	0	0.449	0.449	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	67	66	99%	0.11	2.4	0.705	0.705	0.624	0.624	
PBDEs												
PBDE 17	pg/g	ww	15	15	100%	1.36	145	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	15	15	100%	60.8	1800	NA	NA	NA	NA	
PBDE 47	pg/g	ww	15	15	100%	2190	36700	NA	NA	NA	NA	
PBDE 49	pg/g	ww	15	15	100%	107	890	NA	NA	NA	NA	
PBDE 66	pg/g	ww	15	15	100%	2.5	405	NA	NA	NA	NA	
PBDE 71	pg/g	ww	15	0	0%	NA	NA	0.048	0.292	NA	NA	
PBDE 85	pg/g	ww	15	11	73%	1.21	127	0.266	0.643	NA	NA	
PBDE 99	pg/g	ww	15	14	93%	7.54	4940	7.79	7.79	NA	NA	
PBDE 100	pg/g	ww	15	15	100%	420	4620	NA	NA	NA	NA	
PBDE 128	pg/g	ww	15	3	20%	0.318	0.776	0.215	1.12	NA	NA	
PBDE 138	pg/g	ww	15	9	60%	0.603	12.3	0.176	0.817	NA	NA	
PBDE 153	pg/g	ww	15	15	100%	92.9	613	NA	NA	NA	NA	
PBDE 154	pg/g	ww	15	15	100%	96	1240	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	15	10	67%	1.72	15	0.82	3.77	NA	NA	
PBDE 184	pg/g	ww	15	15	100%	1.09	6	NA	NA	NA	NA	
PBDE 190 and 171	pg/g	ww	15	2	13%	0.57	0.909	0.108	0.657	NA	NA	
PBDE 191	pg/g	ww	15	2	13%	0.22	0.291	0.0925	0.521	NA	NA	
PBDE 200 and 203	pg/g	ww	14	9	64%	0.349	4.58	0.511	4.42	NA	NA	
PBDE 206	pg/g	ww	14	8	57%	0.894	18.1	2.06	6.61	NA	NA	
PBDE 209	pg/g	ww	14	14	100%	42.1	1050	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11c. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	ww	194	175	90%	0.866	107	0.668	8.14	12	12	
Antimony	mg/kg	ww	194	74	38%	0.00152	0.13	0.002	0.1373	0.00931	0.00931	
Arsenic	mg/kg	ww	194	187	96%	0.0574	1.37	0.0587	0.103	0.29	0.29	
Barium	mg/kg	ww	194	194	100%	0.2829	8.72	NA	NA	2.64	2.64	
Beryllium	mg/kg	ww	194	9	5%	0.000731	0.00947	0.000812	0.00704	0.000962	0.000962	
Boron	mg/kg	ww	43	0	0%	NA	NA	0.05	0.216	NA	NA	
Cadmium	mg/kg	ww	194	190	98%	0.00846	0.4053	0.01536	0.01725	0.0863	0.0863	
Calcium	mg/kg	ww	194	194	100%	2960	15660	NA	NA	NA	NA	
Chromium	mg/kg	ww	194	189	97%	0.017	2.99	0.0246	0.0822	0.488	0.488	
Cobalt	mg/kg	ww	194	192	99%	0.0137	0.128	0.0205	0.0212	0.0376	0.0376	
Copper	mg/kg	ww	194	193	99%	0.3024	2.02	0.555	0.555	0.811	0.811	
Gold	mg/kg	ww	43	1	2%	0.0204	0.0204	0.00622	0.02	NA	NA	
Iron	mg/kg	ww	194	194	100%	6.88	188	NA	NA	NA	NA	
Lead	mg/kg	ww	194	185	95%	0.00614	4.01	0.00582	0.01534	0.374	0.374	
Magnesium	mg/kg	ww	194	194	100%	251	470	NA	NA	NA	NA	
Manganese	mg/kg	ww	193	193	100%	0.342	10.7	NA	NA	2.95	2.95	
Mercury	µg/kg	ww	189	189	100%	44.4	376	NA	NA	162	162	
Molybdenum	mg/kg	ww	118	41	35%	0.0048	0.063	0.00646	0.0523	NA	NA	
Nickel	mg/kg	ww	194	193	99%	0.0431	1.4	0.136	0.136	0.23	0.23	
Potassium	mg/kg	ww	194	194	100%	2180	3817	NA	NA	NA	NA	
Selenium	mg/kg	ww	194	191	98%	0.15	0.8689	0.293	0.387	0.437	0.437	
Silver	mg/kg	ww	194	53	27%	0.00062	0.0065	0.000509	0.0855	0.00208	0.00208	
Sodium	mg/kg	ww	194	194	100%	575	1636	NA	NA	NA	NA	
Thallium	mg/kg	ww	194	110	57%	0.00344	0.0567	0.0056	0.0855	0.0249	0.0249	
Tin	mg/kg	ww	43	4	9%	0.00171	0.0369	0.002	0.00496	NA	NA	
Uranium	mg/kg	ww	194	173	89%	0.000369	0.0259	0.000517	0.00219	NA	NA	
Vanadium	mg/kg	ww	194	109	56%	0.0132	0.392	0.0154	0.1373	0.0595	0.0595	
Zinc	mg/kg	ww	194	194	100%	10.72	34.9	NA	NA	17.4	17.4	
Other Metals/Metalloids												
Bismuth	mg/kg	ww	43	25	58%	0.000499	0.002	0.000749	0.001	NA	NA	
Cerium	mg/kg	ww	43	38	88%	0.00119	0.0395	0.00154	0.00162	NA	NA	
Cesium	mg/kg	ww	43	43	100%	0.00915	0.0554	NA	NA	NA	NA	
Dysprosium	mg/kg	ww	43	16	37%	0.000609	0.00238	0.0007	0.00095	NA	NA	
Erbium	mg/kg	ww	43	6	14%	0.000521	0.00166	0.000659	0.001	NA	NA	
Europium	mg/kg	ww	43	13	30%	0.000704	0.00218	0.0007	0.001	NA	NA	
Gadolinium	mg/kg	ww	43	10	23%	0.00133	0.00424	0.00154	0.00261	NA	NA	
Gallium	mg/kg	ww	43	43	100%	0.00232	0.0105	NA	NA	NA	NA	
Germanium	mg/kg	ww	43	43	100%	0.327	0.82	NA	NA	NA	NA	
Holmium	mg/kg	ww	43	1	2%	0.00049	0.00049	0.000455	0.000748	NA	NA	
Indium	mg/kg	ww	43	1	2%	0.00078	0.00078	0.000622	0.001	NA	NA	
Lanthanum	mg/kg	ww	43	39	91%	0.000685	0.0238	0.000763	0.000886	NA	NA	
Lithium	mg/kg	ww	43	33	77%	0.1	0.414	0.0802	0.245	NA	NA	
Lutetium	mg/kg	ww	43	1	2%	0.000554	0.000554	0.000455	0.000748	NA	NA	
Neodymium	mg/kg	ww	43	37	86%	0.00123	0.0221	0.000909	0.00146	NA	NA	
Niobium	mg/kg	ww	43	0	0%	NA	NA	0.002	0.00927	NA	NA	
Praseodymium	mg/kg	ww	43	28	65%	0.000667	0.00595	0.000749	0.000914	NA	NA	
Rubidium	mg/kg	ww	43	43	100%	1.9	8.1	NA	NA	NA	NA	
Samarium	mg/kg	ww	43	12	28%	0.00133	0.00462	0.001	0.002	NA	NA	
Scandium	mg/kg	ww	43	40	93%	0.00463	0.0348	0.01	0.0133	NA	NA	
Strontium	mg/kg	ww	43	43	100%	3.78	24.2	NA	NA	NA	NA	
Tantalum	mg/kg	ww	5	0	0%	NA	NA	0.01	0.0164	NA	NA	
Tellurium	mg/kg	ww	43	0	0%	NA	NA	0.00622	0.01	NA	NA	
Terbium	mg/kg	ww	43	0	0%	NA	NA	0.000622	0.001	NA	NA	
Thorium	mg/kg	ww	43	22	51%	0.00119	0.00818	0.001	0.00484	NA	NA	
Thulium	mg/kg	ww	34	0	0%	NA	NA	0.000622	0.001	NA	NA	

Table A-11c. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Titanium	mg/kg	ww	33	29	88%	0.0383	1.13	0.0251	0.0292	NA	NA	
Tungsten	mg/kg	ww	43	4	9%	0.0174	0.0553	0.005	0.0468	NA	NA	
Ytterbium	mg/kg	ww	43	1	2%	0.00148	0.00148	0.000957	0.002	NA	NA	
Yttrium	mg/kg	ww	43	34	79%	0.00126	0.0153	0.00149	0.002	NA	NA	
Zirconium	mg/kg	ww	42	23	55%	0.00157	0.36	0.00255	0.0118	NA	NA	
SVOCs												
1,1'-Biphenyl	µg/kg	ww	43	4	9%	0.508	1.15	0.25	2.29	NA	NA	
1,2,4-Trichlorobenzene	µg/kg	ww	43	0	0%	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	µg/kg	ww	43	2	5%	3.01	3.96	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	µg/kg	ww	43	8	19%	5.87	9.36	4.6	10.6	NA	NA	
Benzyl n-butyl phthalate	µg/kg	ww	43	0	0%	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	µg/kg	ww	43	5	12%	164	484	210	2120	NC	484	M
Dibenzofuran	µg/kg	ww	43	2	5%	3.55	3.75	4.4	4.4	NA	NA	
Di-n-butyl phthalate	µg/kg	ww	43	10	23%	13.9	2180	38.7	5940	309	309	
Di-n-octylphthalate	µg/kg	ww	43	14	33%	10.4	63.3	9	9	19.2	19.2	
Hexachlorocyclopentadiene	µg/kg	ww	43	0	0%	NA	NA	300	350	NA	NA	
Hexachloroethane	µg/kg	ww	43	0	0%	NA	NA	16	16	NA	NA	
Pentachlorophenol	µg/kg	ww	43	0	0%	NA	NA	4.5	11	NC	11	U
Pesticides												
2,4'-DDD	µg/kg	ww	43	6	14%	0.701	3.18	0.73	5.15	NA	NA	
2,4'-DDE	µg/kg	ww	43	2	5%	0.555	0.569	0.37	2.78	NA	NA	
2,4'-DDT	µg/kg	ww	43	35	81%	0.362	8.4	0.651	3.81	NA	NA	
4,4'-DDD	µg/kg	ww	43	16	37%	0.619	2.74	0.55	3.89	NA	NA	
4,4'-DDE	µg/kg	ww	43	43	100%	2.05	42.9	NA	NA	NA	NA	
4,4'-DDT	µg/kg	ww	43	23	53%	0.435	10.3	0.672	6.22	NA	NA	
Aldrin	µg/kg	ww	43	8	19%	1.06	9.31	0.74	5.19	1.89	1.89	
alpha-Chlordane	µg/kg	ww	43	21	49%	0.211	2.08	0.25	2.51	0.689	0.689	
Chlordane	µg/kg	ww	43	1	2%	16.4	16.4	5.62	45.9	NA	NA	
cis-Nonachlor	µg/kg	ww	43	2	5%	0.57	0.838	0.29	3.3	NC	0.838	M
delta-BHC	µg/kg	ww	43	7	16%	0.225	2.63	0.2	4.39	0.503	0.503	
Dieldrin	µg/kg	ww	43	12	28%	0.17	1.23	0.2	1.4	0.324	0.324	
Endosulfan sulfate	µg/kg	ww	34	2	6%	0.43	0.556	0.53	3.74	NA	NA	
Endrin	µg/kg	ww	43	0	0%	NA	NA	0.28	1.96	NC	1.96	U
Endrin aldehyde	µg/kg	ww	43	1	2%	0.594	0.594	0.62	4.35	NC	0.594	M
Endrin ketone	µg/kg	ww	43	0	0%	NA	NA	0.39	3	NC	3	U
gamma-Chlordane	µg/kg	ww	43	23	53%	0.222	2.34	0.26	1.82	0.655	0.655	
Heptachlor	µg/kg	ww	43	14	33%	0.266	4.98	0.27	4.9	0.93	0.93	
Heptachlor epoxide	µg/kg	ww	43	8	19%	0.31	1.21	0.18	1.81	0.379	0.379	
Hexachlorobenzene	µg/kg	ww	43	28	65%	0.808	12.2	0.37	8.16	2.81	2.81	
Hexachlorobutadiene	µg/kg	ww	43	1	2%	1.33	1.33	0.675	6.87	NC	1.33	M
Methoxychlor	µg/kg	ww	43	0	0%	NA	NA	0.48	3.36	NC	3.36	U
Oxychlordane	µg/kg	ww	43	10	23%	0.412	3.36	0.39	2.24	0.934	0.934	
Total chlordane, 0 DL	µg/kg	ww	43	33	77%	0.437	4.11	0.889	2.24	1.82	1.82	
Total chlordane, 1/2 DL	µg/kg	ww	43	33	77%	1.05	7.32	0.889	2.24	3.08	3.08	
Total DDD, 0 DL	µg/kg	ww	43	17	40%	0.66	5.8	0.73	5.15	NA	NA	
Total DDD, 1/2 DL	µg/kg	ww	43	17	40%	0.88	5.93	0.73	5.15	NA	NA	
Total DDE, 0 DL	µg/kg	ww	43	43	100%	2.05	42.9	NA	NA	NA	NA	
Pesticides (continued)												
Total DDE, 1/2 DL	µg/kg	ww	43	43	100%	2.14	43.1	NA	NA	NA	NA	
Total DDT, 0 DL	µg/kg	ww	43	37	86%	0.586	17.5	1.17	2.84	NA	NA	
Total DDT, 1/2 DL	µg/kg	ww	43	37	86%	0.706	17.5	1.17	2.84	NA	NA	
Total DDx, 0 DL	µg/kg	ww	43	43	100%	2.54	57.1	NA	NA	16.4	16.4	
Total DDx, 1/2 DL	µg/kg	ww	43	43	100%	3.53	59.3	NA	NA	24.6	24.6	
Toxaphene	µg/kg	ww	43	0	0%	NA	NA	13.6	136	NA	NA	
trans-Nonachlor	µg/kg	ww	43	18	42%	0.342	2.23	0.27	2.87	0.788	0.788	

Table A-11c. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs												
2-Methylnaphthalene	µg/kg	ww	43	32	74%	0.308	4.04	0.309	0.959	NA	NA	
Acenaphthene	µg/kg	ww	43	34	79%	0.0597	2.04	0.052	0.673	NA	NA	
Acenaphthylene	µg/kg	ww	43	31	72%	0.0974	2.38	0.047	0.36	NA	NA	
Anthracene	µg/kg	ww	43	8	19%	0.237	5.15	0.19	9	NA	NA	
Benzo(a)anthracene	µg/kg	ww	43	1	2%	1.63	1.63	0.16	10.4	NA	NA	
Benzo(a)pyrene	µg/kg	ww	43	0	0%	NA	NA	0.061	0.795	NC	0.795	U
Benzo(b)fluoranthene	µg/kg	ww	43	4	9%	0.686	1.84	0.14	1.72	NA	NA	
Benzo(g,h,i)perylene	µg/kg	ww	43	4	9%	0.51	1.82	0.058	0.735	NA	NA	
Benzo(k)fluoranthene	µg/kg	ww	43	4	9%	0.534	1.82	0.092	1.16	NA	NA	
Chrysene	µg/kg	ww	43	1	2%	2.06	2.06	0.2	5.06	NA	NA	
Dibenzo(a,h)anthracene	µg/kg	ww	43	4	9%	0.511	1.6	0.045	0.552	NA	NA	
Fluoranthene	µg/kg	ww	43	4	9%	0.149	1.25	0.15	2.65	NA	NA	
Fluorene	µg/kg	ww	43	37	86%	0.0932	2.28	0.095	2.59	NA	NA	
Indeno(1,2,3-cd)pyrene	µg/kg	ww	43	5	12%	0.675	1.82	0.1	1.23	NA	NA	
Naphthalene	µg/kg	ww	43	19	44%	0.523	6.36	0.238	4.46	NA	NA	
Phenanthrene	µg/kg	ww	43	34	79%	0.265	5.72	0.32	7.55	NA	NA	
Pyrene	µg/kg	ww	43	2	5%	0.443	1.09	0.12	1.47	NA	NA	
Total HPAHs, 0 DL	µg/kg	ww	43	7	16%	0.161	14	0.2	9.62	1.67	1.67	
Total HPAHs, 1/2 DL	µg/kg	ww	43	7	16%	0.411	14.6	0.2	9.62	2.29	2.29	
Total LPAHs, 0 DL	µg/kg	ww	43	42	98%	0.681	16.8	4.01	4.01	5.27	5.27	
Total LPAHs, 1/2 DL	µg/kg	ww	43	42	98%	1.08	19	4.01	4.01	7.5	7.5	
Total PAHs, 0 DL	µg/kg	ww	43	42	98%	0.681	16.8	5.19	5.19	7.7	7.7	
Total PAHs, 1/2 DL	µg/kg	ww	43	42	98%	1.39	23.5	5.19	5.19	13.9	13.9	
PCBs												
Aroclor 1016	µg/kg	ww	71	0	0%	NA	NA	8.89	22	NA	NA	
Aroclor 1221	µg/kg	ww	71	0	0%	NA	NA	9.8	22	NA	NA	
Aroclor 1232	µg/kg	ww	71	0	0%	NA	NA	20	44	NA	NA	
Aroclor 1242	µg/kg	ww	71	0	0%	NA	NA	9.8	22	NA	NA	
Aroclor 1248	µg/kg	ww	71	0	0%	NA	NA	9.8	22	NA	NA	
Aroclor 1254	µg/kg	ww	20	20	100%	4.51	68	NA	NA	NA	NA	
Aroclor 1254/1260	µg/kg	ww	51	51	100%	6.3	164	NA	NA	NA	NA	
Aroclor 1260	µg/kg	ww	20	20	100%	4.85	78	NA	NA	NA	NA	
Aroclor 1262	µg/kg	ww	71	0	0%	NA	NA	9.8	22	NA	NA	
Aroclor 1268	µg/kg	ww	71	0	0%	NA	NA	9.8	22	NA	NA	
Total PCB Aroclors, 1/2 DL	µg/kg	ww	71	71	100%	46.8	248	NA	NA	101	101	
Total PCB Aroclors, 0 DL	µg/kg	ww	71	71	100%	6.3	164	NA	NA	61.6	61.6	
Total PCB congeners, 0 DL	pg/g	ww	134	134	100%	7080	172000	NA	NA	49000	49000	
Total PCB congeners, 1/2 DL	pg/g	ww	134	134	100%	7180	172000	NA	NA	49100	49100	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	pg/g	ww	189	80	42%	0.0512	0.702	0.0614	1.42	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	pg/g	ww	189	9	5%	0.0291	0.166	0.0235	1.03	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	pg/g	ww	189	0	0%	NA	NA	0.0244	1.56	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	pg/g	ww	189	5	3%	0.0373	0.456	0.0445	1.36	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	pg/g	ww	189	3	2%	0.0308	0.0625	0.0183	1.02	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	pg/g	ww	189	50	26%	0.049	0.45	0.0583	1.28	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	pg/g	ww	189	21	11%	0.0331	0.147	0.0216	1.07	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	pg/g	ww	189	11	6%	0.0463	0.214	0.0444	1.36	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	pg/g	ww	189	0	0%	NA	NA	0.0253	1.34	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	pg/g	ww	189	43	23%	0.0324	0.585	0.0433	0.984	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	pg/g	ww	189	31	16%	0.0296	0.376	0.0434	0.675	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	pg/g	ww	189	3	2%	0.031	0.0567	0.0259	0.993	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	pg/g	ww	189	43	23%	0.0523	0.827	0.0457	0.648	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	pg/g	ww	189	15	8%	0.046	0.228	0.0347	0.725	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	pg/g	ww	189	188	99%	0.499	8.35	1.24	1.24	NA	NA	
Octachlorodibenzodioxin	pg/g	ww	189	63	33%	0.096	18.6	0.143	9.49	NA	NA	

Table A-11c. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Wet Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
Octachlorodibenzofuran	pg/g	ww	189	12	6%	0.0344	0.396	0.037	3.47	NA	NA	
Dioxin TEQ, bird, 0 DL	pg/g	ww	189	188	99%	0.422	8.57	0	0	3.35	3.35	
Dioxin TEQ, bird, 1/2 DL	pg/g	ww	189	188	99%	0.539	9.32	1.3	1.3	3.08	3.08	
Dioxin TEQ, fish, 0 DL	pg/g	ww	189	188	99%	0.0212	1.27	0	0	0.289	0.289	
Dioxin TEQ, fish, 1/2 DL	pg/g	ww	189	188	99%	0.0881	2.06	0.797	0.797	0.579	0.579	
Dioxin TEQ, mammal, 0 DL	pg/g	ww	189	188	99%	0.043	1.41	0	0	0.437	0.437	
Dioxin TEQ, mammal, 1/2 DL	pg/g	ww	189	188	99%	0.103	2.12	0.703	0.703	0.65	0.65	
PBDEs												
PBDE 17	pg/g	ww	42	42	100%	3.27	411	NA	NA	NA	NA	
PBDE 28 and 33	pg/g	ww	42	42	100%	101	3550	NA	NA	NA	NA	
PBDE 47	pg/g	ww	42	42	100%	2990	110000	NA	NA	NA	NA	
PBDE 49	pg/g	ww	42	42	100%	268	3030	NA	NA	NA	NA	
PBDE 66	pg/g	ww	42	42	100%	4.19	1200	NA	NA	NA	NA	
PBDE 71	pg/g	ww	42	2	5%	4.19	4.94	0.0535	5.56	NA	NA	
PBDE 85	pg/g	ww	42	35	83%	0.263	311	0.171	0.63	NA	NA	
PBDE 99	pg/g	ww	42	37	88%	6.79	15400	3.46	15.5	NA	NA	
PBDE 100	pg/g	ww	42	42	100%	557	12300	NA	NA	NA	NA	
PBDE 128	pg/g	ww	42	11	26%	0.692	2.17	0.209	1.64	NA	NA	
PBDE 138	pg/g	ww	42	33	79%	0.224	41	0.149	0.722	NA	NA	
PBDE 153	pg/g	ww	42	42	100%	120	1110	NA	NA	NA	NA	
PBDE 154	pg/g	ww	42	42	100%	126	2520	NA	NA	NA	NA	
PBDE 183 and 176	pg/g	ww	42	32	76%	1.61	33.3	0.577	4.54	NA	NA	
PBDE 184	pg/g	ww	42	42	100%	0.572	24.9	NA	NA	NA	NA	
PBDE 190 and 171	pg/g	ww	42	8	19%	0.407	2.37	0.106	1.09	NA	NA	
PBDE 191	pg/g	ww	42	5	12%	0.301	2.62	0.0915	1.02	NA	NA	
PBDE 200 and 203	pg/g	ww	42	20	48%	0.307	8.23	0.236	8.42	NA	NA	
PBDE 206	pg/g	ww	42	23	55%	0.641	16.6	1.29	9.21	NA	NA	
PBDE 209	pg/g	ww	42	41	98%	25	745	127	127	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11d. Summary Statistics for Large Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	110	92	84%	2.11	1470	3.75	16.3	151	151	
Antimony	mg/kg	dw	110	58	53%	0.00745	5	0.00685	0.486	0.383	0.383	
Arsenic	mg/kg	dw	110	107	97%	0.184	3.63	0.259	0.329	0.715	0.715	
Barium	mg/kg	dw	110	110	100%	1.11	142	NA	NA	15.3	15.3	
Beryllium	mg/kg	dw	110	15	14%	0.00241	0.0812	0.00305	0.0243	0.00765	0.00765	
Boron	mg/kg	dw	23	0	0%	NA	NA	0.193	0.913	NA	NA	
Cadmium	mg/kg	dw	110	107	97%	0.0431	2.36	0.05	0.05	0.631	0.631	
Calcium	mg/kg	dw	110	110	100%	3390	55200	NA	NA	NA	NA	
Chromium	mg/kg	dw	110	107	97%	0.0568	30	0.0712	0.077	4.31	4.31	
Cobalt	mg/kg	dw	110	106	96%	0.055	4.32	0.0332	0.057	0.314	0.314	
Copper	mg/kg	dw	110	110	100%	1.01	178	NA	NA	15.9	15.9	
Gold	mg/kg	dw	23	0	0%	NA	NA	0.0253	0.102	NA	NA	
Iron	mg/kg	dw	110	110	100%	26.3	15000	NA	NA	1130	1130	
Lead	mg/kg	dw	110	110	100%	0.0223	52.6	NA	NA	9.45	9.45	
Magnesium	mg/kg	dw	110	110	100%	649	1800	NA	NA	NA	NA	
Manganese	mg/kg	dw	110	110	100%	1.42	312	NA	NA	33.7	33.7	
Mercury	mg/kg	dw	100	100	100%	0.0761	0.955	NA	NA	0.445	0.445	
Molybdenum	mg/kg	dw	60	31	52%	0.0196	0.407	0.0199	0.132	0.0717	0.0717	
Nickel	mg/kg	dw	110	110	100%	0.172	19	NA	NA	2.16	2.16	
Potassium	mg/kg	dw	110	110	100%	7650	17500	NA	NA	NA	NA	
Selenium	mg/kg	dw	110	110	100%	0.616	3.53	NA	NA	2.01	2.01	
Silver	mg/kg	dw	110	43	39%	0.00348	0.609	0.00188	0.286	0.0498	0.0498	
Sodium	mg/kg	dw	110	110	100%	1730	7080	NA	NA	NA	NA	
Thallium	mg/kg	dw	110	53	48%	0.00996	0.151	0.00853	0.304	0.078	0.078	
Tin	mg/kg	dw	23	15	65%	0.00609	0.399	0.00881	0.0163	NA	NA	
Uranium	mg/kg	dw	110	96	87%	0.00152	0.357	0.00188	0.00991	0.0453	0.0453	
Vanadium	mg/kg	dw	110	57	52%	0.0512	2.94	0.055	0.486	0.462	0.462	
Zinc	mg/kg	dw	110	110	100%	25.3	1320	NA	NA	162	162	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	23	8	35%	0.00187	0.00459	0.00253	0.00314	NA	NA	
Cerium	mg/kg	dw	23	14	61%	0.00536	0.721	0.00351	0.00592	NA	NA	
Cesium	mg/kg	dw	23	23	100%	0.0354	0.231	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	23	9	39%	0.00263	0.0329	0.00253	0.00314	NA	NA	
Erbium	mg/kg	dw	23	7	30%	0.00226	0.009	0.00253	0.00314	NA	NA	
Europium	mg/kg	dw	23	11	48%	0.00235	0.00979	0.00193	0.00314	NA	NA	
Gadolinium	mg/kg	dw	23	8	35%	0.00541	0.0679	0.0055	0.00818	NA	NA	
Gallium	mg/kg	dw	23	20	87%	0.00543	0.122	0.00621	0.00722	NA	NA	
Germanium	mg/kg	dw	23	23	100%	0.715	4.64	NA	NA	NA	NA	
Holmium	mg/kg	dw	23	4	17%	0.00175	0.00466	0.00185	0.00216	NA	NA	
Indium	mg/kg	dw	23	9	39%	0.00268	0.0941	0.00253	0.00312	NA	NA	
Lanthanum	mg/kg	dw	23	17	74%	0.00228	0.326	0.00253	0.0031	NA	NA	
Lithium	mg/kg	dw	23	16	70%	0.24	1.32	0.253	0.314	NA	NA	
Lutetium	mg/kg	dw	23	0	0%	NA	NA	0.00185	0.00216	NA	NA	
Neodymium	mg/kg	dw	23	14	61%	0.00304	0.302	0.00322	0.00487	NA	NA	
Niobium	mg/kg	dw	23	4	17%	0.0195	0.0439	0.00881	0.0374	NA	NA	
Praseodymium	mg/kg	dw	23	11	48%	0.00222	0.0878	0.00253	0.0031	NA	NA	
Rubidium	mg/kg	dw	23	23	100%	9.12	24.7	NA	NA	NA	NA	
Samarium	mg/kg	dw	23	7	30%	0.00811	0.0775	0.005	0.00722	NA	NA	
Scandium	mg/kg	dw	23	13	57%	0.0303	0.115	0.0261	0.0404	NA	NA	
Strontium	mg/kg	dw	23	23	100%	12.5	75.5	NA	NA	NA	NA	
Tellurium	mg/kg	dw	23	0	0%	NA	NA	0.0253	0.0314	NA	NA	
Terbium	mg/kg	dw	23	3	13%	0.0023	0.00878	0.00253	0.00314	NA	NA	
Thorium	mg/kg	dw	23	8	35%	0.00515	0.0349	0.00351	0.00963	NA	NA	

Table A-11d. Summary Statistics for Large Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Thulium	mg/kg	dw	15	0	0%	NA	NA	0.00277	0.00312	NA	NA	
Titanium	mg/kg	dw	19	16	84%	0.0932	7.8	0.0858	0.0917	NA	NA	
Tungsten	mg/kg	dw	23	2	9%	0.0619	0.0839	0.0198	0.103	NA	NA	
Ytterbium	mg/kg	dw	23	3	13%	0.00398	0.00871	0.00351	0.00592	NA	NA	
Yttrium	mg/kg	dw	23	14	61%	0.00545	0.104	0.005	0.00722	NA	NA	
Zirconium	mg/kg	dw	23	17	74%	0.00269	0.486	0.0101	0.0254	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	23	2	9%	0.00184	0.00379	0.000913	0.00471	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	23	0	0%	NA	NA	0.0159	0.0284	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	23	0	0%	NA	NA	0.0104	0.0185	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	23	4	17%	0.0195	0.0286	0.0116	0.037	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	23	0	0%	NA	NA	0.53	0.946	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	23	1	4%	0.494	0.494	0.53	1.08	NC	0.494	M
Dibenzofuran	mg/kg	dw	23	0	0%	NA	NA	0.0111	0.0198	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	23	7	30%	0.247	0.745	0.132	27.9	0.372	0.372	
Di-n-octylphthalate	mg/kg	dw	23	4	17%	0.0786	0.117	0.0227	0.0405	NC	0.117	M
Hexachlorocyclopentadiene	mg/kg	dw	23	0	0%	NA	NA	0.884	1.58	NA	NA	
Hexachloroethane	mg/kg	dw	23	0	0%	NA	NA	0.0404	0.0721	NA	NA	
Pentachlorophenol	mg/kg	dw	23	0	0%	NA	NA	0.0114	0.0386	NC	0.0386	U
Pesticides												
2,4'-DDD	mg/kg	dw	23	1	4%	0.0166	0.0166	0.00226	0.0148	NA	NA	
2,4'-DDE	mg/kg	dw	23	2	9%	0.0036	0.00369	0.00148	0.00959	NA	NA	
2,4'-DDT	mg/kg	dw	23	19	83%	0.00142	0.0236	0.00455	0.0184	NA	NA	
4,4'-DDD	mg/kg	dw	23	5	22%	0.00177	0.00733	0.00201	0.0112	NA	NA	
4,4'-DDE	mg/kg	dw	23	23	100%	0.00469	0.256	NA	NA	NA	NA	
4,4'-DDT	mg/kg	dw	23	14	61%	0.0027	0.0285	0.00323	0.064	NA	NA	
Aldrin	mg/kg	dw	23	3	13%	0.00488	0.00812	0.00244	0.0151	NC	0.00812	M
alpha-Chlordane	mg/kg	dw	23	6	26%	0.000624	0.00417	0.000664	0.00895	0.00178	0.00178	
Chlordane	mg/kg	dw	23	0	0%	NA	NA	0.0211	0.123	NA	NA	
cis-Nonachlor	mg/kg	dw	23	1	4%	0.00326	0.00326	0.00103	0.00627	NC	0.00326	M
delta-BHC	mg/kg	dw	23	1	4%	0.00765	0.00765	0.00066	0.0136	NC	0.00765	M
Dieldrin	mg/kg	dw	23	3	13%	0.00101	0.00258	0.00066	0.00407	NC	0.00258	M
Endosulfan sulfate	mg/kg	dw	12	2	17%	0.00155	0.00206	0.00193	0.0108	NA	NA	
Endrin	mg/kg	dw	23	0	0%	NA	NA	0.000707	0.00568	NC	0.00568	U
Endrin aldehyde	mg/kg	dw	23	0	0%	NA	NA	0.00157	0.0126	NC	0.0126	U
Endrin ketone	mg/kg	dw	23	0	0%	NA	NA	0.000985	0.00962	NC	0.00962	U
gamma-Chlordane	mg/kg	dw	23	11	48%	0.000926	0.0112	0.000974	0.0053	0.00321	0.00321	
Heptachlor	mg/kg	dw	23	3	13%	0.00237	0.00514	0.000985	0.00719	NC	0.00514	M
Heptachlor epoxide	mg/kg	dw	23	4	17%	0.00132	0.00329	0.000455	0.00365	NC	0.00329	M
Hexachlorobenzene	mg/kg	dw	23	17	74%	0.00227	0.0242	0.00244	0.0151	0.0104	0.0104	
Hexachlorobutadiene	mg/kg	dw	23	0	0%	NA	NA	0.00115	0.0192	NC	0.0192	U
Methoxychlor	mg/kg	dw	23	0	0%	NA	NA	0.00121	0.00975	NC	0.00975	U
Oxychlordane	mg/kg	dw	23	6	26%	0.00185	0.0068	0.00139	0.00793	0.00303	0.00303	
Total chlordane, 0 DL	mg/kg	dw	23	16	70%	0.00198	0.0224	0.00345	0.00923	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	23	16	70%	0.00372	0.0254	0.00345	0.00923	0.0106	0.0106	
Total DDD, 0 DL	mg/kg	dw	23	5	22%	0.00192	0.0239	0.0026	0.0148	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	23	5	22%	0.00271	0.0239	0.0026	0.0148	NA	NA	
Total DDE, 0 DL	mg/kg	dw	23	23	100%	0.00469	0.256	NA	NA	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	23	23	100%	0.00498	0.257	NA	NA	NA	NA	
Total DDT, 0 DL	mg/kg	dw	23	20	87%	0.0035	0.0315	0.00536	0.064	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	23	20	87%	0.00386	0.0376	0.00536	0.064	NA	NA	
Total DDx, 0 DL	mg/kg	dw	23	23	100%	0.00568	0.28	NA	NA	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	23	23	100%	0.00863	0.323	NA	NA	0.0846	0.0846	

Table A-11d. Summary Statistics for Large Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Toxaphene	mg/kg	dw	23	0	0%	NA	NA	0.0785	0.455	NA	NA	
trans-Nonachlor	mg/kg	dw	23	13	57%	0.00139	0.00801	0.00178	0.00551	0.00348	0.00348	
PAHs												
2-Methylnaphthalene	mg/kg	dw	23	21	91%	0.00233	0.0669	0.00278	0.00331	NA	NA	
Acenaphthene	mg/kg	dw	23	20	87%	0.000665	0.00545	0.000979	0.00187	NA	NA	
Acenaphthylene	mg/kg	dw	23	19	83%	0.000115	0.0556	0.000277	0.000884	NA	NA	
Anthracene	mg/kg	dw	23	10	43%	0.000545	0.00709	0.000611	0.0348	NA	NA	
Benzo(a)anthracene	mg/kg	dw	23	1	4%	0.00109	0.00109	0.000469	0.0632	NA	NA	
Benzo(a)pyrene	mg/kg	dw	23	1	4%	0.00366	0.00366	0.000179	0.00131	NC	0.00366	M
Benzo(b)fluoranthene	mg/kg	dw	23	0	0%	NA	NA	0.000411	0.0051	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	23	2	9%	0.000761	0.00192	0.00017	0.00481	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	23	0	0%	NA	NA	0.00027	0.00557	NA	NA	
Chrysene	mg/kg	dw	23	0	0%	NA	NA	0.000587	0.00755	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	23	2	9%	0.00068	0.00155	0.000132	0.0064	NA	NA	
Fluoranthene	mg/kg	dw	23	6	26%	0.000338	0.00473	0.00054	0.00477	NA	NA	
Fluorene	mg/kg	dw	23	23	100%	0.000511	0.00833	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	23	2	9%	0.000811	0.00222	0.000293	0.00596	NA	NA	
Naphthalene	mg/kg	dw	23	16	70%	0.00161	0.153	0.00123	0.00734	NA	NA	
Phenanthrene	mg/kg	dw	23	22	96%	0.00175	0.0219	0.00888	0.00888	NA	NA	
Pyrene	mg/kg	dw	23	2	9%	0.00132	0.00669	0.000352	0.0181	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	23	8	35%	0.000399	0.0114	0.000719	0.0635	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	23	8	35%	0.00081	0.0206	0.000719	0.0635	0.00546	0.00546	
Total LPAHs, 0 DL	mg/kg	dw	23	23	100%	0.00398	0.302	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	23	23	100%	0.0107	0.302	NA	NA	0.123	0.123	
Total PAHs, 0 DL	mg/kg	dw	23	23	100%	0.00398	0.313	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	23	23	100%	0.0142	0.315	NA	NA	0.136	0.136	
PCBs												
Aroclor 1016	mg/kg	dw	40	2	5%	0.0402	0.0406	0.0053	0.186	NA	NA	
Aroclor 1221	mg/kg	dw	40	0	0%	NA	NA	0.0053	0.186	NA	NA	
Aroclor 1232	mg/kg	dw	40	0	0%	NA	NA	0.011	0.371	NA	NA	
Aroclor 1242	mg/kg	dw	40	0	0%	NA	NA	0.0053	0.186	NA	NA	
Aroclor 1248	mg/kg	dw	40	0	0%	NA	NA	0.0053	0.186	NA	NA	
Aroclor 1254	mg/kg	dw	15	10	67%	0.00926	0.0968	0.0053	0.0102	NA	NA	
Aroclor 1254/1260	mg/kg	dw	25	25	100%	0.0442	1.59	NA	NA	NA	NA	
Aroclor 1260	mg/kg	dw	15	15	100%	0.00772	0.214	NA	NA	NA	NA	
Aroclor 1262	mg/kg	dw	35	0	0%	NA	NA	0.0295	0.186	NA	NA	
Aroclor 1268	mg/kg	dw	35	0	0%	NA	NA	0.0295	0.186	NA	NA	
Total PCB Aroclors, 1/2 DL	mg/kg	dw	40	40	100%	0.0926	2.33	NA	NA	0.564	0.564	
Total PCB Aroclors, 0 DL	mg/kg	dw	40	40	100%	0.017	1.59	NA	NA	NA	NA	
Total PCB congeners, 0 DL	mg/kg	dw	69	69	100%	0.0292	1.26	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	69	69	100%	0.0311	1.26	NA	NA	0.299	0.299	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	100	57	57%	0.000000284	0.0000083	0.000000248	0.0000117	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	100	18	18%	8.64E-08	0.0000025	9.26E-08	0.00000186	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	100	0	0%	NA	NA	7.81E-08	0.00000258	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	100	10	10%	0.000000128	0.000000814	0.000000134	0.00000238	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	100	9	9%	7.96E-08	0.000000369	5.29E-08	0.00000146	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	100	37	37%	0.000000121	0.00000173	0.000000138	0.00000238	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	100	30	30%	9.57E-08	0.00000164	0.000000116	0.00000141	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	100	13	13%	0.000000134	0.000000849	0.000000134	0.00000245	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	100	1	1%	0.000000369	0.000000369	7.06E-08	0.00000211	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	100	39	39%	0.000000175	0.00000142	0.000000137	0.00000272	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	100	32	32%	0.000000117	0.00000181	0.000000133	0.00000193	NA	NA	

Table A-11d. Summary Statistics for Large Fish in the Upper Reach OU by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)												
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	100	9	9%	0.00000016	0.00000129	6.47E-08	0.00000132	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	100	35	35%	0.000000149	0.00000167	0.000000138	0.00000178	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	100	11	11%	0.000000178	0.000000614	0.000000111	0.00000218	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	100	100	100%	0.00000113	0.0000436	NA	NA	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	100	42	42%	0.000000433	0.0000611	0.000000871	0.000021	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	100	10	10%	0.000000125	0.00000499	0.000000127	0.0000057	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	100	100	100%	0.00000115	0.0000455	NA	NA	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	100	100	100%	0.00000142	0.0000477	NA	NA	0.0000117	0.0000117	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	100	100	100%	6.94E-08	0.00000328	NA	NA	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	100	100	100%	0.000000349	0.00000549	NA	NA	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	100	100	100%	0.000000141	0.00000492	NA	NA	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	100	100	100%	0.000000371	0.0000072	NA	NA	2.11E-06	0.00000211	
PBDEs												
PBDE 17	mg/kg	dw	22	22	100%	0.0000101	0.000281	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	22	22	100%	0.000319	0.0203	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	22	22	100%	0.0102	0.261	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	22	22	100%	0.000305	0.00786	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	22	21	95%	0.00000283	0.00308	0.000000349	0.000000349	NA	NA	
PBDE 71	mg/kg	dw	22	0	0%	NA	NA	0.000000221	0.000000527	NA	NA	
PBDE 85	mg/kg	dw	22	22	100%	0.00000224	0.000562	NA	NA	NA	NA	
PBDE 99	mg/kg	dw	22	19	86%	0.0000452	0.0739	0.0000286	0.000032	NA	NA	
PBDE 100	mg/kg	dw	22	22	100%	0.00191	0.0373	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	22	2	9%	0.00000317	0.00000424	0.000000727	0.00000226	NA	NA	
PBDE 138	mg/kg	dw	22	17	77%	0.0000013	0.0000631	0.000000396	0.00000184	NA	NA	
PBDE 153	mg/kg	dw	22	22	100%	0.000158	0.00711	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	22	22	100%	0.000451	0.0117	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	22	18	82%	0.00000521	0.000148	0.000002	0.00000481	NA	NA	
PBDE 184	mg/kg	dw	22	21	95%	0.00000101	0.0000726	0.000000761	0.000000761	NA	NA	
PBDE 190 and 171	mg/kg	dw	22	8	36%	0.00000116	0.00000541	0.0000005	0.00000239	NA	NA	
PBDE 191	mg/kg	dw	22	3	14%	0.000000764	0.00000243	0.000000431	0.00000202	NA	NA	
PBDE 200 and 203	mg/kg	dw	22	16	73%	0.00000341	0.0000223	0.000000908	0.00000829	NA	NA	
PBDE 206	mg/kg	dw	22	13	59%	0.00000682	0.000223	0.00000457	0.0000231	NA	NA	
PBDE 209	mg/kg	dw	22	21	95%	0.000429	0.0152	0.000255	0.000255	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

OU - operable unit

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11e. Summary Statistics for Large Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	72	67	93%	1.69	197	11	14.7	60.9	60.9	
Antimony	mg/kg	dw	72	40	56%	0.00757	0.427	0.0254	0.493	0.0546	0.0546	
Arsenic	mg/kg	dw	72	72	100%	0.205	3.26	NA	NA	1.18	1.18	
Barium	mg/kg	dw	72	72	100%	0.938	29.4	NA	NA	10.2	10.2	
Beryllium	mg/kg	dw	72	9	13%	0.00408	0.0231	0.00303	0.0246	0.0053	0.0053	
Boron	mg/kg	dw	15	0	0%	NA	NA	0.194	0.48	NA	NA	
Cadmium	mg/kg	dw	72	72	100%	0.0155	1.7	NA	NA	0.394	0.394	
Calcium	mg/kg	dw	72	72	100%	12200	47400	NA	NA	NA	NA	
Chromium	mg/kg	dw	72	68	94%	0.0733	12	0.0752	0.527	2.37	2.37	
Cobalt	mg/kg	dw	72	72	100%	0.059	0.358	NA	NA	0.136	0.136	
Copper	mg/kg	dw	72	70	97%	1.02	10.5	2.27	2.35	3.91	3.91	
Gold	mg/kg	dw	15	0	0%	NA	NA	0.0283	0.0349	NA	NA	
Iron	mg/kg	dw	72	72	100%	22.5	346	NA	NA	111	111	
Lead	mg/kg	dw	72	72	100%	0.0132	17.4	NA	NA	3.33	3.33	
Magnesium	mg/kg	dw	72	72	100%	759	1670	NA	NA	NA	NA	
Manganese	mg/kg	dw	72	72	100%	0.833	30.8	NA	NA	10.3	10.3	
Mercury	mg/kg	dw	67	67	100%	0.117	1.27	NA	NA	0.615	0.615	
Molybdenum	mg/kg	dw	43	12	28%	0.0166	0.202	0.02	0.123	0.0498	0.0498	
Nickel	mg/kg	dw	72	70	97%	0.203	8.14	0.435	0.671	1.23	1.23	
Potassium	mg/kg	dw	72	72	100%	7940	16800	NA	NA	NA	NA	
Selenium	mg/kg	dw	72	70	97%	1.09	3.96	1.53	1.54	2.12	2.12	
Silver	mg/kg	dw	72	22	31%	0.0017	0.0356	0.00191	0.268	0.00982	0.00982	
Sodium	mg/kg	dw	72	72	100%	1730	7420	NA	NA	NA	NA	
Thallium	mg/kg	dw	72	39	54%	0.0134	0.165	0.0246	0.307	0.0831	0.0831	
Tin	mg/kg	dw	15	7	47%	0.00799	0.0297	0.00864	0.0113	NA	NA	
Uranium	mg/kg	dw	72	66	92%	0.00151	0.104	0.00196	0.00451	0.0274	0.0274	
Vanadium	mg/kg	dw	72	42	58%	0.0538	0.912	0.0547	0.493	0.291	0.291	
Zinc	mg/kg	dw	72	72	100%	34.1	100	NA	NA	63.9	63.9	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	15	9	60%	0.0019	0.00494	0.00283	0.00303	NA	NA	
Cerium	mg/kg	dw	15	12	80%	0.00278	0.158	0.00539	0.00583	NA	NA	
Cesium	mg/kg	dw	15	15	100%	0.0355	0.211	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	15	5	33%	0.00235	0.013	0.00283	0.0031	NA	NA	
Erbium	mg/kg	dw	15	4	27%	0.00215	0.0067	0.00283	0.0031	NA	NA	
Europium	mg/kg	dw	15	5	33%	0.00215	0.00822	0.00283	0.0031	NA	NA	
Gadolinium	mg/kg	dw	15	5	33%	0.00509	0.0211	0.00583	0.00837	NA	NA	
Gallium	mg/kg	dw	15	15	100%	0.00737	0.0455	NA	NA	NA	NA	
Germanium	mg/kg	dw	15	15	100%	1	2.17	NA	NA	NA	NA	
Holmium	mg/kg	dw	15	1	7%	0.00221	0.00221	0.00188	0.00208	NA	NA	
Indium	mg/kg	dw	15	0	0%	NA	NA	0.00283	0.0031	NA	NA	
Lanthanum	mg/kg	dw	15	14	93%	0.00239	0.147	0.0031	0.0031	NA	NA	
Lithium	mg/kg	dw	15	8	53%	0.436	1.5	0.283	0.718	NA	NA	
Lutetium	mg/kg	dw	15	0	0%	NA	NA	0.00188	0.00208	NA	NA	
Neodymium	mg/kg	dw	15	9	60%	0.0052	0.118	0.00314	0.00376	NA	NA	
Niobium	mg/kg	dw	15	1	7%	0.0556	0.0556	0.00864	0.0477	NA	NA	
Praseodymium	mg/kg	dw	15	8	53%	0.00291	0.0306	0.00283	0.0031	NA	NA	
Rubidium	mg/kg	dw	15	15	100%	9.64	22.6	NA	NA	NA	NA	
Samarium	mg/kg	dw	15	5	33%	0.00509	0.0229	0.00516	0.00752	NA	NA	
Scandium	mg/kg	dw	15	12	80%	0.0306	0.0861	0.0402	0.0747	NA	NA	
Strontium	mg/kg	dw	15	15	100%	14.3	96.2	NA	NA	NA	NA	
Tellurium	mg/kg	dw	15	0	0%	NA	NA	0.0283	0.031	NA	NA	
Terbium	mg/kg	dw	15	1	7%	0.00423	0.00423	0.00283	0.0031	NA	NA	

Table A-11e. Summary Statistics for Large Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Thorium	mg/kg	dw	15	6	40%	0.00726	0.0534	0.00376	0.022	NA	NA	
Thulium	mg/kg	dw	11	0	0%	NA	NA	0.00283	0.00304	NA	NA	
Titanium	mg/kg	dw	14	9	64%	0.325	7.6	0.0837	0.0969	NA	NA	
Tungsten	mg/kg	dw	15	1	7%	0.0615	0.0615	0.0205	0.253	NA	NA	
Ytterbium	mg/kg	dw	15	1	7%	0.00616	0.00616	0.00376	0.00592	NA	NA	
Yttrium	mg/kg	dw	15	9	60%	0.00509	0.0667	0.00516	0.00752	NA	NA	
Zirconium	mg/kg	dw	14	8	57%	0.0171	0.153	0.00926	0.0272	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	15	0	0%	NA	NA	0.000952	0.00345	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	15	0	0%	NA	NA	0.019	0.0269	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	15	0	0%	NA	NA	0.0123	0.0175	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	15	2	13%	0.0224	0.0276	0.0139	0.0197	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	15	0	0%	NA	NA	0.633	0.897	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	15	2	13%	0.614	0.69	0.633	1.1	NC	0.69	M
Dibenzofuran	mg/kg	dw	15	0	0%	NA	NA	0.0133	0.0188	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	15	5	33%	0.0571	0.746	0.0585	29.1	NC	0.746	M
Di-n-octylphthalate	mg/kg	dw	15	3	20%	0.0744	0.113	0.0273	0.069	NC	0.113	M
Hexachlorocyclopentadiene	mg/kg	dw	15	0	0%	NA	NA	0.904	1.5	NA	NA	
Hexachloroethane	mg/kg	dw	15	0	0%	NA	NA	0.0482	0.0684	NA	NA	
Pentachlorophenol	mg/kg	dw	15	0	0%	NA	NA	0.0136	0.0192	NC	0.0192	U
Pesticides												
2,4'-DDD	mg/kg	dw	15	1	7%	0.00422	0.00422	0.00246	0.0101	NA	NA	
2,4'-DDE	mg/kg	dw	15	0	0%	NA	NA	0.00119	0.00517	NA	NA	
2,4'-DDT	mg/kg	dw	15	13	87%	0.00184	0.00762	0.00188	0.00218	NA	NA	
4,4'-DDD	mg/kg	dw	15	3	20%	0.00178	0.00361	0.00176	0.00765	NA	NA	
4,4'-DDE	mg/kg	dw	15	14	93%	0.00972	0.0575	0.0123	0.0123	NA	NA	
4,4'-DDT	mg/kg	dw	15	6	40%	0.00325	0.00796	0.00545	0.00781	NA	NA	
Aldrin	mg/kg	dw	15	0	0%	NA	NA	0.00265	0.0122	NC	0.0122	U
alpha-Chlordane	mg/kg	dw	15	4	27%	0.000869	0.00356	0.000903	0.00354	NC	0.00356	M
Chlordane	mg/kg	dw	15	0	0%	NA	NA	0.0175	0.0847	NA	NA	
cis-Nonachlor	mg/kg	dw	15	1	7%	0.00156	0.00156	0.000955	0.00407	NC	0.00156	M
delta-BHC	mg/kg	dw	15	3	20%	0.00189	0.00541	0.000717	0.0114	NC	0.00541	M
Dieldrin	mg/kg	dw	15	3	20%	0.000708	0.00112	0.000641	0.00274	NC	0.00112	M
Endosulfan sulfate	mg/kg	dw	10	0	0%	NA	NA	0.0019	0.00672	NA	NA	
Endrin	mg/kg	dw	15	0	0%	NA	NA	0.000897	0.00382	NC	0.00382	U
Endrin aldehyde	mg/kg	dw	15	0	0%	NA	NA	0.00199	0.00856	NC	0.00856	U
Endrin ketone	mg/kg	dw	15	0	0%	NA	NA	0.00125	0.00544	NC	0.00544	U
gamma-Chlordane	mg/kg	dw	15	2	13%	0.00145	0.0019	0.000833	0.00354	NC	0.0019	M
Heptachlor	mg/kg	dw	15	3	20%	0.00163	0.00656	0.000968	0.00384	NC	0.00656	M
Heptachlor epoxide	mg/kg	dw	15	2	13%	0.00122	0.00272	0.000645	0.00255	NC	0.00272	M
Hexachlorobenzene	mg/kg	dw	15	9	60%	0.00302	0.0429	0.00268	0.00517	0.0162	0.0162	
Hexachlorobutadiene	mg/kg	dw	15	0	0%	NA	NA	0.00108	0.00699	NC	0.00699	U
Methoxychlor	mg/kg	dw	15	0	0%	NA	NA	0.00154	0.00656	NC	0.00656	U
Oxychlordane	mg/kg	dw	15	2	13%	0.00356	0.00592	0.0014	0.00747	NC	0.00592	M
Total chlordane, 0 DL	mg/kg	dw	15	10	67%	0.000841	0.0117	0.00384	0.00747	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	15	10	67%	0.00205	0.0159	0.00384	0.00747	0.00878	0.00878	
Total DDD, 0 DL	mg/kg	dw	15	3	20%	0.00195	0.00643	0.00246	0.0101	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	15	3	20%	0.00269	0.00643	0.00246	0.0101	NA	NA	
Total DDE, 0 DL	mg/kg	dw	15	14	93%	0.00972	0.0575	0.0123	0.0123	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	15	14	93%	0.0121	0.0597	0.0123	0.0123	NA	NA	
Total DDT, 0 DL	mg/kg	dw	15	13	87%	0.00333	0.0144	0.00588	0.00679	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	15	13	87%	0.00383	0.0151	0.00588	0.00679	NA	NA	

Table A-11e. Summary Statistics for Large Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Total DDx, 0 DL	mg/kg	dw	15	14	93%	0.0108	0.0575	0.0129	0.0129	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	15	14	93%	0.0238	0.0714	0.0129	0.0129	0.0539	0.0539	
Toxaphene	mg/kg	dw	15	0	0%	NA	NA	0.0827	0.178	NA	NA	
trans-Nonachlor	mg/kg	dw	15	6	40%	0.0007	0.00822	0.000865	0.00379	0.00381	0.00381	
PAHs												
2-Methylnaphthalene	mg/kg	dw	15	7	47%	0.00129	0.00374	0.000764	0.00284	NA	NA	
Acenaphthene	mg/kg	dw	15	15	100%	0.000434	0.00353	NA	NA	NA	NA	
Acenaphthylene	mg/kg	dw	15	14	93%	0.000216	0.00226	0.000814	0.000814	NA	NA	
Anthracene	mg/kg	dw	15	2	13%	0.00137	0.00343	0.00109	0.0513	NA	NA	
Benzo(a)anthracene	mg/kg	dw	15	0	0%	NA	NA	0.000602	0.0441	NA	NA	
Benzo(a)pyrene	mg/kg	dw	15	0	0%	NA	NA	0.000229	0.00149	NC	0.00149	U
Benzo(b)fluoranthene	mg/kg	dw	15	0	0%	NA	NA	0.000526	0.00342	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	15	0	0%	NA	NA	0.000218	0.00142	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	15	0	0%	NA	NA	0.000346	0.00225	NA	NA	
Chrysene	mg/kg	dw	15	0	0%	NA	NA	0.000752	0.00968	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	15	0	0%	NA	NA	0.000169	0.0011	NA	NA	
Fluoranthene	mg/kg	dw	15	2	13%	0.000994	0.00102	0.00067	0.00365	NA	NA	
Fluorene	mg/kg	dw	15	15	100%	0.000833	0.00407	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	15	0	0%	NA	NA	0.000376	0.00244	NA	NA	
Naphthalene	mg/kg	dw	15	4	27%	0.00369	0.00992	0.00162	0.00523	NA	NA	
Phenanthrene	mg/kg	dw	15	13	87%	0.00295	0.0305	0.00412	0.00624	NA	NA	
Pyrene	mg/kg	dw	15	0	0%	NA	NA	0.000451	0.00293	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	15	2	13%	0.00124	0.00129	0.000894	0.0441	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	15	2	13%	0.00183	0.00185	0.000894	0.0441	NC	0.00185	M
Total LPAHs, 0 DL	mg/kg	dw	15	15	100%	0.00462	0.0317	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	15	15	100%	0.0113	0.0466	NA	NA	0.0263	0.0263	
Total PAHs, 0 DL	mg/kg	dw	15	15	100%	0.00462	0.0317	NA	NA	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	15	15	100%	0.0146	0.0614	NA	NA	0.0358	0.0358	
PCBs												
Aroclor 1016	mg/kg	dw	24	0	0%	NA	NA	0.0307	0.064	NA	NA	
Aroclor 1221	mg/kg	dw	24	0	0%	NA	NA	0.0346	0.064	NA	NA	
Aroclor 1232	mg/kg	dw	24	0	0%	NA	NA	0.066	0.123	NA	NA	
Aroclor 1242	mg/kg	dw	24	0	0%	NA	NA	0.0346	0.064	NA	NA	
Aroclor 1248	mg/kg	dw	24	0	0%	NA	NA	0.0346	0.064	NA	NA	
Aroclor 1254	mg/kg	dw	4	3	75%	0.0234	0.0743	0.0526	0.0526	NA	NA	
Aroclor 1254/1260	mg/kg	dw	22	22	100%	0.0242	0.296	NA	NA	NA	NA	
Aroclor 1260	mg/kg	dw	3	3	100%	0.0425	0.134	NA	NA	NA	NA	
Aroclor 1262	mg/kg	dw	24	0	0%	NA	NA	0.0346	0.064	NA	NA	
Aroclor 1268	mg/kg	dw	24	0	0%	NA	NA	0.0346	0.064	NA	NA	
Total PCB Aroclors, 1/2 DL	mg/kg	dw	24	24	100%	0.19	0.474	NA	NA	0.305	0.305	
Total PCB Aroclors, 0 DL	mg/kg	dw	24	24	100%	0.0279	0.296	NA	NA	NA	NA	
Total PCB congeners, 0 DL	mg/kg	dw	49	49	100%	0.022	0.405	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	49	49	100%	0.0236	0.405	NA	NA	0.111	0.111	
Dioxins and Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	67	31	46%	0.000000169	0.00000317	0.000000188	0.00000678	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	67	11	16%	0.000000103	0.000000516	8.99E-08	0.00000398	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	67	0	0%	NA	NA	8.96E-08	0.00000355	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	67	6	9%	0.00000015	0.000000946	0.000000134	0.00000394	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	67	5	7%	0.000000081	0.000000256	6.63E-08	0.0000021	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	67	23	34%	0.000000149	0.00000136	0.000000136	0.00000421	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	67	12	18%	0.000000102	0.000000417	6.76E-08	0.00000207	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	67	2	3%	0.000000324	0.000000419	0.000000131	0.00000429	NA	NA	

Table A-11e. Summary Statistics for Large Fish in the Transitional CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins and Furans (continued)												
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	67	0	0%	NA	NA	8.59E-08	0.00000332	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	67	19	28%	0.000000187	0.00000568	0.000000168	0.00000386	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	67	10	15%	0.00000014	0.000000492	0.00000012	0.00000329	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	67	2	3%	0.000000101	0.000000424	7.16E-08	0.00000225	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	67	23	34%	0.00000019	0.00000185	0.000000145	0.00000205	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	67	6	9%	0.000000166	0.000000395	0.000000122	0.00000247	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	67	66	99%	0.00000131	0.0000182	0.00000462	0.00000462	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	67	31	46%	0.000000337	0.00002	0.000000604	0.0000347	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	67	5	7%	0.000000157	0.00000326	0.000000146	0.00000815	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	67	66	99%	0.00000131	0.0000182	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	67	66	99%	0.00000165	0.0000197	0.00000514	0.00000514	0.00001	0.00001	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	67	66	99%	6.57E-08	0.00000695	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	67	66	99%	0.000000369	0.00000969	0.00000307	0.00000307	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	67	66	99%	0.000000133	0.00000695	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	67	66	99%	0.00000039	0.00000927	0.00000281	0.00000281	0.00000228	0.00000228	
PBDEs												
PBDE 17	mg/kg	dw	15	15	100%	0.00000581	0.000523	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	15	15	100%	0.000252	0.0065	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	15	15	100%	0.00876	0.132	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	15	15	100%	0.000457	0.00321	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	15	15	100%	0.00000903	0.00122	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	15	0	0%	NA	NA	0.000000201	0.00000117	NA	NA	
PBDE 85	mg/kg	dw	15	11	73%	0.00000434	0.000527	0.000000853	0.00000257	NA	NA	
PBDE 99	mg/kg	dw	15	14	93%	0.0000272	0.015	0.0000281	0.0000281	NA	NA	
PBDE 100	mg/kg	dw	15	15	100%	0.00168	0.0167	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	15	3	20%	0.00000136	0.00000322	0.000000754	0.00000448	NA	NA	
PBDE 138	mg/kg	dw	15	9	60%	0.00000183	0.000051	0.000000571	0.00000327	NA	NA	
PBDE 153	mg/kg	dw	15	15	100%	0.000372	0.0022	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	15	15	100%	0.000384	0.00448	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	15	10	67%	0.00000551	0.0000494	0.00000296	0.0000135	NA	NA	
PBDE 184	mg/kg	dw	15	15	100%	0.00000359	0.0000215	NA	NA	NA	NA	
PBDE 190 and 171	mg/kg	dw	15	2	13%	0.00000204	0.00000377	0.000000351	0.00000247	NA	NA	
PBDE 191	mg/kg	dw	15	2	13%	0.00000094	0.00000121	0.0000003	0.00000208	NA	NA	
PBDE 200 and 203	mg/kg	dw	14	9	64%	0.00000112	0.0000166	0.00000197	0.0000177	NA	NA	
PBDE 206	mg/kg	dw	14	8	57%	0.00000287	0.0000649	0.00000624	0.0000264	NA	NA	
PBDE 209	mg/kg	dw	14	14	100%	0.000135	0.00368	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-11f. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids												
Aluminum	mg/kg	dw	194	175	90%	3.24	330	2.49	25.7	42.7	42.7	
Antimony	mg/kg	dw	194	74	38%	0.00517	0.401	0.00678	0.512	0.0321	0.0321	
Arsenic	mg/kg	dw	194	187	96%	0.22	6.52	0.218	0.381	1.22	1.22	
Barium	mg/kg	dw	194	194	100%	0.95	41.3	NA	NA	11.3	11.3	
Beryllium	mg/kg	dw	194	9	5%	0.00269	0.0292	0.0029	0.0259	0.00344	0.00344	
Boron	mg/kg	dw	43	0	0%	NA	NA	0.184	0.922	NA	NA	
Cadmium	mg/kg	dw	194	190	98%	0.0298	1.3	0.046	0.05	0.313	0.313	
Calcium	mg/kg	dw	194	194	100%	9710	62400	NA	NA	NA	NA	
Chromium	mg/kg	dw	194	189	97%	0.0567	9.23	0.0714	0.286	1.78	1.78	
Cobalt	mg/kg	dw	194	192	99%	0.0416	0.41	0.0659	0.0711	0.138	0.138	
Copper	mg/kg	dw	194	193	99%	1.06	8.12	1.8	1.8	3.11	3.11	
Gold	mg/kg	dw	43	1	2%	0.0742	0.0742	0.0256	0.0922	NA	NA	
Iron	mg/kg	dw	194	194	100%	20.9	580	NA	NA	115	115	
Lead	mg/kg	dw	194	185	95%	0.0216	13.4	0.019	0.05	1.32	1.32	
Magnesium	mg/kg	dw	194	194	100%	719	1850	NA	NA	NA	NA	
Manganese	mg/kg	dw	193	193	100%	1.15	35.5	NA	NA	10.9	10.9	
Mercury	mg/kg	dw	189	189	100%	0.138	1.38	NA	NA	0.622	0.622	
Molybdenum	mg/kg	dw	118	41	35%	0.0173	0.246	0.0209	0.2	0.0577	0.0577	
Nickel	mg/kg	dw	194	193	99%	0.146	4.32	0.442	0.442	0.86	0.86	
Potassium	mg/kg	dw	194	194	100%	6610	16200	NA	NA	NA	NA	
Selenium	mg/kg	dw	194	191	98%	0.538	3.24	0.951	1.26	1.62	1.62	
Silver	mg/kg	dw	194	53	27%	0.00188	0.0278	0.00187	0.269	0.00779	0.00779	
Sodium	mg/kg	dw	194	194	100%	1760	8020	NA	NA	NA	NA	
Thallium	mg/kg	dw	194	110	57%	0.0101	0.269	0.0209	0.27	0.0893	0.0893	
Tin	mg/kg	dw	43	4	9%	0.0062	0.141	0.00845	0.021	NA	NA	
Uranium	mg/kg	dw	194	173	89%	0.0014	0.0759	0.00189	0.006	0.0205	0.0205	
Vanadium	mg/kg	dw	194	109	56%	0.0518	1.21	0.0563	0.512	0.219	0.219	
Zinc	mg/kg	dw	194	194	100%	31.8	130	NA	NA	63.4	63.4	
Other Metals/Metalloids												
Bismuth	mg/kg	dw	43	25	58%	0.00188	0.00922	0.00256	0.0031	NA	NA	
Cerium	mg/kg	dw	43	38	88%	0.00364	0.143	0.00528	0.00606	NA	NA	
Cesium	mg/kg	dw	43	43	100%	0.0306	0.224	NA	NA	NA	NA	
Dysprosium	mg/kg	dw	43	16	37%	0.00217	0.00702	0.00256	0.00313	NA	NA	
Erbium	mg/kg	dw	43	6	14%	0.0024	0.0049	0.00256	0.00316	NA	NA	
Europium	mg/kg	dw	43	13	30%	0.00239	0.0102	0.00256	0.00313	NA	NA	
Gadolinium	mg/kg	dw	43	10	23%	0.00488	0.0125	0.00579	0.00866	NA	NA	
Gallium	mg/kg	dw	43	43	100%	0.00811	0.0328	NA	NA	NA	NA	
Germanium	mg/kg	dw	43	43	100%	1.02	2.73	NA	NA	NA	NA	
Holmium	mg/kg	dw	43	1	2%	0.00145	0.00145	0.00184	0.00216	NA	NA	
Indium	mg/kg	dw	43	1	2%	0.0026	0.0026	0.00256	0.00316	NA	NA	
Lanthanum	mg/kg	dw	43	39	91%	0.00257	0.0754	0.00256	0.00305	NA	NA	
Lithium	mg/kg	dw	43	33	77%	0.325	1.44	0.256	0.702	NA	NA	
Lutetium	mg/kg	dw	43	1	2%	0.00215	0.00215	0.00184	0.00216	NA	NA	
Neodymium	mg/kg	dw	43	37	86%	0.00442	0.0652	0.00313	0.00446	NA	NA	
Niobium	mg/kg	dw	43	0	0%	NA	NA	0.00845	0.0309	NA	NA	
Praseodymium	mg/kg	dw	43	28	65%	0.00206	0.0176	0.00256	0.00307	NA	NA	
Rubidium	mg/kg	dw	43	43	100%	6.2	29.1	NA	NA	NA	NA	

Table A-11f. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)												
Samarium	mg/kg	dw	43	12	28%	0.00475	0.0136	0.00433	0.00752	NA	NA	
Scandium	mg/kg	dw	43	40	93%	0.0182	0.103	0.0306	0.0576	NA	NA	
Strontium	mg/kg	dw	43	43	100%	13	108	NA	NA	NA	NA	
Tantalum	mg/kg	dw	5	0	0%	NA	NA	0.0383	0.0576	NA	NA	
Tellurium	mg/kg	dw	43	0	0%	NA	NA	0.0256	0.0316	NA	NA	
Terbium	mg/kg	dw	43	0	0%	NA	NA	0.00256	0.00316	NA	NA	
Thorium	mg/kg	dw	43	22	51%	0.00398	0.0266	0.00376	0.0175	NA	NA	
Thulium	mg/kg	dw	34	0	0%	NA	NA	0.00271	0.00316	NA	NA	
Titanium	mg/kg	dw	33	29	88%	0.147	4.09	0.0853	0.0959	NA	NA	
Tungsten	mg/kg	dw	43	4	9%	0.0652	0.218	0.0189	0.165	NA	NA	
Ytterbium	mg/kg	dw	43	1	2%	0.00437	0.00437	0.00365	0.00606	NA	NA	
Yttrium	mg/kg	dw	43	34	79%	0.00453	0.051	0.00516	0.00606	NA	NA	
Zirconium	mg/kg	dw	42	23	55%	0.0048	1.24	0.00898	0.0549	NA	NA	
SVOCs												
1,1'-Biphenyl	mg/kg	dw	43	4	9%	0.00181	0.00405	0.000886	0.00766	NA	NA	
1,2,4-Trichlorobenzene	mg/kg	dw	43	0	0%	NA	NA	0.0175	0.0294	NA	NA	
4-Bromophenyl-phenylether	mg/kg	dw	43	2	5%	0.0132	0.0134	0.0114	0.0192	NA	NA	
4-Chlorophenyl-phenyl ether	mg/kg	dw	43	8	19%	0.0207	0.0405	0.0127	0.042	NA	NA	
Benzyl n-butyl phthalate	mg/kg	dw	43	0	0%	NA	NA	0.582	0.981	NA	NA	
bis(2-Ethylhexyl)phthalate	mg/kg	dw	43	5	12%	0.541	1.69	0.582	7.46	NC	1.69	M
Dibenzofuran	mg/kg	dw	43	2	5%	0.0119	0.0166	0.0122	0.0206	NA	NA	
Di-n-butyl phthalate	mg/kg	dw	43	10	23%	0.0547	7.17	0.127	18.2	1.02	1.02	
Di-n-octylphthalate	mg/kg	dw	43	14	33%	0.0441	0.221	0.0249	0.0354	0.0685	0.0685	
Hexachlorocyclopentadiene	mg/kg	dw	43	0	0%	NA	NA	0.831	1.4	NA	NA	
Hexachloroethane	mg/kg	dw	43	0	0%	NA	NA	0.0443	0.0748	NA	NA	
Pentachlorophenol	mg/kg	dw	43	0	0%	NA	NA	0.0127	0.0305	NC	0.0305	U
Pesticides												
2,4'-DDD	mg/kg	dw	43	6	14%	0.00247	0.0103	0.00207	0.0175	NA	NA	
2,4'-DDE	mg/kg	dw	43	2	5%	0.00157	0.00262	0.00116	0.0101	NA	NA	
2,4'-DDT	mg/kg	dw	43	35	81%	0.00127	0.0273	0.00238	0.0125	NA	NA	
4,4'-DDD	mg/kg	dw	43	16	37%	0.00229	0.00989	0.00168	0.0132	NA	NA	
4,4'-DDE	mg/kg	dw	43	43	100%	0.00568	0.164	NA	NA	NA	NA	
4,4'-DDT	mg/kg	dw	43	23	53%	0.00136	0.0354	0.00206	0.0211	NA	NA	
Aldrin	mg/kg	dw	43	8	19%	0.00495	0.0306	0.00226	0.0176	0.0064	0.0064	
alpha-Chlordane	mg/kg	dw	43	21	49%	0.000972	0.00705	0.000784	0.0074	0.00251	0.00251	
Chlordane	mg/kg	dw	43	1	2%	0.0628	0.0628	0.0207	0.149	NA	NA	
cis-Nonachlor	mg/kg	dw	43	2	5%	0.00158	0.00263	0.000954	0.0109	NC	0.00263	M
delta-BHC	mg/kg	dw	43	7	16%	0.00105	0.00892	0.000733	0.0163	0.00177	0.00177	
Dieldrin	mg/kg	dw	43	12	28%	0.000623	0.00363	0.000637	0.00475	0.00113	0.00113	
Endosulfan sulfate	mg/kg	dw	34	2	6%	0.00158	0.0016	0.00174	0.0127	NA	NA	
Endrin	mg/kg	dw	43	0	0%	NA	NA	0.000793	0.00664	NC	0.00664	U
Endrin aldehyde	mg/kg	dw	43	1	2%	0.00193	0.00193	0.00176	0.0147	NC	0.00193	M
Endrin ketone	mg/kg	dw	43	0	0%	NA	NA	0.0011	0.0102	NC	0.0102	U
gamma-Chlordane	mg/kg	dw	43	23	53%	0.000792	0.00897	0.000795	0.00617	0.00236	0.00236	
Heptachlor	mg/kg	dw	43	14	33%	0.0009	0.0185	0.000888	0.0166	0.00995	0.00995	
Heptachlor epoxide	mg/kg	dw	43	8	19%	0.000989	0.00524	0.00051	0.00555	0.00135	0.00135	
Hexachlorobenzene	mg/kg	dw	43	28	65%	0.00261	0.0425	0.00157	0.0277	0.011	0.011	

Table A-11f. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)												
Hexachlorobutadiene	mg/kg	dw	43	1	2%	0.00463	0.00463	0.00227	0.0233	NC	0.00463	M
Methoxychlor	mg/kg	dw	43	0	0%	NA	NA	0.00136	0.0114	NC	0.0114	U
Oxychlordane	mg/kg	dw	43	10	23%	0.00167	0.0117	0.00128	0.00842	0.00322	0.00322	
Total chlordane, 0 DL	mg/kg	dw	43	33	77%	0.00134	0.0165	0.00313	0.00842	NA	NA	
Total chlordane, 1/2 DL	mg/kg	dw	43	33	77%	0.00352	0.0248	0.00313	0.00842	0.0118	0.0118	
Total DDD, 0 DL	mg/kg	dw	43	17	40%	0.00242	0.0188	0.0024	0.0175	NA	NA	
Total DDD, 1/2 DL	mg/kg	dw	43	17	40%	0.00306	0.0193	0.0024	0.0175	NA	NA	
Total DDE, 0 DL	mg/kg	dw	43	43	100%	0.00568	0.164	NA	NA	NA	NA	
Total DDE, 1/2 DL	mg/kg	dw	43	43	100%	0.00593	0.165	NA	NA	NA	NA	
Total DDT, 0 DL	mg/kg	dw	43	37	86%	0.00179	0.0568	0.00424	0.0107	NA	NA	
Total DDT, 1/2 DL	mg/kg	dw	43	37	86%	0.00221	0.0568	0.00424	0.0107	NA	NA	
Total DDx, 0 DL	mg/kg	dw	43	43	100%	0.00789	0.219	NA	NA	NA	NA	
Total DDx, 1/2 DL	mg/kg	dw	43	43	100%	0.00978	0.227	NA	NA	0.0671	0.0671	
Toxaphene	mg/kg	dw	43	0	0%	NA	NA	0.0627	0.475	NA	NA	
trans-Nonachlor	mg/kg	dw	43	18	42%	0.00107	0.00965	0.000826	0.00795	0.00283	0.00283	
PAHs												
2-Methylnaphthalene	mg/kg	dw	43	32	74%	0.00143	0.0139	0.00102	0.00359	NA	NA	
Acenaphthene	mg/kg	dw	43	34	79%	0.000234	0.00718	0.000171	0.003	NA	NA	
Acenaphthylene	mg/kg	dw	43	31	72%	0.000375	0.00807	0.000155	0.00109	NA	NA	
Anthracene	mg/kg	dw	43	8	19%	0.000929	0.0203	0.000691	0.0301	NA	NA	
Benzo(a)anthracene	mg/kg	dw	43	1	2%	0.00762	0.00762	0.000557	0.0409	NA	NA	
Benzo(a)pyrene	mg/kg	dw	43	0	0%	NA	NA	0.000198	0.00262	NC	0.00262	U
Benzo(b)fluoranthene	mg/kg	dw	43	4	9%	0.00215	0.00836	0.000455	0.00566	NA	NA	
Benzo(g,h,i)perylene	mg/kg	dw	43	4	9%	0.0016	0.00641	0.000188	0.00242	NA	NA	
Benzo(k)fluoranthene	mg/kg	dw	43	4	9%	0.00167	0.0085	0.000299	0.00382	NA	NA	
Chrysene	mg/kg	dw	43	1	2%	0.00963	0.00963	0.000697	0.0166	NA	NA	
Dibenzo(a,h)anthracene	mg/kg	dw	43	4	9%	0.0016	0.00654	0.000146	0.00182	NA	NA	
Fluoranthene	mg/kg	dw	43	4	9%	0.000584	0.00584	0.000523	0.0104	NA	NA	
Fluorene	mg/kg	dw	43	37	86%	0.000373	0.00803	0.000313	0.00852	NA	NA	
Indeno(1,2,3-cd)pyrene	mg/kg	dw	43	5	12%	0.00212	0.0085	0.000325	0.00405	NA	NA	
Naphthalene	mg/kg	dw	43	19	44%	0.00207	0.0222	0.000783	0.0136	NA	NA	
Phenanthrene	mg/kg	dw	43	34	79%	0.000964	0.0183	0.00143	0.0256	NA	NA	
Pyrene	mg/kg	dw	43	2	5%	0.00166	0.00509	0.000418	0.00484	NA	NA	
Total HPAHs, 0 DL	mg/kg	dw	43	7	16%	0.000631	0.0654	0.000697	0.0286	NA	NA	
Total HPAHs, 1/2 DL	mg/kg	dw	43	7	16%	0.00161	0.0682	0.000697	0.0286	0.00911	0.00911	
Total LPAHs, 0 DL	mg/kg	dw	43	42	98%	0.00311	0.0577	0.0132	0.0132	NA	NA	
Total LPAHs, 1/2 DL	mg/kg	dw	43	42	98%	0.00463	0.0653	0.0132	0.0132	0.0256	0.0256	
Total PAHs, 0 DL	mg/kg	dw	43	42	98%	0.00317	0.0771	0.0171	0.0171	NA	NA	
Total PAHs, 1/2 DL	mg/kg	dw	43	42	98%	0.00604	0.0808	0.0171	0.0171	0.0481	0.0481	
PCBs												
Aroclor 1016	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Aroclor 1221	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Aroclor 1232	mg/kg	dw	71	0	0%	NA	NA	0.0623	0.167	NA	NA	
Aroclor 1242	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Aroclor 1248	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Aroclor 1254	mg/kg	dw	20	20	100%	0.0162	0.248	NA	NA	NA	NA	
Aroclor 1254/1260	mg/kg	dw	51	51	100%	0.0231	0.568	NA	NA	NA	NA	

