Appendix 1:
Upper Columbia River: Final Site-Wide Human Health Risk Assessment (HHRA) for the Colville High Intensity Resource User (CHIRU) Population

Appendix 1. Upper Columbia River: Final Site-Wide Human Health Risk Assessment (HHRA) for the Colville High Intensity Resource User (CHIRU) Population

1 Introduction

The Upper Columbia River (UCR) Site ("the Site") is located wholly within the state of Washington, in the northeast portion of the state, and includes approximately 150 river miles of the Columbia River, extending downstream from the United States (U.S.) – Canada border south and west to the Grand Coulee Dam. The Site includes land and waters within the boundaries of the Colville Reservation and the Spokane Reservation, over which the Tribes have civil regulatory jurisdiction, as well as land and waters administered by the National Park Service and the Bureau of Reclamation within the U.S. Department of the Interior (U.S. Environmental Protection Agency [EPA], 2006). A remedial investigation and feasibility study (RI/FS) is currently underway in response to concerns regarding historical discharges of hazardous substances into the Columbia River from smelting processes and facility operations by Teck Metals Ltd. ("Teck") and its affiliated predecessors at the Trail facility located in Trail, British Columbia (B.C.). In accordance with a Settlement Agreement signed by the U.S. and Teck American Incorporated (TAI) (EPA, 2006), TAI will complete the RI/FS and baseline ecological risk assessment (BERA), and EPA will complete the human health risk assessment (HHRA).

The purpose of the HHRA is to assess the potential risks to humans, both under current conditions and in the future, from exposure to Site-related contaminants present in environmental media associated with the UCR, assuming no steps are taken to remediate the environment or to reduce human contact with contaminated environmental media.[1] The results of the HHRA are intended to help inform risk managers and the public about potential human risks attributable to exposure to Site-related contaminants and to help determine if there is a need for action at the Site (EPA, 1989). The methods used to evaluate risks in this HHRA are consistent with current EPA guidelines for HHRA at Superfund sites (e.g., EPA, 1989, 1992, 2001, 2004a, 2004b, 2011, 2014).

The conceptual site model (CSM) for the UCR Site, as first defined in the HHRA Work Plan (SRC, 2009), identifies residential, recreational, occupational, and tribal populations as potential receptors exposed to Site-related contamination. Two Native American populations with reservations in the vicinity of the Site are the Confederated Tribes of the Colville Reservation (CCT) and the Spokane Tribe of Indians (STI). This appendix contains the HHRA for the Colville High Intensity Resource User (CHIRU) population. This population represents members of the Colville tribal community, including residents of the Colville Reservation and potential residents of tribal allotments along the UCR, who obtain some of their food by fishing, hunting, and gathering at the UCR Site, or who participate in traditional activities such as basket-weaving and sweat lodges. Calculations for the CHIRU population utilized exposure parameters derived from the Tribal Consumption and Resource Use Survey (CCT Tribal Survey; Westat, Inc., 2012), which captured information from residents of the Colville Reservation, and

[1] Subsequent to the collection of residential soil data (including tribal allotments) from the Site in 2014 and 2016, a Time Critical Removal Action (TCRA) and/or Voluntary Removal Action (VRA) was conducted on tribal allotment decision unit (DU) 412. This DU was included in this appendix using post-removal soil concentrations from 2015.

recommendations of the Natural Resources Committee of the CCT (Water Quality Standards Act [WQSA], 2014). The HHRA for the STI is presented in Appendix 2 of the Site-wide HHRA.

HHRAs typically contain the following sections: Introduction, Site Characterization, Exposure Assessment, Toxicity Assessment, Risk Characterization, Uncertainty Assessment, and Summary/Conclusion. Given that the CHIRU HHRA in this appendix is part of the broader HHRA for the UCR Site, only sections pertaining specifically to the CHIRU are included here for the sake of brevity. The Site Characterization, which includes descriptions of UCR Site history and usage, physical characteristics, and ecological resources, as well as summaries of all Site-related data collected to date, is presented in Section 2 of the Site-wide HHRA to which this document is appended and is not repeated here. Similarly, the Toxicity Assessment, which identifies potential adverse human health effects from a chemical and how those effects depend on exposure level (i.e., "dose-response"), as well as how toxic effects of a chemical depend on the route of exposure (oral, inhalation, dermal) and duration of exposure (subchronic, chronic, or lifetime), is presented in Section 4 of the Site-wide HHRA and is not repeated here. This appendix primarily focuses on the Exposure Assessment and Risk Characterization of the UCR HHRA for the CHIRU population and contains portions of the Uncertainty Analysis pertinent to tribal-specific risk assessment.

2 Exposure Assessment

Exposure is the process by which receptors (representing hypothetical populations)[2] contact chemicals in the environment. Receptors can be exposed to chemicals in soil, dust, sediment, water, air, or food, and these exposures can occur through several pathways: ingestion (intentional or incidental), dermal contact, and inhalation. This section summarizes the environmental media and chemicals of potential concern (COPCs) evaluated in this Appendix, identifies complete exposure pathways for the CHIRU population, and describes the methods used to quantify exposure from each pathway.

2.1 Conceptual Site Model (CSM)

Figure 1 presents the CSM that summarizes the current understanding of how chemical contaminants that have been released to the environment at the Site might result in the exposure of receptors. The environmental media evaluated in this appendix include soil/dust and sediment on tribal allotments, UCR disturbed surface water,[3] air, and biota (fish, mussels, crayfish, amphibians/reptiles, waterfowl, wild/cultural plants, upland birds, and wild game [mammals]). Sweat lodge air was not quantitatively evaluated in this HHRA and is expected to make a negligible contribution to risk (see Appendix 3 of the Site-wide HHRA for further discussion).

2.1.1 Exposure Areas

An exposure area (also referred to as an exposure unit) is an area where a receptor population may be exposed to one or more environmental media. Within the exposure area, contact with each medium is assumed to be random when considered on the time scale of the exposure

[2] Please see the Note to Readers in the Site-wide HHRA for a more detailed explanation of "receptor" and other risk assessment terminology used in this appendix.

[3] "Disturbed" surface water samples were collected after kicking up the sediments on the riverbed, consistent with wading or swimming.

scenario being evaluated (usually many years). Selection of the bounds of an exposure area is based mainly on consideration of the likely activity patterns of the exposed receptor populations but also must consider the spatial extent of data that are available to estimate exposure parameters and exposure concentrations. The CCT Tribal Survey (Westat, Inc., 2012) collected information on Local Area[4] resource use by residents of the Colville Reservation. Merging the survey data with the data collected from the various environmental media (e.g., fish, macroinvertebrate [mussels and crayfish], and plant tissue; disturbed surface water and beach sediment; soil and outdoor air) or modeled using Site-specific data (e.g., tissue concentrations in birds and mammals, indoor dust concentrations) required consideration of the differences in the spatial scales the data represent. Table 1 presents the exposure areas defined for evaluation in this HHRA appendix by medium. The rationale for these exposure areas follows.

2.1.1.1 Soil, Indoor Dust, and Sediment

The CHIRU population was assumed to be exposed to soil, indoor dust, and surface sediment on the tribal allotments sampled as part of the 2014 and 2016 Residential Soil Studies (Figure 2; CH2MHill, 2016; TAI, 2017a). The tribal allotment DUs were sampled to assess potential risks to CCT members from exposure to metals in the surface soil on the allotments, and in the surface sediment of the tribal allotment with a beach. Prior to sampling, the DUs were delineated to include the areas of the allotments that were used most often (SRC, 2014); therefore, the size of the exposure area was assumed to be the same as the DU sampled. Indoor dust, which would be associated with any current building or buildings added to the allotments in the future, was also assumed to have been impacted by contaminants in an exposure area equal to the size of the DU sampled and was modeled from the soil concentrations found at each DU.

2.1.1.2 Disturbed Surface Water

The exposure area for surface water was identified as UCR Reaches 1-6, from the U.S. – Canadian border downstream to River Mile 597 in the Lower Reservoir of Lake Roosevelt (Figure 2-4 of the Site-wide HHRA). The rationale for combining surface water data to estimate one exposure point concentration (EPC) for the Site was based on the number of samples that were available for each reach of the UCR (TAI, 2013a), as discussed in Section 2.6.1 of the Site-wide HHRA.

2.1.1.3 Air

Outdoor air samples were collected from one location near Northport, Washington, by TAI (see Figure 2-12 in the Site-wide HHRA; Washington State Department of Ecology [ECY], 2017). The exposure area for air was identified as the entire Site.

2.1.1.4 Aquatic Biota

The measured concentrations of COPCs in fish, mussel, and crayfish tissue collected from all six river reaches were used to calculate EPCs for these media (CH2MHill, 2007; Exponent, 2013; TAI, 2013b; Windward Environmental LLC [Windward], 2017a; TAI, 2018a; TAI, 2017b; see Figures 2-14 through 2-17 in the Site-wide HHRA). The exposure area for fish was UCR Reaches 1-6. The rationale for combining the fish tissue data across reaches was an assumption

[4] The *Local Area* includes the UCR and the land located within the geographic extent of the CCT Resource Zones (see Figure 1 of the CCT Tribal Survey DAR [SRC, 2019a]). The geographic extent of the UCR Site has not been determined yet (see first sentence of Section 1.1, SRC, 2019a).

that at least some of the fish species have home ranges that span more than one river reach, resulting in exposures throughout the river. More detail can be found in Section 3.1.1.3 of the Site-wide HHRA. The exposure area for ingestion of mussels and crayfish collected on-Site was UCR Reaches 1-6 as well. Limited information was available on locations where CCT members may collect shellfish for consumption, and the Recreational Consumption and Resource Use (RecUse) Survey (IEc, 2012) did not include questions on collection of shellfish. Therefore, the shellfish data were evaluated on a Site-wide basis. In addition to collection of mussels and crayfish from the UCR, they were also collected from two reference areas (the Sanpoil River and Buffalo Lake; Figure 2-17 of the Site-wide HHRA) (Windward, 2017b). Risk calculations were also run on macroinvertebrates collected from the reference areas, which were considered a single exposure area. Given that crayfish tissue data were used as a surrogate for amphibians and reptiles, the exposure area for consumption of amphibians and reptiles was UCR Reaches 1-6 as well.

2.1.1.5 Waterfowl

Waterfowl have large home ranges and feeding territories (much larger than the Site) and may be exposed to UCR surface water and surface sediment along the entire length of the Site. Waterfowl tissue EPCs were derived using an uptake model that required inputs for surface water and sediment. Estimated waterfowl tissue concentrations were calculated using UCR Reaches 1-6 EPCs for total disturbed surface water, and in most cases, the less than (<) 2 millimeters (mm) surface sediment fraction EPCs calculated for the upper, middle, and lower reaches of the UCR Site defined in the RecUse Survey (IEc, 2012). Sediment data are described in greater detail in Section 2.6.2 of the Site-wide HHRA. Because the feeding territory for waterfowl is large and many species are migratory, modeling the tissue concentrations of COPCs from Site media was preferred to measuring the concentrations in harvested birds due to uncertainty regarding whether the exposure history of the birds sampled represents exposure to media on-Site or elsewhere.

2.1.1.6 Wild/Cultural Plants

Wild/cultural plants were collected from 12 sampling areas (SAs), including 9 tribal allotments and 1 upland aerial deposition area (ADA), in 2018 as described in TAI (2019) and shown in Figure 3. Fourteen plant species were collected across these SAs, though not all plants were present in each of the SAs. Table 2 lists the plant species collected, time of collection, and SAs in which they were found.

2.1.1.7 Upland Birds and Wild Game (Mammals)

Upland birds (e.g., turkey) and wild game (e.g., deer) have large feeding territories, and may be exposed to UCR surface soil and surface water along the entire length of the Site. As such, the exposure area identified for exposure of upland birds and wild game to soil and surface water was the entire Site. Estimated bird and mammal tissue concentrations were calculated using UCR Reaches 1-6 EPCs for COPCs in total disturbed surface water and EPCs for COPCs in surface soil samples collected at a depth of 0-3 inches that were co-located with the wild/cultural plant samples. Given that turkey and deer feed primarily on terrestrial vegetation (versus aquatic vegetation), and that the incidental ingestion of soil will occur while feeding on terrestrial vegetation, the uptake model used to estimate EPCs in upland birds and game focused on COPC concentrations in soil and in surface water rather than in surface sediment. Because the feeding

territory for upland birds and game is large, modeling the tissue concentrations of COPCs from Site media was preferred to measuring the concentrations in organisms that are harvested (due to uncertainty of whether the exposure history for these organisms represents Site exposures).

2.1.2 Exposed Population

The receptor population of concern addressed in this appendix to the Site-wide HHRA is the CHIRU population. This population obtains food and other resources (e.g., medicines, clothing, etc.) from the Local Area (SRC, 2019a). The CHIRU population was assumed to conduct activities on tribal allotments north of the Colville Reservation, and may have direct contact with surface soil or sediment in allotments. The evaluation in this appendix conservatively assumed full-time residential exposure to soil on tribal allotments, which is more applicable to potential future use than current use. CHIRU adults and children may be exposed to COPCs while breathing air on tribal allotments, as well as air and dust inside any current or potential future structures on allotments. Given the lack of indoor air data and activity data regarding time spent indoors versus outdoors for the CHIRU population, the exposure pathway for inhalation of air was not evaluated separately for indoor and outdoor air. Rather, exposure to air was assumed to be 24 hours/day.[5] The CHIRU population may be exposed to COPCs via consumption of terrestrial wild/cultural plants, waterfowl, upland birds, and wild game (mammals) harvested from the Site. The CHIRU population was assumed to contact surface water and surface sediment on the tribal allotment beach, and to consume fish and other aquatic biota (crayfish, mussels, amphibians and reptiles) harvested from the Site.

Many residents of the Colville Reservation participated in the CCT Tribal Survey to characterize activities that may differ from national averages. Approximately 89% of the households agreed to participate in the enumeration stage of the survey (Westat, 2012). Of the 4,783 Colville Reservation residents enumerated at the beginning of the CCT Tribal Survey, 2,645 residents were selected for participation in the survey in accordance with the sampling plan (Westat, 2010), and 1,165 (44%) completed the survey (i.e., completed two or more Automated Multiple Pass Method [AMPM] dietary recall interviews and the Food Questionnaire [FQ]; SRC, 2019a). As described in Westat (2012), sample weights for each participant and household were developed for use in analyzing the survey data to account for differences in sampling and response rates. In other words, the sample weights were calculated for people who responded to the survey to represent non-respondents as well, so that the weighted estimates represented all expected eligible households and people in the population. The CCT Tribal Survey results were used to establish many of the exposure factors representative of the CHIRU population.

EPA (1989) recommends evaluating exposure and risk to individuals using intake parameter values (e.g., soil ingestion rate) that are near the upper end of the range (e.g., the 95th percentile [P95]), and "average," near the central portion of the range. These exposure scenarios are referred to as the Reasonable Maximum Exposure (RME) scenario when the intake parameters are from the upper end of the range, and the Central Tendency Exposure (CTE) scenario when average values are used.

[5] COPC concentrations in indoor air were assumed equal to concentrations in outdoor air.

2.1.3 Exposure Pathways

As described above, several types of media may be contaminated at the Site, including sediment, surface water, air, soil/dust, and biota. Figure 1 presents the likely routes by which the CHIRU population might contact contaminants in the environment. As shown, receptors may be exposed to contaminants in primary, secondary, or tertiary media by ingestion, inhalation, and dermal contact. Those terms (i.e., primary, secondary, and tertiary) refer to how many steps the exposure medium is from the source of contamination. "Primary" refers to the original source (e.g., the discharge point) of a chemical constituent, while "secondary" and "tertiary" sources are environmental media (abiotic or biotic) that receive chemical inputs from a primary (or secondary) source. For example, air is a primary source of contaminants from a smokestack, while soil is a secondary source (contaminants are first in the air, then deposited on soil). The terms do not convey any prioritization of importance, but rather refer to transport steps in the CSM. Only exposure pathways considered complete (known with certainty to occur) and for which data were available were carried through the remainder of this appendix. Only exposure pathways considered complete and for which data were available were carried through the HHRA, including this appendix.

Exposure pathways evaluated for the CHIRU population included:

- Incidental ingestion of surface soil and indoor dust at all tribal allotments except the one bordering the UCR[6]
- Dermal contact with surface soil at all tribal allotments except the one bordering the UCR
- Incidental ingestion of surface sediment at the tribal allotment bordering the UCR
- Dermal contact with surface sediment at the tribal allotment bordering the UCR
- Incidental ingestion of disturbed surface water
- Dermal contact with disturbed surface water
- Inhalation of air
- Consumption of fish (each species evaluated individually)
- Consumption of mussels
- Consumption of crayfish
- Consumption of amphibians and reptiles
- Consumption of waterfowl
- Incidental ingestion of aquatic wild/cultural plants[7]
- Consumption of terrestrial wild/cultural plants
- Consumption of upland birds, and

[6] Section 3.3.10 of the Site-wide HHRA describes the procedure used to evaluate incidental ingestion of indoor dust in combination with incidental ingestion of surface soil.
[7] While basket-weaving.

- Consumption of wild game (mammals).

2.2 Selection of Chemicals of Potential Concern (COPCs)

The HHRA Work Plan for the UCR Site (SRC, 2009) presented a list of initial contaminants of interest (COIs) developed using information about known and potential sources of contamination and data obtained during investigations and monitoring events near or at the Site. The COI list included metals and metalloids, pesticides, semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins/furans, polybrominated diphenyl ethers (PBDEs), and radionuclides associated with the uranium-238 decay chain. COIs were evaluated in a risk-based screen described in detail in Section 3.2 of the Site-wide HHRA to identify COPCs. The list of COIs analyzed differed by each medium depending on the Site-specific data collected during RI sampling events.

2.2.1 Surface Water COPCs

The surface water COI screen is presented in detail in Section 3.2.3 of the Site-wide HHRA. Surface water COPCs that have toxicity values and had measured concentrations (TAI, 2013a) that exceeded risk-based screening levels (RBSLs) and were evaluated quantitatively in this HHRA are:

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- Thallium
- Uranium
- Vanadium

2.2.2 Surface Sediment COPCs

Surface sediment data evaluated in this appendix were those data collected from the tribal allotment beach as part of the 2014 Residential Soil Study (CH2MHill, 2016). The COI screen is described in detail in Section 3.2.4.5 of the Site-wide HHRA. Tribal allotment beach sediment COPCs that have toxicity values and measured concentrations that exceeded RBSLs and were evaluated quantitatively are:

- Antimony
- Arsenic
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- Thallium

2.2.3 Air COPCs

The air COI screen is presented in detail in Section 3.2.5 of the Site-wide HHRA. In the HHRA, the air COI screen is presented as "outdoor air" and "indoor air." However, in this appendix, exposure to air by the CHIRU population was assumed to be 24 hours/day. Air COPCs that have toxicity values and measured concentrations (CH2MHill, 2015; ECY, 2017) that exceeded RBSLs and were evaluated quantitatively are:

- Arsenic
- Cadmium
- Lead

2.2.4 Surface Soil and Indoor Dust COPCs

Surface soil samples at the Site were collected in multiple sampling events from 2014 through 2016, as described in Section 2.6.2 of the Site-wide HHRA. Surface soil data evaluated in this appendix were those data collected from tribal allotments as part of the 2014 and 2016 Residential Soil Studies (CH2MHill, 2016; TAI, 2017a). The soil COI screen is described in detail in section 3.2.6.1 of the Site-wide HHRA. Surface soil COPCs that have toxicity values and measured concentrations that exceeded RBSLs and were evaluated quantitatively are:

- Aluminum
- Antimony
- Arsenic
- Cadmium
- Chromium
- Cobalt
- Iron
- Lead
- Manganese

- Nickel
- Thallium
- Vanadium

In the absence of Site-specific data, indoor dust was evaluated based on residential soil data. Therefore, COPCs identified for surface soil were the COPCs identified for indoor dust.

2.2.5 Fish COPCs

The fish COI screen is described in detail in Section 3.2.6.2 of the Site-wide HHRA. Fish COPCs that have toxicity values and measured concentrations (CH2MHill, 2007; Exponent, 2013; TAI, 2013b; Windward, 2017a; TAI, 2018a) that exceeded RBSLs and were evaluated quantitatively are:

- 4,4'-DDE
- Aluminum
- Antimony
- Inorganic arsenic[8]
- Bis(2-ethylhexyl)phthalate
- Chromium
- Dieldrin
- Heptachlor epoxide
- Hexachlorobenzene
- Lead
- Methylmercury[9]
- PBDE congener 47
- Selenium
- Toxic equivalent (TEQ) (dioxin-like PCBs and dioxins/furans)

[8]See Section 4.5 of the Site-wide HHRA for discussion of the evaluation of arsenic/inorganic arsenic in fish.

[9] Mercury was analyzed using EPA Method 7471B/EPA Method 1631e, which only measures total mercury. In fish, methylmercury and inorganic mercury are absorbed by the gut; methylmercury is then transferred to blood and distributed to other body tissues (Ribeiro et al., 1999), ultimately accumulating in skeletal muscle tissue. As a result, most mercury in the muscle of fish is methylmercury (Wiener et al., 2003). Chumchal et al. (2011) collected invertebrates and vertebrates from a freshwater lake, including six fish species, and analyzed for total mercury and methylmercury. The percentage of mercury in muscle tissue present as methylmercury ranged from 84 to 100%. As part of the Environmental Monitoring and Assessment Program (EMAP) sampling program, 10 species were collected from 14 estuaries in southern Florida (Kannan et al., 1998). Total mercury and methylmercury were measured in fish muscle tissue; on average, methylmercury contributed 83% of the total mercury tissue concentration (range 62-100%). Because the majority of mercury present in fish fillets is methylmercury, risk calculations were done assuming mercury was present in fish tissue as methylmercury even though only total mercury was analyzed in UCR fish tissue.

- Thallium
- Total PCBs
- Zirconium

2.2.6 Crayfish and Amphibian/Reptile COPCs

Crayfish were collected from the UCR in 2016 (TAI, 2016; TAI, 2017b), as described in Section 2.6.4.2 of the Site-wide HHRA. For the crayfish COI screen, the data for "whole body, no stomach carapace" were screened. These data were evaluated using the 4-step approach detailed for fish in Section 3.2.6.2 of the Site-wide HHRA. The crayfish COI screen is shown in Table 3. Crayfish COPCs that have toxicity values, measured concentrations that exceed RBSLs, and were therefore evaluated quantitatively are:

- Inorganic arsenic[10]
- Barium
- Cadmium
- Chromium
- Cobalt
- Copper
- Lead
- Methylmercury
- TEQ dioxins/furans
- Thallium
- Total PCBs

In the absence of Site-specific data on concentrations of COIs in amphibians and reptile tissue, COPCs for crayfish were assumed to be an appropriate surrogate for the COPCs for amphibians and reptiles. Data from crayfish, insectivorous fish (kokanee, whitefish), and all fish were initially considered as potential surrogates for amphibian and reptiles. Crayfish (using signal crayfish as a surrogate) are opportunistic feeders; their diet shifts from aquatic insects as juveniles to more plant-based as adults (U.S. Fish and Wildlife Service [USFWS], 2015). Kokanee and whitefish feed on zooplankton and aquatic insects. EPCs were calculated for the two insectivorous fish species collected in the 2009 sampling event. Measured Site-specific concentrations of TEQ and mercury were higher in fish, while inorganics other than mercury tended to be higher in crayfish. Frogs (using the northern leopard frog as a surrogate species) are herbivorous as tadpoles and feed on insects as frogs (Dewey, 1999). Literature-based studies that reported COPC concentrations measured in both frog and fish tissue were also reviewed (Hothem et al., 2015; Unrine et al., 2007); frog tissue metal concentrations were similar to or

[10] Though total and inorganic arsenic were both measured in crayfish, only inorganic arsenic was evaluated as a COPC because it has a toxicity value, while total arsenic does not.

higher than fish tissue concentrations, excepting mercury and selenium. Because a similar pattern was observed in the Site-specific crayfish and fish tissue data, and because metals are the primary COPCs of concern at this Site, crayfish were determined to be an acceptable surrogate for amphibians and reptiles. The crayfish COPCs were quantitatively evaluated as the COPCs for amphibians and reptiles.

2.2.7 Mussel COPCs

Mussels were collected from the UCR in 2016 (TAI, 2016; TAI, 2017b), as described in Section 2.6.4.2 of the Site-wide HHRA. These data were evaluated using the 4-step approach detailed for fish in Section 3.2.6.2 of the Site-wide HHRA. The mussel COI screen is shown in Table 4. Mussel COPCs that have toxicity values, measured concentrations that exceed RBSLs, and were therefore evaluated quantitatively are:

- Antimony
- Inorganic arsenic[11]
- Barium
- Cadmium
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- TEQ (dioxin-like PCBs and dioxins/furans)
- Thallium
- Total PCBs

2.2.8 Wild/Cultural Plant COPCs

Aquatic and terrestrial wild/cultural plants are secondary and tertiary media at the Site, respectively. Contaminants in UCR surface water and surface sediment can be taken up into aquatic plant tissue via bioaccumulation and bioconcentration. Terrestrial plants may absorb contaminants from the soil, and soil particles may adhere to plant surfaces. The CHIRU population may consume and otherwise utilize plants collected within the Site (Westat, Inc., 2012). Wild/cultural aquatic and terrestrial plants were collected in 2018 from selected areas within tribal allotments (from the 2014 and 2016 residential soil studies) and one ADA (from the 2014 upland soil study) located in the northern half of the Site for laboratory analysis of COIs (Figure 3; TAI, 2019). Given that contaminants found in surface sediment or soil are likely those

[11] See Section 2.3.2 for discussion of the evaluation of arsenic/inorganic arsenic in mussels.

found in aquatic and terrestrial plants, respectively, aquatic and terrestrial plant COPCs were assumed equal to surface sediment and surface soil COPCs.[12]

COPCs that have toxicity values and were quantitatively evaluated as the COPCs for aquatic wild/cultural plants are:

- Antimony
- Arsenic
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- Mercury
- Thallium

COPCs that have toxicity values and were quantitatively evaluated as the COPCs for terrestrial wild/cultural plants are:

- Aluminum
- Antimony
- Arsenic
- Cadmium
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- Mercury
- Nickel
- Thallium
- Vanadium

[12] In addition, mercury was added as a COPC for some plants per CCT comments on the Draft Quality Assurance Project Plan (QAPP) for the Plant Tissue Study (TAI, 2018b). As there is no toxicity value for inorganic mercury, risk calculations were done with the assumption that 100% of the measured mercury is methylmercury.

2.2.9 Waterfowl COPCs

Waterfowl are secondary exposure media at the Site. Contaminants in sediment and surface water can be taken up into the tissues of waterfowl via bioaccumulation. COPCs in surface water, surface sediment, and aquatic plants, along with any detected bioaccumulative COIs investigated in those media, are the COPCs for waterfowl. COIs were determined to be bioaccumulative based on a review of the EPA *Framework for Metals Risk Assessment* (EPA, 2007). In addition, cadmium is a Site-related COI (Johnson et al., 2013) that has been shown to bioaccumulate (Brown et al., 1996). COPCs for waterfowl that have toxicity values are listed in Table 5. The only COPCs that were evaluated quantitatively in the HHRA were those for which defensible uptake models could be found to estimate waterfowl tissue concentrations[13] (see the shaded COPCs in Table 5).

2.2.10 Upland Bird COPCs

Upland birds are tertiary exposure media at the Site; contaminants in soil and surface water can bioaccumulate in avian tissue. COPCs in tribal allotment surface soil and surface water, along with any detected bioaccumulative COIs investigated in those media, are the COPCs for upland birds. COIs were determined to be bioaccumulative as described in the waterfowl COPC screen above. COPCs for upland birds that have toxicity values are listed in Table 6. The only COPCs that were evaluated quantitatively in the HHRA were those for which defensible uptake models could be found to estimate upland bird tissue concentrations (see the shaded COPCs in Table 6).

2.2.11 Wild Game (Mammal) COPCs

Wild game are tertiary exposure media at the Site; contaminants in soil and surface water can bioaccumulate in upland mammal tissue. COPCs for tribal allotment surface soil and surface water are the COPCs for wild game, along with any detected bioaccumulative COIs measured in upland and residential soil and surface water. COIs were determined to be bioaccumulative as described in the waterfowl COPC screen above. COPCs for wild game (mammals) that have toxicity values are listed in Table 7. The only COPCs that were evaluated quantitatively in the HHRA were those for which defensible uptake models could be found to estimate upland game tissue concentrations (see the shaded COPCs in Table 7).

2.3 Exposure Point Concentrations (EPCs)

An EPC is an estimate of the concentration of a COPC in a site medium, averaged over the area to which a receptor is exposed (i.e., exposure area). EPA (1992) recommends that the 95% upper confidence limit of the arithmetic mean (95UCL) be used as the EPC for quantifying exposure and risk to individuals under both the RME and the CTE scenarios. Both the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK model) and the Adult Lead Methodology (ALM) require the EPC for lead to be an arithmetic mean or average value (see Section 2.4.3.1 for more information). The approaches used to calculate EPCs for lead and other COPCs in soil/dust, sediment, surface water, air, and fish are described in detail in Section 3.3 and Appendix 12 of the Site-wide HHRA.

[13] Beryllium and mercury were not evaluated quantitatively for waterfowl as no defensible aquatic plant uptake models were found.

EPCs for surface water, air, and fish are the 95UCL for non-lead COPCs and the KM mean (when non-detect samples were present in the data set) or arithmetic mean (when all samples were detected for lead in the data set) for lead and are presented in Tables 8 through 10. EPCs for tribal allotment soil/dust and sediment are shown in Table 11, along with the rationale for selecting the EPC (see footnotes b and c of Table 11). Calculations of EPCs for other media that are evaluated for the CHIRU population and not in the Site-wide HHRA are described below.

2.3.1 Crayfish and Amphibian/Reptile EPCs

For crayfish, the whole body minus the carapace and stomach,[14] and the stomach/carapace were submitted separately for analysis for crayfish collected from areas 2, 5, and 6 and the reference areas (Sanpoil River and Buffalo Lake) (TAI, 2017b). Only whole body crayfish were collected in Reaches 3 and 4. No crayfish samples were collected from Reach 1.[15] The data from the whole body minus the carapace and stomach (the part of the crayfish consumed by humans) for crayfish collected from Reaches 2, 5, and 6 and the reference areas were used to calculate EPCs for crayfish tissue. Target analyte list (TAL) metals, methylmercury, inorganic arsenic, PCB congeners, and dioxins/furans were analyzed in crayfish samples from Reaches 2, 5, and 6 and reference locations. As discussed in Section 2.2.6, the crayfish EPCs were used as surrogate EPCs for amphibians and reptiles. The crayfish and amphibian/reptile EPCs are shown in Table 12.

2.3.2 Mussel EPCs

Mussels were collected in six reaches of the UCR and in one reference area (Sanpoil River; TAI, 2017b). The soft tissue of the mussel (including any liquid inside the shell) was collected and submitted for analysis. Similar tissue was collected for mussel samples from all reaches; therefore, mussel data from Reaches 1-6 were used to calculate the EPCs. TAL metals were analyzed in mussel samples from all 6 Reaches. Samples collected from Reaches 2, 5, 6, and the Sanpoil River (the reference location) were also analyzed for methylmercury, inorganic arsenic, PCB congeners, and dioxins/furans. Total arsenic was detected in all mussel samples collected from Reaches 2, 5 and 6 and the reference area, and inorganic arsenic was detected in 15 of those mussel samples. The RfD and cancer SF for arsenic are based on the inorganic form. However, arsenic that accumulates in mollusc tissue is present mostly in a relatively non-toxic, organic form (Donohue and Abernathy, 1999; Schoof and Yager, 2007). For samples from reaches that were not analyzed for inorganic arsenic (Reaches 1, 3, and 4), a Site-specific estimate of the percent of total arsenic present as inorganic arsenic in mussels was used to estimate the inorganic arsenic concentration in mussels. This Site-specific fraction was 7.7%, and is the mean percent of arsenic present as inorganic arsenic in mussels, where a value equal to the method detection limit was used as the sampling result value for samples that were non-detect. The mussel tissue EPCs are shown in Table 13.

2.3.3 Wild/Cultural Plant EPCs

Terrestrial and aquatic wild/cultural plants were collected in the Spring and Summer of 2018 from 12 SAs, including 9 tribal allotments and 1 upland ADA, as described in TAI (2019).

[14] Whole body minus the carapace and stomach leaves the head, claws, abdomen, tail, and shell around the claws and tail.

[15] Only one crayfish was collected by hand from Reach 1. This specimen was immobile, appeared to have a hole in its carapace, and was not retained for analysis.

Fourteen plant species were collected across these SAs, though not all plants were present in each of the 12 SAs (Table 2). COPC concentrations were reported by the laboratory on a dry weight basis. Dry weight tissue concentrations were converted to wet weight using sample specific percent solids and the equation: wet weight (ww) concentration (milligrams per kilogram [mg/kg]) = dry weight (dw) concentration (mg/kg) × fraction solids. EPCs were calculated separately for each plant species across all plant SAs. Separate EPCs were generated for rose hips and rose stems/leaves (Table 14).

While the plants were not collected with an objective of random distribution across the region or across tribal allotments, this analysis assumes that the samples collected represent a reasonable proxy for plants collected across the area. In most cases, plants were collected from areas representing a range of soil metal concentrations as shown by the results of co-located soil sample analysis (TAI, 2019).

2.3.4 Waterfowl EPCs

Waterfowl tissue concentrations were estimated using the equations for estimating concentrations of COPCs in animal products and animal transfer coefficients (TCos) for inorganic chemicals to chicken meat from the California EPA Office of Environmental Health Hazard Assessment (OEHHA, 2012, 2015). The mallard duck (*Anas platyrhynchos*) was selected as the surrogate receptor representative of waterfowl for this model.

The uptake equation (OEHHA, 2015) is:

$$Conc_{waterfowl} = (Dose_{water} + Dose_{plants} + Dose_{sediment}) \times TCo$$

Where:

$Conc_{waterfowl}$	=	EPC in waterfowl meat (micrograms per kilogram [µg/kg] ww)
$Dose_{water}$	=	Ingestion rate (liters per day [L/day]) × Conc in surface water (micrograms per liter [µg/L])
$Dose_{plants}$	=	Ingestion rate (kilograms per day [kg/day]) × Conc in plants (µg/kg dw)
$Dose_{sediment/soil}$	=	Ingestion rate (kg/day) × Conc in surface sediment/soil (µg/kg dw)
TCo	=	Transfer coefficient (day/kg)

Variables needed for the model are ingestion rates of surface water, sediment, and aquatic plants for waterfowl; TCos for chicken meat for each COPC; and COPC concentrations in surface water, aquatic plants, and surface sediment. Food, water, and incidental sediment ingestion rates for the mallard were obtained from the scientific literature and are summarized in Table 15.

TCos for the bird uptake equation (chicken [OEHHA, 2015]) are as follows:

- Arsenic: 0.03 day per kg (day/kg)
- Cadmium: 0.5 day/kg
- Lead: 0.13 day/kg
- Selenium: 0.9 day/kg

The TCo for lead to chicken meat cited in OEHHA (2015) is 0.4. After review of the studies the TCo value was derived from and additional information on the TCo derivation calculations received from OEHHA (OEHHA, 2020), the lead TCo was re-calculated using the data reported in the original derivation studies (Latta and Donaldson, 1986a, 1986b) for the exposure group fed a methionine adequate diet;[16] a TCo of 0.13 was used to estimate uptake of lead into bird tissue.

Surface water and surface sediment concentrations used in the model are shown in Table 16. Sediment/soil EPCs were Site-specific 95UCL concentrations for non-lead COPCs and Kaplan Meier (KM) mean lead concentrations in surface sediment (public beach sediment [<2 mm], relict floodplain soil [<2 mm], and residential beach sediment [<250 µm]) collected from the Upper, Middle, and Lower regions of the UCR. Surface water EPCs were 95UCL concentrations for non-lead COPCs and the KM mean lead concentrations in total disturbed surface water samples collected in UCR Reaches 1 through 6. Aquatic plant concentrations for the model were estimated because aquatic plant parts collected from the Site in 2018 are not representative of the plant parts consumed by waterfowl. Concentrations of contaminants in aquatic plants were estimated using sediment to water potato regression models (Campbell et al., 1999), if available for a given COPC (Table B-3 of SRC, 2009). If not, the uptake model for metals (Jackson, 1998; Table B-4 of SRC, 2009) was used to estimate aquatic plant COPC concentrations. The equations used to estimate uptake of COPCs by aquatic plants are listed in Table 17.

Animal TCos and plant uptake models were available for arsenic, cadmium, lead and selenium. Waterfowl EPCs for these COPCs are shown in Table 16, along with the surface water, surface sediment/soil, and estimated plant concentrations for each COPC.

2.3.5 Upland Bird EPCs

EPCs in upland bird tissue were derived using an uptake model based on Site-specific EPCs for surface soil, surface water, and terrestrial plants following the same approach described above for waterfowl. Site-specific soil EPCs used in the uptake equation were mean or KM mean concentrations for both non-lead COPCs and lead in soil samples collected from a depth of 0-3 inches, sieved to <149 µm, and co-located with the wild/cultural plant samples. Site-specific surface water EPCs were 95UCL concentrations of non-lead COPCs and KM mean lead concentrations in total disturbed surface water samples collected in UCR Reaches 1 through 6. These EPCs are presented in Table 18. Soil arsenic and lead concentrations were not adjusted for relative bioavailability (RBA) in birds, as RBA methods developed for humans (based on data from IVBA and juvenile swine) cannot be used to make RBA adjustments for birds.

The Washington State turkey management plan (Washington Department of Fish and Wildlife [WDFW], 2005) states that turkeys consume a diet comprised of 75% plant material and 25% invertebrates. Measured COPC concentrations in plant parts (sampled in 2018) likely to be consumed by upland birds (nuts and fruit;[17] Sample and LaTier [2019]) were used to calculate the EPC (KM mean for lead and 95UCL for non-lead COPCs) for the plant portion of the diet. Invertebrate concentrations were modelled using literature-based bioaccumulation models for terrestrial arthropods (Beyer and Sample 2017, Supplemental PowerPoint Slideshow S2) and

[16] The TCo cited in OEHHA (2015) was derived using data from the exposure group fed a methionine-deficient diet.
[17] Nuts = hazelnuts and Ponderosa pine nuts; fruits = sarvisberries, rose hips, huckleberries, and chokecherries

measured soil concentrations. Invertebrate uptake models were only available for arsenic, cadmium and lead. The turkey diet was assumed to be 100% plants for beryllium, mercury, nickel, and selenium.

TCos were available for arsenic, beryllium, cadmium, lead, mercury, nickel, and selenium (Table 18). The TCo for lead to chicken meat cited in OEHHA (2015) is 0.4. After review of the studies the TCo value was derived from and additional information on the TCo derivation calculations received from OEHHA (OEHHA, 2020), the lead TCo was re-calculated using the data reported in the original derivation studies (Latta and Donaldson, 1986a, 1986b) for the exposure group fed a methionine adequate diet; a TCo of 0.13 was used to estimate uptake of lead into bird tissue.

The bird uptake equation (OEHHA, 2015) is:

$$Conc_{uplandbird} = (Dose_{water} + Dose_{food} + Dose_{soil}) \times TCo$$

Where:

$Conc_{uplandbird}$	=	EPC in upland bird meat (µg/kg ww)
$Dose_{water}$	=	Ingestion rate (L/day) × Conc in surface water (µg/L)
$Dose_{food}$	=	Ingestion rate (kg/day) × ((Conc in plants [µg/kg dw] × 0.75) + (Conc in inverts [µg/kg dw] × 0.25))[18]
$Dose_{soil}$	=	Ingestion rate (kg/day) × Conc in surface soil (µg/kg)
TCo	=	Transfer coefficient (day/kg)

Variables needed for the model are ingestion rates of surface water, soil, and plants for upland birds; TCos for chicken meat for each COPC (Table 18); and concentrations in surface water, plants, invertebrates, and surface soil (Table 18). Food, water, and incidental soil ingestion rates for the wild turkey (*Meleagris gallopavo*), selected as the surrogate receptor representative of upland birds, were obtained from the scientific literature and are summarized in Table 19.

Upland bird EPCs are shown in Table 20.

2.3.6 Wild Game (Mammal) EPCs

Wild game tissue concentrations were estimated using the equations for estimating concentrations of COPCs in animal products and animal TCos for inorganic chemicals to cattle meat from the California EPA OEHHA (OEHHA, 2015). The Site-specific COPC concentrations measured in surface (0-3") soil samples (<149 µm) that were co-located with the wild/cultural plant samples, total disturbed surface water, and measured plant concentrations used in the uptake model are summarized in Table 21. White-tailed deer (*Odocoileus virginianus*) was selected as the surrogate receptor representative of upland game mammals. Deer are primarily browsers, but will also consume berries, nuts, fungi, and herbaceous vegetation (Korschgen, 1952; Dahlberg and Guettinger, 1956; Harlow and Jones, 1965; Sotola and Kirkpatrick, 1973). To calculate the plant EPC, it was assumed that the deer diet was 50% browse (willow and rose stems/leaves), 15% herbaceous plants (mint and kinninkinnick leaves), 15% nuts (hazelnuts and

[18] Invertebrate uptake models were only available for arsenic, cadmium, and lead. The turkey diet was assumed to be 100% plants for beryllium, mercury, nickel, and selenium.

pine nuts), 5% fungi (black tree lichen), 10% fruit (chokecherries, huckleberries, sarvisberries, and rose hips), and 5% tule leaves. Food, water and incidental soil ingestion rates used for white-tailed deer are summarized in Table 22.

TCos (Table 21) were available for arsenic, beryllium, cadmium, lead, mercury, nickel, and selenium. Calculated deer tissue COPC concentrations are summarized in Table 21.

2.4 Exposure Evaluation

Details of the methods used to evaluate exposure to lead and non-lead COPCs are provided in Sections 3.4 and 3.5 of the Site-wide HHRA and are only summarized briefly below.

2.4.1 Methodology of Lead Exposure Evaluation

The primary population of concern for risk from exposure to lead in this appendix is CHIRU children younger than age six. For the assessment of lead, EPA recommends the use of the IEUBK model to evaluate exposures of children to lead-contaminated media in a residential setting (EPA, 1994a, 1994b, 1998; Vandenberg, 2020). The IEUBK model predicts the probability distribution of blood lead concentrations (PbBs) in a population of young children (12-72 month age range was used in this HHRA per EPA, 2017a) exposed to a user-specified set of environmental lead levels (EPA, 1994a, 1998; Vandenberg, 2020). This model allows users to input data on the levels of lead in soil, dust, water, air, diet, and other (user-defined intakes) for a specific location, as well as data on the amounts of these media ingested or inhaled by a child living at that location. All inputs to the IEUBK model are central tendency point estimates (EPA, 1994a, 1994b). These point estimates are then integrated to calculate an estimate of the central tendency (the geometric mean) of the distribution of PbBs that might occur in a population of children exposed to the specified conditions. Assuming the distribution is lognormal and given (as input) an estimate of the variability in PbBs (this is specified by the geometric standard deviation [GSD]), the model calculates the expected distribution of PbBs for a population of similarly exposed children, as well as an estimate of the probability of PbB exceeding the target risk level specified by the user.

For some activities, exposure of children to Site media is unlikely while adult exposure may occur (specifically the basket weaving exposure scenario[19]). When adults are exposed to media where lead is a COPC (and there is no exposure to young children), the ALM is recommended (EPA, 2003). The ALM is designed to assess non-residential (i.e., workplace or commercial) exposure to lead-contaminated soil by adults. The receptor evaluated in the ALM is the fetus (the most sensitive endpoint being the developing nervous system); risk estimates based on the ALM are considered to be protective of other adverse health effects in adults related to lead exposure.

Risk benchmarks are risk levels that EPA uses to distinguish risks that are a potential concern from risks that are below the level of concern. Recognizing the recent advances in lead toxicology (Agency for Toxic Substances and Disease Registry [ATSDR], 2020), this risk assessment has evaluated a range of blood lead levels and the associated soil concentrations within which the risk management decision will most likely be made, from 3 to 8 micrograms per deciliter (µg/dL). For this Appendix to the Site-wide HHRA, the risk evaluation benchmarks

[19] Stifelman (2019).

selected for elevated lead risk were defined as >5% probability of exceeding a PbB of 3, 5, or 8 µg/dL (referred to as "P3," "P5," and "P8," respectively). The IEUBK model cannot be used with a risk benchmark below P3 (such as P2) because the risk goal would be exceeded even if soil lead concentration is 0 ppm due to dietary lead exposure. The estimated background soil lead concentration at the Site is approximately 35 parts per million (ppm; Appendix 4 of the Site-wide HHRA). P3 was selected as a lead risk benchmark to quantitatively evaluate the low end of the risk range of child PbBs associated with adverse health effects and P8 was selected as a less protective benchmark.

The IEUBK model (V1.1, build 11 with inputs shown in Table 23) was used to derive PRGs for residential soil lead exposures for each of these risk benchmarks as follows:

- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 3 µg/dL was associated with a concentration of approximately 50 ppm lead in soil.
- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 5 µg/dL was associated with a concentration of approximately 200 ppm lead in soil.
- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 8 µg/dL was associated with a concentration of approximately 400 ppm lead in soil.

The PRGs associated with each of these risk benchmarks is based on an assumed default RBA of 60% for lead. Site-specific IVBA information was used to derive RBA-adjusted lead concentrations according to EPA (2020), which allows direct comparison with these PRGs.

In general, the IEUBK model predicts that lead intakes of at least 1 µg/day (at 30% absolute bioavailability [ABA]) are needed to decrease the soil PRG by approximately 20 ppm for a target risk goal of 5% exceeding a PbB of 5 µg/dL (P5). For example, the PRG decreases from 200 ppm to 180 ppm when lead intake increases 1 µg/day (i.e., the alternate exposure pathway in the IEUBK model). In this HHRA, exposures that were predicted to contribute <1 µg lead/day were classified as minimal.

2.4.2 Methodology of Non-Lead Exposure Evaluation

The amount of a chemical that is ingested, inhaled, or absorbed through the skin is referred to as "intake" or "dose." Chemical intakes estimated for specific averaging times (e.g., lifetime) are referred to as average daily intakes (ADI). For non-lead chemicals, exposure is quantified using equations that include variables such as the EPC, the intake rate of the chemical, the body weight of the exposed person, the exposure frequency (EF; how often a person is likely to be exposed to the contaminated medium over the course of a typical year), and the exposure duration (ED; how long a person is likely to be exposed during his or her lifetime). Aside from the EPC, variables in the equations used to calculate chemical intakes are referred to as "exposure parameters" and are specific for the population being evaluated. The specific equations used to quantify the amount of non-lead COPCs ingested, absorbed through the skin, or inhaled are given in Section 3.5.1 of the Site-wide HHRA. The exposure parameters derived for the CHIRU receptor population are described in the next sections. When the same individual may be exposed to a chemical beginning as a child and extending into adulthood, exposure was calculated as the time weighted

average (TWA) lifetime exposure for evaluating cancer risks. For non-cancer hazards, children and adults were evaluated separately.

2.4.3 Exposure Parameters

For every exposure scenario of potential concern, it is expected that there will be variability among individuals in the level of exposure at a specific location due to differences in intake rates, body weights, exposure frequencies, and exposure durations. Thus, there is normally a wide range of ADIs among different members of an exposed population. Because of this, all daily intake calculations must specify what part of the range of doses is being estimated. Typically, attention is focused on ADIs that are near the upper end of the range (e.g., P95; RME), and on ADIs that are "average" or otherwise near the central portion of the range (e.g., mean; CTE). Both RME and CTE scenarios were evaluated for receptors in this HHRA Appendix for non-lead COPCs.

Table 24 presents the exposure parameters used to generate human intake factor (HIF) values for the RME and CTE exposure scenario (for ingestion and dermal pathways) and time weighting factor (TWF) values (for inhalation pathways) for the CHIRU receptor population. Several general exposure parameters, such as body weight, exposure duration, and skin surface area, were taken from standard EPA guidance documents (e.g., EPA, 1989, 2011, 2014). Others were derived from the CCT Tribal Survey (SRC, 2019a), communications with the CCT (e.g., Fraser, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2019g; Fraser, 2017; Stifelman, 2019; WQSA, 2014), or based on professional judgement. Detailed information on exposure parameters specific to this receptor population is provided in the remainder of this section.

2.4.3.1 Exposure Parameters Specific to Lead Risk Assessment

Exposure parameters used in the IEUBK model were CTEs (EPA, 1994a). Default parameter values were used when representative Site-specific information was not available. These defaults were modified to incorporate Site-specific information from the UCR Site when appropriate. Tables 23 and 25 present the input parameters used for evaluating lead exposures to CHIRU children using the IEUBK model for selected pathways at the UCR Site. Table 23 shows IEUBK model values with defaults as recommended by EPA and the Site-specific information. Table 25 provides the values for the age-specific parameters for the IEUBK model.

2.4.3.2 Exposure Parameters for Non-Lead Risk Assessment

Soil/Sediment Ingestion Rate

Soil and sediment ingestion rates (assumed to be equal) for the CHIRU population were taken from EPA (2017c, 2017d). For adults, for exposure to non-lead COPCs, the RME value was assumed to be 240 mg/day, which is the P95 adult daily soil ingestion rate determined for tribal subsistence/high contact populations (EPA, 2017d). The CTE soil ingestion value of 50 mg/day was the mean adult daily soil ingestion rate from EPA (2017d). The child RME and CTE soil ingestion rates of 200 and 80 mg/day, respectively, were taken from the update to Chapter 5 ("Soil and Dust Ingestion") of the EPA *Exposure Factors Handbook* (2017c; Table 24).

Contact Rates with Soil, Sediment and Surface Water

One major objective of the CCT Tribal Survey (Westat, Inc., 2012) was to determine long-term average contact with and daily consumption rates (DCRs) of environmental media during activities that include hunting, fishing, gathering, and utilization of environmental resources from the UCR Site. Approximately 3,100 CCT residents spent on average 355 hours annually engaged in these activities on land located within the Local Area (SRC, 2019a). To evaluate exposure of the CHIRU population during activities on beaches, the EF of time spent engaged in activities "on land" was derived from the CCT Tribal Survey (SRC, 2019a). The RME and CTE values of 62 and 18 days/year, respectively, were the P95 and mean values of time spent on land; this value is representative of all ages. For generic residential exposures of this population to soil in their yards (assuming year-round residence on tribal allotments), EPA default EFs were used (Table 24).

Approximately 3,100 CCT residents engage in activities in waters located within the Local Area (SRC, 2019a). To evaluate exposure of the CHIRU population during activities that take place in water, the EF was derived from the CCT Tribal Survey for the RME and CTE scenarios. Values did not vary significantly by age or sex; the estimated RME EF was 91 days/year (P95), and the CTE EF was the estimated mean value of 34 days/year. The ET (hours/day spent in the water) was also derived for all ages and sex combined; the estimated ETs for the RME and CTE scenarios were 10 and 3.6 hours/day, respectively (Table 24).

Wild/Cultural Plant Consumption Rates

Species-specific plant DCRs were derived using information from the CCT Tribal Survey Data Analysis Report (DAR) (SRC, 2019a), the UCR Plant Tissue Study Data Summary Report (DSR; Ramboll, 2019, TAI, 2019), and communications with the CCT (Fraser, 2017; Fraser, 2019a, 2019b, 2019c, 2019d, 2019e, 2019f, 2019g; Turner, 1997). Adult RME and CTE DCRs were derived for chokecherry, huckleberry, sarvisberry, black tree lichen, rose hips, kinnikinnick, rose stems and leaves, wild mint, hazelnut, pine nuts, lomatium, camas, and spring beauty/Indian potato. DCRs, expressed as g/day, were calculated as the product of consumption frequency (days/year) and the mean mass of the plants consumed on the days they were consumed (grams [g]; "meal size"). Information used to calculate these DCRs is found in Table 26.

For items that are mouthed (e.g., during preparation of plant material for weaving), exposure was estimated as if that plant part was ingested. Given the lack of more specific data on this behavior, this HHRA appendix assumed that 50% of the plant material was consumed while mouthing (RME scenario for tule and willow). Risk calculations were also conducted assuming 5% of plant material was consumed while mouthing (CTE scenario for tule and willow). The selected percentages of ingestion associated with mouthing willow saplings and tule are uncertain. The range of 5-50% was used as a reasonable assumption to estimate ingestion associated with processing weaving materials as CTE and RME estimates, respectively.

Child DCRs were not available for consumption of wild plants. Therefore, to perform exposure calculations for the CHIRU child population for this exposure pathway, the child DCR for each terrestrial plant species was estimated by multiplying the adult DCR by a ratio of child-to-adult estimated energy requirements (EER). Values for EER were calculated based on regression

models reported in Institute of Medicine (IOM, 2005). This methodology is described in detail in SRC (2019b) and in Appendix 14 to the Site-wide HHRA. Exposure to aquatic plants that are mouthed (e.g., during preparation of plant material for weaving) is not a complete exposure pathway for children (Stifelman, 2019); therefore, a child DCR was not calculated for aquatic plants (tule and willow).

Fish Consumption Rate

The fish DCR of 400 g/day utilized by the CCT in determining human health criteria for their surface water quality standards (WQSA, 2014) was the adult RME. The value is based on the subsistence consumption rate adopted by the CCT (WQSA, 2014). The adult CTE fish DCR of 80 g/day was derived by the CCT using the median frequency of ingestion by regular fish consumers and a 90th percentile meal size (Fraser, 2019b, 2019c).

To perform exposure calculations for the CHIRU child population, the child DCR for fish was estimated by multiplying the adult DCR by a ratio of child-to-adult EER as described above. This was done separately to derive the RME and CTE child DCRs for fish of 200 g/day and 40 g/day, respectively (Fraser, 2019c; Table 24).

Crayfish, Mussel, and Amphibian/Reptile Consumption Rates

DCRs estimated for crayfish, mussels, amphibians and reptiles (e.g., frogs, turtles, snakes) were based on data derived from the CCT Tribal Survey (SRC, 2019a). DCRs were calculated as the product of consumption frequency (days/year) and the mass of the food items consumed on the days they were consumed (grams; "meal size"). The FQ was designed to collect information on long-term average intake frequencies of specified food items and their source and location. The FQ provided data for the daily frequency of crayfish, mussels, and amphibians/reptiles from the Local Area and from all areas (Local and non-Local). For crayfish, consumption frequency estimates were based on Local Area data (n=80; P95 of 30 days/year and mean of 13 days/year). Based on the sample size available for the Local Area, mussel consumption frequency estimates were based on Local and non-Local data (n=71; P95 of 30 days/year and mean of 9 days/year). Amphibian and reptile consumption frequency estimates were calculated from 5 people who reported eating these organisms from the Local Area (P95 of 30 days/year and mean of 22 days/year). No survey participants reported consuming amphibians and reptiles from non-Local sources.

The 24-hour dietary recall interviews (AMPMs) were intended to characterize the types and amounts of food ingested by survey respondents on up to 4 different days (each representing a different season of the year). During the CCT Tribal Survey, due to resource constraints, interviewers made the decision to focus on getting as many respondents to complete 2 AMPMs rather than having fewer respondents who complete all 4 AMPMs (Westat, 2012). The recall interviews did not capture the intake of shellfish sourced from the Local Area. However, the AMPM provided data for the meal size of market shellfish (clams, crab and shrimp). AMPM estimates were used for the meal size of locally-sourced shellfish, amphibians and reptiles. For crayfish, mussels, and amphibians and reptiles, the mean meal size used to derive DCRs was 70.1 g.

For these organisms, the number of children reported in the CCT Tribal Survey was not sufficient to produce reliable estimates of long-term DCRs. The child DCR for crayfish, mussels, and amphibians and reptiles was estimated by multiplying the adult DCR by a ratio of child-to-adult EER as described above. RME and CTE DCRs are shown in Table 24.

Waterfowl Consumption Rate

The DCR for waterfowl was estimated based on data from the CCT Tribal Survey (SRC, 2019a). As described above, the DCR was calculated as the product of consumption frequency (days/year) and the mass of the food items consumed on the days they were consumed (grams; "meal size"). The FQ provided data for the daily frequency of consuming waterfowl sourced from the Local Area and the percentage of waterfowl sourced from the Local Area (n=13; P95 of 6 days/year and mean of 5 days/year). The AMPMs did not capture meals that included waterfowl. As explained in more detail in the CCT Tribal Survey DAR (SRC, 2019a), the adult mean meal size for chicken obtained from the AMPMs (100 g) was used as a surrogate for the adult mean meal size for waterfowl.

The data available from the CCT Tribal Survey for children consuming waterfowl was very limited (n=3). Therefore, the child DCR for waterfowl was estimated by multiplying the adult DCR by a ratio of child-to-adult EER as described above. RME and CTE DCRs for waterfowl are shown in Table 24.

Upland Bird Consumption Rate

The DCR for upland birds was estimated based on data from the CCT Tribal Survey (SRC, 2019a). As described above, the DCR was calculated as the product of consumption frequency (days/year) and the mass of the food items consumed on the days they were consumed (grams; "meal size"). Approximately 19% of CCT Tribal Survey participants who completed the FQ reported eating wild upland birds. The FQ provided data for the daily frequency with which upland bird meat was consumed and the percentage of upland birds sourced from the Local Area. As shown in Table 13 of the CCT Tribal Survey DAR (SRC, 2019a), the daily frequency of consumption by adults was 24.7 days/year (P95) or 11.6 days/year (mean). The 24-hour recall interviews did not capture meals that included upland birds, though they did contain many reports for consumption of chicken and turkey. As described in the CCT Tribal Survey DAR (SRC, 2019a), the adult mean meal size for chicken obtained from the AMPMs (100 g) was used as a surrogate for the adult mean meal size for upland birds.

Given the small sample size available to estimate meal size and consumption frequency for children consuming upland birds, the child DCR was estimated by multiplying the adult DCR by a ratio of child-to-adult EER as described above. This was done separately for the RME and CTE child DCRs as shown in Table 24.

Wild Game (Mammal) Consumption Rate

The CCT Tribal Survey (Westat, Inc., 2012) did not capture many respondents who reported consuming wild game other than deer/venison. The few survey participants who reported consuming bear, elk, and moose are shown in Table 10 of the CCT Tribal Survey DAR (SRC, 2019a). The wild game (mammal) DCR was estimated using the National Cancer Institute (NCI) method and venison consumption data obtained in the CCT Tribal Survey (Westat, Inc., 2012;

SRC, 2019a). A total of 916 CCT Tribal Survey participants reported deer consumption on the FQ or on one or more AMPM interviews. Using the NCI models, described in SRC (2019a), the mean and P95 adult DCRs for venison were estimated to be 12 and 42 g/day, respectively (i.e., the CTE and RME). The daily frequency of consuming venison from the Local Area by adults was approximately 10% (i.e., on average once every 9 days); approximately 88% of all venison consumed by adults was sourced from the Local Area.

Child DCRs for wild game (i.e., venison) were estimated using the adult DCRs and the ratio of the average meal sizes for children and adults from the CCT Tribal Survey. The average meal size for children was 48 g, and the average meal size for adults was 151 g; the resulting ratio was 0.32 (SRC, 2019a). This ratio was applied to the adult DCRs to estimate the CTE and RME child DCRs as shown in Table 24.

3 Risk Characterization

3.1 Lead Risk Calculations

The IEUBK model was used for all analyses involving lead exposure for children and the ALM was used for analyses of lead exposures that did not involve children, as described in detail in the Site-wide HHRA to which this document is appended. Lead risk was quantitatively assessed in terms of whether the exposure exceeded the risk benchmark. For this HHRA, the selected benchmarks for quantitative risk evaluation were "does the exposure result in more than 5% probability of exceeding PbB of 3, 5, or 8 µg/dL;" P3, P5, and P8, respectively. For media other than residential soil, lead risk may also be presented in terms of how exposure to the medium contributes to overall risk given a selected concentration of lead in residential soil. When lead intake from the subject medium was less than (<) 1 µg of lead per day, then that intake contributed minimally to lead risk. Below, lead risk results are presented by exposure pathway.

3.1.1 Incidental Ingestion of Surface Soil and Indoor Dust at Tribal Allotments

Methodology: The receptor population includes CHIRU children who may reside on a tribal allotment in the future. Arithmetic mean values for triplicate IC samples, or the sample result if a single IC sample was collected at each DU, were used as the soil lead EPC for the batch mode calculation. The soil lead EPC was the RBA-adjusted lead result to allow the default RBA for soil to be retained in the IEUBK model batch mode analysis. Dust lead concentration was calculated as the mass fraction of soil in indoor dust (MSD)-based result from the RBA-adjusted soil lead EPC for the same reason (the MSD approach included the contribution from outdoor air lead). Outdoor air lead concentration was based on Site-specific information as described in Table 23. The results for the 32-month-old child were used as a surrogate for hypothetical children 12-72 months old per EPA guidance.

Results: The results of the IEUBK model are shown in Table 27. The results in Table 27 indicate that of the 35 tribal allotment DUs assessed (not including the tribal allotment beach DU which was assessed separately in Section 3.1.2), incidental ingestion of soil and soil-derived dust at the following tribal allotment DUs exceeded risk benchmarks for lead:

- 21 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 3 µg/dL (P3 benchmark).

- 17 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 5 µg/dL (P5 benchmark).

- 6 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 8 µg/dL (P8 benchmark).

3.1.2 Incidental ingestion of Surface Sediment at Tribal Allotment Beach

Methodology: This exposure pathway was analyzed using the IEUBK model to assess risk from Site air and a time-weighted combination of tribal allotment DU soil and tribal allotment beach DU sediment for solid media exposure. Because the tribal allotment beach (DU 411) is not associated with a house DU and the IEUBK model requires a residential soil concentration, a surrogate was used based on the average soil lead concentration for other DUs on that tribal allotment (DU 410, DU 412 [using the post-removal action concentration as shown in Table 3-12 of the Site-wide HHRA], and DU 413). The time weighting of solid media intake used an assumed beach exposure of 2 days per week (adjusted from the RecUse Survey data beach visits assuming beach use during weekends; SRC 2019c). As discussed in the Uncertainty section of the Site-wide HHRA, this adjustment is unlikely to significantly impact predicted PbB and is likely to overestimate actual exposures. Because residential beaches were assumed to be relatively close to the residence, track-in of sediment from the beach was assumed and the MSD-dust lead concentration was derived from the time-weighted soil and sediment concentration.

Results: Table 28 shows the results for this exposure pathway for the P3, P5, and P8 benchmarks. As shown, incidental ingestion of sediment at the tribal allotment beach exceeded the P3 and P5 risk benchmark. Incidental ingestion of sediment did not exceed the P8 risk benchmark at the tribal allotment beach.

3.1.3 Incidental Ingestion of UCR Surface Water at Tribal Allotment Beach

Methodology: This exposure pathway was analyzed using the IEUBK model to assess risk from Site air, Site surface water, and a time-weighted combination of tribal allotment DU soil and tribal allotment beach DU sediment for solid media exposure. Because the tribal allotment beach (DU 411) is not associated with a house DU, a surrogate soil concentration was derived from the average soil lead concentration for other DUs on that tribal allotment (DU 410, DU 412 [using the post-removal action concentration as shown in Table 3-12 of the Site-wide HHRA], and DU 413). The time weighting of solid intake used an assumed surface water exposure of 1 day per week (adjusted from the RecUse Survey data for swimming during beach visits; SRC, 2019c). As discussed in the Uncertainty section of the Site-wide HHRA, this adjustment is unlikely to significantly impact predicted PbB and is likely to overestimate actual exposures. Because the tribal allotment beach was assumed to be close to any associated residence, track-in of sediment from the beach was assumed and the MSD-dust lead concentration was derived from the time-weighted soil and sediment concentration.

Incidental ingestion of surface water during activities in surface water at a tribal allotment beach was added as an additional intake to the IEUBK model (where the average Site-wide concentration of lead in surface water was multiplied by the number of hours spent in water per day from the RecUse Survey and volume of water consumed while swimming per hour to derive an intake of lead per day; Table 23; SRC, 2019a, 2019c). An absorption fraction of 50% was

used for the additional intake of lead (lead in surface water ingested incidentally during activities in surface water at the tribal allotment beach). Incidental intake of surface water was not subtracted from drinking water intake. Because the volume of incidental water intake is small compared to daily drinking water consumption and occurs only during an active event, it is unlikely to impact average drinking water intake.

Results: Table 29 shows the results for this exposure pathway for the P3, P5, and P8 benchmarks. As shown, incidental ingestion of surface water during activities in surface water at the Tribal Allotment beach exceeded the P3 and P5 risk benchmarks; however, incidental ingestion of beach sediment explains most of the increased risk while ingestion of surface water contributed minimally (incidental ingestion of surface water contributed an additional 1% to P3 risk and 0.5% to P5 risk as shown in Tables 28 and 29). Incidental ingestion of surface water during activities at the tribal allotment beach did not exceed the P8 risk benchmark.

3.1.4 Inhalation of Air

As discussed in the footnote to Table 23, the concentration of lead in UCR air (CH2MHill, 2015) is an order of magnitude lower than the default air lead concentration in the IEUBK model and is not likely to influence the results. Additionally, EPA evaluated air lead concentration data measured at the Sheep Creek monitoring station near Northport, Washington. EPA has analyzed numerous studies that compared air lead concentration to PbBs in children.[20] The analysis indicates that the air-associated exposure from inhalation or ingestion of lead in house dust and surface soil can lead to a PbB that is 5-10 times the value in air. Based on air results at the Sheep Creek monitoring station during the 1999-2009 monitoring period, the lead concentration is 0.0242 micrograms per cubic meter ($\mu g/m^3$) in air. This could lead to a 0.12–0.24 µg/dL level of lead in blood, which is low risk (EPA, 2018). The EPC value used in this HHRA appendix, for lead in air measured at Sheep Creek from 2002 to 2009, was 0.023 $\mu g/m^3$ (Table 23).

For lead, the air concentration from the Sheep Creek monitoring station is well below the levels expected to pose significant human health risks based on current understanding of relationships between air lead concentrations and PbBs resulting from direct and indirect exposures to air lead (Appendix 8 of the Site-wide HHRA). As such, risk from lead in air was included in the risk calculations as an input to the IEUBK model for all evaluations; however, this pathway was not evaluated as a separate exposure for lead.

3.1.5 Consumption of Site Biota

Methodology: Analysis of Site-related biota consumption using the IEUBK model is not necessarily informative because the average soil lead concentrations in tribal allotment DUs are >200 ppm (see Table 11). As noted earlier (see Section 3.1.1), this means that soil lead exposure alone would thereby exceed both P3 and P5 risk benchmarks without adding consumption of Site biota. To provide information to the CCT and other Site residents who engage in these activities, an approach was used to evaluate relative risk of consuming these biota (as discrete intakes) with focus on those that resulted in an average daily lead intake in excess of 1 µg lead/day. An ADI of 1 µg lead/day, in the absence of other lead exposures, would correspond to a predicted PbB of

[20] Integrated Science Assessment (ISA) for lead (https://www.epa.gov/isa/integrated-science-assessment-isa-lead); April 2017.

approximately 0.10-0.17 µg/dL depending on the assumed bioavailability of lead in the medium (from 30 to 50% ABA, respectively). See the Summary section (5) for more information.

Results: The biota-specific lead EPC was multiplied by the biota-specific DCR to derive a biota-specific ADI of lead. The following sections discuss the results for consumption of plants and other Site biota.

Table 30 shows the results for plants, where the mean or KM mean lead concentration for each plant species sampled was multiplied by the plant-specific DCRs to calculate lead intake. Those that exceeded 1 µg lead/day are in bold text. Note that children do not engage in basket weaving (SRC, 2019a; Stifelman, 2019), so exposure to lead while basket weaving was calculated based on assumed incidental plant intakes for adults only. The lead intakes for adults while basket weaving were much lower than 1 µg lead/day (0.003 and 0.016 for tule and willow, respectively; Table 31).

This same evaluation of lead intake was performed for the assessment of risk from the consumption of other Site biota. Tables 32 and 33 present the calculated lead intakes associated with consumption of fish, mussels, crayfish, amphibians and reptiles, waterfowl, upland birds, and wild game (mammals) harvested from the vicinity of the UCR. Those that exceeded 1 µg lead/day are shown in bold text. Note that the intake of lead via consumption of mussels and crayfish collected from reference area sampling is presented for informational purposes.

3.2 Non-Lead Risk Calculations

3.2.1 Non-Cancer Hazard Summary

Risk of non-cancer effects is evaluated by comparing the estimated exposure concentration over a specified time period to a toxicity reference value (threshold) that represents the exposure below which it is unlikely for sensitive populations to experience adverse health effects (EPA, 1989). This ratio of exposure to toxicity is called a hazard quotient (HQ). To assess the overall potential for non-cancer effects posed by more than one chemical, or if exposure to a COPC occurs by more than one route, HQs are summed to yield a Hazard Index (HI). Within an exposure pathway (e.g., incidental ingestion of soil), HQs were summed across COPCs to derive an HI. HQs were also summed across pathways of the same media (e.g., incidental ingestion and dermal contact with soil) to derive an HI.

Non-cancer hazards were assessed against risk benchmarks. Risk benchmarks are risk levels that EPA uses to distinguish risks that are a potential concern from risks that are below the level of concern. The benchmark for non-cancer hazards used in this assessment was an HQ >1. If the HQ for a chemical is ≤1, there is no appreciable risk (e.g., the probability is close to zero) that non-cancer health effects will occur. If an HQ is >1, then there is some possibility that an adverse non-cancer effect may occur (e.g., the probability is >0, but is likely not close to 1). This is because of the margin of safety inherent in the derivation of all toxicity values (see Section 4.3 of the Site-wide HHRA). However, the larger the HQ value, the more likely it is that an adverse effect may occur. When an HI is calculated, the risk benchmark is also HI >1. The HI can exceed one even if no single chemical exposure exceeds its reference dose/reference concentration (RfD/RfC; EPA, 1989). This is likely to overestimate actual exposures.

The assumption of dose additivity in the HI approach is most relevant to chemicals that induce the same effect by the same mode of action. If an HI >1 because of summing several HQs, then the chemicals can be segregated by effect and mode of action, and an HI can be calculated for each target organ group (EPA, 1989). Target organs were assigned to each COPC as shown in Table 4-2 of the Site-wide HHRA, based on data in EPA (2019). Target organ group HI calculation results are discussed below for receptors with total HI >1.

In this assessment, the following terminology is used to categorize non-cancer hazard based on the HQ or HI. Risks are considered to be below non-cancer hazard benchmarks used by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) if the HQ or HI is ≤1; if the HQ or HI is >1, there is a possibility that non-cancer health effects may occur (EPA, 1989, 1997; EPA and Clay, 1991). Detailed methodology for estimating non-cancer hazards is provided in Section 5.2.1 of the Site-wide HHRA. The results of the non-cancer evaluation for each exposure pathway are summarized below.

3.2.1.1 Surface Soil/Indoor Dust Exposure at Tribal Allotments

Risks for incidental ingestion of surface soil and indoor dust, and dermal contact with soil, are presented separately.

Incidental Ingestion of Surface Soil and Indoor Dust

Current and future CHIRU adults and children were assumed to be exposed to non-lead COPCs in soil and indoor dust via incidental ingestion at all tribal allotment DUs sampled in the 2014 and 2016 residential soil studies (except at the one tribal allotment beach DU). For the adult CHIRU population, all total soil/dust ingestion non-cancer hazards (summed across COPCs for each DU) were below 1 under both the RME and CTE scenarios (Tables 34 through 103). Total soil/dust ingestion non-cancer hazards for the child CHIRU population (summed across COPCs) were >1 at 29 of the 35 tribal allotment DUs under the RME scenario. Considering effects by target organ group, 2 DUs had HIs > 1 for the skin/hair/nails target organ (DU 401 [Table 36] and DU 441 [Table 48]). Thallium and arsenic were the drivers of this target organ risk. Section 6.3.4 of the Site-wide HHRA discusses the uncertainty associated with the toxicity value for thallium. For the child CHIRU population under the CTE scenario, no tribal allotment DUs exceeded 1 based on target organ effects. No COPCs had individual HQs >1 using either RME or CTE exposure assumptions.

Dermal Contact with Surface Soil

Current and potential future CHIRU adults and children were assumed to be exposed to non-lead COPCs in soil via dermal exposure at all 35 tribal allotment DUs sampled in the 2014 and 2016 residential soil studies that are not beaches. For both CHIRU adults and children, all total soil dermal non-cancer hazards (summed across COPCs for each DU) were <1 under both the RME and CTE scenarios (Tables 34 through 103).

Total Exposure to Surface Soil and Indoor Dust

When exposure to non-lead COPCs in tribal allotment soil was summed across pathways (incidental ingestion of soil/dust and dermal contact with soil), total non-cancer HIs ranged from 0.3 to 1 for adults and 1 to 5 for children under the RME scenario (Tables 34 through 103). When these HIs for children were aggregated by target organ, 2 tribal allotment DUs had HIs >1

for the skin/hair/nails system under RME assumptions. Under the CTE scenario, total non-cancer HIs ranged from 0.04 to 0.2 for adults and 0.3 to 1 for children. No target organ systems had HIs >1 for the CTE scenario. Based on HIs being >1 when evaluated by target organ system at the RME, there is potential for non-cancer health effects from exposure to non-lead COPCs through the total exposure to surface soil and indoor dust pathway.

3.2.1.2 Sediment Exposure at Tribal Allotment Beach

Tribal allotment DU 411 borders the UCR; beach sediment was sampled as part of the 2014 Residential Soil Study. The CHIRU population was assumed to be exposed to non-lead COPCs in tribal allotment beach sediment while participating in activities near the river. Under the RME exposure scenario, the HI for incidental sediment ingestion was 0.1 for adults and 0.4 for children; the HI for dermal contact with sediment was 0.002 for adults and 0.009 for children (Table 104). Summed across exposure pathways (incidental ingestion and dermal contact with sediment), total HIs were 0.1 for adults and 0.4 for children at the RME. No target organ HIs were >1 under the RME scenario. As no HIs exceeded 1 for the RME scenario, no HIs exceeded 1 for the CTE scenario (Table 105). Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.3 Surface Water Exposure at Tribal Allotment Beach

The CHIRU population was assumed to be exposed to non-lead COPCs in unfiltered, disturbed UCR surface water via incidental ingestion and dermal contact while participating in activities in the UCR. For adults, under both the RME and CTE scenarios, HIs (summed across COPCs) for incidental ingestion and dermal contact were <1 (Tables 106 and 107). Total (ingestion and dermal) non-cancer hazards for surface water were 0.2 (RME) and 0.02 (CTE) for adults. For children, HIs for incidental ingestion and dermal contact did not exceed 1 for the RME and CTE scenarios. Total non-cancer HIs for children were 0.6 under the RME scenario and 0.06 under the CTE scenario. Aggregated by target organ, HIs for no target organ system exceeded 1 under either the RME or CTE scenario. Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.4 Air Exposure at Tribal Allotments

The CHIRU population was assumed to be exposed to non-lead COPCs (arsenic and cadmium) in air for 24 hours/day on tribal allotments. For adults and children, total non-cancer HIs were <1 (summed across COPCs) under both RME and CTE scenarios (Tables 108a and 108b). HIs for air were 0.4 for the CTE scenario and 0.6 for the RME scenario for both adults and children. HIs grouped by target organ did not exceed 1 as well. Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.5 Exposure to Non-Lead COPCs from Consumption of Fish from the UCR

The CHIRU population (adults and children) was assumed to be exposed to non-lead COPCs in fish caught from the UCR and consumed. Risks for fish were estimated by consumption of individual species. Exposure to non-lead COPCs from consumption of fish was evaluated using EPCs calculated using all data for an individual fish species collected from UCR Reaches 1 to 6,

to inform whether there is variability in risk based on preferential consumption of a particular species (Tables 109 through 126). For the RME CHIRU population, risk was highest from consumption of Walleye fillets (child and adult HIs of 100 and 40, respectively; Table 116), followed by consumption of sucker (child and adult HIs of 90 and 30, respectively; Table 115) and Smallmouth Bass (child and adult HIs of 80 and 30, respectively; Table 113). HIs for all individual species evaluated were >1 at the RME for adults and children. COPCs contributing the most to non-cancer risk were methylmercury, thallium, and TEQ, which had HQs >1 for each species under RME exposure assumptions.[21] Target organ HIs >1 for the child and adult CHIRU population at the RME are as follows (Tables 109-117):

- Cardiovascular system[22]: HI >1 for Walleye (adult and child) and whitefish (child)
- Developmental system: HI >1 all individual fish species (adult and child)
- Endocrine system[23]: HI >1 for Walleye (adult and child) and whitefish (child)
- Gastrointestinal system[24]: HI >1 for sucker (child)
- Hematologic system: HI >1 for Burbot (child), Northern Pike (child), Smallmouth Bass (child), and White Sturgeon (child)
- Nervous system: HI >1 for all individual fish species (adult and child)
- Reproductive system: HI >1 for all individual fish species (adult and child) except Northern Pike[25]
- Skin/hair/nails system: HI >1 for all individual fish species (adult and child)

Using CTE exposure parameters, all HIs for adults and children in the CHIRU population were >1 (adult HIs ranged from 2 to 7; child HIs ranged from 6 to 20; Tables 118 through 126). Target organ HIs >1 for the child and adult CHIRU population at the CTE are as follows:

- Cardiovascular system: HI >1 for Walleye (child)
- Developmental system: HI >1 for Burbot (adult and child), kokanee (child), Northern Pike (child), Rainbow Trout (child), Smallmouth Bass (adult and child), White Sturgeon (child), sucker (adult and child), Walleye (adult and child), and whitefish (child)
- Endocrine system26: HI >1 for Walleye (child)

[21] Note that Northern Pike were not analyzed for TEQ.
[22] COPCs that affect the cardiovascular system were not detected/not analyzed in Northern Pike.
[23] Note that Northern Pike and White Sturgeon were not analyzed for COPCs that affect the endocrine system.
[24] Note that Northern Pike and White Sturgeon were not analyzed for COPCs that affect the gastrointestinal system.
[25] Northern Pike were not analyzed for COPCs that affect the reproductive system.
[26] Note that Northern Pike and White Sturgeon were not analyzed for COPCs that affect the endocrine system.

- Nervous system: HI >1 for Burbot (adult and child), kokanee (child), Northern Pike (child), Rainbow Trout (child), Smallmouth Bass (adult and child), White Sturgeon (child), sucker (adult and child), Walleye (adult and child), and whitefish (child)

- Reproductive system[27]: HI >1 for Burbot (child), kokanee (child), Rainbow Trout (child), Smallmouth Bass (adult and child), White Sturgeon (child), sucker (adult and child), Walleye (child), and whitefish (adult and child)

- Skin/hair/nails system: HI >1 for Burbot (child), kokanee (adult and child), Northern Pike (child), Rainbow Trout (adult and child), Smallmouth Bass (adult and child), White Sturgeon (child), sucker (child), Walleye (adult and child), and whitefish (adult and child)

Based on target organ HIs being >1, there is potential for non-cancer health effects from exposure to non-lead COPCs through fish consumption.

3.2.1.6 Exposure to Non-Lead COPCs from Consumption of Mussels from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs through the consumption of mussels from the UCR. As shown in Tables 127 and 128, adult and child HIs (summed across COPCs) under RME and CTE scenarios were not >1 from consuming mussels from Site locations. Adult and child HIs from consuming mussels from the reference location were also not >1 for RME and CTE scenarios (Tables 129 and 130). Because no HIs were >1 when aggregated by target organ system for adults or children at the RME or CTE scenarios, risks of non-cancer health effects from exposure to non-lead COPCs through consumption of mussels are considered below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.7 Exposure to Non-Lead COPCs from Consumption of Crayfish from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs through the consumption of crayfish from the UCR. As shown in Tables 131 through 134, HIs for children and adults at the RME and CTE, summed across COPCs, did not exceed 1 for crayfish collected in Site and reference locations. HIs grouped by target organ did not exceed 1 as well. Because no target organ HIs exceeded 1, risks of non-cancer health effects from exposure to non-lead COPCs through consumption of crayfish are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.8 Exposure to Non-Lead COPCs from Consumption of Amphibians and Reptiles from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs through the consumption of amphibians and reptiles from the UCR. As shown in Tables 135 and 136, HIs for children and adults at the RME and CTE, summed across COPCs, were not >1 due to consuming amphibians and reptiles from Site locations. HIs grouped by target organ were also not >1. Based on the target organ HI not being >1, risks of non-cancer health effects from exposure to non-lead

[27] Northern Pike were not analyzed for COPCs that affect the reproductive system.

COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.9 Exposure to Non-Lead COPCs from Consumption of Waterfowl

The CHIRU population was assumed to be exposed to non-lead COPCs (arsenic, cadmium, and selenium) in waterfowl harvested from the Upper, Middle, and Lower Regions of the UCR and consumed. For adults and children, total non-cancer HIs did not exceed 1 (summed across COPCs) under either RME or CTE scenarios (Tables 137 and 138). HIs grouped by target organ also did not exceed 1. Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.10 Exposure to Non-Lead COPCs from Consumption of Wild/Cultural Plants

CHIRU adults and children were assumed to be exposed to non-lead COPCs in plants consumed from the UCR Site. Aquatic plants evaluated (tule and willow) were assumed to be incidentally ingested while basket-weaving (mouthing) and other similar activities; this exposure pathway was assumed to only be complete for adults. HIs for adults exposed to aquatic plants were <1 (summed across COPCs) under both RME and CTE scenarios (Tables 139 through 142). HIs grouped by target organ were <1 as well.

For terrestrial plants, which were assumed to be consumed by adults and children at rates shown in Table 24, non-cancer HIs were calculated by plant species. Table 143 summarizes the total plant risk results for the RME and CTE scenarios. Species-specific tables (Tables 144-156, RME; Tables 157-169, CTE) show non-cancer risk results for the Site exposure area. For chokecherry, huckleberry, sarvisberry, black tree lichen, rose hips, kinnikinnick, rose stems/leaves, wild mint, hazelnut, pine nut, and camas, adult and child HIs for the RME and CTE scenario did not exceed 1 (summed across COPCs); target organ HIs also did not exceed 1 (Tables 144 through 156, RME; Tables 157-169, CTE).

For lomatium, the adult HI (summed across COPCs) did not exceed 1 at the RME and CTE, but the child HI at the RME was >1 (Tables 154 and 167). Child total HI did not exceed 1 at the CTE for lomatium. No target organ HIs were >1 for consumption of lomatium under RME exposure assumptions.

Adult HIs from consumption of spring beauty/Indian potato did not exceed 1 at the RME and CTE (Tables 143, 156 and 169). For children assumed to consume spring beauty/Indian potato, HIs summed across COPCs were >1 for the RME and CTE exposure scenarios. Target organ HIs were >1 for the child for both the RME and CTE scenarios for the skin/hair/nails system (Tables 143, 156, and 169). Thallium was the driver of the target organ risk (Tables 156 and 169). Section 6.3.4 of the Site-wide HHRA discusses the uncertainty associated with the toxicity value for thallium.

Based on target organ HIs being >1 for consumption of spring beauty/Indian potato, there is potential for non-cancer health effects from exposure to non-lead COPCs through consumption of this species.

3.2.1.11 Exposure to Non-Lead COPCs from Consumption of Upland Birds

The CHIRU population was assumed to be exposed to non-lead COPCs in upland birds harvested from the UCR Site and consumed. For adults and children, total non-cancer HIs did not exceed 1 (summed across COPCs) under both RME and CTE scenarios (Tables 170 and 171). HIs grouped by target organ also did not exceed 1. Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.12 Exposure to Non-Lead COPCs from Consumption of Wild Game (Mammals)

The CHIRU population was assumed to be exposed to non-lead COPCs in wild game (mammals) harvested from upland portions of the UCR Site and consumed. For adults and children, total non-cancer HIs did not exceed 1 (summed across COPCs) under both RME and CTE scenarios (Tables 172 and 173). HIs grouped by target organ also did not exceed 1. Based on the HI not exceeding 1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.2 Cancer Summary

The excess risk of cancer from exposure to a chemical is described in terms of the probability of developing cancer because of that exposure. Cancer risks are summed across all carcinogenic chemicals and all exposure pathways that contribute to exposure for a given population. If there is exposure to the same chemical in more than one medium, the total risk from that chemical is the sum of the risks across each medium. If exposure is to more than one chemical, the total cancer risk is estimated by summing the chemical-specific risks across all carcinogenic chemicals.

In general, EPA considers excess cancer risks below 10^{-6} to be negligible, and risks above 10^{-4} to warrant action.[28] Excess cancer risks that range between 10^{-6} and 10^{-4} are generally considered to be acceptable (EPA, 1989; EPA and Clay, 1991), although this is evaluated on a case-by-case basis. In this assessment, the following terminology was used to categorize cancer risks. Cancer risks that are $\leq 10^{-4}$ are within an acceptable range and risks above 10^{-4} are unacceptable (National Contingency Plan [NCP], 1990). As recommended in EPA's *An Examination of EPA Risk Assessment Principles and Practices* (EPA, 2004a), calculated cancer risks retained more than one significant figure and are presented in summary tables shown to one significant figure.

Cancer risks for each chemical were calculated as described in Section 5.2.2 of the Site-wide HHRA. Total excess cancer risks for each COPC, receptor, and exposure pathway are described separately by exposure pathway below.

3.2.2.1 Surface Soil/Indoor Dust Exposure at Tribal Allotments

Because arsenic is the only non-lead COPC in tribal allotment soil that has both a slope factor and a dermal absorption fraction, cancer risk from exposure to soil was solely attributable to

[28] Note that excess cancer risk can be expressed in several formats. A cancer risk of 10^{-6} is equivalent to 1 in 1,000,000 and can be expressed in scientific notation format as 1E-06. Similarly, a cancer risk of 10^{-4} is equivalent to 1 in 10,000 or 1E-04. For the purposes of this document, all cancer risks are presented as 10^{-4}, 10^{-6}, etc.

arsenic. Current and potential future CHIRU adults and children were evaluated for exposure to arsenic in tribal allotment soil and dust via incidental ingestion, and dermal contact with soil, for receptors exposed under both RME and CTE scenarios. Total excess cancer risks from soil/dust ingestion, and from dermal contact with soil, were below 10^{-4} (Tables 34 through 103) for both children and adults. When ingestion and dermal contact risks were summed, total excess cancer risks ranged from 3×10^{-6} to 8×10^{-5} at the RME and from 2×10^{-7} to 6×10^{-6} at the CTE, depending on the tribal allotment. These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.2 Surface Sediment Exposure at Tribal Allotment Beach

Current and potential future CHIRU adults and children were evaluated for exposure to arsenic in tribal allotment beach sediment via incidental ingestion and dermal contact for receptors exposed under both RME and CTE scenarios. Total excess cancer risks from sediment ingestion and dermal contact were below 10^{-4} (Tables 104 and 105) for both children and adults. When ingestion and dermal contact risks were summed, the total excess cancer risk was 3×10^{-6} at the RME and 9×10^{-8} at the CTE. These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.3 Surface Water Exposure at Tribal Allotment Beach

Current and potential future CHIRU adults and children were evaluated for exposure to arsenic in UCR surface water at the tribal allotment beach via incidental ingestion and dermal contact for receptors exposed under both RME and CTE scenarios. Total excess cancer risks from surface water ingestion and dermal contact were below 10^{-4} (Tables 106 and 107) for both children and adults. When ingestion and dermal contact risks were summed, the total excess cancer risk was 3×10^{-7} at the RME and 8×10^{-9} at the CTE. These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.4 Air Exposure at Tribal Allotments

The CHIRU population were assumed to be exposed to arsenic in air via inhalation 24 hours/day. Total excess cancer risks were 1×10^{-5} at the RME and 3×10^{-6} at the CTE (Tables 108a and 108b). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.5 Exposure to Non-Lead COPCs from Consumption of Fish from the UCR

Total excess cancer risks for the consumption of fish exceeded 10^{-4} at the RME for each individual species evaluated except for Northern Pike, which did not have any detected COPCs having cancer slope factors (Tables 109 through 117). TWA cancer risks ranged from 1×10^{-4} for White Sturgeon to 6×10^{-4} for sucker and whitefish. At the CTE, total excess cancer risk did not exceed 10^{-4} for individual species (Tables 118 through 126; TWA cancer risk ranged from 1×10^{-5} for White Sturgeon to 4×10^{-5} for sucker and whitefish). RME risks for fish consumption by the CHIRU population exceeded the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997). Cancer risks due to arsenic are all within the acceptable cancer risk range, with the highest estimate being 3×10^{-5} (whitefish). The elevated cancer risks are driven by organic chemicals, which are present in fish tissue at concentrations consistent with concentrations in fish collected at other regional waterbodies.

3.2.2.6 Exposure to Non-Lead COPCs from Consumption of Mussels from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs in mussels harvested from the UCR (Site and reference locations) and consumed. Total excess cancer risks (summed across COPCs) for adults and children were 6×10^{-6} (RME) and 6×10^{-7} (CTE) for Site locations, and 4×10^{-6} (RME) and 4×10^{-7} (CTE) for reference locations (Tables 127 through 130). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.7 Exposure to Non-Lead COPCs from Consumption of Crayfish from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs in crayfish caught from the UCR (Site and reference locations) and consumed. Total excess cancer risks (summed across COPCs) for adults and children were 6×10^{-6} (RME) and 1×10^{-6} (CTE) for Site locations and 3×10^{-6} (RME) and 5×10^{-7} (CTE) for reference locations (Tables 131 through 134). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.8 Exposure to Non-Lead COPCs from Consumption of Amphibians and Reptiles from the UCR

CHIRU adults and children were assumed to be exposed to non-lead COPCs in amphibians and reptiles caught from the UCR and consumed. Total excess cancer risks (summed across COPCs) for adults and children were 6×10^{-6} (RME) and 2×10^{-6} (CTE) for Site locations (Tables 135 and 136). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.9 Exposure to Non-Lead COPCs from Consumption of Waterfowl

CHIRU adults and children were assumed to be exposed to arsenic in waterfowl harvested in the vicinity of the UCR and consumed. Total excess cancer risks for the RME ranged from 1×10^{-7} (Middle Region) to 4×10^{-7} (Upper Region), and for the CTE ranged from 5×10^{-8} (Middle Region) to 1×10^{-7} (Upper Region) (Tables 137 and 138). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.10 Exposure to Non-Lead COPCs from Consumption of Wild/Cultural Plants

CHIRU adults were assumed to be exposed to arsenic in aquatic plants (tule and willow) harvested from the UCR and assumed to be incidentally ingested while being mouthed during basket-weaving. Total excess cancer risks for tule (9×10^{-8} and 3×10^{-9}) and willow (2×10^{-7} and 9×10^{-9}) at the RME and CTE, respectively, were below 10^{-4} (Tables 139 through 142). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

CHIRU adults and children were assumed to be exposed to arsenic in terrestrial plants harvested from the vicinity of the UCR and consumed. For all terrestrial plants, total excess cancer risks at the RME and CTE were below 10^{-4} (Tables 143 through 169). These risks were within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.11 Exposure to Non-Lead COPCs from Consumption of Upland Birds

CHIRU adults and children were assumed to be exposed to arsenic in upland birds harvested in the vicinity of the UCR and consumed. Total excess cancer risks for adults and children were 2×10^{-6} for the RME scenario and 3×10^{-7} for the CTE scenario (Tables 170 and 171, respectively). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

3.2.2.12 Exposure to Non-Lead COPCs from Consumption of Wild Game (Mammals)

CHIRU adults and children were assumed to be exposed to arsenic in wild game (mammals) harvested in the vicinity of the UCR and consumed. Total excess cancer risks for adults and children were 5×10^{-7} for the RME scenario and 6×10^{-8} for the CTE scenario (Tables 172 and 173, respectively). These risks are within the acceptable cancer risk range used by CERCLA (EPA and Clay, 1991; EPA, 1997).