Table A-11f. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs (continued)												
Aroclor 1260	mg/kg	dw	20	20	100%	0.0172	0.285	NA	NA	NA	NA	
Aroclor 1262	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Aroclor 1268	mg/kg	dw	71	0	0%	NA	NA	0.0326	0.0837	NA	NA	
Total PCB Aroclors, 1/2 DL	mg/kg	dw	71	71	100%	0.171	0.893	NA	NA	0.378	0.378	
Total PCB Aroclors, 0 DL	mg/kg	dw	71	71	100%	0.0231	0.568	NA	NA	NA	NA	
Total PCB congeners, 0 DL	mg/kg	dw	134	134	100%	0.026	0.628	NA	NA	NA	NA	
Total PCB congeners, 1/2 DL	mg/kg	dw	134	134	100%	0.0264	0.628	NA	NA	0.172	0.172	
Dioxins/Furans												
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	mg/kg	dw	189	80	42%	0.00000018	0.00000342	0.000000219	0.00000502	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	mg/kg	dw	189	9	5%	0.000000089	0.000000542	8.59E-08	0.00000316	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	mg/kg	dw	189	0	0%	NA	NA	8.79E-08	0.00000479	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	mg/kg	dw	189	5	3%	0.000000106	0.00000136	0.000000136	0.00000417	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	mg/kg	dw	189	3	2%	8.44E-08	0.0000003	0.000000052	0.00000313	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	mg/kg	dw	189	50	26%	0.000000175	0.00000206	0.000000186	0.00000393	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	189	21	11%	0.000000115	0.000000631	6.61E-08	0.00000328	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	mg/kg	dw	189	11	6%	0.000000132	0.000000766	0.000000136	0.00000417	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	mg/kg	dw	189	0	0%	NA	NA	7.19E-08	0.00000411	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	mg/kg	dw	189	43	23%	0.000000116	0.00000186	0.000000151	0.00000323	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	mg/kg	dw	189	31	16%	9.05E-08	0.00000136	0.000000155	0.00000245	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	mg/kg	dw	189	3	2%	8.81E-08	0.00000022	8.07E-08	0.00000305	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	mg/kg	dw	189	43	23%	0.00000016	0.00000254	0.00000016	0.00000245	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	mg/kg	dw	189	15	8%	0.000000145	0.000000809	0.000000119	0.00000268	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	mg/kg	dw	189	188	99%	0.00000172	0.0000272	0.00000451	0.00000451	NA	NA	
Octachlorodibenzodioxin	mg/kg	dw	189	63	33%	0.000000357	0.0000574	0.000000481	0.0000291	NA	NA	
Octachlorodibenzofuran	mg/kg	dw	189	12	6%	0.000000119	0.00000136	0.000000113	0.0000106	NA	NA	
Dioxin TEQ, bird, 0 DL	mg/kg	dw	189	188	99%	0.00000148	0.0000272	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	mg/kg	dw	189	188	99%	0.00000188	0.0000286	0.00000473	0.00000473	0.000011	0.000011	
Dioxin TEQ, fish, 0 DL	mg/kg	dw	189	188	99%	7.41E-08	0.00000397	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	mg/kg	dw	189	188	99%	0.000000303	0.00000632	0.0000029	0.0000029	NA	NA	
Dioxin TEQ, mammal, 0 DL	mg/kg	dw	189	188	99%	0.00000015	0.00000441	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	mg/kg	dw	189	188	99%	0.00000036	0.0000065	0.00000256	0.00000256	2.33E-06	2.33E-06	
PBDEs												
PBDE 17	mg/kg	dw	42	42	100%	0.0000133	0.00143	NA	NA	NA	NA	
PBDE 28 and 33	mg/kg	dw	42	42	100%	0.000338	0.0124	NA	NA	NA	NA	
PBDE 47	mg/kg	dw	42	42	100%	0.0109	0.383	NA	NA	NA	NA	
PBDE 49	mg/kg	dw	42	42	100%	0.000978	0.0106	NA	NA	NA	NA	
PBDE 66	mg/kg	dw	42	42	100%	0.0000146	0.00355	NA	NA	NA	NA	
PBDE 71	mg/kg	dw	42	2	5%	0.0000136	0.0000172	0.000000201	0.0000177	NA	NA	
PBDE 85	mg/kg	dw	42	35	83%	0.000000903	0.00145	0.000000523	0.00000244	NA	NA	
PBDE 99	mg/kg	dw	42	37	88%	0.0000216	0.0716	0.0000106	0.000051	NA	NA	
PBDE 100	mg/kg	dw	42	42	100%	0.00203	0.0429	NA	NA	NA	NA	
PBDE 128	mg/kg	dw	42	11	26%	0.00000235	0.00000851	0.000000734	0.00000695	NA	NA	
PBDE 138	mg/kg	dw	42	33	79%	0.000000685	0.000191	0.000000497	0.00000241	NA	NA	
PBDE 153	mg/kg	dw	42	42	100%	0.000438	0.00516	NA	NA	NA	NA	
PBDE 154	mg/kg	dw	42	42	100%	0.00046	0.00878	NA	NA	NA	NA	
PBDE 183 and 176	mg/kg	dw	42	32	76%	0.00000583	0.000155	0.00000184	0.0000166	NA	NA	
PBDE 184	mg/kg	dw	42	42	100%	0.00000186	0.000116	NA	NA	NA	NA	

Table A-11f. Summary Statistics for Large Fish in the Lacustrine CSM Unit by Dry Weight

Analyte	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)												
PBDE 190 and 171	mg/kg	dw	42	8	19%	0.00000153	0.0000106	0.000000384	0.00000462	NA	NA	
PBDE 191	mg/kg	dw	42	5	12%	0.00000101	0.0000117	0.000000332	0.00000432	NA	NA	
PBDE 200 and 203	mg/kg	dw	42	20	48%	0.00000111	0.0000379	0.000000752	0.0000376	NA	NA	
PBDE 206	mg/kg	dw	42	23	55%	0.00000232	0.0000622	0.00000494	0.000039	NA	NA	
PBDE 209	mg/kg	dw	42	41	98%	0.0000906	0.00277	0.000464	0.000464	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids													
Aluminum	Burbot	mg/kg	ww	7	5	71.4	1.7	5.472	0.918	1.05	NC	5.472	M
	Kokanee	mg/kg	ww	14	14	100	0.69	1.82	NA	NA	1.31	1.31	
	Lake whitefish	mg/kg	ww	5	1	20	4.788	4.788	3.792	4.068	NC	4.788	M
	Largescale sucker	mg/kg	ww	28	28	100	2.21	400.6	NA	NA	100	100	
	Longnose sucker	mg/kg	ww	10	10	100	1.08	139	NA	NA	77.9	77.9	
	Mountain whitefish	mg/kg	ww	13	13	100	0.836	50.8	NA	NA	19.9	19.9	
	Pikeminnow	mg/kg	ww	3	3	100	2.4	15.3	NA	NA	NC	15.3	M
	Rainbow trout	mg/kg	ww	26	21	80.8	4.02	17.7	4.41	4.8	9.61	9.61	
	Sculpin	mg/kg	ww	2	2	100	15.9	30.2	NA	NA	NC	30.2	M
	Smallmouth bass	mg/kg	ww	3	3	100	1.61	28	NA	NA	NC	28	M
	Walleye	mg/kg	ww	20	13	65	0.996	125	2.89	3.17	35.4	35.4	
	Yellow perch	mg/kg	ww	1	1	100	4.8	4.8	NA	NA	NC	4.8	M
Antimony	Burbot	mg/kg	ww	7	4	57.1	0.00577	0.0185	0.08385	0.08892	NC	0.0185	M
	Kokanee	mg/kg	ww	14	14	100	0.00511	0.0202	NA	NA	0.0125	0.0125	
	Lake whitefish	mg/kg	ww	5	0	0	NA	NA	0.1264	0.1471	NC	0.1471	U
	Largescale sucker	mg/kg	ww	28	21	75	0.00689	1.4	0.09766	0.1111	0.306	0.306	
	Longnose sucker	mg/kg	ww	10	4	40	0.01	0.048	0.00374	0.0076	NC	0.048	M
	Mountain whitefish	mg/kg	ww	13	6	46.2	0.0024	0.0887	0.00252	0.1464	0.0815	0.0815	
	Pikeminnow	mg/kg	ww	3	3	100	0.0269	0.21	NA	NA	NC	0.21	M
	Rainbow trout	mg/kg	ww	26	16	61.5	0.0058	0.0353	0.1136	0.128	0.0213	0.0213	
	Sculpin	mg/kg	ww	2	2	100	0.012	0.0322	NA	NA	NC	0.0322	M
	Smallmouth bass	mg/kg	ww	3	2	66.7	0.0116	0.0295	0.0058	0.0058	NC	0.0295	M
	Walleye	mg/kg	ww	20	6	30	0.0041	0.0137	0.0154	0.106	0.011	0.011	
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.0064	0.0064	NC	0.0064	U
Arsenic	Burbot	mg/kg	ww	7	7	100	0.403	0.827	NA	NA	0.748	0.748	
	Kokanee	mg/kg	ww	14	14	100	0.073	0.112	NA	NA	0.0937	0.0937	
	Lake whitefish	mg/kg	ww	5	5	100	0.1847	0.2668	NA	NA	NC	0.2668	M
	Largescale sucker	mg/kg	ww	28	25	89.3	0.0544	0.4377	0.0606	0.0997	0.211	0.211	
	Longnose sucker	mg/kg	ww	10	9	90	0.096	0.23	0.055	0.055	0.167	0.167	
	Mountain whitefish	mg/kg	ww	13	13	100	0.0783	0.194	NA	NA	0.159	0.159	
	Pikeminnow	mg/kg	ww	3	2	66.7	0.019	0.068	0.1	0.1	NC	0.068	M
	Rainbow trout	mg/kg	ww	26	26	100	0.0632	0.159	NA	NA	0.119	0.119	
	Sculpin	mg/kg	ww	2	2	100	0.13	0.143	NA	NA	NC	0.143	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.0966	0.2	NA	NA	NC	0.2	M
	Walleye	mg/kg	ww	20	20	100	0.0467	0.151	NA	NA	0.105	0.105	
	Yellow perch	mg/kg	ww	1	1	100	0.032	0.032	NA	NA	NC	0.032	M
Barium	Burbot	mg/kg	ww	7	7	100	3.08	6.8	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	0.324	0.487	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	0.4108	0.5508	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	1.05	38.81	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	0.803	12.8	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	0.398	3.21	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	1.4	2.97	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	0.504	1.738	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	3.17	3.41	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	0.725	3.23	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	0.595	0.9549	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.923	0.923	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Beryllium	Burbot	mg/kg	ww	7	0	0	NA	NA	0.000903	0.00456	NA	NA	
	Kokanee	mg/kg	ww	14	0	0	NA	NA	0.000954	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	5	0	0	NA	NA	0.00632	0.00752	NA	NA	
	Largescale sucker	mg/kg	ww	28	14	50	0.002	0.02218	0.000931	0.00584	NA	NA	
	Longnose sucker	mg/kg	ww	10	4	40	0.001	0.0063	0.000893	0.000962	NA	NA	
	Mountain whitefish	mg/kg	ww	13	2	15.4	0.00157	0.00288	0.001	0.00732	NA	NA	
	Pikeminnow	mg/kg	ww	3	0	0	NA	NA	0.001	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	26	2	7.7	0.000732	0.000755	0.0009	0.0064	NA	NA	
	Sculpin	mg/kg	ww	2	1	50	0.00185	0.00185	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	3	1	33.3	0.002	0.002	0.001	0.001	NA	NA	
	Walleye	mg/kg	ww	20	0	0	NA	NA	0.000907	0.00528	NA	NA	
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.001	0.001	NA	NA	
Boron	Burbot	mg/kg	ww	2	0	0	NA	NA	0.122	0.221	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.0949	0.118	NA	NA	
	Largescale sucker	mg/kg	ww	6	0	0	NA	NA	0.0465	0.09	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.0446	0.0513	NA	NA	
	Mountain whitefish	mg/kg	ww	3	0	0	NA	NA	0.0668	0.0827	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.0549	0.48	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0647	0.53	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.056	0.1	NA	NA	
Cadmium	Burbot	mg/kg	ww	7	7	100	0.0136	0.0301	NA	NA	0.0265	0.0265	
	Kokanee	mg/kg	ww	14	14	100	0.0152	0.0386	NA	NA	0.0282	0.0282	
	Lake whitefish	mg/kg	ww	5	2	40	0.02041	0.02428	0.0158	0.01695	NC	0.02428	M
	Largescale sucker	mg/kg	ww	28	28	100	0.0439	0.638	NA	NA	0.37	0.37	
	Longnose sucker	mg/kg	ww	10	10	100	0.0136	0.112	NA	NA	0.0589	0.0589	
	Mountain whitefish	mg/kg	ww	13	13	100	0.014	0.304	NA	NA	0.141	0.141	
	Pikeminnow	mg/kg	ww	3	3	100	0.0352	0.086	NA	NA	NC	0.086	M
	Rainbow trout	mg/kg	ww	26	26	100	0.0166	0.0868	NA	NA	0.0412	0.0412	
	Sculpin	mg/kg	ww	2	2	100	0.0813	0.127	NA	NA	NC	0.127	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.0134	0.123	NA	NA	NC	0.123	M
	Walleye	mg/kg	ww	20	20	100	0.0155	0.0384	NA	NA	0.0238	0.0238	
	Yellow perch	mg/kg	ww	1	1	100	0.034	0.034	NA	NA	NC	0.034	M
Calcium	Burbot	mg/kg	ww	7	7	100	7706	10000	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	2920	4620	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	4549	5152	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	7620	15000	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	889	11000	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	3930	7640	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	7680	12700	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	3640	8605	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	11000	11800	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	7150	12200	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	8770	13800	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	9640	9640	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Chromium	Burbot	mg/kg	ww	7	7	100	0.0554	0.5016	NA	NA	0.377	0.377	
	Kokanee	mg/kg	ww	14	11	78.6	0.0154	0.175	0.02	0.02	0.0706	0.0706	
	Lake whitefish	mg/kg	ww	5	5	100	0.5184	0.7182	NA	NA	NC	0.7182	M
	Largescale sucker	mg/kg	ww	28	28	100	0.0841	8.218	NA	NA	2.87	2.87	
	Longnose sucker	mg/kg	ww	10	10	100	0.0674	2.55	NA	NA	1.61	1.61	
	Mountain whitefish	mg/kg	ww	13	12	92.3	0.0234	1.156	0.0248	0.0248	0.769	0.769	
	Pikeminnow	mg/kg	ww	3	3	100	0.14	0.649	NA	NA	NC	0.649	M
	Rainbow trout	mg/kg	ww	26	26	100	0.045	0.984	NA	NA	0.53	0.53	
	Sculpin	mg/kg	ww	2	2	100	0.588	1.33	NA	NA	NC	1.33	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.114	0.364	NA	NA	NC	0.364	M
	Walleye	mg/kg	ww	20	20	100	0.0645	0.9687	NA	NA	0.556	0.556	
	Yellow perch	mg/kg	ww	1	1	100	0.261	0.261	NA	NA	NC	0.261	M
Cobalt	Burbot	mg/kg	ww	7	7	100	0.02736	0.0445	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	0.0148	0.024	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	0.02237	0.02907	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	26	92.9	0.0261	1.178	0.0725	0.114	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	0.0229	0.122	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	0.02816	0.16	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	0.0322	0.0482	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	22	84.6	0.0163	0.0457	0.01059	0.01653	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	0.056	0.0692	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	0.0282	0.0653	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	0.0196	0.0383	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.0337	0.0337	NA	NA	NA	NA	
Copper	Burbot	mg/kg	ww	7	7	100	0.856	1.6	NA	NA	1.28	1.28	
	Kokanee	mg/kg	ww	14	14	100	1.41	2.18	NA	NA	1.79	1.79	
	Lake whitefish	mg/kg	ww	5	5	100	0.5372	0.8208	NA	NA	NC	0.8208	M
	Largescale sucker	mg/kg	ww	28	28	100	0.565	48.49	NA	NA	13.6	13.6	
	Longnose sucker	mg/kg	ww	10	10	100	0.516	2.1	NA	NA	1.32	1.32	
	Mountain whitefish	mg/kg	ww	13	13	100	0.5632	3.33	NA	NA	1.62	1.62	
	Pikeminnow	mg/kg	ww	3	3	100	0.952	2.05	NA	NA	NC	2.05	M
	Rainbow trout	mg/kg	ww	26	26	100	0.844	2.6	NA	NA	1.74	1.74	
	Sculpin	mg/kg	ww	2	2	100	1.5	2.79	NA	NA	NC	2.79	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.364	0.985	NA	NA	NC	0.985	M
	Walleye	mg/kg	ww	20	20	100	0.283	0.417	NA	NA	0.359	0.359	
	Yellow perch	mg/kg	ww	1	1	100	2.63	2.63	NA	NA	NC	2.63	M
Gold	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00951	0.0248	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00853	0.02	NA	NA	
	Largescale sucker	mg/kg	ww	6	0	0	NA	NA	0.007	0.01	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.007	0.0171	NA	NA	
	Mountain whitefish	mg/kg	ww	3	0	0	NA	NA	0.00948	0.01	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.008	0.01	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.007	0.00921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00813	0.0158	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Iron	Burbot	mg/kg	ww	7	7	100	17.27	27.8	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	12.1	18	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	11.06	17.34	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	16.7	4101	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	6.9	270	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	11.3	285	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	12	34	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	15	65.7	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	35.7	71.4	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	10	15.6	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	8.18	11.6	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	10	10	NA	NA	NA	NA	
Lead	Burbot	mg/kg	ww	7	7	100	0.06384	0.209	NA	NA	0.134	0.134	
	Kokanee	mg/kg	ww	14	14	100	0.00621	0.0595	NA	NA	0.0305	0.0305	
	Lake whitefish	mg/kg	ww	5	5	100	0.05832	0.08136	NA	NA	NC	0.08136	M
	Largescale sucker	mg/kg	ww	28	28	100	0.2	14.37	NA	NA	6.12	6.12	
	Longnose sucker	mg/kg	ww	10	10	100	0.07	2.4	NA	NA	1.65	1.65	
	Mountain whitefish	mg/kg	ww	13	13	100	0.0521	0.521	NA	NA	0.305	0.305	
	Pikeminnow	mg/kg	ww	3	3	100	0.0577	0.183	NA	NA	NC	0.183	M
	Rainbow trout	mg/kg	ww	26	26	100	0.0649	0.601	NA	NA	0.211	0.211	
	Sculpin	mg/kg	ww	2	2	100	0.439	0.616	NA	NA	NC	0.616	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.0316	0.68	NA	NA	NC	0.68	M
	Walleye	mg/kg	ww	20	20	100	0.0216	0.124	NA	NA	0.0653	0.0653	
	Yellow perch	mg/kg	ww	1	1	100	0.0728	0.0728	NA	NA	NC	0.0728	M
Magnesium	Burbot	mg/kg	ww	7	7	100	344	367	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	264	307	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	269.2	284.5	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	308	448	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	317	590	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	257	377	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	377	549	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	271	325	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	367	405	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	352	410	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	308	410	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	359	359	NA	NA	NA	NA	
Manganese	Burbot	mg/kg	ww	7	7	100	0.961	2.34	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	0.381	0.648	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	0.632	1.07	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	2.68	85.22	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	2.19	10.7	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	0.605	7.18	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	1.4	2.62	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	0.965	2.37	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	1.94	2.51	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	0.725	2.55	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	0.828	1.5	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	2.2	2.2	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Mercury	Burbot	µg/kg	ww	7	7	100	112	192	NA	NA	174	174	
	Kokanee	µg/kg	ww	14	14	100	48.2	63	NA	NA	57.6	57.6	
	Lake whitefish	µg/kg	ww	5	5	100	52.1	68.8	NA	NA	NC	68.8	M
	Largescale sucker	µg/kg	ww	18	18	100	10	222	NA	NA	157	157	
	Longnose sucker	µg/kg	ww	10	10	100	12.1	137	NA	NA	66.4	66.4	
	Mountain whitefish	µg/kg	ww	13	13	100	13.3	105	NA	NA	79	79	
	Pikeminnow	µg/kg	ww	3	3	100	23.5	124	NA	NA	NC	124	M
	Rainbow trout	µg/kg	ww	26	26	100	15.3	85.6	NA	NA	60.6	60.6	
	Sculpin	µg/kg	ww	2	2	100	32.7	52.9	NA	NA	NC	52.9	M
	Smallmouth bass	µg/kg	ww	3	3	100	15.9	135	NA	NA	NC	135	M
	Walleye	µg/kg	ww	20	20	100	61.7	213	NA	NA	148	148	
	Yellow perch	µg/kg	ww	1	1	100	14	14	NA	NA	NC	14	M
Molybdenum	Burbot	mg/kg	ww	4	2	50	0.00612	0.0153	0.0149	0.0283	NA	NA	
	Kokanee	mg/kg	ww	14	9	64.3	0.00629	0.0258	0.00547	0.02	NA	NA	
	Largescale sucker	mg/kg	ww	11	6	54.5	0.00654	0.135	0.00787	0.03	NA	NA	
	Longnose sucker	mg/kg	ww	10	1	10	0.331	0.331	0.0155	0.088	NA	NA	
	Mountain whitefish	mg/kg	ww	8	2	25	0.0814	0.0893	0.00648	0.0234	NA	NA	
	Pikeminnow	mg/kg	ww	3	0	0	NA	NA	0.02	0.094	NA	NA	
	Rainbow trout	mg/kg	ww	16	12	75	0.011	0.0394	0.025	0.035	NA	NA	
	Sculpin	mg/kg	ww	2	0	0	NA	NA	0.027	0.04	NA	NA	
	Smallmouth bass	mg/kg	ww	3	0	0	NA	NA	0.0166	0.028	NA	NA	
	Walleye	mg/kg	ww	10	4	40	0.00604	0.0226	0.00555	0.0355	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.02	0.02	NA	NA	NA	NA	
Nickel	Burbot	mg/kg	ww	7	7	100	0.103	0.3192	NA	NA	0.277	0.277	
	Kokanee	mg/kg	ww	14	14	100	0.048	0.116	NA	NA	0.0817	0.0817	
	Lake whitefish	mg/kg	ww	5	5	100	0.1593	0.1782	NA	NA	NC	0.1782	M
	Largescale sucker	mg/kg	ww	28	28	100	0.129	5.203	NA	NA	1.31	1.31	
	Longnose sucker	mg/kg	ww	10	10	100	0.126	1.64	NA	NA	1.04	1.04	
	Mountain whitefish	mg/kg	ww	13	13	100	0.0578	0.289	NA	NA	0.201	0.201	
	Pikeminnow	mg/kg	ww	3	3	100	0.38	0.465	NA	NA	NC	0.465	M
	Rainbow trout	mg/kg	ww	26	26	100	0.0817	0.408	NA	NA	0.214	0.214	
	Sculpin	mg/kg	ww	2	2	100	0.432	0.512	NA	NA	NC	0.512	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.2	0.485	NA	NA	NC	0.485	M
	Walleye	mg/kg	ww	20	20	100	0.111	0.473	NA	NA	0.409	0.409	
	Yellow perch	mg/kg	ww	1	1	100	0.288	0.288	NA	NA	NC	0.288	M
Potassium	Burbot	mg/kg	ww	7	7	100	2550	3139	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	3020	3400	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	2979	3169	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	2610	3716	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	2300	4260	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	2990	3550	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	2860	4420	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	2730	3540	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	2690	2700	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	2810	3000	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	2710	3686	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	2730	2730	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Selenium	Burbot	mg/kg	ww	7	7	100	0.322	0.766	NA	NA	0.703	0.703	
	Kokanee	mg/kg	ww	14	14	100	0.306	0.524	NA	NA	0.43	0.43	
	Lake whitefish	mg/kg	ww	5	5	100	0.6156	0.855	NA	NA	NC	0.855	M
	Largescale sucker	mg/kg	ww	28	28	100	0.162	0.775	NA	NA	0.542	0.542	
	Longnose sucker	mg/kg	ww	10	9	90	0.217	0.76	0.303	0.303	0.495	0.495	
	Mountain whitefish	mg/kg	ww	13	13	100	0.201	1.22	NA	NA	0.888	0.888	
	Pikeminnow	mg/kg	ww	3	3	100	0.659	0.874	NA	NA	NC	0.874	M
	Rainbow trout	mg/kg	ww	26	26	100	0.448	0.816	NA	NA	0.622	0.622	
	Sculpin	mg/kg	ww	2	2	100	0.47	0.554	NA	NA	NC	0.554	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.566	0.965	NA	NA	NC	0.965	M
	Walleye	mg/kg	ww	20	20	100	0.362	0.613	NA	NA	0.472	0.472	
	Yellow perch	mg/kg	ww	1	1	100	0.32	0.32	NA	NA	NC	0.32	M
Silver	Burbot	mg/kg	ww	7	1	14.3	0.00379	0.00379	0.00132	0.05472	NC	0.00379	M
	Kokanee	mg/kg	ww	14	14	100	0.00396	0.0329	NA	NA	0.0156	0.0156	
	Lake whitefish	mg/kg	ww	5	0	0	NA	NA	0.079	0.09234	NC	0.09234	U
	Largescale sucker	mg/kg	ww	28	10	35.7	0.0041	0.1663	0.000466	0.07228	0.0406	0.0406	
	Longnose sucker	mg/kg	ww	10	9	90	0.00119	0.017	0.000513	0.000513	0.0108	0.0108	
	Mountain whitefish	mg/kg	ww	13	6	46.2	0.001	0.00547	0.000886	0.0549	0.00332	0.00332	
	Pikeminnow	mg/kg	ww	3	2	66.7	0.00133	0.002	0.002	0.002	NC	0.002	M
	Rainbow trout	mg/kg	ww	26	12	46.2	0.00411	0.0092	0.0026	0.08	0.00613	0.00613	
	Sculpin	mg/kg	ww	2	1	50	0.0242	0.0242	0.002	0.002	NC	0.0242	M
	Smallmouth bass	mg/kg	ww	3	1	33.3	0.0033	0.0033	0.000647	0.0007	NC	0.0033	M
	Walleye	mg/kg	ww	20	1	5	0.0055	0.0055	0.000508	0.0396	NC	0.0055	M
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.0005	0.0005	NC	0.0005	U
Sodium	Burbot	mg/kg	ww	7	7	100	980	1536	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	14	100	611	802	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	657.3	690.1	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	726	1396	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	10	100	532	959	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	622	869	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	539	951	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	673	934	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	960	1020	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	889	986	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	20	100	792	1103	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	718	718	NA	NA	NA	NA	
Thallium	Burbot	mg/kg	ww	7	1	14.3	0.00674	0.00674	0.00209	0.05472	NC	0.00674	M
	Kokanee	mg/kg	ww	14	14	100	0.0235	0.037	NA	NA	0.0326	0.0326	
	Lake whitefish	mg/kg	ww	5	0	0	NA	NA	0.079	0.09234	NC	0.09234	U
	Largescale sucker	mg/kg	ww	28	9	32.1	0.00519	0.0246	0.00638	0.07529	0.0149	0.0149	
	Longnose sucker	mg/kg	ww	10	10	100	0.00278	0.0388	NA	NA	0.0247	0.0247	
	Mountain whitefish	mg/kg	ww	13	8	61.5	0.0103	0.0442	0.08625	0.0915	0.0269	0.0269	
	Pikeminnow	mg/kg	ww	3	3	100	0.00917	0.015	NA	NA	NC	0.015	M
	Rainbow trout	mg/kg	ww	26	16	61.5	0.0131	0.0339	0.071	0.08	0.0232	0.0232	
	Sculpin	mg/kg	ww	2	2	100	0.0207	0.024	NA	NA	NC	0.024	M
	Smallmouth bass	mg/kg	ww	3	3	100	0.015	0.0357	NA	NA	NC	0.0357	M
	Walleye	mg/kg	ww	20	8	40	0.0234	0.0421	0.0209	0.066	0.0343	0.0343	
	Yellow perch	mg/kg	ww	1	1	100	0.0519	0.0519	NA	NA	NC	0.0519	M

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Tin	Burbot	mg/kg	ww	2	2	100	0.00352	0.00465	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	1	25	0.00596	0.00596	0.00384	0.0046	NA	NA	
	Largescale sucker	mg/kg	ww	6	4	66.7	0.0159	0.037	0.00265	0.028	NA	NA	
	Longnose sucker	mg/kg	ww	3	2	66.7	0.00382	0.00446	0.01	0.01	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.136	0.136	0.00348	0.00363	NA	NA	
	Rainbow trout	mg/kg	ww	7	4	57.1	0.00501	0.0105	0.003	0.01	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.00274	0.01	NA	NA	
	Walleye	mg/kg	ww	4	3	75	0.00171	0.00207	0.00314	0.00314	NA	NA	
Uranium	Burbot	mg/kg	ww	7	7	100	0.00216	0.0046	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	14	5	35.7	0.000427	0.000629	0.000546	0.0006	NA	NA	
	Lake whitefish	mg/kg	ww	5	5	100	0.00181	0.0025	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	28	28	100	0.00326	0.09756	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	10	8	80	0.00332	0.0398	0.00221	0.00237	NA	NA	
	Mountain whitefish	mg/kg	ww	13	13	100	0.00133	0.0205	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	3	3	100	0.001	0.0068	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	26	26	100	0.001	0.00888	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	0.0094	0.016	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	3	100	0.0005	0.02	NA	NA	NA	NA	
	Walleye	mg/kg	ww	20	16	80	0.000433	0.00124	0.000508	0.00065	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.002	0.002	NA	NA	NA	NA	
Vanadium	Burbot	mg/kg	ww	7	6	85.7	0.0194	0.128	0.08385	0.08385	NA	NA	
	Kokanee	mg/kg	ww	14	9	64.3	0.0153	0.0217	0.02	0.02	NA	NA	
	Lake whitefish	mg/kg	ww	5	0	0	NA	NA	0.1264	0.1471	NA	NA	
	Largescale sucker	mg/kg	ww	28	26	92.9	0.0149	0.8024	0.02	0.1034	NA	NA	
	Longnose sucker	mg/kg	ww	10	5	50	0.0299	0.465	0.0155	0.0404	NA	NA	
	Mountain whitefish	mg/kg	ww	13	8	61.5	0.03	0.317	0.138	0.1464	NA	NA	
	Pikeminnow	mg/kg	ww	3	1	33.3	0.052	0.052	0.02	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	26	16	61.5	0.02	0.0947	0.02	0.128	NA	NA	
	Sculpin	mg/kg	ww	2	2	100	0.1	0.193	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	3	1	33.3	0.027	0.027	0.02	0.02	NA	NA	
	Walleye	mg/kg	ww	20	1	5	0.0145	0.0145	0.0153	0.106	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.02	0.02	NA	NA	NA	NA	
Zinc	Burbot	mg/kg	ww	7	7	100	11.85	14.5	NA	NA	13.7	13.7	
	Kokanee	mg/kg	ww	14	14	100	17	20.5	NA	NA	19.4	19.4	
	Lake whitefish	mg/kg	ww	5	5	100	11.85	13.82	NA	NA	NC	13.82	M
	Largescale sucker	mg/kg	ww	28	28	100	19.6	359.3	NA	NA	116	116	
	Longnose sucker	mg/kg	ww	10	10	100	15.6	46.3	NA	NA	30.7	30.7	
	Mountain whitefish	mg/kg	ww	13	13	100	10	45.8	NA	NA	29.5	29.5	
	Pikeminnow	mg/kg	ww	3	3	100	29.4	30.5	NA	NA	NC	30.5	M
	Rainbow trout	mg/kg	ww	26	26	100	20.06	30	NA	NA	24.8	24.8	
	Sculpin	mg/kg	ww	2	2	100	20	29.1	NA	NA	NC	29.1	M
	Smallmouth bass	mg/kg	ww	3	3	100	12.7	29.8	NA	NA	NC	29.8	M
	Walleye	mg/kg	ww	20	20	100	11.5	14.2	NA	NA	13.3	13.3	
	Yellow perch	mg/kg	ww	1	1	100	17	17	NA	NA	NC	17	M
Other Metals/Metalloids													
Bismuth	Burbot	mg/kg	ww	2	1	50	0.00111	0.00111	0.000703	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	1	25	0.000749	0.000749	0.000754	0.000853	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.001	0.0015	0.000731	0.000906	NA	NA	
	Longnose sucker	mg/kg	ww	3	1	33.3	0.002	0.002	0.000693	0.000813	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.000824	0.000824	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	2	28.6	0.000609	0.00068	0.0008	0.000956	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	3	75	0.000586	0.000733	0.00083	0.00083	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Cerium	Burbot	mg/kg	ww	2	2	100	0.00125	0.00262	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.001	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00473	0.213	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.0165	0.189	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.00436	0.107	0.002	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.0046	0.0475	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.005	0.005	0.00174	0.00174	NA	NA	
	Walleye	mg/kg	ww	4	1	25	0.00183	0.00183	0.00157	0.00158	NA	NA	
Cesium	Burbot	mg/kg	ww	2	2	100	0.0465	0.0486	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.00949	0.0104	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.028	0.0379	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.0243	0.0315	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	0.0326	0.0505	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.014	0.035	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	0.0263	0.0488	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	4	100	0.0466	0.0642	NA	NA	NA	NA	
Dysprosium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000695	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	5	83.3	0.000797	0.01	0.00083	0.00083	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.000624	0.00862	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.00551	0.00551	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	5	71.4	0.001	0.00289	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Erbium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000695	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	4	66.7	0.000758	0.0058	0.00083	0.000906	NA	NA	
	Longnose sucker	mg/kg	ww	3	2	66.7	0.00213	0.0035	0.000693	0.000693	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.00307	0.00307	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	4	57.1	0.000643	0.00206	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Europium	Burbot	mg/kg	ww	2	2	100	0.00111	0.00118	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	5	83.3	0.000758	0.0044	0.00083	0.00083	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.000624	0.0028	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.00334	0.00334	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	5	71.4	0.000691	0.00142	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000515	0.000671	NA	NA	
Gadolinium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00148	0.00151	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	6	4	66.7	0.00148	0.0155	0.002	0.002	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.0012	0.0178	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0078	0.0078	0.002	0.00263	NA	NA	
	Rainbow trout	mg/kg	ww	7	5	71.4	0.002	0.00547	0.002	0.002	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.002	0.002	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00153	0.00257	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Gallium	Burbot	mg/kg	ww	2	2	100	0.00221	0.00225	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	3	75	0.00151	0.00217	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00314	0.0316	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00409	0.018	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0416	0.0416	0.002	0.00263	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.0035	0.0103	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	0.00373	0.0039	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	4	100	0.00309	0.00456	NA	NA	NA	NA	
Germanium	Burbot	mg/kg	ww	2	2	100	0.348	0.39	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.496	0.582	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.669	1.11	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.489	0.777	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	0.283	1.35	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.577	0.754	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	0.358	0.574	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	4	100	0.349	0.395	NA	NA	NA	NA	
Holmium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000448	0.000503	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.0005	0.0006	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.000967	0.002	0.000465	0.000638	NA	NA	
	Longnose sucker	mg/kg	ww	3	2	66.7	0.001	0.00122	0.000446	0.000446	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.000776	0.000776	0.000648	0.000827	NA	NA	
	Rainbow trout	mg/kg	ww	7	2	28.6	0.000479	0.000747	0.0005	0.000656	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0005	0.000647	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000515	0.000671	NA	NA	
Indium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000695	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.000707	0.0074	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	2	66.7	0.000717	0.002	0.000693	0.000693	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0321	0.0321	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	4	57.1	0.00118	0.0057	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Lanthanum	Burbot	mg/kg	ww	2	2	100	0.00066	0.00204	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	1	25	0.00072	0.00072	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00519	0.116	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00814	0.104	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.00279	0.0594	0.001	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.0028	0.0479	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.0029	0.0029	0.000921	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	3	75	0.000703	0.00186	0.00083	0.00083	NA	NA	
Lithium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.0695	0.0703	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.121	0.178	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	1	16.7	0.0758	0.0758	0.07	0.0906	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.0532	0.09	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0824	0.0824	0.0948	0.1	NA	NA	
	Rainbow trout	mg/kg	ww	7	6	85.7	0.132	0.247	0.08	0.08	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.07	0.0921	NA	NA	
	Walleye	mg/kg	ww	4	4	100	0.186	0.368	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Lutetium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000448	0.000503	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.0005	0.0006	NA	NA	
	Largescale sucker	mg/kg	ww	6	2	33.3	0.0005	0.0007	0.000465	0.000638	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.000446	0.000513	NA	NA	
	Mountain whitefish	mg/kg	ww	3	0	0	NA	NA	0.000648	0.000827	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.0005	0.000664	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0005	0.000647	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000515	0.000671	NA	NA	
Neodymium	Burbot	mg/kg	ww	2	2	100	0.000709	0.00195	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000954	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00292	0.0949	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00992	0.0792	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.00214	0.046	0.00163	0.00163	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.002	0.0339	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.002	0.002	0.001	0.001	NA	NA	
	Walleye	mg/kg	ww	4	1	25	0.00161	0.00161	0.000915	0.00153	NA	NA	
Niobium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00349	0.00905	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00254	0.00509	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.02	0.032	0.00265	0.01	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.00595	0.02	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0141	0.0141	0.00363	0.00803	NA	NA	
	Rainbow trout	mg/kg	ww	7	3	42.9	0.0063	0.0138	0.003	0.00591	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.002	0.00274	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00253	0.00314	NA	NA	
Praseodymium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000695	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00083	0.0254	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.0023	0.023	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.000716	0.0131	0.001	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	6	85.7	0.001	0.00971	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Rubidium	Burbot	mg/kg	ww	2	2	100	3.07	4.67	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	2.33	2.6	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	2.84	3.83	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	2.81	3.83	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	4.01	5.25	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	2.67	3.96	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	4.72	5.11	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	4	100	5.34	6.88	NA	NA	NA	NA	
Samarium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00148	0.00151	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00154	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.0106	0.016	0.00165	0.00169	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00226	0.0203	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.00916	0.00916	0.002	0.00263	NA	NA	
	Rainbow trout	mg/kg	ww	7	5	71.4	0.002	0.00591	0.002	0.002	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.001	0.00174	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00153	0.00158	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Scandium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00666	0.00795	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00846	0.0115	NA	NA	
	Largescale sucker	mg/kg	ww	6	5	83.3	0.00723	0.0342	0.00689	0.00689	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00834	0.022	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	0.0238	0.0391	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	5	71.4	0.014	0.0248	0.018	0.019	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	0.01	0.0143	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	1	25	0.0166	0.0166	0.00784	0.0103	NA	NA	
Strontium	Burbot	mg/kg	ww	2	2	100	17	17.6	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	3.48	5.25	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	10.8	18.5	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	9.89	14.2	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	4.97	7.83	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	3.93	7.57	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	2	100	10.5	11	NA	NA	NA	NA	
	Walleye	mg/kg	ww	4	4	100	6.03	9.71	NA	NA	NA	NA	
Tellurium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00695	0.00703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00754	0.00858	NA	NA	
	Largescale sucker	mg/kg	ww	6	0	0	NA	NA	0.007	0.00906	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.00693	0.00813	NA	NA	
	Mountain whitefish	mg/kg	ww	3	0	0	NA	NA	0.00948	0.01	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.008	0.00956	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.007	0.00921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00773	0.00871	NA	NA	
Terbium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000695	0.000703	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.001	0.002	0.000731	0.000906	NA	NA	
	Longnose sucker	mg/kg	ww	3	2	66.7	0.001	0.0023	0.000693	0.000693	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.000824	0.000824	0.000948	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	7	1	14.3	0.000629	0.000629	0.0008	0.000956	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Thorium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000951	0.00233	NA	NA	
	Kokanee	mg/kg	ww	4	1	25	0.00147	0.00147	0.001	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.0175	0.0811	0.001	0.00169	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00135	0.014	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0119	0.0119	0.00148	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	7	6	85.7	0.002	0.00848	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.001	0.00174	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00153	0.00158	NA	NA	
Thulium	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.000754	0.000858	NA	NA	
	Largescale sucker	mg/kg	ww	1	0	0	NA	NA	0.0007	0.0007	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.000693	0.000813	NA	NA	
	Rainbow trout	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000956	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0007	0.000921	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.000773	0.000871	NA	NA	
Titanium	Burbot	mg/kg	ww	2	1	50	0.0462	0.0462	0.02	0.02	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.0426	0.074	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.0502	5.3	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.195	3	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.03	2.66	0.0363	0.0363	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.17	1.57	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.13	0.13	0.0274	0.0274	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Tungsten	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00951	0.0214	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00551	0.0196	NA	NA	
	Largescale sucker	mg/kg	ww	6	0	0	NA	NA	0.00724	0.028	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.0136	0.035	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.0286	0.0286	0.00648	0.01	NA	NA	
	Rainbow trout	mg/kg	ww	7	2	28.6	0.008	0.02	0.006	0.0164	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.00647	0.007	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.0056	0.0322	NA	NA	
Ytterbium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000951	0.001	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.001	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	6	3	50	0.0028	0.005	0.001	0.00169	NA	NA	
	Longnose sucker	mg/kg	ww	3	1	33.3	0.003	0.003	0.001	0.001	NA	NA	
	Mountain whitefish	mg/kg	ww	3	1	33.3	0.00297	0.00297	0.00148	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	7	2	28.6	0.00109	0.0021	0.001	0.00156	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.001	0.00174	NA	NA	
	Walleye	mg/kg	ww	4	0	0	NA	NA	0.00153	0.00158	NA	NA	
Yttrium	Burbot	mg/kg	ww	2	2	100	0.00127	0.00183	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	0	0	NA	NA	0.00154	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.0056	0.0582	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	3	100	0.00373	0.039	NA	NA	NA	NA	
	Mountain whitefish	mg/kg	ww	3	2	66.7	0.0024	0.0304	0.00263	0.00263	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.002	0.017	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.002	0.002	0.00174	0.00174	NA	NA	
	Walleye	mg/kg	ww	4	1	25	0.00221	0.00221	0.00157	0.00158	NA	NA	
Zirconium	Burbot	mg/kg	ww	2	2	100	0.00241	0.00628	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.000767	0.0119	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	6	6	100	0.00661	0.0547	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	3	1	33.3	0.0292	0.0292	0.00564	0.00652	NA	NA	
	Mountain whitefish	mg/kg	ww	3	3	100	0.0024	0.0935	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.005	0.0352	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	2	1	50	0.0043	0.0043	0.00347	0.00347	NA	NA	
	Walleye	mg/kg	ww	4	1	25	0.135	0.135	0.00285	0.00631	NA	NA	
Conventionals													
Fluoride	Burbot	mg/kg	ww	4	0	0	NA	NA	0.343	0.491	NA	NA	
	Kokanee	mg/kg	ww	14	0	0	NA	NA	0.2	0.567	NA	NA	
	Largescale sucker	mg/kg	ww	10	0	0	NA	NA	0.2	0.4	NA	NA	
	Longnose sucker	mg/kg	ww	8	0	0	NA	NA	0.2	3.2	NA	NA	
	Mountain whitefish	mg/kg	ww	8	0	0	NA	NA	0.2	0.333	NA	NA	
	Pikeminnow	mg/kg	ww	3	0	0	NA	NA	0.2	0.7	NA	NA	
	Rainbow trout	mg/kg	ww	16	0	0	NA	NA	0.2	0.47	NA	NA	
	Sculpin	mg/kg	ww	2	0	0	NA	NA	0.4	0.4	NA	NA	
	Smallmouth bass	mg/kg	ww	3	0	0	NA	NA	0.3	0.426	NA	NA	
	Walleye	mg/kg	ww	10	0	0	NA	NA	0.147	0.3	NA	NA	
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.3	0.3	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Conventionals (continued)													
Lipids	Burbot	percent	ww	7	7	100	1.3	2.85	NA	NA	NA	NA	
	Kokanee	percent	ww	14	14	100	3.59	7.09	NA	NA	NA	NA	
	Lake whitefish	percent	ww	5	5	100	1.4	14	NA	NA	NA	NA	
	Largescale sucker	percent	ww	18	18	100	1.75	8.07	NA	NA	NA	NA	
	Longnose sucker	percent	ww	10	10	100	1.96	5.8	NA	NA	NA	NA	
	Mountain whitefish	percent	ww	12	12	100	7.04	17	NA	NA	NA	NA	
	Pikeminnow	percent	ww	3	3	100	2.2	4.5	NA	NA	NA	NA	
	Rainbow trout	percent	ww	26	26	100	2.7	10.7	NA	NA	NA	NA	
	Sculpin	percent	ww	2	2	100	3.57	3.8	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	3	3	100	3.5	7.34	NA	NA	NA	NA	
	Walleye	percent	ww	25	25	100	1.21	8.49	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	3.5	3.5	NA	NA	NA	NA	
Total moisture	Burbot	percent	ww	7	7	100	75.5	78.5	NA	NA	NA	NA	
	Kokanee	percent	ww	14	14	100	71.3	74.8	NA	NA	NA	NA	
	Lake whitefish	percent	ww	5	5	100	65.8	68.4	NA	NA	NA	NA	
	Largescale sucker	percent	ww	18	18	100	69.7	76.9	NA	NA	NA	NA	
	Longnose sucker	percent	ww	10	10	100	72.1	79.1	NA	NA	NA	NA	
	Mountain whitefish	percent	ww	13	13	100	60.4	67.8	NA	NA	NA	NA	
	Pikeminnow	percent	ww	3	3	100	60.2	75.4	NA	NA	NA	NA	
	Rainbow trout	percent	ww	26	26	100	67.7	76.8	NA	NA	NA	NA	
	Sculpin	percent	ww	2	2	100	74.7	75.2	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	3	3	100	68.9	75.9	NA	NA	NA	NA	
	Walleye	percent	ww	20	20	100	68.6	75.9	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	75.4	75.4	NA	NA	NA	NA	
Total solids	Burbot	percent	ww	7	7	100	21.5	24.5	NA	NA	NA	NA	
	Kokanee	percent	ww	14	14	100	25.2	28.7	NA	NA	NA	NA	
	Lake whitefish	percent	ww	5	5	100	31.6	34.2	NA	NA	NA	NA	
	Largescale sucker	percent	ww	18	18	100	23.1	30.3	NA	NA	NA	NA	
	Longnose sucker	percent	ww	10	10	100	20.9	27.9	NA	NA	NA	NA	
	Mountain whitefish	percent	ww	13	13	100	32.2	39.6	NA	NA	NA	NA	
	Pikeminnow	percent	ww	3	3	100	24.6	39.8	NA	NA	NA	NA	
	Rainbow trout	percent	ww	26	26	100	23.2	32.3	NA	NA	NA	NA	
	Sculpin	percent	ww	2	2	100	24.8	25.3	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	3	3	100	24.1	31.1	NA	NA	NA	NA	
	Walleye	percent	ww	20	20	100	24.1	31.4	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	24.6	24.6	NA	NA	NA	NA	
SVOCs													
1,1'-Biphenyl	Burbot	µg/kg	ww	2	0	0	NA	NA	0.432	0.46	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.552	0.635	NA	NA	
	Largescale sucker	µg/kg	ww	6	3	50	0.42	1.9	0.279	0.516	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.443	1.7	NA	NA	
	Mountain whitefish	µg/kg	ww	3	1	33.3	0.626	0.626	0.43	0.58	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.35	2.9	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.284	0.51	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.532	1.09	NA	NA	
1,2,4-Trichlorobenzene	Burbot	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	6.3	6.3	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	6.3	6.3	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	6.3	6.3	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	6.3	6.3	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	6.3	6.3	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	6.3	6.3	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)													
4-Bromophenyl-phenylether	Burbot	µg/kg	ww	2	0	0	NA	NA	4.1	4.2	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	4.1	4.1	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	4.1	4.1	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	4.1	4.1	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	4.1	4.1	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	4.1	4.1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	Burbot	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	5.55	7.93	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	4.6	4.6	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	4.6	4.6	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	4.6	4.6	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	4.6	4.6	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	4.6	10.8	NA	NA	
Benzyl n-butyl phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	210	210	NC	210	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	210	210	NC	210	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	210	210	NC	210	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	210	262	NC	262	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	210	210	NC	210	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	210	210	NC	210	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	210	331	NC	331	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Walleye	µg/kg	ww	4	1	25	155	155	210	210	NC	155	M
Dibenzofuran	Burbot	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	4.4	4.4	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	4.4	4.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	4.4	4.4	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	4.4	4.4	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	4.4	4.4	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	30.8	72.1	NC	72.1	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	314	458	NC	458	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	53.7	174	NC	174	U
	Longnose sucker	µg/kg	ww	3	2	66.7	64.7	85.6	270	270	NC	85.6	M
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	82.4	87.2	NC	87.2	U
	Rainbow trout	µg/kg	ww	7	1	14.3	2000	2000	20	7960	NC	2000	M
	Smallmouth bass	µg/kg	ww	2	1	50	82.6	82.6	450	450	NC	82.6	M
	Walleye	µg/kg	ww	4	4	100	113	207	NA	NA	NC	207	M

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)													
Di-n-octylphthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	9	9	NC	9	U
	Kokanee	µg/kg	ww	4	4	100	22.4	29.5	NA	NA	NC	29.5	M
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	9	9	NC	9	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	9	570	NC	570	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	9	9	NC	9	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	9	370	NC	370	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	9	9	NC	9	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	Burbot	µg/kg	ww	2	0	0	NA	NA	350	350	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	300	300	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	350	350	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	350	350	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	350	350	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	300	350	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	350	350	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	300	300	NA	NA	
Hexachloroethane	Burbot	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	16	16	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	16	16	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	16	16	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	16	16	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	16	16	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	16	16	NA	NA	
Pentachlorophenol	Burbot	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	4.5	11	NC	11	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	4.5	4.5	NC	4.5	U
Pesticides													
2,4'-DDD	Burbot	µg/kg	ww	2	0	0	NA	NA	2.14	2.26	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	2.23	4.23	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	5.02	5.02	0.73	1.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.73	1.09	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.895	2.75	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.73	2.62	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.92	3.7	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.73	2.42	NA	NA	
2,4'-DDE	Burbot	µg/kg	ww	2	0	0	NA	NA	1.1	1.16	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.14	2.15	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.37	0.964	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.37	0.726	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	1.16	1.46	1.49	1.49	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.37	1.57	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.5	1.9	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.701	3.01	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
2,4'-DDT	Burbot	µg/kg	ww	2	2	100	1.38	1.42	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.46	0.725	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	2	33.3	0.865	1.07	0.98	5.58	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.78	2.63	1.01	1.01	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	2.25	5.94	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	5	71.4	0.405	6.48	0.91	1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.8	3.61	NA	NA	
	Walleye	µg/kg	ww	4	4	100	0.773	4.34	NA	NA	NA	NA	
4,4'-DDD	Burbot	µg/kg	ww	2	0	0	NA	NA	1.62	1.71	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.69	3.19	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	2.22	2.22	0.55	1.1	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.464	0.464	0.55	0.805	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.845	1.24	2.08	2.08	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.55	1.64	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.21	2.8	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.592	0.592	0.55	1.83	NA	NA	
4,4'-DDE	Burbot	µg/kg	ww	2	2	100	6.8	14.7	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	1.3	2.76	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	1.01	77.5	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	1.19	3.89	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	7.24	11.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	0.82	15.6	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	17.6	17.6	6.7	6.7	NA	NA	
	Walleye	µg/kg	ww	4	4	100	5.5	11.3	NA	NA	NA	NA	
4,4'-DDT	Burbot	µg/kg	ww	2	1	50	5.36	5.36	1.52	1.52	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.51	2.84	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	4.65	4.65	0.65	19.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	2.23	2.23	0.49	0.717	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	1.07	4.26	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	5	71.4	1.22	4.75	0.49	0.5	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	8.87	8.87	2.5	2.5	NA	NA	
	Walleye	µg/kg	ww	4	3	75	1.37	4.21	1.82	1.82	NA	NA	
Aldrin	Burbot	µg/kg	ww	2	0	0	NA	NA	2.15	2.26	NC	2.26	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	2.24	4.29	NC	4.29	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.74	1.4	NC	1.4	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.74	1.09	NC	1.09	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	1.16	2.75	NC	2.75	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.74	2.18	NC	2.18	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.92	3.7	NC	3.7	U
	Walleye	µg/kg	ww	4	3	75	1.37	2.55	1.75	1.75	NC	2.55	M
alpha-Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	0.749	0.791	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.781	1.45	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	0.189	0.189	0.25	0.47	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.25	0.366	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.263	0.964	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	0.747	0.747	0.25	2.55	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	2.4	2.4	1.02	1.02	NA	NA	
	Walleye	µg/kg	ww	4	4	100	0.525	1.31	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	10.4	27.9	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	11.3	24.5	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	4.6	12	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	3.4	6.99	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	8.35	23.9	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	3.5	38.5	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	16.4	40	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	10	29.3	NA	NA	
cis-Nonachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.865	0.913	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.902	1.68	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	2.2	2.2	0.29	1.5	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.29	0.691	NA	NA	
	Mountain whitefish	µg/kg	ww	3	1	33.3	1.05	1.05	0.782	1.34	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.29	1.36	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.36	1.5	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.29	1.97	NA	NA	
delta-BHC	Burbot	µg/kg	ww	2	0	0	NA	NA	0.612	2.43	NC	2.43	U
	Kokanee	µg/kg	ww	4	1	25	2.18	2.18	0.605	3.43	NC	2.18	M
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.2	0.38	NC	0.38	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.2	0.293	NC	0.293	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.744	1.17	NC	1.17	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.2	1.22	NC	1.22	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.79	1	NC	1	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.2	0.826	NC	0.826	U
Dieldrin	Burbot	µg/kg	ww	2	0	0	NA	NA	0.58	0.612	NC	0.612	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.605	1.16	NC	1.16	U
	Largescale sucker	µg/kg	ww	6	1	16.7	0.24	0.24	0.2	1.1	NC	0.24	M
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.2	0.293	NC	0.293	U
	Mountain whitefish	µg/kg	ww	3	1	33.3	0.401	0.401	0.607	0.744	NC	0.401	M
	Rainbow trout	µg/kg	ww	7	2	28.6	0.361	0.834	0.2	0.331	NC	0.834	M
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.79	1	NC	1	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.2	0.656	NC	0.656	U
Endosulfan sulfate	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.63	3.07	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.53	1.58	NA	NA	
	Walleye	µg/kg	ww	4	2	50	0.435	0.573	0.53	1.77	NA	NA	
Endrin	Burbot	µg/kg	ww	2	0	0	NA	NA	0.812	0.857	NC	0.857	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.846	1.62	NC	1.62	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.28	0.53	NC	0.53	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.28	0.41	NC	0.41	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.28	1.04	NC	1.04	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.28	0.823	NC	0.823	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.11	1.4	NC	1.4	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.28	0.918	NC	0.918	U
Endrin aldehyde	Burbot	µg/kg	ww	2	0	0	NA	NA	1.8	1.9	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.87	3.6	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.62	1.2	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.62	0.935	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.62	2.31	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.62	1.82	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.45	3.1	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.62	2.03	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Endrin ketone	Burbot	µg/kg	ww	2	0	0	NA	NA	1.16	1.22	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.2	2.26	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.39	0.964	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.39	0.571	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.39	1.48	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.39	1.17	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.58	2	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	1.09	3.02	NA	NA	
gamma-Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	0.754	0.795	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.786	1.51	NA	NA	
	Largescale sucker	µg/kg	ww	6	3	50	0.622	3.39	0.26	0.49	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.587	0.587	0.26	0.381	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.491	0.64	1.17	1.17	NA	NA	
	Rainbow trout	µg/kg	ww	7	3	42.9	0.299	1.24	0.26	0.765	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	1.21	1.21	1.5	1.5	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.711	0.711	0.26	0.852	NA	NA	
Heptachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.807	0.852	NC	0.852	U
	Kokanee	µg/kg	ww	4	1	25	1.43	1.43	1.04	2.05	NC	1.43	M
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.27	1.9	NC	1.9	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.332	0.41	NC	0.41	U
	Mountain whitefish	µg/kg	ww	3	1	33.3	0.937	0.937	0.816	1.04	NC	0.937	M
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.27	0.964	NC	0.964	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.1	1.4	NC	1.4	U
	Walleye	µg/kg	ww	4	1	25	0.74	0.74	0.339	1.31	NC	0.74	M
Heptachlor epoxide	Burbot	µg/kg	ww	2	0	0	NA	NA	0.522	0.551	NC	0.551	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.544	1.04	NC	1.04	U
	Largescale sucker	µg/kg	ww	6	1	16.7	0.997	0.997	0.18	0.422	NC	0.997	M
	Longnose sucker	µg/kg	ww	3	2	66.7	0.298	0.716	0.35	0.35	NC	0.716	M
	Mountain whitefish	µg/kg	ww	3	1	33.3	0.45	0.45	0.18	0.642	NC	0.45	M
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.18	0.529	NC	0.529	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.711	0.9	NC	0.9	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.212	0.646	NC	0.646	U
Hexachlorobenzene	Burbot	µg/kg	ww	2	0	0	NA	NA	1.16	3.66	NC	3.66	U
	Kokanee	µg/kg	ww	4	4	100	0.808	1.5	NA	NA	NC	1.5	M
	Largescale sucker	µg/kg	ww	6	5	83.3	0.542	3.38	0.86	0.86	NC	3.38	M
	Longnose sucker	µg/kg	ww	3	2	66.7	1.1	1.31	0.541	0.541	NC	1.31	M
	Mountain whitefish	µg/kg	ww	3	3	100	5.76	7.78	NA	NA	NC	7.78	M
	Rainbow trout	µg/kg	ww	7	6	85.7	1.07	3.6	0.91	0.91	2.46	2.46	
	Smallmouth bass	µg/kg	ww	2	1	50	0.861	0.861	1.9	1.9	NC	0.861	M
	Walleye	µg/kg	ww	4	1	25	1.69	1.69	1.02	3.01	NC	1.69	M
Hexachlorobutadiene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.87	0.918	NC	0.918	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.946	5.47	NC	5.47	U
	Largescale sucker	µg/kg	ww	6	1	16.7	0.68	0.68	0.57	1.19	NC	0.68	M
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.3	0.439	NC	0.439	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.744	3.72	NC	3.72	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.3	2.95	NC	2.95	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.18	1.5	NC	1.5	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.668	2.98	NC	2.98	U

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Methoxychlor	Burbot	µg/kg	ww	2	0	0	NA	NA	1.39	1.47	NC	1.47	U
	Kokanee	µg/kg	ww	4	0	0	NA	NA	1.45	2.78	NC	2.78	U
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.48	0.9	NC	0.9	U
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.48	0.702	NC	0.702	U
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.48	1.79	NC	1.79	U
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.48	1.41	NC	1.41	U
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.9	2.4	NC	2.4	U
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.48	1.57	NC	1.57	U
Oxychlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	1.16	1.22	NA	NA	
	Kokanee	µg/kg	ww	4	1	25	1.46	1.46	1.26	2.26	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	2.06	2.06	0.39	0.73	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.39	0.765	NA	NA	
	Mountain whitefish	µg/kg	ww	3	1	33.3	1.02	1.02	1.17	1.48	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	1.79	1.79	0.39	1.7	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	1.58	12	NA	NA	
	Walleye	µg/kg	ww	4	2	50	0.515	0.659	0.39	1.31	NA	NA	
Total chlordane, 0 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	1.16	1.22	NC	1.22	U
	Kokanee	µg/kg	ww	4	1	25	1.46	1.46	1.26	2.26	NC	1.46	M
	Largescale sucker	µg/kg	ww	6	4	66.7	1.33	6.79	0.39	0.72	NC	6.79	M
	Longnose sucker	µg/kg	ww	3	1	33.3	0.964	0.964	0.39	0.765	NC	0.964	M
	Mountain whitefish	µg/kg	ww	3	3	100	0.862	3.65	NA	NA	NC	3.65	M
	Rainbow trout	µg/kg	ww	7	3	42.9	0.909	2.84	0.39	2.63	NC	2.84	M
	Smallmouth bass	µg/kg	ww	2	2	100	2.4	3.7	NA	NA	NC	3.7	M
	Walleye	µg/kg	ww	4	4	100	0.555	2.53	NA	NA	NC	2.53	M
Total chlordane, 1/2 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	1.16	1.22	NC	1.22	U
	Kokanee	µg/kg	ww	4	1	25	2.85	2.85	1.26	2.26	NC	2.85	M
	Largescale sucker	µg/kg	ww	6	4	66.7	2.19	7.7	0.39	0.72	NC	7.7	M
	Longnose sucker	µg/kg	ww	3	1	33.3	1.43	1.43	0.39	0.765	NC	1.43	M
	Mountain whitefish	µg/kg	ww	3	3	100	1.27	4.48	NA	NA	NC	4.48	M
	Rainbow trout	µg/kg	ww	7	3	42.9	1.26	4.25	0.39	2.63	NC	4.25	M
	Smallmouth bass	µg/kg	ww	2	2	100	5.68	10.6	NA	NA	NC	10.6	M
	Walleye	µg/kg	ww	4	4	100	1.16	4.38	NA	NA	NC	4.38	M
Total DDD, 0 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	2.14	2.26	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	2.23	4.23	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	7.24	7.24	0.73	1.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.503	0.503	0.73	1.09	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.845	1.46	2.75	2.75	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.73	2.62	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.92	3.7	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.634	0.634	0.73	2.42	NA	NA	
Total DDD, 1/2 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	2.14	2.26	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	2.23	4.23	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	7.24	7.24	0.73	1.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.709	0.709	0.73	1.09	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	1.3	1.65	2.75	2.75	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.73	2.62	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	2.92	3.7	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.831	0.831	0.73	2.42	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Total DDE, 0 DL	Burbot	µg/kg	ww	2	2	100	6.8	14.7	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	1.3	2.76	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	1.01	77.5	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	1.19	3.89	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	8.46	12.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	0.82	15.6	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	17.6	17.6	6.7	6.7	NA	NA	
	Walleye	µg/kg	ww	4	4	100	5.5	11.3	NA	NA	NA	NA	
Total DDE, 1/2 DL	Burbot	µg/kg	ww	2	2	100	7.32	15.3	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	1.38	3.34	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	1.36	78	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	1.36	4.25	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	8.7	12.3	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	1.22	16.3	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	18.4	18.4	6.7	6.7	NA	NA	
	Walleye	µg/kg	ww	4	4	100	5.93	12.8	NA	NA	NA	NA	
Total DDT, 0 DL	Burbot	µg/kg	ww	2	2	100	1.46	5.48	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.918	1.61	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	2	33.3	0.865	4.6	0.98	19.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.78	4.86	1.19	1.19	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	3.42	9.81	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	0.883	9.61	1	1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	8.87	8.87	2.5	2.5	NA	NA	
	Walleye	µg/kg	ww	4	4	100	1.57	8.54	NA	NA	NA	NA	
Total DDT, 1/2 DL	Burbot	µg/kg	ww	2	2	100	2.1	6.8	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	1.03	1.72	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	2	33.3	1.33	5.73	0.98	19.4	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	1.03	4.86	1.19	1.19	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	3.86	10.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	1.18	10.3	1	1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	10.7	10.7	2.5	2.5	NA	NA	
	Walleye	µg/kg	ww	4	4	100	1.62	8.54	NA	NA	NA	NA	
Total DDx, 0 DL	Burbot	µg/kg	ww	2	2	100	8.21	20.2	NA	NA	NC	20.2	M
	Kokanee	µg/kg	ww	4	4	100	1.95	3.11	NA	NA	NC	3.11	M
	Largescale sucker	µg/kg	ww	6	6	100	1.3	84.7	NA	NA	172	84.7	
	Longnose sucker	µg/kg	ww	3	3	100	1.26	9.08	NA	NA	NC	9.08	M
	Mountain whitefish	µg/kg	ww	3	3	100	12.9	18.3	NA	NA	NC	18.3	M
	Rainbow trout	µg/kg	ww	7	7	100	0.82	24.2	NA	NA	16.6	16.6	
	Smallmouth bass	µg/kg	ww	2	1	50	26.5	26.5	6.7	6.7	NC	26.5	M
	Walleye	µg/kg	ww	4	4	100	7.97	19.9	NA	NA	NC	19.9	M
Total DDx, 1/2 DL	Burbot	µg/kg	ww	2	2	100	11	23.9	NA	NA	NC	23.9	M
	Kokanee	µg/kg	ww	4	4	100	2.39	6.6	NA	NA	NC	6.6	M
	Largescale sucker	µg/kg	ww	6	6	100	3.41	97.9	NA	NA	154	97.9	
	Longnose sucker	µg/kg	ww	3	3	100	2.73	9.95	NA	NA	NC	9.95	M
	Mountain whitefish	µg/kg	ww	3	3	100	13.9	21.8	NA	NA	NC	21.8	M
	Rainbow trout	µg/kg	ww	7	7	100	2.61	28.3	NA	NA	19.6	19.6	
	Smallmouth bass	µg/kg	ww	2	1	50	31.7	31.7	6.7	6.7	NC	31.7	M
	Walleye	µg/kg	ww	4	4	100	9.99	23.5	NA	NA	NC	23.5	M

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Toxaphene	Burbot	µg/kg	ww	2	0	0	NA	NA	39.8	53.4	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	39.3	75.4	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	22	138	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	20	58.1	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	31.1	115	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	25	91	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	65	114	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	37.2	85.3	NA	NA	
trans-Nonachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.807	0.852	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.841	1.57	NA	NA	
	Largescale sucker	µg/kg	ww	6	3	50	0.426	1.31	0.27	0.51	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.364	0.364	0.27	0.395	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	0.658	2.26	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	3	42.9	0.587	1.19	0.27	0.818	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	2.49	2.49	1.4	1.4	NA	NA	
	Walleye	µg/kg	ww	4	2	50	0.729	1.25	0.581	0.673	NA	NA	
PAHs													
2-Methylnaphthalene	Burbot	µg/kg	ww	2	1	50	0.587	0.587	0.801	0.801	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.964	1.41	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	0.786	31.5	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	0.712	27	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	1.14	4.07	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	0.979	48	0.63	0.63	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	0.726	4.3	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	3	75	0.896	8.59	0.742	0.742	NA	NA	
Acenaphthene	Burbot	µg/kg	ww	2	2	100	0.573	0.633	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.185	0.799	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	0.21	1.35	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	0.25	1.1	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	1.03	2.16	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	0.26	2	0.279	0.279	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	0.3	0.753	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	2	50	0.372	0.663	0.301	0.5	NA	NA	
Acenaphthylene	Burbot	µg/kg	ww	2	2	100	0.088	0.0885	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.502	0.82	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	5	83.3	0.0554	28	0.094	0.094	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.294	28	0.0614	0.0614	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.213	3.64	0.23	0.23	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	0.15	45	0.252	0.252	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	0.0357	0.5	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	3	75	0.285	11.1	0.161	0.161	NA	NA	
Anthracene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.581	0.813	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.151	1.97	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	2	33.3	0.474	2	0.339	0.679	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	1.7	1.7	0.25	9.11	NA	NA	
	Mountain whitefish	µg/kg	ww	3	1	33.3	0.283	0.283	0.552	0.916	NA	NA	
	Rainbow trout	µg/kg	ww	7	3	42.9	1.28	5.2	0.47	9.8	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.19	0.38	NA	NA	
	Walleye	µg/kg	ww	4	2	50	0.179	0.449	0.291	0.714	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Benzo(a)anthracene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.464	0.489	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.16	0.16	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.16	0.566	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.242	0.242	0.32	0.521	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.16	0.77	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.16	18	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.16	0.32	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.16	0.16	NA	NA	
Benzo(a)pyrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.179	0.189	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.061	0.061	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.061	0.219	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.0837	0.202	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.061	0.3	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	0.53	0.53	0.061	0.411	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.061	0.13	NA	NA	
	Walleye	µg/kg	ww	4	1	25	1.15	1.15	0.061	0.061	NA	NA	
Benzo(b)fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.406	0.428	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.14	0.14	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.14	0.498	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.182	0.456	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.14	0.676	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.14	0.944	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.14	0.28	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.14	1.6	NA	NA	
Benzo(g,h,i)perylene	Burbot	µg/kg	ww	2	1	50	0.447	0.447	0.168	0.168	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.058	0.058	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.058	0.211	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.169	0.169	0.12	0.189	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.058	0.28	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	0.65	0.65	0.058	0.391	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.058	0.12	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.058	1.51	NA	NA	
Benzo(k)fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.267	0.281	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.092	0.092	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.092	0.331	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.124	0.3	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.092	0.446	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	0.62	0.62	0.092	0.62	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.092	0.19	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.092	1.75	NA	NA	
Chrysene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.58	0.612	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.2	0.2	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.2	0.709	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.26	0.652	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.2	0.966	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.2	18	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.2	0.4	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.2	0.2	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Dibenzo(a,h)anthracene	Burbot	µg/kg	ww	2	1	50	0.361	0.361	0.133	0.133	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.045	0.045	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.045	0.165	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.151	0.151	0.09	0.149	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.045	0.22	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.045	0.303	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.045	0.09	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.045	2.01	NA	NA	
Fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.435	0.459	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.15	0.499	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	1.13	1.13	0.247	2.9	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.294	0.294	0.196	3.2	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.378	0.634	0.435	0.435	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.16	5.6	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	0.105	0.105	0.3	0.3	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.353	0.353	0.15	1.13	NA	NA	
Fluorene	Burbot	µg/kg	ww	2	2	100	0.214	0.808	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.435	0.644	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	0.135	4.5	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	0.227	4.4	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	0.677	1.81	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	0.27	6.4	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	0.66	0.672	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	0.47	2.48	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	Burbot	µg/kg	ww	2	1	50	0.518	0.518	0.29	0.29	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.1	0.1	NA	NA	
	Largescale sucker	µg/kg	ww	6	0	0	NA	NA	0.1	0.355	NA	NA	
	Longnose sucker	µg/kg	ww	3	1	33.3	0.18	0.18	0.2	0.326	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.1	0.486	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	0.83	0.83	0.1	0.674	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.1	0.2	NA	NA	
	Walleye	µg/kg	ww	4	0	0	NA	NA	0.1	1.87	NA	NA	
Naphthalene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.996	1.05	NA	NA	
	Kokanee	µg/kg	ww	4	3	75	1.66	2.35	1.85	1.85	NA	NA	
	Largescale sucker	µg/kg	ww	6	5	83.3	1.23	47	0.325	0.325	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.755	50	1.13	1.13	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	0.636	11.6	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	5	71.4	1.12	99	0.93	1.13	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	4.7	4.7	0.551	0.551	NA	NA	
	Walleye	µg/kg	ww	4	4	100	1.82	21.4	NA	NA	NA	NA	
Phenanthrene	Burbot	µg/kg	ww	2	2	100	0.793	1.21	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	0.594	1.66	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	0.462	8.5	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	0.48	8.8	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	1.73	5.12	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	6	85.7	0.49	13	2.53	2.53	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	1.7	1.78	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	0.634	1.64	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Pyrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.348	0.367	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.12	0.12	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	1.6	1.6	0.198	0.6	NA	NA	
	Longnose sucker	µg/kg	ww	3	0	0	NA	NA	0.157	4.3	NA	NA	
	Mountain whitefish	µg/kg	ww	3	0	0	NA	NA	0.12	0.58	NA	NA	
	Rainbow trout	µg/kg	ww	7	0	0	NA	NA	0.12	5.86	NA	NA	
	Smallmouth bass	µg/kg	ww	2	0	0	NA	NA	0.12	0.24	NA	NA	
	Walleye	µg/kg	ww	4	1	25	0.413	0.413	0.12	0.635	NA	NA	
Total HPAHs, 0 DL	Burbot	µg/kg	ww	2	1	50	1.33	1.33	0.58	0.58	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.2	0.499	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	2.73	2.73	0.33	3.1	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.365	0.698	4.3	4.3	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.378	0.71	0.582	0.582	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	2.63	2.63	0.2	18.1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	0.124	0.124	0.4	0.4	NA	NA	
	Walleye	µg/kg	ww	4	1	25	1.83	1.83	0.2	1.16	NA	NA	
Total HPAHs, 1/2 DL	Burbot	µg/kg	ww	2	1	50	2.51	2.51	0.58	0.58	NA	NA	
	Kokanee	µg/kg	ww	4	0	0	NA	NA	0.2	0.499	NA	NA	
	Largescale sucker	µg/kg	ww	6	1	16.7	3.16	3.16	0.33	3.1	NA	NA	
	Longnose sucker	µg/kg	ww	3	2	66.7	0.578	0.995	4.3	4.3	NA	NA	
	Mountain whitefish	µg/kg	ww	3	2	66.7	0.535	1.57	0.582	0.582	NA	NA	
	Rainbow trout	µg/kg	ww	7	1	14.3	13.8	13.8	0.2	18.1	NA	NA	
	Smallmouth bass	µg/kg	ww	2	1	50	0.252	0.252	0.4	0.4	NA	NA	
	Walleye	µg/kg	ww	4	1	25	6.47	6.47	0.2	1.16	NA	NA	
Total LPAHs, 0 DL	Burbot	µg/kg	ww	2	2	100	0.963	2.87	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	4.32	9.53	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	2.12	123	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	2.19	121	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	5.46	27.5	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	1.17	219	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	3.89	12.2	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	2.65	44.7	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	Burbot	µg/kg	ww	2	2	100	3.03	4.08	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	4.85	9.53	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	2.82	123	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	2.66	121	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	5.95	27.7	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	2.19	219	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	4.33	12.4	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	4.27	45.5	NA	NA	NA	NA	
Total PAHs, 0 DL	Burbot	µg/kg	ww	2	2	100	0.963	4.15	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	4.32	9.53	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	2.12	123	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	2.41	121	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	5.46	27.7	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	1.17	219	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	3.94	12.2	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	2.65	46.5	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Total PAHs, 1/2 DL	Burbot	µg/kg	ww	2	2	100	4.67	6.8	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	4	4	100	5.41	10.3	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	6	6	100	3.76	127	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	3	3	100	3.9	126	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	3	3	100	7.59	28.5	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	7	7	100	2.75	224	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	2	2	100	4.93	13.5	NA	NA	NA	NA	
	Walleye	µg/kg	ww	4	4	100	4.83	52	NA	NA	NA	NA	
PCBs													
Aroclor 1016	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	2	40	14	14	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	10	0	0	NA	NA	1.4	14	NA	NA	
Aroclor 1221	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	10	0	0	NA	NA	1.4	14	NA	NA	
Aroclor 1232	Burbot	µg/kg	ww	3	0	0	NA	NA	22	22	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	21	22	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	20	98	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	26	28	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	21	28.5	NA	NA	
	Walleye	µg/kg	ww	10	0	0	NA	NA	2.85	28	NA	NA	
Aroclor 1242	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	10	0	0	NA	NA	1.4	14	NA	NA	
Aroclor 1248	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	10	0	0	NA	NA	1.4	14	NA	NA	
Aroclor 1254	Lake whitefish	µg/kg	ww	2	2	100	3	8	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	3	3	100	13	27	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	5	5	100	7.5	11	NA	NA	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	1.4	2.19	NA	NA	
Aroclor 1254/1260	Burbot	µg/kg	ww	3	3	100	20	43	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	3	3	100	15	31	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	4	100	55	419	NA	NA	NA	NA	
	Mountain whitefish	µg/kg	ww	5	5	100	45.4	58.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	5	5	100	22.6	59.3	NA	NA	NA	NA	
	Walleye	µg/kg	ww	5	5	100	22	47.7	NA	NA	NA	NA	
Aroclor 1260	Lake whitefish	µg/kg	ww	2	2	100	2.5	6.9	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	3	3	100	27	56	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	5	5	100	15	23.3	NA	NA	NA	NA	
	Walleye	µg/kg	ww	5	5	100	17.4	32.6	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs (continued)													
Aroclor 1262	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Aroclor 1268	Burbot	µg/kg	ww	3	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Largescale sucker	µg/kg	ww	7	0	0	NA	NA	10	49	NA	NA	
	Mountain whitefish	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
	Rainbow trout	µg/kg	ww	10	0	0	NA	NA	10.8	14	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Total PCB Aroclors, 1/2 DL	Burbot	µg/kg	ww	3	3	100	64	87	NA	NA	NC	87	M
	Lake whitefish	µg/kg	ww	5	5	100	49.5	74.5	NA	NA	NC	74.5	M
	Largescale sucker	µg/kg	ww	7	7	100	83.5	615	NA	NA	498	498	
	Mountain whitefish	µg/kg	ww	5	5	100	87.5	120	NA	NA	NC	120	M
	Rainbow trout	µg/kg	ww	10	10	100	68	113	NA	NA	88.3	88.3	
	Walleye	µg/kg	ww	10	10	100	22.4	104	NA	NA	75.9	75.9	
Total PCB Aroclors, 0 DL	Burbot	µg/kg	ww	3	3	100	20	43	NA	NA	NC	43	M
	Lake whitefish	µg/kg	ww	5	5	100	5.5	31	NA	NA	NC	31	M
	Largescale sucker	µg/kg	ww	7	7	100	40	419	NA	NA	338	338	
	Mountain whitefish	µg/kg	ww	5	5	100	34.9	71.3	NA	NA	NC	71.3	M
	Rainbow trout	µg/kg	ww	10	10	100	22.6	59.3	NA	NA	37.4	37.4	
	Walleye	µg/kg	ww	10	10	100	17.4	47.7	NA	NA	32.5	32.5	
Total PCB congeners, 0 DL	Burbot	pg/g	ww	5	5	100	11600	35100	NA	NA	NC	35100	M
	Kokanee	pg/g	ww	14	14	100	8130	16700	NA	NA	11700	11700	
	Lake whitefish	pg/g	ww	1	1	100	26000	26000	NA	NA	NC	26000	M
	Largescale sucker	pg/g	ww	13	13	100	6280	381000	NA	NA	214000	214000	
	Longnose sucker	pg/g	ww	10	10	100	6260	26300	NA	NA	21100	21100	
	Mountain whitefish	pg/g	ww	9	9	100	10500	97300	NA	NA	58600	58600	
	Pikeminnow	pg/g	ww	3	3	100	7350	12400	NA	NA	NC	12400	M
	Rainbow trout	pg/g	ww	18	18	100	6150	77300	NA	NA	47700	47700	
	Sculpin	pg/g	ww	2	2	100	10100	15100	NA	NA	NC	15100	M
	Smallmouth bass	pg/g	ww	3	3	100	8910	87100	NA	NA	NC	87100	M
	Walleye	pg/g	ww	12	12	100	26300	246000	NA	NA	131000	131000	
	Yellow perch	pg/g	ww	1	1	100	9330	9330	NA	NA	NC	9330	M
Total PCB congeners, 1/2 DL	Burbot	pg/g	ww	5	5	100	12100	35600	NA	NA	NC	35600	M
	Kokanee	pg/g	ww	14	14	100	8220	16800	NA	NA	11800	11800	
	Lake whitefish	pg/g	ww	1	1	100	26100	26100	NA	NA	NC	26100	M
	Largescale sucker	pg/g	ww	13	13	100	7100	382000	NA	NA	212000	212000	
	Longnose sucker	pg/g	ww	10	10	100	6760	26700	NA	NA	24400	24400	
	Mountain whitefish	pg/g	ww	9	9	100	10600	97400	NA	NA	58800	58800	
	Pikeminnow	pg/g	ww	3	3	100	7750	12800	NA	NA	NC	12800	M
	Rainbow trout	pg/g	ww	18	18	100	6590	77400	NA	NA	47800	47800	
	Sculpin	pg/g	ww	2	2	100	10500	15400	NA	NA	NC	15400	M
	Smallmouth bass	pg/g	ww	3	3	100	9760	87200	NA	NA	NC	87200	M
	Walleye	pg/g	ww	12	12	100	26400	247000	NA	NA	131000	131000	
	Yellow perch	pg/g	ww	1	1	100	9730	9730	NA	NA	NC	9730	M