4 Uncertainty

Risk estimates such as those reported in this appendix are derived from combining exposure and toxicity estimates for cancer and non-cancer effects. Uncertainty is generally accounted for in HHRA calculations by making health-protective assumptions in estimating the parameters used in risk calculations. Section 6 of the Site-wide HHRA contains a detailed discussion of uncertainty in lead and non-lead risk assessment. This section discusses the uncertainty associated with exposures specific to this Appendix.

4.1 Assumptions Regarding Site Use

Tribal members regularly engaging in tribal lifestyles and activities, represented herein by the CHIRU receptor population, may contact environmental media (air, soil/dust, sediment, and water) as well as consume soil- and sediment- impacted biota to a greater extent than other residents in the area of the Site. Exposure of the CHIRU population to soil and indoor dust on tribal allotments was assessed assuming full-time residential exposure, even though there are currently no occupied houses or full-time residences on these properties. This exposure scenario would be representative of potential future use and is a conservative approach when evaluating current use. Because of this, the results are more likely to overestimate than to underestimate exposure to soil and dust and therefore risk from exposure to Site-related COPCs during current uses of these tribal allotments.

Some activities that CCT Tribal Survey respondents engaged in on the banks of the UCR may have been incorrectly recorded during the CCT Tribal Survey as taking place within one of the UCR river reaches (CCT, 2019), possibly introducing either a low bias in the estimates of EF for contact with soil/sediment and a high bias in estimates of EF for contact with UCR water, or a high bias in the estimates of EF for contact with soil/sediment and a low bias in estimates of EF for contact with UCR water. A small percentage (<5%, n=29) of CCT Tribal Survey participants' responses to questions about the frequency of their on-land activities were identified as potential statistical outliers. A sensitivity analysis that evaluated the effect of these participants' responses on the EF estimates reported estimates for the CTE that were approximately 4.6-11% lower than the original estimate and estimates for the RME that were 12-27% lower than the original estimate. Responses provided by 16 participants (<3% of sample) to questions about the frequency of their activities in water were identified as potential statistical

outliers. The estimated EFs for in-water activities were not sensitive to potential outliers; a sensitivity analysis found the effect of these participants' responses on the CTE EF estimate was no more than 6% and the effect on the RME EF estimate was approximately 1% (SRC, 2019a). Thus, these sources of uncertainty are unlikely to substantially influence risk calculations.

4.2 Double-Counting of Intakes for Lead Risk Assessment

Double-counting lead intakes for specific exposure media occurs if the IEUBK model default values for consumption are not adjusted to account for consumption at the Site (for example, downward adjustment of default dietary intakes of lead to account for consumption of lead in locally harvested fish). Double counting of media consumption can result in an overestimation of lead intake. In general, if amounts consumed at the Site and frequencies of consumption are low, double-counting is unlikely to substantially influence risk-based decisions. These exposure pathways were assessed separately from other media (soil, sediment, and surface water) and presented as discrete intakes.

4.3 Estimation of EPCs in Food Items

While measured COPC concentrations were available for the majority of Site-related media evaluated in this appendix (i.e., soil, sediment, surface water, air, fish, crayfish, mussels, and plants), EPC concentrations in other media were estimated using surrogate data (amphibians and reptiles) or uptake modeling into tissue (waterfowl, upland birds, and wild game [mammals]).

4.3.1 Uncertainty Associated with Available Data

In all exposure calculations, the desired input parameter is the true mean concentration of a contaminant within a medium, averaged over the area where random exposure is assumed to occur. However, because the true mean cannot be calculated based on a limited set of measurements, EPA (1989, 1992) recommends that the exposure estimate be based on the 95UCL. When data are plentiful and inter-sample variability is not large, the 95UCL may be only slightly higher than the mean of the data. However, when data are sparse or highly variable, the 95UCL may be substantially greater than the mean of the available data. Using the 95UCL as the EPC is a health-protective assumption for risk calculations. Uncertainties associated with data and EPCs calculated for soil, sediment, surface water, air, and fish are discussed in the Site-wide HHRA.

The Quality Assurance Project Plan (QAPP) for the Macroinvertebrate Tissue Study (TAI, 2016) specified collection of six composite samples of mussels from different locations within each UCR River reach. Six mussel beds were not located in any of the reaches, resulting in more than one sample being collected from an individual bed. Measured metal concentrations from mussel samples collected within a bed were more similar than measured metal concentrations in mussel samples collected within a reach. There is uncertainty regarding whether the spatial distribution of composite samples from each area is equally representative of the collection from all locations.

The availability of mussels in the UCR for collection and consumption is also uncertain. Macroinvertebrate sampling was targeted to be conducted during the time period when the reservoir water level is typically at its lowest and mussels would be most accessible. During the spring 2016 sampling event, water levels were higher than anticipated, and the number of

mussels targeted for collection was not achieved. The collection of a sufficient number of mussels for chemical tissue analysis required scuba diving in the majority of the sampling areas (A1 and A3-A6) in the fall (TAI, 2017b). Insufficient availability of mussels as a resource for consumption would result in an overestimate of risk assuming daily exposure (which is the methodology used to assess risk in this HHRA).

In the absence of Site-specific tissue concentration data for amphibians and reptiles, the EPCs calculated for crayfish were used to evaluate risk from consumption of these organisms (see Section 2.2.9 for the rationale). The uncertainty in the risk estimate related to selection of these EPCs is unknown in both direction and magnitude.

4.3.2 Uncertainty Associated with Uptake Modeling

While soil and surface water concentrations are typically measured at sites, plant and biota concentrations are sometimes estimated using uptake models. In a study conducted to evaluate the predictive utility of uptake models, it was determined that the three general estimation methods used overestimated measured plant concentrations for over 50% of soil concentrations (Bechtel Jacobs Co., 1998). For this risk assessment, wild/cultural plants were collected to measure COPC concentrations in the plant parts consumed by the CHIRU receptor population and to reduce uncertainty in the risk estimates. For most plants, estimated plant concentrations (using the mean soil concentration from the plant SAs) overestimated the measured plant concentrations (Table 174). Measured concentrations tended to exceed estimated plant tissue concentrations for black tree lichen (arsenic, cadmium, lead) and for the underground plant parts (camas, lomatium, and spring beauty) that were collected (arsenic, cadmium, lead and nickel).

Consumption of black tree lichen, camas, lomatium and spring beauty resulted in estimated lead intakes >1 µg/day, and in a non-cancer target organ HI >1 for the skin/hair/nails system for consumption of spring beauty by children under RME exposure assumptions. Collection of site-specific plant data reduced the uncertainty associated with these risk estimates.

For this risk assessment, uptake models were used to predict tissue concentrations for waterfowl, upland birds, and game mammals (see Sections 2.1.1.5 and 2.1.1.7). As noted above, Site-specific factors that affect COPC bioavailability and uptake may lead to under- or overestimation of modeled food concentrations.

4.4 Uncertainty in Dietary Estimates

Consumption rates of biota (macroinvertebrates, plants, birds, game) were derived when possible from the CCT Tribal Survey (SRC, 2019a).[29] As described in the CCT Tribal Survey DAR (SRC, 2019a), there are uncertainties associated with the 24-hour dietary recalls, as well as the FQ. The 24-hour dietary recalls provided detailed records of food items consumed during the recall periods, but 24-hour recalls tend to under-estimate the frequency for foods that are consumed infrequently and over-estimate the variability in daily consumption rates within a population (Dodd et al., 2006). The FQ was developed specifically for the CCT Tribal Survey, based on a validated food frequency questionnaire that had been used in many large surveys (Westat, Inc., 2010). A draft version of the FQ was also tested with members of the survey

[29] Uncertainty associated with the fish DCR, obtained from the CCT, is not discussed in this appendix.

population. An advantage of FQs in general is they are more likely to capture food items that are consumed infrequently, while a disadvantage is that participants tend to have difficulty accurately recalling the frequency of eating particular food items (Dodd et al., 2006).

4.4.1 Shellfish and Amphibian/Reptile DCRs

The mussel and crayfish DCRs were calculated using the frequency of consumption (obtained from the FQ in the CCT Tribal Survey) and the meal size of market shellfish (obtained from the 24-hour dietary recalls in the CCT Tribal Survey). The FQ data for mussels sourced from the Local Area was provided by 10 participants (Table 9 of SRC, 2019a; the sample weights of these participants summed to 54). An additional 61 participants provided data on the FQ for mussels that were not sourced from the Local Area (Table 9 of SRC, 2019a; the sample weights of these participants summed to 418); including these participants' responses, the average daily frequency of consumption was approximately 2.4% (approximately 8.8 days per year). The estimates for the frequency of consuming crayfish sourced from the Local Area are based on a much larger number of participants (n = 80). However, these are still relatively small sample sizes upon which to base estimates of consumption frequency for the UCR.

The 24-hour recalls did not capture consumption of locally sourced shellfish. The AMPM data includes meal size information for commercial sources of shellfish. As a result, the meal size estimates for mussels and crayfish were based on the meal size data for all commercial shellfish (i.e., mollusks and crustaceans) that were reported on the 24-hour recalls. Most meals captured in the 24-hour recalls included shrimp (49/89) or clams (26/89), with a few crabs (6/89) and oysters (5/89), 1 lobster, and 2 "seafood." By using the commercial shellfish as a surrogate to estimate meal size for locally sourced mussels and crayfish, the DCRs, and therefore exposures, are potentially overestimated; however, the magnitude of the overestimate is unknown.

The consumption rates (meal size and consumption frequency) of amphibians and reptiles are very uncertain due to minimal or no data. Five participants out of 1,165 respondents reported consuming amphibians/reptiles ("aquatic organisms") sourced from the Local Area on the CCT Tribal Survey FQ. The average frequency of consumption was approximately 6% (22 days/year). There were no reports of consumption of amphibians or reptiles in any of the CCT Tribal Survey 24-hour diet recalls. Therefore, as with mussels and crayfish, the meal size estimates were taken from 24-hour recall data for all mollusks and crustaceans.

4.4.2 Plant DCRs

Adult DCRs for plants were derived using a combination of consumption frequency and meal size data from the CCT Tribal Survey, and information provided directly by the CCT. The CCT Tribal Survey collected age-specific information on consumption of wild plants harvested from the Local Area. The exposure factor estimated for the consumption of wild plants (consumption rate in grams of aquatic and terrestrial wild plants consumed per day) is based on CCT Tribal Survey respondents who reported consumption of wild plants ("consumers only") harvested from the Local Area. For most of the plant species collected during the Plant Study, survey responses were only sufficient to derive an estimate of consumption frequency (number of days per year a particular plant is consumed) for wild/cultural plant species of interest. Based on the available sample sizes for consumers, the only meal size data sufficient to fully derive DCRs based on the CCT Tribal Survey was the grams per day estimate for huckleberries. Additional information on

the meal sizes for wild plants based on recipes provided by the CCT or from Turner (1997) was utilized to develop DCRs for other wild plant species. For plant species utilized for weaving, it was assumed that either 50% (RME) or 5% (CTE) of the material mouthed while weaving was incidentally ingested. The magnitude and direction of uncertainty resulting from assumptions made to derive the DCR estimates is unknown, except for plants utilized for weaving. The assumption that 5-50% of the mouthed material is ingested is more likely to overestimate than underestimate intake.

4.4.3 Waterfowl and Upland Bird DCRs

The CCT Tribal Survey 24-hour recalls did not capture consumption of wild upland birds or waterfowl. DCRs for adults were estimated using meal size data from the CCT Tribal Survey for chicken. There is some uncertainty related to using the average domestic poultry meal size as a surrogate for the average meal size for wild upland birds. Burger and Gochfeld (2002) reported both meal sizes and DCRs for market chicken exceed the meal sizes and DCRs for wild game (including dove, duck, quail, and wild turkey). However, the average chicken meal size for adults reported on the AMPM (100 g) was approximately half the average chicken meal size estimated in Burger and Gochfeld (2002; ranged from 245 to 255 g). It is within the range of meal sizes reported in Burger and Gochfeld (2002) for duck, wild-caught quail, and wild turkey (24-127 g). Furthermore, the average meal size of 100 g based on the AMPM data is within the range of meal sizes reported in the literature for wild game (38-183 g; Section 5.2.4.2 of SRC, 2019a). This indicates that using the daily meal size of chicken reported on the AMPMs is a reasonable surrogate for estimating meal size for upland birds.

The FQ provided data for waterfowl sourced from the Local Area for 16 survey participants. An additional 7 adults provided data for waterfowl that were not sourced from the Local Area. The small sample size available from the FQ for waterfowl is a source of substantial uncertainty. For upland birds, the FQ data include a few participants whose responses may be considered statistical outliers. Three participants (all adults) reported eating wild upland game birds much more frequently than the rest of the participants. They also reported sourcing all the game birds from the Local Area. Two of the participants reported daily frequencies equivalent to approximately 4 days per week (daily frequency = 0.5704) and one participant reported eating wild upland bird meat every day. The next highest daily frequency (0.1429, or approximately once per week) was reported by four participants. However, most participants who reported eating wild upland birds (n = 208) reported eating them approximately 6 times per year (daily frequency = 0.0167). The effect of the potential outliers on the estimates is small. The estimates of the mean and P95 decrease by approximately 3 days per year with the three largest responses omitted from the dataset.

4.4.4 Wild Game (Mammal) DCRs

As described in the CCT Tribal Survey (SRC, 2019a), the FQ and 24-hour recalls provided few data on the consumption of wild game such as bear, elk, and moose. However, venison consumption was reported on at least one 24-hour recall by 202 survey participants (179 adults and 23 children), and 30 participants reported consumption on more than one dietary recall. These data were used to calculate an adult DCR for wild game (mammals). Child DCRs for venison were estimated using the adult DCRs and the ratio of average meal sizes for children and adults from the CCT Tribal Survey. A detailed discussion of the uncertainty in the modeling

approach used to derive the adult DCR used for wild game (mammals) is provided in the CCT Tribal Survey DAR (SRC, 2019a).

4.4.5 Estimation of Child DCRs

For the majority of food items evaluated in this appendix, data were not available to derive DCRs for children. Therefore, child DCRs were estimated by multiplying the adult DCR by a ratio of child-to-adult estimated energy requirements (EER). The EER ratio was based on EERs estimated from regression models applied to data from doubly labeled water studies (IOM, 2005; SRC, 2019b; Appendix 14 of the Site-wide HHRA). The regression models predicted EER based on age, body weight and height, and physical activity. The EER ratio was calculated for the average of EERs estimated for three physical activity (PA) levels that ranged from low to highly active, for males and females combined (SRC, 2019b, Table 2). While these data were considered the best available data for estimating child and adult EER (IOM, 2005), the data were not provided by a random sample and how well they represent the variability in the target population is not known. Sources of uncertainty in the EER ratio include the uncertainty in the predicted average EERs for children and adults due to variability in age, height and weight among the population; differences in EER between males and females; differences in the PA level of the population; and, possibly, other physiological variables that may affect EER in the target population that were not represented in the population from which the EERs were derived. The application of a single EER ratio to estimate DCRs for specific foods assumes that amounts of individual foods consumed by children and adults scale with EER.

5 Summary

Exposure to COPCs in surface soil, indoor dust, air, surface water, surface sediment, fish, plants, mussels, crayfish, amphibians/reptiles, birds (waterfowl and upland birds), and game (mammals) were evaluated for the CHIRU adult and child receptor populations. Risks from exposure to lead were assessed using the ALM and the IEUBK model, for adults and children, respectively. Risks from exposure to other COPCs were estimated using standard equation and exposure pathways and parameters based on EPA guidance, the CCT Tribal Survey (Westat, 2012; SRC, 2019a), and personal communication with the CCT.

The risk evaluation benchmarks selected for quantitative evaluation of lead risk were defined as >5% probability of exceeding each of these target PbBs: >5% probability of exceeding 3 µg/dL (referred to as “P3”), >5% probability of exceeding 5 µg/dL (referred to as “P5”), or >5% probability of exceeding 8 µg/dL (referred to as “P8”). Each of these risk benchmarks for lead was evaluated separately in this Appendix to the Site-wide HHRA. For other COPCs, risk was estimated for RME and CTE exposure scenarios. Risk benchmarks used herein for COPCs other than lead were either a non-cancer HQ or HI >1 or a TWA excess cancer risk $>10^{-4}$.

Lead risks at 35 tribal allotment DUs (not including the tribal allotment beach DU) exceeded risk benchmarks as follows:

- 21 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 3 µg/dL (P3 benchmark).
- 17 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 5 µg/dL (P5 benchmark).

- 6 tribal allotment DUs had more than a 5% probability of exceeding a PbB of 8 µg/dL (P8 benchmark).

Lead risk at the tribal allotment beach exceeded the P3 and P5 risk benchmarks due to incidental ingestion of sediment and surface water during activities on the beach.

Lead risk due to consumption of Site-related biota was evaluated as relative risk, with a focus on those intakes in excess of 1 µg lead/day. The following pathways resulted in lead intake >1 µg/day:

- Consumption of sarvisberries by children
- Consumption of black tree lichen by children
- Consumption of lomatium by children
- Consumption of camas by children
- Consumption of spring beauty/Indian potato by children
- Consumption of amphibians and reptiles by children from UCR Reaches 2, 5, and Reaches 1-6 combined
- Consumption of fish (sucker and Walleye) by children (consumption of other fish species resulted in <1 µg lead per day intake)
- Consumption of upland birds by children

Tribal members engaging in tribal lifestyles and cultural practices may contact environmental media (soil, sediment, and water) as well as soil- and sediment- impacted biota to a greater extent than other residents. Some tribal allotment DUs had fairly high soil lead concentrations (>200 ppm, which is the soil lead concentration associated with the P5 risk benchmark); therefore, soil lead is likely to be the major contributor to lead risk at these locations.

Table 175 presents average daily lead intakes via consumption of biota harvested or collected from the UCR Site. Table 175 indicates that some of the exposures resulted in intakes that exceeded 1 µg lead/day intake due to high lead concentration in the biota tissue and/or high biota consumption rate.

For the following recommendations, readers should bear in mind the confidence in the results. For example, lead intakes that are based on survey data and measured tissue concentrations are more confident than those where intakes or tissue concentrations are estimated from other species or modeled. In general, those exposures shown in Table 175 that result in intakes <1 µg lead/day are unlikely to present unacceptable risk from lead exposure, whereas those that exceed 1 µg lead/day may warrant consideration of risk management alternatives.

For those biota where the concentration of lead in the tissue is high (such as camas and other underground plants), it may be advisable to seek an alternative source (that is, one not impacted by the Site or other lead sources) or to remove the biota tissue that is most likely to be high in

lead before consuming (such as peeling root vegetables to remove the part that contacts the soil). For those biota where the lead concentration was generally low, but intake is high (such as fish), it may be advisable to reduce consumption from the Site and replace with biota that are less contaminated. For those biota where both intake and lead concentration are high, it may be advisable to consider both reducing consumption and finding a less contaminated non-Site source.

For non-lead COPCs, total non-cancer HIs were >1 for exposure of the CHIRU receptor populations via the following pathways:

- Exposure of CHIRU children to soil/indoor dust (ingestion and dermal pathways combined) on 29 tribal allotments at the RME
- Consumption of fish from the UCR for both children and adults at the RME and CTE
- Consumption of lomatium by children under RME exposure assumptions
- Consumption of spring beauty/Indian potato by children under RME and CTE exposure assumptions

Because the total HI is >1 for the pathways discussed above, non-cancer risks were aggregated by target organ effects (Tables 176 through 179). Risks from exposure to non-lead COPCs exceeded non-cancer risk benchmarks (i.e., target organ HIs >1) for the following exposure pathways:

- Exposure to soil/indoor dust by CHIRU children at 2 tribal allotments under RME exposure assumptions. Thallium and arsenic were the drivers of the target organ risk estimates (Tables 36 and 48).[30]
- Consumption of fish by CHIRU adults and children under both RME and CTE exposure assumptions (adults under CTE scenario do not have target organ HIs >1 for consumption of Northern Pike or White Sturgeon). Methylmercury, dioxins/furans, PCBs, and thallium drove the target organ risk for fish consumption. Measured concentrations of these COPCs in fish collected from the UCR are similar to concentrations measured in other locations in the northeastern portion of Washington and in Idaho.[31]
- Consumption of spring beauty/Indian potato by children under RME and CTE exposure assumptions. Thallium was the driver of the target organ risk (Tables 156 and 169).

Risks from exposure to non-lead COPCs exceeded cancer risk benchmarks (i.e., total excess cancer risk $>10^{-4}$) for the following exposure pathways:

- Consumption of fish by the CHIRU population under RME exposure assumptions (Tables 109 through 117), except for Northern Pike, which did not have any detected COPCs having cancer slope factors (Table 111). Cancer risks due to arsenic are within EPA's acceptable cancer risk range, with the highest estimate being 3×10^{-5} (whitefish).

[30] Section 6.3.4 of the Site-wide HHRA discusses the uncertainty associated with the toxicity value for thallium.
[31] See Section 6.3.3.3 of the Site-wide HHRA for additional discussion.

> Elevated cancer risks are driven by organic chemicals, which are present in fish tissue at concentrations consistent with concentrations in fish collected at other regional waterbodies (ECY, 2011).

For additional consideration, in its *Upper Columbia River Freshwater Mussel and Crayfish Evaluation (2018 Results)*, Washington State Department of Health (WDOH) evaluated the mussel data collected from the UCR (WDOH, 2019). Meal restrictions were recommended to the general public and high consumers for both the Site and reference areas due to manganese concentrations in freshwater mussels. Regardless of evaluation of the UCR mussel tissue concentration data, the Department of Fish and Wildlife prohibits the harvest of freshwater clams and mussels from all Washington freshwater sources because they do not consider them safe to eat due to potential bacterial contamination.[32] WDOH evaluated the crayfish data collected from the UCR and did not recommend restriction of crayfish consumption for the general public (WDOH, 2019). For high consumers (those that consume up to 23 meals per month of fish and shellfish), WDOH recommends consuming no more than 10 meals per month of crayfish from the UCR due to levels of inorganic arsenic.

[32] https://wdfw.wa.gov/fishing/shellfish/statewide_rules.html.

References

Arthur, W.J., A.W. Alldredge. 1979. Soil ingestion by mule deer in north central Colorado. J Range Manage 32(1):67-71.

ATSDR. 2020. Toxicological profile for lead. Agency for Toxic Substances and Disease Registry. https://www.atsdr.cdc.gov/toxprofiles/tp13.pdf.

Bateman, B.A. 1949. Wildlife - A secondary crop on forest land managed primarily for timber production. Ph.D thesis, University of Michigan.

Bechtel Jacobs Co. 1998. Empirical models for the uptake of inorganic chemicals from soil by plants. Prepared for the U.S. Department of Energy, Office of Environmental Management, Oak Ridge National Laboratory. BJC/OR-133.

Beyer, W.N., Conner, E.E., Gerould, S. 1994. Estimates of soil ingestion by wildlife. J Wildl Manag 58(2):375-382.

Beyer, W.N., Audet, D.J., Morton, A., Campbell, J.K., LeCaptain, L. 1998. Lead exposure of waterfowl ingestion Coeur d'Alene River Basin sediments. J Environ Qual 27:1533-1538.

Beyer, W.N., Sample, B.E. 2017. An evaluation of inorganic toxicity reference values for use in assessing hazards to American robins (*Turdus migratorius*). Integr Environ Assess Manag 13(2):352-359.

Brown, S.L., Chaney, R.L., Lloyd, C.A., Ryan, J.A. 1996. Relative uptake of cadmium by garden vegetables and fruits grown on long-term biosolid amended soils. Environ Sci Technol 30:3508-3511.

Burger, J., Gochfeld, M. 2002. Role of wild game in the diet of recreationists in South Carolina. J Environ Plan Manage 45(1):103-128.

Calder, W.A., Braun, E.J. 1983. Scaling of osmotic regulation in mammals and birds. Am J Physiol 244:R601-R606.

Campbell, J.K., Audet, D.J., McDonald, T.L., Kern, J., Strickland, D., et al. 1999. Heavy metal concentrations in *Sagittaria spp*. tubers (water potato) in the Coeur d'Alene Basin, Idaho. Final. U.S. Fish and Wildlife Service, Spokane, WA.

CCT. 2019. Comments from the Confederated Tribes of the Colville Reservation regarding the final draft Tribal Consumption and Resource Use survey data analysis report. Colville Confederated Tribes. Dated March 20, 2019

CDC (Centers for Disease Control and Prevention). 2010a. National Health and Nutrition Examination Survey. 2003-2004 Examination, dietary, and demographics files. http://www.cdc.gov/nchs/nhanes/nhanes2003-2004.

CDC. 2010b. National Health and Nutrition Examination Survey. 2005-2006 Examination, Dietary and Files. Centers for Disease Control and Prevention. http://www.cdc.gov/nchs/nhanes/nhanes2005-2006.

CH2MHill. 2007. Final Phase I fish tissue sampling data evaluation - Upper Columbia River Site. CERCLA RI/FS. Prepared for the U.S. Environmental Protection Agency, Region 10, Seattle, WA.

CH2MHill. 2015. Evaluation of air quality monitoring data for Upper Columbia River site. Draft technical memorandum. Prepared for the U.S. Environmental Protection Agency, Region 10.

CH2MHill. 2016. Final UCR residential soil study field sampling and data summary report. Prepared for the U.S. Environmental Protection Agency Region 10.

Chukwudebe, A.C., J.B. Beavers, M. Jaber, Wislocki, P.G. 1998. Toxicity of emamectin benzoate to mallard duck and bobwhite quail. Environ Toxicol Chem 17(6):1118-1123.

Chumchal, M.M., Rainwater, T.R., Osborn, S.C., Roberts, A.P, Abel, M.T., et al. 2011. Mercury speciation and biomagnification in the food web of Caddo Lake, Texas and Louisiana, USA, a subtropical freshwater ecosystem. Environ Toxicol Chem 30(5):1153-1162. https://doi.org/10.1002/etc.477.

Dahlberg, B.L., Guettinger, R.C. 1956. The white-tailed deer in Wisconsin. Wis Tech Wildl Bull 14:282 pp.

Davison, K.L., Sell, J.L. 1974. DDT thins shells of eggs from mallard ducks maintained on ad libitum or controlled feeding regimens. Arch Environ Contam Toxicol 2(3):222-232.

Dewey, T. 1999. *Lithobates pipiens*. Animal diversity web. http://animaldiversity.org/accounts/Lithobates_pipiens/.

Dodd, K.W., Guenther, P.M., Freedman, L.S., Subar, A.F., Kipnis, V., et al. 2006. Statistical methods for estimating usual intake of nutrients and foods: A review of the theory. J Am Diet Assoc 106(10):1640–1650.

Donohue, J.M., Abernathy, C.O. 1999. Exposure to inorganic arsenic from fish and shellfish. Arsenic Exposure and Health Effects. New York, NY: Elsevier Science B.V.

ECY. 2011. Background characterization for metals and organic compounds in Northeastern Washington lakes. Part 2: Fish tissue. Washington State Department of Ecology. Publication No. 11.

ECY. 2017. Preliminary review and evaluation of available air quality monitoring data and consideration of potential present-day health risks: Upper Columbia River Valley, near Northport, Washington. Washington Department of Ecology, Air Quality Program. ECY Publication No. 17-02-003.

EPA. 1989. Risk Assessment Guidance for Superfund, Volume I. Human health evaluation manual (Part A). Interim final. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, DC. EPA540189002.

EPA. 1992. Supplemental guidance to RAGS: Calculating the concentration term. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Publication 9285.7-081.

EPA. 1994a. Guidance manual for the Integrated Exposure Uptake Biokinetic Model for lead in children. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA540R93081. Publication Number 9285.7-15-1.

EPA. 1994b. Technical support document: Parameters and equations used in the Integrated Exposure Uptake Biokinetic Model for lead in children (v0.99d). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540R94040. OSWER #9285.7-22.

EPA. 1997. Rules of thumb for Superfund remedy selection. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response: Washington, DC. http://www.epa.gov/superfund/policy/remedy/rules/rulesthm.pdf.

EPA. 1998. Clarification to the 1994 revised interim soil lead guidance for CERCLA sites and RCRA corrective action facilities. U.S. Environmental Protection Agency. EPA540F98030. OSWER Directive 9200.4-27.

EPA. 2001. Risk assessment guidance for Superfund: Volume I. Human Health Evaluation Manual (Part D, Standardized planning, reporting, and review of Superfund risk assessments) Final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. Publication 9285.7-47.

EPA. 2003. Recommendations of the Technical Review Workgroup for Lead for an approach to assessing risks associated with adult exposures to lead in soil. U.S. Environmental Protection Agency. EPA540R03001, OSWER Dir #9285.7-54.

EPA. 2004a. An examination of EPA risk assessment principles and practices. Staff paper prepared for the U.S. EPA by members of the Risk Assessment Task Force. U.S. Environmental Protection Agency, Office of the Science Advisor, Washington, DC. EPA100B04001.

EPA. 2004b. Risk assessment guidance for Superfund. Volume I: Human health evaluation manual (Part E, Supplemental guidance for dermal risk assessment) Final. U.S. Environmental Protection Agency. EPA540R99005.

EPA. 2006. Settlement agreement for implementation of remedial investigation and feasibility study at the Upper Columbia River Site. U.S. Environmental Protection Agency, Region 10, Seattle, WA.

EPA. 2007. Framework for metals risk assessment. U.S. Environmental Protection Agency. EPA120R07001.

EPA. 2010a. Final six-year review of national primary drinking water regulations: "Final_6Yr_Lead_12.23.10.accdb". Microsoft Access Database. As provided by Rebecca Allen, U.S. Environmental Protection Agency, Office of Groundwater and Drinking Water. Received December 23, 2010.

EPA. 2010b. The analysis of regulated contaminant occurrence data from public water systems in support of the second six-year review of national primary drinking water regulations. U.S. Environmental Protection Agency, Office of Ground Water and Drinking Water. EPA815B09006. http://water.epa.gov/scitech/datait/databases/drink/sdwisfed/howtoaccessdata.cfm.

EPA. 2011. Exposure factors handbook: 2011 edition. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Office of Research and Development. EPA600R090052F.

EPA. 2014. Human health evaluation manual, supplemental guidance: Update of standard default exposure factors. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. OSWER Directive 9200.1-20.

EPA. 2015. ProUCL Version 5.1. Statistical software for environmental applications for data sets with and without nondetect observations. U.S. Environmental Protection Agency, Office of Research and Development. https://www.epa.gov/land-research/proucl-software.

EPA. 2017a. Recommendations for default age range in the Integrated Exposure Uptake Biokinetic (IEUBK) model. U.S. Environmental Protection Agency. OLEM Directive #9200.2-1.

EPA. 2017b. Update to the adult lead methodology's default baseline blood lead concentration and geometric standard deviation parameters. U.S. Environmental Protection Agency. OLEM Directive 9285.6-56.

EPA. 2017c. Exposure factors handbook (update): Chapter 5 Soil and dust ingestion. U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC. EPA600R17384F.

EPA. 2017d. Memorandum to Jaqueline Moya/NCEA re: Recommended approach for estimating adult soil ingestion for high contact exposure scenarios in Region 10 risk assessments for Superfund and RCRA. March 9, 2017. From Marc Stifelman, U.S. Environmental Protection Agency, Region 10, Office of Environmental Assessment and Review.

EPA. 2018. Response to December 2017 petition re: A comprehensive air monitoring program from Northport to the U.S. – Canada border. U.S. Environmental Protection Agency, Seattle, WA. April 18. https://semspub.epa.gov/work/10/100092427.pdf.

EPA. 2019. Regional screening levels (RSLs) – generic tables (May 2019). U.S. Environmental Protection Agency. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

EPA. 2020. Guidance for sample collection for in vitro bioaccessibility assay for arsenic and lead in soil and applications of relative bioavailability data in human health risk assessment. U.S. Environmental Protection Agency. Office of Land and Emergency Management, Office of Superfund Remediation and Technology Innovation.

EPA and Clay, D. R. 1991. Role of the baseline risk assessment in Superfund remedy selection decisions. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. http://www.epa.gov/superfund/programs/risk/baseline.pdf.

Exponent. 2013. Upper Columbia River final fish tissue data summary and data gap report. Prepared for Teck American Incorporated.

FDA (Food and Drug Administration). 2010. Total Diet Study. U. S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. Accessed on July 14, 2010 from http://www.fda.gov/Food/FoodScienceResearch/TotalDietStudy/ucm184293.htm.

Finley, M.T., Dieter, M.P., Locke, L.N. 1976. Sublethal effects of chronic lead ingestion in mallard ducks. J Toxicol Environ Health 1:929-937.

Fraser, W. 2017. Memorandum to Cindy Marchand, Confederated Tribes of the Colville Reservation. Cultural plant sampling recommendations. Lodestone Environmental Consulting. December 9, 2017.

Fraser, W. 2019a. Personal communication: Information on amount of plant material used for basket weaving. Lodestone Environmental Consulting, LLC. May 14, 2019.

Fraser, W. 2019b. Personal communication: Communication regarding estimation of child fish consumption rates from adult fish consumption rates. Lodestone Environmental Consulting, LLC. May 15, 2019.

Fraser, W. 2019c. Personal communication: Derivation of adult CTE fish ingestion rate. Lodestone Environmental Consulting, LLC. May 23, 2019.

Fraser, W. 2019d. Personal communication: Cultural plant species consumed by children ages 2 to 6. Lodestone Environmental Consulting, LLC. June 6, 2019.

Fraser, W. 2019e. Personal communication: mass conversion information for recipe ingredients cited in volume units. Lodestone Environmental Consulting, LLC. June 28, 2019.

Fraser, W. 2019f. Personal communication: Additional mass conversion information for recipe ingredients cited in volume units. Lodestone Environmental Consulting, LLC. July 10, 2019.

Fraser, W. 2019g. Personal communication: Additional mass conversion information for recipe ingredients cited in volume units. Lodestone Environmental Consulting, LLC. July 29, 2019.

French, CE., McEwen, L.C., Magruder, N.D., Ingram, R.H., Swift, R.W. 1955. Nutritional requirements of white-tailed deer for growth and antler development. Penn Agri. Exp Sta Bull 600:1-50.

Harlow, R.F., Jones, F.K.J. 1965. The white-tailed deer in Florida. Tallahassee: Florida Game and Fresh Water Fish Commission. Florida Tech Bull 9.

Heinz, G.H., Hoffman, D.J., Krynitsky, A.J., Weller, D.M.G. 1987. Reproduction in mallards fed selenium. Environ Toxicol Chem 6:423-433.

Hothem, R.L., May, J.T, Gibson, J.K., Brussee, B.E. 2015. Concentrations of metals and trace elements in aquatic biota associated with abandoned mine lands in the Whiskeytown National Recreation Area and nearby Clear Creek Watershed, Shasta County, Northwestern California, 2002-2003. U.S. Geological Survey. Open-file Report 2015-1077.

IEc. 2012. Recreational consumption and resource use survey for the Upper Columbia River Site Human Health Risk Assessment and remedial investigation/feasibility study. Prepared for U.S. Department of the Interior, National Park Service, Lake Roosevelt National Recreation Area, Coulee Dam, WA. Prepared by Industrial Economics, Incorporated. August.

IOM. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. Institute of Medicine, National Academy Press, Washington, D.C.

Jackson, L.J. 1998. Paradigms of metal accumulation in rooted aquatic vascular plants. Sci Total Environ 219:223-231.

Johnson, A., Friese A.M., Coots, R., Roland, J., Dowling, B., et al. 2013. Metals concentrations in sediments of lakes and wetlands in the Upper Columbia River Watershed: Lead, zinc, arsenic, cadmium, antimony, and mercury. Washington State Department of Ecology. Publication No. 13-03-012.

Kahn, H.D., Stralka, K. 2009. Estimated daily average per capita water ingestion by child and adult age categories based on USDA's 1994-1996 and 1998 continuing survey of food intakes by individuals. J Expo Sci Environ Epidemiol 19(4):396-404.

Kannan, K., Smith, R.G., Lee, R.F., Windom, H.L., Heitmuller P.T., et al. 1998. Distribution of total mercury and methylmercury in water, sediment and fish from South Florida estuaries. Arch Environ Contam Toxicol 34:109-118.

Korschgen, L.J. 1952. A general summary of the foods of Missouri's game and predatory animals. Jefferson City: Missouri Conservation Commission. No. 8.

Latta, D.M., Donaldson, W.E. 1986a. Modification of lead toxicity and organ distribution by dietary sulfur amino acids in chicks (*Gallus domesticus*). Comp Biochem Physiol C 84(1):101-104.

Latta, D.M., Donaldson, W.E. 1986b. Lead toxicity in chicks: Interactions with dietary methionine and choline. J Nutr 116(8):1561-1568.

Lautier, J.K., Dailey, T.V., R. D. Brown. 1988. Effect of water restriction on feed intake of white-tailed deer. J Wildl Manag 52(4):602-606.

Lehman, C.P. 1998. A comparison of eastern wild turkeys and Rio Grande wild turkeys in northeastern South Dakota, MS Thesis, South Dakota State University.

Magruder, N.D., French, C.E., McEwen, L.C., Swift, R.W. 1958. Nutritional requirements of white-tailed deer for growth and antler development II. Penn Agric Exp Sta Bull 628:1-21.

McRoberts, J.T., Wallace, M.C., Eaton, S.W. 2014. Wild turkey (*Meleagris gallopavo*), version 2.0. *In:* The birds of North America. Poole, A.F., ed. Ithaca, NY: Cornell Lab of Ornithology. https://doi.org/10.2173/bna.22.

Nagy, K.A. 2001. Food requirements of wild animals: Predictive equations for free living mammals, reptiles, and birds. Nutr Abstr and Rev Ser B71:21R-31R.

NCP. 1990. National oil and hazardous substances pollution contingency plan; Final rule. Fed Reg 55(46):8439-8896. March 8, 1990, Part 2. 40 CFR 00. https://www.gpo.gov/fdsys/pkg/FR-1990-03-08/content-detail.html.

Nelson, A.L., Martin, A.C. 1953. Gamebird weights. J Wild Manage 17(1):36-42.

OEHHA. 2012. Technical support document for exposure assessment and stochastic analysis, Final. Appendix K. Meat, milk and egg transfer coefficients. California Office of Environmental Health Hazard Assessment. https://oehha.ca.gov/media/downloads/crnr/appendixk2012.pdf.

OEHHA. 2015. Air Toxics Hot Spots Program. Risk assessment guidelines. Guidance manual for preparation of health risk assessments. California Office of Environmental Health Hazard Assessment. http://oehha.ca.gov/media/downloads/crnr/ 2015guidancemanual.pdf.

OEHHA. 2020. Personal communication: Derivation of the TCo for lead to chicken meat, Appendix K (OEHHA [2012]). California Office of Environmental Health and Hazard Assessment. January 8.

Ozoga, J.J., Verme, L.J. 1970. Winter feeding patterns of penned white-tailed deer. J Wildl Manag 34:431-439.

Parsons, R., Munuo, S.S., Buckman, D.W., Tooze, J.A., Dodd, K.W. 2009. User's Guide for analysis of usual intakes.

Piccirillo, V.J., Quesenberry, R.P. 1980. Reproductive capacities of control mallard ducks (*Anas platyrhynchos*) during a one-generation reproduction study. J Environ Pathol Toxicol 4:133-139.

Primolicious LLC. 2019. Produce converter. https://www.howmuchisin.com/produce_converters.

Ramboll. 2019. Personal communication: Information on wet and dry weight of wild rose, willow and tule samples collected in the 2018 UCR cultural plant sampling event. Ramboll Environ. July 9, 2019.

Rende, E.E. 1983. Biological factors involved in the reproduction of the male eastern Wild Turkey (*Meleagris gallopavo silvestris*) in southwestern New York. MS Thesis, St. Bonaventure University, St. Bonaventure, NY.

Ribeiro, C.A.O., Rouleau, C.H., Pelletier, E., Audet, C., Tjalve, H. 1999. Distribution kinetics of dietary methylmercury in the Arctic charr (*Salvelinus alpinus*). Environ Sci Technol 33:902-907.

Sample, B.E.S., LaTier, A. 2019. Personal communication: Conference call to discuss bird and mammal uptake models. February 6, 2019.

Sample, B.E., Aplin, M.S., Efroymson, R.A., Suter, G.W., Welch, C.J.E. 1997. Methods and tools for estimation of the exposure of terrestrial wildlife to contaminants. Oak Ridge National Laboratory. ORNL/TM-13391.

Schoof, R.A., Yager. 2007, J.W. Variation of total and speciated arsenic in commonly consumed fish and seafood. Hum Ecol Risk Assess 13: 946-965.

Sotola, D.J., Kirkpatrick, C.M. 1973. Foods of the white-tailed deer, *Ococoileus virginianus*, in Martin County, Indiana. Am Midl Nat 89(2): 281-286.

Spears, B.L., Nicholson, K.L., Huffman, R., Ballard, W.B., Wallace, M.C., et al. 2006. Ecology of Rio Grande wild turkeys in southwest Kansas. Wildlife Bulletin 5, Kansas Department of Wildlife and Parks.

SRC. 2009. Human health risk assessment work plan for the Upper Columbia River Site Remedial investigation and feasibility study. Prepared for the U.S. Environmental Protection Agency Region 10.

SRC. 2014. Quality Assurance Project Plan. Upper Columbia River residential soil study. Washington State. Prepared for U.S. Environmental Protection Agency Region 10 and Environmental Response Team. Prepared by SRC, Inc. for Lockheed Martin. Scientific Engineering Response & Analytical Services Program.

SRC. 2017. Technical memorandum: Approach that will be used to adjust soil arsenic and lead concentrations in residential soils based on relative bioavailability (RBA) in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA). September 21, 2017.

SRC. 2019a. Data analysis report for the tribal consumption and resource use survey for the Upper Columbia River Site human health risk assessment and remedial investigation/feasibility study. October 2019. Prepared for U.S. Environmental Protection Agency, Region 10, Seattle, WA.

SRC. 2019b. Technical memorandum: Proposed approach to calculate food consumption rates in children from adult consumption rates in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA). August 5, 2019.

SRC. 2019c. Final data analysis report for the recreational use survey for the Upper Columbia River Site Human Health Risk Assessment and remedial investigation/feasibility study. October. Prepared for U.S. Environmental Protection Agency, Region 10, Seattle, WA.

Stifelman, M. 2019. Personal communication: Basket weaving is an incomplete exposure pathway for young children. Notes from SRC/EPA meeting in Seattle. U.S. Environmental Protection Agency Region 10. WA. July 8-11, 2019.

Stubblefield, W.A., Hancock, G.A., Prince, H.H., Ringer, R.K. 1995a. Effects of naturally weathered Exxon Valdez crude oil on mallard reproduction. Environ Toxicol Chem 14(11):1951-1960.

Stubblefield, W.A., Hancock, G.A, Ford, W.H., Ringer, R.K. 1995b. Acute and subchronic toxicity of naturally weathered Exxon Valdez crude oil in mallards and ferrets. Environ Toxicol Chem 14(11):1941-1950.

TAI, 2013a. Upper Columbia River. Final surface water data summary and data gap report. Prepared for Teck American Incorporated by Exponent in consultation with Parametrix.

TAI. 2013b. Upper Columbia River final fish tissue data summary and data gap report. Prepared for Teck American Incorporated by Exponent and Parametrix in consultation with Integral Consulting Inc.

TAI. 2016. Upper Columbia River final quality assurance project plan for the macroinvertebrate tissue study. Prepared for Teck American Incorporated by Exponent and HDR in association and consultation with Cardwell Consulting, Windward Environmental, and Ramboll Environ.

TAI. 2017a. Upper Columbia River draft final residential soil study data summary report. Prepared for Teck American Incorporated. Prepared by Ramboll Environ in association and consultation with Exponent, Parametrix, Inc., and Windward LLC.

TAI. 2017b. Draft Upper Columbia River. Macroinvertebrate tissue study data summary report. Prepared for Teck American Incorporated by Windward in association and consultation with Exponent, Parametrix Inc., and HDR Inc.

TAI. 2018a. Upper Columbia River Draft northern pike tissue study data summary report. Prepared for Teck American Incorporated.

TAI. 2018b. Upper Columbia River, final quality assurance project plan for the plant tissue study. Prepared for Teck American Incorporated by Ramboll in association and consultation with AECOM and Parametrix, Inc.

TAI. 2019. Upper Columbia River draft plant tissue study data summary report. Prepared for Teck American Incorporated by Ramboll in association and consultation with AECOM and Parametrix, Inc.

Tooze, J.A., Midthune, D., Dodd, K.W., Freedman, L.S., Krebs-Smith, S.M., et al. 2006. A new statistical method for estimating the usual intake of episodically consumed foods with application to their distribution. J Am Diet Assoc 106(10):1575-1587.

Turner, N. 1997. Food plants of interior first peoples. Vancouver, B.C., UBC Press.

Ullrey, D.E., Youatt, W.G., Johnson, H.E., Fay, L.D., Schoepke, B.L., et al. 1969. Digestibility energy requirements for winter maintenance of Michigan white-tailed does. J Wildl Manage 33:482-490

Ullrey, D. E., Youatt, W.G., Johnson, H.E., Fay, L.D., Schoepke, B.L., et al. 1970. Digestible and metabolizable energy requirements for winter maintenance of Michigan white-tailed does. J Wildl Manage 34:863-869.

Unrine, J.M., Hopkins, W.A., Romanek, C.S., Jackson, B.P. 2007. Bioaccumulation of trace elements in omnivorous amphibian larvae: Implications for amphibian health and contaminant transfer. Environ Pollut 149:182-192.

USDA (U.S. Department of Agriculture). 2018. National nutrient database for standard reference legacy release, April 2018. U.S. Department of Agriculture. https://ndb.nal.usda.gov/ndb/.

USFWS. 2015. Signal crayfish (*Pacifastacus leniusculus*). Ecological risk screening summary. U.S. Fish and Wildlife Service. https://www.fws.gov/fisheries/ans/erss/highrisk/Pacifastacus-leniusculus-ERSS-revision-June2015.pdf.

Vandenberg, J. 2020. Evaluation of IEUBK version 2.0 model performance. Memorandum to B. Lowery, Assessment and Remediation Division, OSRI, OLEM. U.S. Environmental Protection Agency, Center for Public Health and Environmental Assessment. Research Triangle Park, NC.

Vander Haegen, W.M., W.E. Dodge, Sayre, M.W. 1988. Factors affecting productivity in a northern wild turkey population. J Wild Manage 52(1):127-133. As cited in*:* McRoberts et al. 2014.

von Lindern, I., Spalinger, Stifelman, M.L., Stanek, L.W., Bartrem, C. 2016. Estimating children's soil/dust ingestion rates through retrospective analyses of blood lead biomonitoring from the Bunker Hill Superfund site in Idaho. Environ Health Perspect 124(9):1462-1470. http://dx.doi.org/10.1289/ehp.1510144.

WDFW. 2005. Wild turkey management plan. Washington Department of Fish and Wildlife, Washington State Department of Health. Wildlife Program, Department of Fish and Wildlife, Olympia, Washington, USA.

WDOH. 2019. Upper Columbia River freshwater mussel and crayfish evaluation. 2018 Results. Washington State Department of Health, Division of Environmental Public Health, Office of Environmental Public Health Services.

Westat, Inc. 2010. Tribal consumption and resource use survey work plan for the Upper Columbia River Site human health risk assessment and remedial investigation/feasibility study. Prepared for U.S. Environmental Protection Agency, Region 10, Seattle, WA.

Westat, Inc. 2012. Upper Columbia River site remedial investigation and feasibility study. Tribal consumption and resource survey. Final report. Prepared for U.S. Environmental Protection Agency, Region 10 by Westat, Inc.: Rockville, MD. http://www.colvilletribes.com/final_report__june_2012_.php.

White, D.H., Dieter, M.P. 1978. Effects of dietary vanadium in mallard ducks. J Toxicol Environ Health 4:43-50.

White, D.H., Finley, M.T. 1978. Uptake and retention of dietary cadmium in mallard ducks. Environ Res 17(1):53-59.

Wiener, J.G., Krabbenhoft, D.P., Hines, G.H., Scheuhammer, A.M. 2003. Ecotoxicology of mercury. Handbook of ecotoxicology, 2nd edition. Hoffman, D.J., Rattner, B.A. Burton, G.A. Cairns, J.J., eds. Boca Raton, FL: Lewis, 409-464.

Windward. 2017a. Upper Columbia River final white sturgeon tissue study data summary report. Prepared for Teck American Incorporated.

Windward. 2017b. Upper Columbia River draft macroinvertebrate tissue study data summary report. Prepared for Teck American Incorporated.

WQSA. 2014. Water Quality Standards Act CTC Title 33 [(Resolution No. 1984-526 (August 6, 1984) as amended by Resolution No. 1985-20 (January 18, 1985)]. Updated 5/20/2014. Chapter 4-8. Surface Water Quality Standards.

Table 1. Exposure Areas by Environmental Medium

Medium	Exposure Area
Soil and indoor dust	Individual tribal allotment decision unit (DU)
Surface sediment	Individual tribal allotment beach DU
Surface water	UCR reaches 1-6 combined
Air	Entire Site
Fish	UCR reaches 1-6 combined
Mussels	UCR reaches 1-6 combined
Crayfish	UCR reaches 1-6 combined
Amphibians/reptiles	UCR reaches 1-6 combined
Waterfowl	UCR River region (Upper, Middle and Lower regions as defined in IEc [2012])
Wild/cultural plants (evaluated as individual species)	All plant sampling areas (SAs) combined (see TAI, 2019)
Upland birds	Entire Site
Wild game (mammals)	Entire Site

Table 2. Wild/Cultural Plants Collected from the UCR Site

Plant Species	Date of Collection	Sampling Area(s)
Black tree lichen (*Bryoria fremontii*)	Spring (April 25-May 2, 2018)	SA01, SA05, SA08
Camas (*Camassia quamash*)	Spring (April 25-May 2, 2018)	SA01, SA03, SA05, SA07
Chokecherry (*Prunus virginiana*)	Late Summer (August 20-28, 2018)	SA01, SA03, SA07, SA09
Hazelnut (*Corylus cornuta var. californica*)	Late Summer (August 20-28, 2018)	SA02, SA03, SA04, SA06, SA09
Huckleberry (*Vaccinium cespitosum*)	Early Summer (June 18-20, 2018)	SA04
Kinnikinnick (*Arctostaphylos uva-ursi*)	Spring (April 25-May 2, 2018)	SA02, SA03, SA04, SA06
Lomatium (*Lomatium triternatum*)	Spring (April 25-May 2, 2018)	SA02, SA03, SA05, SA08
Lomatium (*Lomatium triternatum*)	Early Summer (June 18-20, 2018)	SA03
Ponderosa pine (*Pinus ponderosa*)	Late Summer (August 20-28, 2018)	SA01, SA02, SA03, SA04, SA07
Sarvisberry (*Amelanchier alnifolia*)	Late Summer (August 20-28, 2018)	SA01, SA03, SA07, SA08, SA14
Spring beauty/Indian potato (*Claytonia lanceolate*)	Spring (April 25-May 2, 2018)	SA01, SA02, SA03, SA04, SA05, SA08
Tule (*Schoenoplectus acutus*)	Late Summer (August 20-28, 2018)	SA14
Wild mint (*Mentha arvensis*)	Late Summer (August 20-28, 2018)	SA14
Wild rose (*Rosa gymnocarpa, R. nutkana,* and *R. woodsi*) stems and leaves	Early Summer (June 18-20, 2018)	SA01, SA03, SA04, SA06
Wild rose (*Rosa gymnocarpa, R. nutkana,* and *R. woodsi*) hips	Late Summer (August 20-28, 2018)	SA06, SA09, SA14
Willow (*Salix exigua*)	Spring (April 25-May 2, 2018)	SA16
Willow (*Salix exigua*)	Late Summer (August 20-28, 2018)	SA15

Table 3. COI Screen for Crayfish Tissue

Analyte	Units	N	N Detect	Detection Frequency (%)	Max Detected Concentration	RBSL	DF > 5%?	Essential Nutrient?	Max > RBSL?	COPC?
Aluminum	mg/kg ww	30	30	100.0	2.70E+02	4.71E+02	yes		no	no
Antimony	mg/kg ww	30	6	20.0	6.12E-02	1.88E-01	yes		no	no
Inorganic Arsenic	mg/kg ww	30	30	100.0	1.54E-01	6.65E-03	yes		yes	**yes**
Total Arsenic	mg/kg ww	30	30	100.0	4.70E-01	6.65E-03	yes		yes	**yes**
Barium	mg/kg ww	30	30	100.0	1.33E+02	9.41E+01	yes		yes	**yes**
Beryllium	mg/kg ww	30	26	86.7	9.90E-03	9.41E-01	yes		no	no
Cadmium	mg/kg ww	30	30	100.0	5.57E-01	4.71E-01	yes		yes	**yes**
Calcium	mg/kg ww	30	30	100.0	5.57E+04	NA	yes	yes	noRBSL	no
Chromium	mg/kg ww	30	30	100.0	1.43E+00	2.00E-02	yes		yes	**yes**
Cobalt	mg/kg ww	30	30	100.0	2.08E-01	1.41E-01	yes		yes	**yes**
Copper	mg/kg ww	30	30	100.0	5.53E+01	1.88E+01	yes		yes	**yes**
Iron	mg/kg ww	30	30	100.0	2.16E+02	3.29E+02	yes		no	no
Lead	mg/kg ww	30	30	100.0	1.66E+00	NA	yes		noRBSL	**yes**
Magnesium	mg/kg ww	30	30	100.0	8.83E+02	NA	yes	yes	noRBSL	no
Manganese	mg/kg ww	30	30	100.0	5.84E+01	6.59E+01	yes		no	no
Mercury	mg/kg ww	30	30	100.0	7.80E-02	4.71E-02	yes		yes	**yes**
Methylmercury	mg/kg ww	30	29	96.7	7.49E-02	4.71E-02	yes		yes	**yes**
Nickel	mg/kg ww	30	30	100.0	7.34E-01	5.18E+00	yes		no	no
Potassium	mg/kg ww	30	30	100.0	2.29E+03	NA	yes	yes	noRBSL	no
Selenium	mg/kg ww	30	30	100.0	3.40E-01	2.35E+00	yes		no	no
Silver	mg/kg ww	30	30	100.0	1.45E-01	2.35E+00	yes		no	no
Sodium	mg/kg ww	30	30	100.0	2.63E+03	NA	yes	yes	noRBSL	no
TEQ - Dioxins/Furans (ND=0)	mg/kg ww	30	21	70.0	5.53E-08	7.68E-08	yes		no	no
TEQ - Dioxins/Furans (ND=1/2DL)	mg/kg ww	30	21	70.0	1.44E-07	7.68E-08	yes		yes	**yes**
TEQ - DL-PCBs (ND=0)	mg/kg ww	30	30	100.0	6.64E-08	7.68E-08	yes		no	no
TEQ - DL-PCBs (ND=1/2DL)	mg/kg ww	30	30	100.0	6.64E-08	7.68E-08	yes		no	no
Thallium	mg/kg ww	30	24	80.0	2.22E-02	4.71E-03	yes		yes	**yes**
Total PCBs (non-dioxin-like congeners;ND=0)	mg/kg ww	30	30	100.0	1.99E-02	4.99E-03	yes		yes	**yes**
Vanadium	mg/kg ww	30	30	100.0	5.17E-01	2.37E+00	yes		no	no
Zinc	mg/kg ww	30	30	100.0	3.10E+01	1.41E+02	yes		no	no

RBSL = risk-based screening level; DF = detection frequency; COPC = chemical of potential concern

Table 4. COI Screen for Mussel Tissue

Analyte	Units	N	N Detect	Detection Frequency (%)	Maximum Detected Concentration	RBSL	DF > 5%?	Nutrient?	Max > RBSL?	COPC?
Aluminum	mg/kg ww	42	42	100.0	4.70E+02	4.71E+02	yes		no	no
Antimony	mg/kg ww	42	14	33.3	2.01E-01	1.88E-01	yes		yes	**yes**
Inorganic Arsenic	mg/kg ww	24	19	79.2	1.01E-01	6.65E-03	yes		yes	**yes**
Total Arsenic	mg/kg ww	42	42	100.0	1.61E+00	6.65E-03	yes		yes	**yes**
Barium	mg/kg ww	42	42	100.0	1.44E+02	9.41E+01	yes		yes	**yes**
Beryllium	mg/kg ww	42	42	100.0	1.97E-02	9.41E-01	yes		no	no
Cadmium	mg/kg ww	42	42	100.0	9.75E-01	4.71E-01	yes		yes	**yes**
Calcium	mg/kg ww	42	42	100.0	9.47E+03	NA	yes	yes	noRBSL	no
Chromium	mg/kg ww	42	42	100.0	1.73E+00	2.00E-02	yes		yes	**yes**
Cobalt	mg/kg ww	42	42	100.0	2.26E-01	1.41E-01	yes		yes	**yes**
Copper	mg/kg ww	42	42	100.0	3.73E+00	1.88E+01	yes		no	no
Iron	mg/kg ww	42	42	100.0	5.90E+02	3.29E+02	yes		yes	**yes**
Lead	mg/kg ww	42	42	100.0	1.44E+00	NA	yes		noRBSL	**yes**
Magnesium	mg/kg ww	42	42	100.0	3.87E+02	NA	yes	yes	noRBSL	no
Manganese	mg/kg ww	42	42	100.0	6.70E+02	6.59E+01	yes		yes	**yes**
Mercury	mg/kg ww	42	42	100.0	4.63E-02	4.71E-02	yes		no	no
Methylmercury	mg/kg ww	24	24	100.0	3.50E-02	4.71E-02	yes		no	no
Nickel	mg/kg ww	42	42	100.0	8.79E-01	5.18E+00	yes		no	no
Potassium	mg/kg ww	42	42	100.0	3.12E+02	NA	yes	yes	noRBSL	no
Selenium	mg/kg ww	42	42	100.0	6.20E-01	2.35E+00	yes		no	no
Silver	mg/kg ww	42	42	100.0	7.18E-02	2.35E+00	yes		no	no
Sodium	mg/kg ww	42	42	100.0	4.15E+02	NA	yes	yes	noRBSL	no
TEQ - Dioxins/Furans (ND=0)	mg/kg ww	20	14	70.0	2.01E-08	7.68E-08	yes		no	no
TEQ - Dioxins/Furans (ND=1/2DL)	mg/kg ww	20	14	70.0	2.21E-07	7.68E-08	yes		yes	**yes**
TEQ - DL-PCBs (ND=0)	mg/kg ww	22	22	100.0	1.33E-07	7.68E-08	yes		yes	**yes**
TEQ - DL-PCBs (ND=1/2DL)	mg/kg ww	22	22	100.0	1.33E-07	7.68E-08	yes		yes	**yes**
Thallium	mg/kg ww	42	30	71.4	1.56E-02	4.71E-03	yes		yes	**yes**
Total PCBs (non-dioxin-like congeners;ND=0)	mg/kg ww	22	22	100.0	1.63E-02	4.99E-03	yes		yes	**yes**
Vanadium	mg/kg ww	42	42	100.0	9.48E-01	2.37E+00	yes		no	no
Zinc	mg/kg ww	42	42	100.0	4.58E+01	1.41E+02	yes		no	no

RBSL = risk-based screening level; DF = detection frequency; COPC = chemical of potential concern

Table 5. COPCs for Waterfowl

COPC[a]	Basis for Selection
2,4'-DDD	Detected bioaccumulator in surface sediment
2,4'-DDE	Detected bioaccumulator in surface sediment
2,4'-DDT	Detected bioaccumulator in surface sediment
4,4'-DDD	Detected bioaccumulator in surface water and surface sediment
4,4'-DDE	Detected bioaccumulator in surface sediment
4,4'-DDT	Detected bioaccumulator in surface sediment
Aldrin	Detected bioaccumulator in surface water
Alpha-chlordane	Detected bioaccumulator in surface water and surface sediment
Aluminum	Surface water COPC
Antimony	Surface water, surface sediment and aquatic plant COPC
Arsenic	Surface water, surface sediment and aquatic plant COPC
Barium	Surface water COPC
Benzo(a)anthracene	Detected bioaccumulator in surface sediment
Benzo(a)pyrene	Detected bioaccumulator in surface sediment
Benzo(b)fluoranthene	Detected bioaccumulator in surface water and surface sediment
Benzo(k)fluoranthene	Detected bioaccumulator in surface sediment
Beryllium	Surface water COPC
Bis(2-ethylhexyl)phthalate	Detected bioaccumulator in surface water and surface sediment
Cadmium	Detected bioaccumulator in surface water, and surface sediment
Chromium	Surface water, surface sediment and aquatic plant COPC
Chrysene	Detected bioaccumulator in surface water and surface sediment
Cobalt	Surface water and aquatic plant COPC
Dibenzo(a,h)anthracene	Detected bioaccumulator in surface sediment
Fluoranthene	Detected bioaccumulator in surface sediment
Hexachlorobenzene	Detected bioaccumulator in surface water and surface sediment
Indeno(1,2,3-cd)pyrene	Detected bioaccumulator in surface water and surface sediment
Inorganic arsenic	Surface water COPC
Iron	Surface water, surface sediment and aquatic plant COPC
Lead	Surface water, surface sediment and aquatic plant COPC
Manganese	Surface water and aquatic plant COPC
Mercury	Detected bioaccumulator in surface water and surface sediment
Selenium	Detected bioaccumulator in surface water and surface sediment
TEQ (dioxin-like PCBs and dioxins/furans)	Detected bioaccumulator in surface water and surface sediment
Thallium	Surface water and aquatic plant COPC
Total PCBs (non-dioxin-like congeners or aroclors)	Detected bioaccumulator in surface water and surface sediment
Uranium	Surface water COPC
Vanadium	Surface water COPC

[a]Shaded COPCs are those evaluated quantitatively in the HHRA.

Table 6. COPCs for Upland Birds

COPC[a]	Basis for Selection
4,4'-DDD	Detected bioaccumulator in surface water
Aldrin	Detected bioaccumulator in surface water
Alpha-chlordane	Detected bioaccumulator in surface water
Aluminum	Surface water and surface soil COPC
Antimony	Surface water and surface soil COPC
Arsenic	Surface water and surface soil COPC
Barium	Surface water COPC
Benzo(b)fluoranthene	Detected bioaccumulator in surface water
Beryllium	Surface water COPC
Bis(2-ethylhexyl)phthalate	Detected bioaccumulator in surface water
Cadmium	Detected bioaccumulator in surface water and surface soil
Chromium	Surface water and surface soil COPC
Chrysene	Detected bioaccumulator in surface water
Cobalt	Surface water and surface soil COPC
Hexachlorobenzene	Detected bioaccumulator in surface water
Indeno(1,2,3-cd)pyrene	Detected bioaccumulator in surface water
Inorganic arsenic	Surface water COPC
Iron	Surface water and surface soil COPC
Lead	Surface water and surface soil COPC
Manganese	Surface water and surface soil COPC
Mercury[b]	Detected bioaccumulator in surface water
Nickel	Surface soil COPC
Selenium	Detected bioaccumulator in surface water and surface soil
TEQ (dioxin-like PCBs and dioxins/furans)	Detected bioaccumulator in surface water
Thallium	Surface water and surface soil COPC
Total PCBs (non-dioxin-like congeners or aroclors)	Detected bioaccumulator in surface water
Uranium	Surface water COPC
Vanadium	Surface water and surface soil COPC

[a]Shaded COPCs are those evaluated quantitatively in the HHRA.

[b]Total mercury was analyzed in surface water. As there is no toxicity value for inorganic mercury, risk calculations were done with the assumption that 100% of the measured mercury is methylmercury.

Table 7. COPCs for Wild Game (Mammals)

COPC[a]	Basis for Selection
4,4'-DDD	Detected bioaccumulator in surface water
Aldrin	Detected bioaccumulator in surface water
Alpha-chlordane	Detected bioaccumulator in surface water
Aluminum	Surface water and surface soil COPC
Antimony	Surface water and surface soil COPC
Arsenic	Surface water and surface soil COPC
Barium	Surface water COPC
Benzo(b)fluoranthene	Detected bioaccumulator in surface water
Beryllium	Surface water COPC
Bis(2-ethylhexyl)phthalate	Detected bioaccumulator in surface water
Cadmium	Detected bioaccumulator in surface water and surface soil
Chromium	Surface water and surface soil COPC
Chrysene	Detected bioaccumulator in surface water
Cobalt	Surface water and surface soil COPC
Hexachlorobenzene	Detected bioaccumulator in surface water
Indeno(1,2,3-cd)pyrene	Detected bioaccumulator in surface water
Inorganic arsenic	Surface water COPC
Iron	Surface water and surface soil COPC
Lead	Surface water and surface soil COPC
Manganese	Surface water and surface soil COPC
Mercury[b]	Detected bioaccumulator in surface water
Nickel	Surface soil COPC
Selenium	Detected bioaccumulator in surface water and surface soil
TEQ (dioxin-like PCBs and dioxins/furans)	Detected bioaccumulator in surface water
Thallium	Surface water and surface soil COPC
Total PCBs (non-dioxin-like congeners or aroclors)	Detected bioaccumulator in surface water
Uranium	Surface water COPC
Vanadium	Surface water and surface soil COPC

[a]Shaded COPCs are those evaluated quantitatively in the HHRA.

[b]Total mercury was analyzed in surface water. As there is no toxicity value for inorganic mercury, risk calculations were done with the assumption that 100% of the measured mercury is methylmercury.

Table 8. Disturbed, Unfiltered Surface Water EPCs

Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (µg/L)	Arithmetic Mean Detected Concentration (µg/L)	Standard Deviation (µg/L)	95% UCL[a] (µg/L)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CTE risks		
							Value	Units	Rationale[a]
Aluminum	41 / 42	25400	920	3940	722	KM H-UCL	722	µg/L	UCL-NP
Antimony	42 / 42	2.87	0.322	0.477	0.643	95% Chebyshev (Mean, Sd) UCL	0.643	µg/L	UCL-NP
Arsenic	24 / 42	3.93	0.975	0.813	0.841	KM H-UCL	0.841	µg/L	UCL-NP
RBA Adjusted Arsenic	24 / 42	0.812	0.201	0.168	0.174	KM H-UCL	0.174	µg/L	UCL-NP
Barium	42 / 42	932	60.7	138	154	95% Chebyshev (Mean, Sd) UCL	154	µg/L	UCL-NP
Beryllium	31 / 42	1.37	0.0676	0.237	0.189	95% KM (Chebyshev) UCL	0.189	µg/L	UCL-NP
Cadmium	36 / 42	1.25	0.105	0.224	0.233	95% KM (Chebyshev) UCL	0.233	µg/L	UCL-NP
Chromium	26 / 42	24.4	1.77	4.69	3.67	95% KM (Chebyshev) UCL	3.67	µg/L	UCL-NP
Cobalt	38 / 42	31.7	1.18	5.11	4.35	95% KM (Chebyshev) UCL	4.35	µg/L	UCL-NP
Iron	40 / 42	43600	1810	6860	1820	KM H-UCL	1820	µg/L	UCL-NP
Lead	37 / 42	30.4	3.57	7.28	7.81	95% KM (Chebyshev) UCL	3.15	µg/L	KM Mean[b]
RBA Adjusted Lead	37 / 42	22.5	2.64	5.39	5.78	95% KM (Chebyshev) UCL	2.33	µg/L	KM Mean[b]
Manganese	41 / 42	3090	102	480	419	95% KM (Chebyshev) UCL	419	µg/L	UCL-NP
Nickel	40 / 42	68	2.63	10.6	9.5	95% KM (Chebyshev) UCL	9.5	µg/L	UCL-NP
Thallium	18 / 42	0.288	0.0541	0.0655	0.0358	KM H-UCL	0.0358	µg/L	UCL-NP
Uranium	42 / 42	3.14	0.639	0.413	0.756	95% Modified-t UCL	0.756	µg/L	UCL-P
Vanadium	39 / 42	33	1.76	5.25	5.07	95% KM (Chebyshev) UCL	5.07	µg/L	UCL-NP

[a] Based on recommendations from ProUCL, version 5.1.00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:
UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL
95% KM (BCA) UCL = UCL based on bias-corrected accelerated bootstrap method
95% KM (t) UCL = UCL based on Kaplan-Meier method using the t-distribution cutoff value
95% KM (Chebyshev) UCL = UCL based on Kaplan-Meier method using the Chebyshev inequality

[b] Mean calculated using KM method

Table 9. Outdoor and Indoor Air EPCs

Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration ($\mu g/m^3$)	Arithmetic Mean Detected Concentration ($\mu g/m^3$)	Standard Deviation ($\mu g/m^3$)	95% UCL[a] ($\mu g/m^3$)	UCL Statistic[a]	Selected Exposure Point Concentration		
							Value	Units	Rationale[a]
Arsenic	295 / 390	0.103	0.005	0.009	0.0059	95% KM Chebyshev UCL	0.0059	$\mu g/m^3$	UCL-NP
Cadmium	170 / 390	0.0335	0.002	0.004	0.00201	95% KM Chebyshev UCL	0.00201	$\mu g/m^3$	UCL-NP
Lead	314 / 390	0.45	0.028	0.041	0.0315	95% KM Chebyshev UCL	0.0233	$\mu g/m^3$	KM Mean[b]

[a] Based on recommendations from ProUCL, version 5.1.00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:

UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL

95% KM Chebyshev UCL = UCL based on Kaplan-Meier method using the Chebyshev inequality

[b]Mean calculated using KM method

Table 10. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Burbot	4,4'-DDE	6 / 10	0 0013	0 00105	0 000182	0 00102	95% KM (t) UCL	0 00102	mg/kg ww	UCL-NP
	Aluminum	11 / 26	1 76	0 811	0 493	0 697	95% KM (t) UCL	0 697	mg/kg ww	UCL-NP
	Antimony	5 / 26	0 109	0 0264	0 0466	0 0277	Gamma Adjusted KM-UCL	0 0277	mg/kg ww	UCL-NP
	Inorganic Arsenic	0 / 26	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	bis(2-Ethylhexyl)phthalate	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	23 / 26	0 24	0 053	0 0547	0 0625	KM H-UCL	0 0625	mg/kg ww	UCL-NP
	Dieldrin	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Lead	18 / 26	0 0838	0 0234	0 016	0 0237	KM Student's t	0 0213	mg/kg ww	KM Mean [b]
	Methylmercury	26 / 26	0 292	0 232	0 0377	0 245	95% Student's-t UCL	0 245	mg/kg ww	UCL-P
	PBDE_cong_47	10 / 10	0 00248	0 0012	0 000669	0 00159	95% Student's-t UCL	0 00159	mg/kg ww	UCL-P
	Selenium	26 / 26	0 528	0 331	0 0771	0 357	95% Student's-t UCL	0 357	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	26 / 26	1 34E-08	7 04E-09	3 51E-09	8 22E-09	95% Student's-t UCL	8 22E-09	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	26 / 26	0 000000792	0 000000352	0 000000294	0 000000604	95% Chebyshev (Mean, Sd) UCL	0 000000604	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	23 / 26	7 83E-08	2 96E-08	1 56E-08	3 38E-08	95% KM Adjusted Gamma UCL	3 38E-08	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	23 / 26	0 000000514	0 000000247	0 000000122	0 000000275	95% KM (t) UCL	0 000000275	mg/kg ww	UCL-NP
	Thallium	15 / 26	0 0123	0 0076	0 00224	0 00733	95% KM (t) UCL	0 00733	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	26 / 26	0 00308	0 00164	0 000757	0 00189	95% Student's-t UCL	0 00189	mg/kg ww	UCL-P
	Zirconium	1 / 10	0 00214	0 00214	N/A	N/A	N/A	0 00214	mg/kg ww	Maximum
Kokanee	4,4'-DDE	12 / 12	0 0036	0 00204	0 000651	0 00237	95% Student's-t UCL	0 00237	mg/kg ww	UCL-P
	Aluminum	30 / 35	2 25	0 617	0 344	0 698	95% KM Adjusted Gamma UCL	0 698	mg/kg ww	UCL-NP
	Antimony	30 / 35	0 0348	0 00852	0 00703	0 0106	95% GROS Adjusted Gamma UCL	0 0106	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	13 / 35	0 00556	0 00417	0 000782	0 00387	95% KM (t) UCL	0 00387	mg/kg ww	UCL-P
	bis(2-Ethylhexyl)phthalate	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	26 / 35	0 184	0 0667	0 0425	0 0665	95% KM (t) UCL	0 0665	mg/kg ww	UCL-NP
	Dieldrin	2 / 12	0 00027	0 00025	0 0000283	N/A	N/A	0 00027	mg/kg ww	Maximum
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	12 / 12	0 0029	0 000996	0 000656	0 00136	95% Modified-t UCL	0 00136	mg/kg ww	UCL-P
	Lead	22 / 35	0 0203	0 00467	0 00383	0 00639	95% KM (Chebyshev) UCL	0 00397	mg/kg ww	KM Mean [b]
	Methylmercury	35 / 35	0 0753	0 0634	0 00608	0 0652	95% Student's-t UCL	0 0652	mg/kg ww	UCL-P
	PBDE_cong_47	12 / 12	0 00333	0 00239	0 000508	0 00265	95% Student's-t UCL	0 00265	mg/kg ww	UCL-P
	Selenium	35 / 35	0 529	0 265	0 0673	0 286	95% Adjusted Gamma UCL	0 286	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	35 / 35	0 000000277	2 26E-08	4 44E-08	5 54E-08	95% Chebyshev (Mean, Sd) UCL	5 54E-08	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	35 / 35	0 000000315	0 000000179	0 000000024	0 000000187	95% Modified-t UCL	0 000000187	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	35 / 35	9 33E-08	6 78E-08	9 32E-09	7 05E-08	95% Student's-t UCL	7 05E-08	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	35 / 35	0 000000566	0 000000343	0 000000113	0 000000375	95% Student's-t UCL	0 000000375	mg/kg ww	UCL-P
	Thallium	33 / 35	0 0354	0 0287	0 00324	0 0294	95% KM (t) UCL	0 0294	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	35 / 35	0 0117	0 00727	0 00157	0 00772	95% Student's-t UCL	0 00772	mg/kg ww	UCL-P
	Zirconium	5 / 12	0 0248	0 00774	0 00985	0 00763	95% KM (t) UCL	0 00763	mg/kg ww	UCL-NP

Table 10. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Northern Pike	Aluminum	8 / 12	0 81	0 382	0 265	0 434	95% KM (t) UCL	0 434	mg/kg ww	UCL-NP
	Antimony	2 / 12	0 00103	0 00103	0 00000707	0 00103	95% KM (t) UCL	0 00103	mg/kg ww	UCL-NP
	Inorganic Arsenic	0 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	12 / 12	0 177	0 0911	0 0446	0 114	95% Student's-t UCL	0 114	mg/kg ww	UCL-P
	Lead	12 / 12	0 0196	0 00355	0 00508	0 00994	95% Chebyshev (Mean, Sd) UCL	0 00355	mg/kg ww	KM Mean [b]
	Methylmercury	12 / 12	0 211	0 0962	0 0415	0 122	95% Adjusted Gamma UCL	0 122	mg/kg ww	UCL-P
	Selenium	12 / 12	0 772	0 56	0 168	0 647	95% Student's-t UCL	0 647	mg/kg ww	UCL-P
	Thallium	12 / 12	0 0153	0 012	0 00201	0 0131	95% Student's-t UCL	0 0131	mg/kg ww	UCL-P
Rainbow Trout	4,4'-DDE	12 / 12	0 018	0 00455	0 00472	0 00755	95% H-UCL	0 00755	mg/kg ww	UCL-P
	Aluminum	34 / 51	1 43	0 616	0 243	0 667	95% KM (t) UCL	0 667	mg/kg ww	UCL-NP
	Antimony	25 / 51	0 0521	0 0121	0 0117	0 0129	95% GROS Approximate Gamma UCL	0 0129	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	33 / 51	0 00611	0 00406	0 00113	0 00398	95% KM (t) UCL	0 00398	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	41 / 51	0 721	0 184	0 209	0 273	95% KM (Chebyshev) UCL	0 273	mg/kg ww	UCL-NP
	Dieldrin	2 / 12	0 00023	0 00022	0 0000141	N/A	N/A	0 00023	mg/kg ww	Maximum
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	10 / 12	0 0021	0 0013	0 000354	0 00146	95% KM (t) UCL	0 00146	mg/kg ww	UCL-NP
	Lead	32 / 51	0 0765	0 0323	0 024	0 0361	95% KM (Chebyshev) UCL	0 0216	mg/kg ww	KM Mean [b]
	Methylmercury	51 / 51	0 133	0 0792	0 0233	0 0847	95% Student's-t UCL	0 0847	mg/kg ww	UCL-P
	PBDE cong 47	12 / 12	0 0128	0 00577	0 00372	0 0077	95% Student's-t UCL	0 0077	mg/kg ww	UCL-P
	Selenium	51 / 51	0 609	0 315	0 0964	0 339	95% Approximate Gamma UCL	0 339	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	40 / 40	0 0000015	0 000000297	0 000000371	0 000000553	95% Chebyshev (Mean, Sd) UCL	0 000000553	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	40 / 40	0 0000015	0 00000039	0 000000311	0 000000604	95% Chebyshev (Mean, Sd) UCL	0 000000604	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	48 / 51	0 00000038	0 000000132	9 96E-08	0 000000152	95% KM Approximate Gamma UCL	0 000000152	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	48 / 51	0 000000939	0 000000311	0 000000221	0 000000356	KM H-UCL	0 000000356	mg/kg ww	UCL-NP
	Thallium	36 / 51	0 0424	0 0232	0 00623	0 025	95% KM (t) UCL	0 025	mg/kg ww	UCL-NP
	Total PCBs (aroclors;ND=0)	15 / 15	0 0366	0 0132	0 00912	0 0187	95% Adjusted Gamma UCL	0 0187	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	40 / 40	0 0507	0 0137	0 0105	0 021	95% Chebyshev (Mean, Sd) UCL	0 021	mg/kg ww	UCL-NP
	Zirconium	5 / 10	0 00972	0 00636	0 00312	0 00586	95% KM (t) UCL	0 00586	mg/kg ww	UCL-NP

Table 10. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Smallmouth Bass	4,4'-DDE	7 / 10	0 0054	0 00293	0 00128	0 0032	95% KM (t) UCL	0 0032	mg/kg ww	UCL-NP
	Aluminum	18 / 24	1 01	0 524	0 182	0 548	KM Student's t	0 548	mg/kg ww	UCL-NP
	Antimony	16 / 24	0 0168	0 00897	0 00455	0 00932	95% KM (t) UCL	0 00932	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	13 / 24	0 00855	0 00549	0 00172	0 0051	95% KM (t) UCL	0 0051	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	23 / 24	0 414	0 0837	0 0868	0 111	KM H-UCL	0 111	mg/kg ww	UCL-NP
	Dieldrin	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	2 / 10	0 001	0 000805	0 000276	N/A	N/A	0 001	mg/kg ww	Maximum
	Lead	10 / 24	0 0573	0 039	0 0184	0 0373	95% KM (Chebyshev) UCL	0 0168	mg/kg ww	KM Mean [b]
	Methylmercury	87 / 87	0 41	0 162	0 0593	0 173	95% Approximate Gamma UCL	0 173	mg/kg ww	UCL-P
	PBDE cong 47	9 / 9	0 0134	0 00406	0 00368	0 00745	95% Adjusted Gamma UCL	0 00745	mg/kg ww	UCL-P
	Selenium	22 / 24	0 853	0 41	0 178	0 471	95% KM Adjusted Gamma UCL	0 471	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	24 / 24	0 000000536	4 75E-08	0 000000123	0 000000157	95% Chebyshev (Mean, Sd) UCL	0 000000157	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	24 / 24	0 000000836	0 000000481	0 000000306	0 000000753	95% Chebyshev (Mean, Sd) UCL	0 000000753	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	24 / 24	6 36E-08	2 51E-08	0 000000013	2 96E-08	95% Student's-t UCL	2 96E-08	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	24 / 24	0 000000755	0 000000158	0 000000167	0 000000307	95% Chebyshev (Mean, Sd) UCL	0 000000307	mg/kg ww	UCL-NP
	Thallium	19 / 24	0 037	0 0243	0 00789	0 0258	95% KM Adjusted Gamma UCL	0 0258	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	24 / 24	0 0265	0 00557	0 00493	0 0072	95% Adjusted Gamma UCL	0 0072	mg/kg ww	UCL-P
	Zirconium	2 / 10	0 00173	0 00136	0 000515	N/A	N/A	0 00173	mg/kg ww	Maximum
White Sturgeon	Aluminum	6 / 9	1 23	0 644	0 303	0 712	95% KM (t) UCL	0 712	mg/kg ww	UCL-NP
	Antimony	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	All ND
	Inorganic Arsenic	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	All ND
	Chromium	9 / 9	0 143	0 0713	0 0363	0 0938	95% Student's-t UCL	0 0938	mg/kg ww	UCL-P
	Lead	9 / 9	0 0111	0 00504	0 00241	0 007	95% Adjusted Gamma UCL	0 00504	mg/kg ww	KM Mean [b]
	Methylmercury	9 / 9	0 108	0 0822	0 0201	0 0946	95% Student's-t UCL	0 0946	mg/kg ww	UCL-P
	PBDE_cong_47	9 / 9	0 00354	0 00187	0 000835	0 00238	95% Student's-t UCL	0 00238	mg/kg ww	UCL-P
	Selenium	9 / 9	1 23	1 06	0 137	1 14	95% Student's-t UCL	1 14	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	9 / 9	0 000000229	0 00000014	5 95E-08	0 000000177	95% Student's-t UCL	0 000000177	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	9 / 9	0 000000229	0 00000014	5 95E-08	0 000000177	95% Student's-t UCL	0 000000177	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	9 / 9	0 000000192	0 000000104	0 000000051	0 000000136	95% Student's-t UCL	0 000000136	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	9 / 9	0 00000029	0 000000204	5 06E-08	0 000000235	95% Student's-t UCL	0 000000235	mg/kg ww	UCL-P
	Thallium	9 / 9	0 0042	0 00332	0 000834	0 00384	95% Student's-t UCL	0 00384	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	9 / 9	0 0121	0 00723	0 00239	0 00871	95% Student's-t UCL	0 00871	mg/kg ww	UCL-P

Table 10. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Sucker	4,4'-DDE	15 / 16	0 052	0 0119	0 0127	0 0167	95% KM (t) UCL	0 0167	mg/kg ww	UCL-NP
	Aluminum	23 / 43	3 25	1 36	0 815	1 11	95% KM (t) UCL	1 11	mg/kg ww	UCL-NP
	Antimony	22 / 43	0 027	0 00839	0 00671	0 0106	95% GROS Adjusted Gamma UCL	0 0106	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	22 / 43	0 0118	0 00569	0 00178	0 00492	95% KM (BCA) UCL	0 00492	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	2 / 16	0 49	0 38	0 156	N/A	N/A	0 49	mg/kg ww	Maximum
	Chromium	32 / 43	0 569	0 107	0 12	0 112	KM H-UCL	0 112	mg/kg ww	UCL-NP
	Dieldrin	1 / 16	0 000253	0 000253	N/A	N/A	N/A	0 000253	mg/kg ww	Maximum
	Heptachlor epoxide	4 / 16	0 00077	0 000523	0 00024	0 000368	95% KM (t) UCL	0 000368	mg/kg ww	UCL-NP
	Hexachlorobenzene	15 / 16	0 00363	0 00182	0 000934	0 00215	95% KM (t) UCL	0 00215	mg/kg ww	UCL-NP
	Lead	35 / 43	0 775	0 163	0 19	0 199	Gamma Adjusted KM-UCL	0 135	mg/kg ww	KM Mean[b]
	Methylmercury	43 / 43	0 584	0 256	0 156	0 296	95% Student's-t UCL	0 296	mg/kg ww	UCL-P
	PBDE cong 47	16 / 16	0 0501	0 0213	0 0153	0 028	95% Student's-t UCL	0 028	mg/kg ww	UCL-P
	Selenium	40 / 43	0 552	0 278	0 0787	0 296	95% KM (t) UCL	0 296	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	43 / 43	0 00000238	0 000000725	0 000000628	0 00000101	95% Adjusted Gamma UCL	0 00000101	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	43 / 43	0 00000238	0 000000919	0 000000499	0 00000107	95% Adjusted Gamma UCL	0 00000107	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	43 / 43	0 000000646	0 000000159	0 000000149	0 000000204	95% Adjusted Gamma UCL	0 000000204	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	43 / 43	0 00000083	0 000000298	0 000000191	0 000000356	95% Adjusted Gamma UCL	0 000000356	mg/kg ww	UCL-P
	Thallium	38 / 43	0 0356	0 0126	0 00643	0 0134	95% KM (t) UCL	0 0134	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	43 / 43	0 217	0 0457	0 0468	0 0596	95% Adjusted Gamma UCL	0 0596	mg/kg ww	UCL-P
	Zirconium	6 / 16	0 0061	0 00266	0 00196	0 00225	95% KM (t) UCL	0 00225	mg/kg ww	UCL-NP
Walleye	4,4'-DDE	12 / 12	0 0015	0 00113	0 000291	0 00128	95% Student's-t UCL	0 00128	mg/kg ww	UCL-P
	Aluminum	32 / 50	280	9 41	49 4	30 8	95% KM (Chebyshev) UCL	30 8	mg/kg ww	UCL-NP
	Antimony	21 / 50	0 0293	0 0116	0 00724	0 011	95% KM (t) UCL	0 011	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	38 / 50	0 00984	0 00538	0 00141	0 00528	95% KM (t) UCL	0 00528	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	1 / 12	0 22	0 22	N/A	N/A	N/A	0 22	mg/kg ww	Maximum
	Chromium	49 / 50	0 9	0 197	0 207	0 321	95% KM (Chebyshev) UCL	0 321	mg/kg ww	UCL-NP
	Dieldrin	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	1 / 12	0 0012	0 0012	N/A	N/A	N/A	0 0012	mg/kg ww	Maximum
	Lead	33 / 50	0 0624	0 0373	0 0148	0 0384	95% KM (Chebyshev) UCL	0 026	mg/kg ww	KM Mean[b]
	Methylmercury	265 / 265	0 487	0 172	0 0717	0 179	95% Approximate Gamma UCL	0 179	mg/kg ww	UCL-P
	PBDE_cong_47	12 / 12	0 00468	0 00297	0 00103	0 00351	95% Student's-t UCL	0 00351	mg/kg ww	UCL-P
	Selenium	50 / 50	0 57	0 341	0 0842	0 361	95% Student's-t UCL	0 361	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	39 / 39	0 0000003	0 000000028	5 67E-08	6 76E-08	95% Chebyshev (Mean, Sd) UCL	6 76E-08	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	39 / 39	0 000000317	0 000000178	3 49E-08	0 000000187	95% Modified-t UCL	0 000000187	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	40 / 50	7 96E-08	2 42E-08	2 13E-08	4 95E-08	99% KM (Chebyshev) UCL	4 95E-08	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	40 / 50	0 000000412	0 000000225	9 21E-08	0 000000242	95% KM (t) UCL	0 000000242	mg/kg ww	UCL-NP
	Thallium	37 / 50	0 0739	0 0355	0 0147	0 0368	95% KM (t) UCL	0 0368	mg/kg ww	UCL-NP
	Total PCBs (aroclors;ND=0)	15 / 15	0 014	0 00391	0 00294	0 00505	95% H-UCL	0 00505	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	39 / 39	0 0113	0 00568	0 00208	0 00624	95% Student's-t UCL	0 00624	mg/kg ww	UCL-P
	Zirconium	5 / 12	0 191	0 0914	0 0915	0 0786	95% KM (t) UCL	0 0786	mg/kg ww	UCL-NP

Table 10. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Whitefish	4,4'-DDE	9 / 9	0 0076	0 00467	0 00173	0 00574	95% Student's-t UCL	0 00574	mg/kg ww	UCL-P
	Aluminum	16 / 23	6 42	1 43	1 48	1 86	95% KM Adjusted Gamma UCL	1 86	mg/kg ww	UCL-NP
	Antimony	13 / 23	0 0159	0 00452	0 00361	0 00613	95% KM (Chebyshev) UCL	0 00613	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	9 / 23	0 0123	0 00783	0 0027	0 00716	95% KM (t) UCL	0 00716	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	3 / 23	0 0512	0 034	0 0148	N/A	N/A	0 0512	mg/kg ww	Maximum
	Dieldrin	6 / 9	0 00044	0 000312	0 0000752	0 000327	95% KM (t) UCL	0 000327	mg/kg ww	UCL-NP
	Heptachlor epoxide	2 / 9	0 00045	0 00036	0 000127	N/A	N/A	0 00045	mg/kg ww	Maximum
	Hexachlorobenzene	8 / 9	0 0036	0 00208	0 000973	0 00257	95% KM (t) UCL	0 00257	mg/kg ww	UCL-NP
	Lead	20 / 23	0 0215	0 0097	0 00419	0 0105	95% KM (t) UCL	0 00892	mg/kg ww	KM Mean [b]
	Methylmercury	23 / 23	0 141	0 0885	0 0245	0 0973	95% Student's-t UCL	0 0973	mg/kg ww	UCL-P
	PBDE cong 47	9 / 9	0 0243	0 0135	0 00746	0 0182	95% Student's-t UCL	0 0182	mg/kg ww	UCL-P
	Selenium	22 / 23	0 393	0 279	0 0819	0 303	95% KM (t) UCL	0 303	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	23 / 23	0 00000187	0 000000666	0 000000345	0 000000789	95% Student's-t UCL	0 000000789	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	23 / 23	0 00000188	0 000000706	0 00000031	0 000000819	95% Adjusted Gamma UCL	0 000000819	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	23 / 23	0 000000986	0 000000483	0 000000228	0 000000564	95% Student's-t UCL	0 000000564	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	23 / 23	0 00000106	0 000000602	0 000000227	0 000000684	95% Modified-t UCL	0 000000684	mg/kg ww	UCL-P
	Thallium	21 / 23	0 0289	0 0152	0 00491	0 0164	95% KM (t) UCL	0 0164	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	23 / 23	0 0499	0 0198	0 00935	0 0234	95% Adjusted Gamma UCL	0 0234	mg/kg ww	UCL-P
	Zirconium	4 / 9	0 0146	0 00467	0 00661	0 0128	Gamma Adjusted KM-UCL	0 0128	mg/kg ww	UCL-NP

N/A = not applicable; ND = not detected; UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL

[a] Based on recommendations from ProUCL, version 5 1 00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:
Adjusted Gamma UCL assumes approximate gamma distribution
Approximate Gamma UCL assumes approximate gamma distribution
Chebyshev (Mean, Sd) UCL obtained using classical sample mean and standard deviation
GROS Adjusted Gamma UCL based on the ROS method for a gamma distribution
GROS Approximate Gamma UCL based on the ROS method for a gamma distribution
H-UCL based on Land's H-statistic; assumes lognormality
KM (Chebyshev) UCL based on Kaplan-Meier method using the Chebyshev inequality
KM (t) UCL based on Kaplan-Meier method using the t-distribution cutoff value
KM Adjusted Gamma UCL based on Kaplan-Meier method adjusted for level significance
KM Approximate Gamma UCL based on Kaplan-Meier method using chi-square approximation
KM H-UCL based on Kaplan-Meier method and Land's H-Statistic
KM Student's t based on Kaplan-Meier method using Student's t-distribution
Modified-t UCL modified for skewness
Student's t UCL based on Student's t-distribution