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans													
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	Burbot	mg/kg	lipid	7	3	42.9	0.00000867	0.0000129	0.00000561	0.0000399	NA	NA	
	Burbot	pg/g	ww	7	3	42.9	0.242	0.343	0.16	0.599	NA	NA	
	Kokanee	mg/kg	lipid	14	2	14.3	0.00000168	0.00000647	0.00000213	0.00000661	NA	NA	
	Kokanee	pg/g	ww	14	2	14.3	0.105	0.412	0.128	0.355	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.00000495	0.000271	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.644	3.8	NA	NA	
	Largescale sucker	mg/kg	lipid	18	8	44.4	0.00000131	0.0000151	0.00000155	0.0000279	NA	NA	
	Largescale sucker	pg/g	ww	18	8	44.4	0.0679	0.543	0.0881	0.872	NA	NA	
	Longnose sucker	mg/kg	lipid	10	6	60	0.00000207	0.00000712	0.000004	0.0000773	NA	NA	
	Longnose sucker	pg/g	ww	10	6	60	0.0916	0.196	0.102	1.7	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.00000143	0.0000328	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	12	92.3	0.123	2.92	0.146	0.146	NA	NA	
	Pikeminnow	mg/kg	lipid	3	2	66.7	0.0000104	0.0000157	0.00000387	0.00000387	NA	NA	
	Pikeminnow	pg/g	ww	3	2	66.7	0.345	0.361	0.174	0.174	NA	NA	
	Rainbow trout	mg/kg	lipid	26	21	80.8	0.00000168	0.0000115	0.00000219	0.00000903	NA	NA	
	Rainbow trout	pg/g	ww	26	21	80.8	0.104	0.773	0.106	0.605	NA	NA	
	Sculpin	mg/kg	lipid	2	1	50	0.00000412	0.00000412	0.00000458	0.00000458	NA	NA	
	Sculpin	pg/g	ww	2	1	50	0.147	0.147	0.174	0.174	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.00000105	0.00000494	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0772	0.173	NA	NA	
	Walleye	mg/kg	lipid	20	8	40	0.0000031	0.000015	0.0000042	0.000022	NA	NA	
	Walleye	pg/g	ww	20	8	40	0.163	0.314	0.203	0.57	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000497	0.0000497	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.74	1.74	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	Burbot	mg/kg	lipid	7	2	28.6	0.0000018	0.00000281	0.00000161	0.00000735	NA	NA	
	Burbot	pg/g	ww	7	2	28.6	0.0501	0.0778	0.0459	0.125	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000117	0.00000374	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0656	0.201	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.00000125	0.0000173	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.163	0.588	NA	NA	
	Largescale sucker	mg/kg	lipid	18	1	5.6	0.000000767	0.000000767	0.00000059	0.0000118	NA	NA	
	Largescale sucker	pg/g	ww	18	1	5.6	0.0605	0.0605	0.0364	0.399	NA	NA	
	Longnose sucker	mg/kg	lipid	10	1	10	0.000000857	0.000000857	0.00000081	0.000033	NA	NA	
	Longnose sucker	pg/g	ww	10	1	10	0.0383	0.0383	0.0439	0.727	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	6	50	0.000000232	0.00000989	0.00000035	0.0000022	NA	NA	
	Mountain whitefish	pg/g	ww	13	6	46.2	0.0318	0.88	0.0557	0.172	NA	NA	
	Pikeminnow	mg/kg	lipid	3	1	33.3	0.00000453	0.00000453	0.00000326	0.00000614	NA	NA	
	Pikeminnow	pg/g	ww	3	1	33.3	0.204	0.204	0.113	0.135	NA	NA	
	Rainbow trout	mg/kg	lipid	26	7	26.9	0.000000354	0.00000538	0.000000401	0.00000481	NA	NA	
	Rainbow trout	pg/g	ww	26	7	26.9	0.0311	0.258	0.0264	0.276	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000137	0.00000238	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0488	0.0906	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.0000018	0.0000018	0.00000102	0.0000015	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.0629	0.0629	0.0555	0.0752	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00001	0.00001	0.00000197	0.00000884	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.129	0.129	0.0796	0.268	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000437	0.0000437	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.53	1.53	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Burbot	mg/kg	lipid	7	0	0	NA	NA	0.00000148	0.00000854	NA	NA	
	Burbot	pg/g	ww	7	0	0	NA	NA	0.0412	0.111	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000113	0.00000371	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0705	0.199	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.000000667	0.000012	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.0934	0.816	NA	NA	
	Largescale sucker	mg/kg	lipid	18	0	0	NA	NA	0.000000563	0.0000185	NA	NA	
	Largescale sucker	pg/g	ww	18	0	0	NA	NA	0.034	0.602	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.000000779	0.0000348	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0422	0.766	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	0	0	NA	NA	0.000000284	0.00000821	NA	NA	
	Mountain whitefish	pg/g	ww	13	0	0	NA	NA	0.041	0.731	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000271	0.00000591	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.107	0.13	NA	NA	
	Rainbow trout	mg/kg	lipid	26	0	0	NA	NA	0.000000328	0.00000883	NA	NA	
	Rainbow trout	pg/g	ww	26	0	0	NA	NA	0.0236	0.424	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000149	0.00000231	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0531	0.0879	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000943	0.00000211	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0566	0.0738	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.00000168	0.0000131	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.0764	0.246	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000429	0.0000429	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.5	1.5	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	7	3	42.9	0.00000271	0.00000726	0.00000185	0.00000792	NA	NA	
	Burbot	pg/g	ww	7	3	42.9	0.0773	0.193	0.0513	0.103	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000133	0.00000766	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0849	0.449	NA	NA	
	Lake whitefish	mg/kg	lipid	5	1	20	0.00000195	0.00000195	0.00000148	0.0000234	NA	NA	
	Lake whitefish	pg/g	ww	5	1	20	0.273	0.273	0.192	0.752	NA	NA	
	Largescale sucker	mg/kg	lipid	18	1	5.6	0.00000102	0.00000102	0.000000527	0.0000205	NA	NA	
	Largescale sucker	pg/g	ww	18	1	5.6	0.082	0.082	0.0353	0.641	NA	NA	
	Longnose sucker	mg/kg	lipid	10	1	10	0.00000129	0.00000129	0.000000943	0.00008	NA	NA	
	Longnose sucker	pg/g	ww	10	1	10	0.075	0.075	0.0511	1.76	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	2	16.7	0.000000515	0.000000526	0.000000472	0.00000642	NA	NA	
	Mountain whitefish	pg/g	ww	13	2	15.4	0.0603	0.0894	0.0535	0.571	NA	NA	
	Pikeminnow	mg/kg	lipid	3	1	33.3	0.00000605	0.00000605	0.00000284	0.00000832	NA	NA	
	Pikeminnow	pg/g	ww	3	1	33.3	0.21	0.21	0.128	0.183	NA	NA	
	Rainbow trout	mg/kg	lipid	26	2	7.7	0.000000612	0.000000818	0.000000711	0.0000086	NA	NA	
	Rainbow trout	pg/g	ww	26	2	7.7	0.0388	0.0649	0.0551	0.555	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000157	0.00000217	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0561	0.0826	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000793	0.00000243	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0582	0.0852	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.00000398	0.0000222	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.129	0.636	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000537	0.0000537	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.88	1.88	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,4,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	7	2	28.6	0.00000141	0.0000017	0.00000132	0.00000735	NA	NA	
	Burbot	pg/g	ww	7	2	28.6	0.0393	0.047	0.0376	0.101	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.000000699	0.00000268	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0443	0.144	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.000000593	0.0000155	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.0712	0.413	NA	NA	
	Largescale sucker	mg/kg	lipid	18	0	0	NA	NA	0.000000321	0.00000937	NA	NA	
	Largescale sucker	pg/g	ww	18	0	0	NA	NA	0.0225	0.254	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.000000511	0.000026	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0277	0.573	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	3	25	0.000000214	0.000000402	0.000000313	0.00000579	NA	NA	
	Mountain whitefish	pg/g	ww	13	3	23.1	0.0293	0.0684	0.0319	0.515	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000142	0.00000442	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.0639	0.0972	NA	NA	
	Rainbow trout	mg/kg	lipid	26	2	7.7	0.000000304	0.000000348	0.000000195	0.00000496	NA	NA	
	Rainbow trout	pg/g	ww	26	2	7.7	0.0276	0.0279	0.0171	0.316	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000114	0.0000012	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.043	0.0435	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000454	0.00000156	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0324	0.0546	NA	NA	
	Walleye	mg/kg	lipid	20	2	10	0.00000203	0.00000368	0.000000948	0.00000967	NA	NA	
	Walleye	pg/g	ww	20	2	10	0.0596	0.0956	0.0685	0.178	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000294	0.0000294	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.03	1.03	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	7	1	14.3	0.00000693	0.00000693	0.00000221	0.000024	NA	NA	
	Burbot	pg/g	ww	7	1	14.3	0.192	0.192	0.0616	0.36	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000107	0.00000744	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0681	0.436	NA	NA	
	Lake whitefish	mg/kg	lipid	5	4	80	0.00000209	0.0000344	0.00000685	0.00000685	NA	NA	
	Lake whitefish	pg/g	ww	5	4	80	0.292	0.482	0.753	0.753	NA	NA	
	Largescale sucker	mg/kg	lipid	18	3	16.7	0.000000591	0.00000147	0.000000644	0.0000226	NA	NA	
	Largescale sucker	pg/g	ww	18	3	16.7	0.0318	0.0893	0.0365	0.707	NA	NA	
	Longnose sucker	mg/kg	lipid	10	2	20	0.00000116	0.0000023	0.0000012	0.0000805	NA	NA	
	Longnose sucker	pg/g	ww	10	2	20	0.0627	0.103	0.0554	1.77	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	10	83.3	0.00000141	0.0000061	0.000000941	0.00000106	NA	NA	
	Mountain whitefish	pg/g	ww	13	10	76.9	0.179	0.543	0.0748	0.105	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000307	0.000009	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.138	0.198	NA	NA	
	Rainbow trout	mg/kg	lipid	26	16	61.5	0.000000906	0.0000102	0.00000148	0.0000065	NA	NA	
	Rainbow trout	pg/g	ww	26	16	61.5	0.0777	0.491	0.0922	0.555	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000161	0.00000229	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0575	0.0871	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000828	0.00000249	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0608	0.0873	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00000701	0.00000701	0.0000051	0.0000216	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.206	0.206	0.151	0.65	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000546	0.0000546	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.91	1.91	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	7	3	42.9	0.00000208	0.00000664	0.00000173	0.00000792	NA	NA	
	Burbot	pg/g	ww	7	3	42.9	0.0552	0.184	0.0483	0.103	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.000000731	0.00000272	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0456	0.146	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.000000545	0.0000151	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.0654	0.407	NA	NA	
	Largescale sucker	mg/kg	lipid	18	7	38.9	0.00000138	0.00000803	0.00000249	0.00000826	NA	NA	
	Largescale sucker	pg/g	ww	18	7	38.9	0.0958	0.497	0.0721	0.244	NA	NA	
	Longnose sucker	mg/kg	lipid	10	2	20	0.000000824	0.0000012	0.00000057	0.000024	NA	NA	
	Longnose sucker	pg/g	ww	10	2	20	0.0478	0.0537	0.0309	0.528	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	5	41.7	0.000000257	0.000000819	0.000000315	0.00000557	NA	NA	
	Mountain whitefish	pg/g	ww	13	5	38.5	0.0352	0.0807	0.04	0.496	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000171	0.00000427	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.077	0.0939	NA	NA	
	Rainbow trout	mg/kg	lipid	26	11	42.3	0.000000579	0.00000297	0.00000097	0.00000477	NA	NA	
	Rainbow trout	pg/g	ww	26	11	42.3	0.0353	0.14	0.0507	0.305	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.00000233	0.00000259	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.0884	0.0926	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000226	0.00000226	0.000000862	0.00000157	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.166	0.166	0.0319	0.0549	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00000338	0.00000338	0.00000196	0.0000086	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.0878	0.0878	0.084	0.231	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000297	0.0000297	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.04	1.04	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	7	0	0	NA	NA	0.00000186	0.000008	NA	NA	
	Burbot	pg/g	ww	7	0	0	NA	NA	0.0516	0.12	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.0000013	0.00000809	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0828	0.474	NA	NA	
	Lake whitefish	mg/kg	lipid	5	2	40	0.00000103	0.0000196	0.00000133	0.00000704	NA	NA	
	Lake whitefish	pg/g	ww	5	2	40	0.134	0.275	0.186	0.774	NA	NA	
	Largescale sucker	mg/kg	lipid	18	1	5.6	0.000000614	0.000000614	0.000000525	0.0000232	NA	NA	
	Largescale sucker	pg/g	ww	18	1	5.6	0.0374	0.0374	0.0354	0.726	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.000000928	0.0000927	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0503	2.04	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	5	41.7	0.000000557	0.00000224	0.000000575	0.00000645	NA	NA	
	Mountain whitefish	pg/g	ww	13	5	38.5	0.0715	0.228	0.057	0.574	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000278	0.00000864	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.125	0.19	NA	NA	
	Rainbow trout	mg/kg	lipid	26	5	19.2	0.000000743	0.0000019	0.000000668	0.0000089	NA	NA	
	Rainbow trout	pg/g	ww	26	5	19.2	0.0412	0.168	0.0524	0.585	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000157	0.00000218	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0562	0.0828	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000797	0.00000237	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0585	0.0831	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.00000416	0.0000226	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.136	0.667	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000546	0.0000546	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.91	1.91	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,7,8,9-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	7	0	0	NA	NA	0.0000017	0.000006	NA	NA	
	Burbot	pg/g	ww	7	0	0	NA	NA	0.0473	0.078	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000107	0.00000371	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0667	0.199	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.000000857	0.0000186	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.12	0.525	NA	NA	
	Largescale sucker	mg/kg	lipid	18	0	0	NA	NA	0.000000475	0.0000141	NA	NA	
	Largescale sucker	pg/g	ww	18	0	0	NA	NA	0.0321	0.383	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.00000078	0.0000375	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0423	0.826	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	0	0	NA	NA	0.000000286	0.00000836	NA	NA	
	Mountain whitefish	pg/g	ww	13	0	0	NA	NA	0.0392	0.744	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000253	0.00000655	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.114	0.144	NA	NA	
	Rainbow trout	mg/kg	lipid	26	0	0	NA	NA	0.00000026	0.00000673	NA	NA	
	Rainbow trout	pg/g	ww	26	0	0	NA	NA	0.0228	0.423	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000167	0.00000169	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0597	0.0643	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000617	0.00000218	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0453	0.0764	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00000368	0.00000368	0.00000135	0.0000125	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.0956	0.0956	0.103	0.253	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000414	0.0000414	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.45	1.45	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	Burbot	mg/kg	lipid	7	1	14.3	0.00000328	0.00000328	0.00000188	0.0000311	NA	NA	
	Burbot	pg/g	ww	7	1	14.3	0.0873	0.0873	0.0537	0.457	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.000000689	0.00000575	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0439	0.309	NA	NA	
	Lake whitefish	mg/kg	lipid	5	3	60	0.00000225	0.0000329	0.00000466	0.00000504	NA	NA	
	Lake whitefish	pg/g	ww	5	3	60	0.315	0.46	0.554	0.606	NA	NA	
	Largescale sucker	mg/kg	lipid	18	6	33.3	0.000000855	0.00000163	0.000000769	0.0000167	NA	NA	
	Largescale sucker	pg/g	ww	18	6	33.3	0.042	0.102	0.0321	0.522	NA	NA	
	Longnose sucker	mg/kg	lipid	10	3	30	0.00000103	0.00000215	0.0000011	0.0000394	NA	NA	
	Longnose sucker	pg/g	ww	10	3	30	0.0493	0.0643	0.0633	0.867	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	8	66.7	0.00000138	0.00000361	0.00000252	0.00000732	NA	NA	
	Mountain whitefish	pg/g	ww	13	8	61.5	0.137	0.55	0.0795	0.573	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000162	0.00000582	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.073	0.128	NA	NA	
	Rainbow trout	mg/kg	lipid	26	12	46.2	0.000000852	0.00000338	0.0000014	0.0000161	NA	NA	
	Rainbow trout	pg/g	ww	26	12	46.2	0.0633	0.231	0.0718	0.772	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000129	0.00000156	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0462	0.0593	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000139	0.00000139	0.00000118	0.00000256	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.102	0.102	0.0436	0.0896	NA	NA	
	Walleye	mg/kg	lipid	20	5	25	0.00000236	0.000008	0.00000289	0.0000257	NA	NA	
	Walleye	pg/g	ww	20	5	25	0.126	0.169	0.0956	0.392	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000247	0.0000247	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.865	0.865	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	7	2	28.6	0.00000373	0.00000425	0.00000195	0.0000148	NA	NA	
	Burbot	pg/g	ww	7	2	28.6	0.104	0.113	0.0557	0.24	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.00000098	0.00000477	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0591	0.256	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.00000174	0.0000203	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.243	0.359	NA	NA	
	Largescale sucker	mg/kg	lipid	18	3	16.7	0.000000543	0.0000133	0.000000536	0.0000125	NA	NA	
	Largescale sucker	pg/g	ww	18	3	16.7	0.0308	0.478	0.0319	0.539	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.000000893	0.0000365	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0456	0.802	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	9	75	0.000000418	0.00000231	0.00000171	0.00000702	NA	NA	
	Mountain whitefish	pg/g	ww	13	9	69.2	0.0414	0.365	0.073	0.625	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000153	0.00000595	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.069	0.131	NA	NA	
	Rainbow trout	mg/kg	lipid	26	18	69.2	0.000000544	0.00000416	0.000000527	0.0000045	NA	NA	
	Rainbow trout	pg/g	ww	26	18	69.2	0.0402	0.207	0.0318	0.216	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000141	0.00000179	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0503	0.0679	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000801	0.00000237	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0459	0.083	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.00000325	0.00000916	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.0924	0.346	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000506	0.0000506	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.77	1.77	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	7	1	14.3	0.00000982	0.00000982	0.00000138	0.00000615	NA	NA	
	Burbot	pg/g	ww	7	1	14.3	0.28	0.28	0.0386	0.0824	NA	NA	
	Kokanee	mg/kg	lipid	14	0	0	NA	NA	0.000000861	0.00000296	NA	NA	
	Kokanee	pg/g	ww	14	0	0	NA	NA	0.0537	0.159	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.000000722	0.000015	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.0866	0.416	NA	NA	
	Largescale sucker	mg/kg	lipid	18	2	11.1	0.00000225	0.000006	0.000000385	0.00000896	NA	NA	
	Largescale sucker	pg/g	ww	18	2	11.1	0.058	0.34	0.0304	0.268	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.000000601	0.0000276	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.0326	0.608	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	5	41.7	0.000000428	0.00000449	0.000000243	0.000002	NA	NA	
	Mountain whitefish	pg/g	ww	13	5	38.5	0.0587	0.4	0.0309	0.168	NA	NA	
	Pikeminnow	mg/kg	lipid	3	1	33.3	0.0000045	0.0000045	0.00000189	0.00000509	NA	NA	
	Pikeminnow	pg/g	ww	3	1	33.3	0.156	0.156	0.0851	0.112	NA	NA	
	Rainbow trout	mg/kg	lipid	26	0	0	NA	NA	0.000000238	0.00000502	NA	NA	
	Rainbow trout	pg/g	ww	26	0	0	NA	NA	0.0209	0.302	NA	NA	
	Sculpin	mg/kg	lipid	2	1	50	0.00000426	0.00000426	0.0000012	0.0000012	NA	NA	
	Sculpin	pg/g	ww	2	1	50	0.152	0.152	0.0457	0.0457	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000297	0.00000297	0.000000514	0.00000168	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.11	0.11	0.0377	0.0587	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00000255	0.00000255	0.00000109	0.00000959	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.0663	0.0663	0.0716	0.208	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000289	0.0000289	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.01	1.01	NA	NA	

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Dioxins/Furans (continued)													
2,3,4,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	7	1	14.3	0.00000406	0.00000406	0.00000177	0.0000178	NA	NA	
	Burbot	pg/g	ww	7	1	14.3	0.108	0.108	0.0504	0.284	NA	NA	
	Kokanee	mg/kg	lipid	14	1	7.1	0.000000716	0.000000716	0.000000966	0.00000517	NA	NA	
	Kokanee	pg/g	ww	14	1	7.1	0.0456	0.0456	0.0571	0.303	NA	NA	
	Lake whitefish	mg/kg	lipid	5	1	20	0.00000313	0.00000313	0.00000259	0.0000326	NA	NA	
	Lake whitefish	pg/g	ww	5	1	20	0.344	0.344	0.363	0.498	NA	NA	
	Largescale sucker	mg/kg	lipid	18	9	50	0.000000871	0.0000123	0.000000869	0.0000115	NA	NA	
	Largescale sucker	pg/g	ww	18	9	50	0.0356	0.441	0.0323	0.361	NA	NA	
	Longnose sucker	mg/kg	lipid	10	2	20	0.00000165	0.00000174	0.000000856	0.0000338	NA	NA	
	Longnose sucker	pg/g	ww	10	2	20	0.0398	0.0736	0.0464	0.744	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	7	58.3	0.00000157	0.00000386	0.00000283	0.00000706	NA	NA	
	Mountain whitefish	pg/g	ww	13	7	53.8	0.151	0.656	0.0755	0.628	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.00000144	0.00000564	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.0646	0.124	NA	NA	
	Rainbow trout	mg/kg	lipid	26	16	61.5	0.000000739	0.00000429	0.00000143	0.00000501	NA	NA	
	Rainbow trout	pg/g	ww	26	16	61.5	0.0526	0.256	0.0809	0.247	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000132	0.00000165	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0471	0.0627	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000174	0.00000174	0.00000122	0.00000219	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.128	0.128	0.0453	0.0767	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.0000027	0.0000102	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.109	0.352	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000511	0.0000511	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.79	1.79	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	Burbot	mg/kg	lipid	7	0	0	NA	NA	0.00000116	0.00000969	NA	NA	
	Burbot	pg/g	ww	7	0	0	NA	NA	0.0331	0.129	NA	NA	
	Kokanee	mg/kg	lipid	14	1	7.1	0.00000135	0.00000135	0.000000575	0.00000451	NA	NA	
	Kokanee	pg/g	ww	14	1	7.1	0.063	0.063	0.0366	0.243	NA	NA	
	Lake whitefish	mg/kg	lipid	5	1	20	0.00000162	0.00000162	0.00000144	0.0000149	NA	NA	
	Lake whitefish	pg/g	ww	5	1	20	0.21	0.21	0.202	0.351	NA	NA	
	Largescale sucker	mg/kg	lipid	18	1	5.6	0.0000007	0.0000007	0.000000519	0.0000191	NA	NA	
	Largescale sucker	pg/g	ww	18	1	5.6	0.0552	0.0552	0.0294	0.576	NA	NA	
	Longnose sucker	mg/kg	lipid	10	1	10	0.000000855	0.000000855	0.000000858	0.0000459	NA	NA	
	Longnose sucker	pg/g	ww	10	1	10	0.0496	0.0496	0.0465	1.01	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	4	33.3	0.000000501	0.00000244	0.000000713	0.00000489	NA	NA	
	Mountain whitefish	pg/g	ww	13	4	30.8	0.0686	0.191	0.0499	0.435	NA	NA	
	Pikeminnow	mg/kg	lipid	3	0	0	NA	NA	0.000000867	0.00000795	NA	NA	
	Pikeminnow	pg/g	ww	3	0	0	NA	NA	0.039	0.175	NA	NA	
	Rainbow trout	mg/kg	lipid	26	3	11.5	0.000000708	0.00000348	0.000000596	0.00000783	NA	NA	
	Rainbow trout	pg/g	ww	26	3	11.5	0.0633	0.155	0.0369	0.376	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000166	0.00000182	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0592	0.069	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	0	0	NA	NA	0.000000935	0.00000263	NA	NA	
	Smallmouth bass	pg/g	ww	3	0	0	NA	NA	0.0537	0.0919	NA	NA	
	Walleye	mg/kg	lipid	20	1	5	0.00000153	0.00000153	0.00000192	0.00000901	NA	NA	
	Walleye	pg/g	ww	20	1	5	0.108	0.108	0.0901	0.223	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000282	0.0000282	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.986	0.986	NA	NA	

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Dioxins/Furans (continued)													
2,3,7,8-Tetrachlorodibenzofuran	Burbot	mg/kg	lipid	7	7	100	0.0000305	0.000305	NA	NA	NA	NA	
	Burbot	pg/g	ww	7	7	100	0.868	5.48	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.0000125	0.0000271	NA	NA	NA	NA	
	Kokanee	pg/g	ww	14	14	100	0.791	1.26	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.0000324	0.000334	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	5	5	100	3.56	4.93	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.00000919	0.000319	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	18	18	100	0.196	11.5	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.0000103	0.0000322	0.0000408	0.0000408	NA	NA	
	Longnose sucker	pg/g	ww	10	9	90	0.307	1.44	0.897	0.897	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.0000157	0.0000789	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	13	100	0.833	7.27	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.0000083	0.0000152	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	3	3	100	0.255	0.685	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.00000756	0.0000697	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	26	26	100	0.204	4.67	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.00000835	0.0000105	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.298	0.399	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.00000365	0.0000163	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	3	3	100	0.135	1.2	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.0000121	0.0000653	NA	NA	NA	NA	
	Walleye	pg/g	ww	20	20	100	0.626	1.65	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.000023	0.000023	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.805	0.805	NA	NA	
Dioxin TEQ, bird, 0 DL	Burbot	mg/kg	lipid	7	7	100	0.0000313	0.000305	NA	NA	NA	NA	
	Burbot	pg/g	ww	7	7	100	0.891	5.48	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.0000128	0.0000282	NA	NA	NA	NA	
	Kokanee	pg/g	ww	14	14	100	0.791	1.31	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.0000349	0.000369	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	5	5	100	3.9	5.36	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.00000933	0.000333	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	18	18	100	0.196	12	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.0000113	0.0000336	0	0	NA	NA	
	Longnose sucker	pg/g	ww	10	9	90	0.307	1.5	0	0	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.0000205	0.0000829	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	13	100	0.833	8.58	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.00000579	0.0000153	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	3	3	100	0.201	0.687	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.00000756	0.0000697	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	26	26	100	0.204	4.67	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.00000871	0.0000107	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.311	0.408	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.00000395	0.0000196	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	3	3	100	0.146	1.44	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.0000111	0.0000686	NA	NA	NA	NA	
	Walleye	pg/g	ww	20	20	100	0.58	1.65	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, bird, 1/2 DL	Burbot	mg/kg	lipid	7	7	100	0.000034	0.000338	NA	NA	NA	NA	
	Burbot	pg/g	ww	7	7	100	0.969	5.94	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.0000146	0.0000308	NA	NA	NA	NA	
	Kokanee	pg/g	ww	14	14	100	0.9	1.43	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.0000372	0.000398	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	5	5	100	4.53	5.76	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.0000112	0.00035	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	18	18	100	0.332	12.6	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.0000129	0.0000596	0.000095	0.000095	NA	NA	
	Longnose sucker	pg/g	ww	10	9	90	0.42	1.6	2.09	2.09	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.0000208	0.0000866	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	13	100	0.963	8.67	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.0000141	0.0000234	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	3	3	100	0.489	0.807	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.0000107	0.0000772	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	26	26	100	0.405	5.17	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.0000116	0.0000137	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.415	0.522	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.00000627	0.0000204	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	3	3	100	0.232	1.5	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.0000161	0.0000907	NA	NA	NA	NA	
	Walleye	pg/g	ww	20	20	100	0.949	2.12	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000774	0.0000774	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	2.71	2.71	NA	NA	
Dioxin TEQ, fish, 0 DL	Burbot	mg/kg	lipid	7	7	100	0.00000271	0.0000153	NA	NA	0.0000131	0.0000131	
	Burbot	pg/g	ww	7	7	100	0.075	0.378	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.00000066	0.00000234	NA	NA	0.00000117	0.00000117	
	Kokanee	pg/g	ww	14	14	100	0.0396	0.109	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.00000318	0.0000502	NA	NA	NC	0.0000502	M
	Lake whitefish	pg/g	ww	5	5	100	0.35	0.703	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.000000481	0.0000228	NA	NA	0.00000787	0.00000787	
	Largescale sucker	pg/g	ww	18	18	100	0.0101	0.82	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.000000707	0.00000329	0	0	0.00000203	0.00000203	
	Longnose sucker	pg/g	ww	10	9	90	0.0154	0.136	0	0	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.00000168	0.00000775	NA	NA	0.00000574	0.00000574	
	Mountain whitefish	pg/g	ww	13	13	100	0.0417	1.3	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.000000595	0.00000144	NA	NA	NC	0.00000144	M
	Pikeminnow	pg/g	ww	3	3	100	0.0131	0.05	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.000000378	0.00000711	NA	NA	0.00000351	0.00000351	
	Rainbow trout	pg/g	ww	26	26	100	0.0102	0.465	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.000000761	0.00000079	NA	NA	NC	0.00000079	M
	Sculpin	pg/g	ww	2	2	100	0.0282	0.0289	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.000000275	0.00000323	NA	NA	NC	0.00000323	M
	Smallmouth bass	pg/g	ww	3	3	100	0.00963	0.237	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.000000557	0.000011	NA	NA	0.00000446	0.00000446	
	Walleye	pg/g	ww	20	20	100	0.0292	0.232	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NC	0	U
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, fish, 1/2 DL	Burbot	mg/kg	lipid	7	7	100	0.00000579	0.0000441	NA	NA	0.0000302	0.0000302	
	Burbot	pg/g	ww	7	7	100	0.165	0.679	NA	NA	0.567	0.567	
	Kokanee	mg/kg	lipid	14	14	100	0.00000248	0.00000944	NA	NA	0.00000566	0.00000566	
	Kokanee	pg/g	ww	14	14	100	0.149	0.507	NA	NA	0.294	0.294	
	Lake whitefish	mg/kg	lipid	5	5	100	0.00000646	0.0000757	NA	NA	NC	0.0000757	M
	Lake whitefish	pg/g	ww	5	5	100	0.904	1.1	NA	NA	NC	1.1	M
	Largescale sucker	mg/kg	lipid	18	18	100	0.00000229	0.0000403	NA	NA	0.0000199	0.0000199	
	Largescale sucker	pg/g	ww	18	18	100	0.0816	1.45	NA	NA	0.706	0.706	
	Longnose sucker	mg/kg	lipid	10	9	90	0.00000288	0.000043	0.00008	0.00008	0.0000276	0.0000276	
	Longnose sucker	pg/g	ww	10	9	90	0.126	0.989	1.76	1.76	0.657	0.657	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.00000421	0.0000121	NA	NA	0.0000089	0.0000089	
	Mountain whitefish	pg/g	ww	13	13	100	0.174	1.41	NA	NA	0.865	0.865	
	Pikeminnow	mg/kg	lipid	3	3	100	0.00000358	0.0000123	NA	NA	NC	0.0000123	M
	Pikeminnow	pg/g	ww	3	3	100	0.161	0.279	NA	NA	NC	0.279	M
	Rainbow trout	mg/kg	lipid	26	26	100	0.00000277	0.0000191	NA	NA	0.00000929	0.00000929	
	Rainbow trout	pg/g	ww	26	26	100	0.167	1.01	NA	NA	0.567	0.567	
	Sculpin	mg/kg	lipid	2	2	100	0.00000364	0.00000371	NA	NA	NC	0.00000371	M
	Sculpin	pg/g	ww	2	2	100	0.13	0.141	NA	NA	NC	0.141	M
	Smallmouth bass	mg/kg	lipid	3	3	100	0.00000281	0.00000449	NA	NA	NC	0.00000449	M
	Smallmouth bass	pg/g	ww	3	3	100	0.104	0.3	NA	NA	NC	0.3	M
	Walleye	mg/kg	lipid	20	20	100	0.00000468	0.0000306	NA	NA	0.000016	0.000016	
	Walleye	pg/g	ww	20	20	100	0.302	0.591	NA	NA	0.439	0.439	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.000062	0.000062	NC	0.000062	U
	Yellow perch	pg/g	ww	1	0	0	NA	NA	2.17	2.17	NC	2.17	U
Dioxin TEQ, mammal, 0 DL	Burbot	mg/kg	lipid	7	7	100	0.00000446	0.0000305	NA	NA	NA	NA	
	Burbot	pg/g	ww	7	7	100	0.127	0.548	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.00000132	0.0000037	NA	NA	NA	NA	
	Kokanee	pg/g	ww	14	14	100	0.0791	0.172	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.00000417	0.0000721	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	5	5	100	0.459	1.01	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.00000107	0.0000361	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	18	18	100	0.0225	1.3	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.00000141	0.00000404	0	0	NA	NA	
	Longnose sucker	pg/g	ww	10	9	90	0.0314	0.178	0	0	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.00000373	0.0000121	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	13	100	0.0834	1.58	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.00000101	0.00000158	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	3	3	100	0.029	0.0709	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.000000756	0.0000093	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	26	26	100	0.0204	0.573	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.00000124	0.00000129	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.0444	0.0491	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.000000531	0.00000371	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	3	3	100	0.0186	0.272	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.00000111	0.0000142	NA	NA	NA	NA	
	Walleye	pg/g	ww	20	20	100	0.0597	0.298	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	

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Dioxins/Furans (continued)													
Dioxin TEQ, mammal, 1/2 DL	Burbot	mg/kg	lipid	7	7	100	0.00000635	0.0000575	NA	NA	NA	NA	
	Burbot	pg/g	ww	7	7	100	0.181	0.93	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	14	14	100	0.00000285	0.00000924	NA	NA	NA	NA	
	Kokanee	pg/g	ww	14	14	100	0.171	0.496	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	5	5	100	0.00000729	0.0000907	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	5	5	100	1.02	1.27	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	18	18	100	0.00000259	0.0000528	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	18	18	100	0.0868	1.9	NA	NA	NA	NA	
	Longnose sucker	mg/kg	lipid	10	9	90	0.00000331	0.0000373	0.0000695	0.0000695	NA	NA	
	Longnose sucker	pg/g	ww	10	9	90	0.129	0.857	1.53	1.53	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	12	100	0.00000469	0.0000147	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	13	13	100	0.193	1.67	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	3	3	100	0.00000391	0.0000115	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	3	3	100	0.176	0.253	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	26	26	100	0.00000274	0.0000206	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	26	26	100	0.165	1.13	NA	NA	NA	NA	
	Sculpin	mg/kg	lipid	2	2	100	0.00000373	0.00000384	NA	NA	NA	NA	
	Sculpin	pg/g	ww	2	2	100	0.133	0.146	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	3	100	0.00000267	0.00000447	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	3	3	100	0.0987	0.328	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	20	20	100	0.00000469	0.0000298	NA	NA	NA	NA	
	Walleye	pg/g	ww	20	20	100	0.333	0.585	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000514	0.0000514	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.8	1.8	NA	NA	
Octachlorodibenzodioxin	Burbot	mg/kg	lipid	7	0	0	NA	NA	0.00000874	0.0000992	NA	NA	
	Burbot	pg/g	ww	7	0	0	NA	NA	0.249	1.47	NA	NA	
	Kokanee	mg/kg	lipid	14	1	7.1	0.0000134	0.0000134	0.00000125	0.00002	NA	NA	
	Kokanee	pg/g	ww	14	1	7.1	0.853	0.853	0.0752	0.928	NA	NA	
	Lake whitefish	mg/kg	lipid	5	1	20	0.00141	0.00141	0.00000927	0.0000568	NA	NA	
	Lake whitefish	pg/g	ww	5	1	20	19.8	19.8	1.02	6.82	NA	NA	
	Largescale sucker	mg/kg	lipid	18	12	66.7	0.00000165	0.0000664	0.000025	0.0000914	NA	NA	
	Largescale sucker	pg/g	ww	18	12	66.7	0.13	2.02	1.22	1.92	NA	NA	
	Longnose sucker	mg/kg	lipid	10	0	0	NA	NA	0.00000462	0.000316	NA	NA	
	Longnose sucker	pg/g	ww	10	0	0	NA	NA	0.229	6.96	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	1	8.3	0.0000735	0.0000735	0.00000264	0.0000586	NA	NA	
	Mountain whitefish	pg/g	ww	13	2	15.4	0.468	6.54	0.303	4.45	NA	NA	
	Pikeminnow	mg/kg	lipid	3	1	33.3	0.0000158	0.0000158	0.0000349	0.0000514	NA	NA	
	Pikeminnow	pg/g	ww	3	1	33.3	0.711	0.711	1.13	1.21	NA	NA	
	Rainbow trout	mg/kg	lipid	26	21	80.8	0.00000295	0.0000256	0.0000138	0.000033	NA	NA	
	Rainbow trout	pg/g	ww	26	21	80.8	0.259	1.89	0.605	2.21	NA	NA	
	Sculpin	mg/kg	lipid	2	1	50	0.0000337	0.0000337	0.0000164	0.0000164	NA	NA	
	Sculpin	pg/g	ww	2	1	50	1.28	1.28	0.584	0.584	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000189	0.00000189	0.0000203	0.0000253	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.139	0.139	0.75	0.885	NA	NA	
	Walleye	mg/kg	lipid	20	8	40	0.00000594	0.0000961	0.00000669	0.000139	NA	NA	
	Walleye	pg/g	ww	20	8	40	0.282	1.53	0.533	3.2	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.000104	0.000104	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	3.65	3.65	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Octachlorodibenzofuran	Burbot	mg/kg	lipid	7	1	14.3	0.00000175	0.00000175	0.00000138	0.0000138	NA	NA	
	Burbot	pg/g	ww	7	1	14.3	0.0485	0.0485	0.0386	0.18	NA	NA	
	Kokanee	mg/kg	lipid	14	3	21.4	0.00000127	0.00000221	0.0000014	0.00000737	NA	NA	
	Kokanee	pg/g	ww	14	3	21.4	0.0752	0.122	0.0893	0.396	NA	NA	
	Lake whitefish	mg/kg	lipid	5	0	0	NA	NA	0.00000585	0.0000626	NA	NA	
	Lake whitefish	pg/g	ww	5	0	0	NA	NA	0.761	1.8	NA	NA	
	Largescale sucker	mg/kg	lipid	18	0	0	NA	NA	0.000000477	0.0000404	NA	NA	
	Largescale sucker	pg/g	ww	18	0	0	NA	NA	0.0385	1.22	NA	NA	
	Longnose sucker	mg/kg	lipid	10	1	10	0.00000151	0.00000151	0.00000119	0.00012	NA	NA	
	Longnose sucker	pg/g	ww	10	1	10	0.0676	0.0676	0.0646	2.64	NA	NA	
	Mountain whitefish	mg/kg	lipid	12	1	8.3	0.0000226	0.0000226	0.000000448	0.00000967	NA	NA	
	Mountain whitefish	pg/g	ww	13	1	7.7	1.72	1.72	0.0676	0.861	NA	NA	
	Pikeminnow	mg/kg	lipid	3	1	33.3	0.0000107	0.0000107	0.00000594	0.0000129	NA	NA	
	Pikeminnow	pg/g	ww	3	1	33.3	0.482	0.482	0.206	0.284	NA	NA	
	Rainbow trout	mg/kg	lipid	26	4	15.4	0.000000525	0.00000154	0.000000526	0.0000169	NA	NA	
	Rainbow trout	pg/g	ww	26	4	15.4	0.0379	0.07	0.0317	0.77	NA	NA	
	Sculpin	mg/kg	lipid	2	0	0	NA	NA	0.00000269	0.00000534	NA	NA	
	Sculpin	pg/g	ww	2	0	0	NA	NA	0.0959	0.203	NA	NA	
	Smallmouth bass	mg/kg	lipid	3	1	33.3	0.00000649	0.00000649	0.000000873	0.00000451	NA	NA	
	Smallmouth bass	pg/g	ww	3	1	33.3	0.24	0.24	0.0641	0.158	NA	NA	
	Walleye	mg/kg	lipid	20	0	0	NA	NA	0.00000309	0.0000368	NA	NA	
	Walleye	pg/g	ww	20	0	0	NA	NA	0.16	0.846	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000709	0.0000709	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	2.48	2.48	NA	NA	
PBDEs													
PBDE 17	Burbot	pg/g	ww	2	2	100	2.36	3.84	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	34.3	55.8	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	7.89	85.2	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	8.06	35.4	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	26.6	82.8	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	1.97	6.16	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	3.24	15.4	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	14	21.7	NA	NA	NA	NA	
PBDE 28 and 33	Burbot	pg/g	ww	2	2	100	208	317	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	110	158	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	78.1	4850	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	70.8	318	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	460	834	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	65.7	425	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	78.2	657	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	226	353	NA	NA	NA	NA	
PBDE 47	Burbot	pg/g	ww	2	2	100	10500	28100	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	2830	4000	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	2420	79100	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	2330	12800	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	18100	30800	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	2810	17600	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	3200	43000	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	13200	21700	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 49	Burbot	pg/g	ww	2	2	100	291	969	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	250	380	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	62.6	874	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	67.6	247	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	657	2530	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	114	935	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	107	1550	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	535	1120	NA	NA	NA	NA	
PBDE 66	Burbot	pg/g	ww	2	2	100	269	370	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	101	132	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	0.677	18.6	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	2	66.7	1.91	2.57	0.0775	0.0775	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	731	1050	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	112	514	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	34.1	409	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	192	717	NA	NA	NA	NA	
PBDE 71	Burbot	pg/g	ww	2	0	0	NA	NA	0.0602	0.0646	NA	NA	
	Kokanee	pg/g	ww	3	0	0	NA	NA	0.0631	0.0771	NA	NA	
	Largescale sucker	pg/g	ww	6	0	0	NA	NA	0.0441	0.187	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.0764	0.103	NA	NA	
	Mountain whitefish	pg/g	ww	3	0	0	NA	NA	0.0769	0.122	NA	NA	
	Rainbow trout	pg/g	ww	7	0	0	NA	NA	0.0961	0.457	NA	NA	
	Smallmouth bass	pg/g	ww	2	0	0	NA	NA	0.0666	0.0795	NA	NA	
	Walleye	pg/g	ww	4	0	0	NA	NA	0.0892	0.132	NA	NA	
PBDE 85	Burbot	pg/g	ww	2	2	100	130	131	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	0.825	1.03	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	0.77	7.61	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	2	66.7	1.55	5.44	0.889	0.889	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	6.93	11	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	0.638	9.27	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	4.79	5.98	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	7.67	13	NA	NA	NA	NA	
PBDE 99	Burbot	pg/g	ww	2	2	100	4360	5330	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	2000	2480	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	4	66.7	13.7	19.9	5.84	7.65	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	6.53	7.5	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	11800	25200	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	2660	11400	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	523	5090	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	1730	12300	NA	NA	NA	NA	
PBDE 100	Burbot	pg/g	ww	2	2	100	1850	3990	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	530	684	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	366	11300	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	322	2120	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	3790	6870	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	759	4000	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	601	6290	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	2320	4700	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 128	Burbot	pg/g	ww	2	2	100	0.767	0.988	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	0	0	NA	NA	0.305	0.359	NA	NA	
	Largescale sucker	pg/g	ww	6	0	0	NA	NA	0.185	0.737	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.224	0.495	NA	NA	
	Mountain whitefish	pg/g	ww	3	0	0	NA	NA	0.393	0.588	NA	NA	
	Rainbow trout	pg/g	ww	7	0	0	NA	NA	0.43	1.15	NA	NA	
	Smallmouth bass	pg/g	ww	2	0	0	NA	NA	0.222	0.297	NA	NA	
	Walleye	pg/g	ww	4	0	0	NA	NA	0.43	0.711	NA	NA	
PBDE 138	Burbot	pg/g	ww	2	2	100	11.9	14.7	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	1.13	1.3	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	4	66.7	0.201	0.38	0.12	0.162	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.121	0.273	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	0.759	5.44	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	1.16	9.26	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	1	50	1.31	1.31	0.572	0.572	NA	NA	
	Walleye	pg/g	ww	4	4	100	1.68	15	NA	NA	NA	NA	
PBDE 153	Burbot	pg/g	ww	2	2	100	306	1170	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	126	152	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	31.8	1030	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	24.3	206	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	494	2270	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	240	1370	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	168	2210	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	533	2040	NA	NA	NA	NA	
PBDE 154	Burbot	pg/g	ww	2	2	100	400	1100	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	125	156	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	91.2	3540	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	67.7	633	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	812	1840	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	192	1070	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	184	1740	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	583	1540	NA	NA	NA	NA	
PBDE 183 and 176	Burbot	pg/g	ww	2	2	100	11	14.1	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	5.94	7.92	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	4	66.7	1.58	4.77	0.527	1.15	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.552	0.803	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	12.6	50.6	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	7.78	42.1	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	3.49	8.48	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	10.8	46.6	NA	NA	NA	NA	
PBDE 184	Burbot	pg/g	ww	2	2	100	2.06	2.86	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	3.62	4.13	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	0.475	2.37	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	1	33.3	0.264	0.264	0.0682	0.169	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	2.28	3.58	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	1.19	19.9	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	0.944	4.15	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	5.66	20.5	NA	NA	NA	NA	

Table A-12a. Summary Statistics for Fish Species in the Upper Reach OU

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 190 and 171	Burbot	pg/g	ww	2	2	100	0.677	1.26	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	0.323	0.926	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	0	0	NA	NA	0.141	0.731	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.131	0.154	NA	NA	
	Mountain whitefish	pg/g	ww	3	1	33.3	0.819	0.819	0.325	0.394	NA	NA	
	Rainbow trout	pg/g	ww	7	2	28.6	0.869	1.05	0.278	1.01	NA	NA	
	Smallmouth bass	pg/g	ww	2	0	0	NA	NA	0.165	0.225	NA	NA	
	Walleye	pg/g	ww	4	1	25	0.852	0.852	0.352	0.639	NA	NA	
PBDE 191	Burbot	pg/g	ww	2	2	100	0.185	0.418	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	0	0	NA	NA	0.257	0.295	NA	NA	
	Largescale sucker	pg/g	ww	6	0	0	NA	NA	0.121	0.629	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.113	0.132	NA	NA	
	Mountain whitefish	pg/g	ww	3	0	0	NA	NA	0.254	0.339	NA	NA	
	Rainbow trout	pg/g	ww	7	0	0	NA	NA	0.239	0.95	NA	NA	
	Smallmouth bass	pg/g	ww	2	0	0	NA	NA	0.142	0.193	NA	NA	
	Walleye	pg/g	ww	4	1	25	0.764	0.764	0.297	0.539	NA	NA	
PBDE 200 and 203	Burbot	pg/g	ww	2	2	100	3.36	4.41	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	2.17	3.38	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	2	33.3	0.701	1.23	0.287	0.724	NA	NA	
	Longnose sucker	pg/g	ww	3	0	0	NA	NA	0.238	0.292	NA	NA	
	Mountain whitefish	pg/g	ww	3	3	100	3.49	4.27	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	7	6	85.7	2.8	6.1	2.41	2.41	NA	NA	
	Smallmouth bass	pg/g	ww	2	1	50	1.06	1.06	0.463	0.463	NA	NA	
	Walleye	pg/g	ww	4	3	75	3.86	5.43	2.33	2.33	NA	NA	
PBDE 206	Burbot	pg/g	ww	2	2	100	2.37	8.96	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	2	66.7	4.67	11.8	2.72	2.72	NA	NA	
	Largescale sucker	pg/g	ww	6	5	83.3	1.8	25	1.96	1.96	NA	NA	
	Longnose sucker	pg/g	ww	3	2	66.7	3.08	8.32	2.97	2.97	NA	NA	
	Mountain whitefish	pg/g	ww	3	1	33.3	13.8	13.8	1.56	1.82	NA	NA	
	Rainbow trout	pg/g	ww	7	2	28.6	6.41	22.3	2.84	7.45	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	6.39	9.55	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	2	50	15.9	59.5	2.33	2.94	NA	NA	
PBDE 209	Burbot	pg/g	ww	2	2	100	99.9	604	NA	NA	NA	NA	
	Kokanee	pg/g	ww	3	3	100	221	513	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	6	6	100	145	1580	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	3	3	100	134	427	NA	NA	NA	NA	
	Mountain whitefish	pg/g	ww	3	2	66.7	197	912	101	101	NA	NA	
	Rainbow trout	pg/g	ww	7	7	100	70.6	1380	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	2	2	100	381	454	NA	NA	NA	NA	
	Walleye	pg/g	ww	4	4	100	156	4050	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
OU - operable unit
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids													
Aluminum	Burbot	mg/kg	ww	10	10	100	3.33	16	NA	NA	11.1	11.1	
	Kokanee	mg/kg	ww	8	8	100	1.09	3.49	NA	NA	2.55	2.55	
	Lake whitefish	mg/kg	ww	11	8	72.7	3.924	39.4	3.487	3.792	17.2	17.2	
	Largescale sucker	mg/kg	ww	16	16	100	1.4	51.02	NA	NA	28.8	28.8	
	Longnose sucker	mg/kg	ww	2	2	100	20.1	47.8	NA	NA	NC	47.8	M
	Pikeminnow	mg/kg	ww	2	2	100	4.57	14.1	NA	NA	NC	14.1	M
	Rainbow trout	mg/kg	ww	13	13	100	2	33.1	NA	NA	22.8	22.8	
	Sculpin	mg/kg	ww	1	1	100	35.1	35.1	NA	NA	NC	35.1	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.52	13.2	NA	NA	7.94	7.94	
	Walleye	mg/kg	ww	13	11	84.6	0.879	4.25	2.94	3.17	2.93	2.93	
	Yellow perch	mg/kg	ww	1	1	100	7.99	7.99	NA	NA	NC	7.99	M
Antimony	Burbot	mg/kg	ww	10	4	40	0.0108	0.056	0.00584	0.0904	NC	0.056	M
	Kokanee	mg/kg	ww	8	8	100	0.00361	0.0148	NA	NA	0.0113	0.0113	
	Lake whitefish	mg/kg	ww	11	6	54.5	0.00366	0.0262	0.1141	0.1269	0.0239	0.0239	
	Largescale sucker	mg/kg	ww	16	8	50	0.0027	0.1123	0.08908	0.1043	0.0418	0.0418	
	Longnose sucker	mg/kg	ww	2	2	100	0.00273	0.0379	NA	NA	NC	0.0379	M
	Pikeminnow	mg/kg	ww	2	2	100	0.0082	0.016	NA	NA	NC	0.016	M
	Rainbow trout	mg/kg	ww	13	8	61.5	0.00227	0.00806	0.102	0.106	0.00666	0.00666	
	Sculpin	mg/kg	ww	1	1	100	0.0097	0.0097	NA	NA	NC	0.0097	M
	Smallmouth bass	mg/kg	ww	11	10	90.9	0.00372	0.0208	0.0036	0.0036	0.0115	0.0115	
	Walleye	mg/kg	ww	13	5	38.5	0.0056	0.01	0.015	0.106	NC	0.01	M
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.0039	0.0039	NC	0.0039	U
Arsenic	Burbot	mg/kg	ww	10	10	100	0.389	0.7171	NA	NA	0.659	0.659	
	Kokanee	mg/kg	ww	8	8	100	0.0683	0.105	NA	NA	0.0953	0.0953	
	Lake whitefish	mg/kg	ww	11	11	100	0.149	0.283	NA	NA	0.248	0.248	
	Largescale sucker	mg/kg	ww	16	16	100	0.0771	0.243	NA	NA	0.173	0.173	
	Longnose sucker	mg/kg	ww	2	2	100	0.173	0.21	NA	NA	NC	0.21	M
	Pikeminnow	mg/kg	ww	2	1	50	0.072	0.072	0.05	0.05	NC	0.072	M
	Rainbow trout	mg/kg	ww	13	13	100	0.063	0.157	NA	NA	0.122	0.122	
	Sculpin	mg/kg	ww	1	1	100	0.16	0.16	NA	NA	NC	0.16	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.0674	0.197	NA	NA	0.121	0.121	
	Walleye	mg/kg	ww	13	13	100	0.07	0.186	NA	NA	0.137	0.137	
	Yellow perch	mg/kg	ww	1	1	100	0.062	0.062	NA	NA	NC	0.062	M
Barium	Burbot	mg/kg	ww	10	10	100	3.187	6.115	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	0.37	0.544	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	0.5056	1.06	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	0.879	4.427	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	1.22	2.1	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	0.899	1.27	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	0.294	1.55	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	2	2	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	0.289	0.907	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	0.428	0.895	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.984	0.984	NA	NA	NA	NA	
Beryllium	Burbot	mg/kg	ww	10	1	10	0.00124	0.00124	0.000907	0.00452	NA	NA	
	Kokanee	mg/kg	ww	8	0	0	NA	NA	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	11	1	9.1	0.00222	0.00222	0.001	0.00652	NA	NA	
	Largescale sucker	mg/kg	ww	16	6	37.5	0.001	0.005801	0.000957	0.005211	NA	NA	
	Longnose sucker	mg/kg	ww	2	1	50	0.00167	0.00167	0.0009	0.0009	NA	NA	
	Pikeminnow	mg/kg	ww	2	0	0	NA	NA	0.001	0.001	NA	NA	
	Rainbow trout	mg/kg	ww	13	3	23.1	0.00123	0.00162	0.0009	0.0053	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.001	0.001	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	0	0	NA	NA	0.000952	0.001	NA	NA	
	Walleye	mg/kg	ww	13	0	0	NA	NA	0.0009	0.00528	NA	NA	
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.001	0.001	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Boron	Burbot	mg/kg	ww	2	0	0	NA	NA	0.0636	0.0642	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.0704	0.12	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.0805	0.146	NA	NA	
	Largescale sucker	mg/kg	ww	4	0	0	NA	NA	0.05	0.07	NA	NA	
	Rainbow trout	mg/kg	ww	3	0	0	NA	NA	0.0804	0.2	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0563	0.2	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0503	0.07	NA	NA	
Cadmium	Burbot	mg/kg	ww	10	10	100	0.0212	0.04784	NA	NA	0.0349	0.0349	
	Kokanee	mg/kg	ww	8	8	100	0.0145	0.0348	NA	NA	0.0273	0.0273	
	Lake whitefish	mg/kg	ww	11	11	100	0.0149	0.0253	NA	NA	0.0204	0.0204	
	Largescale sucker	mg/kg	ww	16	16	100	0.0321	0.391	NA	NA	0.256	0.256	
	Longnose sucker	mg/kg	ww	2	2	100	0.0549	0.135	NA	NA	NC	0.135	M
	Pikeminnow	mg/kg	ww	2	2	100	0.023	0.0292	NA	NA	NC	0.0292	M
	Rainbow trout	mg/kg	ww	13	13	100	0.0281	0.0664	NA	NA	0.0549	0.0549	
	Sculpin	mg/kg	ww	1	1	100	0.082	0.082	NA	NA	NC	0.082	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.00484	0.0605	NA	NA	0.0211	0.0211	
	Walleye	mg/kg	ww	13	13	100	0.0091	0.0332	NA	NA	0.0226	0.0226	
	Yellow perch	mg/kg	ww	1	1	100	0.0409	0.0409	NA	NA	NC	0.0409	M
Calcium	Burbot	mg/kg	ww	10	10	100	4904	9560	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	3480	4300	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	4200	5688	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	7050	12750	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	6560	7720	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	7230	8580	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	3790	7520	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	7900	7900	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	6790	12600	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	8460	11800	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	9430	9430	NA	NA	NA	NA	
Chromium	Burbot	mg/kg	ww	10	10	100	0.088	0.418	NA	NA	0.315	0.315	
	Kokanee	mg/kg	ww	8	7	87.5	0.028	0.109	0.02	0.02	0.079	0.079	
	Lake whitefish	mg/kg	ww	11	9	81.8	0.11	0.9398	0.065	0.074	0.59	0.59	
	Largescale sucker	mg/kg	ww	16	15	93.8	0.0486	3.021	0.146	0.146	1.36	1.36	
	Longnose sucker	mg/kg	ww	2	2	100	0.133	0.373	NA	NA	NC	0.373	M
	Pikeminnow	mg/kg	ww	2	2	100	0.0987	0.17	NA	NA	NC	0.17	M
	Rainbow trout	mg/kg	ww	13	12	92.3	0.0225	0.773	0.02	0.02	0.457	0.457	
	Sculpin	mg/kg	ww	1	1	100	0.645	0.645	NA	NA	NC	0.645	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.0458	0.674	NA	NA	0.287	0.287	
	Walleye	mg/kg	ww	13	13	100	0.0464	0.8	NA	NA	0.428	0.428	
	Yellow perch	mg/kg	ww	1	1	100	0.41	0.41	NA	NA	NC	0.41	M
Cobalt	Burbot	mg/kg	ww	10	10	100	0.02756	0.0492	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	0.0167	0.024	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	0.01929	0.0666	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	15	93.8	0.0232	0.0899	0.054	0.054	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	0.0369	0.07	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	0.0341	0.0395	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	0.0166	0.0445	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.05	0.05	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	0.0227	0.0374	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	0.0167	0.0344	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.0314	0.0314	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Copper	Burbot	mg/kg	ww	10	10	100	0.8989	1.444	NA	NA	1.33	1.33	
	Kokanee	mg/kg	ww	8	8	100	1.41	1.67	NA	NA	1.57	1.57	
	Lake whitefish	mg/kg	ww	11	11	100	0.4424	1.11	NA	NA	0.858	0.858	
	Largescale sucker	mg/kg	ww	16	14	87.5	0.512	1.183	0.612	0.628	0.864	0.864	
	Longnose sucker	mg/kg	ww	2	2	100	0.834	1.02	NA	NA	NC	1.02	M
	Pikeminnow	mg/kg	ww	2	2	100	0.835	0.875	NA	NA	NC	0.875	M
	Rainbow trout	mg/kg	ww	13	13	100	0.66	2.57	NA	NA	1.83	1.83	
	Sculpin	mg/kg	ww	1	1	100	2.06	2.06	NA	NA	NC	2.06	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.309	1.48	NA	NA	0.728	0.728	
	Walleye	mg/kg	ww	13	13	100	0.263	1.21	NA	NA	0.542	0.542	
	Yellow perch	mg/kg	ww	1	1	100	0.589	0.589	NA	NA	NC	0.589	M
Gold	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00705	0.00709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00753	0.008	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.00945	0.00947	NA	NA	
	Largescale sucker	mg/kg	ww	4	0	0	NA	NA	0.007	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	3	0	0	NA	NA	0.008	0.00951	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.008	0.02	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.007	0.00903	NA	NA	
Iron	Burbot	mg/kg	ww	10	10	100	17.91	45.4	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	14.8	20	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	10.59	65.9	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	11.4	93.07	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	31.8	56.7	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	11	24.7	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	12	56	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	110	110	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	7	22.4	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	7.1	14.6	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	15	15	NA	NA	NA	NA	
Lead	Burbot	mg/kg	ww	10	10	100	0.06572	0.514	NA	NA	0.246	0.246	
	Kokanee	mg/kg	ww	8	8	100	0.00554	0.0098	NA	NA	0.00858	0.00858	
	Lake whitefish	mg/kg	ww	11	11	100	0.04905	0.178	NA	NA	0.121	0.121	
	Largescale sucker	mg/kg	ww	16	16	100	0.0818	4.202	NA	NA	2.09	2.09	
	Longnose sucker	mg/kg	ww	2	2	100	0.0905	0.101	NA	NA	NC	0.101	M
	Pikeminnow	mg/kg	ww	2	2	100	0.011	0.0431	NA	NA	NC	0.0431	M
	Rainbow trout	mg/kg	ww	13	13	100	0.013	0.208	NA	NA	0.118	0.118	
	Sculpin	mg/kg	ww	1	1	100	0.145	0.145	NA	NA	NC	0.145	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.00373	0.0396	NA	NA	0.019	0.019	
	Walleye	mg/kg	ww	13	13	100	0.011	0.105	NA	NA	0.0643	0.0643	
	Yellow perch	mg/kg	ww	1	1	100	0.0396	0.0396	NA	NA	NC	0.0396	M
Magnesium	Burbot	mg/kg	ww	10	10	100	293.8	379	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	257	322	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	261	297.4	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	319	415	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	378	400	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	382	401	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	295	355	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	391	391	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	333	447	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	335	384	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	383	383	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Manganese	Burbot	mg/kg	ww	10	10	100	1.336	2.92	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	0.534	0.704	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	0.6657	4.62	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	2.55	8.285	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	3.75	4.58	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	1.3	1.76	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	0.726	2.91	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	2.8	2.8	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	0.235	2.35	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	0.701	1.54	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	3.8	3.8	NA	NA	NA	NA	
Mercury	Burbot	µg/kg	ww	10	10	100	123	204	NA	NA	179	179	
	Kokanee	µg/kg	ww	8	8	100	45.4	61.7	NA	NA	56.7	56.7	
	Lake whitefish	µg/kg	ww	11	11	100	49.5	83	NA	NA	66.5	66.5	
	Largescale sucker	µg/kg	ww	11	11	100	22	293	NA	NA	227	227	
	Longnose sucker	µg/kg	ww	2	2	100	26	31.9	NA	NA	NC	31.9	M
	Pikeminnow	µg/kg	ww	2	2	100	98	118	NA	NA	NC	118	M
	Rainbow trout	µg/kg	ww	13	13	100	21.6	101	NA	NA	67	67	
	Sculpin	µg/kg	ww	1	1	100	56.9	56.9	NA	NA	NC	56.9	M
	Smallmouth bass	µg/kg	ww	11	11	100	45.7	258	NA	NA	171	171	
	Walleye	µg/kg	ww	13	13	100	63.7	201	NA	NA	155	155	
	Yellow perch	µg/kg	ww	1	1	100	35.5	35.5	NA	NA	NC	35.5	M
Molybdenum	Burbot	mg/kg	ww	5	2	40	0.0167	0.0473	0.0141	0.0258	NA	NA	
	Kokanee	mg/kg	ww	8	4	50	0.00695	0.011	0.00733	0.01	NA	NA	
	Lake whitefish	mg/kg	ww	6	0	0	NA	NA	0.0144	0.0426	NA	NA	
	Largescale sucker	mg/kg	ww	7	1	14.3	0.062	0.062	0.0131	0.035	NA	NA	
	Longnose sucker	mg/kg	ww	2	0	0	NA	NA	0.032	0.033	NA	NA	
	Pikeminnow	mg/kg	ww	2	0	0	NA	NA	0.01	0.033	NA	NA	
	Rainbow trout	mg/kg	ww	8	3	37.5	0.00994	0.0247	0.0121	0.026	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.028	0.028	NA	NA	
	Smallmouth bass	mg/kg	ww	11	3	27.3	0.0271	0.0546	0.00778	0.03	NA	NA	
	Walleye	mg/kg	ww	8	4	50	0.00452	0.02	0.00557	0.0132	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.03	0.03	NA	NA	NA	NA	
Nickel	Burbot	mg/kg	ww	10	10	100	0.112	0.328	NA	NA	0.257	0.257	
	Kokanee	mg/kg	ww	8	8	100	0.0568	0.09	NA	NA	0.0769	0.0769	
	Lake whitefish	mg/kg	ww	11	11	100	0.0972	0.3018	NA	NA	0.213	0.213	
	Largescale sucker	mg/kg	ww	16	14	87.5	0.105	2.043	0.113	0.186	0.844	0.844	
	Longnose sucker	mg/kg	ww	2	2	100	0.163	0.28	NA	NA	NC	0.28	M
	Pikeminnow	mg/kg	ww	2	2	100	0.177	0.2	NA	NA	NC	0.2	M
	Rainbow trout	mg/kg	ww	13	13	100	0.0622	0.379	NA	NA	0.223	0.223	
	Sculpin	mg/kg	ww	1	1	100	0.389	0.389	NA	NA	NC	0.389	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.114	0.21	NA	NA	0.188	0.188	
	Walleye	mg/kg	ww	13	13	100	0.0671	0.446	NA	NA	0.308	0.308	
	Yellow perch	mg/kg	ww	1	1	100	0.28	0.28	NA	NA	NC	0.28	M
Potassium	Burbot	mg/kg	ww	10	10	100	2530	3175	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	2980	3500	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	2640	3160	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	2630	3673	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	3190	3250	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	3240	3380	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	3000	3830	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	2590	2590	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	2790	3250	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	2970	3540	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	3190	3190	NA	NA	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Selenium	Burbot	mg/kg	ww	10	10	100	0.421	0.828	NA	NA	0.686	0.686	
	Kokanee	mg/kg	ww	8	8	100	0.322	0.461	NA	NA	0.423	0.423	
	Lake whitefish	mg/kg	ww	11	11	100	0.392	0.8747	NA	NA	0.676	0.676	
	Largescale sucker	mg/kg	ww	16	14	87.5	0.359	0.7787	0.401	0.423	0.589	0.589	
	Longnose sucker	mg/kg	ww	2	1	50	0.384	0.384	0.399	0.399	NC	0.384	M
	Pikeminnow	mg/kg	ww	2	2	100	0.558	0.69	NA	NA	NC	0.69	M
	Rainbow trout	mg/kg	ww	13	13	100	0.373	0.71	NA	NA	0.544	0.544	
	Sculpin	mg/kg	ww	1	1	100	0.409	0.409	NA	NA	NC	0.409	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.306	0.725	NA	NA	0.609	0.609	
	Walleye	mg/kg	ww	13	13	100	0.37	0.696	NA	NA	0.541	0.541	
	Yellow perch	mg/kg	ww	1	1	100	0.27	0.27	NA	NA	NC	0.27	M
Silver	Burbot	mg/kg	ww	10	4	40	0.00201	0.00367	0.00204	0.0565	NC	0.00367	M
	Kokanee	mg/kg	ww	8	8	100	0.00381	0.00477	NA	NA	0.00445	0.00445	
	Lake whitefish	mg/kg	ww	11	1	9.1	0.0035	0.0035	0.00124	0.07889	NC	0.0035	M
	Largescale sucker	mg/kg	ww	16	3	18.8	0.00123	0.0032	0.000614	0.07042	NC	0.0032	M
	Longnose sucker	mg/kg	ww	2	2	100	0.00323	0.0049	NA	NA	NC	0.0049	M
	Pikeminnow	mg/kg	ww	2	2	100	0.001	0.003	NA	NA	NC	0.003	M
	Rainbow trout	mg/kg	ww	13	5	38.5	0.00437	0.00992	0.002	0.0666	NC	0.00992	M
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.002	0.002	NC	0.002	U
	Smallmouth bass	mg/kg	ww	11	2	18.2	0.00076	0.00131	0.0005	0.000631	NC	0.00131	M
	Walleye	mg/kg	ww	13	2	15.4	0.000446	0.000619	0.0005	0.0396	NC	0.000619	M
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.0005	0.0005	NC	0.0005	U
Sodium	Burbot	mg/kg	ww	10	10	100	939	1550	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	692	917	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	11	100	595	761.6	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	636	1412	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	794	859	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	674	704	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	13	100	607	921	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	947	947	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	11	100	642	1100	NA	NA	NA	NA	
	Walleye	mg/kg	ww	13	13	100	800	982	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	779	779	NA	NA	NA	NA	
Thallium	Burbot	mg/kg	ww	10	3	30	0.00539	0.0103	0.0066	0.0565	NC	0.0103	M
	Kokanee	mg/kg	ww	8	8	100	0.025	0.0392	NA	NA	0.0351	0.0351	
	Lake whitefish	mg/kg	ww	11	6	54.5	0.0116	0.0263	0.07291	0.07889	0.0203	0.0203	
	Largescale sucker	mg/kg	ww	16	6	37.5	0.00385	0.0289	0.00639	0.07042	0.0186	0.0186	
	Longnose sucker	mg/kg	ww	2	2	100	0.017	0.031	NA	NA	NC	0.031	M
	Pikeminnow	mg/kg	ww	2	2	100	0.0088	0.014	NA	NA	NC	0.014	M
	Rainbow trout	mg/kg	ww	13	8	61.5	0.0218	0.0493	0.0629	0.0666	0.0394	0.0394	
	Sculpin	mg/kg	ww	1	1	100	0.0323	0.0323	NA	NA	NC	0.0323	M
	Smallmouth bass	mg/kg	ww	11	11	100	0.0134	0.0418	NA	NA	0.0322	0.0322	
	Walleye	mg/kg	ww	13	7	53.8	0.0154	0.0458	0.0217	0.066	0.0372	0.0372	
	Yellow perch	mg/kg	ww	1	1	100	0.0596	0.0596	NA	NA	NC	0.0596	M
Tin	Burbot	mg/kg	ww	2	2	100	0.00209	0.00716	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00253	0.003	NA	NA	
	Lake whitefish	mg/kg	ww	2	1	50	0.0041	0.0041	0.00345	0.00345	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.0042	0.007	0.0026	0.005	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.00223	0.00223	0.003	0.003	NA	NA	
	Smallmouth bass	mg/kg	ww	5	2	40	0.00416	0.09	0.00266	0.00321	NA	NA	
	Walleye	mg/kg	ww	3	1	33.3	0.00593	0.00593	0.002	0.00251	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Uranium	Burbot	mg/kg	ww	10	10	100	0.00246	0.0113	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	8	4	50	0.000413	0.000648	0.0005	0.0006	NA	NA	
	Lake whitefish	mg/kg	ww	11	10	90.9	0.00173	0.0203	0.00143	0.00143	NA	NA	
	Largescale sucker	mg/kg	ww	16	16	100	0.0027	0.02577	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	0.00333	0.0047	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	2	100	0.001	0.0054	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	13	12	92.3	0.00085	0.00958	0.0006	0.0006	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0058	0.0058	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	8	72.7	0.0006	0.00144	0.000604	0.000612	NA	NA	
	Walleye	mg/kg	ww	13	12	92.3	0.000469	0.00137	0.0005	0.0005	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.002	0.002	NA	NA	NA	NA	
Vanadium	Burbot	mg/kg	ww	10	9	90	0.0259	0.174	0.0904	0.0904	NA	NA	
	Kokanee	mg/kg	ww	8	8	100	0.0147	0.03	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	11	6	54.5	0.0603	0.194	0.1141	0.1269	NA	NA	
	Largescale sucker	mg/kg	ww	16	12	75	0.0281	0.2289	0.02	0.0257	NA	NA	
	Longnose sucker	mg/kg	ww	2	2	100	0.0793	0.162	NA	NA	NA	NA	
	Pikeminnow	mg/kg	ww	2	1	50	0.0577	0.0577	0.02	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	13	10	76.9	0.02	0.11	0.02	0.103	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.274	0.274	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	2	18.2	0.02	0.0589	0.02	0.0261	NA	NA	
	Walleye	mg/kg	ww	13	2	15.4	0.02	0.0246	0.0151	0.106	NA	NA	
	Yellow perch	mg/kg	ww	1	1	100	0.03	0.03	NA	NA	NA	NA	
Zinc	Burbot	mg/kg	ww	10	10	100	11.23	16.1	NA	NA	14.3	14.3	
	Kokanee	mg/kg	ww	8	8	100	17.2	20.1	NA	NA	19.5	19.5	
	Lake whitefish	mg/kg	ww	11	11	100	13.01	15	NA	NA	14.3	14.3	
	Largescale sucker	mg/kg	ww	16	16	100	13.44	24.18	NA	NA	21.1	21.1	
	Longnose sucker	mg/kg	ww	2	2	100	19.5	26.2	NA	NA	NC	26.2	M
	Pikeminnow	mg/kg	ww	2	2	100	21.2	30	NA	NA	NC	30	M
	Rainbow trout	mg/kg	ww	13	13	100	19.5	27.2	NA	NA	23.2	23.2	
	Sculpin	mg/kg	ww	1	1	100	18.2	18.2	NA	NA	NC	18.2	M
	Smallmouth bass	mg/kg	ww	11	11	100	10.5	19.7	NA	NA	14.7	14.7	
	Walleye	mg/kg	ww	13	13	100	11	14.8	NA	NA	13.7	13.7	
	Yellow perch	mg/kg	ww	1	1	100	19	19	NA	NA	NC	19	M
Other Metals/Metalloids													
Bismuth	Burbot	mg/kg	ww	2	1	50	0.00119	0.00119	0.000709	0.000709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.000711	0.00145	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.000549	0.000766	0.0007	0.0007	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.000694	0.001	0.000842	0.000842	NA	NA	
	Smallmouth bass	mg/kg	ww	5	2	40	0.000542	0.002	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	2	66.7	0.000718	0.001	0.0007	0.0007	NA	NA	
Cerium	Burbot	mg/kg	ww	2	2	100	0.00542	0.0332	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.000739	0.0013	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.0192	0.0411	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00479	0.0887	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.00836	0.0442	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	5	3	60	0.00141	0.0133	0.001	0.00166	NA	NA	
	Walleye	mg/kg	ww	3	1	33.3	0.0027	0.0027	0.00151	0.00155	NA	NA	
Cesium	Burbot	mg/kg	ww	2	2	100	0.0474	0.0494	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.00943	0.0102	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.0342	0.0345	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.017	0.022	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.0139	0.02	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	0.0167	0.032	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	3	100	0.0315	0.0392	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Dysprosium	Burbot	mg/kg	ww	2	1	50	0.00172	0.00172	0.000709	0.000709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.0016	0.00166	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.003	0.004	0.000821	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.000655	0.00363	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	
Erbium	Burbot	mg/kg	ww	2	1	50	0.00119	0.00119	0.000709	0.000709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00071	0.00115	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.001	0.002	0.000821	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.00187	0.00187	0.0008	0.000842	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	
Europium	Burbot	mg/kg	ww	2	2	100	0.00123	0.00198	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00071	0.00115	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.001	0.002	0.000821	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.00167	0.00167	0.0008	0.000842	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	
Gadolinium	Burbot	mg/kg	ww	2	1	50	0.00239	0.00239	0.00155	0.00155	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.002	0.002	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00325	0.00417	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.0047	0.0062	0.002	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.00142	0.0059	0.002	0.002	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.002	0.00261	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.00151	0.002	NA	NA	
Gallium	Burbot	mg/kg	ww	2	2	100	0.00296	0.00813	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.00196	0.00222	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00621	0.00729	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00444	0.016	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.0033	0.0127	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	0.00284	0.0053	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	3	100	0.00341	0.0047	NA	NA	NA	NA	
Germanium	Burbot	mg/kg	ww	2	2	100	0.396	0.402	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.515	0.543	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.376	0.402	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.464	0.645	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.546	0.597	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	0.309	0.565	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	3	100	0.342	0.399	NA	NA	NA	NA	
Holmium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000453	0.000455	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.0005	0.000548	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.000647	0.00069	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.0005	0.0007	0.00056	0.000564	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.000617	0.000617	0.000542	0.0006	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0005	0.000631	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0005	0.000555	NA	NA	
Indium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000705	0.000709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.000945	0.000947	NA	NA	
	Largescale sucker	mg/kg	ww	4	1	25	0.0007	0.0007	0.0007	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.001	0.001	0.000842	0.000849	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Lanthanum	Burbot	mg/kg	ww	2	2	100	0.00397	0.0187	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.000687	0.00123	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.0187	0.0438	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00576	0.0482	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.0008	0.0409	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	0.000745	0.00727	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	2	66.7	0.000659	0.0027	0.000864	0.000864	NA	NA	
Lithium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.0705	0.0709	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.116	0.123	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.234	0.237	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.292	0.416	0.07	0.07	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.15	0.202	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	1	20	0.3	0.3	0.08	0.0897	NA	NA	
	Walleye	mg/kg	ww	3	3	100	0.24	0.27	NA	NA	NA	NA	
Lutetium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000453	0.000455	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.0005	0.000548	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.000647	0.00069	NA	NA	
	Largescale sucker	mg/kg	ww	4	0	0	NA	NA	0.0005	0.000564	NA	NA	
	Rainbow trout	mg/kg	ww	3	0	0	NA	NA	0.000542	0.0006	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0005	0.000631	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0005	0.000555	NA	NA	
Neodymium	Burbot	mg/kg	ww	2	2	100	0.00291	0.015	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	1	50	0.0013	0.0013	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.0147	0.0296	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00381	0.0408	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.00624	0.0328	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	5	1	20	0.00563	0.00563	0.000963	0.001	NA	NA	
	Walleye	mg/kg	ww	3	1	33.3	0.002	0.002	0.000903	0.000955	NA	NA	
Niobium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00364	0.0115	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00253	0.003	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.00615	0.00631	NA	NA	
	Largescale sucker	mg/kg	ww	4	1	25	0.01	0.01	0.00442	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.0155	0.0155	0.003	0.00427	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.00263	0.008	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.002	0.00405	NA	NA	
Praseodymium	Burbot	mg/kg	ww	2	2	100	0.000682	0.00398	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00398	0.00828	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00135	0.01	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.0018	0.00853	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	5	1	20	0.00167	0.00167	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	
Rubidium	Burbot	mg/kg	ww	2	2	100	3.4	3.73	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	2.6	2.64	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	4.03	4.12	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	3	3	100	2.67	3.43	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	3.19	3.66	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	4.15	5.42	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	3	100	5.6	6.59	NA	NA	NA	NA	
Samarium	Burbot	mg/kg	ww	2	1	50	0.0025	0.0025	0.00155	0.00155	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00153	0.002	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00307	0.00488	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.0047	0.0077	0.0016	0.00164	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.00142	0.00638	0.002	0.002	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.00161	0.002	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.001	0.00155	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Scandium	Burbot	mg/kg	ww	2	2	100	0.00715	0.0151	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.0107	0.0111	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.027	0.0286	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	3	75	0.019	0.0202	0.0207	0.0207	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.0133	0.0208	0.02	0.02	NA	NA	
	Smallmouth bass	mg/kg	ww	5	4	80	0.0106	0.0177	0.02	0.02	NA	NA	
	Walleye	mg/kg	ww	3	2	66.7	0.0107	0.0116	0.014	0.014	NA	NA	
Strontium	Burbot	mg/kg	ww	2	2	100	20.7	22.5	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	3.94	4.54	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	8.79	9.95	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	13	16.4	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	3.91	4.84	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	5	100	12.7	20.2	NA	NA	NA	NA	
	Walleye	mg/kg	ww	3	3	100	7.43	9.45	NA	NA	NA	NA	
Tellurium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00705	0.00709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00753	0.008	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.00945	0.00947	NA	NA	
	Largescale sucker	mg/kg	ww	4	0	0	NA	NA	0.007	0.00828	NA	NA	
	Rainbow trout	mg/kg	ww	3	0	0	NA	NA	0.008	0.00849	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.008	0.00897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.007	0.00864	NA	NA	
Terbium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.000705	0.000709	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.000945	0.000947	NA	NA	
	Largescale sucker	mg/kg	ww	4	1	25	0.0007	0.0007	0.0007	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.00118	0.00118	0.0008	0.000842	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.0008	0.000897	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000864	NA	NA	
Thorium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.00319	0.00531	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00432	0.0111	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00201	0.018	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	3	100	0.002	0.0149	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	5	1	20	0.00237	0.00237	0.001	0.00166	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.001	0.00155	NA	NA	
Thulium	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.000753	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.000945	0.000947	NA	NA	
	Largescale sucker	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000828	NA	NA	
	Rainbow trout	mg/kg	ww	2	0	0	NA	NA	0.000842	0.000849	NA	NA	
	Smallmouth bass	mg/kg	ww	4	0	0	NA	NA	0.0008	0.000897	NA	NA	
Titanium	Burbot	mg/kg	ww	2	2	100	0.0919	0.936	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.0865	0.106	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.736	0.877	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.142	2.4	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	1	1	100	2.12	2.12	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	4	1	25	0.295	0.295	0.0261	0.0266	NA	NA	
	Walleye	mg/kg	ww	2	0	0	NA	NA	0.0251	0.0255	NA	NA	
Tungsten	Burbot	mg/kg	ww	2	0	0	NA	NA	0.0134	0.0592	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00548	0.00594	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.0153	0.02	NA	NA	
	Largescale sucker	mg/kg	ww	4	0	0	NA	NA	0.01	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	3	0	0	NA	NA	0.01	0.02	NA	NA	
	Smallmouth bass	mg/kg	ww	5	1	20	0.0192	0.0192	0.005	0.02	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.005	0.0142	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Ytterbium	Burbot	mg/kg	ww	2	0	0	NA	NA	0.001	0.001	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	2	0	0	NA	NA	0.00145	0.00147	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.001	0.001	0.0016	0.00164	NA	NA	
	Rainbow trout	mg/kg	ww	3	1	33.3	0.00172	0.00172	0.001	0.00142	NA	NA	
	Smallmouth bass	mg/kg	ww	5	0	0	NA	NA	0.001	0.00166	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.001	0.00155	NA	NA	
Yttrium	Burbot	mg/kg	ww	2	2	100	0.00285	0.00813	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	0	0	NA	NA	0.00153	0.002	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00729	0.00857	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	4	100	0.00334	0.021	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	3	2	66.7	0.00308	0.0186	0.002	0.002	NA	NA	
	Smallmouth bass	mg/kg	ww	5	2	40	0.00145	0.00337	0.00161	0.002	NA	NA	
	Walleye	mg/kg	ww	3	0	0	NA	NA	0.001	0.00155	NA	NA	
Zirconium	Burbot	mg/kg	ww	2	2	100	0.00401	0.015	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	2	2	100	0.00504	0.00513	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	2	2	100	0.00952	0.0172	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	4	2	50	0.02	0.0356	0.00665	0.00753	NA	NA	
	Rainbow trout	mg/kg	ww	2	1	50	0.0235	0.0235	0.003	0.003	NA	NA	
	Smallmouth bass	mg/kg	ww	5	2	40	0.00667	0.0302	0.00289	0.00359	NA	NA	
	Walleye	mg/kg	ww	3	2	66.7	0.0396	0.406	0.00318	0.00318	NA	NA	
Conventionals													
Fluoride	Burbot	mg/kg	ww	5	0	0	NA	NA	0.245	0.426	NA	NA	
	Kokanee	mg/kg	ww	8	0	0	NA	NA	0.2	0.351	NA	NA	
	Lake whitefish	mg/kg	ww	6	0	0	NA	NA	0.2	0.305	NA	NA	
	Largescale sucker	mg/kg	ww	6	0	0	NA	NA	0.1	0.4	NA	NA	
	Longnose sucker	mg/kg	ww	1	0	0	NA	NA	0.6	0.6	NA	NA	
	Pikeminnow	mg/kg	ww	2	0	0	NA	NA	0.2	0.5	NA	NA	
	Rainbow trout	mg/kg	ww	8	0	0	NA	NA	0.2	0.436	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.6	0.6	NA	NA	
	Smallmouth bass	mg/kg	ww	11	0	0	NA	NA	0.3	0.4	NA	NA	
	Walleye	mg/kg	ww	8	0	0	NA	NA	0.2	0.354	NA	NA	
	Yellow perch	mg/kg	ww	1	0	0	NA	NA	0.3	0.3	NA	NA	
Lipids	Burbot	percent	ww	10	10	100	1.2	6.3	NA	NA	NA	NA	
	Kokanee	percent	ww	8	8	100	4.1	6.7	NA	NA	NA	NA	
	Lake whitefish	percent	ww	11	11	100	6	12.7	NA	NA	NA	NA	
	Largescale sucker	percent	ww	11	11	100	2.8	11.7	NA	NA	NA	NA	
	Longnose sucker	percent	ww	2	2	100	3	3.43	NA	NA	NA	NA	
	Pikeminnow	percent	ww	2	2	100	4.6	6	NA	NA	NA	NA	
	Rainbow trout	percent	ww	13	13	100	3.4	9.15	NA	NA	NA	NA	
	Sculpin	percent	ww	1	1	100	4.8	4.8	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	11	11	100	3.47	7.91	NA	NA	NA	NA	
	Walleye	percent	ww	13	13	100	2.2	5.56	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	4.1	4.1	NA	NA	NA	NA	
Total moisture	Burbot	percent	ww	10	10	100	73.8	79.2	NA	NA	NA	NA	
	Kokanee	percent	ww	8	8	100	72.2	75	NA	NA	NA	NA	
	Lake whitefish	percent	ww	11	11	100	65.5	68.4	NA	NA	NA	NA	
	Largescale sucker	percent	ww	11	11	100	67.9	77	NA	NA	NA	NA	
	Longnose sucker	percent	ww	2	2	100	76.1	77.1	NA	NA	NA	NA	
	Pikeminnow	percent	ww	2	2	100	72.5	72.5	NA	NA	NA	NA	
	Rainbow trout	percent	ww	13	13	100	69.3	76.2	NA	NA	NA	NA	
	Sculpin	percent	ww	1	1	100	74.6	74.6	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	11	11	100	68.8	73.9	NA	NA	NA	NA	
	Walleye	percent	ww	13	13	100	72.1	76.5	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	74.3	74.3	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Conventionals (continued)													
Total solids	Burbot	percent	ww	10	10	100	20.8	26.2	NA	NA	NA	NA	
	Kokanee	percent	ww	8	8	100	25	27.8	NA	NA	NA	NA	
	Lake whitefish	percent	ww	11	11	100	31.6	34.5	NA	NA	NA	NA	
	Largescale sucker	percent	ww	11	11	100	23	32.1	NA	NA	NA	NA	
	Longnose sucker	percent	ww	2	2	100	22.9	23.9	NA	NA	NA	NA	
	Pikeminnow	percent	ww	2	2	100	27.5	27.5	NA	NA	NA	NA	
	Rainbow trout	percent	ww	13	13	100	23.9	30.7	NA	NA	NA	NA	
	Sculpin	percent	ww	1	1	100	25.4	25.4	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	11	11	100	26.1	31.2	NA	NA	NA	NA	
	Walleye	percent	ww	13	13	100	23.5	27.9	NA	NA	NA	NA	
	Yellow perch	percent	ww	1	1	100	25.7	25.7	NA	NA	NA	NA	
SVOCs													
1,1'-Biphenyl	Burbot	µg/kg	ww	2	0	0	NA	NA	0.446	0.463	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.573	0.607	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.314	0.76	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.6	0.955	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.838	0.863	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.34	0.563	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.504	0.722	NA	NA	
1,2,4-Trichlorobenzene	Burbot	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	6.3	6.3	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	6.3	6.3	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	Burbot	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	4.1	4.1	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	4.1	4.1	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	Burbot	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	5.96	6.9	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	4.6	4.6	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	4.6	4.6	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	210	210	NC	210	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
bis(2-Ethylhexyl)phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U
	Largescale sucker	µg/kg	ww	4	2	50	170	191	210	210	NC	191	M
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	210	308	NC	308	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	210	210	NC	210	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	210	210	NC	210	U