[b] Mean calculated using KM method

[c] Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
258	193	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	20200	19400	985	21100	17600	21100	t-statistic 95UCL
				Antimony	3 / 3	11.6	10.6	0.931	12.2	10.2	12.2	t-statistic 95UCL
				Arsenic	3 / 3	48.9	46.8	2.99	51.9	--	51.9	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	13.3	12.8	0.816	14.1	11.8	--	t-statistic 95UCL
				Cadmium	3 / 3	18.4	17.2	1.16	19.1	16	19.1	t-statistic 95UCL
				Chromium	3 / 3	12.2	12	0.153	12.3	10.3	12.3	t-statistic 95UCL
				Cobalt	3 / 3	5.62	5.45	0.158	5.71	4.77	5.71	t-statistic 95UCL
				Iron	3 / 3	14400	14300	231	14700	12200	14700	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	864	768	102	--	768	--	Mean
				Manganese	3 / 3	777	736	39.6	802	670	802	t-statistic 95UCL
				Nickel	3 / 3	10.9	10.7	0.153	11	9.18	11	t-statistic 95UCL
				Thallium	3 / 3	0.566	0.537	0.0359	0.598	0.499	0.598	t-statistic 95UCL
				Vanadium	3 / 3	24.7	24.1	0.493	25	20.8	25	t-statistic 95UCL
259	194	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	15600	15600	--	18700	15600	18700	IC sample adjusted by CF
				Antimony	1 / 1	3 15	3.15	--	3.78	3.16	3.78	IC sample adjusted by CF
				Arsenic	1 / 1	19.7	19.7	--	23.6	--	23.6	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	5.43	5.43	--	6.52	5.44	--	IC sample adjusted by CF
				Cadmium	1 / 1	5.73	5.73	--	6.88	5.74	6.88	IC sample adjusted by CF
				Chromium	1 / 1	14.7	14.7	--	17.6	14.7	17.6	IC sample adjusted by CF
				Cobalt	1 / 1	5 27	5.27	--	6.32	5.28	6.32	IC sample adjusted by CF
				Iron	1 / 1	14800	14800	--	17800	14800	17800	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	241	241	--	--	241	--	Mean
				Manganese	1 / 1	510	510	--	612	511	612	IC sample adjusted by CF
				Nickel	1 / 1	11.5	11.5	--	13.8	11.5	13.8	IC sample adjusted by CF
				Thallium	1 / 1	0.287	0.287	--	0.344	0 288	0.344	IC sample adjusted by CF
				Vanadium	1 / 1	26.2	26.2	--	31.4	26.3	31.4	IC sample adjusted by CF
401	195	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	26100	26100	--	31300	26200	31300	IC sample adjusted by CF
				Antimony	1 / 1	15.7	15.7	--	18.8	15.7	18.8	IC sample adjusted by CF
				Arsenic	1 / 1	80.8	80.8	--	97	81	97	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	21.1	21.1	--	25.4	21.2	25.4	IC sample adjusted by CF
				Cadmium	1 / 1	20.5	20.5	--	24.6	20.5	24.6	IC sample adjusted by CF
				Chromium	1 / 1	16.7	16.7	--	20	16.7	20	IC sample adjusted by CF
				Cobalt	1 / 1	7 28	7.28	--	8.74	7.29	8.74	IC sample adjusted by CF
				Iron	1 / 1	19600	19600	--	23500	19600	23500	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	1100	1100	--	--	1100	--	Mean
				Manganese	1 / 1	947	947	--	1140	949	1140	IC sample adjusted by CF
				Nickel	1 / 1	13.9	13.9	--	16.7	13.9	16.7	IC sample adjusted by CF
				Thallium	1 / 1	0.792	0.792	--	0.95	0.794	0.95	IC sample adjusted by CF
				Vanadium	1 / 1	34.2	34.2	--	41	34.3	41	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
402	196	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	14400	14200	208	14500	12100	14500	t-statistic 95UCL
				Antimony	3 / 3	7.14	6.74	0.453	7.51	6.27	7.51	t-statistic 95UCL
				Arsenic	3 / 3	37	34.3	2.39	38.3	--	38.3	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	10.2	9.45	0.658	10.6	8.81	--	t-statistic 95UCL
				Cadmium	3 / 3	10.4	9.74	0.576	10.7	8.94	10.7	t-statistic 95UCL
				Chromium	3 / 3	17.2	16.3	0.9	17.8	14.9	17.8	t-statistic 95UCL
				Cobalt	3 / 3	5.64	5.43	0.226	5.81	4.85	5.81	t-statistic 95UCL
				Iron	3 / 3	16000	15600	361	16200	13500	16200	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	617	578	46.5	--	578	--	Mean
				Manganese	3 / 3	560	558	2.08	561	469	561	t-statistic 95UCL
				Nickel	3 / 3	13.3	12.7	0.513	13.6	11.4	13.6	t-statistic 95UCL
				Thallium	3 / 3	0.548	0.498	0.0448	0.573	0.479	0.573	t-statistic 95UCL
				Vanadium	3 / 3	27	25.8	1.15	27.8	23.2	27.8	t-statistic 95UCL
403	197	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	12800	12800	--	15400	12800	15400	IC sample adjusted by CF
				Antimony	1 / 1	4.08	4.08	--	4.9	4.09	4.9	IC sample adjusted by CF
				Arsenic	1 / 1	26	26	--	31.2	--	31 2	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	7 17	7.17	--	8.6	7.18	--	IC sample adjusted by CF
				Cadmium	1 / 1	9 37	9.37	--	11.2	9.39	11 2	IC sample adjusted by CF
				Chromium	1 / 1	28.8	28.8	--	34.6	28.9	34.6	IC sample adjusted by CF
				Cobalt	1 / 1	8.02	8.02	--	9.62	8.04	9.62	IC sample adjusted by CF
				Iron	1 / 1	19200	19200	--	23000	19200	23000	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	420	420	--	--	420	--	Mean
				Manganese	1 / 1	714	714	--	857	715	857	IC sample adjusted by CF
				Nickel	1 / 1	18.9	18.9	--	22.7	18.9	22.7	IC sample adjusted by CF
				Thallium	1 / 1	0.395	0.395	--	0.474	0.396	0.474	IC sample adjusted by CF
				Vanadium	1 / 1	31.8	31.8	--	38.2	31.9	38 2	IC sample adjusted by CF
410	198	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	24000	24000	--	28800	24000	28800	IC sample adjusted by CF
				Antimony	1 / 1	6 33	6.33	--	7.6	6.34	7.6	IC sample adjusted by CF
				Arsenic	1 / 1	35	35	--	42	--	42	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	9.65	9.65	--	11.6	9.67	--	IC sample adjusted by CF
				Cadmium	1 / 1	8.89	8.89	--	10.7	8.91	10.7	IC sample adjusted by CF
				Chromium	1 / 1	14.5	14.5	--	17.4	14.5	17.4	IC sample adjusted by CF
				Cobalt	1 / 1	6.45	6.45	--	7.74	6.46	7.74	IC sample adjusted by CF
				Iron	1 / 1	16300	16300	--	19600	16300	19600	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	394	394	--	--	394	--	Mean
				Manganese	1 / 1	593	593	--	712	594	712	IC sample adjusted by CF
				Nickel	1 / 1	13.5	13.5	--	16.2	13.5	16 2	IC sample adjusted by CF
				Thallium	1 / 1	0.433	0.433	--	0.52	0.434	0.52	IC sample adjusted by CF
				Vanadium	1 / 1	29.7	29.7	--	35.6	29.8	35.6	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
411	199	Tribal Allotment Beach	Sediment	Aluminum	3 / 3	5910	5790	191	6110	N/A	6110	t-statistic 95UCL
				Antimony	3 / 3	10.5	9.26	1.32	11.5	N/A	11.5	t-statistic 95UCL
				Arsenic	3 / 3	14.2	13.5	0.656	14.6	--	14.6	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	4.6	4.37	0.212	4.73	N/A	--	t-statistic 95UCL
				Cadmium	3 / 3	4.94	4.67	0.231	5.06	N/A	5.06	t-statistic 95UCL
				Chromium	3 / 3	22.1	21.7	0.513	22.5	N/A	22.5	t-statistic 95UCL
				Cobalt	3 / 3	7.24	7.12	0.18	7.42	N/A	7.42	t-statistic 95UCL
				Iron	3 / 3	31500	30600	781	31900	N/A	31900	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	339	322	16.2	--	322	--	Mean
				Manganese	3 / 3	408	404	6.66	415	N/A	415	t-statistic 95UCL
				Nickel	3 / 3	15	14.7	0.416	15.4	N/A	15.4	t-statistic 95UCL
				Thallium	3 / 3	0.293	0.269	0.0209	0.304	N/A	0.304	t-statistic 95UCL
				Vanadium	3 / 3	31.2	30.6	0.872	32.1	N/A	32 1	t-statistic 95UCL
412	200[d]	Tribal Allotment	Soil/Dust[c]	Aluminum	--	--	--	--	--	11700	14000	Maximum Backfill
				Antimony	--	--	--	--	--	0.626	0.75	Maximum Backfill
				Arsenic	--	--	--	--	--	--	6.6	Maximum Backfill
				RBA Adjusted Arsenic	--	--	--	--	--	1.52	--	Maximum Backfill
				Cadmium	--	--	--	--	--	0.593	0.71	Maximum Backfill
				Chromium	--	--	--	--	--	10	12	Maximum Backfill
				Cobalt	--	--	--	--	--	9.19	11	Maximum Backfill
				Iron	--	--	--	--	--	14200	17000	Maximum Backfill
				RBA Adjusted Lead	--	--	--	--	--	12.8	--	Maximum Backfill
				Manganese	--	--	--	--	--	643	770	Maximum Backfill
				Nickel	--	--	--	--	--	20.9	25	Maximum Backfill
				Thallium	--	--	--	--	--	0.0877	0.105	Maximum Backfill
				Vanadium	--	--	--	--	--	15.9	19	Maximum Backfill
413	201	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	23000	23000	--	27600	23000	27600	IC sample adjusted by CF
				Antimony	1 / 1	8 39	8.39	--	10.1	8.41	10 1	IC sample adjusted by CF
				Arsenic	1 / 1	43.2	43.2	--	51.8	--	51.8	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	11.9	11.9	--	14.3	11.9	--	IC sample adjusted by CF
				Cadmium	1 / 1	12.4	12.4	--	14.9	12.4	14 9	IC sample adjusted by CF
				Chromium	1 / 1	15.4	15.4	--	18.5	15.4	18 5	IC sample adjusted by CF
				Cobalt	1 / 1	6 26	6.26	--	7.51	6.27	7.51	IC sample adjusted by CF
				Iron	1 / 1	16400	16400	--	19700	16400	19700	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	543	543	--	--	543	--	Mean
				Manganese	1 / 1	728	728	--	874	729	874	IC sample adjusted by CF
				Nickel	1 / 1	13	13	--	15.6	13	15.6	IC sample adjusted by CF
				Thallium	1 / 1	0.479	0.479	--	0.575	0.48	0.575	IC sample adjusted by CF
				Vanadium	1 / 1	30.6	30.6	--	36.7	30.7	36.7	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
420	202	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	26100	26100	--	31300	26200	31300	IC sample adjusted by CF
				Antimony	1 / 1	7.03	7.03	--	8.44	7.04	8.44	IC sample adjusted by CF
				Arsenic	1 / 1	39.9	39.9	--	47.9	--	47.9	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	7.15	7.15	--	8.59	7.17	--	IC sample adjusted by CF
				Cadmium	1 / 1	10.5	10.5	--	12.6	10.5	12.6	IC sample adjusted by CF
				Chromium	1 / 1	13.9	13.9	--	16.7	13.9	16.7	IC sample adjusted by CF
				Cobalt	1 / 1	6.72	6.72	--	8.06	6.73	8.06	IC sample adjusted by CF
				Iron	1 / 1	16200	16200	--	19400	16200	19400	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	518	518	--	--	518	--	Mean
				Manganese	1 / 1	713	713	--	856	714	856	IC sample adjusted by CF
				Nickel	1 / 1	13.4	13.4	--	16.1	13.4	16.1	IC sample adjusted by CF
				Thallium	1 / 1	0.453	0.453	--	0.544	0.454	0.544	IC sample adjusted by CF
				Vanadium	1 / 1	29	29	--	34.8	29.1	34.8	IC sample adjusted by CF
421	203	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	16700	16500	208	16900	14100	16900	t-statistic 95UCL
				Antimony	3 / 3	3.43	3.16	0.256	3.59	3	3.59	t-statistic 95UCL
				Arsenic	3 / 3	15.1	14.7	0.351	15.3	--	15 3	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	4 16	4.06	0.0968	4.22	3.53	--	t-statistic 95UCL
				Cadmium	3 / 3	5.82	5.06	0.68	6.21	5.18	6.21	t-statistic 95UCL
				Chromium	3 / 3	34	33.8	0.265	34.2	28.6	34 2	t-statistic 95UCL
				Cobalt	3 / 3	8.41	8.36	0.0503	8.44	7.05	8.44	t-statistic 95UCL
				Iron	3 / 3	24900	24800	100	25000	20800	25000	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	364	319	39.4	--	319	--	Mean
				Manganese	3 / 3	292	282	12 5	303	253	303	t-statistic 95UCL
				Nickel	3 / 3	19.5	19.5	N/A	19.5	16.3	19 5	t-statistic 95UCL
				Thallium	3 / 3	0.365	0.345	0.0176	0.375	0.313	0.375	t-statistic 95UCL
				Vanadium	3 / 3	60.3	60	0.289	60.5	50.5	60 5	t-statistic 95UCL
430	204	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	8750	8750	--	10500	8770	10500	IC sample adjusted by CF
				Antimony	1 / 1	2.64	2.64	--	3.17	2.65	3.17	IC sample adjusted by CF
				Arsenic	1 / 1	14.8	14.8	--	17.8	--	17.8	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	4.08	4.08	--	4.9	4.09	--	IC sample adjusted by CF
				Cadmium	1 / 1	5.87	5.87	--	7.04	5.88	7.04	IC sample adjusted by CF
				Chromium	1 / 1	17.5	17.5	--	21	17.5	21	IC sample adjusted by CF
				Cobalt	1 / 1	5 24	5.24	--	6.29	5.25	6.29	IC sample adjusted by CF
				Iron	1 / 1	14700	14700	--	17600	14700	17600	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	262	262	--	--	262	--	Mean
				Manganese	1 / 1	485	485	--	582	486	582	IC sample adjusted by CF
				Nickel	1 / 1	12.8	12.8	--	15.4	12.8	15.4	IC sample adjusted by CF
				Thallium	1 / 1	0.287	0.287	--	0.344	0.288	0.344	IC sample adjusted by CF
				Vanadium	1 / 1	27.2	27.2	--	32.6	27.3	32.6	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
431	205	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	8110	8020	79.4	8150	6810	8150	t-statistic 95UCL
				Antimony	3 / 3	1.09	1.03	0.0931	1.19	0 992	1.19	t-statistic 95UCL
				Arsenic	3 / 3	8.78	8.37	0.431	9.1	--	9.1	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	2.42	2.31	0.119	2.51	2.09	--	t-statistic 95UCL
				Cadmium	3 / 3	2.54	2.31	0.246	2.72	2.27	2.72	t-statistic 95UCL
				Chromium	3 / 3	19.7	18.8	0.777	20.1	16.8	20.1	t-statistic 95UCL
				Cobalt	3 / 3	5.88	5.73	0.216	6.09	5.09	6.09	t-statistic 95UCL
				Iron	3 / 3	15800	15000	723	16200	13500	16200	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	118	110	9.54	--	110	--	Mean
				Manganese	3 / 3	303	290	12.2	310	259	310	t-statistic 95UCL
				Nickel	3 / 3	14.3	14	0.361	14.6	12.2	14.6	t-statistic 95UCL
				Thallium	3 / 3	0.205	0.198	0.00702	0.21	0 175	0.21	t-statistic 95UCL
				Vanadium	3 / 3	29.4	28.1	1.22	30.1	25.2	30 1	t-statistic 95UCL
432	206	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	7690	7690	--	9230	7710	9230	IC sample adjusted by CF
				Antimony	1 / 1	2 15	2.15	--	2.58	2.15	2.58	IC sample adjusted by CF
				Arsenic	1 / 1	14.8	14.8	--	17.8	--	17.8	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	5.09	5.09	--	6.1	5.1	--	IC sample adjusted by CF
				Cadmium	1 / 1	4 93	4.93	--	5.92	4.94	5.92	IC sample adjusted by CF
				Chromium	1 / 1	18.5	18.5	--	22.2	18.5	22 2	IC sample adjusted by CF
				Cobalt	1 / 1	6 12	6.12	--	7.34	6.13	7.34	IC sample adjusted by CF
				Iron	1 / 1	15300	15300	--	18400	15300	18400	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	307	307	--	--	307	--	Mean
				Manganese	1 / 1	299	299	--	359	300	359	IC sample adjusted by CF
				Nickel	1 / 1	14.8	14.8	--	17.8	14.8	17.8	IC sample adjusted by CF
				Thallium	1 / 1	0.329	0.329	--	0.395	0.33	0.395	IC sample adjusted by CF
				Vanadium	1 / 1	28.3	28.3	--	34	28.4	34	IC sample adjusted by CF
440	207	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	13800	13600	153	13900	11600	13900	t-statistic 95UCL
				Antimony	3 / 3	1.78	1.71	0.0987	1.88	1.57	1.88	t-statistic 95UCL
				Arsenic	3 / 3	9.3	9.12	0.232	9.52	--	9.52	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	2 56	2.51	0.0641	2.62	2.19	--	t-statistic 95UCL
				Cadmium	3 / 3	3 12	2.98	0.163	3.25	2.71	3.25	t-statistic 95UCL
				Chromium	3 / 3	32.1	31.2	0.862	32.6	27.2	32.6	t-statistic 95UCL
				Cobalt	3 / 3	6.17	6.07	0.146	6.31	5.27	6.31	t-statistic 95UCL
				Iron	3 / 3	17300	17000	416	17700	14800	17700	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	159	145	11.7	--	145	--	Mean
				Manganese	3 / 3	203	194	8.14	207	173	207	t-statistic 95UCL
				Nickel	3 / 3	15.7	15.5	0.265	15.9	13.3	15.9	t-statistic 95UCL
				Thallium	3 / 3	0 209	0.205	0.00321	0.211	0.176	0.211	t-statistic 95UCL
				Vanadium	3 / 3	35.4	34.2	1 2	36.2	30.2	36.2	t-statistic 95UCL

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
441	208	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	23000	23000	--	27600	23000	27600	IC sample adjusted by CF
				Antimony	1 / 1	6.66	6.66	--	7.99	6.67	7.99	IC sample adjusted by CF
				Arsenic	1 / 1	43.6	43.6	--	52.3	--	52.3	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	14.3	14.3	--	17.2	14.4	--	IC sample adjusted by CF
				Cadmium	1 / 1	15	15	--	18	15	18	IC sample adjusted by CF
				Chromium	1 / 1	20.4	20.4	--	24.5	20.4	24.5	IC sample adjusted by CF
				Cobalt	1 / 1	9.77	9.77	--	11.7	9.79	11.7	IC sample adjusted by CF
				Iron	1 / 1	17900	17900	--	21500	17900	21500	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	738	738	--	--	738	--	Mean
				Manganese	1 / 1	1120	1120	--	1340	1120	1340	IC sample adjusted by CF
				Nickel	1 / 1	19.6	19.6	--	23.5	19.6	23.5	IC sample adjusted by CF
				Thallium	1 / 1	0.51	0.51	--	0.612	0 511	0.612	IC sample adjusted by CF
				Vanadium	1 / 1	32.8	32.8	--	39.4	32.9	39.4	IC sample adjusted by CF
442	209	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	16500	16500	--	19800	16500	19800	IC sample adjusted by CF
				Antimony	1 / 1	3 22	3.22	--	3.86	3.23	3.86	IC sample adjusted by CF
				Arsenic	1 / 1	21.7	21.7	--	26	--	26	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	5 98	5.98	--	7.18	5.99	--	IC sample adjusted by CF
				Cadmium	1 / 1	5.42	5.42	--	6.5	5.43	6.5	IC sample adjusted by CF
				Chromium	1 / 1	30.6	30.6	--	36.7	30.7	36.7	IC sample adjusted by CF
				Cobalt	1 / 1	8.41	8.41	--	10.1	8.43	10 1	IC sample adjusted by CF
				Iron	1 / 1	21100	21100	--	25300	21100	25300	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	259	259	--	--	259	--	Mean
				Manganese	1 / 1	769	769	--	923	771	923	IC sample adjusted by CF
				Nickel	1 / 1	19.1	19.1	--	22.9	19.1	22 9	IC sample adjusted by CF
				Thallium	1 / 1	0.271	0.271	--	0.325	0.272	0.325	IC sample adjusted by CF
				Vanadium	1 / 1	44.1	44.1	--	52.9	44.2	52 9	IC sample adjusted by CF
801-O1	669	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	24000	22900	1630	25600	21400	25600	t-statistic 95UCL
				Antimony	3 / 3	0.929	0.879	0.0437	0.952	0.795	0.952	t-statistic 95UCL
				Arsenic	3 / 3	16.6	15.4	1.2	17.4	--	17.4	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	2.72	2.52	0.197	2.85	2.38	--	t-statistic 95UCL
				Cadmium	3 / 3	1.47	1.33	0.171	1.62	1.35	1.62	t-statistic 95UCL
				Chromium	3 / 3	37.6	35.1	2.67	39.6	33.1	39.6	t-statistic 95UCL
				Cobalt	3 / 3	14.1	13.1	1.05	14.9	12.4	14 9	t-statistic 95UCL
				Iron	3 / 3	26600	25500	1440	28000	23300	28000	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	29.9	28.9	0.826	--	28.9	--	Mean
				Manganese	3 / 3	800	761	51.8	848	708	848	t-statistic 95UCL
				Nickel	3 / 3	35.6	32.9	2.86	37.7	31.5	37.7	t-statistic 95UCL
				Thallium	3 / 3	0.191	0.177	0.0178	0.207	0.173	0.207	t-statistic 95UCL
				Vanadium	3 / 3	40.2	37.6	2.96	42.6	35.6	42.6	t-statistic 95UCL

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
801-O2	670	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	27500	27500	--	33000	27600	33000	IC sample adjusted by CF
				Antimony	1 / 1	1.74	1.74	--	2.09	1.74	2.09	IC sample adjusted by CF
				Arsenic	1 / 1	22.3	22.3	--	26.8	--	26.8	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	1.02	1.02	--	1.22	1.02	--	IC sample adjusted by CF
				Cadmium	1 / 1	2.05	2.05	--	2.46	2.05	2.46	IC sample adjusted by CF
				Chromium	1 / 1	61.2	61.2	--	73.4	61.3	73.4	IC sample adjusted by CF
				Cobalt	1 / 1	18.7	18.7	--	22.4	18.7	22.4	IC sample adjusted by CF
				Iron	1 / 1	34700	34700	--	41600	34800	41600	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	14.9	14.9	--	--	14.9	--	Mean
				Manganese	1 / 1	1540	1540	--	1850	1540	1850	IC sample adjusted by CF
				Nickel	1 / 1	42.2	42.2	--	50.6	42.3	50.6	IC sample adjusted by CF
				Thallium	1 / 1	0.273	0.273	--	0.328	0 274	0.328	IC sample adjusted by CF
				Vanadium	1 / 1	59.8	59.8	--	71.8	59.9	71.8	IC sample adjusted by CF
801-O3	671	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	18000	18000	--	21600	18000	21600	IC sample adjusted by CF
				Antimony	1 / 1	0.771	0.771	--	0.925	0.773	0.925	IC sample adjusted by CF
				Arsenic	1 / 1	15.1	15.1	--	18.1	--	18 1	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	2.47	2.47	--	2.97	2.48	--	IC sample adjusted by CF
				Cadmium	1 / 1	3.61	3.61	--	4.33	3.62	4.33	IC sample adjusted by CF
				Chromium	1 / 1	29.9	29.9	--	35.9	30	35 9	IC sample adjusted by CF
				Cobalt	1 / 1	11.9	11.9	--	14.3	11.9	14 3	IC sample adjusted by CF
				Iron	1 / 1	23200	23200	--	27800	23200	27800	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	31.1	31.1	--	--	31.1	--	Mean
				Manganese	1 / 1	659	659	--	791	660	791	IC sample adjusted by CF
				Nickel	1 / 1	40.2	40.2	--	48.2	40.3	48 2	IC sample adjusted by CF
				Thallium	1 / 1	0.185	0.185	--	0.222	0.185	0.222	IC sample adjusted by CF
				Vanadium	1 / 1	37.8	37.8	--	45.4	37.9	45.4	IC sample adjusted by CF
802-O1	672	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	12600	12400	208	12800	10700	12800	95% t-statistic UCL
				Antimony	3 / 3	2.05	1.88	0.193	2.21	1.84	2.21	95% t-statistic UCL
				Arsenic	3 / 3	13.3	12.4	0.902	13.9	--	13 9	95% t-statistic UCL
				RBA Adjusted Arsenic	3 / 3	2 18	2.02	0.148	2.27	1.9	--	95% t-statistic UCL
				Cadmium	3 / 3	5 19	4.75	0.526	5.64	4.71	5.64	95% t-statistic UCL
				Chromium	3 / 3	18.2	17.8	0.458	18.6	15.5	18.6	95% t-statistic UCL
				Cobalt	3 / 3	6 59	6.37	0.188	6.69	5.59	6.69	95% t-statistic UCL
				Iron	3 / 3	17000	16700	436	17400	14600	17400	95% t-statistic UCL
				RBA Adjusted Lead	3 / 3	162	150	14	150	150	--	Mean
				Manganese	3 / 3	745	725	29.6	775	647	775	95% t-statistic UCL
				Nickel	3 / 3	15.8	15.5	0.265	15.9	13.3	15 9	95% t-statistic UCL
				Thallium	3 / 3	0.269	0.258	0.0165	0.286	0.239	0.286	95% t-statistic UCL
				Vanadium	3 / 3	28.1	27.3	0.666	28.5	23.8	28 5	95% t-statistic UCL

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
803-O1	673	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	10800	10600	173	10900	9090	10900	t-statistic 95UCL
				Antimony	3 / 3	6.45	5.84	0.783	7.16	5.98	7.16	t-statistic 95UCL
				Arsenic	3 / 3	25.8	23.2	2.76	27.8	--	27.8	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	4.22	3.79	0.451	4.55	3.8	--	t-statistic 95UCL
				Cadmium	3 / 3	11.5	10.4	1.11	12.2	10.2	12.2	t-statistic 95UCL
				Chromium	3 / 3	24.2	22.7	1.45	25.1	21	25.1	t-statistic 95UCL
				Cobalt	3 / 3	7.95	7.44	0.495	8.28	6.91	8.28	t-statistic 95UCL
				Iron	3 / 3	18900	18700	208	19000	15900	19000	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	484	446	50.1	--	446	--	Mean
				Manganese	3 / 3	494	481	11.4	500	418	500	t-statistic 95UCL
				Nickel	3 / 3	18.2	17.2	1.05	18.9	15.8	18.9	t-statistic 95UCL
				Thallium	3 / 3	0.656	0.612	0.0497	0.695	0 581	0.695	t-statistic 95UCL
				Vanadium	3 / 3	41.5	38.8	2.52	43.1	36	43 1	t-statistic 95UCL
803-O2	674	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	9830	9830	--	11800	9850	11800	IC sample adjusted by CF
				Antimony	1 / 1	4.87	4.87	--	5.84	4.88	5.84	IC sample adjusted by CF
				Arsenic	1 / 1	22.7	22.7	--	27.2	--	27 2	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	3.72	3.72	--	4.46	3.72	--	IC sample adjusted by CF
				Cadmium	1 / 1	5 95	5.95	--	7.14	5.96	7.14	IC sample adjusted by CF
				Chromium	1 / 1	20.7	20.7	--	24.8	20.7	24.8	IC sample adjusted by CF
				Cobalt	1 / 1	6 37	6.37	--	7.64	6.38	7.64	IC sample adjusted by CF
				Iron	1 / 1	18400	18400	--	22100	18400	22100	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	315	315	--	--	315	--	Mean
				Manganese	1 / 1	326	326	--	391	327	391	IC sample adjusted by CF
				Nickel	1 / 1	15.5	15.5	--	18.6	15.5	18.6	IC sample adjusted by CF
				Thallium	1 / 1	0.667	0.667	--	0.8	0.668	0.8	IC sample adjusted by CF
				Vanadium	1 / 1	36.6	36.6	--	43.9	36.7	43 9	IC sample adjusted by CF
803-O3	675	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	16500	16500	--	19800	16500	19800	IC sample adjusted by CF
				Antimony	1 / 1	2.86	2.86	--	3.43	2.87	3.43	IC sample adjusted by CF
				Arsenic	1 / 1	17.2	17.2	--	20.6	--	20.6	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	2.82	2.82	--	3.38	2.82	--	IC sample adjusted by CF
				Cadmium	1 / 1	6 55	6.55	--	7.86	6.56	7.86	IC sample adjusted by CF
				Chromium	1 / 1	27.5	27.5	--	33	27.6	33	IC sample adjusted by CF
				Cobalt	1 / 1	9.9	9.9	--	11.9	9.92	11 9	IC sample adjusted by CF
				Iron	1 / 1	21600	21600	--	25900	21600	25900	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	235	235	--	--	235	--	Mean
				Manganese	1 / 1	546	546	--	655	547	655	IC sample adjusted by CF
				Nickel	1 / 1	22.2	22.2	--	26.6	22.2	26.6	IC sample adjusted by CF
				Thallium	1 / 1	0.404	0.404	--	0.485	0.405	0.485	IC sample adjusted by CF
				Vanadium	1 / 1	46	46	--	55.2	46.1	55.2	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
804-O1	676	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	14600	14400	200	14700	12300	14700	95% t-statistic UCL
				Antimony	3 / 3	1.48	1.4	0.106	1.58	1.32	1.58	95% t-statistic UCL
				Arsenic	3 / 3	7.93	7.74	0.269	8.19	--	8.19	95% t-statistic UCL
				RBA Adjusted Arsenic	3 / 3	1 3	1.27	0.044	1.34	1.12	--	95% t-statistic UCL
				Cadmium	3 / 3	3 2	3.06	0.248	3.48	2.9	3.48	95% t-statistic UCL
				Chromium	3 / 3	30.7	30.6	0.153	30.8	25.7	30.8	95% t-statistic UCL
				Cobalt	3 / 3	8.29	8.22	0.0964	8.38	7	8.38	95% t-statistic UCL
				Iron	3 / 3	21300	21200	173	21500	17900	21500	95% t-statistic UCL
				RBA Adjusted Lead	3 / 3	112	102	14.2	102	102	--	Mean
				Manganese	3 / 3	530	520	10.5	538	449	538	95% t-statistic UCL
				Nickel	3 / 3	20.7	20.6	0.1	20.8	17.3	20.8	95% t-statistic UCL
				Thallium	3 / 3	0.259	0.252	0.00874	0.266	0 222	0.266	95% t-statistic UCL
				Vanadium	3 / 3	35.5	35.3	0.208	35.6	29.7	35.6	95% t-statistic UCL
804-O2	677	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	13800	13800	N/A	16600	13800	16600	Result*CF
				Antimony	1 / 1	4 14	4.14	N/A	4.97	4.15	4.97	Result*CF
				Arsenic	1 / 1	14.9	14.9	N/A	17.9	--	17 9	Result*CF
				RBA Adjusted Arsenic	1 / 1	2.44	2.44	N/A	2.93	2.44	--	Result*CF
				Cadmium	1 / 1	8.8	8.8	N/A	10.6	8.82	10.6	Result*CF
				Chromium	1 / 1	20.2	20.2	N/A	24.2	20.2	24 2	Result*CF
				Cobalt	1 / 1	6 34	6.34	N/A	7.61	6.35	7.61	Result*CF
				Iron	1 / 1	18000	18000	N/A	21600	18000	21600	Result*CF
				RBA Adjusted Lead	1 / 1	254	254	N/A	254	254	--	Mean
				Manganese	1 / 1	421	421	N/A	505	422	505	Result*CF
				Nickel	1 / 1	19	19	N/A	22.8	19	22.8	Result*CF
				Thallium	1 / 1	0.357	0.357	N/A	0.428	0.358	0.428	Result*CF
				Vanadium	1 / 1	34.7	34.7	N/A	41.6	34.8	41.6	Result*CF
805-O1	678	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	17000	17000	N/A	20400	17000	20400	Result*CF
				Antimony	1 / 1	0.882	0.882	N/A	1.06	0.884	1.06	Result*CF
				Arsenic	1 / 1	12.6	12.6	N/A	15.1	--	15 1	Result*CF
				RBA Adjusted Arsenic	1 / 1	2.06	2.06	N/A	2.47	2.07	--	Result*CF
				Cadmium	1 / 1	1.44	1.44	N/A	1.73	1.44	1.73	Result*CF
				Chromium	1 / 1	24.8	24.8	N/A	29.8	24.8	29.8	Result*CF
				Cobalt	1 / 1	9 23	9.23	N/A	11.1	9.25	11 1	Result*CF
				Iron	1 / 1	21200	21200	N/A	25400	21200	25400	Result*CF
				RBA Adjusted Lead	1 / 1	38.2	38.2	N/A	38.2	38.2	--	Mean
				Manganese	1 / 1	536	536	N/A	643	537	643	Result*CF
				Nickel	1 / 1	20.7	20.7	N/A	24.8	20.7	24.8	Result*CF
				Thallium	1 / 1	0.16	0.16	N/A	0.192	0.16	0.192	Result*CF
				Vanadium	1 / 1	33.5	33.5	N/A	40.2	33.6	40.2	Result*CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
805-O2	679	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	11000	10800	153	11100	9260	11100	95% t-statistic UCL
				Antimony	3 / 3	0.844	0.822	0.037	0.884	0.738	0.884	95% t-statistic UCL
				Arsenic	3 / 3	5.42	5.31	0.115	5.5	--	5.5	95% t-statistic UCL
				RBA Adjusted Arsenic	3 / 3	0.887	0.869	0.0188	0.9	0.752	--	95% t-statistic UCL
				Cadmium	3 / 3	1.59	1.5	0.147	1.75	1.46	1.75	95% t-statistic UCL
				Chromium	3 / 3	19.4	19.2	0.265	19.6	16.4	19.6	95% t-statistic UCL
				Cobalt	3 / 3	6.67	6.65	0.0208	6.69	5.58	6.69	95% t-statistic UCL
				Iron	3 / 3	16200	16000	173	16300	13600	16300	95% t-statistic UCL
				RBA Adjusted Lead	3 / 3	48.8	45.5	4.17	45.5	45.5	--	Mean
				Manganese	3 / 3	405	397	9.07	412	344	412	95% t-statistic UCL
				Nickel	3 / 3	16.1	16	0.115	16.2	13.6	16.2	95% t-statistic UCL
				Thallium	3 / 3	0.149	0.146	0.003	0.151	0 126	0.151	95% t-statistic UCL
				Vanadium	3 / 3	26.1	26	0.153	26.2	21.9	26.2	95% t-statistic UCL
806-O1	680	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	12900	12900	--	15500	12900	15500	IC sample adjusted by CF
				Antimony	1 / 1	0.645	0.645	--	0.774	0.646	0.774	IC sample adjusted by CF
				Arsenic	1 / 1	9.76	9.76	--	11.7	--	11.7	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	1.6	1.6	--	1.92	1.6	--	IC sample adjusted by CF
				Cadmium	1 / 1	2.4	2.4	--	2.88	2.4	2.88	IC sample adjusted by CF
				Chromium	1 / 1	25.5	25.5	--	30.6	25.6	30.6	IC sample adjusted by CF
				Cobalt	1 / 1	8 22	8.22	--	9.86	8.24	9.86	IC sample adjusted by CF
				Iron	1 / 1	20700	20700	--	24800	20700	24800	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	28.4	28.4	--	--	28.4	--	Mean
				Manganese	1 / 1	493	493	--	592	494	592	IC sample adjusted by CF
				Nickel	1 / 1	23	23	--	27.6	23	27.6	IC sample adjusted by CF
				Thallium	1 / 1	0.118	0.118	--	0.142	0.118	0.142	IC sample adjusted by CF
				Vanadium	1 / 1	36.3	36.3	--	43.6	36.4	43.6	IC sample adjusted by CF
806-O2	681	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	16700	16700	--	20000	16700	20000	IC sample adjusted by CF
				Antimony	1 / 1	0.806	0.806	--	0.967	0.808	0.967	IC sample adjusted by CF
				Arsenic	1 / 1	17.5	17.5	--	21	--	21	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	2.86	2.86	--	3.44	2.87	--	IC sample adjusted by CF
				Cadmium	1 / 1	2.74	2.74	--	3.29	2.75	3.29	IC sample adjusted by CF
				Chromium	1 / 1	30.7	30.7	--	36.8	30.8	36.8	IC sample adjusted by CF
				Cobalt	1 / 1	10.7	10.7	--	12.8	10.7	12.8	IC sample adjusted by CF
				Iron	1 / 1	22600	22600	--	27100	22600	27100	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	29.6	29.6	--	--	29.6	--	Mean
				Manganese	1 / 1	544	544	--	653	545	653	IC sample adjusted by CF
				Nickel	1 / 1	31.9	31.9	--	38.3	32	38 3	IC sample adjusted by CF
				Thallium	1 / 1	0.167	0.167	--	0.2	0.167	0.2	IC sample adjusted by CF
				Vanadium	1 / 1	37	37	--	44.4	37.1	44.4	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
806-O3	682	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	13400	13400	--	16100	13400	16100	IC sample adjusted by CF
				Antimony	1 / 1	0.914	0.914	--	1.1	0 916	1.1	IC sample adjusted by CF
				Arsenic	1 / 1	7.95	7.95	--	9.54	--	9.54	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	1 3	1.3	--	1.56	1.3	--	IC sample adjusted by CF
				Cadmium	1 / 1	1.7	1.7	--	2.04	1.7	2.04	IC sample adjusted by CF
				Chromium	1 / 1	23.3	23.3	--	28	23.3	28	IC sample adjusted by CF
				Cobalt	1 / 1	6.69	6.69	--	8.03	6.7	8.03	IC sample adjusted by CF
				Iron	1 / 1	20300	20300	--	24400	20300	24400	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	50.6	50.6	--	--	50.6	--	Mean
				Manganese	1 / 1	597	597	--	716	598	716	IC sample adjusted by CF
				Nickel	1 / 1	18.9	18.9	--	22.7	18.9	22.7	IC sample adjusted by CF
				Thallium	1 / 1	0.113	0.113	--	0.136	0 113	0.136	IC sample adjusted by CF
				Vanadium	1 / 1	35.3	35.3	--	42.4	35.4	42.4	IC sample adjusted by CF
806-O4	683	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	14700	14400	231	14800	12400	14800	t-statistic 95UCL
				Antimony	3 / 3	0.766	0.746	0.0229	0.785	0.655	0.785	t-statistic 95UCL
				Arsenic	3 / 3	9.72	9.68	0.0451	9.75	--	9.75	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	1 59	1.58	0.00738	1.6	1.33	--	t-statistic 95UCL
				Cadmium	3 / 3	1.72	1.68	0.0513	1.76	1.47	1.76	t-statistic 95UCL
				Chromium	3 / 3	23.2	22.2	1.18	24.2	20.2	24 2	t-statistic 95UCL
				Cobalt	3 / 3	8	7.81	0.289	8.3	6.93	8.3	t-statistic 95UCL
				Iron	3 / 3	20200	20000	252	20400	17000	20400	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	37.9	36.9	1.05	--	36.9	--	Mean
				Manganese	3 / 3	589	580	8.19	594	496	594	t-statistic 95UCL
				Nickel	3 / 3	20.8	20.1	0.764	21.4	17.9	21.4	t-statistic 95UCL
				Thallium	3 / 3	0.122	0.118	0.00451	0.125	0.105	0.125	t-statistic 95UCL
				Vanadium	3 / 3	35.7	34.2	1.93	37.4	31.2	37.4	t-statistic 95UCL
806-O5	684	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	15200	15200	--	18200	15200	18200	IC sample adjusted by CF
				Antimony	1 / 1	0.74	0.74	--	0.888	0.741	0.888	IC sample adjusted by CF
				Arsenic	1 / 1	8.89	8.89	--	10.7	--	10.7	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	1.46	1.46	--	1.75	1.46	--	IC sample adjusted by CF
				Cadmium	1 / 1	1 59	1.59	--	1.91	1.59	1.91	IC sample adjusted by CF
				Chromium	1 / 1	21.9	21.9	--	26.3	21.9	26 3	IC sample adjusted by CF
				Cobalt	1 / 1	7.41	7.41	--	8.89	7.42	8.89	IC sample adjusted by CF
				Iron	1 / 1	19700	19700	--	23600	19700	23600	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	37.4	37.4	--	--	37.4	--	Mean
				Manganese	1 / 1	597	597	--	716	598	716	IC sample adjusted by CF
				Nickel	1 / 1	19.1	19.1	--	22.9	19.1	22 9	IC sample adjusted by CF
				Thallium	1 / 1	0.119	0.119	--	0.143	0.119	0.143	IC sample adjusted by CF
				Vanadium	1 / 1	34.6	34.6	--	41.5	34.7	41.5	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale
807-O1	685	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	25300	24900	400	25600	21400	25600	95% t-statistic UCL
				Antimony	3 / 3	0.527	0.492	0.0308	0.544	0.454	0.544	95% t-statistic UCL
				Arsenic	3 / 3	11.8	11.5	0.289	12	--	12	95% t-statistic UCL
				RBA Adjusted Arsenic	3 / 3	1.93	1.88	0.0472	1.96	1.63	--	95% t-statistic UCL
				Cadmium	3 / 3	0.926	0.9	0.0238	0.94	0.785	0.94	95% t-statistic UCL
				Chromium	3 / 3	23.6	22.8	0.764	24.1	20.1	24.1	95% t-statistic UCL
				Cobalt	3 / 3	8.56	8.41	0.145	8.66	7.23	8.66	95% t-statistic UCL
				Iron	3 / 3	21500	21400	115	21600	18000	21600	95% t-statistic UCL
				RBA Adjusted Lead	3 / 3	29.8	29.1	0.923	29.1	29.1	--	Mean
				Manganese	3 / 3	875	863	10.4	881	736	881	95% t-statistic UCL
				Nickel	3 / 3	23	22.8	0.153	23.1	19.3	23.1	95% t-statistic UCL
				Thallium	3 / 3	0.163	0.162	0.00173	0.165	0 138	0.165	95% t-statistic UCL
				Vanadium	3 / 3	38.6	37.1	1.36	39.4	32.9	39.4	95% t-statistic UCL
808-O1	686	Tribal Allotment	Soil/Dust[c]	Aluminum	3 / 3	11400	11300	231	11700	9730	11700	t-statistic 95UCL
				Antimony	3 / 3	0.609	0.581	0.0296	0.631	0 527	0.631	t-statistic 95UCL
				Arsenic	3 / 3	6 97	6.6	0.436	7.33	--	7.33	t-statistic 95UCL
				RBA Adjusted Arsenic	3 / 3	1 14	1.08	0.0713	1.2	1	--	t-statistic 95UCL
				Cadmium	3 / 3	1.3	1.22	0.085	1.36	1.14	1.36	t-statistic 95UCL
				Chromium	3 / 3	26.1	25.4	0.808	26.7	22.3	26.7	t-statistic 95UCL
				Cobalt	3 / 3	7.5	7.3	0.312	7.83	6.54	7.83	t-statistic 95UCL
				Iron	3 / 3	20500	20300	265	20700	17300	20700	t-statistic 95UCL
				RBA Adjusted Lead	3 / 3	35.7	33.7	2.35	--	33.7	--	Mean
				Manganese	3 / 3	537	526	9.29	542	453	542	t-statistic 95UCL
				Nickel	3 / 3	19.4	18.7	0.764	20	16.7	20	t-statistic 95UCL
				Thallium	3 / 3	0 13	0.113	0.0149	0.138	0.115	0.138	t-statistic 95UCL
				Vanadium	3 / 3	37.2	36.3	1.08	38.1	31.8	38 1	t-statistic 95UCL
808-O2	687	Tribal Allotment	Soil/Dust[c]	Aluminum	1 / 1	12400	12400	--	14900	12400	14900	IC sample adjusted by CF
				Antimony	1 / 1	0 92	0.92	--	1.1	0.922	1.1	IC sample adjusted by CF
				Arsenic	1 / 1	6 98	6.98	--	8.38	--	8.38	IC sample adjusted by CF
				RBA Adjusted Arsenic	1 / 1	1 14	1.14	--	1.37	1.14	--	IC sample adjusted by CF
				Cadmium	1 / 1	1.1	1.1	--	1.32	1.1	1.32	IC sample adjusted by CF
				Chromium	1 / 1	21.4	21.4	--	25.7	21.4	25.7	IC sample adjusted by CF
				Cobalt	1 / 1	6 38	6.38	--	7.66	6.39	7.66	IC sample adjusted by CF
				Iron	1 / 1	18900	18900	--	22700	18900	22700	IC sample adjusted by CF
				RBA Adjusted Lead	1 / 1	35.8	35.8	--	--	35.8	--	Mean
				Manganese	1 / 1	572	572	--	686	573	686	IC sample adjusted by CF
				Nickel	1 / 1	17.1	17.1	--	20.5	17.1	20 5	IC sample adjusted by CF
				Thallium	1 / 1	0.263	0.263	--	0.316	0.264	0.316	IC sample adjusted by CF
				Vanadium	1 / 1	27.4	27.4	--	32.9	27.5	32.9	IC sample adjusted by CF

Table 11. Tribal Allotment Soil and Sediment EPCs

DU	SRC_DU_ID	DU Type	Media	analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation	T-statistic UCL or CF*result[b]	Selected EPC for both RME and CTE risks		
										Ingestion[c] (mg/kg)	Dermal[f] (mg/kg)	Rationale

[a]Field replicates treated as individual samples.

[b]T-statistic 95UCL = mean concentration across replicates + (2.92 * standard deviation / √(3)). EPCs from a single incremental composite sample (ICS) when ≥3 ICS composite samples were not available for estimating the 95UCL were estimated by applying a site-specific confidence factor (CF; 1.2) to the soil concentration measured in the single ICS composite sample (See Appendix 12 to the Site-wide HHRA).

[c] With the exception of RBA Adjusted Lead, an adjustment factor of 0.7 was applied to the soil concentration to generate an indoor dust concentration (where indoor EPC = outdoor EPC *0.7). A combined Soil/Dust EPC was generated for use in Ingestion pathway risk calculations [combined soil/dust EPC = (outdoor soil EPC * 0.45) + ((outdoor soil EPC * 0.7) * 0.55)]. The lead EPC was adjusted for dust within the IEUBK model.

[d] TCRA or VRA taken at this DU. The maximum backfill concentration from the 2015 TCRA Final Completion Report was used as the soil EPC.

[e]Sediment not evaluated for dust exposure.

[f]Only arsenic and cadmium have dermal absorption fractions.

Table 12. Crayfish and Amphibian and Reptile[a] EPCs, Site and Reference Areas

Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks		
							Value	Units	Rationale[a]
Site									
TotalPCBs(non-dioxin-like congeners;ND=0)	18 / 18	0.0199	0.00473	0.00576	0.0106	95% Chebyshev (Mean, Sd) UCL	0.0106	mg/kg ww	UCL-NP
TEQ - DL-PCBs (ND=0)	18 / 18	6.64E-08	3.80E-08	1.93E-08	4.59E-08	95% Student's-t UCL	4.59E-08	mg/kg ww	UCL-P
TEQ - DL-PCBs (ND=1/2DL)	18 / 18	6.64E-08	4.01E-08	1.59E-08	4.66E-08	95% Student's-t UCL	4.66E-08	mg/kg ww	UCL-P
TEQ - Dioxins/Furans (ND=1/2DL)	18 / 18	1.44E-07	1.06E-07	2.13E-08	1.15E-07	95% Student's-t UCL	1.15E-07	mg/kg ww	UCL-P
TEQ - Dioxins/Furans (ND=0)	18 / 18	5 53E-08	1.82E-08	1.53E-08	2.45E-08	95% Student's-t UCL	2.45E-08	mg/kg ww	UCL-P
Inorganic Arsenic	18 / 18	0.154	0.0637	0.039	0.0797	95% Student's-t UCL	0.0797	mg/kg ww	UCL-P
Barium	18 / 18	126	61.2	28	72.7	95% Student's-t UCL	72.7	mg/kg ww	UCL-P
Cadmium	18 / 18	0.557	0.3	0.123	0 36	95% Adjusted Gamma UCL	0.36	mg/kg ww	UCL-P
Chromium	18 / 18	1.43	0.758	0.355	0.903	95% Student's-t UCL	0.903	mg/kg ww	UCL-P
Cobalt	18 / 18	0.208	0.129	0.0464	0.148	95% Student's-t UCL	0.148	mg/kg ww	UCL-P
Copper	18 / 18	55.3	35.9	9.74	39.9	95% Student's-t UCL	39.9	mg/kg ww	UCL-P
Lead	18 / 18	1.66	0.533	0.381	0.71	95% Adjusted Gamma UCL	0.533	mg/kg ww	KM Mean[c]
Methylmercury	17 / 18	0.0478	0.0208	0.0109	0.0245	95% KM (t) UCL	0.0245	mg/kg ww	UCL-NP
Thallium	18 / 18	0.0222	0.0169	0.00365	0.0184	95% Student's-t UCL	0.0184	mg/kg ww	UCL-P
Reference Areas									
TotalPCBs(non-dioxin-like congeners;ND=0)	12 / 12	0.00165	7.93E-04	3.04E-04	9.61E-04	95% Modified-t UCL	0.000961	mg/kg ww	UCL-P
TEQ - DL-PCBs (ND=0)	12 / 12	5.90E-08	3.18E-08	1.48E-08	3.95E-08	95% Student's-t UCL	3.95E-08	mg/kg ww	UCL-P
TEQ - DL-PCBs (ND=1/2DL)	12 / 12	5.90E-08	3.32E-08	1 29E-08	3.99E-08	95% Student's-t UCL	3.99E-08	mg/kg ww	UCL-P
TEQ - Dioxins/Furans (ND=0)	3 / 12	1.91E-10	1.42E-10	4 24E-11	7.62E-11	95% KM (t) UCL	7.62E-11	mg/kg ww	UCL-NP
TEQ - Dioxins/Furans (ND=1/2DL)	3 / 12	1.39E-07	1.27E-07	1.84E-08	1.19E-07	95% KM (t) UCL	1.19E-07	mg/kg ww	UCL-NP
Inorganic Arsenic	12 / 12	0.044	0.0249	0.0135	0.0357	95% Adjusted Gamma UCL	0.0357	mg/kg ww	UCL-P
Barium	12 / 12	133	77.55	50.59	141.2	95% Chebyshev (Mean, Sd) UCL	141.2	mg/kg ww	UCL-NP
Cadmium	12 / 12	0.0324	0.0198	0.00882	0.0244	95% Student's-t UCL	0.0244	mg/kg ww	UCL-P
Chromium	12 / 12	1.1	0.441	0.304	0.599	95% Student's-t UCL	0.599	mg/kg ww	UCL-P
Cobalt	12 / 12	0.137	0.0772	0.0295	0.0925	95% Student's-t UCL	0.0925	mg/kg ww	UCL-P
Copper	12 / 12	30.6	22.54	5.762	25.53	95% Student's-t UCL	25.53	mg/kg ww	UCL-P
Lead	12 / 12	0.155	0.0587	0.0377	0.0782	95% Student's-t UCL	0.0587	mg/kg ww	KM Mean[c]
Methylmercury	12 / 12	0.0749	0.0397	0.0194	0.0536	95% Adjusted Gamma UCL	0.0536	mg/kg ww	UCL-P
Thallium	6 / 12	0.0025	0.00163	7.45E-04	0.00166	95% KM (t) UCL	0.00166	mg/kg ww	UCL-NP

[a]No amphibian or reptile samples were collected at the site. Crayfish tissue Site data were used as a surrogate.

[b] Based on recommendations from ProUCL, version 5.1.00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:

UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL

KM H-UCL = UCL based on Kaplan-Meier method and Land's H-Statistic

95% KM (t) UCL = UCL based on Kaplan-Meier method using the t-distribution cutoff value

95% Chebyshev (Mean, Sd) UCL = UCL obtained using classical sample mean and standard deviation

95% Adjusted Gamma UCL = UCL adjusted for level of significance

95% Student's t = UCL based on Student's t-distribution

[c]Mean calculated using KM method

Table 13. Mussel Tissue EPCs, Site and Reference Areas

Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL (mg/kg ww)	UCL Statistic	Selected EPC for both RME and CTE risks		
							Value	Units	Rationale
Site									
Total PCBs (non-dioxin-like congeners;ND=0)	16 / 16	0 0163	0 00661	0 00625	0 0134	95% Chebyshev (Mean, Sd) UCL	0 0134	mg/kg ww	UCL-NP
TEQ-DL PCBs (ND=0)	16 / 16	1 33E-07	2 39E-08	2 95E-08	5 61E-08	95% Chebyshev (Mean, Sd) UCL	5 61E-08	mg/kg ww	UCL-NP
TEQ-DL PCBs (ND=1/2DL)	16 / 16	1 33E-07	2 43E-08	2 93E-08	5 62E-08	95% Chebyshev (Mean, Sd) UCL	5 62E-08	mg/kg ww	UCL-NP
TEQ-Dioxins/Furans (ND=1/2DL)	11 / 15	2 21E-07	9 73E-08	4 74E-08	1 19E-07	95% KM Adjusted Gamma UCL	1 19E-07	mg/kg ww	UCL-NP
TEQ-Dioxins/Furans (ND=0)	11 / 15	1 87E-09	5 21E-10	6 33E-10	9 66E-10	Gamma Adjusted KM-UCL	9 66E-10	mg/kg ww	UCL-P
Antimony	14 / 36	0 201	0 0266	0 0523	0 0134	KM H-UCL	0 0134	mg/kg ww	UCL-NP
Inorganic Arsenic[c]	5 / 36	0 101	0 0515	0 0237	0 0666	KM H-UCL	0 0666	mg/kg ww	UCL-NP
Barium	36 / 36	144	57 8	20 7	63 6	95% Adjusted Gamma UCL	63 6	mg/kg ww	UCL-P
Cadmium	36 / 36	0 975	0 535	0 137	0 574	95% Adjusted Gamma UCL	0 574	mg/kg ww	UCL-P
Chromium	36 / 36	1 73	0 567	0 348	0 664	95% H-UCL	0 664	mg/kg ww	UCL-P
Cobalt	36 / 36	0 226	0 0941	0 0433	0 107	95% Modified-t UCL	0 107	mg/kg ww	UCL-P
Iron	36 / 36	590	201	114	238	95% H-UCL	238	mg/kg ww	UCL-P
Lead	36 / 36	1 44	0 366	0 344	0 463	95% Adjusted Gamma UCL	0 366	mg/kg ww	KM Mean[b]
Manganese	36 / 36	670	383	131	420	95% Student's-t UCL	420	mg/kg ww	UCL-P
Thallium	28 / 36	0 0156	0 00616	0 00321	0 00625	95% KM (t) UCL	0 00625	mg/kg ww	UCL-NP
Reference Areas									
Total PCBs (nonDLcong;ND=0)	6 / 6	0 00072423	0 00052718	0 00012651	0 00063125	95% Student's-t UCL	0 00063125	mg/kg ww	UCL-P
TEQ-DLPCB(ND=0)	6 / 6	2 091E-08	1 0187E-08	6 8928E-09	1 5858E-08	95% Student's-t UCL	1 5858E-08	mg/kg ww	UCL-P
TEQ-DLPCB(ND=1/2DL)	6 / 6	2 091E-08	1 2129E-08	5 5854E-09	1 6723E-08	95% Student's-t UCL	1 6723E-08	mg/kg ww	UCL-P
TEQ-D/FOnly(ND=0)	2 / 5	5 2851E-09	2 7792E-09	3 5439E-09	N/A	N/A	5 2851E-09	mg/kg ww	Maximum
TEQ-D/FOnly(ND=1/2DL)	2 / 5	1 1925E-07	1 1164E-07	1 0767E-08	N/A	N/A	1 1925E-07	mg/kg ww	Maximum
Antimony	0 / 6	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	N/A
Inorganic Arsenic	6 / 6	0 0714	0 0427	0 0163	0 0561	95% Student's-t UCL	0 0561	mg/kg ww	UCL-P
Barium	6 / 6	27 4	25 35	2 334	27 27	95% Student's-t UCL	27 27	mg/kg ww	UCL-P
Cadmium	6 / 6	0 107	0 0721	0 0216	0 0899	95% Student's-t UCL	0 0899	mg/kg ww	UCL-P
Chromium	6 / 6	0 937	0 556	0 275	0 782	95% Student's-t UCL	0 782	mg/kg ww	UCL-P
Cobalt	6 / 6	0 125	0 0837	0 0242	0 104	95% Student's-t UCL	0 104	mg/kg ww	UCL-P
Iron	6 / 6	221	185	23 81	204 6	95% Student's-t UCL	204 6	mg/kg ww	UCL-P
Lead	6 / 6	0 103	0 0778	0 0166	0 0915	95% Student's-t UCL	0 0778	mg/kg ww	KM Mean
Manganese	6 / 6	313	274 8	33 25	302 2	95% Student's-t UCL	302 2	mg/kg ww	UCL-P
Thallium	2 / 6	0 0007	0 00065	0 000070711	N/A	N/A	0 0007	mg/kg ww	Maximum

[a] Based on recommendations from ProUCL, version 5 1 00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:
UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL
KM H-UCL = UCL based on Kaplan-Meier method and Land's H-Statistic
95% KM (t) UCL = UCL based on Kaplan-Meier method using the t-distribution cutoff value
95% Chebyshev (Mean, Sd) UCL = UCL obtained using classical sample mean and standard deviation
95% Adjusted Gamma KM-UCL = UCL based on Kaplan-Meier method adjusted for level significance
95% Adjusted Gamma UCL = UCL adjusted for level of significance
95% H-UCL = UCL based on Land's H-Statistic
Modified-t statistic based UCL= adjusted for mildly skewed data
95% Student's t = UCL based on Student's t-distribution

[b] Mean calculated using KM method

[c] Samples without an inorganic arsenic result reported by the lab used a calculated inorganic arsenic result (site-specific fraction of inorganic arsenic [7 7%] multiplied by the total arsenic result)

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale
Terrestrial	Black Tree Lichen	Aluminum	12 / 12	322.8	155.2	67.13	200.6	95% Adjusted Gamma UCL	200.6	95UCL
		Antimony	12 / 12	1.625	0.779	0.433	1.087	95% Adjusted Gamma UCL	1.087	95UCL
		Arsenic	12 / 12	1.652	0.943	0.342	1.164	95% Adjusted Gamma UCL	1.164	95UCL
		Cadmium	12 / 12	3.134	1.647	0.7	2.01	95% Student's-t UCL	2.01	95UCL
		Chromium	12 / 12	1.081	0.431	0.231	0.576	95% Adjusted Gamma UCL	0.576	95UCL
		Cobalt	12 / 12	0.159	0.0992	0.0313	0.115	95% Student's-t UCL	0.115	95UCL
		Iron	12 / 12	381.2	210.2	80.45	251.9	95% Student's-t UCL	251.9	95UCL
		Lead	12 / 12	78.32	33.35	20.93	48.49	95% Adjusted Gamma UCL	33.35	KM Mean[b]
		Manganese	12 / 12	27.82	16.2	5.802	19.99	95% Adjusted Gamma UCL	19.99	95UCL
		Nickel	12 / 12	0.807	0.265	0.184	0.382	95% Adjusted Gamma UCL	0.382	95UCL
		Thallium	12 / 12	0.0402	0.0205	0.0106	0.0281	95% Adjusted Gamma UCL	0.0281	95UCL
		Vanadium	12 / 12	0.894	0.502	0.186	0.598	95% Student's-t UCL	0.598	95UCL
Terrestrial	Camas	Aluminum	12 / 12	188.6	95.32	46.54	119.5	95% Student's-t UCL	119.5	95UCL
		Antimony	12 / 12	0.376	0.201	0.104	0.254	95% Student's-t UCL	0.254	95UCL
		Arsenic	12 / 12	0.373	0.177	0.112	0.263	95% Adjusted Gamma UCL	0.263	95UCL
		Cadmium	12 / 12	4.392	1.8	0.993	2.342	95% Modified-t UCL	2.342	95UCL
		Chromium	12 / 12	0.344	0.11	0.0856	0.18	95% Adjusted Gamma UCL	0.18	95UCL
		Cobalt	12 / 12	0.0918	0.0407	0.0245	0.0582	95% Adjusted Gamma UCL	0.0582	95UCL
		Iron	12 / 12	215.2	79.41	53.17	107	95% Student's-t UCL	107	95UCL
		Lead	12 / 12	30.1	12.09	7.64	16.05	95% Student's-t UCL	12.09	KM Mean[b]
		Manganese	12 / 12	34.57	12.54	8.05	17.72	95% Adjusted Gamma UCL	17.72	95UCL
		Nickel	12 / 12	0.26	0.12	0.0729	0.158	95% Student's-t UCL	0.158	95UCL
		Thallium	12 / 12	0.0813	0.0326	0.0192	0.0425	95% Student's-t UCL	0.0425	95UCL
		Vanadium	12 / 12	0.561	0.172	0.14	0.285	95% Adjusted Gamma UCL	0.285	95UCL
Terrestrial	Chokecherry	Aluminum	8 / 12	1.745	0.957	0.538	1.064	95% KM (t) UCL	1.064	95UCL
		Antimony	2 / 12	0.00305	0.00226	0.00112	0.00235	95% KM (Chebyshev) UCL	0.00235	95UCL
		Arsenic	1 / 12	0.00879	0.00879	N/A	N/A		0.00879	Maximum
		Cadmium	11 / 12	0.00234	0.00141	0.000443	0.0016	95% KM (t) UCL	0.0016	95UCL
		Chromium	12 / 12	0.085	0.0346	0.0235	0.0467	95% Student's-t UCL	0.0467	95UCL
		Cobalt	12 / 12	0.00551	0.00284	0.00118	0.00346	95% Student's-t UCL	0.00346	95UCL
		Iron	12 / 12	4.808	3.165	0.792	3.576	95% Student's-t UCL	3.576	95UCL
		Lead	11 / 12	0.0399	0.0147	0.00849	0.0193	95% KM (BCA) UCL	0.0139	KM Mean[b]
		Manganese	12 / 12	3.845	2.497	0.849	2.937	95% Student's-t UCL	2.937	95UCL
		Nickel	12 / 12	0.317	0.155	0.0698	0.192	95% Student's-t UCL	0.192	95UCL
		Thallium	6 / 12	0.00147	0.00075508	0.000364	0.00078844	95% KM (t) UCL	0.00078844	95UCL
		Vanadium	1 / 12	0.00466	0.00466	N/A	N/A		0.00466	Maximum

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale
Terrestrial	Hazelnut	Aluminum	8 / 12	0.959	0.545	0.205	0.57	95% KM (t) UCL	0.57	95UCL
		Antimony	2 / 12	0.00894	0.00704	0.00268	0.0051	95% KM (t) UCL	0.0051	95UCL
		Arsenic	1 / 12	0.0207	0.0207	N/A	N/A		0.0207	Maximum
		Cadmium	12 / 12	0.0927	0.0341	0.0259	0.0476	95% Student's-t UCL	0.0476	95UCL
		Chromium	11 / 12	2.945	0.808	1.191	4.084	99% KM (Chebyshev) UCL	4.084	95UCL
		Cobalt	12 / 12	0.0558	0.0269	0.0161	0.0352	95% Student's-t UCL	0.0352	95UCL
		Iron	12 / 12	32.44	26.12	5.112	28.77	95% Student's-t UCL	28.77	95UCL
		Lead	8 / 12	0.00897	0.00498	0.00229	0.00568	95% KM (t) UCL	0.00437	KM Mean[b]
		Manganese	12 / 12	173.7	56.56	49.36	118.7	95% Chebyshev (Mean, Sd) UCL	118.7	95UCL
		Nickel	12 / 12	2.789	1.407	0.898	1.873	95% Student's-t UCL	1.873	95UCL
		Thallium	1 / 12	0.0081	0.0081	N/A	N/A		0.0081	Maximum
		Vanadium	3 / 12	0.03	0.0257	0.00381	0.0199	95% KM (t) UCL	0.0199	95UCL
Terrestrial	Huckleberry	Aluminum	6 / 6	6.734	5.587	0.987	6.399	95% Student's-t UCL	6.399	95UCL
		Antimony	3 / 6	0.00207	0.0016	0.000404	0.00174	95% KM (t) UCL	0.00174	95UCL
		Arsenic	3 / 6	0.00932	0.00811	0.00131	0.00862	95% KM (t) UCL	0.00862	95UCL
		Cadmium	6 / 6	0.111	0.0693	0.0302	0.0941	95% Student's-t UCL	0.0941	95UCL
		Chromium	4 / 6	0.0146	0.0113	0.00389	0.013	95% KM (t) UCL	0.013	95UCL
		Cobalt	2 / 6	0.00762	0.00427	0.00473	0.00835	95% KM (Chebyshev) UCL	0.00835	95UCL
		Iron	6 / 6	2.323	2.104	0.224	2.289	95% Student's-t UCL	2.289	95UCL
		Lead	6 / 6	0.0157	0.0126	0.00337	0.0154	95% Student's-t UCL	0.0126	KM Mean[b]
		Manganese	6 / 6	9.68	7.044	2.239	8.886	95% Student's-t UCL	8.886	95UCL
		Nickel	6 / 6	0.13	0.0672	0.0359	0.0968	95% Student's-t UCL	0.0968	95UCL
		Thallium	0 / 6	N/A	N/A	N/A	N/A		ND	
		Vanadium	0 / 6	N/A	N/A	N/A	N/A		ND	
Terrestrial	Kinnikinnick	Aluminum	12 / 12	35.12	17.42	7.186	21.15	95% Student's-t UCL	21.15	95UCL
		Antimony	12 / 12	0.0304	0.0179	0.00797	0.022	95% Student's-t UCL	0.022	95UCL
		Arsenic	12 / 12	0.0784	0.043	0.0171	0.0518	95% Student's-t UCL	0.0518	95UCL
		Cadmium	12 / 12	0.0951	0.0584	0.0231	0.0704	95% Student's-t UCL	0.0704	95UCL
		Chromium	12 / 12	0.236	0.103	0.0507	0.138	95% Adjusted Gamma UCL	0.138	95UCL
		Cobalt	12 / 12	0.0154	0.00971	0.00244	0.011	95% Student's-t UCL	0.011	95UCL
		Iron	12 / 12	25.85	18.75	3.85	20.75	95% Student's-t UCL	20.75	95UCL
		Lead	12 / 12	1.215	0.621	0.263	0.758	95% Student's-t UCL	0.621	KM Mean[b]
		Manganese	12 / 12	26.52	13.53	6.332	16.81	95% Student's-t UCL	16.81	95UCL
		Mercury[c]	12 / 12	0.004388	0.001529	0.001118	0.00239	95% Adjusted Gamma UCL	0.00239	95UCL
		Nickel	12 / 12	0.154	0.0911	0.0271	0.105	95% Student's-t UCL	0.105	95UCL
		Thallium	10 / 12	0.0113	0.00601	0.00322	0.00701	95% KM (t) UCL	0.00701	95UCL
		Vanadium	12 / 12	0.0534	0.0288	0.0112	0.0346	95% Student's-t UCL	0.0346	95UCL

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale
Terrestrial	Lomatium	Aluminum	12 / 12	573.2	272	136.3	342.7	95% Student's-t UCL	342.7	95UCL
		Antimony	12 / 12	0.644	0.346	0.179	0.439	95% Student's-t UCL	0.439	95UCL
		Arsenic	12 / 12	0.464	0.344	0.103	0.397	95% Student's-t UCL	0.397	95UCL
		Cadmium	12 / 12	1.786	0.992	0.439	1.219	95% Student's-t UCL	1.219	95UCL
		Chromium	12 / 12	5.086	1.53	1.356	2.232	95% Student's-t UCL	2.232	95UCL
		Cobalt	12 / 12	0.346	0.146	0.0796	0.187	95% Student's-t UCL	0.187	95UCL
		Iron	12 / 12	570.4	232.6	136.5	303.4	95% Student's-t UCL	303.4	95UCL
		Lead	12 / 12	20.37	10.54	7.528	18.49	95% Adjusted Gamma UCL	10.54	KM Mean[b]
		Manganese	12 / 12	55.69	23.56	11.7	29.63	95% Student's-t UCL	29.63	95UCL
		Nickel	12 / 12	3.85	1.35	1.099	2.173	95% Adjusted Gamma UCL	2.173	95UCL
		Thallium	12 / 12	0.0549	0.0297	0.0151	0.0376	95% Student's-t UCL	0.0376	95UCL
		Vanadium	12 / 12	4.58	1.076	1.371	2.801	95% Chebyshev (Mean, Sd) UCL	2.801	95UCL
Terrestrial	Pine Nut	Aluminum	12 / 12	54.83	25.4	18.93	35.21	95% Student's-t UCL	35.21	95UCL
		Antimony	5 / 12	0.0625	0.0371	0.0195	0.0291	95% KM (t) UCL	0.0291	95UCL
		Arsenic	12 / 12	0.0933	0.0438	0.0235	0.056	95% Student's-t UCL	0.056	95UCL
		Cadmium	12 / 12	1.531	0.656	0.42	0.874	95% Student's-t UCL	0.874	95UCL
		Chromium	12 / 12	11.06	5.275	3.441	7.059	95% Student's-t UCL	7.059	95UCL
		Cobalt	12 / 12	0.181	0.0991	0.0565	0.128	95% Student's-t UCL	0.128	95UCL
		Iron	12 / 12	111.5	80.81	19.16	90.74	95% Student's-t UCL	90.74	95UCL
		Lead	11 / 12	2.081	0.52	0.697	0.832	95% KM (t) UCL	0.477	KM Mean[b]
		Manganese	12 / 12	111.7	53.3	22.71	65.07	95% Student's-t UCL	65.07	95UCL
		Nickel	12 / 12	6.545	3.524	1.822	4.469	95% Student's-t UCL	4.469	95UCL
		Thallium	0 / 12	N/A	N/A	N/A	N/A		ND	
		Vanadium	11 / 12	0.0791	0.0453	0.0214	0.0543	95% KM (t) UCL	0.0543	95UCL
Terrestrial	Rose Hips	Aluminum	6 / 6	6.328	4.031	1.291	5.092	95% Student's-t UCL	5.092	95UCL
		Antimony	3 / 6	0.00454	0.00344	0.00106	0.00367	95% KM (t) UCL	0.00367	95UCL
		Arsenic	1 / 6	0.0136	0.0136	N/A	N/A		0.0136	Maximum
		Cadmium	6 / 6	0.025	0.0167	0.00831	0.0235	95% Student's-t UCL	0.0235	95UCL
		Chromium	6 / 6	1.306	0.465	0.493	0.871	95% Student's-t UCL	0.871	95UCL
		Cobalt	6 / 6	0.028	0.0106	0.00906	0.0181	95% Student's-t UCL	0.0181	95UCL
		Iron	6 / 6	16.86	11.54	3.25	14.21	95% Student's-t UCL	14.21	95UCL
		Lead	6 / 6	0.0722	0.0499	0.0211	0.0672	95% Student's-t UCL	0.0499	KM Mean[b]
		Manganese	6 / 6	28.87	16.68	8.205	23.43	95% Student's-t UCL	23.43	95UCL
		Mercury[c]	1 / 1	0.00047	0.00047	N/A	N/A		0.00047	Maximum
		Nickel	6 / 6	0.701	0.301	0.253	0.509	95% Student's-t UCL	0.509	95UCL
		Thallium	0 / 6	N/A	N/A	N/A	N/A		ND	
		Vanadium	6 / 6	0.0271	0.0157	0.00651	0.021	95% Student's-t UCL	0.021	95UCL

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale
Terrestrial	Rose Stems/ Leaves	Aluminum	12 / 12	22.17	9.784	5.029	13.21	95% Adjusted Gamma UCL	13.21	95UCL
		Antimony	11 / 12	0.0222	0.00998	0.00563	0.0141	95% KM Adjusted Gamma UCL	0.0141	95UCL
		Arsenic	12 / 12	0.0438	0.0286	0.00996	0.0338	95% Student's-t UCL	0.0338	95UCL
		Cadmium	12 / 12	0.408	0.17	0.135	0.294	95% H-UCL	0.294	95UCL
		Chromium	12 / 12	3.364	1.278	0.81	1.698	95% Student's-t UCL	1.698	95UCL
		Cobalt	12 / 12	0.0239	0.0135	0.00593	0.0166	95% Student's-t UCL	0.0166	95UCL
		Iron	12 / 12	52.44	27.79	10.09	33.02	95% Student's-t UCL	33.02	95UCL
		Lead	12 / 12	2.227	0.597	0.572	1.014	95% Adjusted Gamma UCL	0.597	KM Mean[b]
		Manganese	12 / 12	87.16	46.83	20.67	57.54	95% Student's-t UCL	57.54	95UCL
		Mercury[c]	12 / 12	0.00423	0.002713	0.001006	0.003234	95% Student's-t UCL	0.003234	95UCL
		Nickel	12 / 12	0.508	0.218	0.117	0.278	95% Student's-t UCL	0.278	95UCL
		Thallium	10 / 12	0.00701	0.00359	0.00201	0.00423	95% KM (t) UCL	0.00423	95UCL
		Vanadium	12 / 12	0.0675	0.0289	0.0148	0.0396	95% Adjusted Gamma UCL	0.0396	95UCL
Terrestrial	Sarvisberry	Aluminum	9 / 12	10.65	6.03	2.362	6.632	95% KM (t) UCL	6.632	95UCL
		Antimony	6 / 12	0.0417	0.0145	0.0139	0.0149	95% KM (t) UCL	0.0149	95UCL
		Arsenic	8 / 12	0.0327	0.0249	0.00608	0.0254	95% KM (t) UCL	0.0254	95UCL
		Cadmium	12 / 12	0.228	0.138	0.0489	0.163	95% Student's-t UCL	0.163	95UCL
		Chromium	12 / 12	0.736	0.27	0.185	0.39	95% Adjusted Gamma UCL	0.39	95UCL
		Cobalt	12 / 12	0.0547	0.0349	0.0114	0.0408	95% Student's-t UCL	0.0408	95UCL
		Iron	12 / 12	23.82	18.17	2.895	19.67	95% Student's-t UCL	19.67	95UCL
		Lead	12 / 12	12.19	1.684	3.472	5.4	95% Adjusted Gamma UCL	1.684	KM Mean[b]
		Manganese	12 / 12	61.65	27.29	13.96	34.53	95% Student's-t UCL	34.53	95UCL
		Mercury[c]	3 / 3	0.001812	0.001371	0.000435	0.002104	95% Student's-t UCL	0.002104	95UCL
		Nickel	12 / 12	1.12	0.726	0.171	0.814	95% Student's-t UCL	0.814	95UCL
		Thallium	0 / 12	N/A	N/A	N/A	N/A		ND	
		Vanadium	5 / 12	0.0346	0.0235	0.00862	0.0217	95% KM (t) UCL	0.0217	95UCL
Terrestrial	Spring Beauty/ Indian Potato	Aluminum	12 / 12	947	145	257.4	325.7	95% Adjusted Gamma UCL	325.7	95UCL
		Antimony	12 / 12	1.04	0.244	0.27	0.444	95% Adjusted Gamma UCL	0.444	95UCL
		Arsenic	12 / 12	2.417	0.431	0.648	0.875	95% Adjusted Gamma UCL	0.875	95UCL
		Cadmium	12 / 12	7.924	3.222	2.556	4.547	95% Student's-t UCL	4.547	95UCL
		Chromium	12 / 12	1.517	0.31	0.412	0.651	95% Adjusted Gamma UCL	0.651	95UCL
		Cobalt	12 / 12	0.385	0.0836	0.104	0.164	95% Adjusted Gamma UCL	0.164	95UCL
		Iron	12 / 12	1076	157.7	293.9	527.5	95% Chebyshev (Mean, Sd) UCL	527.5	95UCL
		Lead	12 / 12	111.6	15.44	30.89	54.31	95% Chebyshev (Mean, Sd) UCL	15.44	KM Mean[b]
		Manganese	12 / 12	54.23	19.52	13.59	26.57	95% Student's-t UCL	26.57	95UCL
		Nickel	12 / 12	1.051	0.292	0.316	0.559	95% Adjusted Gamma UCL	0.559	95UCL
		Thallium	12 / 12	0.281	0.0946	0.0898	0.174	95% Adjusted Gamma UCL	0.174	95UCL
		Vanadium	12 / 12	2.026	0.325	0.56	1.029	95% Chebyshev (Mean, Sd) UCL	1.029	95UCL

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale
Aqutic	Tule	Aluminum	6 / 6	23.69	6.835	8.809	14.08	95% Student's-t UCL	14.08	95UCL
		Antimony	3 / 6	0.00389	0.00236	0.00133	0.00267	95% KM (t) UCL	0.00267	95UCL
		Arsenic	4 / 6	0.0162	0.0132	0.00416	0.0152	95% KM (t) UCL	0.0152	95UCL
		Cadmium	6 / 6	0.00639	0.00307	0.00244	0.0101	95% H-UCL	0.0101	95UCL
		Chromium	6 / 6	1.349	0.961	0.279	1.19	95% Student's-t UCL	1.19	95UCL
		Cobalt	6 / 6	0.025	0.018	0.00612	0.023	95% Student's-t UCL	0.023	95UCL
		Iron	6 / 6	27.22	14.37	6.826	19.98	95% Student's-t UCL	19.98	95UCL
		Lead	6 / 6	0.0806	0.0307	0.0284	0.054	95% Student's-t UCL	0.0307	KM Mean[b]
		Manganese	6 / 6	44.69	31	9.576	38.88	95% Student's-t UCL	38.88	95UCL
		Mercury[c]	6 / 6	0.00153	0.001022	0.000333	0.001297	95% Student's-t UCL	0.001297	95UCL
		Nickel	6 / 6	0.576	0.413	0.133	0.523	95% Student's-t UCL	0.523	95UCL
		Thallium	5 / 6	0.00143	0.00103	0.000398	0.00129	95% KM (t) UCL	0.00129	95UCL
		Vanadium	6 / 6	0.0695	0.0248	0.0234	0.0441	95% Student's-t UCL	0.0441	95UCL
Terrestrial	Wild Mint	Aluminum	6 / 6	50.73	19.37	15.67	47.81	95% Adjusted Gamma UCL	47.81	95UCL
		Antimony	6 / 6	0.00857	0.00466	0.0023	0.00655	95% Student's-t UCL	0.00655	95UCL
		Arsenic	6 / 6	0.0177	0.0116	0.00404	0.0149	95% Student's-t UCL	0.0149	95UCL
		Cadmium	6 / 6	0.0137	0.00652	0.00365	0.0123	95% Adjusted Gamma UCL	0.0123	95UCL
		Chromium	6 / 6	0.197	0.0871	0.0564	0.186	95% Adjusted Gamma UCL	0.186	95UCL
		Cobalt	6 / 6	0.0239	0.0105	0.00672	0.0164	or 95% Modified-t UCL	0.0164	95UCL
		Iron	6 / 6	46.78	23.04	11.83	33.52	95% Modified-t UCL	33.52	95UCL
		Lead	6 / 6	0.215	0.0908	0.0622	0.196	95% Adjusted Gamma UCL	0.0908	KM Mean[b]
		Manganese	6 / 6	9.04	6.955	1.241	7.975	95% Student's-t UCL	7.975	95UCL
		Mercury[c]	6 / 6	0.00153	0.001022	0.000333	0.00282	95% Student's-t UCL	0.00282	95UCL
		Nickel	6 / 6	0.112	0.0537	0.0306	0.0789	95% Student's-t UCL	0.0789	95UCL
		Thallium	5 / 6	0.000952	0.0005968	0.000286	0.00078478	95% KM (t) UCL	0.00078478	95UCL
		Vanadium	6 / 6	0.118	0.0495	0.0347	0.11	95% Adjusted Gamma UCL	0.11	95UCL
Aquatic	Willow	Aluminum	12 / 12	19.15	12.03	3.764	13.98	95% Student's-t UCL	13.98	95UCL
		Antimony	6 / 12	0.02	0.0116	0.00642	0.0105	95% KM (t) UCL	0.0105	95UCL
		Arsenic	9 / 12	0.0674	0.039	0.0165	0.0424	95% KM (t) UCL	0.0424	95UCL
		Cadmium	12 / 12	3.967	1.841	1.403	2.568	95% Student's-t UCL	2.568	95UCL
		Chromium	12 / 12	0.6	0.39	0.143	0.464	95% Student's-t UCL	0.464	95UCL
		Cobalt	12 / 12	0.0446	0.0285	0.0069	0.032	95% Student's-t UCL	0.032	95UCL
		Iron	12 / 12	29.18	21.93	5.948	25.01	95% Student's-t UCL	25.01	95UCL
		Lead	12 / 12	0.415	0.155	0.12	0.306	95% Chebyshev (Mean, Sd) UCL	0.155	KM Mean[b]
		Manganese	12 / 12	37.36	13.56	9.912	18.69	95% Student's-t UCL	18.69	95UCL
		Mercury[c]	12 / 12	0.002933	0.001244	0.000708	0.001611	95% Student's-t UCL	0.001611	95UCL
		Nickel	12 / 12	0.355	0.24	0.0593	0.27	95% Student's-t UCL	0.27	95UCL
		Thallium	10 / 12	0.137	0.0397	0.0488	0.0912	95% KM Bootstrap t UCL	0.0912	95UCL
		Vanadium	10 / 12	0.0513	0.0378	0.0078	0.0399	95% KM (t) UCL	0.0399	95UCL

N/A = not available, ND = not detected

[a] Based on recommendations from ProUCL, version 5.1.00 software (EPA, 2015); includes non-detects treated per recommendations for each statistical method:

Table 14. Wild/Cultural Plant EPCs

Plant Type	Plant Species	COPC	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected EPC for both RME and CTE risks	
									Value (mg/kg ww)	Rationale

[b] Mean calculated using KM method

[c] Total mercury was analyzed in plant tissue. As there is no toxicity value for inorganic mercury, risk calculations were done with the assumption that 100% of the measured mercury is methylmercury.

Table 15. Intake and Body Weight Parameters for Mallard

Parameter	Value	Reference
Food Ingestion Rate (FIR) (kg dry matter intake [DMI]/day)	0.21	White and Finley, 1978; Heinz et al., 1987; White and Dieter, 1978; Piccirillo and Quesenberry, 1980; Davison and Sell, 1974; Stubblefield et al., 1995a, 1995b; Chukwudebe et al., 1998; Finley et al., 1976
Water Ingestion Rate (L/day)	0.2	Calder and Braun, 1983
Soil/Sediment Ingestion Rate (% of FIR)	9.3	Beyer et al., 1994, 1998

[a] Food ingestion rate is the midpoint of the ingestion rates cited

Table 16. EPCs for Surface Sediment and Surface Water used in Waterfowl Uptake Model

COPC	River Region	Sediment Concentration (milligrams per kilogram [mg/kg])	Water Concentration (µg/L)	Estimated Plant Concentration (mg/kg dw)	Estimated Waterfowl Tissue EPC (mg/kg ww)
Arsenic	Lower	6.27	0.84	4.34	0.014
	Middle	4.18		3.01	0.010
	Upper	11.24		7.34	0.023
Cadmium	Lower	0.14	0.23	0.09	0.005
	Middle	1.27		0.27	0.015
	Upper	4.16		0.48	0.030
Lead	Lower	6.38	3.15	0.72	0.012
	Middle	33.93		2.70	0.048
	Upper	338.8		16.64	0.348
Selenium	Lower	ND	0.006	ND	ND
	Middle	0.06		0.07	0.006
	Upper	0.88		0.74	0.070

Table 17. Uptake Equations for Inorganics in Sediment to Plants

Analyte	Equation	Source
Arsenic	log(Cplant) = -0.08 + 0.9 * log(Csediment/soil)	a
Cadmium	=EXP((0.49*ln[Csediment/soil])-1.43	b
Lead	=EXP((0.79*ln[Csediment/soil])-1.79)	b
Selenium	log(Cplant) = -0.08 + 0.9 * log(Csediment/soil)	a

C = Concentration
ln = Natural log
a = Jackson (1998)
b = Campbell et al. (1999)

Table 18. EPCs and TCos used in Upland Bird Concentration Estimates

COPC	Soil Concentration (mg/kg dw)	Water Concentration (µg/L)	Plant Concentration (mg/kg dw)	Invertebrate Conc (mg/kg dw)	TCo Chicken (day/kg)
Arsenic	33.8	0.841	0.0328	2.28	0.03
Beryllium	0.583	0.189	0.004	NA	0.2
Cadmium	13.1	0.233	0.323	6.95	0.5
Lead	552	3.15	0.542	16.27	0.13
Mercury	0.12	0.018	0.00201	NA	0.1
Nickel	16.9	9.5	2.31	NA	0.02
Selenium	0.915	0.352	0.0551	NA	0.9

Table 19. Intake and Body Weight Parameters for Wild Turkey

Parameter	Value	Reference
Body Weight (kilogram [kg]) [a]	6.19	Lehman, 1998; McRoberts et al., 2014; Nelson and Martin, 1953; Rende, 1983; Spears et al., 2006; Vander Haegen et al., 1988
Food Ingestion Rate (FIR; kg DMI/day)	0.21	Nagy, 2001 (equation for Galliformes)
Water Ingestion Rate (L/day)	0.2	Calder and Braun, 1983
Soil Ingestion Rate (% of FIR)	9.3	Beyer et al., 1994

[a] Body weight is the midpoint of adult body weights cited

Table 20. Estimated Upland Bird Tissue Concentrations

COPC	Upland Bird EPC (mg/kg ww)
Arsenic	0.0236
Beryllium	0.00246
Cadmium	0.336
Lead	1.526
Mercury	0.00028
Nickel	0.0163
Selenium	0.0266

Table 21. EPCs and Transfer Coefficients (TCo) used in Wild Game (Mammal) Concentration Estimates

COPC	Soil Concentration (mg/kg dw)	Water Concentration (µg/L)	Plant Concentration (mg/kg dw)	TCo Beef (day/kg)	Estimated Wild Game (mammal) EPC (mg/kg ww)
Arsenic	33.8	0.841	0.153	0.002	0.00161
Beryllium	0.583	0.189	0.0052	0.0003	0.00000566
Cadmium	13.1	0.233	1.577	0.0002	0.000576
Lead	552	3.15	3.4	0.0003	0.0044
Mercury	0.12	0.0182	0.0071	0.0004	0.00000556
Nickel	16.9	9.5	1.1	0.0003	0.000652
Selenium	0.915	0.352	0.122	0.04	0.00888

Table 22. Intake Parameters for White-Tailed Deer

Parameter	Value	Reference
FIR [a] (kg ww/day)	3.194	French et al., 1955; Magruder et al., 1958; Ozoga and Verme, 1970; Ullrey et al., 1969, 1970; Bateman, 1949
FIR (kg dw/day)	1.692	Sample et al., 1997 (assumes 53% dry matter in food)
Water Ingestion Rate (L/day)	3.61	Lautier et al., 1988
Soil Ingestion Rate (kg dw/day)	0.0161	Arthur and Alldredge, 1979

[a] Food ingestion rate is the midpoint of adult food ingestion rates cited

Table 23. IEUBK Input Parameters Based on TRW Lead Committee Recommendations and Site-Specific Information

Parameter	Value	Basis
Soil concentration (mg/kg)	C_{soil}	EPC soil concentration, which was the RBA-adjusted arithmetic mean for each DU (the average of the 3 incremental composite [IC] sample results, if replicates were collected, for that DU or the single sample result if only 1 IC sample was collected; discrete core samples were not included). See Section 3.3.1 of the Site-wide HHRA for more information.
Dust concentration (mg/kg)	$C_{dust} = 0.7 \bullet C_{soil(weighted)} +$ (air conc • 100)	Indoor dust lead was derived from residential soil data as described in Sections 2.6.2 and 3.3.6 of the Site-wide HHRA (all non-beach tribal allotment DUs were considered potential future house DUs) and air based on Site-specific data (EPA, 1994a, 1994b).
Outdoor air concentration (µg per cubic meter [µg/m^3])	0.023‡	ProUCL (the KM mean; EPA, 2015) based on Sheep Creek 2002-2009 monitoring data.
Indoor air concentration (µg/m^3)	30% of outdoor air concentration	IEUBK Default (EPA, 1994a, 1994b)
Drinking water concentration (µg/L)	0.9	TRW Lead Committee analysis of Office of Water Six-Year data (EPA, 2010a, 2010b)
Maternal PbB at birth (µg/dL)*	0.6	Based on National Health and Nutrition Examination Survey (NHANES) update (2009-2014) (EPA, 2017b)
Absorption Fractions (AF†) at low intakes: Air Diet Water Soil/dust Sediment	 32% 50% 50% DU-specific DU-specific	 IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b) SRC (2017). See Appendix 11 of Site-wide HHRA. SRC (2017). See Appendix 11 of Site-wide HHRA.
RBA (soil/dust)	DU-specific RBA %	SRC (2017). See Appendix 11 of Site-wide HHRA.
Fraction soil	45%	IEUBK Default (EPA, 1994a, 1994b)
GSD	1.6	IEUBK Default (EPA, 1994a, 1994b)
Target PbB	3, 5, and 8 µg/dL	Within the risk range of child PbBs associated with adverse health effects (ATSDR, 2020)

*Maternal PbB at birth does not impact results for the 12-72 month age range.

† AF% = RBA% * 0.5.

‡ Note that the concentration of lead in UCR air (CH2MHill, 2015) is an order of magnitude lower than the default air lead concentration in the IEUBK model (0.1 µg/m^3) and is not likely to influence the results. The results of the IEUBK model analyses are not sensitive to changes in the third digit to the right of the decimal point. As a result, the outdoor air concentration reported in Appendix 5 batch mode results in the Site-wide HHRA is 0.02 µg Pb/m^3.