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SVOCs (continued)													
Dibenzofuran	Burbot	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	4.4	4.4	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	4.4	4.4	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	47.5	66	NC	66	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	331	384	NC	384	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	19.3	503	NC	503	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	340	8070	NC	8070	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	349	5400	NC	5400	U
	Smallmouth bass	µg/kg	ww	5	3	60	84.3	113	58	2100	NC	113	M
	Walleye	µg/kg	ww	2	2	100	14.8	208	NA	NA	NC	208	M
Di-n-octylphthalate	Burbot	µg/kg	ww	2	0	0	NA	NA	9	9	NC	9	U
	Kokanee	µg/kg	ww	2	2	100	18.6	30.1	NA	NA	NC	30.1	M
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	9	22.9	NC	22.9	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	9	9	NC	9	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	9	9	NC	9	U
	Smallmouth bass	µg/kg	ww	5	1	20	29.1	29.1	9	9	NC	29.1	M
	Walleye	µg/kg	ww	2	0	0	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	Burbot	µg/kg	ww	2	0	0	NA	NA	350	350	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	300	300	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	300	300	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	300	350	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	300	300	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	350	350	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	300	300	NA	NA	
Hexachloroethane	Burbot	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	16	16	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	16	16	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	16	16	NA	NA	
Pentachlorophenol	Burbot	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	4.5	4.5	NC	4.5	U
Pesticides													
2,4'-DDD	Burbot	µg/kg	ww	2	0	0	NA	NA	2.29	2.35	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	2.15	2.31	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	2.07	2.14	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	1.17	1.17	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.99	2.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.73	2.89	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.73	0.73	NA	NA	
2,4'-DDE	Burbot	µg/kg	ww	2	0	0	NA	NA	1.17	1.21	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.1	1.18	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.06	1.09	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.37	0.72	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.02	1.12	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.37	1.47	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.37	0.37	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
2,4'-DDT	Burbot	µg/kg	ww	2	1	50	1.14	1.14	0.51	0.51	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.484	0.489	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	1.11	1.29	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	1.55	2.11	0.16	0.31	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	0.512	1.15	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	0.593	1.83	0.16	0.58	NA	NA	
	Walleye	µg/kg	ww	2	2	100	1.36	1.94	NA	NA	NA	NA	
4,4'-DDD	Burbot	µg/kg	ww	2	0	0	NA	NA	1.73	1.78	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.63	1.75	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	1.19	1.19	1.56	1.56	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	0.713	0.713	0.55	1.1	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.25	1.65	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.55	2.18	NA	NA	
	Walleye	µg/kg	ww	2	1	50	0.462	0.462	0.55	0.55	NA	NA	
4,4'-DDE	Burbot	µg/kg	ww	2	1	50	7.47	7.47	2.88	2.88	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	2.43	2.67	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	3.72	6.02	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	3	75	1.3	7.34	0.87	0.87	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	3.37	4.78	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	4	80	1.33	17.7	1.7	1.7	NA	NA	
	Walleye	µg/kg	ww	2	2	100	4.23	4.28	NA	NA	NA	NA	
4,4'-DDT	Burbot	µg/kg	ww	2	0	0	NA	NA	1.55	1.59	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.45	1.56	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	1.08	1.33	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	1.42	2.06	0.63	0.95	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.68	2.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	1.79	2.27	0.49	1.81	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	1.47	1.87	NA	NA	
Aldrin	Burbot	µg/kg	ww	2	0	0	NA	NA	2.36	2.93	NC	2.93	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	2.15	2.31	NC	2.31	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	2.07	2.28	NC	2.28	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.74	1.5	NC	1.5	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.7	2.21	NC	2.21	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.74	2.89	NC	2.89	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.74	0.74	NC	0.74	U
alpha-Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	0.802	0.824	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.752	0.808	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	1.1	1.1	0.747	0.747	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.25	0.703	NA	NA	
	Rainbow trout	µg/kg	ww	2	1	50	0.994	0.994	0.569	0.569	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.25	1.01	NA	NA	
	Walleye	µg/kg	ww	2	2	100	0.225	0.314	NA	NA	NA	NA	
Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	10.8	20	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	11.6	14.1	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	22	24.3	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	4.85	16.7	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	10.7	15.9	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	3.9	26.1	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	7.25	7.51	NA	NA	
cis-Nonachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.926	0.951	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.868	0.933	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	0.519	0.519	1.02	1.02	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.29	0.992	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.804	0.882	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.29	1.16	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.29	0.654	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
delta-BHC	Burbot	µg/kg	ww	2	0	0	NA	NA	0.621	0.637	NC	0.637	U
	Kokanee	µg/kg	ww	2	2	100	1.32	1.44	NA	NA	NC	1.44	M
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.579	2	NC	2	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.2	0.739	NC	0.739	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.455	1.67	NC	1.67	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.2	3.25	NC	3.25	U
	Walleye	µg/kg	ww	2	1	50	0.49	0.49	0.2	0.2	NC	0.49	M
Dieldrin	Burbot	µg/kg	ww	2	0	0	NA	NA	0.621	0.637	NC	0.637	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.582	0.625	NC	0.625	U
	Lake whitefish	µg/kg	ww	2	2	100	0.368	0.368	NA	NA	NC	0.368	M
	Largescale sucker	µg/kg	ww	4	2	50	0.196	0.84	0.2	0.683	NC	0.84	M
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.514	0.592	NC	0.592	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.2	0.78	NC	0.78	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.2	0.2	NC	0.2	U
Endosulfan sulfate	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.57	1.68	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.51	1.56	NA	NA	
	Largescale sucker	µg/kg	ww	2	0	0	NA	NA	0.53	0.53	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.24	1.59	NA	NA	
	Smallmouth bass	µg/kg	ww	1	0	0	NA	NA	0.53	0.53	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.53	0.53	NA	NA	
Endrin	Burbot	µg/kg	ww	2	0	0	NA	NA	0.869	0.892	NC	0.892	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.815	0.875	NC	0.875	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.784	0.81	NC	0.81	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.28	0.55	NC	0.55	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.671	0.828	NC	0.828	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.28	1.09	NC	1.09	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.307	0.383	NC	0.383	U
Endrin aldehyde	Burbot	µg/kg	ww	2	0	0	NA	NA	1.92	1.97	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.81	1.94	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.74	1.79	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.62	1.2	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.42	1.83	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.62	2.44	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.62	0.62	NA	NA	
Endrin ketone	Burbot	µg/kg	ww	2	0	0	NA	NA	1.24	1.27	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.16	1.25	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.11	1.15	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.39	0.76	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.904	1.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.39	1.55	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.39	0.39	NA	NA	
gamma-Chlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	0.807	0.828	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.757	0.813	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.728	0.752	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.26	0.51	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.617	0.769	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.26	1.01	NA	NA	
	Walleye	µg/kg	ww	2	2	100	0.376	0.53	NA	NA	NA	NA	
Heptachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.864	0.887	NC	0.887	U
	Kokanee	µg/kg	ww	2	1	50	1.18	1.18	0.858	0.858	NC	1.18	M
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.778	0.805	NC	0.805	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.27	1.2	NC	1.2	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.623	1.07	NC	1.07	U
	Smallmouth bass	µg/kg	ww	5	2	40	0.508	2.02	0.27	1.08	NC	2.02	M
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.27	0.27	NC	0.27	U

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Heptachlor epoxide	Burbot	µg/kg	ww	2	0	0	NA	NA	0.559	0.573	NC	0.573	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.524	0.563	NC	0.563	U
	Lake whitefish	µg/kg	ww	2	1	50	0.904	0.904	0.663	0.663	NC	0.904	M
	Largescale sucker	µg/kg	ww	4	1	25	0.338	0.338	0.18	0.705	NC	0.338	M
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.409	0.532	NC	0.532	U
	Smallmouth bass	µg/kg	ww	5	1	20	0.26	0.26	0.18	0.702	NC	0.26	M
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.18	0.18	NC	0.18	U
Hexachlorobenzene	Burbot	µg/kg	ww	2	0	0	NA	NA	1.17	1.21	NC	1.21	U
	Kokanee	µg/kg	ww	2	2	100	0.804	0.823	NA	NA	NC	0.823	M
	Lake whitefish	µg/kg	ww	2	2	100	1.72	1.95	NA	NA	NC	1.95	M
	Largescale sucker	µg/kg	ww	4	2	50	1.69	2.55	0.72	1.3	NC	2.55	M
	Rainbow trout	µg/kg	ww	2	1	50	3.72	3.72	1.44	1.44	NC	3.72	M
	Smallmouth bass	µg/kg	ww	5	3	60	0.6	13.2	0.96	1.47	NC	13.2	M
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.693	0.824	NC	0.824	U
Hexachlorobutadiene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.931	0.956	NC	0.956	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.873	0.938	NC	0.938	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.868	2.32	NC	2.32	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.3	0.723	NC	0.723	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.81	0.887	NC	0.887	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.3	1.35	NC	1.35	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.667	0.813	NC	0.813	U
Methoxychlor	Burbot	µg/kg	ww	2	0	0	NA	NA	1.49	1.53	NC	1.53	U
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.4	1.5	NC	1.5	U
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.34	1.39	NC	1.39	U
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.48	0.93	NC	0.93	U
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.13	1.42	NC	1.42	U
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.48	1.87	NC	1.87	U
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.48	0.48	NC	0.48	U
Oxychlordane	Burbot	µg/kg	ww	2	0	0	NA	NA	1.24	1.27	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	1.16	1.25	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	1.11	1.15	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	1.64	1.64	0.39	0.76	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.07	1.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	1	20	1.11	1.11	0.39	2.3	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.39	0.39	NA	NA	
Total chlordane, 0 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	1.24	1.27	NC	1.27	U
	Kokanee	µg/kg	ww	2	2	100	0.866	0.995	NA	NA	NC	0.995	M
	Lake whitefish	µg/kg	ww	2	2	100	2.67	3.87	NA	NA	NC	3.87	M
	Largescale sucker	µg/kg	ww	4	2	50	0.233	1.64	0.39	0.76	NC	1.64	M
	Rainbow trout	µg/kg	ww	2	1	50	1.03	1.03	1.07	1.07	NC	1.03	M
	Smallmouth bass	µg/kg	ww	5	1	20	1.11	1.11	0.39	2.3	NC	1.11	M
	Walleye	µg/kg	ww	2	2	100	0.572	1.75	NA	NA	NC	1.75	M
Total chlordane, 1/2 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	1.24	1.27	NC	1.27	U
	Kokanee	µg/kg	ww	2	2	100	2.32	2.62	NA	NA	NC	2.62	M
	Lake whitefish	µg/kg	ww	2	2	100	4.51	5.27	NA	NA	NC	5.27	M
	Largescale sucker	µg/kg	ww	4	2	50	0.568	2.63	0.39	0.76	NC	2.63	M
	Rainbow trout	µg/kg	ww	2	1	50	2.55	2.55	1.07	1.07	NC	2.55	M
	Smallmouth bass	µg/kg	ww	5	1	20	1.64	1.64	0.39	2.3	NC	1.64	M
	Walleye	µg/kg	ww	2	2	100	0.998	1.93	NA	NA	NC	1.93	M
Total DDD, 0 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	2.29	2.35	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	2.15	2.31	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	1.4	1.4	2.07	2.07	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	1.78	1.78	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.99	2.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.73	2.89	NA	NA	
	Walleye	µg/kg	ww	2	1	50	0.506	0.506	0.73	0.73	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Total DDD, 1/2 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	2.29	2.35	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	2.15	2.31	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	1.6	1.6	2.07	2.07	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	1.78	1.78	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.99	2.18	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.73	2.89	NA	NA	
	Walleye	µg/kg	ww	2	1	50	0.696	0.696	0.73	0.73	NA	NA	
Total DDE, 0 DL	Burbot	µg/kg	ww	2	1	50	7.47	7.47	2.88	2.88	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	2.43	2.67	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	3.72	6.02	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	3	75	1.3	7.34	0.87	0.87	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	3.37	4.78	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	4	80	1.33	17.7	1.7	1.7	NA	NA	
	Walleye	µg/kg	ww	2	2	100	4.23	4.28	NA	NA	NA	NA	
Total DDE, 1/2 DL	Burbot	µg/kg	ww	2	1	50	8	8	2.88	2.88	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	3.03	3.23	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	4.25	6.57	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	3	75	1.49	7.53	0.87	0.87	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	3.93	5.29	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	4	80	1.58	18.4	1.7	1.7	NA	NA	
	Walleye	µg/kg	ww	2	2	100	4.42	4.47	NA	NA	NA	NA	
Total DDT, 0 DL	Burbot	µg/kg	ww	2	1	50	1.22	1.22	1.59	1.59	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.895	0.936	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	1.63	2.03	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	2.82	3.98	0.63	0.95	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	0.928	1.49	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	2.1	4.04	0.49	1.81	NA	NA	
	Walleye	µg/kg	ww	2	2	100	1.36	1.94	NA	NA	NA	NA	
Total DDT, 1/2 DL	Burbot	µg/kg	ww	2	1	50	1.88	1.88	1.59	1.59	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	1.02	1.05	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	2.19	2.62	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	2.97	4.17	0.63	0.95	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	1.16	2.01	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	2.39	4.04	0.49	1.81	NA	NA	
	Walleye	µg/kg	ww	2	2	100	2.09	2.87	NA	NA	NA	NA	
Total DDx, 0 DL	Burbot	µg/kg	ww	2	1	50	8.64	8.64	3.01	3.01	NC	8.64	M
	Kokanee	µg/kg	ww	2	2	100	2.7	2.97	NA	NA	NC	2.97	M
	Lake whitefish	µg/kg	ww	2	2	100	5.35	8.58	NA	NA	NC	8.58	M
	Largescale sucker	µg/kg	ww	4	3	75	1.3	13	1.5	1.5	NC	13	M
	Rainbow trout	µg/kg	ww	2	2	100	3.69	5.7	NA	NA	NC	5.7	M
	Smallmouth bass	µg/kg	ww	5	4	80	1.33	17.7	1.7	1.7	NC	17.7	M
	Walleye	µg/kg	ww	2	2	100	5.89	6.21	NA	NA	NC	6.21	M
Total DDx, 1/2 DL	Burbot	µg/kg	ww	2	1	50	11.5	11.5	3.01	3.01	NC	11.5	M
	Kokanee	µg/kg	ww	2	2	100	6.31	6.33	NA	NA	NC	6.33	M
	Lake whitefish	µg/kg	ww	2	2	100	8.28	11.5	NA	NA	NC	11.5	M
	Largescale sucker	µg/kg	ww	4	3	75	2.52	13.6	1.5	1.5	NC	13.6	M
	Rainbow trout	µg/kg	ww	2	2	100	7.22	9.16	NA	NA	NC	9.16	M
	Smallmouth bass	µg/kg	ww	5	4	80	2.83	22	1.7	1.7	NC	22	M
	Walleye	µg/kg	ww	2	2	100	7.34	7.96	NA	NA	NC	7.96	M
Toxaphene	Burbot	µg/kg	ww	2	0	0	NA	NA	40.3	41.4	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	39.4	40.6	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	40.4	43.1	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	23	64	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	38.5	47.8	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	16	50.7	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	29.4	36	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
trans-Nonachlor	Burbot	µg/kg	ww	2	0	0	NA	NA	0.864	0.887	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.835	0.966	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	2.67	2.73	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	0.194	0.194	0.27	0.992	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.75	0.823	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.27	1.08	NA	NA	
	Walleye	µg/kg	ww	2	1	50	0.992	0.992	0.27	0.27	NA	NA	
PAHs													
2-Methylnaphthalene	Burbot	µg/kg	ww	2	2	100	0.527	0.574	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.934	0.979	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.252	0.457	NA	NA	
	Largescale sucker	µg/kg	ww	4	3	75	0.358	3.2	0.612	0.612	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	0.402	0.76	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	1	20	1.1	1.1	0.68	0.86	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.331	0.357	NA	NA	
Acenaphthene	Burbot	µg/kg	ww	2	2	100	0.631	0.756	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.265	0.349	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	0.266	0.4	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	3	75	0.253	1.1	0.26	0.26	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	0.248	0.306	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	0.54	1.1	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	0.117	0.121	NA	NA	NA	NA	
Acenaphthylene	Burbot	µg/kg	ww	2	2	100	0.0955	0.398	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.476	0.564	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	0.164	0.276	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	0.189	0.233	0.24	0.24	NA	NA	
	Rainbow trout	µg/kg	ww	2	1	50	0.222	0.222	0.227	0.227	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	0.0617	0.28	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	0.102	0.117	NA	NA	NA	NA	
Anthracene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.59	0.605	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.342	0.912	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.847	2.31	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	2.61	5.51	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	5.21	14.3	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.31	2.5	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	1.79	2.17	NA	NA	
Benzo(a)anthracene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.497	0.51	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.16	0.16	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.236	0.807	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.8	1.74	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	3.11	12.3	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.16	0.58	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.406	2.48	NA	NA	
Benzo(a)pyrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.192	0.197	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.061	0.061	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.0937	0.308	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.31	0.412	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.294	0.33	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.061	0.225	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.158	0.164	NA	NA	
Benzo(b)fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.435	0.446	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.14	0.14	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.206	0.706	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.7	0.946	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.675	0.757	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.14	0.508	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.356	0.37	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Benzo(g,h,i)perylene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.18	0.185	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.058	0.058	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.0873	0.293	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.29	0.392	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.28	0.314	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.058	0.21	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.151	0.158	NA	NA	
Benzo(k)fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.286	0.293	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.092	0.092	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.138	0.464	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.46	0.622	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.444	0.497	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.092	0.334	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.235	0.244	NA	NA	
Chrysene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.621	0.637	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.2	0.2	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.295	1.01	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	1	1.4	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	1.98	2.7	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.327	17	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.508	1.02	NA	NA	
Dibenzo(a,h)anthracene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.142	0.146	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.045	0.045	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.0663	0.227	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.23	0.304	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.217	0.243	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.045	0.166	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.114	0.119	NA	NA	
Fluoranthene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.466	0.478	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.228	0.283	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.221	0.757	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.75	1.01	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.724	0.811	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	0.31	0.315	0.15	0.3	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.381	0.396	NA	NA	
Fluorene	Burbot	µg/kg	ww	2	2	100	0.195	0.207	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.612	0.64	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	0.842	1.35	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	0.398	0.437	0.48	0.48	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	0.365	0.622	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	0.4	0.857	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	0.728	0.811	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.31	0.319	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.1	0.1	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.147	0.505	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.5	0.676	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.482	0.541	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.1	0.363	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.254	0.264	NA	NA	
Naphthalene	Burbot	µg/kg	ww	2	0	0	NA	NA	1.02	1.26	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	1.67	2.64	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	1	50	2.9	2.9	1.35	1.35	NA	NA	
	Largescale sucker	µg/kg	ww	4	1	25	1.4	1.4	0.706	1.3	NA	NA	
	Rainbow trout	µg/kg	ww	2	1	50	1.03	1.03	0.642	0.642	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.714	1.4	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.451	0.471	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Phenanthrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.993	1.46	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	0.785	1.47	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	2	3.22	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	2	50	4.63	8.46	1.6	1.7	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	1.16	4.26	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	4	80	1.17	2.15	0.64	0.64	NA	NA	
	Walleye	µg/kg	ww	2	2	100	1.35	1.48	NA	NA	NA	NA	
Pyrene	Burbot	µg/kg	ww	2	0	0	NA	NA	0.372	0.382	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.12	0.12	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.177	0.683	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	0.6	0.811	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	0.579	0.649	NA	NA	
	Smallmouth bass	µg/kg	ww	5	0	0	NA	NA	0.12	0.435	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.305	0.317	NA	NA	
Total HPAHs, 0 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	0.621	0.637	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.252	0.283	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.295	1.04	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	1	2	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	3.13	12.3	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	0.386	0.397	0.327	17	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.508	2.5	NA	NA	
Total HPAHs, 1/2 DL	Burbot	µg/kg	ww	2	0	0	NA	NA	0.621	0.637	NA	NA	
	Kokanee	µg/kg	ww	2	0	0	NA	NA	0.252	0.283	NA	NA	
	Lake whitefish	µg/kg	ww	2	0	0	NA	NA	0.295	1.04	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	1	2	NA	NA	
	Rainbow trout	µg/kg	ww	2	0	0	NA	NA	3.13	12.3	NA	NA	
	Smallmouth bass	µg/kg	ww	5	2	40	0.565	0.578	0.327	17	NA	NA	
	Walleye	µg/kg	ww	2	0	0	NA	NA	0.508	2.5	NA	NA	
Total LPAHs, 0 DL	Burbot	µg/kg	ww	2	2	100	1.08	1.39	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	5.25	5.42	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	3.77	4.9	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	4	100	3.2	8.79	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	6.19	8.01	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	1.05	4.14	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	2.2	2.41	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	Burbot	µg/kg	ww	2	2	100	3.12	3.23	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	5.98	6.67	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	6.87	7.16	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	4	100	7.04	12.9	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	8.18	9.64	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	3.23	5.63	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	3.61	3.99	NA	NA	NA	NA	
Total PAHs, 0 DL	Burbot	µg/kg	ww	2	2	100	1.08	1.39	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	5.25	5.42	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	3.77	4.9	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	4	100	3.2	8.79	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	6.19	8.01	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	1.05	4.22	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	2.2	2.41	NA	NA	NA	NA	
Total PAHs, 1/2 DL	Burbot	µg/kg	ww	2	2	100	4.91	4.98	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	2	2	100	6.6	7.27	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	2	2	100	7.7	10.1	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	4	4	100	9.86	17	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	2	2	100	8.47	14	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	5	5	100	4.15	14	NA	NA	NA	NA	
	Walleye	µg/kg	ww	2	2	100	5.05	6.77	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs													
Aroclor 1016	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	8.02	14	NA	NA	
Aroclor 1221	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Aroclor 1232	Burbot	µg/kg	ww	5	0	0	NA	NA	22	22	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	21	28	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	21	22	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	20.5	22	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	18.3	27.4	NA	NA	
Aroclor 1242	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Aroclor 1248	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Aroclor 1254	Burbot	µg/kg	ww	1	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	1	1	100	7.45	7.45	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	2	2	100	10	20	NA	NA	NA	NA	
Aroclor 1254/1260	Burbot	µg/kg	ww	5	5	100	18	35.3	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	5	5	100	9.5	21.3	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	2	2	100	61	68	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	5	5	100	7.2	12.2	NA	NA	NA	NA	
	Walleye	µg/kg	ww	5	5	100	6.36	10.6	NA	NA	NA	NA	
Aroclor 1260	Lake whitefish	µg/kg	ww	1	1	100	13.5	13.5	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	2	2	100	21	36	NA	NA	NA	NA	
Aroclor 1262	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Aroclor 1268	Burbot	µg/kg	ww	5	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	5	0	0	NA	NA	11	14	NA	NA	
	Largescale sucker	µg/kg	ww	4	0	0	NA	NA	10	11	NA	NA	
	Rainbow trout	µg/kg	ww	5	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	5	0	0	NA	NA	13	14	NA	NA	
Total PCB Aroclors, 1/2 DL	Burbot	µg/kg	ww	5	5	100	62	81.2	NA	NA	NC	81.2	M
	Lake whitefish	µg/kg	ww	5	5	100	65.5	77.3	NA	NA	NC	77.3	M
	Largescale sucker	µg/kg	ww	4	4	100	75	109	NA	NA	NC	109	M
	Rainbow trout	µg/kg	ww	5	5	100	48	56.2	NA	NA	NC	56.2	M
	Walleye	µg/kg	ww	5	5	100	60	65.8	NA	NA	NC	65.8	M
Total PCB Aroclors, 0 DL	Burbot	µg/kg	ww	5	5	100	18	35.3	NA	NA	NC	35.3	M
	Lake whitefish	µg/kg	ww	5	5	100	9.5	21.3	NA	NA	NC	21.3	M
	Largescale sucker	µg/kg	ww	4	4	100	31	68	NA	NA	NC	68	M
	Rainbow trout	µg/kg	ww	5	5	100	7.2	12.2	NA	NA	NC	12.2	M
	Walleye	µg/kg	ww	5	5	100	6.46	13.5	NA	NA	NC	13.5	M

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs (continued)													
Total PCB congeners, 0 DL	Burbot	pg/g	ww	6	6	100	6390	26700	NA	NA	20400	20400	
	Kokanee	pg/g	ww	8	8	100	7700	11400	NA	NA	10200	10200	
	Lake whitefish	pg/g	ww	7	7	100	16500	25000	NA	NA	23100	23100	
	Largescale sucker	pg/g	ww	8	8	100	3480	109000	NA	NA	60100	60100	
	Longnose sucker	pg/g	ww	2	2	100	3510	5200	NA	NA	NC	5200	M
	Pikeminnow	pg/g	ww	2	2	100	4730	7740	NA	NA	NC	7740	M
	Rainbow trout	pg/g	ww	10	10	100	4280	20800	NA	NA	16800	16800	
	Sculpin	pg/g	ww	1	1	100	8530	8530	NA	NA	NC	8530	M
	Smallmouth bass	pg/g	ww	11	11	100	5140	25700	NA	NA	17100	17100	
	Walleye	pg/g	ww	9	9	100	7390	37500	NA	NA	25300	25300	
	Yellow perch	pg/g	ww	1	1	100	4350	4350	NA	NA	NC	4350	M
Total PCB congeners, 1/2 DL	Burbot	pg/g	ww	6	6	100	6960	26900	NA	NA	20800	20800	
	Kokanee	pg/g	ww	8	8	100	7800	11500	NA	NA	10300	10300	
	Lake whitefish	pg/g	ww	7	7	100	16600	25100	NA	NA	23200	23200	
	Largescale sucker	pg/g	ww	8	8	100	4010	109000	NA	NA	60200	60200	
	Longnose sucker	pg/g	ww	2	2	100	4050	5630	NA	NA	NC	5630	M
	Pikeminnow	pg/g	ww	2	2	100	4840	8200	NA	NA	NC	8200	M
	Rainbow trout	pg/g	ww	10	10	100	4720	20800	NA	NA	16900	16900	
	Sculpin	pg/g	ww	1	1	100	8950	8950	NA	NA	NC	8950	M
	Smallmouth bass	pg/g	ww	11	11	100	5850	26100	NA	NA	17600	17600	
	Walleye	pg/g	ww	9	9	100	7490	37600	NA	NA	25400	25400	
	Yellow perch	pg/g	ww	1	1	100	4840	4840	NA	NA	NC	4840	M
Dioxins/Furans													
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	Burbot	mg/kg	lipid	10	4	40	0.00000907	0.0000207	0.00000702	0.0000415	NA	NA	
	Burbot	pg/g	ww	10	4	40	0.255	0.448	0.2	0.54	NA	NA	
	Kokanee	mg/kg	lipid	8	1	12.5	0.00000298	0.00000298	0.00000194	0.0000117	NA	NA	
	Kokanee	pg/g	ww	8	1	12.5	0.143	0.143	0.13	0.543	NA	NA	
	Lake whitefish	mg/kg	lipid	11	6	54.5	0.00000144	0.00000312	0.00000518	0.0000197	NA	NA	
	Lake whitefish	pg/g	ww	11	6	54.5	0.151	0.34	0.486	2.15	NA	NA	
	Largescale sucker	mg/kg	lipid	11	3	27.3	0.00000126	0.00000272	0.00000274	0.0000319	NA	NA	
	Largescale sucker	pg/g	ww	11	3	27.3	0.124	0.148	0.18	1.15	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.00000413	0.00000504	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.124	0.173	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000323	0.00000896	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.194	0.412	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	9	69.2	0.00000125	0.0000171	0.00000213	0.0000429	NA	NA	
	Rainbow trout	pg/g	ww	13	9	69.2	0.0823	0.401	0.115	0.993	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000296	0.00000296	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.142	0.142	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	5	45.5	0.000000697	0.00000354	0.00000095	0.0000026	NA	NA	
	Smallmouth bass	pg/g	ww	11	5	45.5	0.0528	0.144	0.0535	0.122	NA	NA	
	Walleye	mg/kg	lipid	13	5	38.5	0.00000501	0.000034	0.00000668	0.0000508	NA	NA	
	Walleye	pg/g	ww	13	5	38.5	0.17	0.681	0.147	1.27	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000361	0.0000361	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.48	1.48	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,4,6,7,8-Heptachlorodibenzofuran	Burbot	mg/kg	lipid	10	4	40	0.00000182	0.00000361	0.00000204	0.0000109	NA	NA	
	Burbot	pg/g	ww	10	4	40	0.0361	0.0734	0.0574	0.152	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.00000164	0.00000424	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.11	0.203	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.000000521	0.00000903	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.056	0.829	NA	NA	
	Largescale sucker	mg/kg	lipid	11	1	9.1	0.00000045	0.00000045	0.000000508	0.0000181	NA	NA	
	Largescale sucker	pg/g	ww	11	1	9.1	0.0527	0.0527	0.031	1.03	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.000000816	0.00000202	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.028	0.0605	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000088	0.00000254	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0528	0.117	NA	NA	
	Rainbow trout	mg/kg	lipid	13	3	23.1	0.000000417	0.000000796	0.000000319	0.0000226	NA	NA	
	Rainbow trout	pg/g	ww	13	3	23.1	0.0317	0.0394	0.0267	0.512	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000135	0.00000135	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0646	0.0646	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	1	9.1	0.000000612	0.000000612	0.000000364	0.00000221	NA	NA	
	Smallmouth bass	pg/g	ww	11	1	9.1	0.0377	0.0377	0.0288	0.104	NA	NA	
	Walleye	mg/kg	lipid	13	2	15.4	0.00000302	0.0000045	0.0000021	0.0000273	NA	NA	
	Walleye	pg/g	ww	13	2	15.4	0.103	0.111	0.0765	0.682	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000176	0.0000176	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.722	0.722	NA	NA	
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Burbot	mg/kg	lipid	10	0	0	NA	NA	0.00000139	0.0000161	NA	NA	
	Burbot	pg/g	ww	10	0	0	NA	NA	0.0396	0.223	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.0000019	0.00000427	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.127	0.198	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.000000535	0.0000116	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.0578	1.16	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.00000039	0.0000162	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0374	0.71	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000188	0.000002	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.06	0.0645	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.000000885	0.00000209	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0531	0.0961	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.00000033	0.0000331	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.025	0.732	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000136	0.00000136	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0652	0.0652	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000541	0.00000205	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0356	0.0965	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000257	0.000029	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0987	0.631	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000183	0.0000183	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.749	0.749	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,4,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	10	1	10	0.00000931	0.00000931	0.00000152	0.0000196	NA	NA	
	Burbot	pg/g	ww	10	1	10	0.228	0.228	0.0543	0.255	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.00000166	0.0000104	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.111	0.499	NA	NA	
	Lake whitefish	mg/kg	lipid	11	3	27.3	0.00000049	0.00000383	0.000000681	0.0000144	NA	NA	
	Lake whitefish	pg/g	ww	11	3	27.3	0.0534	0.23	0.0786	1.16	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000719	0.0000214	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0729	1.02	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.0000026	0.00000315	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0781	0.108	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000139	0.00000214	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0832	0.0986	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.000000742	0.0000436	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.0608	0.872	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000146	0.00000146	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0702	0.0702	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	1	9.1	0.000000687	0.000000687	0.000000597	0.00000234	NA	NA	
	Smallmouth bass	pg/g	ww	11	1	9.1	0.0423	0.0423	0.0417	0.11	NA	NA	
	Walleye	mg/kg	lipid	13	1	7.7	0.0000388	0.0000388	0.00000474	0.0000424	NA	NA	
	Walleye	pg/g	ww	13	1	7.7	0.194	0.194	0.123	1.06	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000385	0.0000385	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.58	1.58	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	10	3	30	0.00000123	0.00000294	0.00000152	0.0000117	NA	NA	
	Burbot	pg/g	ww	10	3	30	0.0346	0.0588	0.0394	0.14	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.000000766	0.00000335	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0513	0.156	NA	NA	
	Lake whitefish	mg/kg	lipid	11	1	9.1	0.00000028	0.00000028	0.000000261	0.00000791	NA	NA	
	Lake whitefish	pg/g	ww	11	1	9.1	0.0319	0.0319	0.0331	0.625	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000241	0.00000956	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0218	0.545	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000137	0.00000138	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0413	0.047	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000063	0.00000102	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0378	0.047	NA	NA	
	Rainbow trout	mg/kg	lipid	13	1	7.7	0.000000266	0.000000266	0.000000243	0.0000202	NA	NA	
	Rainbow trout	pg/g	ww	13	1	7.7	0.0243	0.0243	0.0203	0.404	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000089	0.00000089	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0427	0.0427	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000324	0.00000108	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0253	0.0509	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000216	0.0000244	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0558	0.386	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.000014	0.000014	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.572	0.572	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,6,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	10	4	40	0.00000623	0.0000132	0.00000541	0.0000255	NA	NA	
	Burbot	pg/g	ww	10	4	40	0.125	0.329	0.157	0.378	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.00000151	0.000011	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.101	0.533	NA	NA	
	Lake whitefish	mg/kg	lipid	11	8	72.7	0.00000107	0.00000453	0.00000975	0.0000145	NA	NA	
	Lake whitefish	pg/g	ww	11	8	72.7	0.127	0.416	1.13	1.17	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000703	0.0000208	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0822	1.09	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000252	0.00000327	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0757	0.112	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000138	0.00000174	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0801	0.0829	NA	NA	
	Rainbow trout	mg/kg	lipid	13	8	61.5	0.00000114	0.0000156	0.00000222	0.000044	NA	NA	
	Rainbow trout	pg/g	ww	13	8	61.5	0.0747	0.328	0.0907	0.879	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000015	0.0000015	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0722	0.0722	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	1	9.1	0.00000066	0.00000066	0.000000649	0.00000253	NA	NA	
	Smallmouth bass	pg/g	ww	11	1	9.1	0.0465	0.0465	0.0425	0.119	NA	NA	
	Walleye	mg/kg	lipid	13	2	15.4	0.00000537	0.0000364	0.0000053	0.0000448	NA	NA	
	Walleye	pg/g	ww	13	2	15.4	0.182	0.196	0.129	1.12	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.000048	0.000048	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.97	1.97	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	10	4	40	0.00000132	0.00000421	0.0000016	0.00000962	NA	NA	
	Burbot	pg/g	ww	10	4	40	0.037	0.0866	0.08	0.125	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.000001	0.00000315	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0671	0.151	NA	NA	
	Lake whitefish	mg/kg	lipid	11	3	27.3	0.000000292	0.00000047	0.000000385	0.00000778	NA	NA	
	Lake whitefish	pg/g	ww	11	3	27.3	0.0333	0.0512	0.0404	0.622	NA	NA	
	Largescale sucker	mg/kg	lipid	11	3	27.3	0.000000397	0.00000149	0.000000951	0.0000094	NA	NA	
	Largescale sucker	pg/g	ww	11	3	27.3	0.0464	0.12	0.0505	0.536	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000136	0.00000138	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0415	0.0467	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.000000648	0.00000118	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0389	0.0544	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.000000248	0.0000194	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.0207	0.388	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.000000856	0.000000856	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0411	0.0411	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	2	18.2	0.000000722	0.00000119	0.00000032	0.00000214	NA	NA	
	Smallmouth bass	pg/g	ww	11	2	18.2	0.0509	0.0515	0.0253	0.162	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000216	0.000023	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0684	0.385	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000143	0.0000143	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.587	0.587	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,7,8,9-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	10	2	20	0.00000211	0.00000412	0.000002	0.0000203	NA	NA	
	Burbot	pg/g	ww	10	2	20	0.0849	0.101	0.0563	0.27	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.0000016	0.0000115	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.107	0.549	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.000000713	0.0000149	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.0802	1.2	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000637	0.0000211	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0679	1.11	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000252	0.00000315	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0756	0.108	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.0000014	0.00000204	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0838	0.094	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.000000707	0.0000451	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.0629	0.901	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000135	0.00000135	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0649	0.0649	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000582	0.00000226	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.041	0.106	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000485	0.000046	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.122	1.15	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000427	0.0000427	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.75	1.75	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	10	0	0	NA	NA	0.00000138	0.0000163	NA	NA	
	Burbot	pg/g	ww	10	0	0	NA	NA	0.0518	0.201	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.00000149	0.00000431	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.1	0.205	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.000000477	0.0000099	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.058	0.836	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000317	0.0000151	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.029	0.861	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000203	0.00000207	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0621	0.0696	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000094	0.0000015	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0564	0.0688	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.000000293	0.0000283	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.0263	0.566	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000129	0.00000129	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0621	0.0621	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000458	0.00000226	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0362	0.106	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000318	0.0000302	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.109	0.548	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000218	0.0000218	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.895	0.895	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,7,8-Pentachlorodibenzodioxin	Burbot	mg/kg	lipid	10	1	10	0.00000293	0.00000293	0.00000212	0.0000103	NA	NA	
	Burbot	pg/g	ww	10	1	10	0.118	0.118	0.0493	0.257	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.00000083	0.00000619	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0556	0.304	NA	NA	
	Lake whitefish	mg/kg	lipid	11	8	72.7	0.00000133	0.00000482	0.000009	0.0000156	NA	NA	
	Lake whitefish	pg/g	ww	11	8	72.7	0.169	0.361	1.02	1.22	NA	NA	
	Largescale sucker	mg/kg	lipid	11	2	18.2	0.000000702	0.0000258	0.000000618	0.0000133	NA	NA	
	Largescale sucker	pg/g	ww	11	2	18.2	0.0602	1.47	0.0638	0.606	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000189	0.00000229	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0567	0.0784	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000087	0.00000183	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0522	0.0841	NA	NA	
	Rainbow trout	mg/kg	lipid	13	3	23.1	0.000000889	0.00000152	0.000000889	0.0000223	NA	NA	
	Rainbow trout	pg/g	ww	13	3	23.1	0.0679	0.139	0.0548	0.678	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000012	0.0000012	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0574	0.0574	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	5	45.5	0.000000819	0.00000155	0.000000771	0.00000113	NA	NA	
	Smallmouth bass	pg/g	ww	11	5	45.5	0.0538	0.071	0.0459	0.0743	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000345	0.000131	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0878	0.687	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000238	0.0000238	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.977	0.977	NA	NA	
1,2,3,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	10	4	40	0.00000264	0.0000042	0.0000027	0.0000168	NA	NA	
	Burbot	pg/g	ww	10	4	40	0.0742	0.129	0.0508	0.254	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.000000842	0.00000645	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0564	0.312	NA	NA	
	Lake whitefish	mg/kg	lipid	11	3	27.3	0.000000787	0.00000113	0.000000874	0.00000805	NA	NA	
	Lake whitefish	pg/g	ww	11	3	27.3	0.0874	0.131	0.104	0.628	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000458	0.0000149	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0536	0.851	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000185	0.00000249	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0556	0.0854	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.00000102	0.00000122	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.056	0.0613	NA	NA	
	Rainbow trout	mg/kg	lipid	13	3	23.1	0.000000552	0.000000976	0.000000687	0.0000147	NA	NA	
	Rainbow trout	pg/g	ww	13	3	23.1	0.0412	0.0529	0.0558	0.294	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000012	0.0000012	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0574	0.0574	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000477	0.0000014	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0371	0.0598	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000278	0.0000444	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0612	1.11	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000242	0.0000242	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.992	0.992	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
2,3,4,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	10	1	10	0.00000528	0.00000528	0.00000109	0.0000095	NA	NA	
	Burbot	pg/g	ww	10	1	10	0.0992	0.0992	0.0438	0.129	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.0000011	0.00000371	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0736	0.173	NA	NA	
	Lake whitefish	mg/kg	lipid	11	1	9.1	0.000000298	0.000000298	0.000000331	0.00000758	NA	NA	
	Lake whitefish	pg/g	ww	11	1	9.1	0.0331	0.0331	0.042	0.633	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.00000031	0.0000102	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0284	0.582	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000148	0.00000159	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0477	0.0509	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.000000727	0.00000125	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.0436	0.0574	NA	NA	
	Rainbow trout	mg/kg	lipid	13	0	0	NA	NA	0.000000262	0.0000224	NA	NA	
	Rainbow trout	pg/g	ww	13	0	0	NA	NA	0.0219	0.448	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.000000983	0.000000983	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0472	0.0472	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.000000369	0.00000152	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.029	0.0716	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000237	0.0000244	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0767	0.415	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000171	0.0000171	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.703	0.703	NA	NA	
2,3,4,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	10	2	20	0.00000287	0.00000389	0.0000023	0.0000183	NA	NA	
	Burbot	pg/g	ww	10	2	20	0.0778	0.0807	0.0432	0.261	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.000000788	0.0000101	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0528	0.471	NA	NA	
	Lake whitefish	mg/kg	lipid	11	6	54.5	0.00000175	0.00000253	0.00000301	0.00000821	NA	NA	
	Lake whitefish	pg/g	ww	11	6	54.5	0.196	0.276	0.289	0.67	NA	NA	
	Largescale sucker	mg/kg	lipid	11	5	45.5	0.000000539	0.0000084	0.000000727	0.0000119	NA	NA	
	Largescale sucker	pg/g	ww	11	5	45.5	0.0631	0.479	0.0624	0.43	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000182	0.00000227	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0546	0.078	NA	NA	
	Pikeminnow	mg/kg	lipid	2	0	0	NA	NA	0.000000983	0.00000135	NA	NA	
	Pikeminnow	pg/g	ww	2	0	0	NA	NA	0.059	0.0621	NA	NA	
	Rainbow trout	mg/kg	lipid	13	5	38.5	0.000000786	0.00000134	0.000000963	0.0000144	NA	NA	
	Rainbow trout	pg/g	ww	13	5	38.5	0.0564	0.0889	0.056	0.287	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000115	0.00000115	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0554	0.0554	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	5	45.5	0.000000818	0.00000125	0.000000662	0.00000132	NA	NA	
	Smallmouth bass	pg/g	ww	11	5	45.5	0.0542	0.07	0.0408	0.0688	NA	NA	
	Walleye	mg/kg	lipid	13	0	0	NA	NA	0.00000265	0.000042	NA	NA	
	Walleye	pg/g	ww	13	0	0	NA	NA	0.0584	1.05	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000226	0.0000226	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.925	0.925	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
2,3,7,8-Tetrachlorodibenzodioxin	Burbot	mg/kg	lipid	10	0	0	NA	NA	0.00000138	0.0000167	NA	NA	
	Burbot	pg/g	ww	10	0	0	NA	NA	0.0322	0.298	NA	NA	
	Kokanee	mg/kg	lipid	8	0	0	NA	NA	0.000000573	0.0000053	NA	NA	
	Kokanee	pg/g	ww	8	0	0	NA	NA	0.0384	0.247	NA	NA	
	Lake whitefish	mg/kg	lipid	11	2	18.2	0.000000857	0.00000104	0.000000542	0.00000404	NA	NA	
	Lake whitefish	pg/g	ww	11	2	18.2	0.09	0.118	0.0643	0.469	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.00000042	0.0000183	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0389	0.568	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000251	0.00000267	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.0752	0.0917	NA	NA	
	Pikeminnow	mg/kg	lipid	2	1	50	0.00000157	0.00000157	0.000000962	0.000000962	NA	NA	
	Pikeminnow	pg/g	ww	2	1	50	0.0724	0.0724	0.0577	0.0577	NA	NA	
	Rainbow trout	mg/kg	lipid	13	2	15.4	0.000000871	0.00000163	0.000000567	0.0000278	NA	NA	
	Rainbow trout	pg/g	ww	13	2	15.4	0.0663	0.0689	0.0383	0.555	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000136	0.00000136	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0655	0.0655	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	1	9.1	0.000000685	0.000000685	0.000000539	0.00000132	NA	NA	
	Smallmouth bass	pg/g	ww	11	1	9.1	0.0519	0.0519	0.0376	0.0528	NA	NA	
	Walleye	mg/kg	lipid	13	1	7.7	0.00000306	0.00000306	0.00000217	0.0000314	NA	NA	
	Walleye	pg/g	ww	13	1	7.7	0.104	0.104	0.0478	0.785	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000148	0.0000148	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.607	0.607	NA	NA	
2,3,7,8-Tetrachlorodibenzofuran	Burbot	mg/kg	lipid	10	10	100	0.000043	0.000281	NA	NA	NA	NA	
	Burbot	pg/g	ww	10	10	100	0.959	4.03	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.0000112	0.0000206	0.000017	0.000017	NA	NA	
	Kokanee	pg/g	ww	8	7	87.5	0.751	0.989	0.697	0.697	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.000023	0.0000567	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	11	11	100	2.12	4.15	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.00000589	0.0000623	0.0000112	0.0000112	NA	NA	
	Largescale sucker	pg/g	ww	11	10	90.9	0.35	3.12	0.314	0.314	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.00000866	0.0000125	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.297	0.374	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000538	0.00000828	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.323	0.381	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	11	84.6	0.00000941	0.000049	0.00000539	0.0000105	NA	NA	
	Rainbow trout	pg/g	ww	13	11	84.6	0.508	1.42	0.202	1.16	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000992	0.00000992	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.476	0.476	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.00000578	0.0000166	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.284	1.12	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.00000856	0.000226	0.0000204	0.0000204	NA	NA	
	Walleye	pg/g	ww	13	12	92.3	0.341	1.38	0.509	0.509	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000135	0.0000135	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0.552	0.552	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, bird, 0 DL	Burbot	mg/kg	lipid	10	10	100	0.000043	0.000281	NA	NA	NA	NA	
	Burbot	pg/g	ww	10	10	100	0.975	4.03	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.0000112	0.0000206	0	0	NA	NA	
	Kokanee	pg/g	ww	8	7	87.5	0.751	0.989	0	0	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.0000259	0.0000583	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	11	11	100	2.12	4.49	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.00000661	0.0000675	0	0	NA	NA	
	Largescale sucker	pg/g	ww	11	10	90.9	0.35	3.85	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.00000577	0.0000125	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.198	0.374	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000538	0.00000883	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.323	0.406	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	12	92.3	4.43E-09	0.000049	0	0	NA	NA	
	Rainbow trout	pg/g	ww	13	12	92.3	0.000166	1.48	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000992	0.00000992	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.476	0.476	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.00000623	0.0000175	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.284	1.18	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.00000856	0.000228	0	0	NA	NA	
	Walleye	pg/g	ww	13	12	92.3	0.341	1.38	0	0	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	
Dioxin TEQ, bird, 1/2 DL	Burbot	mg/kg	lipid	10	10	100	0.00005	0.000305	NA	NA	NA	NA	
	Burbot	pg/g	ww	10	10	100	1.07	4.37	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.0000127	0.0000317	0.0000118	0.0000118	NA	NA	
	Kokanee	pg/g	ww	8	7	87.5	0.852	1.52	0.484	0.484	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.0000267	0.0000713	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	11	11	100	3.05	5.53	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.00000758	0.0000842	0.0000134	0.0000134	NA	NA	
	Largescale sucker	pg/g	ww	11	10	90.9	0.555	4.39	0.375	0.375	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.0000166	0.0000208	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.498	0.714	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000712	0.0000115	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.427	0.531	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	12	92.3	0.00000765	0.00009	0.0000117	0.0000117	NA	NA	
	Rainbow trout	pg/g	ww	13	12	92.3	0.287	1.9	1.29	1.29	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.0000122	0.0000122	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.584	0.584	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.00000776	0.0000187	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.391	1.26	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.0000174	0.000328	0.00007	0.00007	NA	NA	
	Walleye	pg/g	ww	13	12	92.3	0.467	1.64	1.75	1.75	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000454	0.0000454	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.86	1.86	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, fish, 0 DL	Burbot	mg/kg	lipid	10	10	100	0.00000216	0.0000141	NA	NA	0.00000949	0.00000949	
	Burbot	pg/g	ww	10	10	100	0.0627	0.26	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.000000561	0.00000103	0	0	0.000000934	0.000000934	
	Kokanee	pg/g	ww	8	7	87.5	0.0376	0.0495	0	0	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.00000136	0.00000682	NA	NA	0.00000483	0.00000483	
	Lake whitefish	pg/g	ww	11	11	100	0.106	0.777	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.000000382	0.0000316	0	0	0.0000317	0.0000317	
	Largescale sucker	pg/g	ww	11	10	90.9	0.0175	1.8	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.000000292	0.000000627	NA	NA	NC	0.000000627	M
	Longnose sucker	pg/g	ww	2	2	100	0.01	0.0188	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.000000272	0.000000943	NA	NA	NC	0.000000943	M
	Pikeminnow	pg/g	ww	2	2	100	0.0163	0.0434	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	12	92.3	4.43E-09	0.00000303	0	0	0.00000202	0.00000202	
	Rainbow trout	pg/g	ww	13	12	92.3	0.000166	0.224	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.0000005	0.0000005	NA	NA	NC	0.0000005	M
	Sculpin	pg/g	ww	1	1	100	0.024	0.024	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.000000313	0.00000244	NA	NA	0.0000016	0.0000016	
	Smallmouth bass	pg/g	ww	11	11	100	0.0143	0.145	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.000000428	0.0000274	0	0	0.0000236	0.0000236	
	Walleye	pg/g	ww	13	12	92.3	0.0171	0.137	0	0	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NC	0	U
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	
Dioxin TEQ, fish, 1/2 DL	Burbot	mg/kg	lipid	10	10	100	0.00000809	0.0000412	NA	NA	0.0000255	0.0000255	
	Burbot	pg/g	ww	10	10	100	0.152	0.566	NA	NA	0.479	0.479	
	Kokanee	mg/kg	lipid	8	7	87.5	0.00000215	0.0000123	0.00000393	0.00000393	0.0000108	0.0000108	
	Kokanee	pg/g	ww	8	7	87.5	0.144	0.573	0.161	0.161	0.756	0.573	
	Lake whitefish	mg/kg	lipid	11	11	100	0.000004	0.000019	NA	NA	0.0000141	0.0000141	
	Lake whitefish	pg/g	ww	11	11	100	0.508	1.61	NA	NA	1.16	1.16	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.00000168	0.000044	0.00000811	0.00000811	0.0000291	0.0000291	
	Largescale sucker	pg/g	ww	11	10	90.9	0.158	2.51	0.227	0.227	1.05	1.05	
	Longnose sucker	mg/kg	lipid	2	2	100	0.0000047	0.0000133	NA	NA	NC	0.0000133	M
	Longnose sucker	pg/g	ww	2	2	100	0.141	0.457	NA	NA	NC	0.457	M
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000198	0.0000038	NA	NA	NC	0.0000038	M
	Pikeminnow	pg/g	ww	2	2	100	0.119	0.175	NA	NA	NC	0.175	M
	Rainbow trout	mg/kg	lipid	13	12	92.3	0.00000229	0.0000477	0.00000701	0.00000701	0.0000267	0.0000267	
	Rainbow trout	pg/g	ww	13	12	92.3	0.134	0.953	0.771	0.771	0.582	0.582	
	Sculpin	mg/kg	lipid	1	1	100	0.00000269	0.00000269	NA	NA	NC	0.00000269	M
	Sculpin	pg/g	ww	1	1	100	0.129	0.129	NA	NA	NC	0.129	M
	Smallmouth bass	mg/kg	lipid	11	11	100	0.00000172	0.00000383	NA	NA	0.00000297	0.00000297	
	Smallmouth bass	pg/g	ww	11	11	100	0.106	0.196	NA	NA	0.161	0.161	
	Walleye	mg/kg	lipid	13	12	92.3	0.00000682	0.000121	0.0000564	0.0000564	0.0000562	0.0000562	
	Walleye	pg/g	ww	13	12	92.3	0.15	0.603	1.41	1.41	0.463	0.463	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000395	0.0000395	NC	0.0000395	U
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.62	1.62	NC	1.62	U

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, mammal, 0 DL	Burbot	mg/kg	lipid	10	10	100	0.0000043	0.0000281	NA	NA	NA	NA	
	Burbot	pg/g	ww	10	10	100	0.121	0.446	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.00000112	0.00000206	0	0	NA	NA	
	Kokanee	pg/g	ww	8	7	87.5	0.0752	0.0989	0	0	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.00000272	0.00000822	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	11	11	100	0.212	0.937	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.000000765	0.0000316	0	0	NA	NA	
	Largescale sucker	pg/g	ww	11	10	90.9	0.035	1.8	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.000000612	0.00000127	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.021	0.0382	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000057	0.00000138	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.0342	0.0637	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	12	92.3	4.08E-08	0.00000605	0	0	NA	NA	
	Rainbow trout	pg/g	ww	13	12	92.3	0.00153	0.279	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000102	0.00000102	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.0491	0.0491	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.000000634	0.00000281	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.0294	0.157	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.000000858	0.000029	0	0	NA	NA	
	Walleye	pg/g	ww	13	12	92.3	0.0341	0.163	0	0	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	0	0	NA	NA	
Dioxin TEQ, mammal, 1/2 DL	Burbot	mg/kg	lipid	10	10	100	0.0000104	0.0000496	NA	NA	NA	NA	
	Burbot	pg/g	ww	10	10	100	0.198	0.675	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	8	7	87.5	0.00000243	0.0000111	0.00000383	0.00000383	NA	NA	
	Kokanee	pg/g	ww	8	7	87.5	0.163	0.517	0.157	0.157	NA	NA	
	Lake whitefish	mg/kg	lipid	11	11	100	0.00000483	0.0000193	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	11	11	100	0.614	1.62	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	11	10	90.9	0.00000207	0.0000421	0.00000743	0.00000743	NA	NA	
	Largescale sucker	pg/g	ww	11	10	90.9	0.156	2.4	0.208	0.208	NA	NA	
	Longnose sucker	mg/kg	lipid	2	2	100	0.00000483	0.0000117	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	2	2	100	0.145	0.4	NA	NA	NA	NA	
	Pikeminnow	mg/kg	lipid	2	2	100	0.00000202	0.00000376	NA	NA	NA	NA	
	Pikeminnow	pg/g	ww	2	2	100	0.121	0.173	NA	NA	NA	NA	
	Rainbow trout	mg/kg	lipid	13	12	92.3	0.00000259	0.0000439	0.00000641	0.00000641	NA	NA	
	Rainbow trout	pg/g	ww	13	12	92.3	0.14	0.878	0.705	0.705	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000292	0.00000292	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.14	0.14	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	11	100	0.00000179	0.00000418	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.11	0.2	NA	NA	NA	NA	
	Walleye	mg/kg	lipid	13	12	92.3	0.00000673	0.000119	0.000048	0.000048	NA	NA	
	Walleye	pg/g	ww	13	12	92.3	0.148	0.595	1.2	1.2	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000339	0.0000339	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.39	1.39	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Octachlorodibenzodioxin	Burbot	mg/kg	lipid	10	2	20	0.0000123	0.0000286	0.0000128	0.0000958	NA	NA	
	Burbot	pg/g	ww	10	2	20	0.495	0.571	0.296	1.23	NA	NA	
	Kokanee	mg/kg	lipid	8	4	50	0.00000335	0.0000269	0.00000398	0.0000127	NA	NA	
	Kokanee	pg/g	ww	8	4	50	0.187	1.29	0.163	0.689	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.00000428	0.000101	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.54	11	NA	NA	
	Largescale sucker	mg/kg	lipid	11	4	36.4	0.00000238	0.0000137	0.00000273	0.0000706	NA	NA	
	Largescale sucker	pg/g	ww	11	4	36.4	0.199	1.51	0.157	2.54	NA	NA	
	Longnose sucker	mg/kg	lipid	2	1	50	0.0000142	0.0000142	0.0000239	0.0000239	NA	NA	
	Longnose sucker	pg/g	ww	2	1	50	0.486	0.486	0.716	0.716	NA	NA	
	Pikeminnow	mg/kg	lipid	2	1	50	0.000015	0.000015	0.00001	0.00001	NA	NA	
	Pikeminnow	pg/g	ww	2	1	50	0.692	0.692	0.6	0.6	NA	NA	
	Rainbow trout	mg/kg	lipid	13	8	61.5	0.0000023	0.000038	0.0000154	0.000109	NA	NA	
	Rainbow trout	pg/g	ww	13	8	61.5	0.182	0.799	0.578	2.17	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000156	0.0000156	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.751	0.751	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	10	90.9	0.00000139	0.00001	0.0000148	0.0000148	NA	NA	
	Smallmouth bass	pg/g	ww	11	10	90.9	0.105	0.47	0.603	0.603	NA	NA	
	Walleye	mg/kg	lipid	13	6	46.2	0.0000121	0.000159	0.00000664	0.0000716	NA	NA	
	Walleye	pg/g	ww	13	6	46.2	0.555	4.29	0.146	1.79	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000673	0.0000673	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	2.76	2.76	NA	NA	
Octachlorodibenzofuran	Burbot	mg/kg	lipid	10	0	0	NA	NA	0.000000948	0.0000375	NA	NA	
	Burbot	pg/g	ww	10	0	0	NA	NA	0.0356	0.488	NA	NA	
	Kokanee	mg/kg	lipid	8	1	12.5	0.00000273	0.00000273	0.00000344	0.0000108	NA	NA	
	Kokanee	pg/g	ww	8	1	12.5	0.183	0.183	0.141	0.605	NA	NA	
	Lake whitefish	mg/kg	lipid	11	0	0	NA	NA	0.000000512	0.0000141	NA	NA	
	Lake whitefish	pg/g	ww	11	0	0	NA	NA	0.065	1.23	NA	NA	
	Largescale sucker	mg/kg	lipid	11	0	0	NA	NA	0.000000422	0.0000516	NA	NA	
	Largescale sucker	pg/g	ww	11	0	0	NA	NA	0.0494	2.11	NA	NA	
	Longnose sucker	mg/kg	lipid	2	0	0	NA	NA	0.00000337	0.00000408	NA	NA	
	Longnose sucker	pg/g	ww	2	0	0	NA	NA	0.101	0.14	NA	NA	
	Pikeminnow	mg/kg	lipid	2	1	50	0.00000461	0.00000461	0.00000161	0.00000161	NA	NA	
	Pikeminnow	pg/g	ww	2	1	50	0.212	0.212	0.0967	0.0967	NA	NA	
	Rainbow trout	mg/kg	lipid	13	3	23.1	0.000000574	0.00000488	0.000000586	0.000061	NA	NA	
	Rainbow trout	pg/g	ww	13	3	23.1	0.048	0.183	0.0536	1.35	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000367	0.00000367	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.176	0.176	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	11	0	0	NA	NA	0.00000064	0.00000233	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0506	0.095	NA	NA	
	Walleye	mg/kg	lipid	13	3	23.1	0.00000869	0.000019	0.00000365	0.0000826	NA	NA	
	Walleye	pg/g	ww	13	3	23.1	0.218	0.7	0.0804	1.62	NA	NA	
	Yellow perch	mg/kg	lipid	1	0	0	NA	NA	0.0000461	0.0000461	NA	NA	
	Yellow perch	pg/g	ww	1	0	0	NA	NA	1.89	1.89	NA	NA	
PBDEs													
PBDE 17	Burbot	pg/g	ww	2	2	100	1.36	1.93	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	20	38.3	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	7.31	15.4	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	9.34	145	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	2.93	5.84	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	5.27	11.9	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	13.2	14.5	NA	NA	NA	NA	
PBDE 28 and 33	Burbot	pg/g	ww	2	2	100	60.8	83.1	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	77.8	112	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	187	195	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	84	1800	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	91.9	166	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	66.4	319	NA	NA	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 47	Walleye	pg/g	ww	2	2	100	136	143	NA	NA	NA	NA	
	Burbot	pg/g	ww	2	2	100	4660	7100	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	2190	3040	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	6450	6690	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	2050	36700	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	3890	6780	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	2710	12300	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	10000	11500	NA	NA	NA	NA	
PBDE 49	Burbot	pg/g	ww	2	2	100	107	138	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	187	287	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	475	511	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	70.6	890	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	231	319	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	133	487	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	348	685	NA	NA	NA	NA	
PBDE 66	Burbot	pg/g	ww	2	2	100	104	204	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	89.1	111	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	368	405	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	1.86	6.08	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	125	180	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	67.4	120	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	86.5	127	NA	NA	NA	NA	
PBDE 71	Burbot	pg/g	ww	2	0	0	NA	NA	0.048	0.0495	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	0.226	0.292	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	0.0757	0.102	NA	NA	
	Largescale sucker	pg/g	ww	4	0	0	NA	NA	0.0738	0.131	NA	NA	
	Rainbow trout	pg/g	ww	2	0	0	NA	NA	0.0837	0.0916	NA	NA	
	Smallmouth bass	pg/g	ww	5	0	0	NA	NA	0.0572	0.277	NA	NA	
	Walleye	pg/g	ww	2	0	0	NA	NA	0.0921	0.107	NA	NA	
PBDE 85	Burbot	pg/g	ww	2	2	100	50.6	127	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	1	50	1.65	1.65	0.643	0.643	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	0.355	0.362	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	1.17	5.84	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	1.21	3.74	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	4	80	0.742	3.28	0.266	0.266	NA	NA	
	Walleye	pg/g	ww	2	2	100	4.37	7.05	NA	NA	NA	NA	
PBDE 99	Burbot	pg/g	ww	2	2	100	1470	3530	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	1580	2000	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	4290	4940	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	3	75	7.54	68.6	7.79	7.79	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	2370	3210	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	991	2150	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	1460	2130	NA	NA	NA	NA	
PBDE 100	Burbot	pg/g	ww	2	2	100	935	1550	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	420	558	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	1470	1540	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	268	4620	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	742	1410	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	399	2110	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	1650	2260	NA	NA	NA	NA	
PBDE 128	Burbot	pg/g	ww	2	2	100	0.318	0.776	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	0.343	1.12	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	0.572	0.83	NA	NA	
	Largescale sucker	pg/g	ww	4	0	0	NA	NA	0.238	0.436	NA	NA	
	Rainbow trout	pg/g	ww	2	0	0	NA	NA	0.479	0.615	NA	NA	
	Smallmouth bass	pg/g	ww	5	1	20	0.554	0.554	0.215	0.386	NA	NA	
	Walleye	pg/g	ww	2	0	0	NA	NA	0.314	0.317	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 138	Burbot	pg/g	ww	2	2	100	5.13	12.3	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	1	50	1.72	1.72	0.817	0.817	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	0.603	0.661	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	2	50	0.36	0.744	0.202	0.207	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	0.688	2.65	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	1	20	0.612	0.612	0.176	0.275	NA	NA	
	Walleye	pg/g	ww	2	2	100	0.773	0.949	NA	NA	NA	NA	
PBDE 153	Burbot	pg/g	ww	2	2	100	198	244	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	92.9	128	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	217	395	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	35.9	282	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	162	289	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	85.6	418	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	317	613	NA	NA	NA	NA	
PBDE 154	Burbot	pg/g	ww	2	2	100	248	356	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	96	129	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	295	402	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	72.1	1240	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	177	362	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	97	588	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	381	613	NA	NA	NA	NA	
PBDE 183 and 176	Burbot	pg/g	ww	2	2	100	7.37	11.9	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	5.51	7.34	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	7.74	15	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	1	25	1.96	1.96	0.82	1.75	NA	NA	
	Rainbow trout	pg/g	ww	2	1	50	6.35	6.35	3.77	3.77	NA	NA	
	Smallmouth bass	pg/g	ww	5	4	80	1.72	3.34	2.81	2.81	NA	NA	
	Walleye	pg/g	ww	2	0	0	NA	NA	1.86	2.96	NA	NA	
PBDE 184	Burbot	pg/g	ww	2	2	100	1.09	1.89	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	3.7	3.71	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	5.56	5.85	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	0.445	1.22	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	5.47	6	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	0.622	3.42	NA	NA	NA	NA	
	Walleye	pg/g	ww	2	2	100	2.1	3.78	NA	NA	NA	NA	
PBDE 190 and 171	Burbot	pg/g	ww	2	1	50	0.909	0.909	0.424	0.424	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	0.555	0.657	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	0.341	0.434	NA	NA	
	Largescale sucker	pg/g	ww	4	0	0	NA	NA	0.175	0.359	NA	NA	
	Rainbow trout	pg/g	ww	2	1	50	0.57	0.57	0.41	0.41	NA	NA	
	Smallmouth bass	pg/g	ww	5	0	0	NA	NA	0.108	0.245	NA	NA	
	Walleye	pg/g	ww	2	0	0	NA	NA	0.242	0.259	NA	NA	
PBDE 191	Burbot	pg/g	ww	2	2	100	0.22	0.291	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	0.307	0.521	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	0.288	0.366	NA	NA	
	Largescale sucker	pg/g	ww	4	0	0	NA	NA	0.151	0.303	NA	NA	
	Rainbow trout	pg/g	ww	2	0	0	NA	NA	0.31	0.346	NA	NA	
	Smallmouth bass	pg/g	ww	5	0	0	NA	NA	0.0925	0.211	NA	NA	
	Walleye	pg/g	ww	2	0	0	NA	NA	0.205	0.219	NA	NA	
PBDE 200 and 203	Burbot	pg/g	ww	2	2	100	2.42	3.99	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	2.39	4.42	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	1.52	2.92	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	0	0	NA	NA	0.325	0.724	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	4.04	4.58	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	4	80	0.349	1.58	0.704	0.704	NA	NA	
	Walleye	pg/g	ww	1	0	0	NA	NA	0.511	0.511	NA	NA	

Table A-12b. Summary Statistics for Fish Species in the Transitional CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 206	Burbot	pg/g	ww	2	2	100	3.69	3.81	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	0	0	NA	NA	4.22	6.61	NA	NA	
	Lake whitefish	pg/g	ww	2	0	0	NA	NA	2.06	2.56	NA	NA	
	Largescale sucker	pg/g	ww	4	3	75	5.35	8.12	2.94	2.94	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	7.75	18.1	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	0.894	13.2	NA	NA	NA	NA	
	Walleye	pg/g	ww	1	0	0	NA	NA	2.53	2.53	NA	NA	
PBDE 209	Burbot	pg/g	ww	2	2	100	131	217	NA	NA	NA	NA	
	Kokanee	pg/g	ww	2	2	100	91.4	163	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	2	2	100	57	67.9	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	4	4	100	268	415	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	2	2	100	261	529	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	5	5	100	42.1	1050	NA	NA	NA	NA	
	Walleye	pg/g	ww	1	1	100	160	160	NA	NA	NA	NA	

Notes:

0 DL - nondetected components represented by zero

½ DL - nondetected components represented by one-half the detection limit (DL)

95 UCL - 95th percentile upper confidence limit on the mean

BHC - beta-hexachlorocyclohexane

CSM - conceptual site model

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FOD - frequency of detection

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LPAH - low-molecular-weight PAH

M - exposure point concentration (EPC) is the maximum detected concentration

NA - not applicable

NC - not calculated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SVOC - semivolatile organic compound

TEQ - toxic equivalent

U - EPC is the maximum DL (no samples had detected concentrations)

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids													
Aluminum	Burbot	mg/kg	ww	31	31	100	1.91	19.76	NA	NA	8.4	8.4	
	Kokanee	mg/kg	ww	22	22	100	1.45	24.1	NA	NA	7.39	7.39	
	Lake whitefish	mg/kg	ww	22	18	81.8	2.48	55.9	3.707	4.224	19.3	19.3	
	Largescale sucker	mg/kg	ww	39	28	71.8	1.38	107	0.668	8.14	38.3	38.3	
	Longnose sucker	mg/kg	ww	7	7	100	1.47	56.4	NA	NA	57.3	56.4	
	Rainbow trout	mg/kg	ww	35	35	100	2.24	23.54	NA	NA	7.69	7.69	
	Sculpin	mg/kg	ww	3	3	100	17.5	37	NA	NA	NC	37	M
	Smallmouth bass	mg/kg	ww	20	20	100	1.32	20.5	NA	NA	7.22	7.22	
	Walleye	mg/kg	ww	40	36	90	0.866	25.91	3.024	3.324	5.89	5.89	
	Yellow perch	mg/kg	ww	3	3	100	6.8	12.8	NA	NA	NC	12.8	M
Antimony	Burbot	mg/kg	ww	31	3	9.7	0.00197	0.00443	0.00333	0.08901	NC	0.00443	M
	Kokanee	mg/kg	ww	22	18	81.8	0.00245	0.036	0.00413	0.00959	0.0134	0.0134	
	Lake whitefish	mg/kg	ww	22	9	40.9	0.00246	0.00996	0.00248	0.1373	0.00557	0.00557	
	Largescale sucker	mg/kg	ww	39	13	33.3	0.00295	0.13	0.00246	0.1234	0.00757	0.00757	
	Longnose sucker	mg/kg	ww	7	4	57.1	0.0038	0.0329	0.00355	0.00604	NC	0.0329	M
	Rainbow trout	mg/kg	ww	35	14	40	0.00152	0.0298	0.002	0.1221	0.00619	0.00619	
	Sculpin	mg/kg	ww	3	3	100	0.0039	0.102	NA	NA	NC	0.102	M
	Smallmouth bass	mg/kg	ww	20	9	45	0.002	0.0354	0.002	0.016	0.0109	0.0109	
	Walleye	mg/kg	ww	40	21	52.5	0.002	0.0352	0.002	0.1136	0.0136	0.0136	
	Yellow perch	mg/kg	ww	3	2	66.7	0.014	0.015	0.006	0.006	NC	0.015	M
Arsenic	Burbot	mg/kg	ww	31	31	100	0.454	1.37	NA	NA	0.88	0.88	
	Kokanee	mg/kg	ww	22	15	68.2	0.0628	0.12	0.0587	0.103	0.0838	0.0838	
	Lake whitefish	mg/kg	ww	22	22	100	0.1847	0.3116	NA	NA	0.263	0.263	
	Largescale sucker	mg/kg	ww	39	39	100	0.0574	0.266	NA	NA	0.167	0.167	
	Longnose sucker	mg/kg	ww	7	7	100	0.101	0.3	NA	NA	0.232	0.232	
	Rainbow trout	mg/kg	ww	35	35	100	0.0675	0.1753	NA	NA	0.128	0.128	
	Sculpin	mg/kg	ww	3	3	100	0.15	0.18	NA	NA	NC	0.18	M
	Smallmouth bass	mg/kg	ww	20	20	100	0.0902	0.285	NA	NA	0.183	0.183	
	Walleye	mg/kg	ww	40	40	100	0.0974	0.312	NA	NA	0.166	0.166	
	Yellow perch	mg/kg	ww	3	3	100	0.079	0.11	NA	NA	NC	0.11	M
Barium	Burbot	mg/kg	ww	31	31	100	4.78	8.72	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	0.413	0.668	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	0.3183	1.34	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	1.01	4.336	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	0.625	4.09	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	0.2829	0.8773	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	1.8	2.83	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	0.636	1.73	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	0.498	1.17	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	1.17	1.66	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Beryllium	Burbot	mg/kg	ww	31	2	6.5	0.000731	0.000748	0.000812	0.00435	NA	NA	
	Kokanee	mg/kg	ww	22	0	0	NA	NA	0.0009	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	22	1	4.5	0.00214	0.00214	0.001	0.00704	NA	NA	
	Largescale sucker	mg/kg	ww	39	3	7.7	0.002	0.00947	0.000935	0.00601	NA	NA	
	Longnose sucker	mg/kg	ww	7	3	42.9	0.000787	0.0035	0.001	0.00143	NA	NA	
	Rainbow trout	mg/kg	ww	35	1	2.9	0.00297	0.00297	0.001	0.00616	NA	NA	
	Sculpin	mg/kg	ww	3	1	33.3	0.002	0.002	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	20	1	5	0.00117	0.00117	0.000918	0.001	NA	NA	
	Walleye	mg/kg	ww	40	1	2.5	0.000734	0.000734	0.0009	0.00568	NA	NA	
	Yellow perch	mg/kg	ww	3	0	0	NA	NA	0.001	0.001	NA	NA	
Boron	Burbot	mg/kg	ww	6	0	0	NA	NA	0.0717	0.2	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.05	0.216	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.07	0.152	NA	NA	
	Largescale sucker	mg/kg	ww	8	0	0	NA	NA	0.05	0.0684	NA	NA	
	Longnose sucker	mg/kg	ww	4	0	0	NA	NA	0.0611	0.32	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.064	0.2	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.66	0.66	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.0577	0.34	NA	NA	
	Walleye	mg/kg	ww	11	1	9.1	0.56	0.56	0.0506	0.5	NA	NA	
Cadmium	Burbot	mg/kg	ww	31	31	100	0.0214	0.08772	NA	NA	0.0456	0.0456	
	Kokanee	mg/kg	ww	22	22	100	0.0152	0.0409	NA	NA	0.0277	0.0277	
	Lake whitefish	mg/kg	ww	22	18	81.8	0.0146	0.03208	0.01536	0.01725	0.0235	0.0235	
	Largescale sucker	mg/kg	ww	39	39	100	0.0127	0.4053	NA	NA	0.273	0.273	
	Longnose sucker	mg/kg	ww	7	7	100	0.0217	0.292	NA	NA	0.233	0.233	
	Rainbow trout	mg/kg	ww	35	35	100	0.0204	0.0804	NA	NA	0.0461	0.0461	
	Sculpin	mg/kg	ww	3	3	100	0.0569	0.0975	NA	NA	NC	0.0975	M
	Smallmouth bass	mg/kg	ww	20	20	100	0.00846	0.0657	NA	NA	0.0277	0.0277	
	Walleye	mg/kg	ww	40	40	100	0.0109	0.147	NA	NA	0.0302	0.0302	
	Yellow perch	mg/kg	ww	3	3	100	0.04	0.0692	NA	NA	NC	0.0692	M
Calcium	Burbot	mg/kg	ww	31	31	100	6693	12500	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	2720	4690	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	3350	7498	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	5410	15660	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	6040	11700	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	2960	6970	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	8200	10400	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	7530	13200	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	6950	13630	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	9510	10300	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Chromium	Burbot	mg/kg	ww	31	31	100	0.0698	1.485	NA	NA	0.344	0.344	
	Kokanee	mg/kg	ww	22	20	90.9	0.0195	0.507	0.02	0.02	0.159	0.159	
	Lake whitefish	mg/kg	ww	22	20	90.9	0.0305	0.9169	0.025	0.0556	0.856	0.856	
	Largescale sucker	mg/kg	ww	39	37	94.9	0.0227	2.99	0.0671	0.0822	1.21	1.21	
	Longnose sucker	mg/kg	ww	7	7	100	0.0616	0.672	NA	NA	0.58	0.58	
	Rainbow trout	mg/kg	ww	35	34	97.1	0.0185	0.6886	0.0246	0.0246	0.417	0.417	
	Sculpin	mg/kg	ww	3	3	100	0.262	5.76	NA	NA	NC	5.76	M
	Smallmouth bass	mg/kg	ww	20	20	100	0.017	2.56	NA	NA	0.763	0.763	
	Walleye	mg/kg	ww	40	39	97.5	0.0457	0.842	0.02	0.02	0.456	0.456	
	Yellow perch	mg/kg	ww	3	3	100	0.13	0.266	NA	NA	NC	0.266	M
Cobalt	Burbot	mg/kg	ww	31	31	100	0.0287	0.0543	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	0.0185	0.0286	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	0.02009	0.0576	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	0.0214	0.128	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	0.0201	0.143	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	33	94.3	0.01414	0.0515	0.0205	0.0212	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	0.0465	0.106	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	0.0156	0.0737	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	0.0137	0.0425	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	0.035	0.0382	NA	NA	NA	NA	
Copper	Burbot	mg/kg	ww	31	31	100	0.8008	1.68	NA	NA	1.21	1.21	
	Kokanee	mg/kg	ww	22	22	100	1.39	2.09	NA	NA	1.7	1.7	
	Lake whitefish	mg/kg	ww	22	22	100	0.4536	1.28	NA	NA	0.743	0.743	
	Largescale sucker	mg/kg	ww	39	38	97.4	0.411	1.2	0.555	0.555	0.77	0.77	
	Longnose sucker	mg/kg	ww	7	7	100	0.552	1.71	NA	NA	1.15	1.15	
	Rainbow trout	mg/kg	ww	35	35	100	0.355	0.8954	NA	NA	0.617	0.617	
	Sculpin	mg/kg	ww	3	3	100	0.93	2.76	NA	NA	NC	2.76	M
	Smallmouth bass	mg/kg	ww	20	20	100	0.304	3.27	NA	NA	1.31	1.31	
	Walleye	mg/kg	ww	40	40	100	0.3024	1.34	NA	NA	0.501	0.501	
	Yellow perch	mg/kg	ww	3	3	100	0.538	0.813	NA	NA	NC	0.813	M
Gold	Burbot	mg/kg	ww	6	0	0	NA	NA	0.00622	0.02	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.00749	0.02	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.00948	0.01	NA	NA	
	Largescale sucker	mg/kg	ww	8	0	0	NA	NA	0.007	0.0164	NA	NA	
	Longnose sucker	mg/kg	ww	4	0	0	NA	NA	0.007	0.00914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.0088	0.00943	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.008	0.008	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.007	0.02	NA	NA	
	Walleye	mg/kg	ww	11	1	9.1	0.0204	0.0204	0.007	0.0136	NA	NA	
Iron	Burbot	mg/kg	ww	31	31	100	20.54	35.57	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	12.9	23.5	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	10.56	55.8	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	7.09	188	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	9.71	114	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	14.7	33.83	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	19	59.5	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	8.3	33	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	6.3	19	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	11	12.7	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Lead	Burbot	mg/kg	ww	31	31	100	0.05616	0.157	NA	NA	0.101	0.101	
	Kokanee	mg/kg	ww	22	22	100	0.0064	0.0495	NA	NA	0.0165	0.0165	
	Lake whitefish	mg/kg	ww	22	22	100	0.0384	0.1134	NA	NA	0.0652	0.0652	
	Largescale sucker	mg/kg	ww	39	39	100	0.0466	4.01	NA	NA	1.14	1.14	
	Longnose sucker	mg/kg	ww	7	7	100	0.0482	0.145	NA	NA	0.101	0.101	
	Rainbow trout	mg/kg	ww	35	28	80	0.0104	0.102	0.01365	0.01534	0.0528	0.0528	
	Sculpin	mg/kg	ww	3	3	100	0.046	0.066	NA	NA	NC	0.066	M
	Smallmouth bass	mg/kg	ww	20	15	75	0.00614	0.075	0.00582	0.032	0.0631	0.0631	
	Walleye	mg/kg	ww	40	38	95	0.012	0.2228	0.0095	0.01315	0.0854	0.0854	
	Yellow perch	mg/kg	ww	3	3	100	0.014	0.019	NA	NA	NC	0.019	M
Magnesium	Burbot	mg/kg	ww	31	31	100	300.2	369.6	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	251	320	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	253	297.4	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	282.1	398.4	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	305	642	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	272	336	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	336	403	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	347	428	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	315	387.8	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	384	422	NA	NA	NA	NA	
Manganese	Burbot	mg/kg	ww	30	30	100	1.77	3.42	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	0.59	1.34	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	0.757	3.749	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	1.93	10.7	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	1.64	8.1	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	0.8677	2.36	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	2.11	2.81	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	0.342	2.23	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	0.663	2.26	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	2.17	3.54	NA	NA	NA	NA	
Mercury	Burbot	µg/kg	ww	31	31	100	128	242	NA	NA	190	190	
	Kokanee	µg/kg	ww	22	22	100	44.4	71.3	NA	NA	56.8	56.8	
	Lake whitefish	µg/kg	ww	22	22	100	44.7	109	NA	NA	79.8	79.8	
	Largescale sucker	µg/kg	ww	34	34	100	20.7	376	NA	NA	255	255	
	Longnose sucker	µg/kg	ww	7	7	100	19.9	149	NA	NA	136	136	
	Rainbow trout	µg/kg	ww	35	35	100	33.6	103	NA	NA	70.5	70.5	
	Sculpin	µg/kg	ww	3	3	100	31.4	49.3	NA	NA	NC	49.3	M
	Smallmouth bass	µg/kg	ww	20	20	100	27	170	NA	NA	115	115	
	Walleye	µg/kg	ww	40	40	100	63	292	NA	NA	168	168	
	Yellow perch	µg/kg	ww	3	3	100	21	33.7	NA	NA	NC	33.7	M
Molybdenum	Burbot	mg/kg	ww	17	6	35.3	0.0236	0.052	0.0165	0.0431	NA	NA	
	Kokanee	mg/kg	ww	22	3	13.6	0.00645	0.0149	0.00646	0.035	NA	NA	
	Lake whitefish	mg/kg	ww	10	0	0	NA	NA	0.00799	0.0523	NA	NA	
	Largescale sucker	mg/kg	ww	20	0	0	NA	NA	0.00684	0.0281	NA	NA	
	Longnose sucker	mg/kg	ww	7	1	14.3	0.058	0.058	0.0132	0.0421	NA	NA	
	Rainbow trout	mg/kg	ww	19	5	26.3	0.00579	0.011	0.00771	0.0207	NA	NA	
	Sculpin	mg/kg	ww	3	1	33.3	0.13	0.13	0.02	0.03	NA	NA	
	Smallmouth bass	mg/kg	ww	20	16	80	0.00701	0.061	0.027	0.0503	NA	NA	
	Walleye	mg/kg	ww	25	23	92	0.0048	0.063	0.0346	0.0363	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	0.02	0.02	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Nickel	Burbot	mg/kg	ww	31	31	100	0.121	0.416	NA	NA	0.26	0.26	
	Kokanee	mg/kg	ww	22	22	100	0.0519	0.16	NA	NA	0.0906	0.0906	
	Lake whitefish	mg/kg	ww	22	22	100	0.0636	0.2662	NA	NA	0.195	0.195	
	Largescale sucker	mg/kg	ww	39	38	97.4	0.104	1.4	0.136	0.136	0.554	0.554	
	Longnose sucker	mg/kg	ww	7	7	100	0.0913	0.43	NA	NA	0.263	0.263	
	Rainbow trout	mg/kg	ww	35	35	100	0.0431	0.242	NA	NA	0.162	0.162	
	Sculpin	mg/kg	ww	3	2	66.7	0.336	3.12	0.747	0.747	NC	3.12	M
	Smallmouth bass	mg/kg	ww	20	20	100	0.0627	1.99	NA	NA	0.638	0.638	
	Walleye	mg/kg	ww	40	40	100	0.0586	0.475	NA	NA	0.329	0.329	
	Yellow perch	mg/kg	ww	3	3	100	0.2	0.269	NA	NA	NC	0.269	M
Potassium	Burbot	mg/kg	ww	31	31	100	2180	3172	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	2780	3600	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	2540	3110	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	2260	3339	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	2650	5200	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	3030	3817	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	2720	2810	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	2730	3170	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	2880	3370	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	3160	3350	NA	NA	NA	NA	
Selenium	Burbot	mg/kg	ww	31	31	100	0.354	0.6286	NA	NA	0.497	0.497	
	Kokanee	mg/kg	ww	22	22	100	0.23	0.485	NA	NA	0.414	0.414	
	Lake whitefish	mg/kg	ww	22	22	100	0.276	0.8689	NA	NA	0.64	0.64	
	Largescale sucker	mg/kg	ww	39	38	97.4	0.15	0.6281	0.293	0.293	0.421	0.421	
	Longnose sucker	mg/kg	ww	7	7	100	0.31	0.432	NA	NA	0.418	0.418	
	Rainbow trout	mg/kg	ww	35	35	100	0.266	0.54	NA	NA	0.387	0.387	
	Sculpin	mg/kg	ww	3	3	100	0.34	0.432	NA	NA	NC	0.432	M
	Smallmouth bass	mg/kg	ww	20	18	90	0.302	0.516	0.305	0.387	0.379	0.379	
	Walleye	mg/kg	ww	40	40	100	0.232	0.8003	NA	NA	0.456	0.456	
	Yellow perch	mg/kg	ww	3	3	100	0.326	0.37	NA	NA	NC	0.37	M
Silver	Burbot	mg/kg	ww	31	11	35.5	0.00234	0.00577	0.00235	0.053	0.00405	0.00405	
	Kokanee	mg/kg	ww	22	11	50	0.00384	0.00534	0.00373	0.00552	0.0045	0.0045	
	Lake whitefish	mg/kg	ww	22	6	27.3	0.000625	0.0065	0.0007	0.0855	0.00283	0.00283	
	Largescale sucker	mg/kg	ww	39	2	5.1	0.000734	0.003	0.00061	0.07917	NC	0.003	M
	Longnose sucker	mg/kg	ww	7	4	57.1	0.000661	0.009	0.000614	0.0028	NC	0.009	M
	Rainbow trout	mg/kg	ww	35	17	48.6	0.00158	0.00566	0.002	0.077	0.00338	0.00338	
	Sculpin	mg/kg	ww	3	0	0	NA	NA	0.0005	0.003	NC	0.003	U
	Smallmouth bass	mg/kg	ww	20	4	20	0.000701	0.00624	0.0005	0.00337	NC	0.00624	M
	Walleye	mg/kg	ww	40	5	12.5	0.00062	0.002	0.0005	0.0426	NC	0.002	M
	Yellow perch	mg/kg	ww	3	0	0	NA	NA	0.0005	0.0005	NC	0.0005	U
Sodium	Burbot	mg/kg	ww	31	31	100	1010	1636	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	696	1030	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	22	100	575	808.8	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	586	1503	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	7	100	669	1290	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	35	35	100	660	1040	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	931	1090	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	20	100	853	1100	NA	NA	NA	NA	
	Walleye	mg/kg	ww	40	40	100	738	1088	NA	NA	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	803	856	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Common Metals/Metalloids (continued)													
Thallium	Burbot	mg/kg	ww	31	11	35.5	0.0057	0.0137	0.00818	0.05589	0.00909	0.00909	
	Kokanee	mg/kg	ww	22	22	100	0.0168	0.0382	NA	NA	0.0304	0.0304	
	Lake whitefish	mg/kg	ww	22	10	45.5	0.0209	0.0366	0.0768	0.0855	0.031	0.031	
	Largescale sucker	mg/kg	ww	39	18	46.2	0.00344	0.021	0.0056	0.07917	0.0138	0.0138	
	Longnose sucker	mg/kg	ww	7	7	100	0.0184	0.0584	NA	NA	0.0433	0.0433	
	Rainbow trout	mg/kg	ww	35	19	54.3	0.0195	0.0408	0.0598	0.077	0.0298	0.0298	
	Sculpin	mg/kg	ww	3	3	100	0.022	0.0382	NA	NA	NC	0.0382	M
	Smallmouth bass	mg/kg	ww	20	15	75	0.0155	0.0401	0.0156	0.0222	0.0274	0.0274	
	Walleye	mg/kg	ww	40	30	75	0.0111	0.0567	0.063	0.071	0.043	0.043	
	Yellow perch	mg/kg	ww	3	3	100	0.0366	0.0606	NA	NA	NC	0.0606	M
Tin	Burbot	mg/kg	ww	6	0	0	NA	NA	0.002	0.00455	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.002	0.003	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.00348	0.00356	NA	NA	
	Largescale sucker	mg/kg	ww	8	3	37.5	0.00204	0.0369	0.00264	0.005	NA	NA	
	Longnose sucker	mg/kg	ww	4	1	25	0.009	0.009	0.003	0.00355	NA	NA	
	Rainbow trout	mg/kg	ww	7	1	14.3	0.083	0.083	0.003	0.00343	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.01	0.01	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	2	16.7	0.00171	0.21	0.00255	0.03	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.002	0.005	NA	NA	
Uranium	Burbot	mg/kg	ww	31	31	100	0.00303	0.00701	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	22	22	100	0.000369	0.001	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	22	17	77.3	0.00115	0.00577	0.00156	0.00176	NA	NA	
	Largescale sucker	mg/kg	ww	39	39	100	0.00198	0.0259	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	7	5	71.4	0.00177	0.0094	0.00187	0.00219	NA	NA	
	Rainbow trout	mg/kg	ww	35	24	68.6	0.000464	0.00592	0.00132	0.00156	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	0.002	0.0071	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	18	90	0.000474	0.00262	0.000611	0.000624	NA	NA	
	Walleye	mg/kg	ww	40	37	92.5	0.000493	0.00197	0.0005	0.000517	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	0.001	0.00167	NA	NA	NA	NA	
Vanadium	Burbot	mg/kg	ww	31	25	80.6	0.0342	0.1039	0.07638	0.08901	NA	NA	
	Kokanee	mg/kg	ww	22	20	90.9	0.0148	0.0427	0.02	0.02	NA	NA	
	Lake whitefish	mg/kg	ww	22	13	59.1	0.0324	0.155	0.1216	0.1373	NA	NA	
	Largescale sucker	mg/kg	ww	39	32	82.1	0.021	0.392	0.0167	0.1178	NA	NA	
	Longnose sucker	mg/kg	ww	7	5	71.4	0.0312	0.34	0.0326	0.0345	NA	NA	
	Rainbow trout	mg/kg	ww	35	13	37.1	0.0185	0.0958	0.02	0.1221	NA	NA	
	Sculpin	mg/kg	ww	3	3	100	0.048	0.11	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	20	7	35	0.0194	0.05	0.02	0.069	NA	NA	
	Walleye	mg/kg	ww	40	11	27.5	0.0132	0.0413	0.0154	0.1136	NA	NA	
	Yellow perch	mg/kg	ww	3	3	100	0.02	0.027	NA	NA	NA	NA	
Zinc	Burbot	mg/kg	ww	31	31	100	11.21	14.6	NA	NA	13.3	13.3	
	Kokanee	mg/kg	ww	22	22	100	16.9	23.4	NA	NA	20	20	
	Lake whitefish	mg/kg	ww	22	22	100	10.72	17.8	NA	NA	14.2	14.2	
	Largescale sucker	mg/kg	ww	39	39	100	12.9	34.9	NA	NA	21	21	
	Longnose sucker	mg/kg	ww	7	7	100	12.9	39.3	NA	NA	26.3	26.3	
	Rainbow trout	mg/kg	ww	35	35	100	20.3	28.1	NA	NA	24	24	
	Sculpin	mg/kg	ww	3	3	100	18.8	21.1	NA	NA	NC	21.1	M
	Smallmouth bass	mg/kg	ww	20	20	100	11.5	20.4	NA	NA	15.4	15.4	
	Walleye	mg/kg	ww	40	40	100	11.4	15.91	NA	NA	13.2	13.2	
	Yellow perch	mg/kg	ww	3	3	100	19	21.9	NA	NA	NC	21.9	M

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids													
Bismuth	Burbot	mg/kg	ww	6	6	100	0.000824	0.002	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	2	33.3	0.000656	0.000684	0.000749	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.000712	0.000712	0.00095	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	8	4	50	0.000499	0.000693	0.0007	0.000928	NA	NA	
	Longnose sucker	mg/kg	ww	4	3	75	0.0007	0.002	0.000914	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.001	0.001	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	6	50	0.000576	0.00163	0.0007	0.000836	NA	NA	
	Walleye	mg/kg	ww	11	8	72.7	0.000594	0.002	0.0007	0.0008	NA	NA	
Cerium	Burbot	mg/kg	ww	6	6	100	0.00361	0.00998	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.00123	0.00499	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.00311	0.0291	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	0.00119	0.133	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00397	0.271	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00233	0.00905	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0284	0.0284	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	9	75	0.00136	0.0395	0.001	0.00162	NA	NA	
	Walleye	mg/kg	ww	11	7	63.6	0.00137	0.009	0.001	0.00158	NA	NA	
Cesium	Burbot	mg/kg	ww	6	6	100	0.0366	0.0507	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.0105	0.0164	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.0257	0.0285	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	0.0147	0.0261	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.02	0.0304	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00915	0.0156	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.02	0.02	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	12	100	0.017	0.0326	NA	NA	NA	NA	
	Walleye	mg/kg	ww	11	11	100	0.0313	0.0554	NA	NA	NA	NA	
Dysprosium	Burbot	mg/kg	ww	6	5	83.3	0.000687	0.00112	0.000719	0.000719	NA	NA	
	Kokanee	mg/kg	ww	6	1	16.7	0.000609	0.000609	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	3	75	0.00123	0.00238	0.00095	0.00095	NA	NA	
	Largescale sucker	mg/kg	ww	8	4	50	0.000784	0.0051	0.000802	0.000884	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0041	0.011	0.000911	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	3	42.9	0.000641	0.000682	0.000897	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.002	0.002	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	2	16.7	0.0008	0.00189	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0007	0.0009	NA	NA	
Erbium	Burbot	mg/kg	ww	6	3	50	0.000521	0.000689	0.000659	0.000719	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00166	0.00166	0.00095	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	8	2	25	0.00141	0.0026	0.000802	0.000929	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.002	0.0062	0.000911	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0008	0.0008	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	1	8.3	0.000713	0.000713	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0007	0.0009	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Europium	Burbot	mg/kg	ww	6	6	100	0.00128	0.00218	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00119	0.00119	0.00095	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	8	6	75	0.000704	0.002	0.000838	0.000928	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.002	0.005	0.000911	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.001	0.001	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	1	8.3	0.0013	0.0013	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0007	0.0009	NA	NA	
Gadolinium	Burbot	mg/kg	ww	6	4	66.7	0.00133	0.00142	0.00159	0.00159	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.002	0.002	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00424	0.00424	0.00248	0.00256	NA	NA	
	Largescale sucker	mg/kg	ww	8	3	37.5	0.00229	0.009	0.00167	0.00261	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0061	0.018	0.002	0.00255	NA	NA	
	Rainbow trout	mg/kg	ww	7	2	28.6	0.00146	0.00194	0.002	0.00243	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.002	0.002	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	1	8.3	0.00274	0.00274	0.002	0.002	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.00154	0.002	NA	NA	
Gallium	Burbot	mg/kg	ww	6	6	100	0.00475	0.00673	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.00232	0.00428	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.00284	0.0105	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	0.00327	0.02	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00293	0.0403	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00296	0.00476	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0084	0.0084	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	12	100	0.00298	0.00906	NA	NA	NA	NA	
	Walleye	mg/kg	ww	11	11	100	0.00353	0.0065	NA	NA	NA	NA	
Germanium	Burbot	mg/kg	ww	6	6	100	0.35	0.4	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.473	0.614	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.346	0.487	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	0.378	0.82	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.42	1.15	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.53	0.754	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.546	0.546	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	12	100	0.327	0.586	NA	NA	NA	NA	
	Walleye	mg/kg	ww	11	11	100	0.31	0.448	NA	NA	NA	NA	
Holmium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000455	0.000461	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.000456	0.000553	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00049	0.00049	0.0007	0.000748	NA	NA	
	Largescale sucker	mg/kg	ww	8	1	12.5	0.0009	0.0009	0.000535	0.000684	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0008	0.002	0.000611	0.000614	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.000549	0.000647	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.0005	0.0005	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.0005	0.000624	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0005	0.0006	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Indium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000622	0.000719	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.000948	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	8	1	12.5	0.00078	0.00078	0.0007	0.000929	NA	NA	
	Longnose sucker	mg/kg	ww	4	0	0	NA	NA	0.0007	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	11	1	9.1	0.0007	0.0007	0.0007	0.0009	NA	NA	
Lanthanum	Burbot	mg/kg	ww	6	6	100	0.00403	0.00961	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.00116	0.00494	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.00277	0.0238	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	7	87.5	0.00261	0.0709	0.000838	0.000838	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00216	0.144	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00213	0.00946	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.014	0.014	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	9	75	0.00129	0.0208	0.0008	0.000886	NA	NA	
	Walleye	mg/kg	ww	11	9	81.8	0.000685	0.0049	0.000763	0.0008	NA	NA	
Lithium	Burbot	mg/kg	ww	6	6	100	0.196	0.291	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.116	0.156	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.195	0.245	NA	NA	
	Largescale sucker	mg/kg	ww	8	3	37.5	0.142	0.414	0.07	0.0927	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.08	0.1	0.07	0.0911	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.144	0.2	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.08	0.08	NA	NA	
	Smallmouth bass	mg/kg	ww	12	8	66.7	0.13	0.383	0.07	0.0886	NA	NA	
	Walleye	mg/kg	ww	11	10	90.9	0.234	0.317	0.07	0.07	NA	NA	
Lutetium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000455	0.000461	NA	NA	
	Kokanee	mg/kg	ww	6	1	16.7	0.000554	0.000554	0.000456	0.000553	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.000648	0.000748	NA	NA	
	Largescale sucker	mg/kg	ww	8	0	0	NA	NA	0.0005	0.000684	NA	NA	
	Longnose sucker	mg/kg	ww	4	1	25	0.0007	0.0007	0.0005	0.000614	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.000549	0.000647	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.0005	0.0005	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.0005	0.000624	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0005	0.0006	NA	NA	
Neodymium	Burbot	mg/kg	ww	6	6	100	0.00331	0.00763	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	0.00123	0.00376	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.00208	0.0221	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	7	87.5	0.00161	0.0566	0.00146	0.00146	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00192	0.115	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00199	0.00628	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.013	0.013	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	9	75	0.00136	0.0179	0.000955	0.001	NA	NA	
	Walleye	mg/kg	ww	11	7	63.6	0.001	0.005	0.000909	0.001	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Niobium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.002	0.00655	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.00249	0.00677	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.0035	0.00633	NA	NA	
	Largescale sucker	mg/kg	ww	8	1	12.5	0.026	0.026	0.00264	0.00927	NA	NA	
	Longnose sucker	mg/kg	ww	4	0	0	NA	NA	0.003	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.003	0.00488	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.005	0.005	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.00257	0.00672	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.002	0.00453	NA	NA	
Praseodymium	Burbot	mg/kg	ww	6	6	100	0.000715	0.00214	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	4	66.7	0.000667	0.00127	0.000749	0.0008	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.000724	0.00595	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	5	62.5	0.000769	0.015	0.000802	0.000884	NA	NA	
	Longnose sucker	mg/kg	ww	4	3	75	0.000732	0.0311	0.000914	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.000669	0.00188	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0036	0.0036	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	6	50	0.000759	0.00478	0.0008	0.000886	NA	NA	
	Walleye	mg/kg	ww	11	3	27.3	0.000696	0.001	0.0007	0.0009	NA	NA	
Rubidium	Burbot	mg/kg	ww	6	6	100	3.38	4.36	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	2.26	2.78	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	3.57	4.1	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	2.3	2.97	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	2.99	4.74	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	1.9	2.7	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	4.09	4.09	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	12	100	2.95	5.62	NA	NA	NA	NA	
	Walleye	mg/kg	ww	11	11	100	6.08	8.72	NA	NA	NA	NA	
Samarium	Burbot	mg/kg	ww	6	4	66.7	0.00133	0.00194	0.001	0.00159	NA	NA	
	Kokanee	mg/kg	ww	6	1	16.7	0.00145	0.00145	0.001	0.002	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00462	0.00462	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	8	3	37.5	0.00227	0.01	0.00161	0.002	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0074	0.021	0.002	0.002	NA	NA	
	Rainbow trout	mg/kg	ww	7	3	42.9	0.0014	0.00194	0.002	0.002	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.0033	0.0033	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	1	8.3	0.00292	0.00292	0.001	0.002	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.001	0.002	NA	NA	
Scandium	Burbot	mg/kg	ww	6	6	100	0.0111	0.014	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	5	83.3	0.00463	0.0145	0.0133	0.0133	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	0.0283	0.0348	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	7	87.5	0.016	0.0265	0.01	0.01	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.016	0.0508	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	6	85.7	0.0123	0.0214	0.023	0.023	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.022	0.022	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	9	75	0.00981	0.0252	0.017	0.017	NA	NA	
	Walleye	mg/kg	ww	11	6	54.5	0.00813	0.015	0.0101	0.022	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Strontium	Burbot	mg/kg	ww	6	6	100	17.6	24.2	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	6	100	3.78	5.04	NA	NA	NA	NA	
	Lake whitefish	mg/kg	ww	4	4	100	6.53	8.34	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	8	100	9.31	16.2	NA	NA	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	7.3	19.9	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	3.97	5.16	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	12.3	12.3	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	12	100	9.79	18.3	NA	NA	NA	NA	
	Walleye	mg/kg	ww	11	11	100	6.88	12	NA	NA	NA	NA	
Tantalum	Largescale sucker	mg/kg	ww	3	0	0	NA	NA	0.01	0.0164	NA	NA	
	Smallmouth bass	mg/kg	ww	2	0	0	NA	NA	0.0159	0.0162	NA	NA	
Tellurium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.00622	0.00719	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.007	0.00847	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.00948	0.01	NA	NA	
	Largescale sucker	mg/kg	ww	8	0	0	NA	NA	0.007	0.00929	NA	NA	
	Longnose sucker	mg/kg	ww	4	0	0	NA	NA	0.007	0.00914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.0088	0.00943	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.008	0.008	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.007	0.00889	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.007	0.009	NA	NA	
Terbium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000622	0.000719	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.000948	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	8	1	12.5	0.001	0.001	0.000802	0.000929	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0008	0.002	0.000911	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.0007	0.0009	NA	NA	
Thorium	Burbot	mg/kg	ww	6	6	100	0.00139	0.00271	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	5	83.3	0.00133	0.00197	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	4	2	50	0.00245	0.00528	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	8	2	25	0.00431	0.02	0.001	0.00429	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00304	0.0267	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	3	42.9	0.00119	0.002	0.0014	0.00149	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.019	0.019	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	8	66.7	0.001	0.0038	0.001	0.00484	NA	NA	
	Walleye	mg/kg	ww	11	3	27.3	0.0013	0.002	0.001	0.00158	NA	NA	
Thulium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000622	0.000719	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.0007	0.000847	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.000948	0.001	NA	NA	
	Largescale sucker	mg/kg	ww	3	0	0	NA	NA	0.0007	0.000929	NA	NA	
	Longnose sucker	mg/kg	ww	3	0	0	NA	NA	0.0008	0.000914	NA	NA	
	Rainbow trout	mg/kg	ww	6	0	0	NA	NA	0.00088	0.000943	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.0008	0.0008	NA	NA	
	Smallmouth bass	mg/kg	ww	7	0	0	NA	NA	0.0007	0.000889	NA	NA	
	Walleye	mg/kg	ww	5	0	0	NA	NA	0.0007	0.00086	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Other Metals/Metalloids (continued)													
Titanium	Burbot	mg/kg	ww	6	6	100	0.314	0.766	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	4	4	100	0.222	0.321	NA	NA	NA	NA	
	Largescale sucker	mg/kg	ww	8	7	87.5	0.0383	3.3	0.0292	0.0292	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.114	5.8	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	5	5	100	0.169	0.426	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.726	0.726	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	11	10	90.9	0.08	1.13	0.0262	0.0262	NA	NA	
	Walleye	mg/kg	ww	7	5	71.4	0.027	0.32	0.0251	0.0258	NA	NA	
Tungsten	Burbot	mg/kg	ww	6	0	0	NA	NA	0.0138	0.0307	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.005	0.0367	NA	NA	
	Lake whitefish	mg/kg	ww	4	0	0	NA	NA	0.0095	0.0195	NA	NA	
	Largescale sucker	mg/kg	ww	8	0	0	NA	NA	0.00629	0.0157	NA	NA	
	Longnose sucker	mg/kg	ww	4	1	25	0.02	0.02	0.00614	0.02	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.00549	0.009	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.005	0.005	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.008	0.061	NA	NA	
	Walleye	mg/kg	ww	11	4	36.4	0.0174	0.0553	0.005	0.032	NA	NA	
Ytterbium	Burbot	mg/kg	ww	6	0	0	NA	NA	0.000957	0.001	NA	NA	
	Kokanee	mg/kg	ww	6	0	0	NA	NA	0.001	0.001	NA	NA	
	Lake whitefish	mg/kg	ww	4	1	25	0.00148	0.00148	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	8	1	12.5	0.002	0.002	0.001	0.00165	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.002	0.005	0.00155	0.00157	NA	NA	
	Rainbow trout	mg/kg	ww	7	0	0	NA	NA	0.001	0.00149	NA	NA	
	Sculpin	mg/kg	ww	1	0	0	NA	NA	0.001	0.001	NA	NA	
	Smallmouth bass	mg/kg	ww	12	0	0	NA	NA	0.001	0.00163	NA	NA	
	Walleye	mg/kg	ww	11	0	0	NA	NA	0.001	0.00158	NA	NA	
Yttrium	Burbot	mg/kg	ww	6	6	100	0.00302	0.00628	NA	NA	NA	NA	
	Kokanee	mg/kg	ww	6	5	83.3	0.00133	0.00248	0.00149	0.00149	NA	NA	
	Lake whitefish	mg/kg	ww	4	3	75	0.00439	0.01	0.002	0.002	NA	NA	
	Largescale sucker	mg/kg	ww	8	7	87.5	0.00265	0.025	0.00192	0.00192	NA	NA	
	Longnose sucker	mg/kg	ww	4	4	100	0.00157	0.0568	NA	NA	NA	NA	
	Rainbow trout	mg/kg	ww	7	7	100	0.00185	0.00382	NA	NA	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.008	0.008	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	7	58.3	0.00139	0.00965	0.00155	0.002	NA	NA	
	Walleye	mg/kg	ww	11	5	45.5	0.00126	0.0039	0.001	0.002	NA	NA	
Zirconium	Burbot	mg/kg	ww	6	1	16.7	0.0427	0.0427	0.0058	0.0118	NA	NA	
	Kokanee	mg/kg	ww	6	3	50	0.00794	0.0159	0.00452	0.00597	NA	NA	
	Lake whitefish	mg/kg	ww	4	2	50	0.00981	0.029	0.00335	0.00585	NA	NA	
	Largescale sucker	mg/kg	ww	8	6	75	0.00157	0.0278	0.00845	0.00881	NA	NA	
	Longnose sucker	mg/kg	ww	4	2	50	0.0441	0.0718	0.0029	0.00387	NA	NA	
	Rainbow trout	mg/kg	ww	6	4	66.7	0.0033	0.36	0.00269	0.00292	NA	NA	
	Sculpin	mg/kg	ww	1	1	100	0.017	0.017	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	ww	12	11	91.7	0.00273	0.0211	0.00255	0.00255	NA	NA	
	Walleye	mg/kg	ww	11	6	54.5	0.00192	0.0892	0.001	0.00405	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Conventionals													
Ash-free dry weight	Largescale sucker	percent	ww	1	1	100	67.55	67.55	NA	NA	NA	NA	
Fluoride	Burbot	mg/kg	ww	17	0	0	NA	NA	0.2	0.263	NA	NA	
	Kokanee	mg/kg	ww	22	0	0	NA	NA	0.1	0.248	NA	NA	
	Lake whitefish	mg/kg	ww	10	0	0	NA	NA	0.15	0.336	NA	NA	
	Largescale sucker	mg/kg	ww	19	0	0	NA	NA	0.1	0.618	NA	NA	
	Longnose sucker	mg/kg	ww	6	0	0	NA	NA	0.2	0.6	NA	NA	
	Rainbow trout	mg/kg	ww	19	0	0	NA	NA	0.1	0.439	NA	NA	
	Sculpin	mg/kg	ww	3	0	0	NA	NA	0.5	0.7	NA	NA	
	Smallmouth bass	mg/kg	ww	20	0	0	NA	NA	0.137	0.4	NA	NA	
	Walleye	mg/kg	ww	25	0	0	NA	NA	0.1	0.3	NA	NA	
	Yellow perch	mg/kg	ww	3	0	0	NA	NA	0.3	0.3	NA	NA	
Lipids	Burbot	percent	ww	31	31	100	0.6	3.28	NA	NA	NA	NA	
	Kokanee	percent	ww	22	22	100	3.28	6.99	NA	NA	NA	NA	
	Lake whitefish	percent	ww	22	22	100	9.36	15.9	NA	NA	NA	NA	
	Largescale sucker	percent	ww	33	33	100	4.1	14	NA	NA	NA	NA	
	Longnose sucker	percent	ww	7	7	100	3.1	10	NA	NA	NA	NA	
	Rainbow trout	percent	ww	35	35	100	3.86	10.9	NA	NA	NA	NA	
	Sculpin	percent	ww	1	1	100	3.4	3.4	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	20	20	100	3.8	6.79	NA	NA	NA	NA	
	Walleye	percent	ww	50	49	98	1.8	10.8	5.1	5.1	NA	NA	
	Yellow perch	percent	ww	3	3	100	2.77	4.1	NA	NA	NA	NA	
Total moisture	Burbot	percent	ww	31	31	100	76.4	80.6	NA	NA	NA	NA	
	Kokanee	percent	ww	22	22	100	69.7	76.9	NA	NA	NA	NA	
	Lake whitefish	percent	ww	22	22	100	63.5	70.1	NA	NA	NA	NA	
	Largescale sucker	percent	ww	34	34	100	65.6	76.6	NA	NA	NA	NA	
	Longnose sucker	percent	ww	7	7	100	63.5	77	NA	NA	NA	NA	
	Rainbow trout	percent	ww	35	35	100	66.7	75.1	NA	NA	NA	NA	
	Sculpin	percent	ww	3	3	100	74.6	75.6	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	20	20	100	69.3	75.4	NA	NA	NA	NA	
	Walleye	percent	ww	40	40	100	67.1	76.8	NA	NA	NA	NA	
	Yellow perch	percent	ww	3	3	100	73.9	74.6	NA	NA	NA	NA	
Total solids	Burbot	percent	ww	31	31	100	19.4	23.6	NA	NA	NA	NA	
	Kokanee	percent	ww	22	22	100	23.1	30.3	NA	NA	NA	NA	
	Lake whitefish	percent	ww	22	22	100	29.9	36.5	NA	NA	NA	NA	
	Largescale sucker	percent	ww	34	34	100	23.4	34.4	NA	NA	NA	NA	
	Longnose sucker	percent	ww	7	7	100	23	36.5	NA	NA	NA	NA	
	Rainbow trout	percent	ww	35	35	100	24.9	33.3	NA	NA	NA	NA	
	Sculpin	percent	ww	3	3	100	24.4	25.4	NA	NA	NA	NA	
	Smallmouth bass	percent	ww	20	20	100	24.6	30.7	NA	NA	NA	NA	
	Walleye	percent	ww	40	40	100	23.2	32.9	NA	NA	NA	NA	
	Yellow perch	percent	ww	3	3	100	25.4	26.1	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs													
1,1'-Biphenyl	Burbot	µg/kg	ww	6	1	16.7	0.508	0.508	0.43	0.522	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.45	0.589	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.403	0.86	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.25	0.955	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.577	0.577	0.24	0.67	NA	NA	
	Rainbow trout	µg/kg	ww	6	1	16.7	0.999	0.999	1.09	2.29	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.7	0.7	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.15	1.15	0.433	0.73	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.47	0.982	NA	NA	
1,2,4-Trichlorobenzene	Burbot	µg/kg	ww	6	0	0	NA	NA	6.3	6.3	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	6.3	6.3	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	6.3	6.3	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	6.3	6.3	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	6.3	6.3	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	6.3	6.3	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	6.3	6.3	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	6.3	6.3	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	6.3	6.3	NA	NA	
4-Bromophenyl-phenylether	Burbot	µg/kg	ww	6	1	16.7	3.01	3.01	4.1	4.1	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	4.1	4.1	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	4.1	4.1	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	4.1	4.1	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	4.1	4.1	NA	NA	
	Rainbow trout	µg/kg	ww	6	1	16.7	3.96	3.96	4.1	4.1	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	4.1	4.1	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	4.1	4.1	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	4.1	4.1	NA	NA	
4-Chlorophenyl-phenyl ether	Burbot	µg/kg	ww	6	0	0	NA	NA	4.9	9.02	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	6.14	9.36	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	4.6	4.6	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	4.6	4.6	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	4.6	4.6	NA	NA	
	Rainbow trout	µg/kg	ww	6	1	16.7	7.52	7.52	4.6	4.6	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	4.6	4.6	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	5.87	5.87	4.6	10.6	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	4.6	4.6	NA	NA	
Benzyl n-butyl phthalate	Burbot	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	210	210	NC	210	U
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	210	210	NC	210	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	210	210	NC	210	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	210	210	NC	210	U

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SVOCs (continued)													
bis(2-Ethylhexyl)phthalate	Burbot	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	210	210	NC	210	U
	Lake whitefish	µg/kg	ww	4	2	50	188	210	210	210	NC	210	M
	Largescale sucker	µg/kg	ww	8	2	25	192	484	210	210	NC	484	M
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	210	210	NC	210	U
	Rainbow trout	µg/kg	ww	6	1	16.7	164	164	210	210	NC	164	M
	Sculpin	µg/kg	ww	1	0	0	NA	NA	210	210	NC	210	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	210	2120	NC	2120	U
	Walleye	µg/kg	ww	9	1	11.1	1700	1700	210	210	NC	1700	M
Dibenzofuran	Burbot	µg/kg	ww	6	1	16.7	3.75	3.75	4.4	4.4	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	4.4	4.4	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	4.4	4.4	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	4.4	4.4	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	4.4	4.4	NA	NA	
	Rainbow trout	µg/kg	ww	6	1	16.7	3.55	3.55	4.4	4.4	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	4.4	4.4	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	4.4	4.4	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	4.4	4.4	NA	NA	
Di-n-butyl phthalate	Burbot	µg/kg	ww	6	3	50	42.8	82.5	101	287	NC	82.5	M
	Kokanee	µg/kg	ww	6	0	0	NA	NA	345	1600	NC	1600	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	594	5540	NC	5540	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	38.7	779	NC	779	U
	Longnose sucker	µg/kg	ww	4	2	50	76.3	114	280	320	NC	114	M
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	331	5940	NC	5940	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	83	83	NC	83	U
	Smallmouth bass	µg/kg	ww	12	1	8.3	2180	2180	40.2	3960	NC	2180	M
	Walleye	µg/kg	ww	9	4	44.4	13.9	313	81	1700	NC	313	M
Di-n-octylphthalate	Burbot	µg/kg	ww	6	6	100	10.4	25.5	NA	NA	24.4	24.4	
	Kokanee	µg/kg	ww	6	6	100	12.6	48.8	NA	NA	41.6	41.6	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	9	9	NC	9	U
	Largescale sucker	µg/kg	ww	8	1	12.5	63.3	63.3	9	9	NC	63.3	M
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	9	9	NC	9	U
	Rainbow trout	µg/kg	ww	6	1	16.7	50.6	50.6	9	9	NC	50.6	M
	Sculpin	µg/kg	ww	1	0	0	NA	NA	9	9	NC	9	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	9	9	NC	9	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	9	9	NC	9	U
Hexachlorocyclopentadiene	Burbot	µg/kg	ww	6	0	0	NA	NA	300	300	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	300	300	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	300	300	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	300	350	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	350	350	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	300	300	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	350	350	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	300	350	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	300	350	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
SVOCs (continued)													
Hexachloroethane	Burbot	µg/kg	ww	6	0	0	NA	NA	16	16	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	16	16	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	16	16	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	16	16	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	16	16	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	16	16	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	16	16	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	16	16	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	16	16	NA	NA	
Pentachlorophenol	Burbot	µg/kg	ww	6	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	4.5	11	NC	11	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	4.5	4.5	NC	4.5	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	4.5	4.5	NC	4.5	U
Pesticides													
2,4'-DDD	Burbot	µg/kg	ww	6	0	0	NA	NA	0.73	0.73	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	2.13	4.19	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	2	2	0.73	2.21	NA	NA	
	Largescale sucker	µg/kg	ww	8	3	37.5	1.37	3.18	0.73	2.63	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.76	0.76	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	2	5.15	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.73	0.73	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.73	3.7	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.701	0.701	0.73	3.7	NA	NA	
2,4'-DDE	Burbot	µg/kg	ww	6	1	16.7	0.569	0.569	0.37	0.783	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.09	2.18	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	0.555	0.555	1.11	2.57	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.37	2.07	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.37	0.74	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.02	2.62	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.37	0.37	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.37	1.9	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.37	2.78	NA	NA	
2,4'-DDT	Burbot	µg/kg	ww	6	6	100	0.362	2.8	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	4	66.7	0.474	0.916	1.1	1.17	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	0.761	3.17	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	5	62.5	0.586	8.4	0.16	3.81	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.406	2.24	0.99	0.99	NA	NA	
	Rainbow trout	µg/kg	ww	6	5	83.3	0.462	5.17	0.908	0.908	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.29	0.29	NA	NA	
	Smallmouth bass	µg/kg	ww	12	7	58.3	0.49	2.32	0.29	1.36	NA	NA	
	Walleye	µg/kg	ww	9	8	88.9	0.844	4.51	0.651	0.651	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
4,4'-DDD	Burbot	µg/kg	ww	6	3	50	0.823	1.04	0.55	0.743	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.61	3.16	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	0.901	1.06	1.64	1.64	NA	NA	
	Largescale sucker	µg/kg	ww	8	6	75	1.33	2.74	0.55	0.55	NA	NA	
	Longnose sucker	µg/kg	ww	4	2	50	0.731	0.907	0.55	1.1	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.25	3.89	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.55	0.55	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.55	2.8	NA	NA	
	Walleye	µg/kg	ww	9	2	22.2	0.619	0.777	0.55	2.8	NA	NA	
4,4'-DDE	Burbot	µg/kg	ww	6	6	100	4.27	9.01	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	2.26	5.49	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	2.05	10.1	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	1.1	42.9	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	1.6	7.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	2.95	12.6	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	2	2	NA	NA	
	Smallmouth bass	µg/kg	ww	12	8	66.7	1.5	12.1	2	2.3	NA	NA	
	Walleye	µg/kg	ww	9	9	100	3.3	9.83	NA	NA	NA	NA	
4,4'-DDT	Burbot	µg/kg	ww	6	3	50	2.04	2.23	1.11	1.91	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	1.65	1.65	1.44	2.82	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	2.28	3.7	1.71	1.71	NA	NA	
	Largescale sucker	µg/kg	ww	8	6	75	5.45	10.3	0.49	0.672	NA	NA	
	Longnose sucker	µg/kg	ww	4	2	50	0.435	2.41	0.49	0.98	NA	NA	
	Rainbow trout	µg/kg	ww	6	2	33.3	1.74	1.76	1.13	6.22	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.49	0.49	NA	NA	
	Smallmouth bass	µg/kg	ww	12	6	50	0.99	1.94	0.52	2.5	NA	NA	
	Walleye	µg/kg	ww	9	4	44.4	2.35	3.33	1.36	2.5	NA	NA	
Aldrin	Burbot	µg/kg	ww	6	2	33.3	1.06	2.05	0.954	1.27	NC	2.05	M
	Kokanee	µg/kg	ww	6	1	16.7	3.73	3.73	2.14	4.25	NC	3.73	M
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	1.06	3.34	NC	3.34	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.74	2.63	NC	2.63	U
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.74	1.5	NC	1.5	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.7	5.19	NC	5.19	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.74	0.74	NC	0.74	U
	Smallmouth bass	µg/kg	ww	12	4	33.3	2.47	9.31	0.74	3.7	NC	9.31	M
	Walleye	µg/kg	ww	9	1	11.1	1.93	1.93	0.74	3.7	NC	1.93	M
alpha-Chlordane	Burbot	µg/kg	ww	6	5	83.3	0.211	0.365	0.25	0.25	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	1.72	1.72	0.747	1.44	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	0.826	0.826	0.662	2.51	NA	NA	
	Largescale sucker	µg/kg	ww	8	5	62.5	0.399	1.35	0.25	0.915	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.78	0.78	0.25	0.5	NA	NA	
	Rainbow trout	µg/kg	ww	6	2	33.3	1.31	2.08	0.57	1.31	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.25	0.25	NA	NA	
	Smallmouth bass	µg/kg	ww	12	3	25	0.42	1.2	0.25	1.3	NA	NA	
	Walleye	µg/kg	ww	9	4	44.4	0.284	1.2	0.25	1.3	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Chlordane	Burbot	µg/kg	ww	6	0	0	NA	NA	5.62	13.6	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	10	40.2	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	11.6	29.9	NA	NA	
	Largescale sucker	µg/kg	ww	8	1	12.5	16.4	16.4	3.3	27.1	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	7	17	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	9.63	45.9	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	11	11	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	5.2	24.3	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	3.3	22.7	NA	NA	
cis-Nonachlor	Burbot	µg/kg	ww	6	0	0	NA	NA	0.29	0.949	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.862	1.67	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	0.57	0.57	0.759	0.95	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.29	3.3	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.838	0.838	0.29	0.653	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.806	2.06	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.29	0.29	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.29	1.5	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.29	1.5	NA	NA	
delta-BHC	Burbot	µg/kg	ww	6	1	16.7	0.225	0.225	0.2	0.259	NC	0.225	M
	Kokanee	µg/kg	ww	6	1	16.7	1.71	1.71	0.591	4.39	NC	1.71	M
	Lake whitefish	µg/kg	ww	4	1	25	0.664	0.664	0.588	2.48	NC	0.664	M
	Largescale sucker	µg/kg	ww	8	2	25	0.84	0.867	0.2	1.31	NC	0.867	M
	Longnose sucker	µg/kg	ww	4	1	25	0.367	0.367	0.4	0.625	NC	0.367	M
	Rainbow trout	µg/kg	ww	6	1	16.7	2.63	2.63	0.456	1.09	NC	2.63	M
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.38	0.38	NC	0.38	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.2	2.83	NC	2.83	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.2	1	NC	1	U
Dieldrin	Burbot	µg/kg	ww	6	3	50	0.173	0.299	0.2	0.342	NC	0.299	M
	Kokanee	µg/kg	ww	6	2	33.3	0.358	0.595	0.645	1.15	NC	0.595	M
	Lake whitefish	µg/kg	ww	4	3	75	0.269	1.23	0.588	0.588	NC	1.23	M
	Largescale sucker	µg/kg	ww	8	1	12.5	0.395	0.395	0.2	1.36	NC	0.395	M
	Longnose sucker	µg/kg	ww	4	2	50	0.237	0.77	0.217	0.22	NC	0.77	M
	Rainbow trout	µg/kg	ww	6	1	16.7	0.525	0.525	0.57	1.4	NC	0.525	M
	Sculpin	µg/kg	ww	1	1	100	0.28	0.28	NA	NA	NC	0.28	M
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.2	1	NC	1	U
	Walleye	µg/kg	ww	9	1	11.1	0.17	0.17	0.2	1	NC	0.17	M
Endosulfan sulfate	Burbot	µg/kg	ww	6	0	0	NA	NA	0.53	0.53	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.56	3.05	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	0.556	0.556	1.56	1.61	NA	NA	
	Largescale sucker	µg/kg	ww	2	0	0	NA	NA	0.898	0.898	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.24	3.74	NA	NA	
	Smallmouth bass	µg/kg	ww	7	0	0	NA	NA	0.53	1.77	NA	NA	
	Walleye	µg/kg	ww	8	1	12.5	0.43	0.43	0.53	1.69	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Endrin	Burbot	µg/kg	ww	6	0	0	NA	NA	0.28	0.667	NC	0.667	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.81	1.61	NC	1.61	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.28	0.838	NC	0.838	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.28	0.996	NC	0.996	U
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.28	0.56	NC	0.56	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.672	1.96	NC	1.96	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.28	0.28	NC	0.28	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.28	1.4	NC	1.4	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.28	1.4	NC	1.4	U
Endrin aldehyde	Burbot	µg/kg	ww	6	0	0	NA	NA	0.62	0.62	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.79	3.56	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.62	1.86	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.62	2.21	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.594	0.594	0.62	1.3	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.42	4.35	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.62	0.62	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.62	3.1	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.62	3.1	NA	NA	
Endrin ketone	Burbot	µg/kg	ww	6	0	0	NA	NA	0.39	0.913	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.15	2.24	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.39	1.19	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.39	1.42	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.39	0.78	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.906	3	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.39	0.39	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.39	2	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.39	2.79	NA	NA	
gamma-Chlordane	Burbot	µg/kg	ww	6	5	83.3	0.222	0.823	0.687	0.687	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	0.49	0.49	0.752	1.49	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	0.48	0.582	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	6	75	0.613	2.34	0.26	0.26	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.244	0.244	0.26	0.52	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.618	1.82	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.26	0.26	NA	NA	
	Smallmouth bass	µg/kg	ww	12	2	16.7	0.467	0.485	0.26	1.3	NA	NA	
	Walleye	µg/kg	ww	9	4	44.4	0.396	0.929	0.26	1.3	NA	NA	
Heptachlor	Burbot	µg/kg	ww	6	2	33.3	0.413	0.889	0.27	0.401	NC	0.889	M
	Kokanee	µg/kg	ww	6	2	33.3	4.28	4.98	0.823	3.12	NC	4.98	M
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.808	2.95	NC	2.95	U
	Largescale sucker	µg/kg	ww	8	5	62.5	0.266	2.35	0.985	1.71	NC	2.35	M
	Longnose sucker	µg/kg	ww	4	2	50	0.287	0.488	0.5	0.73	NC	0.488	M
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.673	4.9	NC	4.9	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.27	0.27	NC	0.27	U
	Smallmouth bass	µg/kg	ww	12	1	8.3	0.79	0.79	0.27	1.4	NC	0.79	M
	Walleye	µg/kg	ww	9	3	33.3	0.415	1.08	0.27	1.4	NC	1.08	M

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

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Pesticides (continued)													
Heptachlor epoxide	Burbot	µg/kg	ww	6	0	0	NA	NA	0.18	0.642	NC	0.642	U
	Kokanee	µg/kg	ww	6	1	16.7	1.21	1.21	0.52	1.03	NC	1.21	M
	Lake whitefish	µg/kg	ww	4	1	25	0.357	0.357	0.18	0.539	NC	0.357	M
	Largescale sucker	µg/kg	ww	8	3	37.5	0.31	1.06	0.18	0.927	NC	1.06	M
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.18	0.624	NC	0.624	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.466	1.81	NC	1.81	U
	Sculpin	µg/kg	ww	1	1	100	0.29	0.29	NA	NA	NC	0.29	M
	Smallmouth bass	µg/kg	ww	12	3	25	0.314	0.537	0.18	0.9	NC	0.537	M
	Walleye	µg/kg	ww	9	2	22.2	0.681	1.1	0.18	0.951	NC	1.1	M
Hexachlorobenzene	Burbot	µg/kg	ww	6	1	16.7	2.56	2.56	0.37	1.01	NC	2.56	M
	Kokanee	µg/kg	ww	6	6	100	0.86	3.41	NA	NA	2.48	2.48	
	Lake whitefish	µg/kg	ww	4	4	100	1.18	2.71	NA	NA	NC	2.71	M
	Largescale sucker	µg/kg	ww	8	8	100	0.854	12.2	NA	NA	6.41	6.41	
	Longnose sucker	µg/kg	ww	4	3	75	0.808	1.8	0.99	0.99	NC	1.8	M
	Rainbow trout	µg/kg	ww	6	5	83.3	2.64	4.06	8.16	8.16	NC	4.06	M
	Sculpin	µg/kg	ww	1	1	100	1.7	1.7	NA	NA	NC	1.7	M
	Smallmouth bass	µg/kg	ww	12	4	33.3	0.72	5.48	0.72	2.56	NC	5.48	M
	Walleye	µg/kg	ww	9	2	22.2	0.998	2.9	0.37	4.24	NC	2.9	M
Hexachlorobutadiene	Burbot	µg/kg	ww	6	0	0	NA	NA	0.675	0.704	NC	0.704	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.5	2.92	NC	2.92	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	1.2	2.54	NC	2.54	U
	Largescale sucker	µg/kg	ww	8	1	12.5	1.33	1.33	0.3	3.21	NC	1.33	M
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.3	0.925	NC	0.925	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.38	6.87	NC	6.87	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	1	1	NC	1	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.3	1.64	NC	1.64	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.675	2.75	NC	2.75	U
Methoxychlor	Burbot	µg/kg	ww	6	0	0	NA	NA	0.48	0.764	NC	0.764	U
	Kokanee	µg/kg	ww	6	0	0	NA	NA	1.39	2.76	NC	2.76	U
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.48	1.44	NC	1.44	U
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.48	1.71	NC	1.71	U
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.48	0.96	NC	0.96	U
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.13	3.36	NC	3.36	U
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.48	0.48	NC	0.48	U
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.48	2.4	NC	2.4	U
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.48	2.4	NC	2.4	U
Oxychlordane	Burbot	µg/kg	ww	6	1	16.7	0.412	0.412	0.39	0.445	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	1.59	1.59	1.15	2.24	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	1.21	1.21	1.17	1.82	NA	NA	
	Largescale sucker	µg/kg	ww	8	3	37.5	1.72	3.36	0.39	1.42	NA	NA	
	Longnose sucker	µg/kg	ww	4	2	50	1.36	1.66	0.39	0.78	NA	NA	
	Rainbow trout	µg/kg	ww	6	1	16.7	2.34	2.34	1.08	2.04	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.39	0.39	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.39	3.2	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.445	0.445	0.39	2	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Total chlordane, 0 DL	Burbot	µg/kg	ww	6	6	100	0.498	1.68	NA	NA	1.39	1.39	
	Kokanee	µg/kg	ww	6	2	33.3	1.76	3.8	1.15	2.24	NC	3.8	M
	Lake whitefish	µg/kg	ww	4	4	100	1.04	3.24	NA	NA	NC	3.24	M
	Largescale sucker	µg/kg	ww	8	7	87.5	0.437	4.11	0.39	0.39	3.26	3.26	
	Longnose sucker	µg/kg	ww	4	3	75	0.78	2.41	0.78	0.78	NC	2.41	M
	Rainbow trout	µg/kg	ww	6	2	33.3	1.35	3.64	1.08	2.04	NC	3.64	M
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.39	0.39	NC	0.39	U
	Smallmouth bass	µg/kg	ww	12	5	41.7	0.446	1.46	0.39	3.2	NC	1.46	M
	Walleye	µg/kg	ww	9	5	55.6	1.12	2.1	0.39	2	NC	2.1	M
Total chlordane, 1/2 DL	Burbot	µg/kg	ww	6	6	100	1.05	2.23	NA	NA	2.01	2.01	
	Kokanee	µg/kg	ww	6	2	33.3	4.47	5.21	1.15	2.24	NC	5.21	M
	Lake whitefish	µg/kg	ww	4	4	100	2.03	4.03	NA	NA	NC	4.03	M
	Largescale sucker	µg/kg	ww	8	7	87.5	1.15	5.65	0.39	0.39	7.22	5.65	
	Longnose sucker	µg/kg	ww	4	3	75	1.75	2.76	0.78	0.78	NC	2.76	M
	Rainbow trout	µg/kg	ww	6	2	33.3	3.77	7.32	1.08	2.04	NC	7.32	M
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.39	0.39	NC	0.39	U
	Smallmouth bass	µg/kg	ww	12	5	41.7	1.12	3	0.39	3.2	NC	3	M
	Walleye	µg/kg	ww	9	5	55.6	1.52	3.03	0.39	2	NC	3.03	M
Total DDD, 0 DL	Burbot	µg/kg	ww	6	3	50	0.86	1.07	0.73	0.821	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	2.13	4.19	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	0.901	2.21	2.17	2.17	NA	NA	
	Largescale sucker	µg/kg	ww	8	6	75	1.61	5.8	0.73	0.831	NA	NA	
	Longnose sucker	µg/kg	ww	4	2	50	0.771	1.51	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	2	5.15	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.73	0.73	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.73	3.7	NA	NA	
	Walleye	µg/kg	ww	9	3	33.3	0.66	0.819	0.73	3.7	NA	NA	
Total DDD, 1/2 DL	Burbot	µg/kg	ww	6	3	50	1.08	1.29	0.73	0.821	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	2.13	4.19	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	1.27	3.07	2.17	2.17	NA	NA	
	Largescale sucker	µg/kg	ww	8	6	75	1.75	5.93	0.73	0.831	NA	NA	
	Longnose sucker	µg/kg	ww	4	2	50	0.976	1.67	0.73	1.5	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	2	5.15	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.73	0.73	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.73	3.7	NA	NA	
	Walleye	µg/kg	ww	9	3	33.3	0.88	1.2	0.73	3.7	NA	NA	
Total DDE, 0 DL	Burbot	µg/kg	ww	6	6	100	4.27	9.01	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	2.26	5.49	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	2.05	10.1	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	1.1	42.9	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	1.6	7.2	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	2.95	12.6	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	2	2	NA	NA	
	Smallmouth bass	µg/kg	ww	12	8	66.7	1.5	12.1	2	2.3	NA	NA	
	Walleye	µg/kg	ww	9	9	100	3.3	9.83	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Total DDE, 1/2 DL	Burbot	µg/kg	ww	6	6	100	4.57	9.44	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	2.81	6.24	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	2.14	11.4	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	1.29	43.1	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	1.97	7.45	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	3.51	13.9	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	2	2	NA	NA	
	Smallmouth bass	µg/kg	ww	12	8	66.7	1.69	12.8	2	2.3	NA	NA	
	Walleye	µg/kg	ww	9	9	100	3.49	10.2	NA	NA	NA	NA	
Total DDT, 0 DL	Burbot	µg/kg	ww	6	6	100	1.29	4.31	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	4	66.7	0.876	1.84	2.64	2.84	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	1.17	6.87	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	7	87.5	0.586	17.5	0.49	0.49	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.706	4.66	0.99	0.99	NA	NA	
	Rainbow trout	µg/kg	ww	6	5	83.3	0.753	5.83	1.69	1.69	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.49	0.49	NA	NA	
	Smallmouth bass	µg/kg	ww	12	7	58.3	0.49	4.15	0.52	2.5	NA	NA	
	Walleye	µg/kg	ww	9	8	88.9	1.31	7.71	1.43	1.43	NA	NA	
Total DDT, 1/2 DL	Burbot	µg/kg	ww	6	6	100	1.75	4.41	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	4	66.7	1	1.93	2.64	2.84	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	1.42	6.87	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	7	87.5	0.726	17.5	0.49	0.49	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.706	4.66	0.99	0.99	NA	NA	
	Rainbow trout	µg/kg	ww	6	5	83.3	0.951	7.98	1.69	1.69	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.49	0.49	NA	NA	
	Smallmouth bass	µg/kg	ww	12	7	58.3	0.83	4.26	0.52	2.5	NA	NA	
	Walleye	µg/kg	ww	9	8	88.9	1.42	7.84	1.43	1.43	NA	NA	
Total DDx, 0 DL	Burbot	µg/kg	ww	6	6	100	5.07	11.9	NA	NA	11.7	11.7	
	Kokanee	µg/kg	ww	6	6	100	2.54	5.9	NA	NA	4.95	4.95	
	Lake whitefish	µg/kg	ww	4	4	100	2.85	19.2	NA	NA	NC	19.2	M
	Largescale sucker	µg/kg	ww	8	8	100	1.1	57.1	NA	NA	46.5	46.5	
	Longnose sucker	µg/kg	ww	4	4	100	2.48	13.4	NA	NA	NC	13.4	M
	Rainbow trout	µg/kg	ww	6	6	100	3.11	17.4	NA	NA	11.4	11.4	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	2	2	NC	2	U
	Smallmouth bass	µg/kg	ww	12	10	83.3	1.15	16.3	2.1	3.7	10.6	10.6	
	Walleye	µg/kg	ww	9	9	100	4.82	15.3	NA	NA	12.1	12.1	
Total DDx, 1/2 DL	Burbot	µg/kg	ww	6	6	100	6.73	13.9	NA	NA	13	13	
	Kokanee	µg/kg	ww	6	6	100	5.87	10.3	NA	NA	10.5	10.3	
	Lake whitefish	µg/kg	ww	4	4	100	3.53	21.3	NA	NA	NC	21.3	M
	Largescale sucker	µg/kg	ww	8	8	100	2.25	59.3	NA	NA	49	49	
	Longnose sucker	µg/kg	ww	4	4	100	4.57	13.8	NA	NA	NC	13.8	M
	Rainbow trout	µg/kg	ww	6	6	100	6.41	26.7	NA	NA	18.3	18.3	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	2	2	NC	2	U
	Smallmouth bass	µg/kg	ww	12	10	83.3	3.16	19.1	2.1	3.7	10	10	
	Walleye	µg/kg	ww	9	9	100	6.9	18.8	NA	NA	15	15	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Pesticides (continued)													
Toxaphene	Burbot	µg/kg	ww	6	0	0	NA	NA	13.6	33.2	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	38.4	76.8	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	38.9	133	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	24.1	125	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	27	46.8	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	35.2	136	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	21	21	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	21.9	65	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	22	76.2	NA	NA	
trans-Nonachlor	Burbot	µg/kg	ww	6	3	50	0.621	1.15	0.662	0.679	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	2.23	2.23	0.804	1.55	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	0.848	1.56	2.87	2.87	NA	NA	
	Largescale sucker	µg/kg	ww	8	5	62.5	0.521	1.08	0.27	0.985	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.342	0.342	0.27	0.99	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.752	1.92	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.27	0.27	NA	NA	
	Smallmouth bass	µg/kg	ww	12	2	16.7	0.435	1.03	0.27	1.4	NA	NA	
	Walleye	µg/kg	ww	9	3	33.3	0.489	1.23	0.27	1.4	NA	NA	
PAHs													
2-Methylnaphthalene	Burbot	µg/kg	ww	6	6	100	0.308	2.11	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	4	66.7	0.605	1.47	0.555	0.557	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	0.604	1.21	0.56	0.56	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	0.627	3.68	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	0.874	2.8	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	3	50	2.48	4.04	0.462	0.504	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	8.5	8.5	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	9	75	0.506	11	0.309	1.6	NA	NA	
	Walleye	µg/kg	ww	9	6	66.7	0.671	13	0.5	0.959	NA	NA	
Acenaphthene	Burbot	µg/kg	ww	6	3	50	0.205	0.338	0.391	0.673	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	0.0597	0.158	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	2	50	0.208	0.342	0.0847	0.285	NA	NA	
	Largescale sucker	µg/kg	ww	8	7	87.5	0.12	1.76	0.26	0.26	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.87	1.36	0.11	0.11	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	0.194	0.286	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	0.75	0.75	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	10	83.3	0.107	2.04	0.052	0.052	NA	NA	
	Walleye	µg/kg	ww	9	7	77.8	0.115	0.44	0.052	0.338	NA	NA	
Acenaphthylene	Burbot	µg/kg	ww	6	5	83.3	0.193	0.763	0.047	0.047	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	0.0974	0.771	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	2	50	0.572	1.86	0.0735	0.36	NA	NA	
	Largescale sucker	µg/kg	ww	8	4	50	0.162	1.65	0.131	0.24	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.145	0.73	0.094	0.094	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	0.259	2.38	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	3.7	3.7	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	8	66.7	0.123	3.5	0.047	0.166	NA	NA	
	Walleye	µg/kg	ww	9	7	77.8	0.101	4.2	0.18	0.299	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs													
Anthracene	Burbot	µg/kg	ww	6	2	33.3	0.263	0.282	0.19	0.19	NA	NA	
	Kokanee	µg/kg	ww	6	2	33.3	0.237	1.45	0.19	0.986	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	2.67	2.67	0.402	8.19	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.19	4.6	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	3.32	3.32	0.38	8.9	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	3.65	9	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.38	0.38	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.46	4.09	NA	NA	
	Walleye	µg/kg	ww	9	3	33.3	0.43	5.15	0.19	1.25	NA	NA	
Benzo(a)anthracene	Burbot	µg/kg	ww	6	1	16.7	1.63	1.63	0.16	0.16	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.16	1.02	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.25	9.6	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.16	1.09	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.32	0.8	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.858	8.62	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.32	0.32	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.16	4.98	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.16	10.4	NA	NA	
Benzo(a)pyrene	Burbot	µg/kg	ww	6	0	0	NA	NA	0.061	0.061	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.061	0.061	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.0999	0.335	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.061	0.415	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.061	0.31	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.28	0.61	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.13	0.13	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.061	0.795	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.061	0.363	NA	NA	
Benzo(b)fluoranthene	Burbot	µg/kg	ww	6	1	16.7	1.79	1.79	0.14	0.14	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.14	0.14	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.219	0.768	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.14	0.953	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.686	0.686	0.14	0.7	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.643	1.4	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.28	0.28	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.84	1.84	0.14	1.72	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.802	0.802	0.14	0.824	NA	NA	
Benzo(g,h,i)perylene	Burbot	µg/kg	ww	6	1	16.7	1.34	1.34	0.058	0.058	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.058	0.058	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.093	0.318	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.058	0.395	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.51	0.51	0.058	0.95	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.266	0.58	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.12	0.12	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.82	1.82	0.058	0.735	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.674	0.674	0.058	0.342	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Benzo(k)fluoranthene	Burbot	µg/kg	ww	6	1	16.7	1.82	1.82	0.092	0.092	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.092	0.092	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.147	0.505	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.092	0.626	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.534	0.534	0.092	0.46	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.422	0.92	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.19	0.19	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.67	1.67	0.092	1.16	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.626	0.626	0.092	0.542	NA	NA	
Chrysene	Burbot	µg/kg	ww	6	1	16.7	2.06	2.06	0.2	0.2	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.2	2.1	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.313	2.77	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.2	1.36	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.4	1	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	1.7	2.67	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.4	0.4	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.2	5.06	NA	NA	
	Walleye	µg/kg	ww	9	0	0	NA	NA	0.2	1.99	NA	NA	
Dibenzo(a,h)anthracene	Burbot	µg/kg	ww	6	1	16.7	1.4	1.4	0.045	0.045	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.045	0.045	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.0704	0.247	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.045	0.306	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.511	0.511	0.045	0.93	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.207	0.45	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.09	0.09	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.6	1.6	0.045	0.552	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.836	0.836	0.045	0.265	NA	NA	
Fluoranthene	Burbot	µg/kg	ww	6	1	16.7	1.25	1.25	0.15	0.15	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	0.149	0.149	0.15	0.391	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.235	1	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.15	1.02	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.3	1.2	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.689	0.805	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.3	0.3	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	0.299	0.299	0.15	2.23	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.713	0.713	0.15	2.65	NA	NA	
Fluorene	Burbot	µg/kg	ww	6	6	100	0.0932	0.453	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	5	83.3	0.115	0.395	0.095	0.095	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	0.389	1.36	0.149	0.149	NA	NA	
	Largescale sucker	µg/kg	ww	8	7	87.5	0.252	0.906	0.48	0.48	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	0.115	0.68	0.19	0.19	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	0.4	0.891	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	0.74	0.74	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	8	66.7	0.544	2.28	0.095	2.59	NA	NA	
	Walleye	µg/kg	ww	9	6	66.7	0.19	1.4	0.095	0.095	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Indeno(1,2,3-cd)pyrene	Burbot	µg/kg	ww	6	1	16.7	1.82	1.82	0.1	0.1	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.1	0.1	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.156	0.549	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.1	0.681	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	0.675	0.675	0.1	1.2	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.459	1	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.2	0.2	NA	NA	
	Smallmouth bass	µg/kg	ww	12	1	8.3	1.78	1.78	0.1	1.23	NA	NA	
	Walleye	µg/kg	ww	9	2	22.2	0.783	1.12	0.1	0.579	NA	NA	
Naphthalene	Burbot	µg/kg	ww	6	5	83.3	0.523	2.89	0.41	0.41	NA	NA	
	Kokanee	µg/kg	ww	6	3	50	1.29	2.58	0.65	1.15	NA	NA	
	Lake whitefish	µg/kg	ww	4	1	25	1.62	1.62	1.69	4.46	NA	NA	
	Largescale sucker	µg/kg	ww	8	3	37.5	0.677	6.36	0.77	1.16	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.262	2.5	NA	NA	
	Rainbow trout	µg/kg	ww	6	3	50	3.96	5.55	1.07	4.41	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	12	12	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	7	58.3	0.979	15	0.238	2.3	NA	NA	
	Walleye	µg/kg	ww	9	5	55.6	2.66	13	0.686	1.54	NA	NA	
Phenanthrene	Burbot	µg/kg	ww	6	4	66.7	0.296	0.607	0.32	0.32	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	0.277	1	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	3	75	1.04	3.52	2.74	2.74	NA	NA	
	Largescale sucker	µg/kg	ww	8	5	62.5	0.606	3.34	1.14	1.6	NA	NA	
	Longnose sucker	µg/kg	ww	4	3	75	1.28	2.6	0.64	0.64	NA	NA	
	Rainbow trout	µg/kg	ww	6	4	66.7	4.55	5.72	2.4	7.55	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	1.2	1.2	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	6	50	0.83	1.97	0.96	3.92	NA	NA	
	Walleye	µg/kg	ww	9	8	88.9	0.265	2.41	0.44	0.44	NA	NA	
Pyrene	Burbot	µg/kg	ww	6	1	16.7	1.09	1.09	0.12	0.12	NA	NA	
	Kokanee	µg/kg	ww	6	0	0	NA	NA	0.12	0.689	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.188	0.845	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.12	0.817	NA	NA	
	Longnose sucker	µg/kg	ww	4	0	0	NA	NA	0.24	0.6	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	0.581	0.683	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.24	0.24	NA	NA	
	Smallmouth bass	µg/kg	ww	12	0	0	NA	NA	0.12	1.47	NA	NA	
	Walleye	µg/kg	ww	9	1	11.1	0.443	0.443	0.12	0.707	NA	NA	
Total HPAHs, 0 DL	Burbot	µg/kg	ww	6	1	16.7	14	14	0.2	0.2	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	0.161	0.161	0.2	2.1	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.313	9.62	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.2	1.36	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	2.59	2.59	0.4	1.2	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	2.03	9.33	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.4	0.4	NA	NA	
	Smallmouth bass	µg/kg	ww	12	2	16.7	0.37	8.69	0.2	5.1	NA	NA	
	Walleye	µg/kg	ww	9	2	22.2	0.836	4.21	0.2	7.17	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PAHs (continued)													
Total HPAHs, 1/2 DL	Burbot	µg/kg	ww	6	1	16.7	14.6	14.6	0.2	0.2	NA	NA	
	Kokanee	µg/kg	ww	6	1	16.7	0.411	0.411	0.2	2.1	NA	NA	
	Lake whitefish	µg/kg	ww	4	0	0	NA	NA	0.313	9.62	NA	NA	
	Largescale sucker	µg/kg	ww	8	0	0	NA	NA	0.2	1.36	NA	NA	
	Longnose sucker	µg/kg	ww	4	1	25	3.36	3.36	0.4	1.2	NA	NA	
	Rainbow trout	µg/kg	ww	6	0	0	NA	NA	2.03	9.33	NA	NA	
	Sculpin	µg/kg	ww	1	0	0	NA	NA	0.4	0.4	NA	NA	
	Smallmouth bass	µg/kg	ww	12	2	16.7	0.57	11.2	0.2	5.1	NA	NA	
	Walleye	µg/kg	ww	9	2	22.2	9.58	10.1	0.2	7.17	NA	NA	
Total LPAHs, 0 DL	Burbot	µg/kg	ww	6	6	100	0.681	7.11	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	0.794	5.07	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	3.24	4.97	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	2.16	11.6	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	1	7.68	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	5.45	16.8	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	26.9	26.9	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	11	91.7	1.07	30.8	4.01	4.01	NA	NA	
	Walleye	µg/kg	ww	9	9	100	1.34	34.3	NA	NA	NA	NA	
Total LPAHs, 1/2 DL	Burbot	µg/kg	ww	6	6	100	1.08	7.35	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	1.15	5.66	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	4.22	9.34	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	3.48	12.9	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	2.41	13.4	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	8.94	19	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	27.1	27.1	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	11	91.7	2.22	32.3	4.01	4.01	NA	NA	
	Walleye	µg/kg	ww	9	9	100	3.33	34.3	NA	NA	NA	NA	
Total PAHs, 0 DL	Burbot	µg/kg	ww	6	6	100	0.681	16.5	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	0.841	5.07	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	3.24	5.69	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	2.16	11.6	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	1	7.68	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	5.45	16.8	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	26.9	26.9	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	11	91.7	1.07	30.8	5.19	5.19	NA	NA	
	Walleye	µg/kg	ww	9	9	100	1.34	34.3	NA	NA	NA	NA	
Total PAHs, 1/2 DL	Burbot	µg/kg	ww	6	6	100	1.39	17.3	NA	NA	NA	NA	
	Kokanee	µg/kg	ww	6	6	100	1.45	7.35	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	4	4	100	5.1	16	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	8	8	100	4.04	16	NA	NA	NA	NA	
	Longnose sucker	µg/kg	ww	4	4	100	3.54	17.5	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	13	23.5	NA	NA	NA	NA	
	Sculpin	µg/kg	ww	1	1	100	28.2	28.2	NA	NA	NA	NA	
	Smallmouth bass	µg/kg	ww	12	11	91.7	2.5	33.4	5.19	5.19	NA	NA	
	Walleye	µg/kg	ww	9	9	100	4.88	34.8	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs													
Aroclor 1016	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	8.89	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	
Aroclor 1221	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	
Aroclor 1232	Burbot	µg/kg	ww	14	0	0	NA	NA	21	22	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	21	31	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	21	44	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	20.6	22	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	20	28	NA	NA	
Aroclor 1242	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	
Aroclor 1248	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	
Aroclor 1254	Burbot	µg/kg	ww	1	1	100	16	16	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	1	1	100	31	31	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	3	3	100	21	68	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	4.51	7.9	NA	NA	NA	NA	
	Walleye	µg/kg	ww	9	9	100	5	15	NA	NA	NA	NA	
Aroclor 1254/1260	Burbot	µg/kg	ww	13	13	100	11	58	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	11	11	100	11	38	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	11	11	100	76	164	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	10	10	100	6.3	16	NA	NA	NA	NA	
	Walleye	µg/kg	ww	6	6	100	10.5	54.8	NA	NA	NA	NA	
Aroclor 1260	Burbot	µg/kg	ww	1	1	100	17	17	NA	NA	NA	NA	
	Lake whitefish	µg/kg	ww	1	1	100	17	17	NA	NA	NA	NA	
	Largescale sucker	µg/kg	ww	3	3	100	52	78	NA	NA	NA	NA	
	Rainbow trout	µg/kg	ww	6	6	100	4.85	9.2	NA	NA	NA	NA	
	Walleye	µg/kg	ww	9	9	100	7.8	22	NA	NA	NA	NA	
Aroclor 1262	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PCBs (continued)													
Aroclor 1268	Burbot	µg/kg	ww	14	0	0	NA	NA	11	11	NA	NA	
	Lake whitefish	µg/kg	ww	12	0	0	NA	NA	11	15	NA	NA	
	Largescale sucker	µg/kg	ww	14	0	0	NA	NA	10	22	NA	NA	
	Rainbow trout	µg/kg	ww	16	0	0	NA	NA	10	11	NA	NA	
	Walleye	µg/kg	ww	15	0	0	NA	NA	9.8	14	NA	NA	
Total PCB Aroclors, 1/2 DL	Burbot	µg/kg	ww	14	14	100	55	102	NA	NA	75	75	
	Lake whitefish	µg/kg	ww	12	12	100	65.7	91.5	NA	NA	84.2	84.2	
	Largescale sucker	µg/kg	ww	14	14	100	114	248	NA	NA	209	209	
	Rainbow trout	µg/kg	ww	16	16	100	46.8	61.1	NA	NA	55.2	55.2	
	Walleye	µg/kg	ww	15	15	100	61.5	111	NA	NA	83.1	83.1	
Total PCB Aroclors, 0 DL	Burbot	µg/kg	ww	14	14	100	11	58	NA	NA	31.7	31.7	
	Lake whitefish	µg/kg	ww	12	12	100	11	48	NA	NA	30.7	30.7	
	Largescale sucker	µg/kg	ww	14	14	100	73	164	NA	NA	131	131	
	Rainbow trout	µg/kg	ww	16	16	100	6.3	17.1	NA	NA	12	12	
	Walleye	µg/kg	ww	15	15	100	16.4	54.8	NA	NA	30.9	30.9	
Total PCB congeners, 0 DL	Burbot	pg/g	ww	20	20	100	10900	25000	NA	NA	17900	17900	
	Kokanee	pg/g	ww	22	22	100	7080	12000	NA	NA	9550	9550	
	Lake whitefish	pg/g	ww	13	13	100	20500	47300	NA	NA	35700	35700	
	Largescale sucker	pg/g	ww	23	23	100	2690	172000	NA	NA	123000	123000	
	Longnose sucker	pg/g	ww	7	7	100	3030	34300	NA	NA	28100	28100	
	Rainbow trout	pg/g	ww	23	23	100	6160	20900	NA	NA	13200	13200	
	Sculpin	pg/g	ww	1	1	100	8660	8660	NA	NA	NC	8660	M
	Smallmouth bass	pg/g	ww	20	20	100	4130	27300	NA	NA	17400	17400	
	Walleye	pg/g	ww	28	28	100	8580	49600	NA	NA	30300	30300	
	Yellow perch	pg/g	ww	3	3	100	3250	4470	NA	NA	NC	4470	M
Total PCB congeners, 1/2 DL	Burbot	pg/g	ww	20	20	100	11100	25100	NA	NA	18000	18000	
	Kokanee	pg/g	ww	22	22	100	7180	12100	NA	NA	9630	9630	
	Lake whitefish	pg/g	ww	13	13	100	20600	47400	NA	NA	35700	35700	
	Largescale sucker	pg/g	ww	23	23	100	3190	172000	NA	NA	123000	123000	
	Longnose sucker	pg/g	ww	7	7	100	3790	34700	NA	NA	28500	28500	
	Rainbow trout	pg/g	ww	23	23	100	6250	21000	NA	NA	13300	13300	
	Sculpin	pg/g	ww	1	1	100	9070	9070	NA	NA	NC	9070	M
	Smallmouth bass	pg/g	ww	20	20	100	4610	27400	NA	NA	17600	17600	
	Walleye	pg/g	ww	28	28	100	8980	49700	NA	NA	30400	30400	
	Yellow perch	pg/g	ww	3	3	100	3780	4920	NA	NA	NC	4920	M