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source				CTE Value and Source			
			Adult		Child		Adult		Child	
General	Body weight	kg	80	EPA, 2011, 2014 [a]	15	EPA, 2011, 2014 [a]	80	EPA, 2011, 2014 [a]	15	EPA, 2011, 2014 [a]
	Exposure Duration	years	20	EPA, 2014	6	EPA, 2014	8	EPA, 2011 [b]	2	EPA, 2011 [b]
	Averaging Time (non-cancer)	days	7,300	EPA, 1989	2,190	EPA, 1989	2,920	EPA, 1989	730	EPA, 1989
	Averaging Time (cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989	25,550	EPA, 1989
RESIDENTIAL EXPOSURE										
General	Exposure Frequency	days/yr	350	EPA, 2011, 2014 [c]	350	EPA, 2011, 2014 [c]	256	EPA, 2011 [d]	256	EPA, 2011 [d]
Inhalation of air	Exposure Time	hrs/day	24	Professional judgment	24	Professional judgment	24	Professional judgment	24	Professional judgment
	TWF (non-cancer)	**unitless**	**9.59E-01**		**9 59E-01**		**7.01E-01**		**7.01E-01**	
	TWF (cancer)	**unitless**	**2.74E-01**		**8 22E-02**		**8.02E-02**		**2.00E-02**	
Incidental ingestion of soil/dust	Ingestion rate, total	mg/day	240	EPA, 2017d	200	EPA, 2017c [e]	50	EPA, 2017d	80	EPA, 2017c [f]
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*		*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**2.88E-06**		**1 28E-05**		**4.38E-07**		**3.74E-06**	
	HIF (cancer)	**kg/kg-d**	**8.22E-07**		**1 10E-06**		**5.01E-08**		**1.07E-07**	
Dermal contact with soil	Adherence Factor	mg/cm^2	0.07	EPA, 2014	0.2	EPA, 2014	0.01	EPA, 2004b	0.04	EPA, 2004b
	Exposed Skin Surface Area	cm^2	6,032	EPA, 2014	2,373	EPA, 2014	6,032	EPA, 2014	2,373	EPA, 2014
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*		*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**5.06E-06**		**3.03E-05**		**5.29E-07**		**4.44E-06**	
	HIF (cancer)	**kg/kg-d**	**1.45E-06**		**2.60E-06**		**6.04E-08**		**1.27E-07**	
EXPOSURE DURING CULTURAL ACTIVITIES ON BEACHES										
General	Exposure Frequency	days/yr	62	SRC, 2019b [g]	62	SRC, 2019b [g]	18	SRC, 2019b [h]	18	SRC, 2019b [h]
Incidental ingestion of sediment	Ingestion rate, total	mg/day	240	EPA, 2017d	200	EPA, 2017c [e]	50	EPA, 2017d	80	EPA, 2017c [f]
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*		*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**5.10E-07**		**2 26E-06**		**3.08E-08**		**2.63E-07**	
	HIF (cancer)	**kg/kg-d**	**1.46E-07**		**1 94E-07**		**3.52E-09**		**7.51E-09**	
Dermal contact with sediment	Adherence Factor	mg/cm^2	0.07	EPA, 2014	0.2	EPA, 2014	0.01	EPA, 2004b	0.04	EPA, 2004b
	Exposed Skin Surface Area	cm^2	7,329	EPA, 2011 [i]	2,373	EPA, 2014	7,329	EPA, 2011 [i]	2,373	EPA, 2014
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*		*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**1.09E-06**		**5 37E-06**		**4.52E-08**		**3.12E-07**	
	HIF (cancer)	**kg/kg-d**	**3.11E-07**		**4.61E-07**		**5.16E-09**		**8.92E-09**	
EXPOSURE DURING CULTURAL ACTIVITIES IN SURFACE WATER										
General	Exposure Frequency	days/yr	91	SRC, 2019b [j]	91	SRC, 2019b [j]	34	SRC, 2019b [k]	34	SRC, 2019b [k]
	Exposure Time	hrs/day	10	SRC, 2019b [l]	10	SRC, 2019b [l]	3.6	SRC, 2019b [m]	3.6	SRC, 2019b [m]
Incidental ingestion of surface water	Ingestion rate of surface water	ml/hr	30	Update to EPA, 2011 [n]	40	Update to EPA, 2011 [n]	15	Professional judgment [o]	20	Professional judgment [o]
	Conversion factor	*L/mL*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**L/kg/d**	**9.35E-04**		**6.65E-03**		**6.29E-05**		**4.47E-04**	
	HIF (cancer)	**L/kg/d**	**2.67E-04**		**5.70E-04**		**7.19E-06**		**1.28E-05**	

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source				CTE Value and Source			
			Adult		Child		Adult		Child	
Dermal contact with surface water	Exposed Skin Surface Area	cm^2	7,329	EPA, 2011 [i]	2,373	EPA, 2014	7,329	EPA, 2011 [i]	2,373	EPA, 2014
	Conversion factor	*L/cm^3*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**L·hr/kg·cm/d**	**2.28E-01**		**3 94E-01**		**3.07E-02**		**5.31E-02**	
	HIF (cancer)	**L·hr/kg·cm/d**	**6.53E-02**		**3 38E-02**		**3.51E-03**		**1.52E-03**	
INGESTION OF WILD/CULTURAL PLANTS (AQUATIC AND TERRESTRIAL)										
General	Exposure Frequency	days/yr	365	[p]	365	[p]	365	[p]	365	[p]
Ingestion of Chokecherry	Average ingestion rate	g plant/day	13.2	SRC, 2019b; Fraser, 2017, 2019b [q]	6.6	IOM, 2005 [r]	6.6	SRC, 2019b; Fraser, 2017, 2019d [q]	3.3	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.65E-04**		**4.40E-04**		**8.25E-05**		**2.20E-04**	
	HIF (cancer)	**kg ww/kg/d**	**4.71E-05**		**3.77E-05**		**9.43E-06**		**6.29E-06**	
Ingestion of Huckleberry	Average ingestion rate	g plant/day	6.6	SRC, 2019b [s]	3.3	IOM, 2005 [r]	1.9	SRC, 2019b [s]	0.95	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**8.25E-05**		**2 20E-04**		**2.38E-05**		**6.33E-05**	
	HIF (cancer)	**kg ww/kg/d**	**2.36E-05**		**1 89E-05**		**2.71E-06**		**1.81E-06**	
Ingestion of Sarvisberry	Average ingestion rate	g plant/day	11.6	SRC, 2019b; Fraser, 2017, 2019b [t]	5.8	IOM, 2005 [r]	7.5	SRC, 2019b; Fraser, 2017; Primolicious, 2019 [t]	3.75	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.45E-04**		**3 87E-04**		**9.38E-05**		**2.50E-04**	
	HIF (cancer)	**kg ww/kg/d**	**4.14E-05**		**3 31E-05**		**1.07E-05**		**7.14E-06**	
Ingestion of Black Tree Lichen	Average ingestion rate	g plant/day	1.7	Fraser, 2017, 2019c; Turner, 1997 [u]	0.85	IOM, 2005 [r]	1.5	Fraser, 2017, 2019c; Turner, 1997 [u]	0.75	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**2.13E-05**		**5.67E-05**		**1.88E-05**		**5.00E-05**	
	HIF (cancer)	**kg ww/kg/d**	**6.07E-06**		**4 86E-06**		**2.14E-06**		**1.43E-06**	
Ingestion of Rose Hips	Average ingestion rate	g plant/day	4.7	SRC, 2019b; Fraser, 2019f [v]	2.35	IOM, 2005 [r]	1.7	SRC, 2019b; Fraser, 2019f [v]	0.85	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**5.88E-05**		**1 57E-04**		**2.13E-05**		**5.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**1.68E-05**		**1 34E-05**		**2.43E-06**		**1.62E-06**	
Ingestion of Kinnikinnick	Average ingestion rate	g plant/day	0.08	Professional judgment [w]	0.04	IOM, 2005 [r]	0.08	Fraser, 2017, 2019b [x]	0.04	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.00E-06**		**2.67E-06**		**1.00E-06**		**2.67E-06**	
	HIF (cancer)	**kg ww/kg/d**	**2.86E-07**		**2 29E-07**		**1.14E-07**		**7.62E-08**	

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source				CTE Value and Source			
			Adult		Child		Adult		Child	
Ingestion of Rose Stems/Leaves	Average ingestion rate	g plant/day	0.5	SRC, 2019b; Fraser, 2017; Ramboll, 2019; TAI, 2019 [y]	0.25	IOM, 2005 [r]	0.2	SRC, 2019b; Fraser, 2017; Ramboll, 2019; TAI, 2019 [y]	0.1	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**6.25E-06**		**1.67E-05**		**2.50E-06**		**6.67E-06**	
	HIF (cancer)	**kg ww/kg/d**	**1.79E-06**		**1.43E-06**		**2.86E-07**		**1.90E-07**	
Ingestion of Wild Mint	Average ingestion rate	g plant/day	2.5	SRC, 2019b; Fraser, 2017, 2019b [z]	1.25	IOM, 2005 [r]	2.5	SRC, 2019b; Fraser, 2017, 2019b [z]	1.25	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**3.13E-05**		**8 33E-05**		**3.13E-05**		**8.33E-05**	
	HIF (cancer)	**kg ww/kg/d**	**8.93E-06**		**7 14E-06**		**3.57E-06**		**2.38E-06**	
Ingestion of Hazelnut	Average ingestion rate	g plant/day	1.9	SRC, 2019b; Fraser, 2017; USDA, 2018 [aa]	0.95	IOM, 2005 [r]	0.8	SRC, 2019b; Fraser, 2017; USDA, 2018 [aa]	0.4	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**2.38E-05**		**6 33E-05**		**1.00E-05**		**2.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**6.79E-06**		**5.43E-06**		**1.14E-06**		**7.62E-07**	
Ingestion of Pine Nuts	Average ingestion rate	g plant/day	3.1	SRC, 2019b; Fraser, 2017; USDA 2018 [ab]	1.55	IOM, 2005 [r]	1.2	SRC, 2019b; Fraser, 2017; USDA 2018 [ab]	0.6	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**3.88E-05**		**1.03E-04**		**1.50E-05**		**4.00E-05**	
	HIF (cancer)	**kg ww/kg/d**	**1.11E-05**		**8 86E-06**		**1.71E-06**		**1.14E-06**	
Ingestion of Lomatium	Average ingestion rate	g plant/day	4.8	SRC, 2019b [ac]	2.4	IOM, 2005 [r]	2.6	SRC, 2019b [ac]	1.3	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**6.00E-05**		**1.60E-04**		**3.25E-05**		**8.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**1.71E-05**		**1 37E-05**		**3.71E-06**		**2.48E-06**	
Ingestion of Camas	Average ingestion rate	g plant/day	4.8	SRC, 2019b [ad]	2.4	IOM, 2005 [r]	2.6	SRC, 2019b [ad]	1.3	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**6.00E-05**		**1.60E-04**		**3.25E-05**		**8.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**1.71E-05**		**1 37E-05**		**3.71E-06**		**2.48E-06**	
Ingestion of Spring beauty/Indian potato	Average ingestion rate	g plant/day	2.2	SRC, 2019b [ae]	1.1	IOM, 2005 [r]	2.2	SRC, 2019b [ae]	1.1	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**2.75E-05**		**7 33E-05**		**2.75E-05**		**7.33E-05**	
	HIF (cancer)	**kg ww/kg/d**	**7.86E-06**		**6 29E-06**		**3.14E-06**		**2.10E-06**	
Ingestion of Tule	Average ingestion rate	g plant/day	1.1	Fraser, 2017, 2019a; Ramboll 2019a, 2019b [af]	--	[ag]	0.1	Fraser, 2017, 2019a; Ramboll 2019a, 2019b [af]	--	[ag]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.38E-05**		**--**		**1.25E-06**		**--**	
	HIF (cancer)	**kg ww/kg/d**	**3.93E-06**		**--**		**1.43E-07**		**--**	

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source				CTE Value and Source			
			Adult		Child		Adult		Child	
Ingestion of Willow	Average ingestion rate	g plant/day	1.1	Fraser, 2017, 2019a; Ramboll 2019a, 2019b [ah]	--	[ag]	0.1	Fraser, 2017, 2019a; Ramboll 2019a, 2019b [ah]	--	[ag]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.38E-05**		**--**		**1.25E-06**		**--**	
	HIF (cancer)	**kg ww/kg/d**	**3.93E-06**		**--**		**1.43E-07**		**--**	
OTHER TISSUE INGESTION SCENARIOS										
General	Exposure Frequency	days/yr	365	[p]	365	[p]	365	[p]	365	[p]
Ingestion of wild game	Average ingestion rate	g/day	42	SRC, 2019b [ai]	13	SRC, 2019b [ai]	12	SRC, 2019b [ai]	3.8	SRC, 2019b [ai]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**5.25E-04**		**8.67E-04**		**1.50E-04**		**2.53E-04**	
	HIF (cancer)	**kg ww/kg/d**	**1.50E-04**		**7.43E-05**		**1.71E-05**		**7.24E-06**	
Ingestion of waterfowl	Average ingestion rate	g game/day	1.6	SRC, 2019b [aj]	0.8	IOM, 2005 [r]	1.4	SRC, 2019b [ak]	0.7	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**2.00E-05**		**5 33E-05**		**1.75E-05**		**4.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**5.71E-06**		**4 57E-06**		**2.00E-06**		**1.33E-06**	
Ingestion of upland birds	Average ingestion rate	g/day	6.8	SRC, 2019b [al]	3.4	IOM, 2005 [r]	3.2	SRC, 2019b [al]	1.6	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**8.50E-05**		**2 27E-04**		**4.00E-05**		**1.07E-04**	
	HIF (cancer)	**kg ww/kg/d**	**2.43E-05**		**1 94E-05**		**4.57E-06**		**3.05E-06**	
Ingestion of fish	Average ingestion rate	g fish/day	400	WQSA, 2014 [am]	200	WQSA, 2014; IOM, 2005 [an]	80	Fraser, 2019e [ao]	40	Fraser, 2019e; IOM, 2005 [an]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**5.00E-03**		**1 33E-02**		**1.00E-03**		**2.67E-03**	
	HIF (cancer)	**kg ww/kg/d**	**1.43E-03**		**1 14E-03**		**1.14E-04**		**7.62E-05**	
Ingestion of mussels	Average ingestion rate	g mussel/day	5.8	SRC, 2019b [ap]	2.9	IOM, 2005 [r]	1.7	SRC, 2019b [aq]	0.85	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**7.25E-05**		**1 93E-04**		**2.13E-05**		**5.67E-05**	
	HIF (cancer)	**kg ww/kg/d**	**2.07E-05**		**1.66E-05**		**2.43E-06**		**1.62E-06**	
Ingestion of crayfish	Average ingestion rate	g crayfish/day	5.8	SRC, 2019b [ar]	2.9	IOM, 2005 [r]	2.5	SRC, 2019b [as]	1.3	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**7.25E-05**		**1 93E-04**		**3.13E-05**		**8.33E-05**	
	HIF (cancer)	**kg ww/kg/d**	**2.07E-05**		**1.66E-05**		**3.57E-06**		**2.38E-06**	
Ingestion of amphibians/ reptiles	Average ingestion rate	g tissue/day	5.8	SRC, 2019b [ay]	2.9	IOM, 2005 [r]	4.2	SRC, 2019b [au]	2.1	IOM, 2005 [r]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*		*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**7.25E-05**		**1 93E-04**		**5.25E-05**		**1.40E-04**	
	HIF (cancer)	**kg ww/kg/d**	**2.07E-05**		**1.66E-05**		**6.00E-06**		**4.00E-06**	

Notes:

[a] Table 8-3 of EPA (2011): weighted mean values for adults 21-78 years old. Table 8-1 of EPA (2011): weighted average of mean body weights (birth to <6 years)

[b] Table 16-5 of EPA (2011): mean value for residential occupancy = 12 years. Dividing that into adult and child portions using the same ratio as for the RME (e.g., 6/27) yields ~9 years for the adult and ~3 years for the child.

[c] 95th percentile value of time spent in a residence is equivalent to 100% of the time; EPA (2011) Table 16-16. 350 days/yr assumes 2 weeks' vacation away from home.

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source		CTE Value and Source	
			Adult	Child	Adult	Child

[d] Based on an estimate of 70% of time spent at home (EPA, 2011, Table 16-16, mean time spent at home in all rooms, doers only; 1001.4 minutes/1440 minutes = 70%). 70% x 365 days = 256 days.
[e] Upper percentile, general population children, soil + dust
[f] Central tendency, general population children 1<6 years, soil + dust
[g] 95th percentile value of time spent on the land (days/yr); age/sex combined (no significant difference between gender when all ages are combined).
[h] Mean value of time spent on the land (days/yr); age/sex combined (no significant difference between gender when all ages are combined).
[i] Time weighted mean of head, hands, forearms, lower legs, and feet (male and female, age 21+ years).
[j] 95th percentile value of time spent in the water (days/yr); age/sex combined (no significant difference between gender when all ages are combined).
[k] Mean value of time spent in the water (days/yr); age/sex combined (no significant difference between gender when all ages are combined).
[l] 95th percentile value of time spent in the water (hours/day); age/sex combined (no significant difference between gender when all ages are combined).
[m] Mean value of time spent in the water (hours/day); age/sex combined (no significant difference between gender when all ages are combined).
[n] Mean recommended value for water ingestion while swimming. Water-related activities evaluated in this exposure pathway (e.g , gathering plants, fishing) are assumed to have lower ingestion rates than swimming (Table 3-93 in EPA (2011) shows that water ingestion rates while fishing are less than half the average ingestion rate while swimming)
[o] CTE ingestion rate assumed to be half that of the RME receptor.
[p] Intake rates for plant and animal tissue are representative of a daily intake (g/day) averaged across a year; therefore, the exposure frequency is set to 365 days/yr.
[q] P95 consumption frequency = 30 days/year; Mean consumption frequency = 15 days/year (SRC, 2019b). Meal size = 1 cup (Fraser, 2017). Weight = 160 g (Fraser, 2019d).
[r] Child DCRs were derived by multiplying the adult DCR by a ratio of children-to-adult dietary intake which was estimated using energy requirements for children and adults based on regression models presented in IOM (2005) (see Appendix 14 of the Site-wide HHRA).
[s] P95 consumption frequency = 52 days/year; Mean consumption frequency = 15 days/year (SRC, 2019b). Mean meal size = 46 g (SRC, 2019b).
[t] P95 consumption frequency = 25 days/year; Mean consumption frequency = 16 days/year (SRC, 2019b). Meal size = 1 cup (Fraser, 2017). Weight = 170 g (Primolicious, 2019).
[u] P95 consumption frequency = 12 days/year; Mean consumption frequency = 10 days/year (Fraser, 2017). Meal size = 1/2 cup (Fraser, 2017; SRC, 2019b). Weight = 53 g (2.5 cups fresh lichen); volume is reduced to 20-25% of original through cooking. So this serving would start out as 2 or 2.5 cups fresh (Turner, 1997; Fraser, 2019b).
[v] P95 consumption frequency = 64 days/year; Mean consumption frequency = 23 days/year (SRC, 2019b). Meal size = 27g (handful [10 hips] Fraser, 2019f).
[w] Assumed RME DCR to be equal to CTE DCR.
[x] Mean consumption frequency = 6 days/year (Fraser, 2017). Assumed RME consumption frequency is equal to CTE consumption frequency. Meal size = handful of leaves per 1.5 quarts water (Fraser, 2017). Weight = 5 g fresh (direct measure; Fraser, 2019a).
[y] P95 consumption frequency = 64 days/year; Mean consumption frequency = 23 days/year (SRC, 2019b). Meal size = 1 foot total leaves/branches/hips per 1.5 quarts water (Fraser, 2017). Weight = For all samples collected, mean is 0.103 g/cm ww; 3 1 g/foot (Ramboll, 2019; TAI, 2019 [Appendix F of Appendix A]).
[z] P95 consumption frequency = 30 days/year; Mean consumption frequency = 30 days/year (SRC, 2019b). Meal size = a bundle 4" x 1.5" per 1.5 quarts of water (Fraser, 2017). Weight = a bundle of 4" length and 1.5" diameter is 30 g fresh (direct measure; Fraser, 2019a).
[aa] P95 consumption frequency = 25 days/year; Mean consumption frequency = 10 days/year (SRC, 2019b). Meal size = 28.35 g (1 ounce; Fraser, 2017; USDA, 2018). Weight = 28.35 g (USDA, 2018).
[ab] P95 consumption frequency = 40 days/year; Mean consumption frequency = 15 days/year (SRC, 2019b). Meal size = 28.35 g (1 ounce; Fraser, 2017; USDA, 2018). Weight = 28.35 g (USDA, 2018).
[ac] P95 consumption frequency = 26 days/year; Mean consumption frequency = 14 days/year (SRC, 2019b). Mean meal size estimate for bitter root and lomatium = 66.8 g (Table 18,SRC, 2019b).
[ad] P95 consumption frequency = 26 days/year; Mean consumption frequency = 14 days/year (SRC, 2019b). Mean meal size estimate for bitter root and lomatium = 66.8 g (Table 18,SRC, 2019b).
[ae] P95 consumption frequency = 12 days/year; Mean consumption frequency = 12 days/year (SRC, 2019b). Mean meal size estimate for bitter root and lomatium = 66.8 g (Table 18,SRC, 2019b).
[af] CTE consumption frequency = 39.85 hours per year weaving/carving (Fraser, 2017). Meal size = 170cm per hour (Fraser, 2019a). Weight = For all samples collected, mean is 0.117 g/cm ww (Ramboll 2019a, 2019b). The RME DCR assumes 50% of the mean mouthed weight is ingested (Fraser, 2019a). The CTE DCR assumes 5% of mean mouthed weight is ingested (Fraser, 2019a).
[ag] Exposure pathway is incomplete for 0-6 age group (personal communication with Marc Stifelman during 7-9-19 meeting).
[ah] CTE consumption frequency = 92.72 hours per year weaving/carving (Fraser, 2017). Meal size = 30cm per hour (Fraser, 2019a). Weight = For all samples collected, mean is 0.282 g/cm ww (Ramboll 2019a and 2019b). The RME DCR assumes 50% of the mean mouthed weight is ingested (Fraser, 2019a). The CTE DCR assumes 5% of mean mouthed weight is ingested (Fraser, 2019a).
[ai] Adult CTE and RME ingestion rates for wild game (venison) were estimated using a two-part regression model developed by the National Cancer Institute (NCI; Tooze et al., 2006), with data provided by the CCT Tribal Survey 24-hour dietary recall interviews. Child estimates were calculated by multiplying the DCR estimates for adults (by NCI method) to the ratio of the average meal size for children to the average meal size for adults. Meal size estimates did not use sample weights due to the small sample size for children.
[aj] The P95 adult DCR for waterfowl is the product of the mean meal size for chicken and P95 daily consumption frequency for waterfowl.
[ak] The mean adult DCR for waterfowl is the product of the mean meal size for chicken and mean daily consumption frequency for waterfowl.

TABLE 24
EXPOSURE PARAMETERS FOR COLVILLE HIGH INTENSITY RESOURCE USER POPULATION

Exposure Pathway	Exposure Parameter	Units	RME Value and Source		CTE Value and Source	
			Adult	Child	Adult	Child

[al] The CTE for ingestion rate is the product of the mean daily frequency of consuming upland birds sourced from the Local Area (11.6 days/year) and the mean consumption amounts (on consumption days) for chicken (100 grams). The RME for ingestion rate for upland birds was estimated using the 95th percentile for daily frequency of consuming upland birds from the Local Area (24.7 days/year) and the mean consumption amounts (on consumption days) for chicken (100 grams).
[am] The RME value of 400 g/day recommended by the Natural Resources Committee and approved by the Colville Business Council as the fish consumption rate used for the purpose of deriving new water quality standards to protect the use of reservation waters for a subsistence fishery.
[an] The CCT did not provide child DCRs. Therefore, to complete this exposure pathway child DCRs were derived by mulltiplying the adult DCR by a ratio of children-to-adult dietary intake which was estimated using energy requirements for children and adults based on regression models presented in IOM (2005) (see Appendix X).
[ao] Value is based on a median frequency of ingestion by regular fish eaters and a 90th percentile meal size.
[ap] 0.0833 1/day * 70.1 g/day. Frequency estimates for mussels include all (local and not local) sources (P95= 30 days/year). Total grams of intake on consumption days (meal size) = 70.1 grams (mean). Meal size totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.
[aq] 0.0240 1/day * 70.1 g/day. Frequency estimates for mussels include all (local and not local) sources (mean = 9 days/year). Total grams of intake on consumption days (meal size) = 70.1 grams (mean). Meal size totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.
[ar] 0.0833 1/day * 70.1 g/day. Frequency estimates for crayfish are based on local area only (P95= 30 days/year). Total grams of intake on consumption days (meal size) = 70.1 grams (mean). Meal size totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.
[as] 0.0362 1/day * 70.1 g/day. Frequency estimates for crayfish are based on local area only (mean = 13 days/year). Total grams of intake on consumption days (meal size) = 70.1 grams (mean). Meal size totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.
[at] 0.0833 1/day * 70.1 g/day. Frequency estimates for aquatic organisms were reported only for local area (95%=30 days/year). Total grams of intake on consumption days = 70.1 grams (mean). Daily ingestion totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.
[au] 0.0600 1/day * 70.1 g/day. Frequency estimates for aquatic organisms were reported only for local area (mean=22 days/year). Total grams of intake on consumption days = 70.1 grams (mean). Daily ingestion totals are based on CCT Tribal survey AMPM data for all mollusks and crustaceans.

Table 25. Age-dependent Inputs to the IEUBK Model Based on TRW Lead Committee Recommendations

Age[1] (months)	Air		Diet[3]	Water[4]	Soil-Dust[5]
	Time Outdoors (hours)	Ventilation Rate[2] (cubic meters per day [m^3/day])	Dietary Intake (μg/day)	Intake (L/day)	Intake IR_{SD} (milligrams per day [mg/day])[6]
0 to <12	1.0	3.22	2.66	0.4	86
12 to <24	2.0	4.97	5.03	0.43	94
24 to <36	3.0	6.09	5.21	0.51	67
36 to <48	4.0	6.95	5.38	0.54	63
48 to <60	4.0	7.68	5.64	0.57	67
60 to <72	4.0	8.32	6.04	0.6	52

[1]The recommended age range for Superfund sites using the IEUBK model is 12-72 months (EPA, 2017a). The IEUBK model was run in batch mode using 32 months as a surrogate for the 12-72 month age range (EPA, 2017a). For more information see https://www.epa.gov/superfund/lead-superfund-sites-frequent-questions-risk-assessors-integrated-exposure-uptake#batchmode

[2]The values shown are the midpoint of the age range. This version of the IEUBK model (version 1.1, build 11) uses the midpoint values of the regression equation used to calculate inhalation rate as a continuous non-linear function of age based on TRW Lead Committee analysis.

[3]TRW Lead Committee analysis of Dietary Pb Concentration 1995-2005 Total Diet Study (TDS) (FDA, 2010); Dietary intake 2003-06 NHANES What We Eat in America (WWEIA) (CDC, 2010a, 2010b); Methodology National Cancer Institute (NCI) Method (Parsons et al., 2009; Tooze et al., 2006)

[4]TRW Lead Committee analysis of Kahn and Stralka (2009; All Water Sources, Consumers Only)

[5]Soil-dust ingestion rate in the IEUBK model is apportioned as follows: 45% intake is soil and 55% intake is dust

[6]TRW Lead Committee analysis of age-specific values derived from structural equations modeling of children from Bunker Hill Superfund Site assuming 50% dust, 25% yard soil, 10% neighborhood soil, and 15% community soil (von Lindern et al., 2016)

Table 26. Estimation of Adult DCRs for Wild/Cultural Plants

Species	Consumption (Use) Frequency (days/year)		Meal Size	Mean Meal Size (g)	Adult DCR (g/day)		Notes/Source
	RME	CTE			RME	CTE	
Chokecherry	30	15	1 cup	160	13.2	6.6	Freq: SRC, 2019a; Meal size: Fraser, 2017; Fraser, 2019e
Huckleberry	52	15	Mean for adults: 46 g	46	6.6	1.9	SRC, 2019a
Sarvisberry	25	16	1 cup (6 ounces; 170 g)[1]	170	11.6	7.5	Freq: SRC, 2019a; Meal size: Fraser, 2017; Primolicious LLC, 2019
Black Tree Lichen	12	10	½ cup; volume reduced to 20-25% through cooking, so ½ cup cooked = 2.5 cups fresh (53 g)	53	1.7	1.5	Freq: Fraser, 2017; Meal size: Fraser, 2019f; Turner, 1997
Wild Rose (hips)	64	23	27 g fresh rose hips used to make tea	27	4.7	1.7	Freq: SRC, 2019a; Meal size: Fraser, 2019g
Kinnikinnick	6[2]	6	Handful of leaves per 1.5 quarts (qts) water (5 g fresh)	5	0.08	0.08	Freq: Fraser, 2017; Meal size: Fraser, 2019e and direct measure
Wild Rose (stems, leaves)	64	23	1 ft leaves/stems/ hips per 1.5 qts water. For all samples, mean = 0.103 grams per centimeter (g/cm) ww; 3.1 grams per foot (g/ft)	3.1	0.5	0.2	Freq: SRC, 2019a; Meal size: Fraser, 2017; TAI, 2019; Ramboll, 2019
Wild Mint	30	30	1 bundle (4" long × 1.5" diameter) per 1.5 qts water; = 30 g fresh	30	2.5	2.5	Freq: SRC, 2019a; Meal size: Fraser, 2017; Fraser, 2019e and direct measure
Hazelnut	25	10	1 ounce (28.35 g)	28.35	1.9	0.8	Freq: SRC, 2019a; Meal size: Fraser, 2017; USDA, 2018
Ponderosa Pine Nut	40	15	1 ounce (28.35 g)	28.35	3.1	1.2	Freq: SRC, 2019a; Meal size: Fraser, 2017; USDA, 2018
Lomatium (root)	26	14	Mean meal size for bitter root and lomatium	66.8	4.8	2.6	SRC, 2019a
Camas (bulb)	26	14	Mean meal size for bitter root and lomatium	66.8	4.8	2.6	SRC, 2019a
Spring Beauty/Indian Potato (corm)	12	12	Mean meal size for bitter root and lomatium	66.8	2.2	2.2	SRC, 2019a
Tule	NA	39.85 hr/yr	170 centimeters per hour (cm/hr); for all samples	0.117	1.1	0.1	Freq: Fraser, 2017; Processing

Table 26. Estimation of Adult DCRs for Wild/Cultural Plants

Species	Consumption (Use) Frequency (days/year)		Meal Size	Mean Meal Size (g)	Adult DCR (g/day)		Notes/Source
	RME	CTE			RME	CTE	
			collected, mean weight is 0.117 g/cm ww				info: Fraser, 2019a; Assumed meal size[3]
Willow	NA	92.72 hr/yr	30 cm/hr; Overall mean is 0.282 g/cm ww	0.282	1.1	0.1	Freq: Fraser, 2017; Processing info: Fraser, 2019a; assumed meal size[3]

[1]Meal size determined using online produce converter for blueberries (www.howmuchisin.com)
[2]No RME frequency available; assumed RME = CTE frequency (Fraser, 2017)
[3]RME assumes 50% ingested during mouthing per use; CTE assumes 5% ingested during mouthing per use. The selected percentages of ingestion associated with mouthing willow samplings are uncertain. The range of 5/50% was used as a reasonable assumption to estimate ingestion associated with processing waving materials as CTE and RME estimates, respectively.

Table 27. Results of Exposure to Lead in Soil and Indoor Dust at Tribal Allotments[a]

Tribal Allotment DU	Predicted Geometric Mean PbB (µg/dL)	Probability of Exceeding 3 µg/dL	Probability of Exceeding 5 µg/dL	Probability of Exceeding 8 µg/dL
258	5.3	**88.9%**	**55.3%**	**19.3%**
259	2.5	**34.3%**	**6.8%**	0.6%
420	4.0	**73.4%**	**32.2%**	**7.2%**
421	2.9	**47.9%**	**12.7%**	1.6%
410	3.4	**59.3%**	**19.7%**	3.2%
412[b]	1.1	1.9%	0.1%	<0.1%
413	4.2	**75.7%**	**34.8%**	**8.2%**
401	7.0	**96.3%**	**75.8%**	**38.2%**
402	4.3	**78.4%**	**38.2%**	**9.7%**
403	3.5	**62.6%**	**22.2%**	3.9%
440	1.9	**17.2%**	2.1%	0.1%
441	5.2	**87.7%**	**52.9%**	**17.7%**
442	2.6	**37.6%**	**8.0%**	0.8%
430	2.6	**38.2%**	**8.3%**	0.8%
431	1.7	**11.7%**	1.1%	0.1%
432	2.9	**46.1%**	**11.8%**	1.4%
801-O1	1.2	2.8%	0.1%	<0.1%
801-O2	1.1	2.0%	0.1%	<0.1%
801-O3	1.2	3.0%	0.2%	<0.1%
802-O1	2.0	**18.1%**	2.3%	0.1%
803-O1	3.6	**65.9%**	**24.9%**	4.7%
803-O2	2.9	**47.3%**	**12.4%**	1.6%
803-O3	2.5	**33.2%**	**6.4%**	0.6%
804-O1	1.7	**10.6%**	1.0%	<0.1%
804-O2	2.6	**36.8%**	**7.7%**	0.8%
805-O1	1.3	3.5%	0.2%	<0.1%
805-O2	1.3	4.1%	0.2%	<0.1%
806-O1	1.2	2.8%	0.1%	<0.1%
806-O2	1.2	2.9%	0.1%	<0.1%
806-O3	1.4	4.6%	0.3%	<0.1%
806-O4	1.3	3.4%	0.2%	<0.1%
806-O5	1.1	3.4%	0.2%	<0.1%
807-O1	1.2	2.8%	0.1%	<0.1%
808-O1	1.3	3.2%	0.2%	<0.1%
808-O2	1.3	3.3%	0.2%	<0.1%

[a]Values in bold exceed risk benchmarks for lead.

[b]This DU underwent a removal action; maximum backfill concentrations are used as the soil EPC.

Table 28. Results of IEUBK Model for Exposure to Sediment at Tribal Allotment Beach

Receptor	Predicted Geometric Mean PbB (µg/dL)	Probability of Exceeding 3 µg/dL	Probability of Exceeding 5 µg/dL	Probability of Exceeding 8 µg/dL
CHIRU child	2.9	**47.8%**	**12.7%**	1.6%

Bold values exceed lead risk benchmark.

Table 29. Results of IEUBK Model for Exposure to Surface Water at Tribal Allotment Beach

Receptor	Predicted Geometric Mean PbB (µg/dL)	Probability of Exceeding 3 µg/dL	Probability of Exceeding 5 µg/dL	Probability of Exceeding 8 µg/dL
CHIRU child	2.96	**48.8%**	**13.2%**	1.7%

Bold values exceed lead risk benchmarks.

Table 30. Lead Intakes by Plant Type for Children

Plant Species	Plant Part	Mean Lead Conc in Plant (µg/g ww)	Plant DCR (g/day)	Lead Intake (µg Pb/day)
Chokecherry	Berry	0.014	3.3	<0.1
Huckleberry	Berry	0.013	0.95	<0.1
Sarvisberry	Berry	1.68	3.75	**6.3**
Black Tree Lichen	Entire	33.4	0.75	**25.0**
Rose hips	Hips	0.0499	0.85	<0.1
Kinnikinnick	Leaves	0.621	0.04	<0.1
Rose stems/leaves	Leaves	0.59	0.1	0.1
Wild Mint	Leaves	0.091	1.25	0.1
Hazelnut	Nut	0.004	0.4	<0.1
Ponderosa Pine	Nut	0.477	0.6	0.3
Lomatium	Root	10.5	1.3	**13.7**
Camas	Root/bulb	12.1	1.3	**15.7**
Spring Beauty/ Indian Potato	Root/Corm	15.4	1.1	**17.0**

Note: Tule and Willow are not included in this table because children are assumed to not engage in basket-weaving (Stifelman, 2019). See Table 31.

Table 31. Lead Intakes During Basket Weaving by Plant Type for Adults

Species	Plant Part	Concentration of Lead in Plant (µg/g ww)	DCR[1] (g/day)	Intake of Lead (µg Pb/day)
Tule	Root/culm	0.031	0.1	<0.1
Willow	Stem	0.155	0.1	<0.1

[1]Assumes 5% ingested during mouthing per use.

Table 32. Lead Intakes from Fish, by Species, for the CHIRU Child

Fish DCR (g/day)	Lead Intake Burbot (µg Pb/day)	Lead Intake Kokanee (µg Pb/day)	Lead Intake Northern Pike (µg Pb/day)	Lead Intake Rainbow Trout (µg Pb/day)	Lead Intake Smallmouth Bass (µg Pb/day)	Lead Intake White Sturgeon (µg Pb/day)	Lead Intake Sucker (µg Pb/day)	Lead Intake Walleye (µg Pb/day)	Lead Intake Whitefish (µg Pb/day)
40	0.9	0.2	0.1	0.9	0.7	0.2	**5.4**	**1.0**	0.4

Table 33. Lead Intakes from Site-associated Biota other than Plants

Species	UCR Reach	Concentration of Lead in Organism (µg/g ww)	DCR (g/day)	Intake of Lead (µg Pb/day)
Mussels	1	0.690	0.85	0.6
	2	0.498	0.85	0.4
	3	0.454	0.85	0.4
	4	0.100	0.85	0.1
	5	0.215	0.85	0.2
	6	0.237	0.85	0.2
	Site-wide	0.366	0.85	0.3
	Reference area	0.0778	0.85	0.1
Crayfish	2	0.557	1.27	0.7
	5	0.697	1.27	0.9
	6	0.347	1.27	0.4
	Site-wide	0.533	1.27	0.7
	Reference area	0.0587	1.27	0.1
Amphibians and Reptiles	2	0.557	2.1	**1.2**
	5	0.697	2.1	**1.5**
	6	0.347	2.1	0.7
	Site-wide	0.533	2.1	**1.1**
Waterfowl	Lower Region	0.012	0.7	<0.1
	Middle Region	0.048	0.7	<0.1
	Upper Region	0.35	0.7	0.2
Upland Birds	Site-wide	1.53	1.6	**2.4**
Wild Game (Mammals)	Site-wide	0.0044	3.8	<0.1

Table 34. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 258 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	17585	1 0E+00	P	--	--				Nervous	2 2E-01	0 2	5 1E-02	0 05	1 9E-02		1 4E-02		
	Antimony	10 2	4 0E-04	I	--	--				Hematologic	1 3E-04	0 3	2 9E-05	0 07	1 1E-05		8 4E-06		
	RBA adjusted Arsenic	11 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	3 4E-05	0 1	1 3E-05	2E-05	9 7E-06	1E-05	3E-05
	Cadmium	16 0	1 0E-03	I	--	--				Urinary	2 0E-04	0 2	4 6E-05	0 05	1 7E-05		1 3E-05		
	Chromium	10 3	3 0E-03	I	--	--			(a)	--	1 3E-04	0 04	3 0E-05	0 01	1 1E-05		8 4E-06		
	Cobalt	4 8	3 0E-04	P	--	--				Endocrine	6 1E-05	0 2	1 4E-05	0 05	5 2E-06		3 9E-06		
	Iron	12238	7 0E-01	P	--	--				Gastrointestinal	1 6E-01	0 2	3 5E-02	0 05	1 3E-02		1 0E-02		
	Manganese	670	2 4E-02	S	--	--				Nervous	8 6E-03	0 4	1 9E-03	0 08	7 3E-04		5 5E-04		
	Nickel	9 2	1 1E-02	C	--	--				Developmental	1 2E-04	0 01	2 6E-05	0 002	1 0E-05		7 5E-06		
	Thallium	0 50	1 0E-05	X	--	--				Skin, Hair & Nails	6 4E-06	0 6	1 4E-06	0 1	5 5E-07		4 1E-07		
	Vanadium	20 8	5 0E-03	S	--	--				Skin, Hair & Nails	2 7E-04	0 05	6 0E-05	0 01	2 3E-05		1 7E-05		
										Soil/Dust Ingestion Total		**3**		**0.6**		**2E-05**		**1E-05**	**3E-05**
Dermal Contact with Soil	Aluminum	21060	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	12 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	51 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	4 7E-05	0 2	7 9E-06	0 03	4 0E-06	6E-06	2 3E-06	3E-06	9E-06
	Cadmium	19 1	1 0E-03	I	--	--	0 001	0 025		Urinary	5 8E-07	0 02	9 7E-08	0 004	5 0E-08		2 8E-08		
	Chromium	12 3	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	5 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	14656	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	802	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	11 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 60	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	25 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.2**		**0.03**		**6E-06**		**3E-06**	**9E-06**
										Soil/Dust Total		**3**		**0.7**		**3E-05**		**2E-05**	**4E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 7	0 1
Developmental HI	0 01	0 002
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 2	0 05
Hematologic HI	0 3	0 07
Nervous HI	0 6	0 1
Skin, Hair and Nails HI	1	0 3
Urinary HI	0 2	0 05

Table 35. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 259 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	15631	1 0E+00	P	--	--				Nervous	2 0E-01	0 2	4 5E-02	0 04	1 7E-02		1 3E-02		
	Antimony	3 2	4 0E-04	I	--	--				Hematologic	4 0E-05	0 1	9 1E-06	0 02	3 5E-06		2 6E-06		
	RBA adjusted Arsenic	5 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 0E-05	0 2	1 6E-05	0 05	6 0E-06	9E-06	4 5E-06	7E-06	2E-05
	Cadmium	5 7	1 0E-03	I	--	--				Urinary	7 3E-05	0 07	1 7E-05	0 02	6 3E-06		4 7E-06		
	Chromium	14 7	3 0E-03	I	--	--			(a)	--	1 9E-04	0 06	4 2E-05	0 01	1 6E-05		1 2E-05		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	6 8E-05	0 2	1 5E-05	0 05	5 8E-06		4 3E-06		
	Iron	14830	7 0E-01	P	--	--				Gastrointestinal	1 9E-01	0 3	4 3E-02	0 06	1 6E-02		1 2E-02		
	Manganese	511	2 4E-02	S	--	--				Nervous	6 5E-03	0 3	1 5E-03	0 06	5 6E-04		4 2E-04		
	Nickel	11 5	1 1E-02	C	--	--				Developmental	1 5E-04	0 01	3 3E-05	0 003	1 3E-05		9 5E-06		
	Thallium	0 29	1 0E-05	X	--	--				Skin, Hair & Nails	3 7E-06	0 4	8 3E-07	0 08	3 2E-07		2 4E-07		
	Vanadium	26 3	5 0E-03	S	--	--				Skin, Hair & Nails	3 4E-04	0 07	7 6E-05	0 01	2 9E-05		2 2E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**9E-06**		**7E-06**	**2E-05**
Dermal Contact with Soil	Aluminum	18720	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	23 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 2E-05	0 07	3 6E-06	0 01	1 8E-06	3E-06	1 0E-06	2E-06	4E-06
	Cadmium	6 9	1 0E-03	I	--	--	0 001	0 025		Urinary	2 1E-07	0 008	3 5E-08	0 001	1 8E-08		9 9E-09		
	Chromium	17 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17760	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	612	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	13 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 34	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	31 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.08**		**0.01**		**3E-06**		**2E-06**	**4E-06**
										Soil/Dust Total		**2**		**0.4**		**1E-05**		**8E-06**	**2E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 3	0 06
Developmental HI	0 01	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 1	0 02
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 7	0 2
Urinary HI	0 08	0 02

Table 36. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 401 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	26152	1 0E+00	P	--	--				Nervous	3 3E-01	0 3	7 5E-02	0 08	2 9E-02		2 1E-02		
	Antimony	15 7	4 0E-04	I	--	--				Hematologic	2 0E-04	0 5	4 5E-05	0 1	1 7E-05		1 3E-05		
	RBA adjusted Arsenic	21 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 7E-04	0 9	6 1E-05	0 2	2 3E-05	3E-05	1 7E-05	3E-05	6E-05
	Cadmium	20 5	1 0E-03	I	--	--				Urinary	2 6E-04	0 3	5 9E-05	0 06	2 3E-05		1 7E-05		
	Chromium	16 7	3 0E-03	I	--	--			(a)	--	2 1E-04	0 07	4 8E-05	0 02	1 8E-05		1 4E-05		
	Cobalt	7 3	3 0E-04	P	--	--				Endocrine	9 3E-05	0 3	2 1E-05	0 07	8 0E-06		6 0E-06		
	Iron	19639	7 0E-01	P	--	--				Gastrointestinal	2 5E-01	0 4	5 6E-02	0 08	2 2E-02		1 6E-02		
	Manganese	949	2 4E-02	S	--	--				Nervous	1 2E-02	0 5	2 7E-03	0 1	1 0E-03		7 8E-04		
	Nickel	13 9	1 1E-02	C	--	--				Developmental	1 8E-04	0 02	4 0E-05	0 004	1 5E-05		1 1E-05		
	Thallium	0 79	1 0E-05	X	--	--				Skin, Hair & Nails	1 0E-05	1	2 3E-06	0 2	8 7E-07		6 5E-07		
	Vanadium	34 3	5 0E-03	S	--	--				Skin, Hair & Nails	4 4E-04	0 09	9 9E-05	0 02	3 8E-05		2 8E-05		
										Soil/Dust Ingestion Total		**4**		**1**		**3E-05**		**3E-05**	**6E-05**
Dermal Contact with Soil	Aluminum	31320	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	18 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	97 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 8E-05	0 3	1 5E-05	0 05	7 6E-06	1E-05	4 2E-06	6E-06	2E-05
	Cadmium	24 6	1 0E-03	I	--	--	0 001	0 025		Urinary	7 5E-07	0 03	1 2E-07	0 005	6 4E-08		3 6E-08		
	Chromium	20 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23520	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1136	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 95	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.3**		**0.05**		**1E-05**		**6E-06**	**2E-05**
										Soil/Dust Total		**5**		**1**		**5E-05**		**3E-05**	**8E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	1	0 3
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 4	0 08
Hematologic HI	0 5	0 1
Nervous HI	0 8	0 2
Skin, Hair and Nails HI	2	0 5
Urinary HI	0 3	0 06