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans													
1,2,3,4,6,7,8-Heptachlorodibenzodioxin	Burbot	mg/kg	lipid	31	24	77.4	0.0000118	0.0000597	0.0000118	0.000103	NA	NA	
	Burbot	pg/g	ww	31	24	77.4	0.256	0.702	0.266	0.662	NA	NA	
	Kokanee	mg/kg	lipid	22	3	13.6	0.00000344	0.00000398	0.00000158	0.0000109	NA	NA	
	Kokanee	pg/g	ww	22	3	13.6	0.114	0.21	0.0936	0.392	NA	NA	
	Lake whitefish	mg/kg	lipid	22	6	27.3	0.00000193	0.00000285	0.00000328	0.0000114	NA	NA	
	Lake whitefish	pg/g	ww	22	6	27.3	0.252	0.345	0.486	1.42	NA	NA	
	Largescale sucker	mg/kg	lipid	33	8	24.2	0.00000109	0.00000363	0.00000169	0.0000211	NA	NA	
	Largescale sucker	pg/g	ww	34	9	26.5	0.121	0.316	0.203	0.864	NA	NA	
	Longnose sucker	mg/kg	lipid	7	4	57.1	0.00000103	0.00000304	0.00000413	0.0000191	NA	NA	
	Longnose sucker	pg/g	ww	7	4	57.1	0.0851	0.304	0.128	1.03	NA	NA	
	Rainbow trout	mg/kg	lipid	35	12	34.3	0.000000625	0.0000163	0.000000833	0.0000536	NA	NA	
	Rainbow trout	pg/g	ww	35	12	34.3	0.0573	0.268	0.0614	1.38	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000435	0.00000435	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.148	0.148	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	6	30	0.00000115	0.0000794	0.00000137	0.000016	NA	NA	
	Smallmouth bass	pg/g	ww	20	6	30	0.0512	3.97	0.079	0.664	NA	NA	
	Walleye	mg/kg	lipid	40	20	50	0.000000769	0.000054	0.00000216	0.0000348	NA	NA	
	Walleye	pg/g	ww	40	20	50	0.0679	0.712	0.0796	0.936	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000303	0.0000646	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.939	1.99	NA	NA	
1,2,3,4,6,7,8-Heptachlorodibenzofuran	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000465	0.0000287	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0825	0.308	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000001	0.00000476	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0661	0.238	NA	NA	
	Lake whitefish	mg/kg	lipid	22	3	13.6	0.000000316	0.000000341	0.000000497	0.00000831	NA	NA	
	Lake whitefish	pg/g	ww	22	3	13.6	0.0435	0.0462	0.0606	1.03	NA	NA	
	Largescale sucker	mg/kg	lipid	33	4	12.1	0.000000262	0.00000234	0.000000594	0.0000107	NA	NA	
	Largescale sucker	pg/g	ww	34	4	11.8	0.0291	0.166	0.0399	0.44	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000452	0.0000103	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0394	0.554	NA	NA	
	Rainbow trout	mg/kg	lipid	35	1	2.9	0.00000045	0.00000045	0.000000295	0.0000299	NA	NA	
	Rainbow trout	pg/g	ww	35	1	2.9	0.049	0.049	0.0246	0.698	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000139	0.00000139	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.0472	0.0472	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	3	15	0.000000863	0.0000107	0.000000493	0.00000798	NA	NA	
	Smallmouth bass	pg/g	ww	20	3	15	0.0345	0.536	0.0296	0.358	NA	NA	
	Walleye	mg/kg	lipid	40	1	2.5	0.00000839	0.00000839	0.000000334	0.0000236	NA	NA	
	Walleye	pg/g	ww	40	1	2.5	0.151	0.151	0.0235	0.517	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000139	0.0000386	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,4,7,8,9-Heptachlorodibenzofuran	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.571	1.07	NA	NA	
	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000365	0.000045	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0795	0.27	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000577	0.00000513	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0381	0.258	NA	NA	
	Lake whitefish	mg/kg	lipid	22	0	0	NA	NA	0.000000235	0.0000122	NA	NA	
	Lake whitefish	pg/g	ww	22	0	0	NA	NA	0.0305	1.56	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.000000348	0.000017	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0379	0.697	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000411	0.0000115	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0364	0.62	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.000000325	0.0000418	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0276	0.977	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000148	0.00000148	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0503	0.0503	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.000000411	0.00000793	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.0271	0.358	NA	NA	
	Walleye	mg/kg	lipid	40	0	0	NA	NA	0.000000333	0.000029	NA	NA	
	Walleye	pg/g	ww	40	0	0	NA	NA	0.0244	0.725	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.000016	0.0000412	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.652	1.14	NA	NA	
1,2,3,4,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000694	0.0000423	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0763	0.556	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.00000122	0.0000183	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0666	0.601	NA	NA	
	Lake whitefish	mg/kg	lipid	22	3	13.6	0.000000276	0.00000348	0.00000051	0.0000106	NA	NA	
	Lake whitefish	pg/g	ww	22	3	13.6	0.0373	0.456	0.0663	1.36	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.000000401	0.0000185	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0445	0.886	NA	NA	
	Longnose sucker	mg/kg	lipid	7	2	28.6	0.000000502	0.00000178	0.000000721	0.0000163	NA	NA	
	Longnose sucker	pg/g	ww	7	2	28.6	0.0502	0.17	0.0596	0.878	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.000000724	0.0000363	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0548	0.966	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000223	0.00000223	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0758	0.0758	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.000000329	0.0000149	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.0125	0.618	NA	NA	
	Walleye	mg/kg	lipid	40	0	0	NA	NA	0.000000785	0.0000478	NA	NA	
	Walleye	pg/g	ww	40	0	0	NA	NA	0.0502	1	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000246	0.0000596	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.909	1.65	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,4,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000353	0.0000175	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0783	0.249	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000682	0.00000613	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0445	0.201	NA	NA	
	Lake whitefish	mg/kg	lipid	22	1	4.5	0.000000211	0.000000211	0.000000136	0.00000797	NA	NA	
	Lake whitefish	pg/g	ww	22	1	4.5	0.0308	0.0308	0.0183	1.02	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.000000195	0.00000566	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0217	0.273	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000313	0.00000619	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0289	0.334	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.000000277	0.0000216	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0234	0.573	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000123	0.00000123	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0418	0.0418	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.0000004	0.00000625	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.0254	0.299	NA	NA	
	Walleye	mg/kg	lipid	40	2	5	0.00000179	0.00000275	0.000000256	0.0000278	NA	NA	
	Walleye	pg/g	ww	40	2	5	0.0548	0.0625	0.0224	0.386	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.00000968	0.0000282	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.397	0.78	NA	NA	
1,2,3,6,7,8-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	31	17	54.8	0.00000842	0.000042	0.0000115	0.0000667	NA	NA	
	Burbot	pg/g	ww	31	17	54.8	0.146	0.42	0.261	0.699	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.00000115	0.000018	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.067	0.591	NA	NA	
	Lake whitefish	mg/kg	lipid	22	12	54.5	0.0000013	0.00000352	0.00000306	0.00001	NA	NA	
	Lake whitefish	pg/g	ww	22	12	54.5	0.158	0.45	0.306	1.28	NA	NA	
	Largescale sucker	mg/kg	lipid	33	2	6.1	0.00000132	0.00000147	0.00000058	0.0000135	NA	NA	
	Largescale sucker	pg/g	ww	34	3	8.8	0.0924	0.171	0.0644	0.662	NA	NA	
	Longnose sucker	mg/kg	lipid	7	2	28.6	0.00000215	0.00000222	0.00000061	0.000017	NA	NA	
	Longnose sucker	pg/g	ww	7	2	28.6	0.185	0.222	0.0583	0.918	NA	NA	
	Rainbow trout	mg/kg	lipid	35	6	17.1	0.000000726	0.00000128	0.000000828	0.000038	NA	NA	
	Rainbow trout	pg/g	ww	35	6	17.1	0.049	0.119	0.076	0.961	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000226	0.00000226	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.077	0.077	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.00000117	0.0000156	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.056	0.648	NA	NA	
	Walleye	mg/kg	lipid	40	10	25	0.000000999	0.00000883	0.000000954	0.000069	NA	NA	
	Walleye	pg/g	ww	40	10	25	0.0493	0.265	0.0854	0.993	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000293	0.0000639	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.979	1.77	NA	NA	

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Dioxins/Furans (continued)													
1,2,3,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	31	4	12.9	0.0000032	0.00000564	0.00000467	0.0000178	NA	NA	
	Burbot	pg/g	ww	31	4	12.9	0.0724	0.137	0.0758	0.245	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000721	0.00000628	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0476	0.206	NA	NA	
	Lake whitefish	mg/kg	lipid	22	3	13.6	0.000000336	0.000000658	0.00000033	0.00000836	NA	NA	
	Lake whitefish	pg/g	ww	22	3	13.6	0.0437	0.0875	0.0402	1.07	NA	NA	
	Largescale sucker	mg/kg	lipid	33	5	15.2	0.000000357	0.0000021	0.000000195	0.00000537	NA	NA	
	Largescale sucker	pg/g	ww	34	6	17.6	0.0331	0.147	0.0216	0.265	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000313	0.00000613	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0286	0.331	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.000000275	0.0000219	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0235	0.555	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000118	0.00000118	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.04	0.04	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	2	10	0.00000122	0.00000131	0.000000418	0.00000663	NA	NA	
	Smallmouth bass	pg/g	ww	20	2	10	0.0652	0.0673	0.0246	0.31	NA	NA	
	Walleye	mg/kg	lipid	40	6	15	0.000000911	0.00000299	0.000000284	0.0000265	NA	NA	
	Walleye	pg/g	ww	40	6	15	0.0336	0.109	0.027	0.424	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.00000988	0.0000288	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.405	0.798	NA	NA	
1,2,3,7,8,9-Hexachlorodibenzodioxin	Burbot	mg/kg	lipid	31	4	12.9	0.00000794	0.0000112	0.00000872	0.0000435	NA	NA	
	Burbot	pg/g	ww	31	4	12.9	0.0982	0.157	0.115	0.596	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.00000123	0.000019	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0707	0.624	NA	NA	
	Lake whitefish	mg/kg	lipid	22	6	27.3	0.000000343	0.00000167	0.000000776	0.0000106	NA	NA	
	Lake whitefish	pg/g	ww	22	6	27.3	0.0463	0.214	0.0947	1.36	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.0000004	0.0000167	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0444	0.802	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000571	0.0000165	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0546	0.892	NA	NA	
	Rainbow trout	mg/kg	lipid	35	1	2.9	0.00000843	0.00000843	0.000000787	0.0000382	NA	NA	
	Rainbow trout	pg/g	ww	35	1	2.9	0.118	0.118	0.0552	0.991	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000216	0.00000216	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0736	0.0736	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	1	5	0.000000249	0.000000249	0.00000102	0.0000163	NA	NA	
	Smallmouth bass	pg/g	ww	20	1	5	0.00945	0.00945	0.0525	0.677	NA	NA	
	Walleye	mg/kg	lipid	40	0	0	NA	NA	0.000000755	0.00005	NA	NA	
	Walleye	pg/g	ww	40	0	0	NA	NA	0.047	0.957	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000283	0.0000643	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.934	1.78	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,7,8,9-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000371	0.0000348	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0477	0.233	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.00000103	0.00000869	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0677	0.285	NA	NA	
	Lake whitefish	mg/kg	lipid	22	0	0	NA	NA	0.000000187	0.0000105	NA	NA	
	Lake whitefish	pg/g	ww	22	0	0	NA	NA	0.0253	1.34	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.000000287	0.00000807	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0319	0.411	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000467	0.00000993	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0409	0.536	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.00000035	0.0000292	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0332	0.73	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000161	0.00000161	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0547	0.0547	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.000000509	0.00000966	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.0336	0.443	NA	NA	
	Walleye	mg/kg	lipid	40	0	0	NA	NA	0.000000323	0.0000358	NA	NA	
	Walleye	pg/g	ww	40	0	0	NA	NA	0.0274	0.522	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.000014	0.0000383	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.574	1.06	NA	NA	
1,2,3,7,8-Pentachlorodibenzodioxin	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000633	0.0000384	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.115	0.668	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.00000112	0.0000108	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0637	0.355	NA	NA	
	Lake whitefish	mg/kg	lipid	22	13	59.1	0.00000131	0.00000509	0.00000105	0.00000669	NA	NA	
	Lake whitefish	pg/g	ww	22	13	59.1	0.145	0.585	0.167	0.984	NA	NA	
	Largescale sucker	mg/kg	lipid	33	13	39.4	0.000000424	0.00000636	0.00000129	0.0000118	NA	NA	
	Largescale sucker	pg/g	ww	34	13	38.2	0.0471	0.528	0.0839	0.868	NA	NA	
	Longnose sucker	mg/kg	lipid	7	4	57.1	0.00000102	0.00000236	0.00000219	0.0000101	NA	NA	
	Longnose sucker	pg/g	ww	7	4	57.1	0.0845	0.236	0.0678	0.546	NA	NA	
	Rainbow trout	mg/kg	lipid	35	5	14.3	0.000000543	0.00000079	0.000000475	0.0000301	NA	NA	
	Rainbow trout	pg/g	ww	35	5	14.3	0.0324	0.0765	0.0433	0.701	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000019	0.0000019	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0646	0.0646	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	2	10	0.000000885	0.0000013	0.00000101	0.00000971	NA	NA	
	Smallmouth bass	pg/g	ww	20	2	10	0.0584	0.067	0.0422	0.492	NA	NA	
	Walleye	mg/kg	lipid	40	6	15	0.000000817	0.00000604	0.00000112	0.0000653	NA	NA	
	Walleye	pg/g	ww	40	6	15	0.0829	0.238	0.0606	0.506	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000196	0.0000545	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.737	1.51	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
1,2,3,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	31	5	16.1	0.00000547	0.0000202	0.00000589	0.0000388	NA	NA	
	Burbot	pg/g	ww	31	5	16.1	0.105	0.283	0.116	0.488	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000762	0.00000911	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0503	0.327	NA	NA	
	Lake whitefish	mg/kg	lipid	22	9	40.9	0.000001	0.00000256	0.0000019	0.00000555	NA	NA	
	Lake whitefish	pg/g	ww	22	9	40.9	0.122	0.376	0.281	0.627	NA	NA	
	Largescale sucker	mg/kg	lipid	33	3	9.1	0.000000267	0.000000701	0.000000472	0.0000127	NA	NA	
	Largescale sucker	pg/g	ww	34	3	8.8	0.0296	0.0461	0.0491	0.61	NA	NA	
	Longnose sucker	mg/kg	lipid	7	4	57.1	0.000000719	0.0000016	0.00000191	0.00001	NA	NA	
	Longnose sucker	pg/g	ww	7	4	57.1	0.0595	0.138	0.0593	0.542	NA	NA	
	Rainbow trout	mg/kg	lipid	35	1	2.9	0.000000488	0.000000488	0.000000528	0.0000166	NA	NA	
	Rainbow trout	pg/g	ww	35	1	2.9	0.0488	0.0488	0.0434	0.42	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000189	0.00000189	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0644	0.0644	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	3	15	0.000000624	0.000000899	0.000000978	0.0000162	NA	NA	
	Smallmouth bass	pg/g	ww	20	3	15	0.037	0.0462	0.0391	0.675	NA	NA	
	Walleye	mg/kg	lipid	40	7	17.5	0.000000456	0.00000606	0.000000907	0.0000373	NA	NA	
	Walleye	pg/g	ww	40	7	17.5	0.0444	0.2	0.0456	0.566	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000205	0.0000549	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.637	1.52	NA	NA	
2,3,4,6,7,8-Hexachlorodibenzofuran	Burbot	mg/kg	lipid	31	0	0	NA	NA	0.00000289	0.0000242	NA	NA	
	Burbot	pg/g	ww	31	0	0	NA	NA	0.0704	0.186	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000824	0.00000692	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0531	0.227	NA	NA	
	Lake whitefish	mg/kg	lipid	22	1	4.5	0.00000023	0.00000023	0.000000312	0.00000776	NA	NA	
	Lake whitefish	pg/g	ww	22	1	4.5	0.031	0.031	0.0406	0.993	NA	NA	
	Largescale sucker	mg/kg	lipid	33	0	0	NA	NA	0.000000238	0.00000549	NA	NA	
	Largescale sucker	pg/g	ww	34	0	0	NA	NA	0.0264	0.277	NA	NA	
	Longnose sucker	mg/kg	lipid	7	1	14.3	0.000000404	0.000000404	0.000000361	0.00000657	NA	NA	
	Longnose sucker	pg/g	ww	7	1	14.3	0.0334	0.0334	0.0345	0.355	NA	NA	
	Rainbow trout	mg/kg	lipid	35	0	0	NA	NA	0.000000262	0.000023	NA	NA	
	Rainbow trout	pg/g	ww	35	0	0	NA	NA	0.0265	0.593	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000013	0.0000013	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0441	0.0441	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.00000048	0.00000709	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.027	0.331	NA	NA	
	Walleye	mg/kg	lipid	40	1	2.5	0.00000185	0.00000185	0.000000309	0.0000283	NA	NA	
	Walleye	pg/g	ww	40	1	2.5	0.0567	0.0567	0.0259	0.411	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.00000966	0.0000294	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.396	0.813	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
2,3,4,7,8-Pentachlorodibenzofuran	Burbot	mg/kg	lipid	31	3	9.7	0.00000509	0.00000624	0.00000691	0.0000368	NA	NA	
	Burbot	pg/g	ww	31	3	9.7	0.115	0.168	0.156	0.508	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000865	0.00000886	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0558	0.318	NA	NA	
	Lake whitefish	mg/kg	lipid	22	10	45.5	0.0000017	0.00000646	0.00000115	0.00000639	NA	NA	
	Lake whitefish	pg/g	ww	22	10	45.5	0.248	0.827	0.183	0.648	NA	NA	
	Largescale sucker	mg/kg	lipid	33	10	30.3	0.000000544	0.00000279	0.000000646	0.0000126	NA	NA	
	Largescale sucker	pg/g	ww	34	10	29.4	0.0604	0.155	0.0874	0.607	NA	NA	
	Longnose sucker	mg/kg	lipid	7	4	57.1	0.00000148	0.00000333	0.00000181	0.00000902	NA	NA	
	Longnose sucker	pg/g	ww	7	4	57.1	0.122	0.299	0.0561	0.487	NA	NA	
	Rainbow trout	mg/kg	lipid	35	3	8.6	0.000000547	0.000000785	0.000000502	0.0000173	NA	NA	
	Rainbow trout	pg/g	ww	35	3	8.6	0.0523	0.0668	0.0457	0.467	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000171	0.00000171	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0582	0.0582	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	6	30	0.000000975	0.00000192	0.0000009	0.0000144	NA	NA	
	Smallmouth bass	pg/g	ww	20	6	30	0.0623	0.103	0.036	0.598	NA	NA	
	Walleye	mg/kg	lipid	40	9	22.5	0.000000625	0.00000515	0.0000011	0.0000403	NA	NA	
	Walleye	pg/g	ww	40	9	22.5	0.0561	0.17	0.0588	0.429	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000192	0.0000509	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.596	1.41	NA	NA	
2,3,7,8-Tetrachlorodibenzodioxin	Burbot	mg/kg	lipid	31	1	3.2	0.0000059	0.0000059	0.00000502	0.0000325	NA	NA	
	Burbot	pg/g	ww	31	1	3.2	0.0927	0.0927	0.105	0.298	NA	NA	
	Kokanee	mg/kg	lipid	22	0	0	NA	NA	0.000000652	0.00000686	NA	NA	
	Kokanee	pg/g	ww	22	0	0	NA	NA	0.0375	0.225	NA	NA	
	Lake whitefish	mg/kg	lipid	22	7	31.8	0.00000071	0.00000224	0.000000581	0.00000543	NA	NA	
	Lake whitefish	pg/g	ww	22	7	31.8	0.0923	0.228	0.0709	0.695	NA	NA	
	Largescale sucker	mg/kg	lipid	33	4	12.1	0.000000646	0.0000035	0.000000377	0.0000142	NA	NA	
	Largescale sucker	pg/g	ww	34	4	11.8	0.0672	0.224	0.0407	0.725	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000486	0.00000844	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0481	0.456	NA	NA	
	Rainbow trout	mg/kg	lipid	35	2	5.7	0.000000566	0.000000771	0.000000374	0.0000195	NA	NA	
	Rainbow trout	pg/g	ww	35	2	5.7	0.046	0.0482	0.0295	0.638	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000218	0.00000218	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.074	0.074	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	0	0	NA	NA	0.00000036	0.00000909	NA	NA	
	Smallmouth bass	pg/g	ww	20	0	0	NA	NA	0.018	0.533	NA	NA	
	Walleye	mg/kg	lipid	40	1	2.5	0.00000147	0.00000147	0.000000343	0.000047	NA	NA	
	Walleye	pg/g	ww	40	1	2.5	0.0811	0.0811	0.0216	0.776	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.000024	0.0000269	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.746	0.986	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
2,3,7,8-Tetrachlorodibenzofuran	Burbot	mg/kg	lipid	31	31	100	0.000058	0.000687	NA	NA	NA	NA	
	Burbot	pg/g	ww	31	31	100	1.01	5.71	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.0000123	0.000025	NA	NA	NA	NA	
	Kokanee	pg/g	ww	22	22	100	0.748	0.918	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.0000153	0.0000819	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	22	22	100	2.43	8.35	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.0000118	0.000088	0.0000134	0.0000134	NA	NA	
	Largescale sucker	pg/g	ww	34	33	97.1	1.11	6.52	0.645	0.645	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.0000103	0.0000558	0.00000785	0.00000785	NA	NA	
	Longnose sucker	pg/g	ww	7	6	85.7	0.32	5.07	0.424	0.424	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.00000639	0.0000827	0.0000238	0.0000238	NA	NA	
	Rainbow trout	pg/g	ww	35	34	97.1	0.499	1.84	1.24	1.24	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.0000119	0.0000119	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.404	0.404	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000738	0.0000182	0.00000461	0.00000461	NA	NA	
	Smallmouth bass	pg/g	ww	20	19	95	0.295	1.09	0.175	0.175	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.00000944	0.000593	NA	NA	NA	NA	
	Walleye	pg/g	ww	40	40	100	0.37	2.79	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000213	0.0000327	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0.659	0.906	NA	NA	
Dioxin TEQ, bird, 0 DL	Burbot	mg/kg	lipid	31	31	100	0.000058	0.000687	NA	NA	NA	NA	
	Burbot	pg/g	ww	31	31	100	1.01	5.71	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.0000123	0.000025	NA	NA	NA	NA	
	Kokanee	pg/g	ww	22	22	100	0.748	0.918	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.0000153	0.0000841	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	22	22	100	2.43	8.57	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.0000118	0.000088	0	0	NA	NA	
	Largescale sucker	pg/g	ww	34	33	97.1	1.11	6.52	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.0000103	0.0000585	0	0	NA	NA	
	Longnose sucker	pg/g	ww	7	6	85.7	0.32	5.3	0	0	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.00000562	0.0000827	0	0	NA	NA	
	Rainbow trout	pg/g	ww	35	34	97.1	0.422	1.84	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.0000119	0.0000119	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.405	0.405	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000738	0.0000188	0	0	NA	NA	
	Smallmouth bass	pg/g	ww	20	19	95	0.295	1.21	0	0	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.0000106	0.000593	NA	NA	NA	NA	
	Walleye	pg/g	ww	40	40	100	0.37	2.79	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0	0	NA	NA	

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Dioxins/Furans (continued)													
Dioxin TEQ, bird, 1/2 DL	Burbot	mg/kg	lipid	31	31	100	0.0000836	0.000743	NA	NA	NA	NA	
	Burbot	pg/g	ww	31	31	100	1.48	6.01	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.0000139	0.0000412	NA	NA	NA	NA	
	Kokanee	pg/g	ww	22	22	100	0.875	1.35	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.0000174	0.0000904	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	22	22	100	2.76	9.32	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.000014	0.0000945	0.0000271	0.0000271	NA	NA	
	Largescale sucker	pg/g	ww	34	33	97.1	1.47	7.26	1.3	1.3	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.0000143	0.0000653	0.0000211	0.0000211	NA	NA	
	Longnose sucker	pg/g	ww	7	6	85.7	0.444	5.44	1.14	1.14	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.00000723	0.000125	0.000025	0.000025	NA	NA	
	Rainbow trout	pg/g	ww	35	34	97.1	0.539	2.74	1.3	1.3	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.0000154	0.0000154	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.522	0.522	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000928	0.0000385	0.00000558	0.00000558	NA	NA	
	Smallmouth bass	pg/g	ww	20	19	95	0.371	1.87	0.212	0.212	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.0000113	0.000683	NA	NA	NA	NA	
	Walleye	pg/g	ww	40	40	100	0.691	3.13	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000512	0.0000986	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	1.63	2.73	NA	NA	
Dioxin TEQ, fish, 0 DL	Burbot	mg/kg	lipid	31	31	100	0.0000029	0.0000343	NA	NA	0.0000132	0.0000132	
	Burbot	pg/g	ww	31	31	100	0.0504	0.286	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.000000614	0.00000126	NA	NA	0.000000972	0.000000972	
	Kokanee	pg/g	ww	22	22	100	0.0374	0.046	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.000000767	0.000011	NA	NA	0.00000578	0.00000578	
	Lake whitefish	pg/g	ww	22	22	100	0.122	1.27	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.00000059	0.0000109	0	0	0.00000427	0.00000427	
	Largescale sucker	pg/g	ww	34	33	97.1	0.0559	0.763	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.000000516	0.00000509	0	0	0.00000476	0.00000476	
	Longnose sucker	pg/g	ww	7	6	85.7	0.016	0.482	0	0	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.000000281	0.00000413	0	0	0.00000137	0.00000137	
	Rainbow trout	pg/g	ww	35	34	97.1	0.0212	0.157	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.000000612	0.000000612	NA	NA	NC	0.000000612	M
	Sculpin	pg/g	ww	1	1	100	0.0208	0.0208	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000038	0.00000208	0	0	0.00000122	0.00000122	
	Smallmouth bass	pg/g	ww	20	19	95	0.0152	0.137	0	0	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.000000659	0.0000298	NA	NA	0.0000037	0.0000037	
	Walleye	pg/g	ww	40	40	100	0.0185	0.32	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0	0	NC	0	U
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0	0	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, fish, 1/2 DL	Burbot	mg/kg	lipid	31	31	100	0.0000162	0.0000877	NA	NA	0.0000392	0.0000392	
	Burbot	pg/g	ww	31	31	100	0.369	0.857	NA	NA	0.552	0.552	
	Kokanee	mg/kg	lipid	22	22	100	0.00000223	0.0000184	NA	NA	0.00000963	0.00000963	
	Kokanee	pg/g	ww	22	22	100	0.142	0.605	NA	NA	0.422	0.422	
	Lake whitefish	mg/kg	lipid	22	22	100	0.00000294	0.0000161	NA	NA	0.00000953	0.00000953	
	Lake whitefish	pg/g	ww	22	22	100	0.468	2.06	NA	NA	1.2	1.2	
	Largescale sucker	mg/kg	lipid	33	32	97	0.00000178	0.0000217	0.0000205	0.0000205	0.000696	0.000696	
	Largescale sucker	pg/g	ww	34	33	97.1	0.198	1.11	0.985	0.985	0.654	0.654	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.00000377	0.0000115	0.0000178	0.0000178	0.00000879	0.00000879	
	Longnose sucker	pg/g	ww	7	6	85.7	0.141	0.917	0.96	0.96	0.765	0.765	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.00000112	0.0000477	0.0000153	0.0000153	0.0000182	0.0000182	
	Rainbow trout	pg/g	ww	35	34	97.1	0.0881	1.06	0.797	0.797	0.735	0.735	
	Sculpin	mg/kg	lipid	1	1	100	0.00000397	0.00000397	NA	NA	NC	0.00000397	M
	Sculpin	pg/g	ww	1	1	100	0.135	0.135	NA	NA	NC	0.135	M
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000227	0.0000197	0.00000313	0.00000313	0.00000891	0.00000891	
	Smallmouth bass	pg/g	ww	20	19	95	0.0909	0.934	0.119	0.119	0.466	0.466	
	Walleye	mg/kg	lipid	40	40	100	0.00000214	0.000116	NA	NA	0.0000168	0.0000168	
	Walleye	pg/g	ww	40	40	100	0.153	1.13	NA	NA	0.455	0.455	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000383	0.0000805	NC	0.0000805	U
	Yellow perch	pg/g	ww	3	0	0	NA	NA	1.32	2.23	NC	2.23	U
Dioxin TEQ, mammal, 0 DL	Burbot	mg/kg	lipid	31	31	100	0.0000058	0.0000687	NA	NA	NA	NA	
	Burbot	pg/g	ww	31	31	100	0.101	0.571	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.00000123	0.00000253	NA	NA	NA	NA	
	Kokanee	pg/g	ww	22	22	100	0.0748	0.0923	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.00000153	0.0000123	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	22	22	100	0.243	1.41	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.00000118	0.000014	0	0	NA	NA	
	Largescale sucker	pg/g	ww	34	33	97.1	0.113	0.998	0	0	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.00000103	0.00000798	0	0	NA	NA	
	Longnose sucker	pg/g	ww	7	6	85.7	0.032	0.687	0	0	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.000000562	0.00000827	0	0	NA	NA	
	Rainbow trout	pg/g	ww	35	34	97.1	0.043	0.216	0	0	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000125	0.00000125	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.0424	0.0424	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000077	0.00000274	0	0	NA	NA	
	Smallmouth bass	pg/g	ww	20	19	95	0.0308	0.181	0	0	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.00000136	0.0000598	NA	NA	NA	NA	
	Walleye	pg/g	ww	40	40	100	0.037	0.439	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0	0	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	0	0	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Dioxin TEQ, mammal, 1/2 DL	Burbot	mg/kg	lipid	31	31	100	0.0000186	0.000115	NA	NA	NA	NA	
	Burbot	pg/g	ww	31	31	100	0.425	0.919	NA	NA	NA	NA	
	Kokanee	mg/kg	lipid	22	22	100	0.00000262	0.0000169	NA	NA	NA	NA	
	Kokanee	pg/g	ww	22	22	100	0.166	0.554	NA	NA	NA	NA	
	Lake whitefish	mg/kg	lipid	22	22	100	0.0000034	0.0000166	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	22	22	100	0.54	2.12	NA	NA	NA	NA	
	Largescale sucker	mg/kg	lipid	33	32	97	0.00000237	0.0000231	0.0000172	0.0000172	NA	NA	
	Largescale sucker	pg/g	ww	34	33	97.1	0.263	1.32	0.826	0.826	NA	NA	
	Longnose sucker	mg/kg	lipid	7	6	85.7	0.00000458	0.000013	0.0000153	0.0000153	NA	NA	
	Longnose sucker	pg/g	ww	7	6	85.7	0.142	1.03	0.827	0.827	NA	NA	
	Rainbow trout	mg/kg	lipid	35	34	97.1	0.00000133	0.0000464	0.0000135	0.0000135	NA	NA	
	Rainbow trout	pg/g	ww	35	34	97.1	0.103	1.02	0.703	0.703	NA	NA	
	Sculpin	mg/kg	lipid	1	1	100	0.00000418	0.00000418	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.142	0.142	NA	NA	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	19	95	0.00000241	0.0000176	0.00000287	0.00000287	NA	NA	
	Smallmouth bass	pg/g	ww	20	19	95	0.0964	0.865	0.109	0.109	NA	NA	
	Walleye	mg/kg	lipid	40	40	100	0.0000024	0.000137	NA	NA	NA	NA	
	Walleye	pg/g	ww	40	40	100	0.169	1.02	NA	NA	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000339	0.0000693	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	1.18	1.92	NA	NA	
Octachlorodibenzodioxin	Burbot	mg/kg	lipid	31	14	45.2	0.0000184	0.0000399	0.0000263	0.000308	NA	NA	
	Burbot	pg/g	ww	31	14	45.2	0.373	0.704	0.504	1.85	NA	NA	
	Kokanee	mg/kg	lipid	22	5	22.7	0.00000426	0.00000833	0.00000232	0.0000189	NA	NA	
	Kokanee	pg/g	ww	22	5	22.7	0.17	0.455	0.116	1	NA	NA	
	Lake whitefish	mg/kg	lipid	22	2	9.1	0.00000714	0.000145	0.00000173	0.0000831	NA	NA	
	Lake whitefish	pg/g	ww	22	2	9.1	0.864	18.6	0.224	9.49	NA	NA	
	Largescale sucker	mg/kg	lipid	33	10	30.3	0.00000228	0.0000224	0.0000026	0.0000456	NA	NA	
	Largescale sucker	pg/g	ww	34	11	32.4	0.253	1.76	0.27	2.02	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.0000035	0.0000346	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.35	1.87	NA	NA	
	Rainbow trout	mg/kg	lipid	35	17	48.6	0.00000146	0.0000466	0.00000233	0.0000555	NA	NA	
	Rainbow trout	pg/g	ww	35	17	48.6	0.132	2.37	0.173	2.76	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.0000217	0.0000217	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.738	0.738	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	8	40	0.00000308	0.00072	0.00000224	0.0000243	NA	NA	
	Smallmouth bass	pg/g	ww	20	8	40	0.184	36	0.123	1.01	NA	NA	
	Walleye	mg/kg	lipid	40	17	42.5	0.00000174	0.000295	0.00000347	0.000338	NA	NA	
	Walleye	pg/g	ww	40	17	42.5	0.096	5.31	0.156	4.4	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.0000652	0.000133	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	2.02	3.68	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
Dioxins/Furans (continued)													
Octachlorodibenzofuran	Burbot	mg/kg	lipid	31	1	3.2	0.0000166	0.0000166	0.00000905	0.0000587	NA	NA	
	Burbot	pg/g	ww	31	1	3.2	0.266	0.266	0.119	0.751	NA	NA	
	Kokanee	mg/kg	lipid	22	3	13.6	0.00000393	0.00000727	0.00000202	0.0000109	NA	NA	
	Kokanee	pg/g	ww	22	3	13.6	0.173	0.371	0.101	0.536	NA	NA	
	Lake whitefish	mg/kg	lipid	22	1	4.5	0.0000015	0.0000015	0.000000464	0.0000271	NA	NA	
	Lake whitefish	pg/g	ww	22	1	4.5	0.239	0.239	0.0613	3.47	NA	NA	
	Largescale sucker	mg/kg	lipid	33	2	6.1	0.00000315	0.00000489	0.000000333	0.0000259	NA	NA	
	Largescale sucker	pg/g	ww	34	3	8.8	0.0344	0.396	0.037	1.14	NA	NA	
	Longnose sucker	mg/kg	lipid	7	0	0	NA	NA	0.000000618	0.0000339	NA	NA	
	Longnose sucker	pg/g	ww	7	0	0	NA	NA	0.0532	1.83	NA	NA	
	Rainbow trout	mg/kg	lipid	35	3	8.6	0.000000572	0.00000128	0.000000436	0.0000417	NA	NA	
	Rainbow trout	pg/g	ww	35	3	8.6	0.0546	0.0867	0.0432	1.89	NA	NA	
	Sculpin	mg/kg	lipid	1	0	0	NA	NA	0.00000359	0.00000359	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.122	0.122	NA	NA	
	Smallmouth bass	mg/kg	lipid	20	2	10	0.000000806	0.0000406	0.000000801	0.0000151	NA	NA	
	Smallmouth bass	pg/g	ww	20	2	10	0.0532	2.03	0.0496	0.893	NA	NA	
	Walleye	mg/kg	lipid	40	4	10	0.000000728	0.00000162	0.000000683	0.0000513	NA	NA	
	Walleye	pg/g	ww	40	4	10	0.0354	0.0625	0.0499	1.32	NA	NA	
	Yellow perch	mg/kg	lipid	3	0	0	NA	NA	0.00006	0.0000978	NA	NA	
	Yellow perch	pg/g	ww	3	0	0	NA	NA	1.86	2.71	NA	NA	
PBDEs													
PBDE 17	Burbot	pg/g	ww	6	6	100	3.27	4.9	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	32.8	64.1	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	22.4	71.4	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	13.3	411	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	11	70.4	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	3.97	13.9	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	8.14	8.14	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	4.85	67.6	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	10	77.9	NA	NA	NA	NA	
PBDE 28 and 33	Burbot	pg/g	ww	6	6	100	139	305	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	113	162	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	272	779	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	125	3550	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	82.9	665	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	101	336	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	195	195	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	50.6	498	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	93.8	455	NA	NA	NA	NA	
PBDE 47	Burbot	pg/g	ww	6	6	100	10900	20400	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	2990	3950	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	8160	32100	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	2830	110000	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	2270	19700	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	3590	11500	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	8060	8060	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	1940	24100	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	8150	37400	NA	NA	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 49	Burbot	pg/g	ww	6	6	100	278	607	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	268	386	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	730	2340	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	112	3030	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	93.3	717	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	305	885	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	255	255	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	123	1770	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	322	2150	NA	NA	NA	NA	
PBDE 66	Burbot	pg/g	ww	6	6	100	333	764	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	110	145	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	398	1200	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	4.19	16.6	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	2.47	12.8	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	134	356	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	81.7	81.7	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	57.9	390	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	131	483	NA	NA	NA	NA	
PBDE 71	Burbot	pg/g	ww	6	0	0	NA	NA	0.0745	0.532	NA	NA	
	Kokanee	pg/g	ww	6	0	0	NA	NA	0.0535	0.446	NA	NA	
	Lake whitefish	pg/g	ww	4	0	0	NA	NA	0.122	0.142	NA	NA	
	Largescale sucker	pg/g	ww	8	2	25	4.19	4.94	0.0693	5.56	NA	NA	
	Longnose sucker	pg/g	ww	4	0	0	NA	NA	0.0758	0.16	NA	NA	
	Rainbow trout	pg/g	ww	6	0	0	NA	NA	0.0779	0.112	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.0468	0.0468	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0527	0.573	NA	NA	
	Walleye	pg/g	ww	9	0	0	NA	NA	0.066	0.544	NA	NA	
PBDE 85	Burbot	pg/g	ww	6	6	100	147	311	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	5	83.3	0.263	0.662	0.63	0.63	NA	NA	
	Lake whitefish	pg/g	ww	4	3	75	1.33	5.02	0.396	0.396	NA	NA	
	Largescale sucker	pg/g	ww	8	7	87.5	1.89	20.8	0.171	0.171	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	1.39	8.81	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	4	66.7	1.08	2.3	0.382	0.394	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.781	0.781	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	7	63.6	0.271	1.98	0.202	0.668	NA	NA	
	Walleye	pg/g	ww	9	9	100	5.68	14.4	NA	NA	NA	NA	
PBDE 99	Burbot	pg/g	ww	6	6	100	6970	15400	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	2030	2430	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	5410	14400	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	3	37.5	6.79	24.6	3.46	15.5	NA	NA	
	Longnose sucker	pg/g	ww	4	2	50	11	28.7	4.76	14.3	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	2320	6940	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	266	266	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	804	3830	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	967	6730	NA	NA	NA	NA	

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Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 100	Burbot	pg/g	ww	6	6	100	2640	5040	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	557	709	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	1710	5270	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	401	12300	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	294	3040	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	718	2310	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	811	811	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	327	3200	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	1380	4290	NA	NA	NA	NA	
PBDE 128	Burbot	pg/g	ww	6	5	83.3	1.07	1.83	1.64	1.64	NA	NA	
	Kokanee	pg/g	ww	6	1	16.7	1.28	1.28	0.297	0.619	NA	NA	
	Lake whitefish	pg/g	ww	4	0	0	NA	NA	0.579	0.867	NA	NA	
	Largescale sucker	pg/g	ww	8	0	0	NA	NA	0.226	0.46	NA	NA	
	Longnose sucker	pg/g	ww	4	0	0	NA	NA	0.23	0.347	NA	NA	
	Rainbow trout	pg/g	ww	6	1	16.7	0.692	0.692	0.435	0.579	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.22	0.22	NA	NA	
	Smallmouth bass	pg/g	ww	11	2	18.2	1.53	2.17	0.209	1.12	NA	NA	
	Walleye	pg/g	ww	9	2	22.2	0.883	1.15	0.278	0.995	NA	NA	
PBDE 138	Burbot	pg/g	ww	6	6	100	16.7	41	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	0.658	1.13	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	0.59	0.936	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	2	25	0.224	0.238	0.121	0.245	NA	NA	
	Longnose sucker	pg/g	ww	4	1	25	0.249	0.249	0.12	0.235	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	0.384	2.08	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.415	0.415	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	5	45.5	0.362	0.707	0.256	0.722	NA	NA	
	Walleye	pg/g	ww	9	9	100	1.15	2.24	NA	NA	NA	NA	
PBDE 153	Burbot	pg/g	ww	6	6	100	373	1110	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	120	154	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	281	657	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	69	332	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	34.5	228	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	145	532	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	197	197	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	73.8	567	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	272	831	NA	NA	NA	NA	
PBDE 154	Burbot	pg/g	ww	6	6	100	610	1410	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	126	159	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	339	915	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	139	2520	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	68.8	815	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	157	506	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	168	168	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	76.4	651	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	9	100	327	975	NA	NA	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 183 and 176	Burbot	pg/g	ww	6	6	100	19.6	33.3	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	5.38	10.1	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	6.73	13.8	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	1	12.5	5.05	5.05	0.577	1.99	NA	NA	
	Longnose sucker	pg/g	ww	4	0	0	NA	NA	0.84	1.58	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	5.92	29	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	4.51	4.51	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	8	72.7	1.61	8.75	2.38	25.8	NA	NA	
	Walleye	pg/g	ww	9	5	55.6	2.74	5.74	2.89	4.54	NA	NA	
PBDE 184	Burbot	pg/g	ww	6	6	100	15.1	24.9	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	6	100	3.64	6.17	NA	NA	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	6.01	12.3	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	0.655	5.18	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	3	75	0.271	0.727	0.509	0.509	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	5.68	9.4	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	0.541	0.541	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	0.891	13.3	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	8	88.9	3.96	9.65	1.19	1.19	NA	NA	
PBDE 190 and 171	Burbot	pg/g	ww	6	5	83.3	1.71	2.37	1.09	1.09	NA	NA	
	Kokanee	pg/g	ww	6	1	16.7	0.407	0.407	0.318	0.573	NA	NA	
	Lake whitefish	pg/g	ww	4	0	0	NA	NA	0.397	0.572	NA	NA	
	Largescale sucker	pg/g	ww	8	0	0	NA	NA	0.14	0.254	NA	NA	
	Longnose sucker	pg/g	ww	4	0	0	NA	NA	0.122	0.403	NA	NA	
	Rainbow trout	pg/g	ww	6	2	33.3	0.897	1.19	0.367	0.492	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.201	0.201	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.106	0.586	NA	NA	
	Walleye	pg/g	ww	9	0	0	NA	NA	0.151	0.536	NA	NA	
PBDE 191	Burbot	pg/g	ww	6	4	66.7	0.47	2.62	0.409	1.02	NA	NA	
	Kokanee	pg/g	ww	6	0	0	NA	NA	0.195	0.525	NA	NA	
	Lake whitefish	pg/g	ww	4	0	0	NA	NA	0.335	0.483	NA	NA	
	Largescale sucker	pg/g	ww	8	0	0	NA	NA	0.12	0.219	NA	NA	
	Longnose sucker	pg/g	ww	4	0	0	NA	NA	0.105	0.347	NA	NA	
	Rainbow trout	pg/g	ww	6	1	16.7	0.301	0.301	0.31	0.662	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.173	0.173	NA	NA	
	Smallmouth bass	pg/g	ww	11	0	0	NA	NA	0.0915	0.546	NA	NA	
	Walleye	pg/g	ww	9	0	0	NA	NA	0.141	0.502	NA	NA	
PBDE 200 and 203	Burbot	pg/g	ww	6	3	50	6.26	8.23	4.68	8.42	NA	NA	
	Kokanee	pg/g	ww	6	4	66.7	1.66	3.12	1.14	3.58	NA	NA	
	Lake whitefish	pg/g	ww	4	2	50	1.47	3.22	0.733	1.17	NA	NA	
	Largescale sucker	pg/g	ww	8	2	25	0.476	0.783	0.236	0.47	NA	NA	
	Longnose sucker	pg/g	ww	4	1	25	1.67	1.67	0.243	0.321	NA	NA	
	Rainbow trout	pg/g	ww	6	5	83.3	1.38	5.11	2.39	2.39	NA	NA	
	Sculpin	pg/g	ww	1	0	0	NA	NA	0.567	0.567	NA	NA	
	Smallmouth bass	pg/g	ww	11	4	36.4	0.307	3.35	0.283	0.96	NA	NA	
	Walleye	pg/g	ww	9	4	44.4	1.2	3.8	0.46	1.49	NA	NA	

Table A-12c. Summary Statistics for Fish Species in the Lacustrine CSM Unit

Analyte	Species	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value	95 UCL	EPC	Note
PBDEs (continued)													
PBDE 206	Burbot	pg/g	ww	6	4	66.7	7.62	11.8	5.42	9.21	NA	NA	
	Kokanee	pg/g	ww	6	3	50	4.9	8.87	2.02	5.72	NA	NA	
	Lake whitefish	pg/g	ww	4	1	25	3.43	3.43	2.3	2.87	NA	NA	
	Largescale sucker	pg/g	ww	8	7	87.5	3.04	8.99	1.29	1.29	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	2.14	22.5	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	0	0	NA	NA	2.23	5.7	NA	NA	
	Sculpin	pg/g	ww	1	1	100	5.82	5.82	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	9	81.8	0.641	11.2	1.21	2.52	NA	NA	
	Walleye	pg/g	ww	9	3	33.3	5.48	16.6	2.02	3.86	NA	NA	
PBDE 209	Burbot	pg/g	ww	6	6	100	171	542	NA	NA	NA	NA	
	Kokanee	pg/g	ww	6	5	83.3	128	368	127	127	NA	NA	
	Lake whitefish	pg/g	ww	4	4	100	82.7	185	NA	NA	NA	NA	
	Largescale sucker	pg/g	ww	8	8	100	121	613	NA	NA	NA	NA	
	Longnose sucker	pg/g	ww	4	4	100	71.8	1400	NA	NA	NA	NA	
	Rainbow trout	pg/g	ww	6	6	100	61.6	362	NA	NA	NA	NA	
	Sculpin	pg/g	ww	1	1	100	398	398	NA	NA	NA	NA	
	Smallmouth bass	pg/g	ww	11	11	100	25	745	NA	NA	NA	NA	
	Walleye	pg/g	ww	9	8	88.9	113	740	36.1	36.1	NA	NA	

Notes:
0 DL - nondetected components represented by zero
½ DL - nondetected components represented by one-half the detection limit (DL)
95 UCL - 95th percentile upper confidence limit on the mean
BHC - beta-hexachlorocyclohexane
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
FOD - frequency of detection
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
M - exposure point concentration (EPC) is the maximum detected concentration
NA - not applicable
NC - not calculated
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
TEQ - toxic equivalent
U - EPC is the maximum DL (no samples had detected concentrations)

Table A-13. Summary Statistics for Upland Soil

Analyte	Sieve Size	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Aluminum	<2mm	mg/kg	dw	171	171	100%	5510	25200	NA	NA
Antimony	<2mm	mg/kg	dw	171	171	100%	0.17	14.9	NA	NA
Arsenic	<2mm	mg/kg	dw	171	171	100%	5.28	31.4	NA	NA
Barium	<2mm	mg/kg	dw	171	171	100%	56.2	1420	NA	NA
Beryllium	<2mm	mg/kg	dw	171	171	100%	0.21	0.98	NA	NA
Cadmium	<2mm	mg/kg	dw	171	171	100%	0.18	14.3	NA	NA
Calcium	<2mm	mg/kg	dw	171	171	100%	1620	42600	NA	NA
Chromium	<2mm	mg/kg	dw	171	171	100%	7.32	78.7	NA	NA
Cobalt	<2mm	mg/kg	dw	171	171	100%	2.26	19.5	NA	NA
Copper	<2mm	mg/kg	dw	171	171	100%	8.22	758	NA	NA
Iron	<2mm	mg/kg	dw	171	171	100%	7440	105000	NA	NA
Lead	<2mm	mg/kg	dw	171	171	100%	7.91	730	NA	NA
Magnesium	<2mm	mg/kg	dw	171	171	100%	1470	17400	NA	NA
Manganese	<2mm	mg/kg	dw	171	171	100%	220	2350	NA	NA
Mercury	<2mm	mg/kg	dw	171	171	100%	0.007	0.317	NA	NA
Molybdenum	<2mm	mg/kg	dw	171	171	100%	0.32	10	NA	NA
Nickel	<2mm	mg/kg	dw	171	171	100%	5.59	59.4	NA	NA
Potassium	<2mm	mg/kg	dw	171	171	100%	550	4320	NA	NA
Selenium	<2mm	mg/kg	dw	171	170	99%	0.08	3.32	0.19	0.19
Silver	<2mm	mg/kg	dw	171	171	100%	0.02	2.21	NA	NA
Sodium	<2mm	mg/kg	dw	171	160	94%	35.7	731	51.4	125
Thallium	<2mm	mg/kg	dw	171	171	100%	0.09	0.54	NA	NA
Vanadium	<2mm	mg/kg	dw	171	171	100%	13.5	63.2	NA	NA
Zinc	<2mm	mg/kg	dw	171	171	100%	45	8640	NA	NA

Notes:

FOD - frequency of detection

NA - not applicable

Table A-14. Chemical Group Components and Summation Rules

Chemical Group	Components	Summation Rule[a]
PCBs		
Total PCB congeners	209 individual PCB congeners	Rule 1
PAHs		
Total HPAHs	benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno (1,2,3-cd)pyrene, and pyrene	Rule 1
Total LPAHs	2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, fluorene, naphthalene, and phenanthrene	Rule 1
Total PAHs	2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and pyrene	Rule 1
Pesticides		
Total chlordanes	alpha-chlordane, gamma-chlordane, oxychlordane, cis-nonachlor, and trans-nonachlor	Rule 1
Total DDD	2,4′-DDD and 4,4′-DDD	Rule 1
Total DDE	2,4′-DDE and 4,4′-DDE	Rule 1
Total DDT	2,4′-DDT and 4,4′-DDT	Rule 1
Total DDx	2,4′-DDD, 2,4′-DDE, 2,4′-DDT, 4,4′-DDD, 4,4′-DDE, and 4,4′-DDT	Rule 1
TEQ		
Dioxin/furan TEQ (for bird, fish, mammal)	Seventeen 2,3,7,8-substituted dioxin/furan congeners	Rule 2

Notes:

[a] Rule 1 - Use the sum of the constituent parameters, with nondetected values included as one-half the detection limit (DL). If no constituents are detected, report the highest DL.
Rule 2 - Use the sum of the concentration of each congener after multiplying by its corresponding toxic equivalency factor (TEF) value. When the congener concentration is reported as nondetected, then multiply the TEF by one-half the DL.

DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
PCB - polychlorinated biphenyl
TEQ - toxic equivalent

Table A-15. Toxic Equivalency Factors

Congener	TEF Value (Unitless)		
	Fish	Birds	Mammals
Dioxins/Furans			
2,3,7,8-Tetrachlorodibenzo-*p*-dioxin	1	1	1
1,2,3,7,8-Pentachlorodibenzo-*p*-dioxin	1	1	1
1,2,3,4,7,8-Hexachlorodibenzo-*p*-dioxin	0.5	0.05	0.1
1,2,3,6,7,8-Hexachlorodibenzo-*p*-dioxin	0.01	0.01	0.1
1,2,3,7,8,9-Hexachlorodibenzo-*p*-dioxin	0.01	0.1	0.1
1,2,3,4,6,7,8-Heptachlorodibenzo-*p*-dioxin	0.001	< 0.001	0.01
Octachlorodibenzodioxin	< 0.0001	0.0001	0.0003
2,3,7,8-Tetrachlorodibenzofuran	0.05	1	0.1
1,2,3,7,8-Pentachlorodibenzofuran	0.05	0.1	0.03
2,3,4,7,8-Pentachlorodibenzofuran	0.5	1	0.3
1,2,3,4,7,8-Hexachlorodibenzofuran	0.1	0.1	0.1
1,2,3,6,7,8-Hexachlorodibenzofuran	0.1	0.1	0.1
1,2,3,7,8,9-Hexachlorodibenzofuran	0.1	0.1	0.1
2,3,4,6,7,8-Hexachlorodibenzofuran	0.1	0.1	0.1
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.01	0.01	0.01
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.01	0.01	0.01
Octachlorodibenzofuran	< 0.0001	0.0001	0.0003
Non-Ortho-Substituted PCBs			
PCB 77	0.0001	0.05	0.0001
PCB 81	0.0005	0.1	0.0003
PCB 105	< 0.000005	0.0001	0.00003
PCB 114	< 0.000005	0.0001	0.00003
PCB 118	< 0.000005	0.00001	0.00003
PCB 123	< 0.000005	0.00001	0.00003
PCB 126	0.005	0.1	0.1
PCB 156	< 0.000005	0.0001	0.00003
PCB 157	< 0.000005	0.0001	0.00003
PCB 167	< 0.000005	0.00001	0.00003
PCB 169	0.00005	0.001	0.03
PCB 189	< 0.000005	0.00001	0.00003

Notes:
Fish and bird toxic equivalency factors (TEFs) are from Van den Berg et al. (1998) and mammal TEFs are from Van den Berg et al. (2006).

PCB - polychlorinated biphenyl

APPENDIX B

BENCHMARKS AND SCREENING-LEVEL TOXICITY REFERENCE VALUES

CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

ACR	acute-to-chronic ratio
AET	apparent effects threshold
ATSDR	Agency for Toxic Substances and Disease Registry
AVS-SEM	acid volatile sulfide-simultaneously extracted metals
AWQC	ambient water quality criteria
BCF	bioconcentration factor
BEHP	bis(2-ethylhexyl) phthalate
BERA	baseline ecological risk assessment
BHC	benzene hexachloride
BLM	biotic ligand model
$CaCO_3$	calcium carbonate
CFR	Code of Federal Regulations
COI	chemical of interest
COPC	chemical of potential concern
CSM	conceptual site model
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DOC	dissolved organic carbon
EC20	concentration that causes a nonlethal effect in 20 percent of an exposed population
EC50	concentration that causes a nonlethal effect in 50 percent of an exposed population
Ecology	Washington State Department of Ecology
Eco-SSL	ecological soil screening level
EqP	equilibrium partitioning
ESB	equilibrium partitioning sediment benchmark
ESG	equilibrium partitioning sediment guideline
FAV	final acute value

FCV	final chronic value
GMAV	genus mean acute value
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HQ	hazard quotient
K_{oc}	organic carbon partition coefficient
LAET	lowest apparent effects threshold
LC50	dose that is lethal to 50 percent of an exposed population
LD50	dose that causes a lethal effect in 50% of an exposed population
LOAEL	lowest-observed-adverse-effect level
LOEC	lowest-observed-effect concentration
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
MATC	maximum allowable toxicant concentration
NOAEL	no-observed-adverse-effect level
NOEC	no-observed-effect concentration
OC	organic carbon
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
Pr	cumulative probability
SCV	secondary chronic value
SLERA	screening-level ecological risk assessment
SL TRV	screening-level toxicity reference value
SMAV	species mean acute value
SQG	sediment quality guideline
SSD	species sensitivity distribution
SVOC	semivolatile organic compound
TEC	threshold effect concentration
TEQ	toxicity equivalent
total DDx	sum of all six DDT isomers (2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT and 4,4′-DDT)

TRV	toxicity reference value
UCR	Upper Columbia River
WAC	Washington Administrative Code
WQC	water quality criteria
WQS	water quality standards

UNITS OF MEASURE

bw	body weight
bw/day	body weight per day
dph	day(s) post hatch
dw	dry weight
ft	foot/feet
g	gram
hpf	hours post fertilization
L/kg	liter(s) per kilogram
ln	log normal
mg/kg	milligram(s) per kilogram
mg/kg_{diet}	milligram(s) per kilogram of diet
mg/L	milligram(s) per liter
mm	millimeter(s)
mo	month
ng/kg	nanogram(s) per kilogram
ng/L	nanogram(s) per liter
sqrt	square root
SU	standard unit
µg/L	microgram(s) per liter
ww	wet weight

1 SURFACE WATER AND POREWATER BENCHMARKS

Toxicity benchmarks for surface water and porewater were selected from published national, state, and regional water quality criteria (WQC) that have been developed for the protection of aquatic life in the water column (e.g., plankton, macrophytes, macroinvertebrates, early life stage amphibians, and fish), if available, as described in Section 1.1. If WQC were not available for a particular analyte, benchmarks were developed specifically for this chemical of potential concern (COPC) refinement by applying the general approach used by the U.S. Environmental Protection Agency (EPA) to derive ambient water quality criteria (AWQC) (Stephan et al. 1985), as described below in Section 1.2. Benchmarks were not derived for calcium, magnesium, potassium, sodium, and sulfate because of their low toxicity (see Table B-1) and integral function in a myriad of physiological processes. A summary of the selected water quality benchmarks is provided in Table B-2.

1.1 BENCHMARKS BASED ON PUBLISHED WATER QUALITY CRITERIA

Benchmarks based on published WQC were derived from the following sources: 1) EPA national recommended chronic WQC; 2) state of Washington chronic water quality standards (WQS); 3) Confederated Tribes of the Colville Reservation WQC; and 4) Spokane Tribe of Indians WQS. For manganese, a hardness-based value that was recently developed for the EPA Region 10 Portland Harbor site (Windward 2014) using all available toxicological data and EPA methods for calculation of AWQC (Stephan et al. 1985) was used as the benchmark for manganese in this COPC refinement. For each chemical of interest (COI) with a benchmark, the lowest value from these four sets of criteria was chosen for screening the surface water concentrations to identify COPCs. The four sets of criteria are briefly described below.

- **EPA's National Recommended WQC (USEPA 2014).** The chronic WQC are designed to protect ≥ 95 percent of the species tested from effects on growth, reproduction, and survival following long-term chemical exposures (weeks to months). Chronic WQC are 4-day average concentrations not to be exceeded more than once every 3 years, with the exception of pesticide and polychlorinated biphenyl (PCB) concentrations, which are 24-hour average concentrations not to be exceeded at any time. Aquatic life WQC are based on dissolved concentrations for metals (except aluminum and iron) and total concentrations for aluminum,

iron, and organic compounds. Chronic criteria are not available for aldrin and gamma-benzene hexachloride; therefore, acute criteria for these chemicals are used instead. EPA criteria for copper were derived using a biotic ligand model (BLM), Version 2.2.3 (HydroQual 2007). EPA's WQC are intended to be protective of all aquatic life, including fish, invertebrates, plants (both plankton and macrophytes), and amphibians.

- **State of Washington Chronic WQS (Ecology 2012)**. The WQS for the state of Washington for the protection of aquatic life are found at Washington Administrative Code (WAC) 173-201A-240. The chronic WQS were adopted from EPA's chronic WQC, although they do not always reflect EPA's most current values. In these cases, the Washington State Department of Ecology (Ecology) has selected more stringent WQS to provide greater assurance that salmonid species are protected. Aquatic life WQC are based on dissolved concentrations for metals (except aluminum) and total concentrations for aluminum, and organic compounds.

- **Confederated Tribes of the Colville Reservation WQC.** The WQC provide a narrative standard for toxic substances rather than specific numeric criteria (Colville Tribal Law and Order Code [CCT 2010]; Code of Federal Regulations [CFR] 131.35). It is assumed that these criteria are equivalent to the EPA WQC as the Colville Tribal Code indicates: "Toxic, radioactive, nonconventional, or deleterious material concentrations shall be less than those of public health significance, or which may cause acute or chronic toxic condition to the aquatic biota, or which may adversely affect designated water uses."

  These WQC are intended to be below levels that may cause acute or chronic effects in aquatic biota.

- **Spokane Tribe of Indians WQS (Spokane Tribe of Indians 2010).** These standards were published in 2010. WQS for toxic pollutants were developed for the protection of aquatic life from chronic and acute exposures and were derived from EPA's WQC or Ecology's WQS.

For mercury, Ecology and the Spokane Tribe of Indians provide a criterion of 0.012 µg/L, which is from EPA (USEPA 1984) and is based on the protection of human health. Although EPA's current WQC of 0.77 µg/l for mercury (USEPA 1996) is higher, the current value (0.77 µg/L) was selected as more appropriate for use in this COPC screening because it is based on the protection of aquatic life.

The WQC or WQS for six metals (cadmium, chromium, lead, nickel, silver, and zinc) vary depending on water hardness; the lower the hardness, the more bioavailable the metal and the lower the WQC concentration. To be conservative, the lowest hardness values were used. For surface water, the minimum hardness values from each aquatic exposure area as defined for the Upper Columbia River site,[1] by disturbed and undisturbed water types, were used to calculate surface water hardness-dependent benchmarks (Table B-3). For porewater, the minimum hardness values within each aquatic exposure area and in the shallow and deep-water depths[2] were used to calculate porewater hardness-dependent benchmarks (Table B-4). For copper, EPA's WQC was based on the BLM. BLM parameter values (e.g., alkalinity, calcium, dissolved organic carbon, magnesium, pH, potassium, sodium, sulfate, and total chloride) were selected to result in the most conservative copper benchmarks. For surface water, BLM parameters from within each aquatic exposure area (Table B-5) were used to derive copper benchmarks specific to each of those areas. For porewater, BLM parameters from within each aquatic exposure area and in the shallow and deep-water depths (Table B-4) were used to derive copper benchmarks specific for those areas. It was found that using the most conservative values for all BLM parameters resulted in unrealistically low copper benchmarks; these benchmarks are appropriate only in the context of this screening step to determine whether copper should be evaluated in the baseline ecological risk assessment (BERA). These benchmarks do not represent risk-based values.

The ammonia benchmark is a function of pH and temperature. To calculate the most conservative ammonia benchmarks for porewater and surface water, maximum pH within each of the three aquatic exposure areas in porewater and surface water (Tables B-4 and B-5) were used along with an estimated maximum temperature of 20°Celsius. The surface water benchmark for pentachlorophenol is a function of pH; to calculate the most conservative benchmarks, the minimum pH surface water values within each of the three river areas were used. Porewater benchmarks for pentachlorophenol were not derived, because there were no data for this chemical in porewater (see Table 3-1 of the main document).

[1] The three exposure areas within the Upper Columbia River site for this COPC screen are: (1) Upper Reach Operable Unit (river miles 708 to 745), (2) Transitional Conceptual Site Model (CSM) Unit (river miles 699 to 708), and (3) Lacustrine CSM Unit (river miles 597 to 699).

[2] Samples were assigned to the "shallow" or "deep" water group based on where the sample locations were situated relative to the full-pool elevation, which is 1,290 ft above mean sea level. Shallow-water depths are < 80 ft below the full-pool elevation, and deep-water depths are > 80 ft below the full-pool elevation.

1.2 BENCHMARKS DEVELOPED FOR COPC REFINEMENT

Surface water benchmarks for antimony, barium, beryllium, cobalt, thallium, and vanadium were derived generally following EPA guidelines for AWQC development (USEPA 1985). Toxicity data were compiled from EPA's ECOTOX database for tests conducted on immature life stage (e.g., embryo, larvae, juvenile) freshwater organisms (Tables B-6a, B-7a, B-8a, B-9a, B-10a, and B-11a; references for the compiled ECOTOX data are provided in Table B-12). Limited data for adult test organisms were included for animals with short life spans that were not otherwise represented in the data set (e.g., copepods). For acute tests, 48- to 96-hour EC50 (concentration that causes a nonlethal effect in 50 percent of an exposed population) and LC50 (dose that is lethal to 50 percent of an exposed population) values were compiled for aquatic organisms from measured and unmeasured tests; these values were augmented with additional data when data were limited (e.g., 7-day test EC50s and no-observed-effect concentration [NOEC], lowest-observed-effect concentration [LOEC], and maximum allowable toxicant concentration [MATC] values were sometimes included in order to increase the diversity of species with toxicity data for a constituent). Chronic toxicity data were compiled from measured tests that encompassed the life cycle of the test organism, although partial life cycle or early life stage tests for long-lived animals (e.g., fish) were acceptable. Acceptable acute endpoints generally included mortality, immobilization, and loss of equilibrium, while acceptable chronic endpoints were mainly related to survival, growth, and reproduction. Toxicity data for plants and amphibians were included, but were not always available for a particular chemical (i.e., there are no amphibian data for barium and there are no plant data for beryllium, thallium, and vanadium), resulting in some uncertainty about the protectiveness of some of the derived benchmarks for these receptor groups.

Because chronic data were limited for each constituent, the chronic benchmark was calculated using an acute-to-chronic ratio (ACR). For beryllium, thallium, and vanadium sufficient data (acceptable acute and chronic values from the same study) were available to calculate a constituent-specific ACR, while a generic ACR of 8.3 (Raimondo et al. 2007) was used for antimony, barium, and cobalt. The chronic benchmarks were determined according to EPA (1985). Species mean acute values (SMAVs) were first calculated as the geometric mean of the endpoint values for each species; then, for each genus, genus mean acute values (GMAVs) were calculated as the geometric mean of the SMAVs (Tables B-6b, B-7b, B-8b, B-9b, B-10b, and B-11b). The 5th percentile GMAV was then calculated and used to determine the final acute value (FAV). Division of the FAV by the ACR resulted in a chronic benchmark for each of the six metals.

2 SEDIMENT BENCHMARKS

The primary benchmarks used for sediment are applicable to all aquatic organisms, including invertebrates, benthic-dwelling fish, aquatic phase amphibians, and rooted macrophytes. The threshold effect concentrations (TECs) from MacDonald et al. (2000) were used if available for a given COI. For COIs that had no TECs, either the lowest apparent effects thresholds (LAET) (Ecology 2003) or equilibrium partitioning sediment guideline (ESG) derived using the equilibrium partitioning (EqP) paradigm (USEPA 2008a) was used—whichever was lower—consistent with the screening-level ecological risk assessment (SLERA) (TAI 2010). The TECs, LAETs, and ESGs are described in more detail below, and the selected benchmarks are presented in Table B-13.

A benchmark for dioxin/furan toxic equivalent (TEQ) was not available from the TECs, LAETs, or ESGs. Consistent with the SLERA, Environment Canada environmental quality guideline for the protection of aquatic life from dioxins in sediment (0.85 ng/kg) was used as the sediment benchmark (CCME 2002). There is some uncertainty associated with the CCME guideline because it is based on TEQs calculated using fish toxic equivalency factors because the mode of action of dioxins/furans in aquatic invertebrates has not been confirmed (CCME 2002). It is likely that potential toxicity is overestimated with the use of the CCME guideline because invertebrates are generally insensitive to dioxin-induced toxicity (West et al. 1997; Barber et al. 1998; USEPA 2008b).

It is well known that the relative proportion of acid volatile sulfide (AVS)-simultaneously extracted metals (SEM) influences the extent of a cationic metal's bioavailability and, therefore, its toxicity to benthic organisms. The adjustment of potential risks to account for the relative amount of AVS-SEM in sediments is deferred to the BERA, because AVS-SEM was measured in only a few of the historical studies, limiting geographic applicability. Both variables were measured extensively in the field samples collected and laboratory bioassays conducted as part of the Phase 2 sediment study in 2013 and 2014 to 2015 (Windward et al. 2017), respectively; therefore, bioavailability adjustments to risk from metals in sediments will be included in the BERA. The use of AVS-SEM to assess metal bioavailability is endorsed by EPA (USEPA 2008a) and is supported by extensive literature (Ankley et al. 1996a; Ankley et al. 1996b; Ankley et al. 1993; Carlson et al. 1991; Hansen et al. 1996; Leonard et al. 1999). However, ignoring AVS and other constituents that bind up free metal ions, thus assuming 100 percent bioavailability, is acceptable for the purposes of this conservative screening of the COIs.

2.2 THRESHOLD EFFECT CONCENTRATIONS

Threshold effect concentrations are defined as contaminant concentrations below which harmful effects on sediment-dwelling organisms are not expected. TECs represent consensus-based sediment quality guidelines (SQGs) developed by MacDonald et al. (2000) derived from a meta-analysis of sets of correlative sediment-screening benchmarks from a variety of sources (Table B-13). The TECs were calculated as the geometric mean of the following sediment benchmarks: effects range-low (Long and Morgan 1990), threshold effect level (Smith et al. 1996), lowest effect level (Persaud et al. 1993; Environment Canada and MENVIQ 1992), minimal effect threshold (Environment Canada and MENVIQ 1992), and sediment quality advisory level (USEPA 1997). The primary uncertainty with the TEC approach is that the benchmarks are based on correlations between sediment contaminant concentrations (which could include multiple contaminants in a single sample) and observed effects, rather than being based on concentration-response relationships which quantify the magnitude of effects on the benthic community and relate those effects to a particular contaminant.

2.3 LOWEST APPARENT EFFECTS THRESHOLDS

Apparent effects thresholds (AETs) are benchmarks based on empirical relationships between sediment concentrations and observed toxicity bioassay results or observed benthic community impacts. The AET value is the highest concentration associated with a nontoxic sample; only toxic samples are observed at higher concentrations. Ecology derived freshwater LAETs as the lowest AET values from four different types of sediment toxicity tests (Ecology 2003). An LAET represents the concentration of a chemical above which a statistically significant biological effect (e.g., mortality) is expected to occur.

2.4 EQUILIBRIUM PARTITIONING SEDIMENT GUIDELINES

Equilibrium partitioning sediment guidelines (ESGs) for nonionic organic compounds have been developed by EPA using the EqP approach (USEPA 2008a). This approach assumes that chemicals in sediments are in quasi-equilibrium among particulate, porewater, and infaunal invertebrates (e.g., oligochaetes). USEPA (2008a) states:

> The EqP approach...assumes that 1) the partitioning of the chemical between sediment organic carbon and interstitial water is at or near equilibrium; 2) the concentration in either phase can be predicted using appropriate partition coefficients and the measured concentration in the other phase (assuming the freely-dissolved interstitial [pore] water concentration can be accurately

measured); 3) organisms receive equivalent exposure from water-only exposures or from any equilibrated phase: either from interstitial water via respiration, from sediment via ingestion or other sediment-integument exchange, or from a mixture of exposure routes; 4) for nonionic chemicals, effect concentrations in sediments on an organic carbon basis can be predicted using the organic carbon partition coefficient (K_{OC}) and effects concentrations in water; 5) the final chronic value (FCV) or secondary chronic value (SCV)[3] concentration is an appropriate effects concentration for freely-dissolved chemical in interstitial water; and 6) equilibrium partitioning sediment benchmarks (ESBs) derived as the product of the K_{OC}[4] (organic carbon partition coefficient) and FCV or SCV are protective of benthic organisms.

The EqP approach allows for the use of the extensive data available in the literature concerning the toxicity of aqueous COPCs to evaluate effect thresholds for benthic infaunal organisms that are directly exposed to undiluted sediment porewater. The approach is conservative because many benthic infaunal taxa increase their oxygen and food supplies through behaviors that greatly limit their exposure to sediment porewater (see, for example, Windward [2013], Section 6.6.3.3). EPA investigators have shown that the species sensitivity distribution (SSD) for water column organisms is comparable to that for benthic organisms, demonstrating that benchmarks based on water-only toxicity data can be used to characterize risks to benthic organisms (Ankley et al. 1996c; USEPA 2008a) if exposure point concentrations are accurately estimated. The ESGs developed by EPA (2004) were used in the refined COPC screening as sediment benchmarks for chemicals without TECs (Table B-13), despite the conservatism in the assumption that benthic taxa are solely or even primarily exposed to porewater and food that is in equilibrium with sediment organic carbon. All of the information used to derive the ESGs is presented by EPA (USEPA 2004; Table B-1).

[3] The FCVs and SCVs are Tier 1 and Tier 3 water quality criteria benchmarks, respectively.

[4] K_{oc} is the organic carbon-normalized partition coefficient. Its value may be estimated from the octanol-water partition coefficient, expressed as K_{ow} (Di Toro 1985; USEPA 2008a).

3 FISH TISSUE BENCHMARKS

Selected fish tissue benchmarks are presented in Table B-14 for metals/metalloids, semi-volatile organic compounds, pesticides, total PCBs, and dioxins and furans. Polycyclic aromatic hydrocarbons (PAHs) were not evaluated in fish tissue because they are readily metabolized by fish. Screening-level fish tissue benchmarks are whole-body tissue concentrations associated with adverse effects on survival, reproduction, growth, behavior, and morphology (Meador et al. 2010). Values from the Portland Harbor BERA (Windward 2013) were used for this COPC refinement, if available, because they were derived using methods recommended by EPA Region 10, as described below.

For the Portland Harbor BERA, if there were at least 20 studies for critical tissue concentrations in aquatic species (including fish, crayfish, and clams), then the benchmark was defined as the 5th percentile of all lowest-observed-adverse-effect level (LOAEL) data to represent a tissue concentration that would be protective of 95 percent of the species (Windward 2013). The LOAEL data used to derive the 5th percentile values were based on single chemical laboratory tests. Sufficient data were available to calculate 5th percentile screening-level benchmarks for two COIs—total PCBs and total DDx, which is the sum of all six DDT isomers (2,4′-dichlorodiphenyldichloroethane [DDD], 4,4′-DDD, 2,4′-dichlorodiphenyldichloroethylene [DDE], 4,4′-DDE, 2,4′-dichlorodiphenyltrichloroethane [DDT] and 4,4′-DDT). Data used to calculate the 5th percentile values for total PCBs and total DDx are presented in Attachment 1 of Appendix B of the Portland Harbor Ecological Preliminary Risk Evaluation (Windward 2005).

If fewer than 20 studies were identified in the Portland Harbor BERA (Windward 2013), the 5th percentile concentrations reported by Dyer et al. (2000b) were used. If there were fewer than 20 studies and no value was reported by Dyer et al. (2000b), the benchmark for a particular COI was calculated as the product of the EPA AWQC and a bioconcentration factor (BCF). As described in the Portland Harbor BERA (Windward 2013): "AWQCs (EPA 2002) were used, when available. When current AWQC concentrations were not available, AWQC concentrations presented in the EPA Gold Book (the mid-1980s version of the national aquatic life criteria) were used, as provided by EPA (2005). BCFs were based on K_{ow}s [octanol-water partitioning coefficients] for aquatic species developed according to the EPA (2005) methodology in Dyer et al. (2000) and Devillers et al. (1996), as provided by EPA (2005)." The values used to derive benchmarks from EPA's AWQC are presented in Table B-14.

Benchmarks for cadmium, selenium, bis(2-ethylhexyl) phthalate (BEHP), dibutyl phthalate (DBP), and dioxins/furan TEQ were derived as follows:

- **Cadmium.** The selected benchmark of 0.09 mg/kg wet weight (ww) was based on the lowest LOAEL found in the literature, which was used as the screening-level benchmark in the Portland Harbor BERA (Windward 2013); this concentration was associated with reduced growth in Atlantic salmon alevins after exposure to cadmium for 92 days (Rombough and Garside 1982).
- **Selenium.** The screening benchmark for selenium was based on EPA's chronic AWQC for selenium in whole-body fish tissue of 8.5 mg/kg dry weight (dw) (USEPA 2016), converted to 1.7 mg/kg ww assuming a moisture content of 20 percent. This chronic AWQC was updated by EPA after the Portland Harbor BERA was completed in 2013 (Windward 2013).
- **BEHP and DBP.** The selected benchmarks for BEHP and DBP were based on freshwater fish thresholds from Staples et al. (1997) and BCFs from EPA (2016). For BEHP, no lowest observed effect concentration (LOEC) was available, so the NOEC of 52 μg/L for brook trout growth was used, with a BCF of 710 to derive a wet weight tissue concentration of 36.9 mg/kg ww. For DBP, the LOEC of 190 μg/L for rainbow trout survival was used with a BCF of 2,900 to derive a wet weight tissue concentration of 551 mg/kg ww.
- **Dioxins/furan TEQ**. The mean benchmark value calculated by Steevens et al. (2005) for the protection of 95 percent of fish species (0.000321 mg/kg lipid) was selected as the dioxin/furan screening-level benchmark. This benchmark is based on an SSD of tissue residue data from early-life-stage fish (i.e., eggs and embryos) and was preferred to the benchmark used in the Portland Harbor BERA from Shephard (1998), which was based on the AWQC and BCF approach. There is some uncertainty in relating early-life-stage fish tissue to adult fish tissue. However, as reported in Steevens et al. (2005), for nonpolar organic compounds the ratio of chemical on a lipid-normalized basis was found to be approximately 1:1 egg to adult fish by Russell et al. (1999).

4 FISH DIET SCREENING-LEVEL TOXICITY REFERENCE VALUES

Selected fish diet screening-level toxicity reference values (SL TRVs) are presented in Table B-15 for metals/metalloids and PAHs. Fish diet SL TRVs are expressed as both diet-borne concentrations (mg/kg$_{diet}$ dw) and as dietary doses (mg/kg bw/day). The primary source of the SL TRVs was the Portland Harbor BERA (Windward 2013), the screening-level thresholds of which were based on the most conservative values found in a literature search conducted on dietary toxicity of metals/metalloids and PAHs. This literature search included all available data identified in the following sources (Windward 2013):

- United States Army Corps of Engineers' Environmental Residue Effects Database (accessed at: https://ered.el.erdc.dren.mil in 2003)
- USEPA's ECOTOX database (accessed at: https://cfpub.epa.gov/ecotox in 2003)
- Jarvinen and Ankley (1999), a compilation of tissue-residue effect concentrations
- Search engines for scientific publications, including BIOSIS and Science Direct.

For the Portland Harbor risk assessment, if the lowest LOAEL found in the literature was bounded, the NOAEL associated with that study was selected as the SL TRV. If the lowest LOAEL was unbounded, the NOAEL was selected from another study as the highest value below the lowest LOAEL with the same endpoint; no NOAEL was selected if there was no value for the same endpoint (Windward 2013).

The screening levels are expressed as dietary doses. If a dietary dose from the Portland Harbor BERA was available for a particular COI, this value was selected as the dietary dose SL TRV for use in the COPC screen for the Upper Columbia River (UCR) BERA, and the corresponding diet-borne concentration was determined from the original study.

A review of toxicity of metals to aquatic organisms was conducted by DeForest and Meyer (2015), which contains a database of fish dietary toxicity studies, including some more recent studies conducted after the 2003 Portland Harbor BERA literature search. If any of the studies identified in DeForest and Meyer (2015) contained lower toxicity values than those in the Portland Harbor BERA, those values were used to derive SL TRVs for the COPC screening for the UCR BERA. In addition, any studies that were available from the scientific literature after 2015 were used to derive SL TRVs if the toxicity values were

lower than the Portland Harbor BERA benchmarks. This approach identified lower values for aluminum and lead. In addition to the metals/metalloids thresholds included in the Portland Harbor BERA, toxicity data were found in the scientific literature for seven other metals (chromium, molybdenum, nickel, selenium, silver, uranium, and vanadium) that were not included in the Portland Harbor BERA. The diet-borne concentrations and dietary doses used as SL TRVs for the COPC screen for the UCR site are presented in Table B-15.

5 AQUATIC-DEPENDENT WILDLIFE DIET SCREENING-LEVEL TOXICITY REFERENCE VALUES

Wildlife screening-level toxicity reference values (SL TRVs) are presented in Table B-16. Dietary SL TRVs for screening COIs for aquatic-dependent birds and mammals were from the EPA ecological soil screening level (Eco-SSL) documents (USEPA 2005a) or, if an Eco-SSL document was not available, Region 10 SL TRVs from the Portland Harbor (Windward 2013) or Lower Duwamish Waterway (Windward 2007) ecological risk assessments were used. SL TRVs from the Portland Harbor BERA were preferred because they are the more recent of the EPA Region 10 values. Only SL TRVs for mercury and molybdenum were selected from the Lower Duwamish Waterway BERA, for both birds and mammals, because these elements were not evaluated in the Portland Harbor BERA.

Eco-SSLs are concentrations of chemicals in soils that are protective of ecological receptors. Eco-SSLs are intended to be used to identify COPCs that require further evaluation in a BERA (USEPA 2005a). To derive Eco-SSLs for birds and mammals, EPA compiled toxicity data for dietary doses from a review of the scientific literature based on chronic exposure data (USEPA 2003b). Toxicity studies typically report NOAELs and LOAELs as dietary concentrations (e.g., in mg/kg food), which are then converted to dose-based values (e.g., mg/kg body weight [bw]/day) using the food ingestion rate and body weight of the species being tested.[5] The Eco-SSLs were derived from the calculated geometric mean of available and acceptable literature NOAEL values, or, when toxicological data were limited, were based on the highest acceptable bounded NOAEL below the lowest acceptable bounded LOAEL (USEPA 2003b).

The SL TRVs used in the Portland Harbor and Lower Duwamish Waterway ecological risk assessments were based on NOAELs derived from a comprehensive review of the toxicological literature reporting thresholds associated with survival, growth, and reproduction (Windward 2013, 2007). The Portland Harbor and Lower Duwamish Waterway literature searches were conducted using the following sources:

- Agency for Toxic Substances and Disease Registry (ATSDR)
- EPA's ECOTOX database (accessed at: https://cfpub.epa.gov/ecotox)

[5] Food ingestion rates and body weights are infrequently reported in the toxicity studies; therefore, estimated values must be obtained from other sources, resulting in a substantial amount of uncertainty in the calculated doses.

- BIOSIS electronic database
- TOXNET database (National Library of Medicine)
- Integrated Risk Information System database
- U.S. Fish and Wildlife Service Contaminant Review Series
- Oak Ridge National Laboratory database (Sample et al. 1996).

For the Portland Harbor BERA, if the lowest LOAEL found in the literature was bounded, the NOAEL associated with that study was selected as the SL TRV (Windward 2013). If the lowest LOAEL was unbounded, the NOAEL was selected from another study as the highest value below the lowest LOAEL with the same endpoint; no NOAEL was selected if there was no value for the same endpoint. For the Lower Duwamish Waterway BERA, the NOAEL was the highest level below a LOAEL from any other study regardless of the endpoint, although the same endpoint was preferred (Windward 2007). If an Eco-SSL, Portland Harbor, or Lower Duwamish Waterway screening value was not available for a particular COI identified for the UCR BERA, then a NOAEL was selected from the scientific literature using the data sources as described above. The NOAEL was selected as the highest level below a LOAEL from any other study regardless of the endpoint, although the same endpoint was preferred. For COIs screened in the SLERA for the UCR site, the SL TRVs used are the same as those in the SLERA, as identified in Table B-16 (highlighted cells). However, for both birds and mammals, numerous additional SL TRVs were added to this refined COPC screening to account for COIs that were not screened in the SLERA, as shown in Table B-16.

6 SOIL BENCHMARKS

Screening-level soil benchmarks for terrestrial plants, invertebrates, terrestrial birds, and terrestrial mammals were based primarily on EPA's Eco-SSLs (Table B-17). An Eco-SSL for a particular COI is the soil concentration that results in a hazard quotient (HQ) of 1 when the dietary exposure dose is equal to the estimated no-effect dietary dose (USEPA 2005a). The exposure doses used to calculate Eco-SSLs are based on the food ingestion rates and body weights of small-bodied insectivorous birds (American robin [*Turdus migratorius*] or woodcock [*Scolopax* spp.]) and mammals (shrew [*Sorex* spp.]) (USEPA 2005a). These species had the highest exposure (i.e., the highest food ingestion rates and lowest body weights) out of all of the feeding guilds evaluated for birds and mammals (six feeding guilds for each). The use of the high end of exposure along with TRVs at the low end of the toxicity distribution to calculate the Eco-SSL is expected to provide a high degree of protection to nearly all types of bird and mammal receptors (USEPA 2007j).

If no Eco-SSL was available for a particular chemical, a screening benchmark was derived by using the lowest acceptable toxicity value[6] from the Eco-SSL documents for that chemical, if available. For terrestrial plants and invertebrates, if no Eco-SSL document was available (i.e., for mercury, molybdenum, and thallium), a search was conducted on EPA's ECOTOX database (ECOTOX 2015), and the highest bounded NOAEL below the lowest bounded LOAEL in soil associated with adverse effects on growth, reproduction, or survival was used as the soil screening benchmark. If bounded NOAEL and LOAEL data from the same study were not available, the highest NOAEL from any study below the lowest LOAEL from any other study was used. The lowest LOAEL was used as the benchmark if there was no NOAEL below the lowest LOAEL.

[6] A minimum of three studies is required for the derivation of a plant or invertebrate Eco-SSL. The lowest or only value from studies that met Eco-SSL derivation criteria, as presented in the Eco-SSL document, was selected for COPC screening even if no Eco-SSL was recommended.

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TABLES

Table B-1. Relative Toxicity of Select Metal Ions to *Daphnia magna* (except as noted)

Metal Ion	Without Food (mg/L)	With Food (mg/L)	Chronic NOEC (mg/L)	Reference
Sodium	1,640	1,820	680	1
Calcium	52	464	116	1
Magnesium	140	322	82	1
Potassium	93	166	53	1
Sulfate	2,050	NE	899	2,3

Notes:

1 - Biesinger and Christensen (1972)

2 - Soucek and Kennedy (2005) using *Ceriodaphnia dubia*

3 - Soucek (2007) using *Ceriodaphnia dubia*

NE - not evaluated

NOEC - no observed effect concentration

Table B-2. Summary of Selected Benchmarks for Surface Water and Porewater

Analyte	Surface Water Benchmark (µg/L)			Source	Notes
	Upper Reach OU	Transitional CSM Unit	Lacustrine CSM Unit		
Common Metals and Metalloids - Surface Water and Porewater					
Aluminum	87	87	87	EPA WQC	T
Antimony	39.1	39.1	39.1	see Table B-6b	
Barium	2,749	2,749	2,749	see Table B-7b	
Beryllium	2.44	2.44	2.44	see Table B-8b	
Cobalt	6.16	6.16	6.16	see Table B-9b	
Iron	1,000	1,000	1,000	EPA WQC	T
Manganese	1,390	1,430	1,360	Windward 2014	D
Mercury	0.77	0.77	0.77	EPA WQC	D
Selenium	5.0	5.0	5.0	EPA WQC	D
Thallium	31.2	31.2	31.2	see Table B-10b	
Vanadium	38.7	38.7	38.7	see Table B-11b	
Hardness-Dependent Metals - Surface Water					
Cadmium - undisturbed	0.50	0.45	0.40	EPA WQC	D, a
Cadmium - disturbed	0.50	0.50	0.44	EPA WQC	D, a
Chromium (III) - undisturbed	50	44	40	EPA WQC	D, a
Chromium (III) - disturbed	50	50	44	EPA WQC	D, a
Copper - undisturbed	4.2	3.1	2.8	EPA WQC	D, a, b
Copper - disturbed	4.2	3.1	2.8	EPA WQC	D, a, b
Lead - undisturbed	1.5	1.3	1.1	EPA WQC	D, a
Lead - disturbed	1.5	1.5	1.3	EPA WQC	D, a
Nickel - undisturbed	34	30	27	EPA WQC	D, a
Nickel - disturbed	35	34	30	EPA WQC	D, a
Silver - undisturbed	1.4	1.1	0.87	EPA WQC	D, a, c
Silver - disturbed	1.4	1.4	1.1	EPA WQC	D, a, c
Zinc - undisturbed	69	61	55	Ecology WQS	D, a
Zinc - disturbed	70	69	61	Ecology WQS	D, a
Hardness-Dependent Metals - Porewater					
Cadmium - shallow	0.38	0.75	0.54	EPA WQC	D, a
Cadmium - deep	NA	0.76	0.55	EPA WQC	D, a
Chromium (III) - shallow	37	78	54	EPA WQC	D, a
Chromium (III) - deep	NA	78	55	EPA WQC	D, a
Copper - shallow	1.0	17	1.4	EPA WQC	D, a, b
Copper - deep	NA	6.9	1.7	EPA WQC	D, a, b
Lead - shallow	1.0	2.7	1.7	EPA WQC	D, a
Lead - deep	NA	2.7	1.7	EPA WQC	D, a
Nickel - shallow	26	55	38	EPA WQC	D, a
Nickel - deep	NA	55	38	EPA WQC	D, a
Silver - shallow	0.8	3.6	1.7	EPA WQC	D, a, c
Silver - deep	NA	3.6	1.7	EPA WQC	D, a, c
Zinc - shallow	52	110	76	Ecology WQS	D, a
Zinc - deep	NA	111	77	Ecology WQS	D, a
Nutrients - Surface Water and Porewater					
Ammonia as nitrogen - undisturbed	220	350	180	Ecology WQS	d
Ammonia as nitrogen - disturbed	220	350	180	Ecology WQS	d
SVOCs - Surface Water					
Pentachlorophenol - undisturbed	12.5	11.5	10.8	Ecology WQS	e
Pentachlorophenol - disturbed	12.5	11.5	10.8	Ecology WQS	e
Pesticides - Surface Water					
4,4'-DDD	0.0010	0.0010	0.0010	EPA WQC	
Aldrin	0.0019	0.0019	0.0019	Ecology WQS	c
gamma-BHC (Lindane)	0.08	0.08	0.08	Ecology WQS	c
alpha-Chlordane	0.0043	0.0043	0.0043	EPA WQC	
Dieldrin	0.0019	0.0019	0.0019	Ecology WQS	
Endosulfan I	0.056	0.056	0.056	EPA WQC	
Endosulfan II	0.056	0.056	0.056	EPA WQC	
Endrin	0.0023	0.0023	0.0023	Ecology WQS	
Heptachlor	0.0038	0.0038	0.0038	EPA WQC	
Heptachlor epoxide	0.0038	0.0038	0.0038	EPA WQC	
Methoxychlor	0.03	0.03	0.03	EPA WQC	
Toxaphene	0.0002	0.0002	0.0002	EPA WQC	

Table B-2. Summary of Selected Benchmarks for Surface Water and Porewater

Analyte	Surface Water Benchmark (µg/L)			Source	Notes
	Upper Reach OU	Transitional CSM Unit	Lacustrine CSM Unit		
PCBs - Surface Water					
Total PCBs	0.014	0.014	0.014	EPA WQC	

Notes:

a - Criteria are hardness dependent and were calculated as the most conservative values using the minimum hardness value for surface water or porewater in the relevant river area, depth zone (shallow or deep), or water type (disturbed or undisturbed).

b - Criterion developed using biotic ligand model (BLM). Inputs to model were the most conservative values for hardness, pH, calcium, magnesium, sodium, and dissolved organic carbon for surface water or porewater in the relevant river area, depth zone (shallow or deep), and water type (disturbed or undisturbed).

c - Value represents the acute criterion because no chronic criterion exists for this analyte.

d - Criterion is dependent on pH and temperature, and was based on the highest pH measured in surface water within the relevant river area and an estimated maximum temperature of 20˚C.

e - Criterion is pH dependent and was calculated as the most conservative value using the lowest pH measured in surface water in the relevant river area.

D - Criterion presented on a dissolved basis. Criteria not followed by T or D are assumed to be measured on a total basis.

T - Criterion presented on a total basis. Criteria not followed by T or D are assumed to be measured on a total basis.

BHC - benzene hexachloride
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
Ecology - Washington State Department of Ecology
NA - not applicable
PCB - polychlorinated biphenyl
SVOC - semivolatile organic compound
OU - operable unit
WQC - water quality criteria
WQS - water quality standards

Table B-3. Minimum Hardness Values for Surface Water

River Area and Water Type	Hardness as $CaCO_3$ (mg/L)
Upper Reach OU - Disturbed	62.2
Upper Reach OU - Undisturbed	61.5
Transitional CSM Unit - Disturbed	61.2
Transitional CSM Unit - Undisturbed	53.1
Lacustrine CSM Unit - Disturbed	52.9
Lacustrine CSM Unit - Undisturbed	46.6

Notes:

$CaCO_3$ - calcium carbonate

CSM - conceptual site model

OU - operable unit

Table B-4. Hardness and BLM Parameter Data for Porewater

Analyte	Units	N	Minimum	Maximum	Mean
Upper Reach OU					
Alkalinity	mg/L	136	46.3	840	181
Calcium (dissolved)	µg/L	278	4450	254000	52900
Dissolved organic carbon	mg/L	79	0.884	62.3	13
Magnesium (dissolved)	µg/L	278	174	69000	10000
pH	SU	136	7.07	9.47	7.97
Potassium (dissolved)	µg/L	278	351	12800	2760
Sodium (dissolved)	µg/L	278	976	23700	6580
Sulfate	mg/L	108	0.45	104	23.9
Total chloride	mg/L	77	0.88	50	7.51
Transitional CSM Unit - Shallow					
Alkalinity	mg/L	10	104	332	209
Calcium (dissolved)	µg/L	18	19000	123000	52600
Dissolved organic carbon	mg/L	5	12.5	26.6	17.9
Magnesium (dissolved)	µg/L	18	5.1	28300	10700
pH	SU	10	7.17	8.39	7.95
Potassium (dissolved)	µg/L	18	1.1	4510	1750
Sodium (dissolved)	µg/L	17	2.2	7890	2860
Sulfate	mg/L	12	0.007	18.8	4.91
Total chloride	mg/L	4	1.04	5.81	2.79
Transitional CSM Unit - Deep					
Alkalinity	mg/L	4	94	320	180
Calcium (dissolved)	µg/L	5	34700	84200	57900
Dissolved organic carbon	mg/L	4	1.87	22.8	9.58
Magnesium (dissolved)	µg/L	5	4890	14700	10100
pH	SU	4	7.86	8.42	8.21
Potassium (dissolved)	µg/L	5	1410	6060	3060
Sodium (dissolved)	µg/L	5	5610	9810	7380
Sulfate	mg/L	5	1.64	121	42.1
Total chloride	mg/L	3	1.46	10.5	6.58
Lacustrine CSM Unit - Shallow					
Alkalinity	mg/L	48	68	514	180
Calcium (dissolved)	µg/L	92	16300	142000	45900
Dissolved organic carbon	mg/L	43	1.23	38.6	12.1
Magnesium (dissolved)	µg/L	92	3890	32500	10300
pH	SU	49	7	8.71	7.82
Potassium (dissolved)	µg/L	92	600	7050	1890
Sodium (dissolved)	µg/L	92	1750	14000	3790
Sulfate	mg/L	52	0.55	48.8	10.5
Total chloride	mg/L	35	0.76	9.48	2.7
Lacustrine CSM Unit - Deep					
Alkalinity	mg/L	76	71.7	253	150
Calcium (dissolved)	µg/L	96	17400	75500	38000
Dissolved organic carbon	mg/L	65	2.42	57.4	11.7
Magnesium (dissolved)	µg/L	96	4.8	20500	7650
pH	SU	77	6.78	8.83	7.54
Potassium (dissolved)	µg/L	96	1.6	2740	1580
Sodium (dissolved)	µg/L	96	2.4	8860	2780
Sulfate	mg/L	82	0.003	126	13.9
Total chloride	mg/L	56	0.73	30.1	2.3

Notes:
BLM - biotic ligand model
CSM - conceptual site model
N - number of samples
OU - operable unit

Table B-5. pH and BLM Parameter Data for Surface Water

Analyte	Units	N	Minimum	Maximum	Mean
Upper Reach OU					
Alkalinity	mg/L	49	54.4	68.6	62.5
Calcium (dissolved)	µg/L	49	17000	21300	19000
Dissolved organic carbon	mg/L	49	1.44	1.82	1.64
Magnesium (dissolved)	µg/L	49	4090	5030	4600
pH	SU	49	7.78	8.35	7.96
Potassium (dissolved)	µg/L	49	532	782	644
Sodium (dissolved)	µg/L	49	1770	2320	2060
Sulfate	mg/L	49	7.08	12.3	9.42
Total chloride	mg/L	49	0.86	1.16	0.98
Transitional CSM Unit					
Alkalinity	mg/L	30	56.4	74.5	62.3
Calcium (dissolved)	µg/L	30	16300	21500	19100
Dissolved organic carbon	mg/L	30	1.17	2.39	1.46
Magnesium (dissolved)	µg/L	30	4060	4910	4550
pH	SU	30	7.69	8.06	7.9
Potassium (dissolved)	µg/L	30	587	738	663
Sodium (dissolved)	µg/L	30	1860	2400	2070
Sulfate	mg/L	30	7.62	12.3	9.49
Total chloride	mg/L	30	0.73	1.14	0.935
Lacustrine CSM Unit					
Alkalinity	mg/L	114	45.9	70.8	60.7
Calcium (dissolved)	µg/L	114	12100	21300	18100
Dissolved organic carbon	mg/L	114	1.13	2.84	1.76
Magnesium (dissolved)	µg/L	114	3930	6040	4510
pH	SU	114	7.63	8.49	7.96
Potassium (dissolved)	µg/L	114	587	1350	716
Sodium (dissolved)	µg/L	114	1610	3610	2020
Sulfate	mg/L	114	6.95	11.3	9.43
Total chloride	mg/L	114	0.68	2.25	0.93

Notes:

BLM - biotic ligand model

CSM - conceptual site model

N - number of samples

OU - operable unit

Table B-6a. Antimony Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Sb Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	Reference
Caenorhabditis elegans	Nematode	Antimony trichloride	Acute	Adult (3-4 days)	96 hours	U	S	LC50	Mortality	NR	NR	NR	20000	20000	20000	Williams and Dusenbery 1990
Carassius auratus	Goldfish	Antimony trichloride	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	NR	11300	11300	11300	Birge 1978
Ceriodaphnia dubia	Water flea	Antimony trichloride	Acute	NR	48 hours	M	S	LC50	Mortality	NR	7.9-8.1	NR	3470	3470	3470	Spehar 1987
Chlorohydra viridissima	Green hydra	Antimony trichloride	Acute	NR	96 hours	M	S	LC50	Mortality	85-103	7.6-7.8	NR	1770	1770	1770	TAI 1990
Cypris subglobosa	Ostracod	Antimony trioxide	Acute	NR	48 hours	U	R	EC50	Immobilization	245-230	7.6	NR	560000	560000	560000	Khangarot and Das 2009
Daphnia magna	Water flea	Antimony trioxide	Acute	NR	48 hours	U	S	EC50	Immobilization	NR	7.2-7.8	NR	423450	92698	92698	Khangarot and Ray 1989
Daphnia magna	Water flea	Antimony	Acute	24 hours	48 hours	U	S	LC50	Mortality	72	6.7-8.1	NR	530000	-	-	LeBlanc 1980
Daphnia magna	Water flea	Antimony trichloride	Acute	12 hours	48 hours	U	S	LC50	Mortality	NR	8.16	NR	23500	-	-	Kimball 1978
Daphnia magna	Water flea	Antimony trichloride	Acute	12 hours	48 hours	U	S	LC50	Mortality	NR	8.16	NR	14000	-	-	Kimball 1978
Gastrophryne carolinensis	Eastern narrow-mouthed toad	Antimony trichloride	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	NR	300	300	300	Birge 1978
Hyalella azteca	Scud	Antimony	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	18	8.27	1.4	687	687	687	Borgmann et al. 2005
Hydra oligactis	Hydra	Antimony trichloride	Acute	NR	96 hours	M	S	LC50	Mortality	85-103	7.6-7.8	NR	1950	1950	987	TAI 1990
Hydra sp.	Hydra	Antimony trichloride	Acute	Adult	96 hours	M	S	EC50	Abnormality	46.9	7.7	NR	500	500	-	Brooke et al. 1986
Ictalurus punctatus	Channel catfish	Antimony trichloride	Acute	NR	96 hours	M	S	LC50	Mortality	136-171	6.9-8.1	NR	24100	24349	24349	TAI 1990
Ictalurus punctatus	Channel catfish	Antimony trichloride	Acute	NR	96 hours	M	S	LC50	Mortality	136-171	6.9-8.1	NR	24600	-	-	TAI 1990
Lemna minor	Duckweed	Antimony trichloride	Acute	NR	96 hours	M	S	LOEC	Abundance	60.5	7.2	NR	25500	17854	17854	Brooke et al. 1986
Lemna minor	Duckweed	Antimony trichloride	Acute	NR	96 hours	M	S	NOEC	Abundance	60.5	7.2	NR	12500	-	-	Brooke et al. 1986
Lepomis macrochirus	Bluegill	Antimony trichloride	Acute	NR	96 hours	M	S	LC50	Mortality	44-46	6.8-7.4	NR	25800	25800	25800	Spehar 1987
Lumbriculus variegatus	Oligochaete, worm	Antimony trichloride	Acute	23 mm	96 hours	M	S	EC50	Mortality	51.7-52.9	7.12	NR	25700	25700	25700	Brooke et al. 1986
Macrobrachium nipponense	Oriental river shrimp	Antimony trichloride	Acute	Juvenile (4 weeks)	96 hours	U	R	LC50	Mortality	38-45	7.4-8.1	NR	1635	1635	1635	Yang et al. 2010
Oncorhynchus mykiss	Rainbow trout	Antimony trichloride	Acute	Juvenile	96 hours	M	S	LC50	Mortality	52.2	7.12	NR	25700	25700	25700	Brooke et al. 1986
Oreochromis mossambicus	Mozambique tilapia	Antimony trichloride	Acute	Larvae (3 days)	96 hours	U	S	LC50	Mortality	NR	NR	NR	35500	35500	35500	Lin and Hwang 1998
Physa heterostropha	Pond snail, pneumonate snail	Antimony trichloride	Acute	Juvenile	96 hours	M	S	LC50	Mortality	85-103	7.3-7.8	NR	19100	16469	16469	TAI 1990
Physa heterostropha	Pond snail, pneumonate snail	Antimony trichloride	Acute	Juvenile	96 hours	M	S	LC50	Mortality	85-103	7.3-7.8	NR	14200	-	-	TAI 1990
Pimephales promelas	Fathead minnow	Antimony trioxide	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	NR	80000	23432	23432	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Antimony	Acute	NR	96 hours	M	F	LC50	Mortality	NR	NR	NR	22000	-	-	Stephan 1978
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	30 days	96 hours	M	S	EC50	Mortality	48.5	7.1	NR	14400	-	-	Brooke et al. 1986
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	NR	17000	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	30 days	96 hours	M	S	LC50	Mortality	48.5	7.1	NR	14400	-	-	Brooke et al. 1986
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	NR	9000	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	NR	8.02	NR	21000	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Antimony trichloride	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	NR	8.02	NR	22700	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Antimony trioxide	Chronic	Egg (48 hpf)	30 days	M	F	NOEC	Growth, Survival	28-40	6.2-7.3	NR	7.5	7.5	7.5	LeBlanc and Dean 1984
Pycnopsyche sp.	Caddisfly	Antimony trichloride	Acute	18 mm	96 hours	M	S	LC50	Mortality	52.2	7.12	NR	25700	25700	25700	Brooke et al. 1986
Tubifex tubifex	Tubificid worm	Antimony trioxide	Acute	NR	96 hours	U	R	EC50	Immobilization	NR	NR	NR	678000	678000	678000	Khangarot 1991

Notes:
Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-12.
Dash (-) indicates no data.
Grey shading indicates chronic data.
DOC - dissolved organic carbon
EC50 - concentration that causes a non-lethal effect in 50% of an exposed population
F - flow-through
LC50 - concentration that causes a lethal effect in 50% of an exposed population
LOEC - lowest-observed-effect-concentration
M - measured
NOEC - no-observed-effect-concentration
NR - not reported
R - renewal
S - static
U - unmeasured

Table B-6b. Final Acute and Chronic Values for Antimony

Genus	Description	Genus Mean Value (µg/L)	Final Acute and Chronic Value Calculations[a]					
			Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Tubifex	Tubificid worm	678000	4	1635	7.399	54.751	0.190	0.436
Cypris	Ostracod	560000	3	987	6.895	47.542	0.143	0.378
Daphnia	Water flea	92698	2	687	6.532	42.671	0.095	0.309
Oreochromis	Tilapia	35500	1	300	5.704	32.533	0.048	0.218
Lepomis	Bluegill	25800						
Lumbriculus	Oligochaete	25700					n:	20
Oncorhynchus	Pacific salmon/trout	25700					Slope:	7.602
Pycnopsyche	Caddisfly	25700					Intercept:	4.084
Ictalurus	Catfish	24349					A[b]:	5.784
Pimephales	Fathead minnow	23432						
Caenorhabditis	Nematode	20000					FAV[c]:	324.903
Lemna	Duckweed	17854					ACR[d]:	8.3
Physa	Pond snail	16469					**Final chronic value**	**39.145**
Carassius	Goldfish	11300						
Ceriodaphnia	Water flea	3470						
Chlorohydra	Green hydra	1770						
Macrobrachium	Freshwater shrimp	1635						
Hydra	Hydra	987						
Hyalella	Scud	687						
Gastrophryne	Narrow-mouthed toad	300						

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-7a. Barium Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Ba Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	Reference
Austropotamobius pallipes	Crayfish	Barium chloride	Acute	19-32 mm	96 hours	M	S	LC50	Mortality	-	7	-	46000	46000	46000	Boutet and Chaisemartin 1973
Cyclops vernalis	Cyclopoid	Barium chloride	Acute	NR	96 hours	U	S	MATC	Immobilization	-	-	-	123000	123000	123000	Anderson et al. 1948
Cypris subglobosa	Ostracod	Barium sulfate	Acute	NR	48 hours	U	R	EC50	Immobilization	245	7.6	-	634000	634000	634000	Khangarot and Das 2009
Daphnia magna	Water flea	Barium	Acute	24 hours	48 hours	U	S	LC50	Mortality	173	7.4-9.4	-	410000	44330	44330	LeBlanc 1980
Daphnia magna	Water flea	Barium sulfate	Acute	NR	48 hours	U	S	EC50	Immobilization	-	7.2-7.8	-	32000	-	-	Khangarot and Ray 1989
Daphnia magna	Water flea	Barium chloride	Acute	12 hours	48 hours	U	S	EC50	Immobilization	45.3	7.74	-	14500	-	-	Biesinger and Christensen 1972
Daphnia magna	Water flea	Boric acid, Barium salt	Acute	24 hours	48 hours	NR	S	EC50	Immobilization	-	-	-	20300	-	-	USEPA 2013
Echinogammarus berilloni	Scud	Barium chloride	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.7	-	122000	122000	122000	Vincent et al. 1986
Gammarus pulex	Scud	Barium chloride	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.7	-	238000	238000	238000	Vincent et al. 1986
Lemna minor	Duckweed	Barium	Acute	NR	96 hours	U	S	EC50	Growth	-	7.5	-	26000	25495	25495	Wang 1986a
Lemna minor	Duckweed	Barium chloride	Acute	NR	96 hours	M	S	EC50	Growth	-	-	-	25000	-	-	Wang 1986b
Lepomis macrochirus	Bluegill	Barium	Acute	NR	96 hours	U	S	LC50	Mortality	-	-	-	198000	172910	172910	USEPA 1978
Lepomis macrochirus	Bluegill	Boric acid, Barium salt	Acute	0.88 g	96 hours	NR	S	LC50	Mortality	-	-	-	151000	-	-	USEPA 2013
Oncorhynchus mykiss	Rainbow trout	Barite (Ba(SO4))	Acute	0.3-2.9 g	96 hours	U	S	LC50	Mortality	340	8.2	-	76000000[a]	62000	62000	Sprague et al. 1979
Oncorhynchus mykiss	Rainbow trout	Boric acid, Barium salt	Acute	1.22 g	96 hours	NR	S	LC50	Mortality	-	-	-	62000	-	-	USEPA 2013
Orconectes limosus	Crayfish	Barium chloride	Acute	19-32 mm	96 hours	M	S	LC50	Mortality	-	7	-	78000	78000	78000	Boutet and Chaisemartin 1973
Rasbora heteromorpha	Harlequinfish, red rasbora	Boric acid, Barium salt	Acute	10-30 mm	96 hours	U	R	LC50	Mortality	20	8.1	-	145000	145000	145000	Tooby et al. 1975
Tubifex tubifex	Tubificid worm	Barium sulfate	Acute	NR	96 hours	U	R	EC50	Immobilization	-	-	-	33650	33650	33650	Khangarot 1991

Notes:

Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-6m.

Dash (-) indicates no data.

[a] - LC50 removed from species mean acute value (SMAV) calculation because LC50s are available for species under more sensitive conditions.

DOC - dissolved organic carbon

EC50 - concentration that causes a non-lethal effect in 50% of an exposed population

LC50 - concentration that causes a lethal effect in 50% of an exposed population

M - measured

MATC - maximum allowable toxicant concentration

NR - not reported

R - renewal

S - static

U - unmeasured

Table B-7b. Final Acute and Chronic Values for Barium

Genus	Description	Genus Mean Value (µg/L)	Final Acute and Chronic Value Calculations[a]					
			Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Oncorhynchus	Pacific salmon/trout	2170714	4	46000	10.736	115.270	0.308	0.555
Cypris	Ostracod	634000	3	44330	10.699	114.478	0.231	0.480
Gammarus	Scud	238000	2	33650	10.424	108.655	0.154	0.392
Lepomis	Bluegill	172910	1	25495	10.146	102.946	0.077	0.277
Rasbora	Harlequinfish	145000						
Cyclops	Copepod	123000					n:	12
Echinogammarus	Scud	122000					Slope:	2.302
Orconectes	Crayfish	78000					Intercept:	9.520
Austropotamobius	Crayfish	46000					A[b]:	10.035
Daphnia	Water flea	44330						
Tubifex	Tubificid worm	33650					FAV[c]:	22814.433
Lemna	Duckweed	25495					ACR[d]:	8.3
							Final chronic value	**2748.727**

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-8a. Beryllium Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Be Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	ACR	Reference
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	400-500	7.8-8.2	-	18200	11398	10656	-	Slonim and Ray 1975
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	20-25	6.3-6.5	-	8020	-	-	-	Slonim and Ray 1975
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	20-25	6.3-6.5	-	3150	-	-	-	Slonim and Ray 1975
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	400-500	7.8-8.2	-	8320	-	-	-	Slonim and Ray 1975
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	400-500	7.8-8.2	-	31500	-	-	-	Slonim and Ray 1975
Ambystoma maculatum	Spotted salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	400-500	7.8-8.2	-	18200	-	-	-	Slonim and Ray 1975
Ambystoma opacum	Marbled salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	20-25	6.3-6.5	-	3150	9961	-	-	Slonim and Ray 1975
Ambystoma opacum	Marbled salamander	Beryllium sulfate	Acute	NR	96 hours	M	R	LC50	Mortality	400-500	7.8-8.2	-	31500	-	-	-	Slonim and Ray 1975
Asellus intermedius	Aquatic sowbug	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	-	Ewell et al. 1986
Carassius auratus	Goldfish	Beryllium sulfate	Acute	Sac fry (1-4 days)	96 hours	M	F	LC50	Mortality	147	7.57	-	55900	55900	55900	-	Cardwell et al. 1976
Cypris subglobosa	Ostracod	Beryllium sulfate	Acute	NR	48 hours	U	R	EC50	Immobilization	245	7.6	-	8050	8050	8050	-	Khangarot and Das 2009
Daphnia magna	Water flea	Beryllium	Acute	24 hours	48 hours	U	S	LC50	Mortality	173	7.4-9.4	-	1000	2560	2560	-	LeBlanc 1980
Daphnia magna	Water flea	Beryllium sulfate	Acute	24 hours	48 hours	M	S	EC50	Immobilization	250	7.5-8.5	-	6220	-	-	-	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Acute	24 hours	48 hours	M	S	EC50	Immobilization	100	7.5-8.5	-	1190	-	-	23	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Acute	24 hours	48 hours	M	S	EC50	Immobilization	200	7.5-8.5	-	2910	-	-	10	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Acute	24 hours	48 hours	M	S	EC50	Immobilization	150	7.5-8.5	-	2090	-	-	-	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Acute	NR	48 hours	U	S	EC50	Immobilization	240	7.6	-	2810	-	-	-	Khangarot and Ray 1989
Daphnia magna	Water flea	Beryllium sulfate	Acute	24 hours	48 hours	M	S	EC50	Immobilization	300	7.5-8.5	-	6320	-	-	6	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	7.83	-	2450	-	-	-	Kimball 1978
Daphnia magna	Water flea	Beryllium sulfate	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	7.83	-	2410	-	-	-	Kimball 1978
Daphnia magna	Water flea	Beryllium sulfate	Chronic	24 hours	21 days	M	R	MATC	Reproduction	100	7.5-8.5	-	51	253	253	-	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Chronic	24 hours	21 days	M	R	MATC	Reproduction	200	7.5-8.5	-	288	-	-	-	Buikema 1986
Daphnia magna	Water flea	Beryllium sulfate	Chronic	24 hours	21 days	M	R	MATC	Growth	300	7.5-8.5	-	1100	-	-	-	Buikema 1986
Dugesia tigrina	Turbellarian, flatworm	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	-	Ewell et al. 1986
Gammarus fasciatus	Scud	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	5900	5900	5900	-	Ewell et al. 1986
Hyalella azteca	Scud	Beryllium	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	18	7.39	1.4	67	67	67	-	Borgmann et al. 2005
Jordanella floridae	Flagfish	Beryllium sulfate	Acute	Sac fry (1-4 days)	96 hours	M	F	LC50	Mortality	-	-	-	46300	43623	43623	-	Cardwell et al. 1976
Jordanella floridae	Flagfish	Beryllium sulfate	Acute	Sac fry (1-4 days)	96 hours	M	F	LC50	Mortality	-	-	-	41100	-	-	-	Cardwell et al. 1976
Lepomis macrochirus	Bluegill	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	12000	3950	3950	-	Tarzwell and Henderson 1960
Lepomis macrochirus	Bluegill	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	1300	-	-	-	Tarzwell and Henderson 1960
Lumbriculus variegatus	Oligochaete, worm	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	-	Ewell et al. 1986
Pimephales promelas	Fathead minnow	Beryllium chloride	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	150	165	165	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000[a]	-	-	-	Ewell et al. 1986
Pimephales promelas	Fathead minnow	Beryllium chloride	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	15000[a]	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	Juvenile	96 hours	M	F	LC50	Mortality	140	8.04	-	37900[a]	-	-	-	Cardwell et al. 1976
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	Juvenile	92 hours	M	F	LC50	Mortality	140	8.04	-	40200[a]	-	-	-	Cardwell et al. 1976
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	11000[a]	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.6	-	17500[a]	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.6	-	17900[a]	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Beryllium sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	200	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Nitric acid, Beryllium	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	150	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Nitric acid, Beryllium	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	20000[a]	-	-	-	Tarzwell and Henderson 1960
Planorbella trivolvis	Snail, marsh rams-horn	Beryllium chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	-	Ewell et al. 1986
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	192	-	-	6300[a]	208	208	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	150	5.91-6.82	-	6100[a]	-	-	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	20	6.3-6.5	-	200	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	400	7.8-8.2	-	32000[a]	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	275	5.94-7.35	-	13700[a]	-	-	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	400	7.8-8.2	-	24000[a]	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	400	7.8-8.2	-	19000[a]	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	72	-	-	2500[a]	-	-	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	400	7.8-8.2	-	28000[a]	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	22	6.38-6.55	-	160	-	-	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3 months	96 hours	U	S	LC50	Mortality	400	5.05-7.6	-	20000[a]	-	-	-	Slonim and Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	20	6.3-6.5	-	450	-	-	-	Slonim 1973
Poecilia reticulata	Guppy	Beryllium sulfate	Acute	3-4 months	96 hours	U	S	LC50	Mortality	20	6.3-6.5	-	130	-	-	-	Slonim 1973
Tubifex tubifex	Tubificid worm	Beryllium sulfate	Acute	NR	96 hours	U	R	EC50	Immobilization	-	-	-	10250	10250	10250	-	Khangarot 1991

Notes:
Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-12.
Dash (-) indicates no data.
Grey shading indicates chronic data.
[a] - LC50 removed from species mean acute value (SMAV) calculation because LC50s are available for species under more sensitive conditions
ACR - acute to chronic ratio
DOC - dissolved organic carbon
EC50 - concentration that causes a non-lethal effect in 50% of an exposed population
F - flow-through
LC50 - concentration that causes a lethal effect in 50% of an exposed population
M - measured
MATC - maximum allowable toxicant concentration
NR - not reported
R - renewal
S - static
U - unmeasured

Table B-8b. Final Acute and Chronic Values for Beryllium

Genus	Description	Genus Mean Value (µg/L)	Final Acute and Chronic Value Calculations[a]					
			Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Asellus	Isopod	100000	4	2560	7.848	61.587	0.250	0.500
Dugesia	Flatworm	100000	3	208	5.338	28.490	0.188	0.433
Lumbriculus	Oligochaete	100000	2	165	5.107	26.077	0.125	0.354
Planorbella	Snail	100000	1	67	4.205	17.679	0.063	0.250
Carassius	Goldfish	55900						
Jordanella	Flagfish	43623					n:	15
Ambystoma	Salamander	10656					Slope:	14.5048
Tubifex	Tubificid worm	10250					Intercept:	0.0522
Cypris	Ostracod	8050					A[b]:	3.2956
Gammarus	Scud	5900						
Lepomis	Bluegill	3950					FAV[c]:	26.994
Daphnia	Water flea	2560					ACR[d]:	11.1
Poecilia	Guppy	208					**Final chronic value**	**2.440**
Pimephales	Fathead minnow	165						
Hyalella	Scud	67						

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-9a. Cobalt Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Co Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	Reference
Asellus intermedius	Aquatic sowbug	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	Ewell and Spiegel 1986
Austropotamobius pallipes	Crayfish	Cobalt chloride	Acute	NR	96 hours	M	S	LC50	Mortality	-	7	-	8800	8800	8800	Boutet and Chaisemartin 1973
Azolla pinnata	Water velvet	Cobalt chloride	Acute	NR	96 hours	U	NR	EC50	Growth Rate	-	-	-	242	242	242	Gaur et al. 1994
Branchiura sowerbyi	Oligochaete	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	195	-	-	132620	154075	154075	Das and Kaviraj 1994
Branchiura sowerbyi	Oligochaete	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	-	7.33	-	179000	-	-	Mukherjee and Kaviraj 2011
Caenorhabditis elegans	Nematode	Cobalt chloride	Acute	NR	48 hours	U	S	LC50	Mortality	-	-	-	43372	43372	43372	Chu and Chow 2002
Capoeta fusca	Parmicka temna	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	350	7.8	-	204800	137041	137041	Pourkhabbaz et al. 2011
Capoeta fusca	Parmicka temna	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	130	7.8	-	91700	-	-	Pourkhabbaz et al. 2011
Carassius auratus	Goldfish	Cobalt nitrate	Acute	NR	96 hours	U	S	LC50	Mortality	-	6.2-6.3	-	66800	66800	66800	Ding 1980
Ceriodaphnia dubia	Water flea	Cobalt chloride	Acute	Neonate (24 hours)	48 hours	U	S	LC50	Mortality	142	8.2	-	94660	94660	94660	Griffitt et al. 2008
Ceriodaphnia dubia	Water flea	Cobalt chloride	Chronic	Neonate (24 hours)	7 days	M	S	NOEC	Mortality	256.3	-	-	50	93	93	Diamond et al. 1992
Ceriodaphnia dubia	Water flea	Cobalt chloride	Chronic	Neonate (24 hours)	7 days	M	S	NOEC	Reproduction	476.7	-	-	50	-	-	Diamond et al. 1992
Ceriodaphnia dubia	Water flea	Cobalt chloride	Chronic	Neonate (24 hours)	7 days	M	S	NOEC	Mortality	57.2	-	-	50	-	-	Diamond et al. 1992
Ceriodaphnia dubia	Water flea	Cobalt chloride	Chronic	Neonate (24 hours)	7 days	M	S	NOEC	Mortality	576.8	-	-	600	-	-	Diamond et al. 1992
Chironomus tentans	Midge	Cobalt chloride	Acute	Larvae (3rd instar)	48 hours	U	S	EC50	Immobilization	25	6.3	-	56870	56870	56870	Khangarot and Ray 1989a
Cyprinus carpio	Common carp	Cobalt chloride	Acute	Fry	96 hours	U	NR	LC50	Mortality	195	-	-	332980	233124	233124	Das and Kaviraj 1994
Cyprinus carpio	Common carp	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	56	8.315	-	328000	-	-	Saeedi Saravi et al. 2009
Cyprinus carpio	Common carp	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	56	8.315	-	327000	-	-	Saeedi Saravi et al. 2009
Cyprinus carpio	Common carp	Cobalt nitrate	Acute	NR	96 hours	U	S	LC50	Mortality	-	6.2-6.3	-	82700	-	-	Ding 1980
Cypris subglobosa	Ostracod	Cobalt acetate	Acute	NR	48 hours	U	R	EC50	Immobilization	245	7.6	-	27820	27820	27820	Khangarot and Das 2009
Danio rerio	Zebra danio	Cobalt chloride	Acute	Larvae (72 hpf)	96 hours	U	NR	LC50	Mortality	-	-	-	34700	35344	35344	Reinardy et al. 2013
Danio rerio	Zebra danio	Cobalt sulfate	Acute	Larvae (72 hpf)	96 hours	U	NR	LC50	Mortality	-	-	-	36000	-	-	Reinardy et al. 2013
Daphnia magna	Water flea	Cobalt chloride	Acute	12 hours	48 hours	U	S	EC50	Immobilization	45.3	7.74	-	1110	2741	1817	Biesinger and Christensen 1972
Daphnia magna	Water flea	Cobalt chloride	Acute	NR	48 hours	U	S	EC50	Immobilization	-	7.2-7.8	-	1490	-	-	Khangarot and Ray 1989b
Daphnia magna	Water flea	Cobalt chloride	Acute	12 hours	48 hours	U	S	EC50	Immobilization	45.3	7.74	-	1620	-	-	Biesinger and Christensen 1972
Daphnia magna	Water flea	Cobalt chloride	Acute	NR	48 hours	U	S	LC50	Mortality	240	7.6	-	1490	-	-	Khangarot et al. 1987
Daphnia magna	Water flea	Cobalt chloride	Acute	NR	48 hours	U	NR	LC50	Mortality	170-210	7.4-8.0	-	5500	-	-	Cabejszek and Stasiak 1960
Daphnia magna	Water flea	Cobalt chloride	Acute	NR	48 hours	U	S	LC50	Mortality	240	7.6	-	1520	-	-	Khangarot et al. 1987
Daphnia magna	Water flea	Cobalt sulfate	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.35	-	5150	-	-	Kimball 1978
Daphnia magna	Water flea	Cobalt sulfate	Acute	NR	48 hours	U	NR	LC50	Mortality	170-210	7.4-8.0	-	6000	-	-	Cabejszek and Stasiak 1960
Daphnia magna	Water flea	Cobalt sulfate	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.35	-	6830	-	-	Kimball 1978
Daphnia magna	Water flea	Cobalt nitrate	Acute	NR	48 hours	U	S	LC50	Mortality	-	6.2-6.3	-	3400	-	-	Ding 1980
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	1619	1205	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	397	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	689	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	3037	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	1765	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	2380	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	524	-	-	Lind et al. 1978
Daphnia pulicaria	Water flea	Cobalt sulfate	Acute	NR	48 hours	M	S	LC50	Mortality	-	-	-	1498	-	-	Lind et al. 1978
Daphnia sp.	Water flea	Cobalt	Acute	NR	48 hours	U	NR	LD50	Mortality	-	-	-	100000	100000*	-	Bringmann and Kuhn 1960
Diaptomus forbesi	Calanoid copepod	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	-	7.33	-	1500	2272	2272	Mukherjee and Kaviraj 2011
Diaptomus forbesi	Calanoid copepod	Cobalt chloride	Acute	NR	96 hours	U	NR	LC50	Mortality	195	-	-	3440	-	-	Das and Kaviraj 1994
Dugesia tigrina	Turbellarian, flatworm	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	-	6.5-8.5	-	25000	25000	25000	Ewell et al. 1986
Duttaphrynus melanostictus	Asian common toad	Cobalt chloride	Acute	Tadpole	96 hours	U	NR	LC50	Mortality	-	7.33	-	17200	17200	17200	Mukherjee and Kaviraj 2011
Ephemerella subvaria	Mayfly	Cobalt sulfate	Acute	NR	96 hours	U	S	LC50	Mortality	-	-	-	16000	16000	16000	Warnick and Bell 1969
Eudiaptomus padanus	Calanoid copepod	Cobalt chloride	Acute	Adult	48 hours	U	S	EC50	Immobilization	-	7.2	-	4000	4000	4000	Baudouin and Scoppa 1974
Euphlyctis hexadactylus	True frog	Cobalt chloride	Acute	NR	96 hours	U	R	LC50	Mortality	20	6.1	-	17590	17590	17590	Khangarot et al. 1985
Gammarus fasciatus	Scud	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	Ewell et al. 1986
Gastrophryne carolinensis	Eastern narrow-mouthed toad	Cobalt nitrate	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	-	50	50	50	Birge 1978
Heterorhabditis bacteriophora	Nematode	Cobalt chloride	Acute	Juvenile	96 hours	U	S	NOEC	Mortality	-	5.9	-	55000	55000	55000	Jaworska et al. 1997
Hyalella azteca	Scud	Cobalt	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	18	7.39	1.4	16	31	31	Borgmann et al. 2005
Hyalella azteca	Scud	Cobalt	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	124	8.21	1.4	61	-	-	Borgmann et al. 2005
Lumbriculus variegatus	Oligochaete, worm	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	Ewell et al. 1986
Lymnaea stagnalis	Great pond snail	Cobalt chloride	Chronic	31 days	28 days	M	R	LOEC	Growth Rate	140	7.7	2	79	45	45	De Schamphelaere et al. 2008
Lymnaea stagnalis	Great pond snail	Cobalt chloride	Chronic	31 days	28 days	M	R	NOEC	Growth Rate	140	7.6	2.4	26	-	-	De Schamphelaere et al. 2008
Ochromonas ovalis	Algae	Cobalt sulfate	Acute	NR	48 hours	U	NR	IC50	Immobilization	-	-	-	985	985	985	Voloshko et al. 1997
Oncorhynchus mykiss	Rainbow trout	Cobalt chloride	Acute	Fry	96 hours	M	F	LC50	Mortality	24.9	7.51	-	1406	1406	1406	Marr et al. 1998
Orconectes limosus	Crayfish	Cobalt chloride	Acute	NR	96 hours	M	S	LC50	Mortality	-	7	-	10200	10200	10200	Boutet and Chaisemartin 1973
Pimephales promelas	Fathead minnow	Cobalt(II)formate	Acute	NR	96 hours	M	S	LC50	Mortality	40-48	7.2-7.6	-	32200	11388	11388	Curtis and Ward 1981
Pimephales promelas	Fathead minnow	Cobalt	Acute	NR	96 hours	M	F	LC50	Mortality	-	-	-	3400	-	-	Stephan 1978
Pimephales promelas	Fathead minnow	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	48000	-	-	Ewell et al. 1986
Pimephales promelas	Fathead minnow	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	167	7.9	-	20800	-	-	Hobson 1986
Pimephales promelas	Fathead minnow	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	167	7.9	-	10000	-	-	Hobson 1986
Pimephales promelas	Fathead minnow	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	167	7.9	-	28400	-	-	Hobson 1986
Pimephales promelas	Fathead minnow	Cobalt chloride	Acute	NR	96 hours	U	S	LC50	Mortality	167	7.9	-	8000	-	-	Hobson 1986
Pimephales promelas	Fathead minnow	Cobalt sulfate	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.16	-	3460	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Cobalt sulfate	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.16	-	3750	-	-	Kimball 1978

Table B-9a. Cobalt Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Co Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	Reference
Planorbella trivolvis	Snail, marsh rams-horn	Cobalt chloride	Acute	Juvenile	96 hours	U	S	LC50	Mortality	130	6.5-8.5	-	100000	100000	100000	Ewell et al. 1986
Spirodela polyrhiza	Large duckweed	Cobalt chloride	Acute	NR	96 hours	U	NR	EC50	Growth Rate	-	-	-	136	136	136	Gaur et al. 1994
Spirostomum ambiguum	Protozoa	Cobalt nitrate	Acute	NR	96 hours	U	S	EC50	Development	2.8	7.4	-	7730	9052	9052	Nalecz-Jawecki and Sawicki 1998
Spirostomum ambiguum	Protozoa	Cobalt nitrate	Acute	NR	96 hours	U	S	LC50	Mortality	2.8	7.4	-	10600	-	-	Nalecz-Jawecki and Sawicki 1998
Tubifex tubifex	Tubificid worm	Cobalt chloride	Acute	NR	96 hours	U	S	EC50	Mortality	237	7.5	-	239390	169833	169833	Rathore and Khangarot 2002
Tubifex tubifex	Tubificid worm	Cobalt chloride	Acute	NR	96 hours	U	R	EC50	Immobilization	-	-	-	139320	-	-	Khangarot 1991
Tubifex tubifex	Tubificid worm	Cobalt chloride	Acute	NR	96 hours	U	S	EC50	Mortality	237	7.5	-	179710	-	-	Rathore and Khangarot 2002
Tubifex tubifex	Tubificid worm	Cobalt chloride	Acute	NR	96 hours	U	S	EC50	Mortality	237	7.5	-	95350	-	-	Rathore and Khangarot 2002
Tubifex tubifex	Tubificid worm	Cobalt chloride	Acute	NR	96 hours	U	S	EC50	Mortality	237	7.5	-	247230	-	-	Rathore and Khangarot 2002
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (5 hpf)	96 hours	U	R	EC50	Morphology	-	6.8	-	1473	1473	1473	Plowman et al. 1991
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	EC50	Development	-	7	-	2204	-	-	Saka 2004
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo	96 hours	U	R	EC50	Abnormality	-	6.8	-	1473	-	-	Sunderman 1992
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	EC50	Development	-	7	-	2080	-	-	Saka 2004
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	EC50	Development	-	7	-	2051	-	-	Saka 2004
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo	96 hours	U	R	LC50	Mortality	-	6.8	-	612903[a]	-	-	Sunderman 1992
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	LC50	Mortality	-	7	-	394	-	-	Saka 2004
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	LC50	Mortality	-	7	-	382	-	-	Saka 2004
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (5 hpf)	96 hours	U	R	LC50	Mortality	-	6.8	-	613	-	-	Plowman et al. 1991
Xenopus laevis	African clawed frog	Cobalt chloride	Acute	Embryo (8-11 nf)	96 hours	U	R	LC50	Mortality	-	7	-	377	-	-	Saka 2004

Notes:
Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-12.
Dash (-) indicates no data.
Grey shading indicates chronic data.
[a] - LC50 removed from species mean acute value (SMAV) calculation because LC50s are available for species under more sensitive conditions.
DOC - dissolved organic carbon
EC50 - concentration that causes a non-lethal effect in 50% of an exposed population
F - flow-through
IC50 - concentration that causes inhibition in 50% of an exposed population
LC50 - concentration that causes a lethal effect in 50% of an exposed population
LD50 - dose that causes a lethal effect in 50% of an exposed population
LOEC - lowest-observed-effect-concentration
M - measured
nf - Nieuwkoop-Faber stage
NOEC - no-observed-effect-concentration
NR - not reported
R - renewal
S - static
U - unmeasured

Table B-9b. Final Acute and Chronic Values for Cobalt

			Final Acute and Chronic Value Calculations[a]					
Genus	Description	Genus Mean Value (µg/L)	Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Cyprinus	Carp	233124	4	242	5.487	30.111	0.118	0.343
Tubifex	Tubificid worm	169833	3	136	4.909	24.101	0.088	0.297
Branchiura	Oligochaete	154075	2	50	3.912	15.304	0.059	0.243
Capoeta	Scraper fish	137041	1	31	3.442	11.846	0.029	0.171
Asellus	Isopod	100000						
Gammarus	Scud	100000					n:	33
Lumbriculus	Oligochaete	100000					Slope:	12.5928
Planorbella	Snail	100000					Intercept:	1.1192
Ceriodaphnia	Water flea	94660					A[b]:	3.9350
Carassius	Goldfish	66800						
Chironomus	Midge	56870					FAV[c]:	51.163
Heterorhabditis	Nematode	55000					ACR[d]:	8.3
Caenorhabditis	Nematode	43372					**Final chronic value**	**6.164**
Danio	Danio fish	35344						
Cypris	Ostracod	27820						
Dugesia	Flatworm	25000						
Euphlyctis	Frog	17590						
Duttaphrynus	Toad	17200						
Ephemerella	Mayfly	16000						
Pimephales	Fathead minnow	11388						
Orconectes	Crayfish	10200						
Spirostomum	Protozoa	9052						
Austropotamobius	Crayfish	8800						
Eudiaptomus	Copepod	4000						
Diaptomus	Copepod	2272						
Daphnia	Water flea	1817						
Oncorhynchus	Pacific salmon/trout	1406						
Ochromonas	Algae	985						
Xenopus	African clawed frog	963						
Azolla	Aquatic fern	242						
Spirodela	Duckweed	136						
Gastrophryne	Narrow-mouthed toad	50						
Hyalella	Scud	31						

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-10a. Thallium Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	Tl Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	ACR	Reference
Caenorhabditis elegans	Nematode	Thallium	Acute	Adult (3-4 days)	96 hours	U	S	LC50	Mortality	-	-	-	123000	123000	123000	-	Williams and Dusenbery 1990
Carassius auratus	Goldfish	Thallium chloride	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	-	7000	7000	7000	-	Birge 1978
Ceriodaphnia dubia	Water flea	Sulfuric acid, Dithallium(1+) salt	Acute	24 hours	48 hours	X	S	LC50	Mortality	-	-	-	132	129	129	2.366	Spehar 1989
Ceriodaphnia dubia	Water flea	Sulfuric acid, Dithallium(1+) salt	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	126	-	-	-	Spehar 1989
Ceriodaphnia dubia	Water flea	Sulfuric acid, Dithallium(1+) salt	Chronic	8 hr	7 days	M	R	MATC	Reproduction	-	7.73-8.73	-	54.5	54.5	54.5	-	Spehar 1989
Chironomus riparius	Midge	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.5-7.6	-	229000	229000	229000	-	Horne et al. 1983
Daphnia magna	Water flea	Acetic acid, Thallium(1+) salt	Acute	NR	48 hours	U	S	LC50	Mortality	-	6.8-8.0	-	203	285	285	-	Lan and Lin 2005
Daphnia magna	Water flea	Thallium	Acute	24 hours	48 hours	U	S	LC50	Mortality	173	7.4-9.4	-	2200	-	-	-	LeBlanc 1980
Daphnia magna	Water flea	Sulfuric acid, Dithallium(1+) salt	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.4	-	880	-	-	-	Kimball 1978
Daphnia magna	Water flea	Sulfuric acid, Dithallium(1+) salt	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.4	-	930	-	-	-	Kimball 1978
Daphnia magna	Water flea	Thallium chloride	Acute	NR	48 hours	U	S	LC50	Mortality	-	6.8-8.0	-	61	-	-	-	Lan and Lin 2005
Daphnia magna	Water flea	Thallous(I) nitrate	Acute	NR	48 hours	U	S	LC50	Mortality	-	6.8-8.0	-	24	-	-	-	Lan and Lin 2005
Gammarus minus	Scud	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.5-8.0	-	100	100	78	-	Horne et al. 1983
Gammarus pseudolimnaeus	Scud	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	M	F	LC50	Mortality	-	7.86	-	55.65	61	-	-	Spehar 1989
Gammarus pseudolimnaeus	Scud	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	M	F	LC50	Mortality	-	7.86-7.93	-	67.5	-	-	-	Spehar 1989
Gastrophryne carolinensis	Eastern narrow-mouthed toad	Thallium chloride	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	-	110	110	110	-	Birge 1978
Hyalella azteca	Scud	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	M	F	LC50	Mortality	-	8.23	-	149.59	136	136	-	Spehar 1989
Hyalella azteca	Scud	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	M	F	LC50	Mortality	-	8.23	-	123.21	-	-	-	Spehar 1989
Lepomis macrochirus	Bluegill	Acetic acid, Thallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	55	7.6-7.9	-	170000	142829	142829	-	Dawson et al. 1977
Lepomis macrochirus	Bluegill	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	32-48	6.5-7.9	-	120000	-	-	-	Buccafusco et al. 1981
Oncorhynchus mykiss	Rainbow trout	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.2-7.8	-	2300	2300	2300	-	Horne et al. 1983
Physa heterostropha	Pond snail, pneumonate snail	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.4-7.8	-	2700	2700	2700	-	Horne et al. 1983
Pimephales promelas	Fathead minnow	Thallium	Acute	NR	96 hours	M	F	LC50	Mortality	-	-	-	1800	1494	1494	-	Stephan 1978
Pimephales promelas	Fathead minnow	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	M	F	LC50	Mortality	28-40	6.7-7.1	-	860	-	-	22	LeBlanc and Dean 1984
Pimephales promelas	Fathead minnow	Sulfuric acid, Dithallium(1+) salt	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.19	-	1810	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Sulfuric acid, Dithallium(1+) salt	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.19	-	1780	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Sulfuric acid, Dithallium(1+) salt	Chronic	Egg (48 hpf)	30 days	M	F	MATC	Mortality	28-40	6.7-7.2	-	40	40	40	-	LeBlanc and Dean 1984
Tallaperla maria	Stonefly	Sulfuric acid, Dithallium(1+) salt	Acute	NR	96 hours	U	S	LC50	Mortality	-	7.3-7.7	-	1460000	1460000	1460000	-	Horne et al. 1983

Notes:
Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-12.
Dash (-) indicates no data.
Grey shading indicates chronic data.
ACR - acute to chronic ratio
DOC - dissolved organic carbon
F - flow-through
LC50 - concentration that causes a lethal effect in 50% of an exposed population
M - measured
MATC - maximum allowable toxicant concentration
NR - not reported
R - renewal
S - static
U - unmeasured
X - unmeasured based on nominal values with some measured values

Table B-10b. Final Acute and Chronic Values for Thallium

Genus	Description	Genus Mean Value (µg/L)	Final Acute and Chronic Value Calculations [a]					
			Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Tallaperla	Stonefly	1460000	4	136	4.911	24.117	0.286	0.535
Chironomus	Midge	229000	3	129	4.860	23.615	0.214	0.463
Lepomis	Bluegill	142829	2	110	4.700	22.095	0.143	0.378
Caenorhabditis	Nematode	123000	1	78	4.357	18.981	0.071	0.267
Carassius	Goldfish	7000						
Physa	Snail	2700					n:	13
Oncorhynchus	Pacific salmon/trout	2300					Slope:	2.174
Pimephales	Fathead minnow	1494					Intercept:	3.814
Daphnia	Water flea	285					A[b]:	4.300
Hyalella	Scud	136						
Ceriodaphnia	Water flea	129					FAV[c]:	73.723
Gastrophryne	Narrow-mouthed toad	110					ACR[d]:	2.366
Gammarus	Scud	78					**Final chronic value**	**31.155**

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-11a. Vanadium Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	V Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	ACR	Reference
Carassius auratus	Goldfish	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	S	LC50	Mortality	-	6.2-6.3	-	15600	15600	15600	-	Ding 1980
Catostomus latipinnis	Flannelmouth sucker	Vanadate (VO31-), sodium (1:1)	Acute	Larvae (12-13 days)	96 hours	U	S	LC50	Mortality	144	7.4-7.9	-	11500	11500	11500	-	Hamilton and Buhl 1997
Chironomus dilutus	Midge	Sodium metavanadate	Acute	2nd instar	96 hours	M	R	LC50	Mortality	117	8.1	4.6	52000	52000	57327	6.3	Schiffer and Liber 2017a
Chironomus dilutus	Midge	Sodium metavanadate	Chronic	2nd instar	40 days	M	R	EC20	Emergence	121	8.3	3.7	8300	-	-	-	Schiffer and Liber 2017a
Chironomus riparius	Midge	Sodium metavanadate	Acute	2nd instar	96 hours	M	R	LC50	Mortality	99	8.0	NR	63200	63200	-	7.0	Schiffer and Liber 2017a
Chironomus riparius	Midge	Sodium metavanadate	Chronic	2nd instar	30 days	M	R	EC20	Emergence	103	8.0	NR	9000	-	-	-	Schiffer and Liber 2017a
Clarias batrachus	Walking catfish	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	NR	LC50	Mortality	-	-	-	24500	24500	24500	-	Ray and Banerjee 1998
Coregonus clupeaformis	Lake whitefish	Vanadium oxide	Acute	Juvenile (3 months)	96 hours	U	F	LC50	Mortality	90	7.7-8.03	-	17380	17380	17380	-	Giles et al. 1979
Cyprinus carpio	Common carp	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	S	LC50	Mortality	-	6.2-6.3	-	27800	30012	30012	-	Ding 1980
Cyprinus carpio	Common carp	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	S	LC50	Mortality	-	6.2-6.3	-	32400	-	-	-	Ding 1980
Danio rerio	Zebra danio	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	LC50	Mortality	-	7.7-8.5	-	5300	3979	3979	-	Beusen and Neven 1987
Danio rerio	Zebra danio	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	LC50	Mortality	-	7.7-8.5	-	4100	-	-	-	Beusen and Neven 1987
Danio rerio	Zebra danio	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	LC50	Mortality	-	7.7-8.5	-	2900	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadium oxide	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.57	-	1580	3195	1710	NC[a]	Kimball 1978
Daphnia magna	Water flea	Vanadium oxide	Acute	Neonate (12 hours)	48 hours	U	S	LC50	Mortality	-	8.57	-	1460	-	-	-	Kimball 1978
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	EC50	Mortality	-	-	-	3800	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	NR	48 hours	M	S	EC50	Mortality	-	-	-	3300	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	NR	48 hours	U	S	EC50	Mortality	-	-	-	4000	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	M	S	EC50	Mortality	-	-	-	3900	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	EC50	Mortality	-	-	-	2900	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	EC50	Mortality	-	-	-	3600	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	4800	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	3900	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	3400	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	NR	48 hours	U	S	LC50	Mortality	-	6.2-6.3	-	2300	-	-	-	Ding 1980
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	4300	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Acute	24 hours	48 hours	U	S	LC50	Mortality	-	-	-	3900	-	-	-	Beusen and Neven 1987
Daphnia magna	Water flea	Vanadate (VO31-), sodium (1:1)	Chronic	≤24 hours	21 days	M	S	LOEC	Growth	-	-	-	400	-	-	-	Van Leeuwen et al. 1987
Daphnia dentifera	Water flea	Sodium metavanadate	Acute	<24 hours	48 hours	M	R	LC50	Mortality	109	8.2	NR	880	880	-	11	Schiffer and Liber 2017b
Daphnia dentifera	Water flea	Sodium metavanadate	Chronic	<24 hours	21 days	M	R	EC20	Reproduction	113	8.3	NR	80	-	-		Schiffer and Liber 2017b
Daphnia pulex	Water flea	Sodium metavanadate	Acute	<24 hours	48 hours	M	R	LC50	Mortality	108	8.2	1.8	2170	2170	-	6.2	Schiffer and Liber 2017b
Daphnia pulex	Water flea	Sodium metavanadate	Chronic	<24 hours	21 days	M	R	EC20	Reproduction	114	8.3	1.6	350	-	-	-	Schiffer and Liber 2017b
Daphnia similis	Water flea	Vanadium oxide	Acute	6-24 hours	48 hours	U	S	EC50	Mortality	-	-	-	1400	1400	-	-	Artal et al. 2013
Ceriodaphnia quadrangula	Water flea	Sodium metavanadate	Acute	<24 hours	48 hours	M	R	LC50	Mortality	109	8.2	NR	600	600	600	1.4	Schiffer and Liber 2017b
Ceriodaphnia quadrangula	Water flea	Sodium metavanadate	Chronic	<24 hours	8 days	M	R	EC20	Reproduction	108	8.2	NR	440	-	-	-	Schiffer and Liber 2017b
Simocephalus serrulatus	Water flea	Sodium metavanadate	Acute	<24 hours	48 hours	M	R	LC50	Mortality	100	8.2	NR	1720	1720	1720	-	Schiffer and Liber 2017b
Gastrophryne carolinensis	Eastern narrow-mouthed toad	Vanadium oxide	Acute	Egg	7 days	M	R	LC50	Mortality	195	7.4	-	250	250	250	-	Birge 1978
Gila elegans	Bonytail	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (220-234 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	5100	3903	3903	-	Hamilton 1995
Gila elegans	Bonytail	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (138-145 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	2200	-	-	-	Hamilton 1995
Gila elegans	Bonytail	Vanadate (VO31-), sodium (1:1)	Acute	Swim-up (11-18 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	5300	-	-	-	Hamilton 1995
Heterorhabditis bacteriophora	Nematode	Vanadate (VO31-), Ammonium (1:1)	Acute	Juvenile	96 hours	U	S	NOEC	Mortality	-	5.5	-	210000	210000	210000	-	Jaworska et al. 1997
Hyalella azteca	Scud	Vanadium	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	18	7.39	1.4	1251	772	772	-	Borgmann et al. 2005
Hyalella azteca	Scud	Sodium vanadium oxide	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	18	7.39	1.4	368	-	-	-	Borgmann et al. 2005
Hyalella azteca	Scud	Sodium vanadium oxide	Acute	Young (1-11 days)	7 days	M	S	LC50	Mortality	124	8.21	1.4	1000	-	-	-	Borgmann et al. 2005
Lepomis macrochirus	Bluegill	oxo[Sulfato(2-)-o]vanadium	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	6000	18166	18166	-	Tarzwell and Henderson 1960
Lepomis macrochirus	Bluegill	oxo[Sulfato(2-)-o]vanadium	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	55000	-	-	-	Tarzwell and Henderson 1960
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	100	7.7	-	6100	11212	13602	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Fingerling	96 hours	M	F	LC50	Mortality	90	7.03-7.47	-	8150	-	-	-	Giles et al. 1979
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Fingerling	96 hours	M	F	LC50	Mortality	90	7.83-7.93	-	6430	-	-	-	Giles et al. 1979
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Fingerling	96 hours	M	F	LC50	Mortality	90	8.85-9.04	-	15730	-	-	-	Giles et al. 1979
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	101	5.51	-	11700	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	99	7.69	-	6400	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Eyed stage	96 hours	M	R	LC50	Mortality	-	7.4-8.4	-	118000	-	-	-	Giles and Klaverkamp 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	368	6.61	-	13200	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	100	7.7	-	8000	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	98	7.66	-	5200	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Fingerling	96 hours	M	F	LC50	Mortality	90	7.88-8	-	11430	-	-	-	Giles et al. 1979
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	101	7.71	-	10000	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Fingerling	96 hours	M	F	LC50	Mortality	90	5.99-6.34	-	21750	-	-	-	Giles et al. 1979
Oncorhynchus mykiss	Rainbow trout	Vanadium oxide	Acute	Juvenile	96 hours	M	F	LC50	Mortality	103	7.72	-	6200	-	-	-	Stendahl and Sprague 1982
Oncorhynchus mykiss	Rainbow trout	Sodium metavanadate	Acute	14 dph	96 hours	M	R	LC50	Mortality	108	7.9	NR	14800	-	-	-	Schiffer and Liber 2017a
Oncorhynchus tshawytscha	Chinook salmon	Sodium vanadium oxide	Acute	Fingerling	96 hours	U	S	LC50	Mortality	343	6.7-8.4	-	16500	16500	-	-	Hamilton and Buhl 1990
Oncorhynchus tshawytscha	Chinook salmon	Sodium vanadium oxide	Acute	Fingerling	96 hours	U	S	LC50	Mortality	211	7-8.3	-	16500	-	-	-	Hamilton and Buhl 1990

Table B-11a. Vanadium Toxicity Data for Freshwater Biota

Scientific Name	Common Name	Form	Acute/ Chronic	Age/Size	Duration	Measured/ Unmeasured	Exposure Type	Endpoint	Effect	Hardness Mean/Min-Max (mg/L)	pH Mean/ Min-Max	DOC Mean (mg/L)	V Conc. (µg/L)	Species Mean Value (µg/L)	Genus Mean Value (µg/L)	ACR	Reference
Pimephales promelas	Fathead minnow	Vanadium oxide	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	55000	6317	6317	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Vanadium oxide	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.07	-	1800	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Vanadium oxide	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	13000	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Vanadium oxide	Acute	Juvenile (8 weeks)	96 hours	U	F	LC50	Mortality	-	8.07	-	1900	-	-	-	Kimball 1978
Pimephales promelas	Fathead minnow	Vanadium	Acute	NR	96 hours	M	F	LC50	Mortality	-	-	-	1800	-	-	-	Stephan 1978
Pimephales promelas	Fathead minnow	oxo[Sulfato(2-)-o]vanadium	Acute	NR	96 hours	U	S	LC50	Mortality	400	8.2	-	30000	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	oxo[Sulfato(2-)-o]vanadium	Acute	NR	96 hours	U	S	LC50	Mortality	20	7.4	-	4800	-	-	-	Tarzwell and Henderson 1960
Pimephales promelas	Fathead minnow	Sodium metavanadate	Acute	<1 dph	96 hours	M	R	LC50	Mortality	93	8.0	NR	4000	-	-	4.4	Schiffer and Liber 2017a
Pimephales promelas	Fathead minnow	Sodium metavanadate	Chronic	<1 dph	28 days	M	R	EC20	Growth	106	8.1	NR	900	-	-	-	Schiffer and Liber 2017a
Poecilia reticulata	Guppy	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	LC50	Mortality	-	7.7-8.5	-	10200	4694	4694	-	Beusen and Neven 1987
Poecilia reticulata	Guppy	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	LC50	Mortality	-	7.7-8.5	-	6100	-	-	-	Beusen and Neven 1987
Poecilia reticulata	Guppy	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	NOEC	Mortality	-	7.7-8.5	-	3000	-	-	-	Beusen and Neven 1987
Poecilia reticulata	Guppy	Vanadate (VO31-), sodium (1:1)	Acute	NR	96 hours	U	R	NOEC	Mortality	-	7.7-8.5	-	2600	-	-	-	Beusen and Neven 1987
Ptychocheilus lucius	Colorado squawfish	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (193-207 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	4300	5032	5032	-	Hamilton 1995
Ptychocheilus lucius	Colorado squawfish	Vanadate (VO31-), sodium (1:1)	Acute	Swim-up (17-31 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	7800	-	-	-	Hamilton 1995
Ptychocheilus lucius	Colorado squawfish	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (99-115 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	3800	-	-	-	Hamilton 1995
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Yearling	96 hours	M	F	LC50	Mortality	35.4	6.5-8	-	15000	12701	12701	-	Ernst and Garside 1987
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Yearling	108 hours	M	F	LC50	Mortality	35.4	6.5-8	-	14000	-	-	-	Ernst and Garside 1987
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Yearling	84 hours	M	F	LC50	Mortality	35.4	6.5-8	-	17000	-	-	-	Ernst and Garside 1987
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Alevin	96 hours	M	S	LC50	Mortality	37	6.5-7.9	-	24000	-	-	-	Ernst and Garside 1987
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Yearling	84 hours	M	F	LC50	Mortality	35.4	6.5-8	-	7000	-	-	-	Ernst and Garside 1987
Salvelinus fontinalis	Brook trout	Vanadium oxide	Acute	Yearling	96 hours	M	F	LC50	Mortality	35.4	6.5-8	-	7000	-	-	-	Ernst and Garside 1987
Tubifex tubifex	Tubificid worm	Vanadium oxide	Acute	Mature	96 hours	U	S	LC50	Mortality	-	7.8	-	211	211	211	-	Fargasova 1999
Xyrauchen texanus	Razorback sucker	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (176-186 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	3000	4727	4727	-	Hamilton 1995
Xyrauchen texanus	Razorback sucker	Vanadate (VO31-), sodium (1:1)	Acute	Swim-up (10-17 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	8800	-	-	-	Hamilton 1995
Xyrauchen texanus	Razorback sucker	Vanadate (VO31-), sodium (1:1)	Acute	Juvenile (133-139 days)	96 hours	U	S	LC50	Mortality	196	7-8.5	-	4000	-	-	-	Hamilton 1995

Notes:
Data are from EPA's ECOTOX database; full citations for references, as imported from ECOTOX, are listed in Table B-12.
Dash (-) indicates no data.
Grey shading indicates chronic data.
[a] - Not calculated (NC) because comparable chronic data not available.
ACR - acute to chronic ratio
DOC - dissolved organic carbon
EC20 - concentration that causes a non-lethal effect in 20% of an exposed population
EC50 - concentration that causes a non-lethal effect in 50% of an exposed population
F - flow-through
LC50 - concentration that causes a lethal effect in 50% of an exposed population
LOEC - lowest-observed-effect-concentration
M - measured
NOEC - no-observed-effect-concentration
NR - not reported
R - renewal
S - static
U - unmeasured

Table B-11b. Final Acute and Chronic Values for Vanadium

Genus	Description	Genus Mean Value (µg/L)	Final Acute and Chronic Value Calculations[a]					
			Rank	GMAV (µg/L)	ln(GMAV)	ln(GMAV)^2	Pr	sqrt(Pr)
Heterorhabditis	Nematode	210000	4	772	6.649	44.212	0.174	0.417
Chironomus	Midge	57327	3	600	6.397	40.921	0.130	0.361
Cyprinus	Carp	30012	2	250	5.521	30.487	0.087	0.295
Clarias	Catfish	24500	1	211	5.352	28.642	0.043	0.209
Lepomis	Bluegill	18166						
Coregonus	Whitefish	17380					n:	22
Carassius	Goldfish	15600					Slope:	7.124
Oncorhynchus	Pacific salmon/trout	13602					Intercept:	3.697
Salvelinus	Salmonid fish	12701					A[b]:	5.290
Catostomus	Sucker	11500						
Pimephales	Fathead minnow	6317					FAV[c]:	198.414
Ptychocheilus	Squawfish	5032					ACR[d]:	5.128
Xyrauchen	Sucker	4727					**Final chronic value**	**38.692**
Poecilia	Guppy	4694						
Danio	Danio fish	3979						
Gila	Bonytail	3903						
Simocephalus	Water flea	1720						
Daphnia	Water flea	1710						
Hyalella	Scud	772						
Ceriodaphnia	Water flea	600						
Gastrophryne	Narrow-mouthed toad	250						
Tubifex	Tubificid worm	211						

Notes:

[a] Final acute value (FAV) calculation based on Stephan et al. (1985).

[b] A = Slope (sqrt[0.05]) + Intercept

[c] FAV = e^A

[d] An acute to chronic ratio (ACR) of 8.3 was used per Raimondo et al. (2007).

GMAV - genus mean acute value

ln - log normal

n - number

Pr - cumulative probability

sqrt - square root

Table B-12. Reference List for Development of Water Benchmarks for Antimony, Barium, Beryllium, Cobalt, Thallium, and Vanadium

Metal	Reference	Author	Publication Year	Title	Source
Sb	Birge 1978	Birge, W.J.	1978	Aquatic Toxicology of Trace Elements of Coal and Fly Ash	In: J.H.Thorp and J.W.Gibbons (Eds.), Dep.Energy Symp.Ser., Energy and Environmental Stress in Aquatic Systems, Augusta, GA48:219-240
Sb	Borgmann et al. 2005	Borgmann, U., Y. Couillard, P. Doyle, and D.G. Dixon	2005	Toxicity of Sixty-Three Metals and Metalloids to *Hyalella azteca* at Two Levels of Water Hardness	Environ. Toxicol. Chem.24(3): 641-652
Sb	Brooke et al. 1986	Brooke, L.T., D.J. Call, S.H. Poirier, C.A. Lindberg, and T.P. Markee	1986	Acute Toxicity of Antimony III to Several Species of Freshwater Organisms	Center for Lake Superior Environmental Studies, University of Wisconsin-Superior, Superior, WI:12 p.
Sb	Khangarot 1991	Khangarot, B.S.	1991	Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller)	Bull. Environ. Contam. Toxicol.46:906-912
Sb	Khangarot and Das 2009	Khangarot, B.S., and S. Das	2009	Acute Toxicity of Metals and Reference Toxicants to a Freshwater Ostracod, *Cypris subglobosa* Sowerby, 1840 and Correlation to EC50 Values of Other Test Models	J. Hazard. Mater.172(2/3): 641-649
Sb	Khangarot and Ray 1989	Khangarot, B.S., and P.K. Ray	1989	Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea *Daphnia magna* Straus	Ecotoxicol. Environ. Saf.18(2): 109-120
Sb	Kimball 1978	Kimball, G.	1978	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (*Pimephales promelas*) and *Daphnia magna*	Manuscr., Dep.of Entomol., Fish.and Wildl., Univ.of Minnesota, Minneapolis, MN:88 p.
Sb	LeBlanc 1980	LeBlanc, G.A.	1980	Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*)	Bull. Environ. Contam. Toxicol.24(5): 684-691
Sb	LeBlanc and Dean 1984	LeBlanc, G.A., and J.W. Dean	1984	Antimony and Thallium Toxicity to Embryos and Larvae of Fathead Minnows (*Pimephales promelas*)	Bull. Environ. Contam. Toxicol.32(5): 565-569
Sb	Lin and Hwang 1998	Lin, H.C., and P.P. Hwang	1998	Acute and Chronic Effects of Antimony Chloride (SbCl3) on Tilapia (*Oreochromis mossambicus*) Larvae	Bull. Environ. Contam. Toxicol.61(1): 129-134
Sb	Spehar 1987	Spehar, R.L.	1987	Criteria Document Data on Antimony	Aug.27th Memo to C.Stephan, U.S.EPA, Duluth, MN:22 p.
Sb	Stephan 1978	Stephan, C.E.	1978	Results of Toxicity Tests	Feb.13th Memo to J.Carroll, U.S.EPA, Washington, DC:2 p.
Sb	TAI 1990	TAI Environmental Sciences Inc.	1990	Results of Acute Toxicity Testing of Antimony Trichloride Using the Freshwater Species *Chironomus tentans*, *Physa heterostropha*, *Ictalurus punctatus*, *Hyalella azteca*, *Hydra oligactis* and *Chlorohydra viridissimus*	Report Presented to Dr.Rick D.Cardwell, EBASCO Services Inc., Bellevue, WA:24 p.
Sb	Tarzwell and Henderson 1960	Tarzwell, C.M., and C. Henderson	1960	Toxicity of Less Common Metals to Fishes	Ind. Wastes5:12-
Sb	Williams and Dusenbery 1990	Williams, P.L., and D.B. Dusenbery	1990	Aquatic Toxicity Testing Using the Nematode, *Caenorhabditis elegans*	Environ. Toxicol. Chem.9(10): 1285-1290
Sb	Yang et al. 2010	Yang, J.L., T.J. Hu, and H.Y. Lee	2010	Sublethal Antimony (III) Exposure of Freshwater Swamp Shrimp (*Macrobrachium nipponense*): Effects on Oxygen Consumption and Hepatopancreatic Histology	J. Water Resour. Prot.2(1): 42-47
Ba	Anderson et al. 1948	Anderson, B.G., T.F. Andrews, D.C. Chandler, and W.J. Jahoda	1948	The Evaluation of Aquatic Invertebrates as Assay Organisms for the Determination of the Toxicity of Industrial Wastes	Final Report 51, American Petroleum Institute Project, Ohio State University, Columbus, OH:
Ba	Biesinger and Christensen 1972	Biesinger, K.E., and G.M. Christensen	1972	Effects of Various Metals on Survival, Growth, Reproduction and Metabolism of *Daphnia magna*	J. Fish. Res. Board Can.29(12): 1691-1700
Ba	Boutet and Chaisemartin 1973	Boutet, C., and C. Chaisemartin	1973	Specific Toxic Properties of Metallic Salts in *Austro-potamobius pallipes pallipes* and *Orconectes limosus* (Proprietes Toxiques Specifiques des sels Metalliques chez Austropotamobius pallipes pallipes et Orconectes limosu)	Comptes Rendus Seances Soc. Biol. Fil.167(12): 1933-1938
Ba	Khangarot 1991	Khangarot, B.S.	1991	Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller)	Bull. Environ. Contam. Toxicol.46:906-912
Ba	Khangarot and Das 2009	Khangarot, B.S., and S. Das	2009	Acute Toxicity of Metals and Reference Toxicants to a Freshwater Ostracod, *Cypris subglobosa* Sowerby, 1840 and Correlation to EC50 Values of Other Test Models	J. Hazard. Mater.172(2/3): 641-649
Ba	Khangarot and Ray 1989	Khangarot, B.S., and P.K. Ray	1989	Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea *Daphnia magna* Straus	Ecotoxicol. Environ. Saf.18(2): 109-120
Ba	LeBlanc 1980	LeBlanc, G.A.	1980	Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*)	Bull. Environ. Contam. Toxicol.24(5): 684-691
Ba	Sprague et al. 1979	Sprague, J.B., and W.J. Logan	1979	Separate and Joint Toxicity to Rainbow Trout of Substances Used in Drilling Fluids for Oil Exploration	Environ. Pollut.19(4): 269-281
Ba	Tooby et al. 1975	Tooby, T.E., P.A. Hursey, and J.S. Alabaster	1975	The Acute Toxicity of 102 Pesticides and Miscellaneous Substances to Fish	Chem. Ind. (Lond.)21:523-526
Ba	USEPA 1978	U.S. Environmental Protection Agency	1978	In-Depth Studies on Health and Environmental Impacts of Selected Water Pollutants	U.S.EPA Contract No.68-01-4646, Duluth, MN:9 p.
Ba	USEPA 2013	U.S. Environmental Protection Agency, and Office of Pesticide Programs	2013	Pesticide Ecotoxicity Database (Formerly: Environmental Effects Database (EEDB))	Environmental Fate and Effects Division, U.S.EPA, Washington, D.C.:
Ba	Vincent et al. 1986	Vincent, M., B. Penicaut, and J. Debord	1986	Comparative Studies on the Toxicity of Metal Chlorides and of a Synthetic Organic Molluscicide, N-Trityl-Morpholine, upon Two Aquatic Amphipod Crustaceans, *Gammarus pulex* and *Echinogammarus berilloni*	Ann. Rech. Vet.17(4): 441-446
Ba	Wang 1986a	Wang, W.	1986	Toxicity Tests of Aquatic Pollutants by Using Common Duckweed	Environ. Pollut. Ser. B Chem. Phys.11(1): 1-14
Ba	Wang 1986b	Wang, W.	1988	Site-Specific Barium Toxicity to Common Duckweed, *Lemna minor*	Aquat. Toxicol.12(3): 203-212
Be	Borgmann et al. 2005	Borgmann, U., Y. Couillard, P. Doyle, and D.G. Dixon	2005	Toxicity of Sixty-Three Metals and Metalloids to *Hyalella azteca* at Two Levels of Water Hardness	Environ. Toxicol. Chem.24(3): 641-652

Table B-12. Reference List for Development of Water Benchmarks for Antimony, Barium, Beryllium, Cobalt, Thallium, and Vanadium

Metal	Reference	Author	Publication Year	Title	Source
Be	Buikema 1986	Buikema, A.L.,Jr.	1986	Toxicity of Beryllium to the Cladoceran, *Daphnia magna* as a Function of Water Hardness	Dep.of Biology, Virginia Polytechnic Institute and State University, Blacksburg, VA:26 p.
Be	Cardwell et al. 1976	Cardwell, R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur	1976	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA, Duluth, MN:125 p.
Be	Ewell et al. 1986	Ewell, W.S., J.W. Gorsuch, R.O. Kringle, K.A. Robillard, and R.C. Spiegel	1986	Simultaneous Evaluation of the Acute Effects of Chemicals on Seven Aquatic Species	Environ. Toxicol. Chem.5(9): 831-840
Be	Khangarot 1991	Khangarot, B.S.	1991	Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller)	Bull. Environ. Contam. Toxicol.46:906-912
Be	Khangarot and Das 2009	Khangarot, B.S., and S. Das	2009	Acute Toxicity of Metals and Reference Toxicants to a Freshwater Ostracod, *Cypris subglobosa* Sowerby, 1840 and Correlation to EC50 Values of Other Test Models	J. Hazard. Mater.172(2/3): 641-649
Be	Khangarot and Ray 1989	Khangarot, B.S., and P.K. Ray	1989	Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea *Daphnia magna* Straus	Ecotoxicol. Environ. Saf.18(2): 109-120
Be	Kimball 1978	Kimball, G.	1978	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (*Pimephales promelas*) and *Daphnia magna*	Manuscr., Dep.of Entomol., Fish.and Wildl., Univ.of Minnesota, Minneapolis, MN:88 p.
Be	LeBlanc 1980	LeBlanc, G.A.	1980	Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*)	Bull. Environ. Contam. Toxicol.24(5): 684-691
Be	Slonim 1973	Slonim, A.R.	1973	Acute Toxicity of Beryllium Sulfate to the Common Guppy	J. Water Pollut. Control Fed.45(10): 2110-2122
Be	Slonim and Ray 1975	Slonim, A.R., and E.E. Ray	1975	Acute Toxicity of Beryllium Sulfate to Salamander Larvae (*Ambystoma* spp.)	Bull. Environ. Contam. Toxicol.13(3): 307-312
Be	Slonim and Slonim 1973	Slonim, C.B., and A.R. Slonim	1973	Effect of Water Hardness on the Tolerance of the Guppy to Beryllium Sulfate	Bull. Environ. Contam. Toxicol.10(5): 295-301
Be	Tarzwell and Henderson 1960	Tarzwell, C.M., and C. Henderson	1960	Toxicity of Less Common Metals to Fishes	Ind. Wastes5:12-
Co	Baudouin and Scoppa 1974	Baudouin, M.F., and P. Scoppa	1974	Acute Toxicity of Various Metals to Freshwater Zooplankton	Bull. Environ. Contam. Toxicol.12(6): 745-751
Co	Biesinger and Christensen 1972	Biesinger, K.E., and G.M. Christensen	1972	Effects of Various Metals on Survival, Growth, Reproduction and Metabolism of *Daphnia magna*	J. Fish. Res. Board Can.29(12): 1691-1700
Co	Birge 1978	Birge, W.J.	1978	Aquatic Toxicology of Trace Elements of Coal and Fly Ash	In: J.H.Thorp and J.W.Gibbons (Eds.), Dep.Energy Symp.Ser., Energy and Environmental Stress in Aquatic Systems, Augusta, GA48:219-240
Co	Borgmann et al. 2005	Borgmann, U., Y. Couillard, P. Doyle, and D.G. Dixon	2005	Toxicity of Sixty-Three Metals and Metalloids to *Hyalella azteca* at Two Levels of Water Hardness	Environ. Toxicol. Chem.24(3): 641-652
Co	Boutet and Chaisemartin 1973	Boutet, C., and C. Chaisemartin	1973	Specific Toxic Properties of Metallic Salts in *Austro-potamobius pallipes pallipes* and *Orconectes limosus* (Proprietes Toxiques Specifiques des sels Metalliques chez Austropotamobius pallipes pallipes et Orconectes limosu)	Comptes Rendus Seances Soc. Biol. Fil.167(12): 1933-1938
Co	Bringmann and Kuhn 1960	Bringmann, G., and R. Kuhn	1960	The Water-Toxicological Detection of Insecticides (Zum Wasser-Toxikologischen Nachweis von Insektiziden)	Gesund. -Ing.8:243-244
Co	Cabejszek and Stasiak 1960	Cabejszek, I., and M. Stasiak	1960	Investigation on the Influence of some Metals on the Biocoenosis of Water with the Use of *Daphnia magna* as an Indicator (Part I) (Badania nad Wplywem Niektorych Metali na Biocenoze Wodna przy Zastosowaniu *Daphnia magna*)	Roczyn. Zabl. Hig. Warsaw11:303-312
Co	Chu and Chow 2002	Chu, K.W., and K.L. Chow	2002	Synergistic Toxicity of Multiple Heavy Metals is Revealed by a Biological Assay Using a Nematode and Its Transgenic Derivative	Aquat. Toxicol.61(1/2): 53-64
Co	Curtis and Ward 1981	Curtis, M.W., and C.H. Ward	1981	Aquatic Toxicity of Forty Industrial Chemicals: Testing in Support of Hazardous Substance Spill Prevention Regulation	J. Hydrol.51:359-367
Co	Das and Kaviraj 1994	Das, B.K., and A. Kaviraj	1994	Individual and Interactive Lethal Toxicity of Cadmium, Potassium Permanganate and Cobalt Chloride to Fish, Worm and Plankton	Geobios21(4): 223-227
Co	De Schamphelaere et al. 2008	De Schamphelaere, K.A.C., J.M. Koene, D.G. Heijerick, and C.R. Janssen	2008	Reduction of Growth and Haemolymph Ca Levels in the Freshwater Snail *Lymnaea stagnalis* Chronically Exposed to Cobalt	Ecotoxicol. Environ. Saf.71(1): 65-70
Co	Diamond et al. 1992	Diamond, J.M., E.L. Winchester, D.G. Mackler, W.J. Rasnake, J.K. Fanelli, and D. Gruber	1992	Toxicity of Cobalt to Freshwater Indicator Species as a Function of Water Hardness	Aquat. Toxicol.22(3): 163-180
Co	Ding 1980	Ding, S.R.	1980	Acute Toxicities of Vanadium, Nickel and Cobalt to Several Species of Aquatic Organisms	Environ. Qual.1:17-21
Co	Ewell and Spiegel 1986	Ewell, W.S., J.W. Gorsuch, R.O. Kringle, K.A. Robillard, and R.C. Spiegel	1986	Simultaneous Evaluation of the Acute Effects of Chemicals on Seven Aquatic Species	Environ. Toxicol. Chem.5(9): 831-840
Co	Ewell et al. 1986	Ewell, W.S., J.W. Gorsuch, R.O. Kringle, K.A. Robillard, and R.C. Spiegel	1986	Simultaneous Evaluation of the Acute Effects of Chemicals on Seven Aquatic Species	Environ. Toxicol. Chem.5(9): 831-840
Co	Gaur et al. 1994	Gaur, J.P., N. Noraho, and Y.S. Chauhan	1994	Relationship Between Heavy Metal Accumulation and Toxicity in *Spirodela polyrhiza* (L.) Schleid. and *Azolla pinnata* R. Br.	Aquat. Bot.49(2-3): 183-192
Co	Griffitt et al. 2008	Griffitt, R.J., J. Luo, J. Gao, J.C. Bonzongo, and D.S. Barber	2008	Effects of Particle Composition and Species on Toxicity of Metallic Nanomaterials in Aquatic Organisms	Environ. Toxicol. Chem.27(9): 1972-1978

Table B-12. Reference List for Development of Water Benchmarks for Antimony, Barium, Beryllium, Cobalt, Thallium, and Vanadium

Metal	Reference	Author	Publication Year	Title	Source
Co	Hobson 1986	Hobson, J.F.	1986	Acclimation-Induced Changes in Toxicity and Induction of Metallothionein-Like Proteins in the Fathead Minnow Following Sublethal Exposure to Cobalt, Silver, and Zinc	Ph.D.Thesis, University of Kentucky, Lexington, KY:145 p.
Co	Jaworska et al. 1997	Jaworska, M., A. Gorczyca, J. Sepiol, and P. Tomasik	1997	Effect of Metal Ions on the Entomopathogenic *Nematode Heterorhabditis bacteriophora Poinar* (*Nematode: Heterohabditidae*) Under Laboratory Conditions	Water Air Soil Pollut.93:157-166
Co	Khangarot 1991	Khangarot, B.S.	1991	Toxicity of Metals to a Freshwater Tubificid Worm, *Tubifex tubifex* (Muller)	Bull. Environ. Contam. Toxicol.46:906-912
Co	Khangarot and Das 2009	Khangarot, B.S., and S. Das	2009	Acute Toxicity of Metals and Reference Toxicants to a Freshwater Ostracod, *Cypris subglobosa* Sowerby, 1840 and Correlation to EC50 Values of Other Test Models	J. Hazard. Mater.172(2/3): 641-649
Co	Khangarot and Ray 1989a	Khangarot, B.S., and P.K. Ray	1989	Sensitivity of Midge Larvae of Chironomus tentans Fabricius (*Diptera Chironomidae*) to Heavy Metals	Bull. Environ. Contam. Toxicol.42(3): 325-330
Co	Khangarot and Ray 1989b	Khangarot, B.S., and P.K. Ray	1989	Investigation of Correlation Between Physicochemical Properties of Metals and Their Toxicity to the Water Flea *Daphnia magna* Straus	Ecotoxicol. Environ. Saf.18(2): 109-120
Co	Khangarot et al. 1985	Khangarot, B.S., A. Sehgal, and M.K. Bhasin	1985	"Man and Biosphere" - Studies on the Sikkim Himalayas. Part 5: Acute Toxicity of Selected Heavy Metals on the Tadpoles of *Rana hexadactyla*	Acta Hydrochim. Hydrobiol.13(2): 259-263
Co	Khangarot et al. 1987	Khangarot, B.S., P.K. Ray, and H. Chandra	1987	*Daphnia magna* as a Model to Assess Heavy Metal Toxicity: Comparative Assessment with Mouse System	Acta Hydrochim. Hydrobiol.15(4): 427-432
Co	Kimball 1978	Kimball, G.	1978	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (*Pimephales promelas*) and *Daphnia magna*	Manuscr., Dep.of Entomol., Fish.and Wildl., Univ.of Minnesota, Minneapolis, MN:88 p.
Co	Lind et al. 1978	Lind, D., K. Alto, and S. Chatterton	1978	Regional Copper-Nickel Study	Draft Report, Minnesota Environmental Quality Board St.Paul, MN:54-
Co	Marr et al. 1998	Marr, J.C.A., J.A. Hansen, J.S. Meyer, D. Cacela, T. Podrabsky, J. Lipton, and H.L. Bergman	1998	Toxicity of Cobalt and Copper to Rainbow Trout: Application of a Mechanistic Model for Predicting Survival	Aquat. Toxicol.43(4): 225-238
Co	Mukherjee and Kaviraj 2011	Mukherjee, S., and A. Kaviraj	2011	Ecotoxicological Assessment of Cobalt Used as Supplement in the Diet of Common Carp *Cyprinus carpio*	Bull. Environ. Contam. Toxicol.87(5): 527-530
Co	Nalecz-Jawecki and Sawicki 1998	Nalecz-Jawecki, G., and J. Sawicki	1998	Toxicity of Inorganic Compounds in the Spirotox Test: A Miniaturized Version of the Spirostomum ambiguum Test	Arch. Environ. Contam. Toxicol.34(1): 1-5
Co	Plowman et al. 1991	Plowman, M.C., H. Peracha, S.M. Hopfer, and F.W. Sunderman Jr.	1991	Teratogenicity of Cobalt Chloride in *Xenopus laevis*, Assayed by the FETAX Procedure	Teratog. Carcinog. Mutagen.11:83-92
Co	Pourkhabbaz et al. 2011	Pourkhabbaz, A., T. Khazaei, S. Behravesh, M. Ebrahimpour, and H. Pourkhabbaz	2011	Effect of Water Hardness on the Toxicity of Cobalt and Nickel to a Freshwater Fish, *Capoeta fusca*	Biomed. Environ. Sci.24(6): 656-660
Co	Rathore and Khangarot 2002	Rathore, R.S., and B.S. Khangarot	2002	Effects of Temperature on the Sensitivity of Sludge Worm *Tubifex tubifex* Muller to Selected Heavy Metals	Ecotoxicol. Environ. Saf.53(1): 27-36
Co	Reinardy et al. 2013	Reinardy, H.C., J.R. Syrett, R.A. Jeffree, T.B. Henry, and A.N. Jha	2013	Cobalt-Induced Genotoxicity in Male Zebrafish (*Danio rerio*), with Implications for Reproduction and Expression of DNA Repair Genes	Aquat. Toxicol.126:224-230
Co	Saeedi Saravi et al. 2009	Saeedi Saravi, S.S., S. Karami, B. Karami, and M. Shokrzadeh	2009	Toxic Effects of Cobalt Chloride on Hematological Factors of Common Carp (*Cyprinus carpio*)	Biol. Trace Elem. Res.132(1-3): 144-152
Co	Saka 2004	Saka, M.	2004	Developmental Toxicity of p,p'-Dichlorodiphenyltrichloroethane, 2,4,6-Trinitrotoluene, Their Metabolites, and Benzo(a)pyrene in *Xenopus laevis* Embryos	Environ. Toxicol. Chem.23(4): 1065-1073
Co	Stephan 1978	Stephan, C.E.	1978	Results of Toxicity Tests	Feb.13th Memo to J.Carroll, U.S.EPA, Washington, DC:2 p.
Co	Sunderman 1992	Sunderman, F.W. Jr.	1992	Embryotoxicity and Teratogenicity of Ni2+ and Co2+ in *Xenopus laevis*	In: E.Merian and W.Haerdi (Eds.), Science and Technology Letters. Northwood, Middlesex, UK:467-474
Co	Voloshko et al. 1997	Voloshko, L.N., N.N. Titova, and B.V. Gromov	1997	Influence of Heavy Metal Ions on Cell Motility of *Ochromonas ovalis Dofl*. (*Chrysophyta*)	Hydrobiol. J.33(6/7): 147-155
Co	Warnick and Bell 1969	Warnick, S.L., and H.L. Bell	1969	The Acute Toxicity of Some Heavy Metals to Different Species of Aquatic Insects	J. Water Pollut. Control Fed.41(2 Pt.1): 280-284
Tl	Birge 1978	Birge, W.J.	1978	Aquatic Toxicology of Trace Elements of Coal and Fly Ash	In: J.H.Thorp and J.W.Gibbons (Eds.), Dep.Energy Symp.Ser., Energy and Environmental Stress in Aquatic Systems, Augusta, GA48:219-240
Tl	Buccafusco et al. 1981	Buccafusco, R.J., S.J. Ells, and G.A. LeBlanc	1981	Acute Toxicity of Priority Pollutants to Bluegill (*Lepomis macrochirus*)	Bull. Environ. Contam. Toxicol.26(4): 446-452
Tl	Dawson et al. 1977	Dawson, G.W., A.L. Jennings, D. Drozdowski, and E. Rider	1977	The Acute Toxicity of 47 Industrial Chemicals to Fresh and Saltwater Fishes	J. Hazard. Mater.1(4): 303-318
Tl	Horne et al. 1983	Horne, J.D., M.A. Swirsky, T.A. Hollister, B.R. Oblad, and J.H. Kennedy	1983	Aquatic Toxicity Studies of Five Priority Pollutants	Final Report, EPA Contract No.68-01-6201, NUS Corporation, Houston, TX:196 p.
Tl	Kimball 1978	Kimball, G.	1978	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (*Pimephales promelas*) and *Daphnia magna*	Manuscr., Dep.of Entomol., Fish.and Wildl., Univ.of Minnesota, Minneapolis, MN:88 p.

Table B-12. Reference List for Development of Water Benchmarks for Antimony, Barium, Beryllium, Cobalt, Thallium, and Vanadium

Metal	Reference	Author	Publication Year	Title	Source
Tl	Lan and Lin 2005	Lan, C.H., and T.S. Lin	2005	Acute Toxicity of Trivalent Thallium Compounds to *Daphnia magna*	Ecotoxicol. Environ. Saf.61(3): 432-435
Tl	LeBlanc 1980	LeBlanc, G.A.	1980	Acute Toxicity of Priority Pollutants to Water Flea (*Daphnia magna*)	Bull. Environ. Contam. Toxicol.24(5): 684-691
Tl	LeBlanc and Dean 1984	LeBlanc, G.A., and J.W. Dean	1984	Antimony and Thallium Toxicity to Embryos and Larvae of Fathead Minnows (*Pimephales promelas*)	Bull. Environ. Contam. Toxicol.32(5): 565-569
Tl	Spehar 1989	Spehar, R.L.	1989	Aquatic Toxicity Test Information on Thallium with Amphipods and Daphnids	October 17 Memo to L.Brooke, Lake Superior Environmental Studies, Superior, WI:6 p.
Tl	Stephan 1978	Stephan, C.E.	1978	Results of Toxicity Tests	Feb.13th Memo to J.Carroll, U.S.EPA, Washington, DC:2 p.
Tl	Williams and Dusenbery 1990	Williams, P.L., and D.B. Dusenbery	1990	Aquatic Toxicity Testing Using the Nematode, *Caenorhabditis elegans*	Environ. Toxicol. Chem.9(10): 1285-1290
V	Artal et al. 2013	Artal, M.C., R.D. Holtz, F. Kummrow, O.L. Alves, and G.A. Umbuzeiro	2013	The Role of Silver and Vanadium Release in the Toxicity of Silver Vanadate Nanowires Toward *Daphnia similis*	Environ. Toxicol. Chem.32(4): 908-912
V	Beusen and Neven 1987	Beusen, J.M., and B. Neven	1987	Toxicity of Vanadium to Different Freshwater Organisms	Bull. Environ. Contam. Toxicol.39(2): 194-201
V	Birge 1978	Birge, W.J.	1978	Aquatic Toxicology of Trace Elements of Coal and Fly Ash	In: J.H.Thorp and J.W.Gibbons (Eds.), Dep.Energy Symp.Ser., Energy and Environmental Stress in Aquatic Systems, Augusta, GA48:219-240
V	Borgmann et al. 2005	Borgmann, U., Y. Couillard, P. Doyle, and D.G. Dixon	2005	Toxicity of Sixty-Three Metals and Metalloids to *Hyalella azteca* at Two Levels of Water Hardness	Environ. Toxicol. Chem.24(3): 641-652
V	Ding 1980	Ding, S.R.	1980	Acute Toxicities of Vanadium, Nickel and Cobalt to Several Species of Aquatic Organisms	Environ. Qual.1:17-21
V	Ernst and Garside 1987	Ernst, W.R., and E.T. Garside	1987	Lethal Effects of Vanadium to Two Life Stages of Brook Trout *Salvelinus fontinalis* (Mitchill)	Can. J. Zool.65(3): 628-634
V	Fargasova 1999	Fargasova, A.	1999	Ecotoxicology of Metals Related to Freshwater Benthos	Gen. Physiol. Biophys.18(Focus Issue): 48-53
V	Giles and Klaverkamp 1982	Giles, M.A., and J.F. Klaverkamp	1982	The Acute Toxicity of Vanadium and Copper to Eyed Eggs of Rainbow Trout (*Salmo gairdneri*)	Water Res.16(6): 885-889
V	Giles et al. 1979	Giles, M.A., J.F. Klaverkamp, and S.G. Lawrence	1979	The Acute Toxicity of Saline Groundwater and of Vanadium to Fish and Aquatic Invertebrates	Project No.AF 3.2.1, Prepared for the Alberta Oil Sands Environmental Research Program, Edmonton, Alberta:237 p.
V	Hamilton 1995	Hamilton, S.J.	1995	Hazard Assessment of Inorganics to Three Endangered Fish in the Green River, Utah	Ecotoxicol. Environ. Saf.30(2): 134-142
V	Hamilton and Buhl 1990	Hamilton, S.J., and K.J. Buhl	1990	Safety Assessment of Selected Inorganic Elements to Fry of Chinook Salmon (*Oncorhynchus tshawytscha*)	Ecotoxicol. Environ. Saf.20(3): 307-324
V	Hamilton and Buhl 1997	Hamilton, S.J., and K.J. Buhl	1997	Hazard Evaluation of Inorganics, Singly and in Mixtures, to Flannelmouth Sucker *Catostomus latipinnis* in the San Juan River, New Mexico	Ecotoxicol. Environ. Saf.38(3): 296-308
V	Jaworska et al. 1997	Jaworska, M., A. Gorczyca, J. Sepiol, and P. Tomasik	1997	Effect of Metal Ions on the Entomopathogenic Nematode *Heterorhabditis bacteriophora Poinar* (*Nematode: Heterohabditidae*) Under Laboratory Conditions	Water Air Soil Pollut.93:157-166
V	Kimball 1978	Kimball, G.	1978	The Effects of Lesser Known Metals and One Organic to Fathead Minnows (*Pimephales promelas*) and *Daphnia magna*	Manuscr., Dep.of Entomol., Fish.and Wildl., Univ.of Minnesota, Minneapolis, MN:88 p.
V	Ray and Banerjee 1998	Ray, D., and S.K. Banerjee	1998	Hematological and Histopathological Changes in *Clarias batrachus* (Linn) Exposed to Nickel and Vanadium	Environ. Ecol.16(1):151-156
V	Schiffer and Liber 2017a	Schiffer, S., and Liber, K.	2017	Estimation of vanadium water quality benchmarks for the protection of aquatic life with relevance to the Athabasca Oil Sands region using species sensitivity distributions	Environ. Toxicol. Chem. 36(11): 3034-3044
V	Schiffer and Liber 2017b	Schiffer, S., and Liber, K.	2017	Toxicity of aqueous vanadium to zooplankton and phytoplankton species of relevance to the Athabasca oil sands region	Ecotoxicol Environ Saf 137:1-11
V	Stendahl and Sprague 1982	Stendahl, D.H., and J.B. Sprague	1982	Effects of Water Hardness and pH on Vanadium Lethality to Rainbow Trout	Water Res.16:1479-1488
V	Stephan 1978	Stephan, C.E.	1978	Results of Toxicity Tests	Feb.13th Memo to J.Carroll, U.S.EPA, Washington, DC:2 p.
V	Tarzwell and Henderson 1960	Tarzwell, C.M., and C. Henderson	1960	Toxicity of Less Common Metals to Fishes	Ind. Wastes5:12-
V	Van Leeuwen et al. 1987	Van Leeuwen, C.J., G. Niebeek, and M. Rijkeboer	1987	Effects of Chemical Stress on the Population Dynamics of *Daphnia magna*: A Comparison of Two Test Procedures	Ecotoxicol. Environ. Saf.14(1): 1-11

Table B-13. Selected Benchmarks for Sediment

COI	TEC (mg/kg dw)	LAET (mg/kg dw)	ESG (mg/kg OC)	Selected Benchmark	Selected Benchmark Units
Common Metals/Metalloids					
Antimony	na	0.6	NA	0.6	mg/kg dw
Arsenic	9.79	31	NA	9.79	mg/kg dw
Beryllium	na	0.46	NA	0.46	mg/kg dw
Cadmium	0.99	2.39	NA	0.99	mg/kg dw
Chromium (III)	43.4	95	NA	43.4	mg/kg dw
Copper	31.6	619	NA	31.6	mg/kg dw
Lead	35.8	335	NA	35.8	mg/kg dw
Mercury	0.18	0.8	NA	0.18	mg/kg dw
Nickel	22.7	53.1	NA	22.7	mg/kg dw
Silver	na	0.545	NA	0.545	mg/kg dw
Zinc	121	683	NA	121	mg/kg dw
SVOCs					
Dimethyl phthalate	na	0.311	NA	0.311	mg/kg dw
Di-n-octylphthalate	na	0.011	NA	0.011	mg/kg dw
Pesticides					
4,4'-DDD	na	0.096	NA	0.096	mg/kg dw
Total DDD	0.00488	na	NA	0.00488	mg/kg dw
4,4'-DDE	na	0.021	NA	0.021	mg/kg dw
Total DDE	0.00316	na	NA	0.00316	mg/kg dw
4,4'-DDT	na	0.019	NA	0.019	mg/kg dw
Total DDT	0.00416	na	NA	0.00416	mg/kg dw
Total DDx	0.00528	na	NA	0.00528	mg/kg dw
Methoxychlor	na	na	1.9	1.9	mg/kg-OC
Dioxins/Furans					
Dioxin/furan TEQ[a]	na	na	na	0.00000085	mg/kg dw

Notes:

a The sediment benchmark for dioxin/furan toxic equivalent (TEQ) is from CCME (2002); this benchmark is also used for polychlorinated biphenyl (PCB) TEQ and total TEQ.

Chemicals of interest (COIs) for sediment are limited to those remaining after elimination in the SLERA (TAI 2010).

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

ESG - equilibrium partitioning sediment guideline developed by EPA (USEPA 2008b).

LAET- lowest apparent effects threshold

NA - not applicable

na - not available

OC - organic carbon normalized

SVOC - semivolatile organic compound

TEC - threshold effect concentration (MacDonald et al. 2000)

Table B-14. Selected Benchmarks for Fish Tissue

COI	Screening Benchmark	Derivation/Reference	WQC and BCF Values Used in Derivation		
			WQC (µg/L)	WQC Basis	BCF (L/kg)
Common Metals/Metalloids (mg/kg ww)					
Aluminum	33	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Antimony	0.03	Estimated from WQC and BCF (Windward 2013)	30	FC	1
Arsenic	1.7	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Cadmium	0.09	LOAEL based on Rombough and Garside 1982	NA	NA	NA
Chromium	2.7	Estimated from WQC and BCF (Windward 2013)	23.8	FC (USEPA 2002)	115
Copper	3.1	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Lead	2.2	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Mercury	0.46	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Nickel	18.4	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Selenium	1.7[a]	EPA final AWQC criterion (USEPA 2016)	NA	NA	NA
Silver	0.27	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Thallium	4.6	Estimated from WQC and BCF (Windward 2013)	40	FC	116
Zinc	27	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
SVOCs (mg/kg ww)					
Bis(2-Ethylhexyl)phthalate	36.9	Estimated from NOEC (Staples et al. 1997) and BCF (EPA 2016)	52 (NOEC)	NA	710
Butyl benzyl phthalate	1.2	Estimated from WQC and BCF (Windward 2013)	3	FC	414
Dibutyl phthalate	551	Estimated from LOEC (Staples et al. 1997) and BCF (EPA 2016)	190 (LOEC)	FC	2900
Di-n-octylphthalate	41	Estimated from WQC and BCF (Windward 2013)	3	FC	13600
Hexachlorobenzene	0.49	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Hexachlorobutadiene	0.026	Estimated from WQC and BCF (Windward 2013)	9.3	FC	2.8
Pentachlorophenol	3.10	Estimated from WQC and BCF (Windward 2013)	4.0	FC	770
Pesticides (mg/kg ww)					
Aldrin	0.810	Estimated from WQC and BCF (Windward 2013)	na	na	na
delta-BHC	0.0049	Estimated from WQC and BCF (Windward 2013)	34[b]	MA	130
Total chlordane	0.55[c]	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Total DDx	0.24[d]	5th percentile LOAEL from SSD (Windward 2013)	NA	NA	NA
Dieldrin	0.220	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Endrin	0.025	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA
Heptachlor	0.060	Estimated from WQC and BCF (Windward 2013)	0.0038	MC (USEPA 2002)	15700
Heptachlor epoxide	0.055	Estimated from WQC and BCF (Windward 2013)	0.0038	MC (USEPA 2002)	14400
Methoxychlor	0.20	5th percentile aquatic tissue LOAEL reported by Dyer et al. 2000	NA	NA	NA

Table B-14. Selected Benchmarks for Fish Tissue

COI	Screening Benchmark	Derivation/Reference	WQC and BCF Values Used in Derivation		
			WQC (µg/L)	WQC Basis	BCF (L/kg)
PCBs (mg/kg ww)					
Total PCBs	0.72	5th percentile LOAEL from SSD (Windward 2013)	NA	NA	NA
Dioxins/Furans (mg/kg lipid)					
Dioxin/furan TEQ	0.000321	Steevens 2005	NA	NA	NA

Notes:

References are provided in Appendix B text.

[a] Converted from dry weight crtierion of 8.0 mg/kg to a wet weight criterion of 1.7 mg/kg ww assuming 80% moisture content in tissue.

[b] Acute ambient water quality criteria (AWQC) was divided by an acute-to-chronic ratio of 9.

[c] Also used as surrogate toxicity reference value (TRV) for cis- and trans-nonchlor and oxychlordane.

[d] Also used as a surrogate for individual dichlorodiphenyltrichloroethane (DDT) metabolites.

BCF - bioconcentration factor

BHC - benzene hexachloride

COI - chemical of interest

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

FC - freshwater chronic

LOAEL - lowest-observed-adverse-effects level

LOEC - lowest observed effect concentration

MA - marine acute

MC - marine chronic

NA - not applicable

na - not available

NOEC - no observed effect concentration

PCB - polychlorinated biphenyl

SSD - species sensitivity distribution

SVOC - semivolatile organic compound

TEQ - toxic equivalent

WQC - water quality criteria

Table B-15. Selected Screening-Level Toxicity Reference Values for Fish Diet

COI	SL TRV as Dose (mg/kg bw/day)	SL TRV as Prey Concentration (mg/kg_{diet} dw)	Source	Derivation/Reference
Common Metals/Metalloids				
Aluminum	67[a]	2232	Literature review[b]	Poston 1991
Arsenic	0.4	20	Portland Harbor SL	Oladimeji et al. 1984
Cadmium	0.002	0.1	Portland Harbor SL	Kim et al. 2004; Kang et al. 2005
Chromium	0.037	2.0	Literature review	Ahmed et al. 2012
Copper	0.24	8	Portland Harbor SL	Murai et al. 1981
Lead	12.4	728	Literature review[b]	Alsop et al. 2016
Mercury	0.005	0.2	Portland Harbor SL	Matta et al. 2001
Molybdenum	45[a]	1500	Literature review	Goettl et al. 1976
Nickel	1.4	70	Literature review	Javed et al. 2013
Selenium	0.1	3.9	Literature review	Cleveland et al. 1993
Silver	70	3000	Literature review	Galvez and Wood 1999
Uranium	300[a]	10000	Literature review	Cooley et al. 2000
Vanadium	0.036[a]	1.2	Literature review	Hilton and Bettger 1988
Zinc	19	1000	Portland Harbor SL	Takeda and Shimma 1977
PAHs				
Benzo(a)pyrene	0.66[c]	47	Portland Harbor SL	Rice et al. 2000
Total HPAHs	6.1	324	Portland Harbor SL	Meador et al. 2006
Total LPAHs	6.1	324	Portland Harbor SL	Meador et al. 2006

Notes:

References are provided in Appendix B text.

[a] Estimated assuming a daily food ingestion rate of 3% of body weight.

[b] Portland Harbor screening level was available, but data were available from additional studies not considered in the Portland Harbor baseline ecological risk assessment (BERA) (Windward 2013), which resulted in lower screening benchmarks.

[c] The units for benzo(a)pyrene were incorrectly reported as µg/kg bw/day in the Portland Harbor BERA (Windward 2013) (Table 4-4 of Attachment 5).

COI - chemical of interest

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

LOAEL - lowest-observed-adverse-effects level

LPAH - low-molecular-weight PAH

SL - screening level

TRV - toxicity reference value

Table B-16. Selected Screening-Level Toxicity Reference Values for Mammalian and Avian Receptors

	Mammalian Screening-Level TRV				Avian Screening-Level TRV			
COI	SL TRV (mg/kg-bw/day)	Type of TRV (NOAEL or Eco-SSL)	Reference (citation)	Region 10 Source	SL TRV (mg/kg-bw/day)	Type of TRV (NOAEL or Eco-SSL)	Reference (citation)	Region 10 Source
Metals/Metalloids								
Aluminum	34	NOAEL	Ondreicka et al. 1966	Portland Harbor SL	157	NOAEL	Carriere et al. 1986	Portland Harbor SL
Antimony	0.059	Eco-SSL	USEPA 2005b	NA	na	NA	NA	NA
Arsenic	1.04	Eco-SSL	USEPA 2005b	NA	2.24	Eco-SSL	USEPA 2005c	NA
Barium	51.8	Eco-SSL	USEPA 2005d	NA	208.3	NOAEL	Johnson et al. 1960	NA
Beryllium	0.532	Eco-SSL	USEPA 2005e	NA	na	na	na	NA
Cadmium	0.77	Eco-SSL	USEPA 2005f	NA	1.47	Eco-SSL	USEPA 2005f	NA
Chromium	2.44	Eco-SSL	USEPA 2008a	NA	2.66	Eco-SSL	USEPA 2008a	NA
Cobalt	7.33	NOAEL	USEPA 2005g	NA	7.61	Eco-SSL	USEPA 2005g	NA
Copper	5.6	Eco-SSL	USEPA 2007a	NA	4.05	Eco-SSL	USEPA 2007a	NA
Iron	na	NA	NA	NA	na	NA	NA	NA
Lead	4.7	Eco-SSL	USEPA 2005h	NA	1.63	Eco-SSL	USEPA 2005h	NA
Manganese	51.5	Eco-SSL	USEPA 2007d	NA	179	NOAEL	USEPA 2007d	NA
Mercury	0.0017[a]	NOAEL	Verschuuren et al. 1976	LDW SL	0.018	NOAEL	Spalding et al. 2000	LDW SL
Molybdenum	0.258	NOAEL	Schroeder and Mitchener 1971	LDW SL	6	NOAEL	Lepore and Miller 1965	LDW SL
Nickel	1.7	Eco-SSL	USEPA 2007e	NA	6.71	Eco-SSL	USEPA 2007e	NA
Selenium	0.143	Eco-SSL	USEPA 2007h	NA	0.29	Eco-SSL	USEPA 2007h	NA
Silver	6.02	Eco-SSL	USEPA 2006	NA	2.02	Eco-SSL	USEPA 2006	NA
Thallium	0.74	NOAEL	Formigli et al. 1986	Portland Harbor SL	0.48	NOAEL	Hudson et al. 1984	Portland Harbor SL
Vanadium	4.16	Eco-SSL	USEPA 2005i	NA	0.344	Eco-SSL	USEPA 2005i	NA
Zinc	75.4	Eco-SSL	USEPA 2007i	NA	66.1	Eco-SSL	USEPA 2007i	NA
SVOCs								
bis(2-Ethylhexyl)phthalate	44	NOAEL	Tyl et al. 1988	Portland Harbor SL	1.1	NOAEL	Peakall 1974	Portland Harbor SL
Butyl benzyl phthalate	831	NOAEL	Agarwal et al. 1985	Portland Harbor SL	0.11	NOAEL	Peakall 1974	Portland Harbor SL
Dibutyl phthalate	16	NOAEL	Wine et al. 1997	Portland Harbor SL	1.1[b]	NOAEL	Peakall 1974	Portland Harbor SL
Di-n-octylphthalate	44[b]	NOAEL	Tyl et al. 1988	Portland Harbor SL	1.1[b]	NOAEL	Peakall 1974	Portland Harbor SL
Pentachlorophenol	8.4	Eco-SSL	USEPA 2007f	NA	7	Eco-SSL	USEPA 2007f	NA
Pesticides								
Aldrin	0.83	NOAEL	Reuber 1980	Portland Harbor SL	0.008	NOAEL	DeWitt 1956	Portland Harbor SL
Total chlordane	0.080	NOAEL	Khasawinah and Grutsch 1989	Portland Harbor SL	0.60	NOAEL	Ludke 1976	Portland Harbor SL
alpha-Chlordane	0.080[c]	NOAEL	Khasawinah and Grutsch 1989	Portland Harbor SL	0.60[c]	NOAEL	Ludke 1976	Portland Harbor SL
gamma-Chlordane	0.080[c]	NOAEL	Khasawinah and Grutsch 1989	Portland Harbor SL	0.60[c]	NOAEL	Ludke 1976	Portland Harbor SL
Total DDx	0.147	Eco-SSL	USEPA 2007b	NA	0.227	Eco-SSL	USEPA 2007b	NA
delta-BHC	6.1[d]	LOAEL	Palmer et al. 1978	Portland Harbor SL	1.6[d]	NOAEL	Chakravarty and Lahiri 1986; Chakravarty et al. 1986	Portland Harbor SL
Dieldrin	0.015	Eco-SSL	USEPA 2007c	NA	0.0709	Eco-SSL	USEPA 2007c	NA
Endrin	0.18	NOAEL	Good and Ware 1969	Portland Harbor SL	0.012	NOAEL	DeWitt 1956	Portland Harbor SL
Endrin aldehyde	0.18[e]	NOAEL	Good and Ware 1969	Portland Harbor SL	0.012[e]	NOAEL	DeWitt 1956	Portland Harbor SL
Endrin ketone	0.18[e]	NOAEL	Good and Ware 1969	Portland Harbor SL	0.012[e]	NOAEL	DeWitt 1956	Portland Harbor SL
Heptachlor	1.0	NOAEL	Crum et al. 1993	Portland Harbor SL	0.10	NOAEL	Hill et al. 1975	Portland Harbor SL
Heptachlor epoxide	1.0[f]	NOAEL	Crum et al. 1993	Portland Harbor SL	0.10	NOAEL	Hill et al. 1975	Portland Harbor SL
Hexachlorobenzene	0.026	NOAEL	Bleavins et al. 1984	Portland Harbor SL	0.24	NOAEL	Schwetz et al. 1974	Portland Harbor SL
Hexachlorobutadiene	2.0	NOAEL	Kociba et al. 1997a, 1997b; Schwetz et al. 1977	Portland Harbor SL	1.7	NOAEL	Schwetz et al. 1974	Portland Harbor SL
Methoxychlor	5.6	NOAEL	You et al. 2002	Portland Harbor SL	34.6	NOAEL	Gee et al. (2004); Millam et al. (2002)	Portland Harbor SL
cis-Nonachlor	2.5	NOAEL	Bondy et al. 2000	Portland Harbor SL	0.60	NOAEL	Ludke 1976	Portland Harbor SL
trans-Nonachlor	2.5	NOAEL	Bondy et al. 2000	Portland Harbor SL	0.60[c]	NOAEL	Ludke 1976	Portland Harbor SL
Oxychlordane	0.18[g]	NOAEL	Khasawinah and Grutsch 1989	Portland Harbor SL	0.60[c]	NOAEL	Ludke 1976	Portland Harbor SL
PAHs								
Benzo(a)pyrene	2	NOAEL	Mackenzie and Angevine 1981	NA	0.28	NOAEL	Hough et al. 1993	Portland Harbor SL
Total PAHs	na	NA	NA	NA	40	NOAEL	Patton and Dieter 1980	Portland Harbor SL
Total HPAHs	0.615	Eco-SSL	USEPA 2007g	NA	0.14	NOAEL	Hough et al. 1993	NA
Total LPAHs	65.6	Eco-SSL	USEPA 2007g	NA	7.7	NOAEL	Klasing 2007	NA

Table B-16. Selected Screening-Level Toxicity Reference Values for Mammalian and Avian Receptors

	Mammalian Screening-Level TRV				Avian Screening-Level TRV			
COI	SL TRV (mg/kg-bw/day)	Type of TRV (NOAEL or Eco-SSL)	Reference (citation)	Region 10 Source	SL TRV (mg/kg-bw/day)	Type of TRV (NOAEL or Eco-SSL)	Reference (citation)	Region 10 Source
PCBs								
Total PCBs	0.0089	NOAEL	Brunstrom et al. 2001	NA	0.29	NOAEL	Britton and Huston 1973	Portland Harbor SL
Dioxins/Furans								
Dioxins/Furans[h]	0.000001	NOAEL	Murray et al. 1979	NA	0.00014	NOAEL	Nosek et al. 1992	Portland Harbor SL

Notes:

Highlighted screening level (SL) toxicity reference values (TRVs) represent those used in the SLERA (TAI 2010). All other SL TRVs were not included in the SLERA.

References are provided in Appendix B text.

[a] Lower Duwamish Waterway (LDW) SL selected because Portland SL was based on mink data only.

[b] Benchmark for bis(2-ethylhexyl)phthalate used as a surrogate.

[c] Benchmark for total chlordane used as a surrogate.

[d] Benchmark for gamma-BHC used as a surrogate.

[e] Benchmark for endrin used as a surrogate.

[f] Benchmark for heptachor used as a surrogate.

[g] Benchmark for total endosulfan used as a surrogate.

[h] The dioxin/furan SL TRV represents toxicity of 2,3,7,8-tetrachlorodibenzodioxin and was applied as equivalent to dioxin/furan toxic equivalent (TEQ). This TRV was also used for evaluation of polychlorinated biphenyl (PCB) TEQ and total TEQ.

BHC - benzene hexachloride
COI - chemical of interest
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
Eco SSL - ecological soil screening level
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LOAEL - lowest-observed-adverse-effects level
LPAH - low-molecular-weight PAH
NA - not applicable
na - not available
NOAEL - no-observed-adverse-effects level
SVOC - semivolatile organic compound

Table B-17. Selected Benchmarks for Soil

	Terrestrial Plants		Terrestrial Invertebrates		Terrestrial Birds		Terrestrial Mammals	
COI	Benchmark (mg/kg)	Source	Benchmark (mg/kg)	Source	Benchmark (mg/kg)	Source	Benchmark (mg/kg)	Source
Aluminum	no value[a]	Eco-SSL (USEPA 2003a)	no value	Eco-SSL (USEPA 2003a)	no value[a]	NA	no value[a]	NA
Antimony	no value[a]	NA	78	Eco-SSL (USEPA 2005b)	no value[a]	NA	0.27	Eco-SSL (USEPA 2005b)
Arsenic	18	Eco-SSL (USEPA 2005c)	no value[a]	NA	43	Eco-SSL (USEPA 2005c)	46	Eco-SSL (USEPA 2005c)
Barium	1,414[b]	Chaudhry et al. 1977, as cited in USEPA 2005d	330	Eco-SSL (USEPA 2005d)	no value[a]	NA	2,000	Eco-SSL (USEPA 2005d)
Beryllium	56.8[b]	Kaplan et al. 1990, as cited in USEPA 2005e	40	Eco-SSL (USEPA 2005e)	no value[a]	NA	21	Eco-SSL (USEPA 2005e)
Cadmium	32	Eco-SSL (USEPA 2005f)	140	Eco-SSL (USEPA 2005f)	0.77	Eco-SSL (USEPA 2005f)	0.36	Eco-SSL (USEPA 2005f)
Chromium	no value[a]	NA	57[b]	Van Gestel et al. 1992, as cited in USEPA 2008a	26[c]	Eco-SSL (USEPA 2008a)	34[c]	Eco-SSL (USEPA 2008a)
Cobalt	13	Eco-SSL (USEPA 2005g)	no value[a]	NA	120	Eco-SSL (USEPA 2005g)	230	Eco-SSL (USEPA 2005g)
Copper	70	Eco-SSL (USEPA 2007a)	80	Eco-SSL (USEPA 2007a)	28	Eco-SSL (USEPA 2007)	49	Eco-SSL (USEPA 2007)
Iron	no value	NA	no value	NA	no value	NA	no value	NA
Lead	120	Eco-SSL (USEPA 2005h)	1,700	Eco-SSL (USEPA 2005h)	11	Eco-SSL (USEPA 2005h)	56	Eco-SSL (USEPA 2005i)
Manganese	220	Eco-SSL (USEPA 2007d)	450	Eco-SSL (USEPA 2007d)	4,300	Eco-SSL (USEPA 2007d)	4,000	Eco-SSL (USEPA 2007d)
Mercury	10	Sheppard et al. 1993, as cited in ECOTOX 2015	0.79	Abbasi and Soni 1983, as cited in ECOTOX 2015	no value[d]	NA	no value[d]	NA
Molybdenum	no value[e]	NA	no value[e]	NA	no value[d]	NA	no value[d]	NA
Nickel	38	Eco-SSL (USEPA 2007e)	280	Eco-SSL (USEPA 2007e)	210	Eco-SSL (USEPA 2007e)	130	Eco-SSL (USEPA 2007e)
Selenium	0.52	Eco-SSL (USEPA 2007h)	4.1	Eco-SSL (USEPA 2007i)	1.2	Eco-SSL (USEPA 2007h)	0.63	Eco-SSL (USEPA 2007h)
Silver	560	Eco-SSL (USEPA 2006)	no value[a]	NA	4.2	Eco-SSL (USEPA 2006)	14	Eco-SSL (USEPA 2006)
Thallium	no value[e]	NA	no value[e]	NA	no value[d]	NA	no value[d]	NA
Vanadium	100[b]	Kaplan et al. 1990, as cited in USEPA 2005i	no value[a]	NA	7.8	Eco-SSL (USEPA 2005i)	280	Eco-SSL (USEPA 2005i)
Zinc	160	Eco-SSL (USEPA 2007i)	120	Eco-SSL (USEPA 2007i)	46	Eco-SSL (USEPA 2007i)	79	Eco-SSL (USEPA 2007i)

Notes:

References provided in Appendix B text.

[a] As reported in the ecological soil screen level (Eco-SSL) documents, no toxicity studies met the Eco-SSL acceptability criteria.

[b] While insufficient toxicity data were available for the recommendation of an Eco-SSL (a minimum of three toxicity studies had to be available), this study was the lowest available toxicity study presented in the Eco-SSL document meeting Eco-SSL acceptability criteria.

[c] Screening value for chromium based on Eco-SSL for chromium III.

[d] No Eco-SSL document available.

[e] No Eco-SSL document is available for this chemical of interest (COI) and no toxicity data were identified based on a search of ECOTOX.

NA – not applicable

APPENDIX C

BOSSBURG FLAT BEACH
SOIL DATA

1 BOSSBURG FLAT BEACH SOIL DATA

This appendix presents an evaluation of the soil data from the Bossburg Flat Beach refined sediment and soil study (Windward 2016). These data were not included in the COPC refinement screen because they are from a specific area associated with the Young America Mill and mining operations, which resulted in elevated lead concentrations. However, maximum concentrations of metals from the Bossburg Flat Beach study are compared to soil benchmarks in this appendix for informational purposes.

The methods and benchmarks used for this comparison are discussed in the main text of this document (see Section 3). Results of the benchmark comparison are presented in Table C-1. The following metals had concentrations exceeding receptor-specific benchmarks in more than one sample:

- **Terrestrial plants:** cobalt, lead, manganese, nickel, selenium, and zinc
- **Terrestrial invertebrates:** manganese and zinc
- **Terrestrial birds:** cadmium, chromium, copper, lead, vanadium, and zinc
- **Terrestrial mammals:** antimony, cadmium, chromium, lead, and zinc.

Summary statistics for the Bossburg soil data are presented in Table C-2, including the number of samples, frequency of detection, and range of detected concentrations and detection limits.

2 REFERENCES

Windward. 2016. Upper Columbia River. Final. Bossburg Flat Beach refined sediment and soil study data summary report. Windward Environmental LLC, Seattle, WA.

TABLES

Table C-1. Refined Screen for COIs in Bossburg Soil

				Summary Statistics							Benchmark Comparison		
											Detected Values		
COI	Benchmark	Unit	Basis	No. of Samples	No. of Detected Values	Frequency of Detection (%)	Min. Detected Values	Max. Detected Values	Mean of Detected Values	Mean of All Values[a]	No. > Benchmark	% > Benchmark	Max. HQ
Plants													
Arsenic	18	mg/kg	dw	24	24	100	3.38	15.5	7.39	7.39	0	0	0.86
Barium	1414	mg/kg	dw	24	24	100	74	250	154	154	0	0	0.18
Beryllium	56.8	mg/kg	dw	24	24	100	0.191	0.999	0.4	0.4	0	0	0.018
Cadmium	32	mg/kg	dw	24	24	100	0.474	10.6	1.79	1.79	0	0	0.33
Cobalt	13	mg/kg	dw	24	24	100	3.31	14.2	5.75	5.75	2	8	1.1
Copper	70	mg/kg	dw	24	24	100	11.3	55.4	21.9	21.9	0	0	0.79
Lead	120	mg/kg	dw	24	24	100	24.2	1800	303	303	14	58	15
Manganese	220	mg/kg	dw	24	24	100	277	748	397	397	24	100	3.4
Mercury	10	mg/kg	dw	24	24	100	0.013	0.708	0.126	0.126	0	0	0.071
Nickel	38	mg/kg	dw	24	24	100	8.51	41.9	15.1	15.1	2	8	1.1
Selenium	0.52	mg/kg	dw	24	24	100	0.1	0.69	0.227	0.227	3	12	1.3
Silver	560	mg/kg	dw	24	24	100	0.097	1.24	0.332	0.332	0	0	0.0022
Vanadium	100	mg/kg	dw	24	24	100	17.4	67.5	27.6	27.6	0	0	0.68
Zinc	160	mg/kg	dw	24	24	100	58.2	555	150	150	6	25	3.5
Invertebrates													
Antimony	78	mg/kg	dw	24	24	100	0.242	46.2	3.4	3.4	0	0	0.59
Barium	330	mg/kg	dw	24	24	100	74	250	154	154	0	0	0.76
Beryllium	40	mg/kg	dw	24	24	100	0.191	0.999	0.4	0.4	0	0	0.025
Cadmium	140	mg/kg	dw	24	24	100	0.474	10.6	1.79	1.79	0	0	0.076
Chromium	57	mg/kg	dw	24	24	100	11.1	49.2	18.2	18.2	0	0	0.86
Copper	80	mg/kg	dw	24	24	100	11.3	55.4	21.9	21.9	0	0	0.69
Lead	1700	mg/kg	dw	24	24	100	24.2	1800	303	303	1	4	1.1
Manganese	450	mg/kg	dw	24	24	100	277	748	397	397	6	25	1.7
Mercury	0.79	mg/kg	dw	24	24	100	0.013	0.708	0.126	0.126	0	0	0.9
Nickel	280	mg/kg	dw	24	24	100	8.51	41.9	15.1	15.1	0	0	0.15
Selenium	4.1	mg/kg	dw	24	24	100	0.1	0.69	0.227	0.227	0	0	0.17
Zinc	120	mg/kg	dw	24	24	100	58.2	555	150	150	12	50	4.6
Birds													
Arsenic	43	mg/kg	dw	24	24	100	3.38	15.5	7.39	7.39	0	0	0.36
Cadmium	0.77	mg/kg	dw	24	24	100	0.474	10.6	1.79	1.79	19	79	14
Chromium	26	mg/kg	dw	24	24	100	11.1	49.2	18.2	18.2	3	12	1.9
Cobalt	120	mg/kg	dw	24	24	100	3.31	14.2	5.75	5.75	0	0	0.12
Copper	28	mg/kg	dw	24	24	100	11.3	55.4	21.9	21.9	4	17	2
Lead	11	mg/kg	dw	24	24	100	24.2	1800	303	303	24	100	160
Manganese	4300	mg/kg	dw	24	24	100	277	748	397	397	0	0	0.17
Nickel	210	mg/kg	dw	24	24	100	8.51	41.9	15.1	15.1	0	0	0.2
Selenium	1.2	mg/kg	dw	24	24	100	0.1	0.69	0.227	0.227	0	0	0.58
Silver	4.2	mg/kg	dw	24	24	100	0.097	1.24	0.332	0.332	0	0	0.3
Vanadium	7.8	mg/kg	dw	24	24	100	17.4	67.5	27.6	27.6	24	100	8.7
Zinc	46	mg/kg	dw	24	24	100	58.2	555	150	150	24	100	12
Mammals													
Antimony	0.27	mg/kg	dw	24	24	100	0.242	46.2	3.4	3.4	23	96	170
Arsenic	46	mg/kg	dw	24	24	100	3.38	15.5	7.39	7.39	0	0	0.34
Barium	2000	mg/kg	dw	24	24	100	74	250	154	154	0	0	0.13
Beryllium	21	mg/kg	dw	24	24	100	0.191	0.999	0.4	0.4	0	0	0.048
Cadmium	0.36	mg/kg	dw	24	24	100	0.474	10.6	1.79	1.79	24	100	29
Chromium	34	mg/kg	dw	24	24	100	11.1	49.2	18.2	18.2	2	8	1.4
Cobalt	230	mg/kg	dw	24	24	100	3.31	14.2	5.75	5.75	0	0	0.062
Copper	49	mg/kg	dw	24	24	100	11.3	55.4	21.9	21.9	1	4	1.1
Lead	56	mg/kg	dw	24	24	100	24.2	1800	303	303	18	75	32
Manganese	4000	mg/kg	dw	24	24	100	277	748	397	397	0	0	0.19
Nickel	130	mg/kg	dw	24	24	100	8.51	41.9	15.1	15.1	0	0	0.32
Selenium	0.63	mg/kg	dw	24	24	100	0.1	0.69	0.227	0.227	1	4	1.1
Silver	14	mg/kg	dw	24	24	100	0.097	1.24	0.332	0.332	0	0	0.089
Vanadium	280	mg/kg	dw	24	24	100	17.4	67.5	27.6	27.6	0	0	0.24
Zinc	79	mg/kg	dw	24	24	100	58.2	555	150	150	20	83	7

Notes:

Blue shading indicates HQs ≥ 1.

[a] Mean of non-detected values (one half of the detection limit) and detected values.

COI - chemical of interest

DL - detection limit

HQ - hazard quotient

Table C-2. Summary Statistics for Bossburg Soil Common Metals and Metalloids

Analyte	Sieve size	Concentration Units	Measurement Basis	Number of Analyses	Number of Detected Values	FOD	Minimum Detected Value	Maximum Detected Value	Minimum Undetected Value	Maximum Undetected Value
Aluminum	<2mm	mg/kg	dw	24	24	100%	6390	20500	NA	NA
Antimony	<2mm	mg/kg	dw	24	24	100%	0.242	46.2	NA	NA
Arsenic	<2mm	mg/kg	dw	24	24	100%	3.38	15.5	NA	NA
Barium	<2mm	mg/kg	dw	24	24	100%	74	250	NA	NA
Beryllium	<2mm	mg/kg	dw	24	24	100%	0.191	0.999	NA	NA
Cadmium	<2mm	mg/kg	dw	24	24	100%	0.474	10.6	NA	NA
Calcium	<2mm	mg/kg	dw	24	24	100%	1800	129000	NA	NA
Chromium	<2mm	mg/kg	dw	24	24	100%	11.1	49.2	NA	NA
Cobalt	<2mm	mg/kg	dw	24	24	100%	3.31	14.2	NA	NA
Copper	<2mm	mg/kg	dw	24	24	100%	11.3	55.4	NA	NA
Iron	<2mm	mg/kg	dw	24	24	100%	9250	31800	NA	NA
Lead	<2mm	mg/kg	dw	24	24	100%	24.2	1800	NA	NA
Magnesium	<2mm	mg/kg	dw	24	24	100%	2450	11600	NA	NA
Manganese	<2mm	mg/kg	dw	24	24	100%	277	748	NA	NA
Mercury	<2mm	mg/kg	dw	24	24	100%	0.013	0.708	NA	NA
Nickel	<2mm	mg/kg	dw	24	24	100%	8.51	41.9	NA	NA
Potassium	<2mm	mg/kg	dw	24	24	100%	946	4600	NA	NA
Selenium	<2mm	mg/kg	dw	24	24	100%	0.1	0.69	NA	NA
Silver	<2mm	mg/kg	dw	24	24	100%	0.097	1.24	NA	NA
Sodium	<2mm	mg/kg	dw	24	24	100%	72.7	314	NA	NA
Thallium	<2mm	mg/kg	dw	24	24	100%	0.107	0.525	NA	NA
Vanadium	<2mm	mg/kg	dw	24	24	100%	17.4	67.5	NA	NA
Zinc	<2mm	mg/kg	dw	24	24	100%	58.2	555	NA	NA

Notes:

FOD - frequency of detection

NA - not applicable

UPPER COLUMBIA RIVER

FINAL
Chemicals of Potential Concern Refinement for Aquatic and Terrestrial Receptors
Addendum No. 1

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CONTENTS

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

BHC	Beta-hexachlorocyclohexane
COPC	chemical of potential concern
CSM	conceptual site model
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DDDx	sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbon
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
SVOC	semivolatile organic compound
TEQ	toxic equivalent

1. INTRODUCTION

This addendum describes revisions to some of the results presented in Tables 4-1 and 6-1 and Sections 4.4.2 and 6 of the *Final Upper Columbia River Chemicals of Potential Concern Refinement for Aquatic and Terrestrial Receptors*, issued in August 2019 (Windward and Parametrix 2019) (hereinafter referred to as the COPC refinement document). The purpose of the document was to identify chemicals of potential concern (COPCs), and it should therefore be noted that no revisions to Table 6-1, the overall summary table, are associated with the identification of a chemical as a COPC.

Tables 4-1 and 6-1 of the COPC refinement document provide a summary of results presented in the original media-specific tables (Tables 4-2 through 4-10). Revisions to these summary tables are needed to correct inadvertent errors that occurred in the extraction and interpretation of results from the original tables. Results in the original media-specific tables (i.e., Tables 4-2 through 4-10) are correct and remain as reported in the final document (Windward and Parametrix 2019). The revisions to text in Sections 4.4.2 and 6 are associated with some of the errors in Table 6-1.

Revised Tables 4-1 and 6-1 and revised text in Sections 4.4.2 and 6 presented in this addendum replace the same tables and text in the COPC refinement document (Windward and Parametrix 2019).

2. DESCRIPTION OF REVISIONS TO TABLES

Revisions to Table 4-1 in the COPC refinement document are as follows, as summarized in Table A2-1 of this addendum:

- The following chemical/exposure pathway combinations are now identified as COPCs in Table 4-1: aluminum, selenium, and zinc in porewater; zinc in aquatic-dependent mammal diet; and total high-molecular-weight polycyclic aromatic hydrocarbons (HPAHs), dioxin/furan toxic equivalent (TEQ), and total TEQ in aquatic-dependent bird diet. It should be noted that these chemicals were correctly identified as COPCs for these exposure pathways in Table 6-1.
- A number of table entries have been revised because they had one of the following errors: 1) the chemical was identified as not having a benchmark when instead, it was screened and not a COPC, 2) the chemical was not identified as a COPC when instead, there was no benchmark, or 3) the chemical was identified as having a single detected exceedance when instead, there was a single non-detected exceedance.

- For organic chemicals other than polycyclic aromatic hydrocarbons (PAHs) for the fish dietary screen, the Table 4-1 results indicating that the chemical was not a COPC have been modified to indicate that an evaluation was not conducted. The following footnote has been added to Table 4-1 to explain why these chemicals were not evaluated: "Organic compounds were evaluated using the fish tissue pathway rather than the fish diet pathway, with the exception of PAHs. Because PAHs are readily metabolized by fish, they were evaluated using the diet pathway instead of the fish tissue pathway."

Revisions to Table 6-1 in the COPC refinement document are as follows, as summarized in Table A2-2 of this addendum:

- Three chemical/receptor/exposure pathway combinations, which were originally identified as not having been screened (because there was no benchmark), are now identified as having been screened and determined not to be COPCs.
- Polychlorinated biphenyl (PCB) TEQ, dioxin/furan TEQ, and total TEQ are now identified as COPCs in the transitional area (in addition to the upper reach area) for the mammal diet exposure pathway; dioxin/furan TEQ is now also identified as a COPC in the lacustrine area for the mammal diet exposure pathway. This change affects some text in Sections 4.4.2 and 6, as described below.

3. DESCRIPTION OF REVISIONS TO TEXT

Revisions to the last two bullets in Section 4.2.2 in the COPC refinement document are as follows:

- **Transitional CSM Unit**—aluminum, antimony, barium, cadmium, chromium, copper, lead, manganese, mercury, molybdenum, selenium, ~~and~~ total PCBs, PCB TEQ, dioxin/furan TEQ, and total TEQ
- **Lacustrine CSM Unit**—aluminum, antimony, barium, cadmium, copper, manganese, mercury, molybdenum, selenium, ~~and~~ total PCBs, and dioxin/furan TEQ.

Revisions to the summary text in Section 6 are as follows:

- For the dietary pathway for aquatic-dependent wildlife, the following COPCs were identified for both birds and mammals: aluminum, barium (only the Upper Reach OU and Transitional CSM Unit for birds), cadmium, chromium (only the Upper Reach OU and Transitional CSM Unit for mammals), copper, lead (only the Upper Reach OU and Transitional CSM Unit for mammals), manganese (only

the Upper Reach OU for birds), mercury, molybdenum (only the Upper Reach OU for birds), selenium, zinc (only the Upper Reach OU for mammals), total PCBs (only the Lacustrine CSM Unit for birds), dioxin/furan TEQ ~~(only the Upper Reach OU for mammals),~~ and total TEQ (only the Upper Reach OU and Transitional CSM Unit ~~for birds, and only the Upper Reach OU for and mammals~~). COPCs identified for birds only were arsenic (Upper Reach OU only), nickel, vanadium, total HPAHs (Upper Reach OU only), bis(2-ethylhexyl)phthalate (Lacustrine CSM Unit only), and di-n-butyl phthalate (Upper Reach OU only). Additional COPCs identified for mammals only included antimony and PCB TEQ (Upper Reach OU and Transitional CSM Unit only).

4. REFERENCES

Windward and Parametrix. 2019. Final Upper Columbia River Chemicals of Potential Concern Refinement for Aquatic and Terrestrial Receptors. Windward Environmental LLC and Parametrix, Inc., Seattle, WA.

TABLES

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
Nutrients															
Ammonia as nitrogen		NOT COPC	NOT COPC	N/A	COPC	COPC	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide		N/A	N/A	N/A	N/A	N/A	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Nitrate plus nitrite		NB	NB	NB	N/A	N/A	N/A	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Phosphorous		NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A
Common Metals/Metalloids															
Aluminum		COPC	NOT COPC	COPC	COPC	COPC	NB	COPC	COPC	COPC	COPC	COPC	COPC	NB	NB
Antimony		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	NB	NB	COPC	NB	NOT COPC	NB	COPC
Arsenic		NOT COPC	NOT COPC	NOT COPC	SE	SE	COPC	NOT COPC	NOT COPC	COPC	NOT COPC	COPC	NB	NOT COPC	NOT COPC
Barium		NOT COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	NB	NB	NB	COPC	COPC	SE	COPC	NB	NOT COPC
Beryllium		NOT COPC	NOT COPC	NOT COPC	ND ≥ B	ND ≥ B	COPC	NB	NB	NB	NOT COPC (S)	NOT COPC	NOT COPC	NB	NOT COPC
Boron		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cadmium		ND ≥ B	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	NOT COPC	NOT COPC	COPC	COPC
Calcium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Chloride		NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium		NOT COPC	NOT COPC	NOT COPC	SE	SE	COPC	COPC	COPC	COPC	COPC	NB	SE	COPC	COPC
Cobalt		NOT COPC	NOT COPC	SE	ND ≥ B and SE	ND ≥ B and SE	NB	NB	NB	NOT COPC	NOT COPC	COPC	NB	NOT COPC	NOT COPC
Copper		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC
Fluoride		N/A	N/A	N/A	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gold		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Iron		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	NB	NB	NB	NB	NB	COPC	COPC	NB	NB
Lead		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC
Magnesium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Manganese		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	NB	NB	NB	COPC	COPC	COPC	COPC	NOT COPC	NOT COPC
Mercury		NOT COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	COPC	NOT COPC	COPC	COPC	COPC	NOT COPC	NOT COPC	NB	NB
Molybdenum		NB	NB	NB	NB	NB	N/A	NB	NOT COPC	COPC	COPC	NB	NB	NB	NB
Nickel		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	COPC	NOT COPC	NOT COPC	COPC	NOT COPC	COPC	NOT COPC	NOT COPC	NOT COPC
Potassium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Selenium		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	NB	NOT COPC	COPC	COPC	COPC	COPC	NOT COPC	COPC	COPC
Silica		NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silicon		NB	NB	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	COPC	NOT COPC	NOT COPC	NOT COPC (S)	NOT COPC (S)	NOT COPC	NB	NOT COPC	NOT COPC
Sodium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Sulfur		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thallium		NOT COPC	NOT COPC	NOT COPC	NOT COPC	NOT COPC	NB	NOT COPC	NB	NOT COPC	NOT COPC	NB	NB	NB	NB
Tin		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Uranium		NB	NB	NB	NB	NB	NB	NB	NOT COPC	NB	NB	N/A	N/A	N/A	N/A
Vanadium		NOT COPC	NOT COPC	NOT COPC	ND ≥ B and SE	ND ≥ B and SE	NB	NB	COPC	COPC	NOT COPC	NOT COPC	NB	COPC	NOT COPC
Zinc		NOT COPC	NOT COPC	NOT COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC	COPC
Other Metals/Metalloids															
Bismuth		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cerium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Cesium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Dysprosium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Erbium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Europium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gadolinium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Gallium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Germanium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Holmium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Indium		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lanthanum		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lithium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Lutetium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Neodymium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Niobium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Praseodymium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Rubidium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Samarium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Scandium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Strontium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Tantalum		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
Other Metals/Metalloids (continued)															
Tellurium		NB	NB	NB	N/A	N/A	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Terbium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Thorium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Thulium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Titanium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Tungsten		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Ytterbium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Yttrium		NB	NB	NB	NB	NB	NB	NB	NB	NB	NB	N/A	N/A	N/A	N/A
Zirconium		NB	NB	NB	NB	NB	N/A	NB	NB	NB	NB	N/A	N/A	N/A	N/A
SVOCs															
1,1'-Biphenyl		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
1,2,4-Trichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
1,3-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,2'-oxybis(1-chloropropane)		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4,5-Trichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4,6-Trichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4-Dichlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4-Dimethylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4-Dinitrophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,4-Dinitrotoluene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2,6-Dinitrotoluene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2-Chloronaphthalene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2-Chlorophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2-Methylphenol (o-cresol)		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
2-Nitrophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
3-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4,6-Dinitro-2-methylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4-Bromophenyl-phenylether		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
4-Chloro-3-methylphenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4-Chloroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4-Chlorophenyl-phenyl ether		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
4-Methylphenol (p-cresol)		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4-Nitroaniline		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
4-Nitrophenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Acetophenone		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Benzaldehyde		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Benzoic acid		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Benzyl alcohol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
bis(2-Chloroethoxy)methane		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
bis(2-Chloroethyl)ether		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
bis(2-Ethylhexyl)phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NE	COPC	NOT COPC	N/A	N/A	N/A	N/A
Butyl benzyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Caprolactam		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Carbazole		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Dibenzofuran		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Diethyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Dimethyl phthalate		NB	NB	NB	N/A	N/A	ND ≥ B	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Di-n-butyl phthalate		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NE	COPC	NOT COPC	N/A	N/A	N/A	N/A
Di-n-octylphthalate		NB	NB	NB	N/A	N/A	ND ≥ B	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorocyclopentadiene		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Hexachloroethane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Isophorone		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Nitrobenzene		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
N-Nitrosodi-n-propylamine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
N-Nitrosodiphenylamine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Pentachlorophenol		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Phenol		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
Pesticides[b]															
2,4'-DDD		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
2,4'-DDE		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
2,4'-DDT		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDD		NB	NB	NB	N/A	N/A	NOT COPC	NB	NE	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDE		NB	NB	NB	N/A	N/A	SE	NB	NE	NB	NB	N/A	N/A	N/A	N/A
4,4'-DDT		ND ≥ B and SE	NOT COPC	NOT COPC	N/A	N/A	SE	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Total DDD		NB	NB	NB	N/A	N/A	NOT COPC	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Total DDE		NB	NB	NB	N/A	N/A	COPC	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Total DDT		NB	NB	NB	N/A	N/A	COPC	NB	NE	NB	NB	N/A	N/A	N/A	N/A
Total DDx		NB	NB	NB	N/A	N/A	COPC	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Aldrin		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
alpha-BHC		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
alpha-Chlordane		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Atrazine		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
beta-BHC		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
cis-Nonachlor		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
delta-BHC		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Dieldrin		ND ≥ B and SE	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endosulfan I		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Endosulfan II		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Endosulfan sulfate		NB	NB	NB	N/A	N/A	NB	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
Endrin		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endrin aldehyde		NB	NB	NB	N/A	N/A	NB	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Endrin ketone		NB	NB	NB	N/A	N/A	NB	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
gamma-BHC (Lindane)		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC (S)	NE	NB	NB	N/A	N/A	N/A	N/A
gamma-Chlordane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Heptachlor		ND ≥ B and SE	NOT COPC	NOT COPC	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Heptachlor epoxide		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorobenzene		NB	NB	NB	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Hexachlorobutadiene		NB	NB	NB	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Mirex		N/A	N/A	N/A	N/A	N/A	NB	N/A	NE	N/A	N/A	N/A	N/A	N/A	N/A
Methoxychlor		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	COPC	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Oxychlordane		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Toxaphene		ND ≥ B	NOT COPC	ND ≥ B	N/A	N/A	NOT COPC (S)	NB	NE	NB	NB	N/A	N/A	N/A	N/A
trans-Nonachlor		NB	NB	NB	N/A	N/A	NOT COPC (S)	NB	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Total chlordane		NB	NB	NB	N/A	N/A	NB	NOT COPC	NE	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
PAHs															
Benzo(a)anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(a)pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A
Benzo(b)fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(e)pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(ghi)perylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Chrysene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Dibenzo(a,h)anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Indeno[1,2,3]pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Anthracene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
2-Methylnaphthalene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Acenaphthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Acenaphthylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Fluoranthene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Fluorene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Naphthalene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Perylene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Phenanthrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NOT COPC (S)	NOT COPC (S)	N/A	N/A	N/A	N/A
Pyrene		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NB	NB	NB	N/A	N/A	N/A	N/A
Total PAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NB	N/A	N/A	N/A	N/A
Total HPAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	COPC	NOT COPC	N/A	N/A	N/A	N/A
Total LPAHs		NB	NB	NB	N/A	N/A	NOT COPC (S)	NOT COPC	NOT COPC	NOT COPC	NOT COPC	N/A	N/A	N/A	N/A

Table 4-1. Summary of Refined COPC Screen Results

COI	Ecological Receptor	Aquatic Plants and Benthic Invertebrates	Fish	Amphibians	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish	Fish	Aquatic-Dependent Birds	Aquatic-Dependent Mammals	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
	Exposure Pathway	Surface Water (Undisturbed)	Surface Water (Undisturbed)	Surface Water (Disturbed)	Porewater (Shallow)	Porewater (All Depths)	Sediment (All Depths)	Tissue (All Sizes)	Diet	Diet	Diet	Soil	Soil	Diet[a]	Diet[a]
PCBs															
Total PCBs (as congeners)		NOT COPC	NOT COPC	NOT COPC	N/A	N/A	NOT COPC (S)	NOT COPC	NE	COPC	COPC	N/A	N/A	N/A	N/A
PCB TEQ		NB	NB	NB	N/A	N/A	NOT COPC	NOT COPC	NE	NOT COPC	COPC	N/A	N/A	N/A	N/A
Dioxins/Furans															
Dioxin/furan TEQ		N/A	N/A	N/A	N/A	N/A	COPC	NOT COPC	NE	COPC	COPC	N/A	N/A	N/A	N/A
Total TEQ		N/A	N/A	N/A	N/A	N/A	COPC	NOT COPC	NE	COPC	COPC	N/A	N/A	N/A	N/A
PBDEs															
PBDE-17		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-28		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-47		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-49		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-66		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-71		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-85		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-99		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-100		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-128		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-138		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-153		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-154		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-183		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-184		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-190		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-191		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-200		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-203		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-206		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A
PBDE-209		NB	NB	NB	N/A	N/A	NB	NB	NE	NB	NB	N/A	N/A	N/A	N/A

Notes:

[a] The terrestrial wildlife exposure pathway is through the diet, but is estimated using soil benchmarks.

[b] Organophosphorus pesticides were also anayzed in historical surface water samples collected from the Northport area, but none were detected with the exception of dimethyl tetrachloroterephthalate, which has no screening benchmark. Therefore, these pesticides were not included in the refined screen.

BERA - baseline ecological risk assessment
BHC - beta-hexachlorocyclohexane
COI - chemical of interest
COPC - chemical of potential concern
CSM - conceptual site model
DDD - dichlorodiphenyldichloroethane
DDE - dichlorodiphenyldichloroethylene
DDT - dichlorodiphenyltrichloroethane
DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT
HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)
LPAH - low-molecular-weight PAH
OU - operable unit
PBDE - polybrominated diphenyl ether
PCB - polychlorinated biphenyl
SLERA - screening level ecological risk assessment
SVOC - semivolatile organic compound
TEQ - toxic equivalent

N/A - Not analyzed; retained as COI for discussion of uncertainty in the BERA.
NB - No benchmark; retained as COI for discussion of uncertainty in the BERA.
ND ≥ B - Nondetected concentrations greater than or equal to the benchmark in at least one of the river areas; retained as COI for discussion of uncertainty in the BERA.
NE - Not evaluated. Organic compounds were evaluated using the fish tissue pathway rather than the fish diet pathway, with the exception of PAHs. Because PAHs are readily metabolized by fish, they were evaluated using the diet pathway instead of the fish tissue pathway.
SE - Single exceedance, but the location had other COIs with detected concentrations or detection limits exceeding the benchmark, so retained as a COI for discussion of uncertainty in the BERA.
COPC - Identified as a COPC in at least one of the river areas (Upper Reach OU, Transitional CSM Unit, or Lacustrine CSM Unit), at least one of the depth zones for areas in which both shallow and deep sediment and porewater data were screened, and at least one of the fish size groups (small, medium, or large) for fish tissue. Specific areas in which benchmarks were exceeded are indicated in Table 6-1.
NOT COPC - Not identified as a COPC in any of the river areas; COI will not be carried through to the BERA.
NOT COPC(S) - Not identified as a COPC in the SLERA (TAI 2010); COI will not be carried through to the BERA.

Table 6-1. Summary of COPCs Identified for Evaluation in the BERA

	Surface Water			Porewater		Sediment	Tissue	Diet			Soil			
COPC	Aquatic Plants and Benthic Invertebrates	Amphibians	Fish	Aquatic Plants and Amphibians	Benthic Invertebrates and Fish	Benthic Invertebrates	Fish[a]	Fish[b]	Aquatic-Dependent Birds[c]	Aquatic-Dependent Mammals[c]	Terrestrial Plants	Terrestrial Invertebrates	Terrestrial Birds	Terrestrial Mammals
Metals/Metalloids														
Aluminum	● (U, L)	● (U, T, L)	x	● (U, T, L)	● (U, T, L)	ns	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	●	ns	ns
Antimony	x	x	x	● (U)	● (U)	● (U, T, L)	● (U, T, L)	ns	ns	● (U, T, L)	ns	x	ns	●
Arsenic	x	x	x	x	x	● (U, T, L)	x	x	● (U)	x	●	ns	x	x
Barium	x	x	x	x	x	ns	ns	ns	● (U, T)	● (U, T, L)	x	●	ns	x
Beryllium	x	x	x	x	x	● (U, T, L)	ns	ns	ns	x	x	x	ns	x
Cadmium	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	x	●	●
Chromium	x	x	x	x	x	● (U, T, L)	● (U, L)	● (U, T, L)	● (U, T, L)	● (U, T)	ns	x	●	●
Cobalt	x	x	x	x	x	ns	ns	ns	x	x	●	ns	x	x
Copper	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U)	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	●	●	●
Iron	x	x	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	ns	ns	●	●	ns	ns
Lead	x	x	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	● (U, T, L)	● (U, T)	●	x	●	●
Manganese	x	x	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	● (U)	● (U, T, L)	●	●	x	x
Mercury	x	x	x	x	x	● (U, T, L)	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	x	x	ns	ns
Molybdenum	ns	ns	ns	ns	ns	ns	ns	x	● (U)	● (U, T, L)	ns	ns	ns	ns
Nickel	x	x	x	x	x	● (U, T, L)	x	x	● (U, T, L)	x	●	x	x	x
Selenium	x	x	x	● (U, L)	● (U, L)	ns	x	● (U, T, L)	● (U, T, L)	● (U, T, L)	●	x	●	●
Silver	x	x	x	x	x	● (U, T, L)	x	x	x	x	x	ns	x	x
Vanadium	x	x	x	x	x	ns	ns	● (U, T, L)	● (U, T, L)	x	x	ns	●	x
Zinc	x	x	x	● (U, L)	● (U, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U, T, L)	● (U)	●	●	●	●
Pesticides														
Methoxyclor	x	x	x	x	x	● (T)	x	ns	x	x	ns	ns	ns	ns
Total DDE	ns	ns	ns	ns	ns	● (L)	ns	ns	ns	ns	ns	ns	ns	ns
Total DDT	ns	ns	ns	ns	ns	● (L)	ns	ns	ns	ns	ns	ns	ns	ns
Total DDx	ns	ns	ns	ns	ns	● (L)	x	ns	x	x	ns	ns	ns	ns
PAHs														
Total HPAHs	ns	ns	ns	ns	ns	x	x	x	● (U)	x	ns	ns	ns	ns
SVOCs														
bis(2-Ethylhexyl)phthalate	ns	ns	ns	ns	ns	x	x	ns	● (L)	x	ns	ns	ns	ns
Di-n-butyl phthalate	ns	ns	ns	ns	ns	x	x	ns	● (U)	x	ns	ns	ns	ns
PCBs														
Total PCB congeners	x	x	x	ns	ns	x	x	ns	● (L)	● (U, T, L)	ns	ns	ns	ns
PCB TEQ	ns	ns	ns	ns	ns	x[d]	x	ns	x	● (U, T)	ns	ns	ns	ns
Dioxin/Furans														
Dioxin/Furan TEQ	ns	ns	ns	ns	ns	● (U, L)	x	ns	● (U, T, L)	● (U, T, L)	ns	ns	ns	ns
Total TEQ	ns	ns	ns	ns	ns	● (U)	x	ns	● (U, T)	● (U, T)	ns	ns	ns	ns
Nutrients														
Ammonia as nitrogen	x	ns	x	● (U, T, L)	● (U, T, L)	ns	ns	ns	ns	ns	ns	ns	ns	ns

Notes:

[a] Results are grouped together for small, medium, and large fish.

[b] Exceedance from either dose or dietary concentration.

[c] Results are grouped together for all bird receptors and all mammal receptors.

[d] Polychlorinated biphenyl (PCB) toxic equivalent (TEQ) and total TEQ were not screened in the Lacustrine Conceptual Site Model (CSM) Unit because sediment samples from this area were not analyzed for PCB congeners.

Highlighted cells indicate exceedances for a particular chemical exposure pathway and receptor; dot indicates exceedance with area(s) in parentheses, if applicable; x indicates this is not a COPC for the associated pathway and receptor.

BERA - baseline ecological risk assessment

COPC - chemical of potential concern

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon (PAH)

L – Lacustrine CSM Unit

ns - not screened

SVOC - semivolatile organic compound

T – Transitional CSM Unit (revised)

U – Upper Reach Operable Unit

Table A2-1. Revisions to Table 4-1

Chemical	Ecological Receptors	Exposure Pathway	Original Result	Revised Result
Aluminum	Benthic invertebrates and fish	Porewater	SE	COPC
Magnesium	Aquatic plants, amphibians, benthic invertebrates, and fish	Surface water	NOT COPC	NB
Manganese	Aquatic plants, amphibians, benthic invertebrates, and fish	Surface water	NB	NOT COPC
Mercury	Aquatic plants, amphibians, benthic invertebrates, and fish	Porewater	NB	NOT COPC
Selenium	Aquatic plants, amphibians, benthic invertebrates, and fish	Porewater	ND≥B and SE	COPC
Zinc	Aquatic plants and amphibians	Porewater	ND≥B and SE	COPC
Zinc	Aquatic-dependent mammals	Diet	NOT COPC	COPC
4,4'-DDD	Benthic invertebrates	Sediment	NB	NOT COPC
4,4'-DDD	Aquatic plants, amphibians, benthic invertebrates, and fish	Surface water	NOT COPC	NB
4,4'-DDT, dieldrin, and heptachlor	Aquatic plants and benthic invertebrates	Surface water	SE	ND≥B and SE
beta-BHC	Aquatic-dependent birds	Diet	NOT COPC	NB
Dioxin/furan TEQ and total TEQ	Aquatic-dependent birds	Diet	NOT COPC	COPC
SVOCs, pesticides, PCBs, dioxins/furans, and PBDEs	Fish	Diet	NOT COPC	NE
Total HPAHs	Aquatic-dependent birds	Diet	NOT COPC	COPC

Notes:

BHC - beta-hexachlorocyclohexane

DDD - dichlorodiphenyldichloroethane

DDT - dichlorodiphenyltrichloroethane

COPC - chemical of potential concern

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon

NB - no benchmark

ND≥B - not detected at concentration greater than or equal to the benchmark

NE - not evaluated

PBDE - polybrominated diphenyl ether

PCB - polychlorinated biphenyl

SE - single exceedance

SVOC - semivolatile organic compound

TEQ - toxic equivalent

Table A2-2. Revisions to Table 6-1

Chemical	Ecological Receptors	Exposure Pathway	Original Result	Revised Result
PCB TEQ	Aquatic-dependent mammals	Diet	● (U)	● (U, T)
Dioxin/furan TEQ	Aquatic-dependent mammals	Diet	● (U)	● (U, T, L)
Total TEQ	Aquatic-dependent mammals	Diet	● (U)	● (U, T)
Total DDx	Fish	Tissue	ns	x
Total HPAHs and total PCB congeners	Benthic invertebrates	Sediment	ns	x

Notes:

DDD - dichlorodiphenyldichloroethane

DDE - dichlorodiphenyldichloroethylene

DDT - dichlorodiphenyltrichloroethane

DDx - sum of 2,4′-DDD, 4,4′-DDD, 2,4′-DDE, 4,4′-DDE, 2,4′-DDT, and 4,4′-DDT

HPAH - high-molecular-weight polycyclic aromatic hydrocarbon

L – Lacustrine Conceptual Site Model Unit

ns - not screened

PCB - polychlorinated biphenyl

TEQ - toxic equivalent

T – Transitional Conceptual Site Model Unit

U – Upper Reach Operable Unit

x - not a COPC for the associated pathway and receptor