Table 37. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 402 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12122	1 0E+00	P	--	--				Nervous	1 5E-01	0 2	3 5E-02	0 03	1 3E-02		1 0E-02		
	Antimony	6 3	4 0E-04	I	--	--				Hematologic	8 0E-05	0 2	1 8E-05	0 05	6 9E-06		5 2E-06		
	RBA adjusted Arsenic	8 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 1E-04	0 4	2 5E-05	0 08	9 7E-06	1E-05	7 2E-06	1E-05	3E-05
	Cadmium	8 9	1 0E-03	I	--	--				Urinary	1 1E-04	0 1	2 6E-05	0 03	9 8E-06		7 4E-06		
	Chromium	14 9	3 0E-03	I	--	--			(a)	--	1 9E-04	0 06	4 3E-05	0 01	1 6E-05		1 2E-05		
	Cobalt	4 8	3 0E-04	P	--	--				Endocrine	6 2E-05	0 2	1 4E-05	0 05	5 3E-06		4 0E-06		
	Iron	13534	7 0E-01	P	--	--				Gastrointestinal	1 7E-01	0 2	3 9E-02	0 06	1 5E-02		1 1E-02		
	Manganese	469	2 4E-02	S	--	--				Nervous	6 0E-03	0 2	1 3E-03	0 06	5 1E-04		3 9E-04		
	Nickel	11 4	1 1E-02	C	--	--				Developmental	1 5E-04	0 01	3 3E-05	0 003	1 2E-05		9 3E-06		
	Thallium	0 48	1 0E-05	X	--	--				Skin, Hair & Nails	6 1E-06	0 6	1 4E-06	0 1	5 2E-07		3 9E-07		
	Vanadium	23 2	5 0E-03	S	--	--				Skin, Hair & Nails	3 0E-04	0 06	6 7E-05	0 01	2 5E-05		1 9E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**1E-05**		**1E-05**	**3E-05**
Dermal Contact with Soil	Aluminum	14518	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	38 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 5E-05	0 1	5 8E-06	0 02	3 0E-06	4E-06	1 7E-06	2E-06	7E-06
	Cadmium	10 7	1 0E-03	I	--	--	0 001	0 025		Urinary	3 2E-07	0 01	5 4E-08	0 002	2 8E-08		1 5E-08		
	Chromium	17 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	5 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16208	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	561	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	13 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 57	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	27 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.1**		**0.02**		**4E-06**		**2E-06**	**7E-06**
										Soil/Dust Total		**2**		**0.5**		**2E-05**		**1E-05**	**3E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 5	0 1
Developmental HI	0 01	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 2	0 06
Hematologic HI	0 2	0 05
Nervous HI	0 4	0 09
Skin, Hair and Nails HI	1	0 3
Urinary HI	0 1	0 03

Table 38. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 403 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12826	1 0E+00	P	--	--				Nervous	1 6E-01	0 2	3 7E-02	0 04	1 4E-02		1 1E-02		
	Antimony	4 1	4 0E-04	I	--	--				Hematologic	5 2E-05	0 1	1 2E-05	0 03	4 5E-06		3 4E-06		
	RBA adjusted Arsenic	7 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	9 2E-05	0 3	2 1E-05	0 07	7 9E-06	1E-05	5 9E-06	9E-06	2E-05
	Cadmium	9 4	1 0E-03	I	--	--				Urinary	1 2E-04	0 1	2 7E-05	0 03	1 0E-05		7 7E-06		
	Chromium	28 9	3 0E-03	I	--	--			(a)	--	3 7E-04	0 1	8 3E-05	0 03	3 2E-05		2 4E-05		
	Cobalt	8 0	3 0E-04	P	--	--				Endocrine	1 0E-04	0 3	2 3E-05	0 08	8 8E-06		6 6E-06		
	Iron	19238	7 0E-01	P	--	--				Gastrointestinal	2 5E-01	0 4	5 5E-02	0 08	2 1E-02		1 6E-02		
	Manganese	715	2 4E-02	S	--	--				Nervous	9 1E-03	0 4	2 1E-03	0 09	7 8E-04		5 9E-04		
	Nickel	18 9	1 1E-02	C	--	--				Developmental	2 4E-04	0 02	5 4E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 40	1 0E-05	X	--	--				Skin, Hair & Nails	5 1E-06	0 5	1 1E-06	0 1	4 3E-07		3 3E-07		
	Vanadium	31 9	5 0E-03	S	--	--				Skin, Hair & Nails	4 1E-04	0 08	9 2E-05	0 02	3 5E-05		2 6E-05		
										Soil/Dust Ingestion Total		**3**		**0.6**		**1E-05**		**9E-06**	**2E-05**
Dermal Contact with Soil	Aluminum	15360	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	4 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	31 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 8E-05	0 09	4 7E-06	0 02	2 4E-06	4E-06	1 4E-06	2E-06	6E-06
	Cadmium	11 2	1 0E-03	I	--	--	0 001	0 025		Urinary	3 4E-07	0 01	5 7E-08	0 002	2 9E-08		1 6E-08		
	Chromium	34 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	9 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23040	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	857	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 47	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	38 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.1**		**0.02**		**4E-06**		**2E-06**	**6E-06**
										Soil/Dust Total		**3**		**0.6**		**2E-05**		**1E-05**	**3E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 4	0 08
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 08
Gastrointestinal HI	0 4	0 08
Hematologic HI	0 1	0 03
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	1	0 2
Urinary HI	0 1	0 03

Table 39. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 410 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	24048	1 0E+00	P	--	--				Nervous	3 1E-01	0 3	6 9E-02	0 07	2 6E-02		2 0E-02		
	Antimony	6 3	4 0E-04	I	--	--				Hematologic	8 1E-05	0 2	1 8E-05	0 05	7 0E-06		5 2E-06		
	RBA adjusted Arsenic	9 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 2E-04	0 4	2 8E-05	0 09	1 1E-05	2E-05	7 9E-06	1E-05	3E-05
	Cadmium	8 9	1 0E-03	I	--	--				Urinary	1 1E-04	0 1	2 6E-05	0 03	9 8E-06		7 3E-06		
	Chromium	14 5	3 0E-03	I	--	--			(a)	--	1 9E-04	0 06	4 2E-05	0 01	1 6E-05		1 2E-05		
	Cobalt	6 5	3 0E-04	P	--	--				Endocrine	8 3E-05	0 3	1 9E-05	0 06	7 1E-06		5 3E-06		
	Iron	16333	7 0E-01	P	--	--				Gastrointestinal	2 1E-01	0 3	4 7E-02	0 07	1 8E-02		1 3E-02		
	Manganese	594	2 4E-02	S	--	--				Nervous	7 6E-03	0 3	1 7E-03	0 07	6 5E-04		4 9E-04		
	Nickel	13 5	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 9E-05	0 004	1 5E-05		1 1E-05		
	Thallium	0 43	1 0E-05	X	--	--				Skin, Hair & Nails	5 5E-06	0 6	1 2E-06	0 1	4 8E-07		3 6E-07		
	Vanadium	29 8	5 0E-03	S	--	--				Skin, Hair & Nails	3 8E-04	0 08	8 6E-05	0 02	3 3E-05		2 4E-05		
										Soil/Dust Ingestion Total		**3**		**0.6**		**2E-05**		**1E-05**	**3E-05**
Dermal Contact with Soil	Aluminum	28800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	42 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 8E-05	0 1	6 4E-06	0 02	3 3E-06	5E-06	1 8E-06	3E-06	8E-06
	Cadmium	10 7	1 0E-03	I	--	--	0 001	0 025		Urinary	3 2E-07	0 01	5 4E-08	0 002	2 8E-08		1 5E-08		
	Chromium	17 4	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19560	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	712	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 52	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	35 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.1**		**0.02**		**5E-06**		**3E-06**	**8E-06**
										Soil/Dust Total		**3**		**0.6**		**2E-05**		**1E-05**	**4E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 5	0 1
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 2	0 05
Nervous HI	0 6	0 1
Skin, Hair and Nails HI	1	0 3
Urinary HI	0 1	0 03

Table 40. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 412 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	11690	1 0E+00	P	--	--				Nervous	1 5E-01	0 1	3 4E-02	0 03	1 3E-02		9 6E-03		
	Antimony	0 6	4 0E-04	I	--	--				Hematologic	8 0E-06	0 02	1 8E-06	0 005	6 9E-07		5 1E-07		
	RBA adjusted Arsenic	1 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	4 4E-06	0 01	1 7E-06	2E-06	1 2E-06	2E-06	4E-06
	Cadmium	0 6	1 0E-03	I	--	--				Urinary	7 6E-06	0 008	1 7E-06	0 002	6 5E-07		4 9E-07		
	Chromium	10 0	3 0E-03	I	--	--			(a)	--	1 3E-04	0 04	2 9E-05	0 01	1 1E-05		8 2E-06		
	Cobalt	9 2	3 0E-04	P	--	--				Endocrine	1 2E-04	0 4	2 6E-05	0 09	1 0E-05		7 5E-06		
	Iron	14195	7 0E-01	P	--	--				Gastrointestinal	1 8E-01	0 3	4 1E-02	0 06	1 6E-02		1 2E-02		
	Manganese	643	2 4E-02	S	--	--				Nervous	8 2E-03	0 3	1 8E-03	0 08	7 0E-04		5 3E-04		
	Nickel	20 9	1 1E-02	C	--	--				Developmental	2 7E-04	0 02	6 0E-05	0 005	2 3E-05		1 7E-05		
	Thallium	0 09	1 0E-05	X	--	--				Skin, Hair & Nails	1 1E-06	0 1	2 5E-07	0 03	9 6E-08		7 2E-08		
	Vanadium	15 9	5 0E-03	S	--	--				Skin, Hair & Nails	2 0E-04	0 04	4 6E-05	0 009	1 7E-05		1 3E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**2E-06**		**2E-06**	**4E-06**
Dermal Contact with Soil	Aluminum	14000	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	6 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	6 0E-06	0 02	1 0E-06	0 003	5 1E-07	8E-07	2 9E-07	4E-07	1E-06
	Cadmium	0 7	1 0E-03	I	--	--	0 001	0 025		Urinary	2 2E-08	0 0009	3 6E-09	0 0001	1 8E-09		1 0E-09		
	Chromium	12 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 0	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17000	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	770	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	25 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 11	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	19 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.003**		**8E-07**		**4E-07**	**1E-06**
										Soil/Dust Total		**1**		**0.3**		**3E-06**		**2E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 08	0 02
Developmental HI	0 02	0 005
Endocrine HI	0 4	0 09
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 02	0 005
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 2	0 05
Urinary HI	0 008	0 002

Table 41. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 413 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	23046	1 0E+00	P	--	--				Nervous	2 9E-01	0 3	6 6E-02	0 07	2 5E-02		1 9E-02		
	Antimony	8 4	4 0E-04	I	--	--				Hematologic	1 1E-04	0 3	2 4E-05	0 06	9 2E-06		6 9E-06		
	RBA adjusted Arsenic	11 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	3 4E-05	0 1	1 3E-05	2E-05	9 8E-06	1E-05	3E-05
	Cadmium	12 4	1 0E-03	I	--	--				Urinary	1 6E-04	0 2	3 6E-05	0 04	1 4E-05		1 0E-05		
	Chromium	15 4	3 0E-03	I	--	--			(a)	--	2 0E-04	0 07	4 4E-05	0 01	1 7E-05		1 3E-05		
	Cobalt	6 3	3 0E-04	P	--	--				Endocrine	8 0E-05	0 3	1 8E-05	0 06	6 9E-06		5 2E-06		
	Iron	16433	7 0E-01	P	--	--				Gastrointestinal	2 1E-01	0 3	4 7E-02	0 07	1 8E-02		1 4E-02		
	Manganese	729	2 4E-02	S	--	--				Nervous	9 3E-03	0 4	2 1E-03	0 09	8 0E-04		6 0E-04		
	Nickel	13 0	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 7E-05	0 003	1 4E-05		1 1E-05		
	Thallium	0 48	1 0E-05	X	--	--				Skin, Hair & Nails	6 1E-06	0 6	1 4E-06	0 1	5 3E-07		3 9E-07		
	Vanadium	30 7	5 0E-03	S	--	--				Skin, Hair & Nails	3 9E-04	0 08	8 8E-05	0 02	3 4E-05		2 5E-05		
										Soil/Dust Ingestion Total		**3**		**0.7**		**2E-05**		**1E-05**	**3E-05**
Dermal Contact with Soil	Aluminum	27600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	10 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	51 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	4 7E-05	0 2	7 9E-06	0 03	4 0E-06	6E-06	2 2E-06	3E-06	9E-06
	Cadmium	14 9	1 0E-03	I	--	--	0 001	0 025		Urinary	4 5E-07	0 02	7 5E-08	0 003	3 9E-08		2 2E-08		
	Chromium	18 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 5	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19680	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	874	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 57	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	36 7	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.2**		**0.03**		**6E-06**		**3E-06**	**9E-06**
										Soil/Dust Total		**3**		**0.7**		**3E-05**		**2E-05**	**4E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 7	0 1
Developmental HI	0 02	0 003
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 3	0 06
Nervous HI	0 7	0 2
Skin, Hair and Nails HI	1	0 3
Urinary HI	0 2	0 04

Table 42. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 420 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	26152	1 0E+00	P	--	--				Nervous	3 3E-01	0 3	7 5E-02	0 08	2 9E-02		2 1E-02		
	Antimony	7 0	4 0E-04	I	--	--				Hematologic	9 0E-05	0 2	2 0E-05	0 05	7 7E-06		5 8E-06		
	RBA adjusted Arsenic	7 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	9 2E-05	0 3	2 1E-05	0 07	7 9E-06	1E-05	5 9E-06	9E-06	2E-05
	Cadmium	10 5	1 0E-03	I	--	--				Urinary	1 3E-04	0 1	3 0E-05	0 03	1 2E-05		8 6E-06		
	Chromium	13 9	3 0E-03	I	--	--			(a)	--	1 8E-04	0 06	4 0E-05	0 01	1 5E-05		1 1E-05		
	Cobalt	6 7	3 0E-04	P	--	--				Endocrine	8 6E-05	0 3	1 9E-05	0 06	7 4E-06		5 5E-06		
	Iron	16232	7 0E-01	P	--	--				Gastrointestinal	2 1E-01	0 3	4 7E-02	0 07	1 8E-02		1 3E-02		
	Manganese	714	2 4E-02	S	--	--				Nervous	9 1E-03	0 4	2 1E-03	0 09	7 8E-04		5 9E-04		
	Nickel	13 4	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 9E-05	0 004	1 5E-05		1 1E-05		
	Thallium	0 45	1 0E-05	X	--	--				Skin, Hair & Nails	5 8E-06	0 6	1 3E-06	0 1	5 0E-07		3 7E-07		
	Vanadium	29 1	5 0E-03	S	--	--				Skin, Hair & Nails	3 7E-04	0 07	8 4E-05	0 02	3 2E-05		2 4E-05		
										Soil/Dust Ingestion Total		**3**		**0.6**		**1E-05**		**9E-06**	**2E-05**
Dermal Contact with Soil	Aluminum	31320	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	8 4	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	47 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	4 4E-05	0 1	7 3E-06	0 02	3 7E-06	6E-06	2 1E-06	3E-06	9E-06
	Cadmium	12 6	1 0E-03	I	--	--	0 001	0 025		Urinary	3 8E-07	0 02	6 4E-08	0 003	3 3E-08		1 8E-08		
	Chromium	16 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19440	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	856	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 1	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 54	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	34 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.2**		**0.03**		**6E-06**		**3E-06**	**9E-06**
										Soil/Dust Total		**3**		**0.6**		**2E-05**		**1E-05**	**3E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 5	0 09
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 2	0 05
Nervous HI	0 7	0 2
Skin, Hair and Nails HI	1	0 2
Urinary HI	0 1	0 03

Table 43. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 421 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	14098	1 0E+00	P	--	--				Nervous	1 8E-01	0 2	4 1E-02	0 04	1 5E-02		1 2E-02		
	Antimony	3 0	4 0E-04	I	--	--				Hematologic	3 8E-05	0 1	8 6E-06	0 02	3 3E-06		2 5E-06		
	RBA adjusted Arsenic	3 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 5E-05	0 2	1 0E-05	0 03	3 9E-06	6E-06	2 9E-06	4E-06	1E-05
	Cadmium	5 2	1 0E-03	I	--	--				Urinary	6 6E-05	0 07	1 5E-05	0 01	5 7E-06		4 3E-06		
	Chromium	28 6	3 0E-03	I	--	--			(a)	--	3 7E-04	0 1	8 2E-05	0 03	3 1E-05		2 4E-05		
	Cobalt	7 0	3 0E-04	P	--	--				Endocrine	9 0E-05	0 3	2 0E-05	0 07	7 7E-06		5 8E-06		
	Iron	20849	7 0E-01	P	--	--				Gastrointestinal	2 7E-01	0 4	6 0E-02	0 09	2 3E-02		1 7E-02		
	Manganese	253	2 4E-02	S	--	--				Nervous	3 2E-03	0 1	7 3E-04	0 03	2 8E-04		2 1E-04		
	Nickel	16 3	1 1E-02	C	--	--				Developmental	2 1E-04	0 02	4 7E-05	0 004	1 8E-05		1 3E-05		
	Thallium	0 31	1 0E-05	X	--	--				Skin, Hair & Nails	4 0E-06	0 4	9 0E-07	0 09	3 4E-07		2 6E-07		
	Vanadium	50 5	5 0E-03	S	--	--				Skin, Hair & Nails	6 5E-04	0 1	1 5E-04	0 03	5 5E-05		4 1E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**6E-06**		**4E-06**	**1E-05**
Dermal Contact with Soil	Aluminum	16884	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	15 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	2 3E-06	0 008	1 2E-06	2E-06	6 6E-07	1E-06	3E-06
	Cadmium	6 2	1 0E-03	I	--	--	0 001	0 025		Urinary	1 9E-07	0 008	3 1E-08	0 001	1 6E-08		9 0E-09		
	Chromium	34 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24969	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	303	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	19 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 37	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	60 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.05**		**0.009**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.5**		**8E-06**		**5E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 04
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 1	0 02
Nervous HI	0 3	0 07
Skin, Hair and Nails HI	0 7	0 2
Urinary HI	0 07	0 02

Table 44. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 430 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	8768	1 0E+00	P	--	--				Nervous	1 1E-01	0 1	2 5E-02	0 03	9 6E-03		7 2E-03		
	Antimony	2 6	4 0E-04	I	--	--				Hematologic	3 4E-05	0 08	7 6E-06	0 02	2 9E-06		2 2E-06		
	RBA adjusted Arsenic	4 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 2E-05	0 2	1 2E-05	0 04	4 5E-06	7E-06	3 4E-06	5E-06	1E-05
	Cadmium	5 9	1 0E-03	I	--	--				Urinary	7 5E-05	0 08	1 7E-05	0 02	6 4E-06		4 8E-06		
	Chromium	17 5	3 0E-03	I	--	--			(a)	--	2 2E-04	0 07	5 0E-05	0 02	1 9E-05		1 4E-05		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	6 7E-05	0 2	1 5E-05	0 05	5 8E-06		4 3E-06		
	Iron	14729	7 0E-01	P	--	--				Gastrointestinal	1 9E-01	0 3	4 2E-02	0 06	1 6E-02		1 2E-02		
	Manganese	486	2 4E-02	S	--	--				Nervous	6 2E-03	0 3	1 4E-03	0 06	5 3E-04		4 0E-04		
	Nickel	12 8	1 1E-02	C	--	--				Developmental	1 6E-04	0 01	3 7E-05	0 003	1 4E-05		1 1E-05		
	Thallium	0 29	1 0E-05	X	--	--				Skin, Hair & Nails	3 7E-06	0 4	8 3E-07	0 08	3 2E-07		2 4E-07		
	Vanadium	27 3	5 0E-03	S	--	--				Skin, Hair & Nails	3 5E-04	0 07	7 8E-05	0 02	3 0E-05		2 2E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**7E-06**		**5E-06**	**1E-05**
Dermal Contact with Soil	Aluminum	10500	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-05	0 05	2 7E-06	0 009	1 4E-06	2E-06	7 7E-07	1E-06	3E-06
	Cadmium	7 0	1 0E-03	I	--	--	0 001	0 025		Urinary	2 1E-07	0 009	3 6E-08	0 001	1 8E-08		1 0E-08		
	Chromium	21 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	582	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 34	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.06**		**0.01**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.4**		**9E-06**		**6E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 05
Developmental HI	0 01	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 08	0 02
Nervous HI	0 4	0 08
Skin, Hair and Nails HI	0 7	0 1
Urinary HI	0 08	0 02

Table 45. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 431 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	6808	1 0E+00	P	--	--				Nervous	8 7E-02	0 09	2 0E-02	0 02	7 5E-03		5 6E-03		
	Antimony	1 0	4 0E-04	I	--	--				Hematologic	1 3E-05	0 03	2 9E-06	0 007	1 1E-06		8 2E-07		
	RBA adjusted Arsenic	2 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 7E-05	0 09	6 0E-06	0 02	2 3E-06	3E-06	1 7E-06	3E-06	6E-06
	Cadmium	2 3	1 0E-03	I	--	--				Urinary	2 9E-05	0 03	6 5E-06	0 007	2 5E-06		1 9E-06		
	Chromium	16 8	3 0E-03	I	--	--			(a)	--	2 2E-04	0 07	4 8E-05	0 02	1 8E-05		1 4E-05		
	Cobalt	5 1	3 0E-04	P	--	--				Endocrine	6 5E-05	0 2	1 5E-05	0 05	5 6E-06		4 2E-06		
	Iron	13516	7 0E-01	P	--	--				Gastrointestinal	1 7E-01	0 2	3 9E-02	0 06	1 5E-02		1 1E-02		
	Manganese	259	2 4E-02	S	--	--				Nervous	3 3E-03	0 1	7 5E-04	0 03	2 8E-04		2 1E-04		
	Nickel	12 2	1 1E-02	C	--	--				Developmental	1 6E-04	0 01	3 5E-05	0 003	1 3E-05		1 0E-05		
	Thallium	0 18	1 0E-05	X	--	--				Skin, Hair & Nails	2 2E-06	0 2	5 0E-07	0 05	1 9E-07		1 4E-07		
	Vanadium	25 2	5 0E-03	S	--	--				Skin, Hair & Nails	3 2E-04	0 06	7 2E-05	0 01	2 8E-05		2 1E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**3E-06**		**3E-06**	**6E-06**
Dermal Contact with Soil	Aluminum	8154	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 3E-06	0 03	1 4E-06	0 005	7 1E-07	1E-06	3 9E-07	6E-07	2E-06
	Cadmium	2 7	1 0E-03	I	--	--	0 001	0 025		Urinary	8 3E-08	0 003	1 4E-08	0 0006	7 1E-09		3 9E-09		
	Chromium	20 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16186	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	310	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	14 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	30 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**6E-07**	**2E-06**
										Soil/Dust Total		**1**		**0.3**		**5E-06**		**3E-06**	**8E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 02
Developmental HI	0 01	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 2	0 06
Hematologic HI	0 03	0 007
Nervous HI	0 2	0 05
Skin, Hair and Nails HI	0 4	0 09
Urinary HI	0 03	0 007

Table 46. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 432 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	7705	1 0E+00	P	--	--				Nervous	9 9E-02	0 1	2 2E-02	0 02	8 4E-03		6 3E-03		
	Antimony	2 2	4 0E-04	I	--	--				Hematologic	2 8E-05	0 07	6 2E-06	0 02	2 4E-06		1 8E-06		
	RBA adjusted Arsenic	5 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	6 5E-05	0 2	1 5E-05	0 05	5 6E-06	8E-06	4 2E-06	6E-06	1E-05
	Cadmium	4 9	1 0E-03	I	--	--				Urinary	6 3E-05	0 06	1 4E-05	0 01	5 4E-06		4 1E-06		
	Chromium	18 5	3 0E-03	I	--	--			(a)	--	2 4E-04	0 08	5 3E-05	0 02	2 0E-05		1 5E-05		
	Cobalt	6 1	3 0E-04	P	--	--				Endocrine	7 8E-05	0 3	1 8E-05	0 06	6 7E-06		5 0E-06		
	Iron	15331	7 0E-01	P	--	--				Gastrointestinal	2 0E-01	0 3	4 4E-02	0 06	1 7E-02		1 3E-02		
	Manganese	300	2 4E-02	S	--	--				Nervous	3 8E-03	0 2	8 6E-04	0 04	3 3E-04		2 5E-04		
	Nickel	14 8	1 1E-02	C	--	--				Developmental	1 9E-04	0 02	4 3E-05	0 004	1 6E-05		1 2E-05		
	Thallium	0 33	1 0E-05	X	--	--				Skin, Hair & Nails	4 2E-06	0 4	9 5E-07	0 09	3 6E-07		2 7E-07		
	Vanadium	28 4	5 0E-03	S	--	--				Skin, Hair & Nails	3 6E-04	0 07	8 2E-05	0 02	3 1E-05		2 3E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**8E-06**		**6E-06**	**1E-05**
Dermal Contact with Soil	Aluminum	9228	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-05	0 05	2 7E-06	0 009	1 4E-06	2E-06	7 7E-07	1E-06	3E-06
	Cadmium	5 9	1 0E-03	I	--	--	0 001	0 025		Urinary	1 8E-07	0 007	3 0E-08	0 001	1 5E-08		8 6E-09		
	Chromium	22 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	18360	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	359	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	17 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 39	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	34 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.06**		**0.01**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.4**		**1E-05**		**7E-06**	**2E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 3	0 06
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 07	0 02
Nervous HI	0 3	0 06
Skin, Hair and Nails HI	0 8	0 2
Urinary HI	0 07	0 02

Table 47. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 440 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	11599	1 0E+00	P	--	--				Nervous	1 5E-01	0 1	3 3E-02	0 03	1 3E-02		9 5E-03		
	Antimony	1 6	4 0E-04	I	--	--				Hematologic	2 0E-05	0 05	4 5E-06	0 01	1 7E-06		1 3E-06		
	RBA adjusted Arsenic	2 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 8E-05	0 09	6 3E-06	0 02	2 4E-06	4E-06	1 8E-06	3E-06	6E-06
	Cadmium	2 7	1 0E-03	I	--	--				Urinary	3 5E-05	0 03	7 8E-06	0 008	3 0E-06		2 2E-06		
	Chromium	27 2	3 0E-03	I	--	--			(a)	--	3 5E-04	0 1	7 8E-05	0 03	3 0E-05		2 2E-05		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	6 7E-05	0 2	1 5E-05	0 05	5 8E-06		4 3E-06		
	Iron	14753	7 0E-01	P	--	--				Gastrointestinal	1 9E-01	0 3	4 2E-02	0 06	1 6E-02		1 2E-02		
	Manganese	173	2 4E-02	S	--	--				Nervous	2 2E-03	0 09	5 0E-04	0 02	1 9E-04		1 4E-04		
	Nickel	13 3	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 8E-05	0 003	1 5E-05		1 1E-05		
	Thallium	0 18	1 0E-05	X	--	--				Skin, Hair & Nails	2 2E-06	0 2	5 1E-07	0 05	1 9E-07		1 4E-07		
	Vanadium	30 2	5 0E-03	S	--	--				Skin, Hair & Nails	3 9E-04	0 08	8 7E-05	0 02	3 3E-05		2 5E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**4E-06**		**3E-06**	**6E-06**
Dermal Contact with Soil	Aluminum	13891	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 7E-06	0 03	1 4E-06	0 005	7 4E-07	1E-06	4 1E-07	6E-07	2E-06
	Cadmium	3 3	1 0E-03	I	--	--	0 001	0 025		Urinary	9 9E-08	0 004	1 6E-08	0 0007	8 5E-09		4 7E-09		
	Chromium	32 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17669	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	207	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	36 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**6E-07**	**2E-06**
										Soil/Dust Total		**1**		**0.3**		**5E-06**		**3E-06**	**8E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 03
Developmental HI	0 02	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 05	0 01
Nervous HI	0 2	0 05
Skin, Hair and Nails HI	0 4	0 09
Urinary HI	0 04	0 008

Table 48. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 441 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	23046	1 0E+00	P	--	--				Nervous	2 9E-01	0 3	6 6E-02	0 07	2 5E-02		1 9E-02		
	Antimony	6 7	4 0E-04	I	--	--				Hematologic	8 5E-05	0 2	1 9E-05	0 05	7 3E-06		5 5E-06		
	RBA adjusted Arsenic	14 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 8E-04	0 6	4 1E-05	0 1	1 6E-05	2E-05	1 2E-05	2E-05	4E-05
	Cadmium	15 0	1 0E-03	I	--	--				Urinary	1 9E-04	0 2	4 3E-05	0 04	1 6E-05		1 2E-05		
	Chromium	20 4	3 0E-03	I	--	--			(a)	--	2 6E-04	0 09	5 9E-05	0 02	2 2E-05		1 7E-05		
	Cobalt	9 8	3 0E-04	P	--	--				Endocrine	1 3E-04	0 4	2 8E-05	0 09	1 1E-05		8 0E-06		
	Iron	17936	7 0E-01	P	--	--				Gastrointestinal	2 3E-01	0 3	5 2E-02	0 07	2 0E-02		1 5E-02		
	Manganese	1122	2 4E-02	S	--	--				Nervous	1 4E-02	0 6	3 2E-03	0 1	1 2E-03		9 2E-04		
	Nickel	19 6	1 1E-02	C	--	--				Developmental	2 5E-04	0 02	5 6E-05	0 005	2 2E-05		1 6E-05		
	Thallium	0 51	1 0E-05	X	--	--				Skin, Hair & Nails	6 5E-06	0 7	1 5E-06	0 1	5 6E-07		4 2E-07		
	Vanadium	32 9	5 0E-03	S	--	--				Skin, Hair & Nails	4 2E-04	0 08	9 5E-05	0 02	3 6E-05		2 7E-05		
										Soil/Dust Ingestion Total		**4**		**0.8**		**2E-05**		**2E-05**	**4E-05**
Dermal Contact with Soil	Aluminum	27600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	8 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	52 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	4 8E-05	0 2	7 9E-06	0 03	4 1E-06	6E-06	2 3E-06	3E-06	1E-05
	Cadmium	18 0	1 0E-03	I	--	--	0 001	0 025		Urinary	5 5E-07	0 02	9 1E-08	0 004	4 7E-08		2 6E-08		
	Chromium	24 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21480	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1344	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	23 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 61	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	39 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.2**		**0.03**		**6E-06**		**3E-06**	**1E-05**
										Soil/Dust Total		**4**		**0.8**		**3E-05**		**2E-05**	**5E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 8	0 2
Developmental HI	0 02	0 005
Endocrine HI	0 4	0 09
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 2	0 05
Nervous HI	0 9	0 2
Skin, Hair and Nails HI	2	0 3
Urinary HI	0 2	0 05

Table 49. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 442 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16533	1 0E+00	P	--	--				Nervous	2 1E-01	0 2	4 8E-02	0 05	1 8E-02		1 4E-02		
	Antimony	3 2	4 0E-04	I	--	--				Hematologic	4 1E-05	0 1	9 3E-06	0 02	3 5E-06		2 7E-06		
	RBA adjusted Arsenic	6 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 7E-05	0 3	1 7E-05	0 06	6 6E-06	1E-05	4 9E-06	7E-06	2E-05
	Cadmium	5 4	1 0E-03	I	--	--				Urinary	6 9E-05	0 07	1 6E-05	0 02	6 0E-06		4 5E-06		
	Chromium	30 7	3 0E-03	I	--	--			(a)	--	3 9E-04	0 1	8 8E-05	0 03	3 4E-05		2 5E-05		
	Cobalt	8 4	3 0E-04	P	--	--				Endocrine	1 1E-04	0 4	2 4E-05	0 08	9 2E-06		6 9E-06		
	Iron	21142	7 0E-01	P	--	--				Gastrointestinal	2 7E-01	0 4	6 1E-02	0 09	2 3E-02		1 7E-02		
	Manganese	771	2 4E-02	S	--	--				Nervous	9 9E-03	0 4	2 2E-03	0 09	8 4E-04		6 3E-04		
	Nickel	19 1	1 1E-02	C	--	--				Developmental	2 4E-04	0 02	5 5E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 27	1 0E-05	X	--	--				Skin, Hair & Nails	3 5E-06	0 3	7 8E-07	0 08	3 0E-07		2 2E-07		
	Vanadium	44 2	5 0E-03	S	--	--				Skin, Hair & Nails	5 6E-04	0 1	1 3E-04	0 03	4 8E-05		3 6E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**1E-05**		**7E-06**	**2E-05**
Dermal Contact with Soil	Aluminum	19800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	26 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-05	0 08	4 0E-06	0 01	2 0E-06	3E-06	1 1E-06	2E-06	5E-06
	Cadmium	6 5	1 0E-03	I	--	--	0 001	0 025		Urinary	2 0E-07	0 008	3 3E-08	0 001	1 7E-08		9 4E-09		
	Chromium	36 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	10 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25320	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	923	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 33	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	52 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.09**		**0.01**		**3E-06**		**2E-06**	**5E-06**
										Soil/Dust Total		**2**		**0.6**		**1E-05**		**9E-06**	**2E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 3	0 07
Developmental HI	0 02	0 005
Endocrine HI	0 4	0 08
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 1	0 02
Nervous HI	0 6	0 1
Skin, Hair and Nails HI	0 8	0 2
Urinary HI	0 08	0 02

Table 50. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	21387	1 0E+00	P	--	--				Nervous	2 7E-01	0 3	6 2E-02	0 06	2 3E-02		1 8E-02		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	1 0E-05	0 03	2 3E-06	0 006	8 7E-07		6 5E-07		
	RBA adjusted Arsenic	2 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 0E-05	0 1	6 8E-06	0 02	2 6E-06	4E-06	2 0E-06	3E-06	7E-06
	Cadmium	1 4	1 0E-03	I	--	--				Urinary	1 7E-05	0 02	3 9E-06	0 004	1 5E-06		1 1E-06		
	Chromium	33 1	3 0E-03	I	--	--			(a)	--	4 2E-04	0 1	9 5E-05	0 03	3 6E-05		2 7E-05		
	Cobalt	12 4	3 0E-04	P	--	--				Endocrine	1 6E-04	0 5	3 6E-05	0 1	1 4E-05		1 0E-05		
	Iron	23342	7 0E-01	P	--	--				Gastrointestinal	3 0E-01	0 4	6 7E-02	0 1	2 6E-02		1 9E-02		
	Manganese	708	2 4E-02	S	--	--				Nervous	9 1E-03	0 4	2 0E-03	0 08	7 8E-04		5 8E-04		
	Nickel	31 5	1 1E-02	C	--	--				Developmental	4 0E-04	0 04	9 1E-05	0 008	3 4E-05		2 6E-05		
	Thallium	0 17	1 0E-05	X	--	--				Skin, Hair & Nails	2 2E-06	0 2	5 0E-07	0 05	1 9E-07		1 4E-07		
	Vanadium	35 6	5 0E-03	S	--	--				Skin, Hair & Nails	4 5E-04	0 09	1 0E-04	0 02	3 9E-05		2 9E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**4E-06**		**3E-06**	**7E-06**
Dermal Contact with Soil	Aluminum	25613	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 4	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-05	0 05	2 6E-06	0 009	1 4E-06	2E-06	7 5E-07	1E-06	3E-06
	Cadmium	1 6	1 0E-03	I	--	--	0 001	0 025		Urinary	4 9E-08	0 002	8 2E-09	0 0003	4 2E-09		2 3E-09		
	Chromium	39 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	14 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27955	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	848	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	37 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	42 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.05**		**0.009**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.5**		**6E-06**		**4E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 03
Developmental HI	0 04	0 008
Endocrine HI	0 5	0 1
Gastrointestinal HI	0 4	0 1
Hematologic HI	0 03	0 006
Nervous HI	0 7	0 1
Skin, Hair and Nails HI	0 5	0 1
Urinary HI	0 02	0 004

Table 51. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	27555	1 0E+00	P	--	--				Nervous	3 5E-01	0 4	7 9E-02	0 08	3 0E-02		2 3E-02		
	Antimony	1 7	4 0E-04	I	--	--				Hematologic	2 2E-05	0 06	5 0E-06	0 01	1 9E-06		1 4E-06		
	RBA adjusted Arsenic	1 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	2 9E-06	0 01	1 1E-06	2E-06	8 4E-07	1E-06	3E-06
	Cadmium	2 1	1 0E-03	I	--	--				Urinary	2 6E-05	0 03	5 9E-06	0 006	2 3E-06		1 7E-06		
	Chromium	61 3	3 0E-03	I	--	--			(a)	--	7 8E-04	0 3	1 8E-04	0 06	6 7E-05		5 0E-05		
	Cobalt	18 7	3 0E-04	P	--	--				Endocrine	2 4E-04	0 8	5 4E-05	0 2	2 1E-05		1 5E-05		
	Iron	34769	7 0E-01	P	--	--				Gastrointestinal	4 4E-01	0 6	1 0E-01	0 1	3 8E-02		2 9E-02		
	Manganese	1543	2 4E-02	S	--	--				Nervous	2 0E-02	0 8	4 4E-03	0 2	1 7E-03		1 3E-03		
	Nickel	42 3	1 1E-02	C	--	--				Developmental	5 4E-04	0 05	1 2E-04	0 01	4 6E-05		3 5E-05		
	Thallium	0 27	1 0E-05	X	--	--				Skin, Hair & Nails	3 5E-06	0 3	7 9E-07	0 08	3 0E-07		2 2E-07		
	Vanadium	59 9	5 0E-03	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 7E-04	0 03	6 6E-05		4 9E-05		
										Soil/Dust Ingestion Total		**4**		**0.8**		**2E-06**		**1E-06**	**3E-06**
Dermal Contact with Soil	Aluminum	33000	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	26 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-05	0 08	4 1E-06	0 01	2 1E-06	3E-06	1 2E-06	2E-06	5E-06
	Cadmium	2 5	1 0E-03	I	--	--	0 001	0 025		Urinary	7 5E-08	0 003	1 2E-08	0 0005	6 4E-09		3 6E-09		
	Chromium	73 4	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	22 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	41640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1848	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	50 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 33	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	71 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.08**		**0.01**		**3E-06**		**2E-06**	**5E-06**
										Soil/Dust Total		**4**		**0.8**		**5E-06**		**3E-06**	**8E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 02
Developmental HI	0 05	0 01
Endocrine HI	0 8	0 2
Gastrointestinal HI	0 6	0 1
Hematologic HI	0 06	0 01
Nervous HI	1	0 3
Skin, Hair and Nails HI	0 6	0 1
Urinary HI	0 03	0 006

Table 52. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O3 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	18036	1 0E+00	P	--	--				Nervous	2 3E-01	0 2	5 2E-02	0 05	2 0E-02		1 5E-02		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	9 9E-06	0 02	2 2E-06	0 006	8 5E-07		6 3E-07		
	RBA adjusted Arsenic	2 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 2E-05	0 1	7 1E-06	0 02	2 7E-06	4E-06	2 0E-06	3E-06	7E-06
	Cadmium	3 6	1 0E-03	I	--	--				Urinary	4 6E-05	0 05	1 0E-05	0 01	4 0E-06		3 0E-06		
	Chromium	30 0	3 0E-03	I	--	--			(a)	--	3 8E-04	0 1	8 6E-05	0 03	3 3E-05		2 5E-05		
	Cobalt	11 9	3 0E-04	P	--	--				Endocrine	1 5E-04	0 5	3 4E-05	0 1	1 3E-05		9 8E-06		
	Iron	23246	7 0E-01	P	--	--				Gastrointestinal	3 0E-01	0 4	6 7E-02	0 1	2 5E-02		1 9E-02		
	Manganese	660	2 4E-02	S	--	--				Nervous	8 4E-03	0 4	1 9E-03	0 08	7 2E-04		5 4E-04		
	Nickel	40 3	1 1E-02	C	--	--				Developmental	5 2E-04	0 05	1 2E-04	0 01	4 4E-05		3 3E-05		
	Thallium	0 19	1 0E-05	X	--	--				Skin, Hair & Nails	2 4E-06	0 2	5 3E-07	0 05	2 0E-07		1 5E-07		
	Vanadium	37 9	5 0E-03	S	--	--				Skin, Hair & Nails	4 8E-04	0 1	1 1E-04	0 02	4 2E-05		3 1E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**4E-06**		**3E-06**	**7E-06**
Dermal Contact with Soil	Aluminum	21600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	18 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-05	0 05	2 8E-06	0 009	1 4E-06	2E-06	7 9E-07	1E-06	3E-06
	Cadmium	4 3	1 0E-03	I	--	--	0 001	0 025		Urinary	1 3E-07	0 005	2 2E-08	0 0009	1 1E-08		6 3E-09		
	Chromium	35 9	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	14 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27840	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	791	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	48 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 22	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	45 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.06**		**0.01**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.5**		**6E-06**		**4E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 03
Developmental HI	0 05	0 01
Endocrine HI	0 5	0 1
Gastrointestinal HI	0 4	0 1
Hematologic HI	0 02	0 006
Nervous HI	0 6	0 1
Skin, Hair and Nails HI	0 5	0 1
Urinary HI	0 05	0 01

Table 53. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 802-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	10675	1 0E+00	P	--	--				Nervous	1 4E-01	0 1	3 1E-02	0 03	1 2E-02		8 8E-03		
	Antimony	1 8	4 0E-04	I	--	--				Hematologic	2 4E-05	0 06	5 3E-06	0 01	2 0E-06		1 5E-06		
	RBA adjusted Arsenic	1 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 4E-05	0 08	5 5E-06	0 02	2 1E-06	3E-06	1 6E-06	2E-06	5E-06
	Cadmium	4 7	1 0E-03	I	--	--				Urinary	6 0E-05	0 06	1 4E-05	0 01	5 2E-06		3 9E-06		
	Chromium	15 5	3 0E-03	I	--	--			(a)	--	2 0E-04	0 07	4 5E-05	0 01	1 7E-05		1 3E-05		
	Cobalt	5 6	3 0E-04	P	--	--				Endocrine	7 1E-05	0 2	1 6E-05	0 05	6 1E-06		4 6E-06		
	Iron	14558	7 0E-01	P	--	--				Gastrointestinal	1 9E-01	0 3	4 2E-02	0 06	1 6E-02		1 2E-02		
	Manganese	647	2 4E-02	S	--	--				Nervous	8 3E-03	0 3	1 9E-03	0 08	7 1E-04		5 3E-04		
	Nickel	13 3	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 8E-05	0 003	1 5E-05		1 1E-05		
	Thallium	0 24	1 0E-05	X	--	--				Skin, Hair & Nails	3 1E-06	0 3	6 9E-07	0 07	2 6E-07		2 0E-07		
	Vanadium	23 8	5 0E-03	S	--	--				Skin, Hair & Nails	3 0E-04	0 06	6 8E-05	0 01	2 6E-05		2 0E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**
Dermal Contact with Soil	Aluminum	12784	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	13 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	2 1E-06	0 007	1 1E-06	2E-06	6 0E-07	9E-07	3E-06
	Cadmium	5 6	1 0E-03	I	--	--	0 001	0 025		Urinary	1 7E-07	0 007	2 9E-08	0 001	1 5E-08		8 2E-09		
	Chromium	18 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17435	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	775	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 29	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	28 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.05**		**0.008**		**2E-06**		**9E-07**	**3E-06**
										Soil/Dust Total		**2**		**0.4**		**5E-06**		**3E-06**	**8E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 03
Developmental HI	0 02	0 003
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 3	0 06
Hematologic HI	0 06	0 01
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 5	0 1
Urinary HI	0 07	0 01

Table 54. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9095	1 0E+00	P	--	--				Nervous	1 2E-01	0 1	2 6E-02	0 03	1 0E-02		7 5E-03		
	Antimony	6 0	4 0E-04	I	--	--				Hematologic	7 6E-05	0 2	1 7E-05	0 04	6 6E-06		4 9E-06		
	RBA adjusted Arsenic	3 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 9E-05	0 2	1 1E-05	0 04	4 2E-06	6E-06	3 1E-06	5E-06	1E-05
	Cadmium	10 2	1 0E-03	I	--	--				Urinary	1 3E-04	0 1	2 9E-05	0 03	1 1E-05		8 4E-06		
	Chromium	21 0	3 0E-03	I	--	--			(a)	--	2 7E-04	0 09	6 0E-05	0 02	2 3E-05		1 7E-05		
	Cobalt	6 9	3 0E-04	P	--	--				Endocrine	8 8E-05	0 3	2 0E-05	0 07	7 6E-06		5 7E-06		
	Iron	15880	7 0E-01	P	--	--				Gastrointestinal	2 0E-01	0 3	4 6E-02	0 07	1 7E-02		1 3E-02		
	Manganese	418	2 4E-02	S	--	--				Nervous	5 3E-03	0 2	1 2E-03	0 05	4 6E-04		3 4E-04		
	Nickel	15 8	1 1E-02	C	--	--				Developmental	2 0E-04	0 02	4 5E-05	0 004	1 7E-05		1 3E-05		
	Thallium	0 58	1 0E-05	X	--	--				Skin, Hair & Nails	7 4E-06	0 7	1 7E-06	0 2	6 4E-07		4 8E-07		
	Vanadium	36 0	5 0E-03	S	--	--				Skin, Hair & Nails	4 6E-04	0 09	1 0E-04	0 02	3 9E-05		3 0E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**6E-06**		**5E-06**	**1E-05**
Dermal Contact with Soil	Aluminum	10892	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	27 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 5E-05	0 08	4 2E-06	0 01	2 2E-06	3E-06	1 2E-06	2E-06	5E-06
	Cadmium	12 2	1 0E-03	I	--	--	0 001	0 025		Urinary	3 7E-07	0 01	6 2E-08	0 002	3 2E-08		1 8E-08		
	Chromium	25 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19018	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	500	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	18 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 70	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.1**		**0.02**		**3E-06**		**2E-06**	**5E-06**
										Soil/Dust Total		**2**		**0.5**		**1E-05**		**6E-06**	**2E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 05
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 2	0 04
Nervous HI	0 3	0 08
Skin, Hair and Nails HI	1	0 2
Urinary HI	0 1	0 03

Table 55. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9850	1 0E+00	P	--	--				Nervous	1 3E-01	0 1	2 8E-02	0 03	1 1E-02		8 1E-03		
	Antimony	4 9	4 0E-04	I	--	--				Hematologic	6 2E-05	0 2	1 4E-05	0 04	5 3E-06		4 0E-06		
	RBA adjusted Arsenic	3 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 8E-05	0 2	1 1E-05	0 04	4 1E-06	6E-06	3 1E-06	5E-06	1E-05
	Cadmium	6 0	1 0E-03	I	--	--				Urinary	7 6E-05	0 08	1 7E-05	0 02	6 5E-06		4 9E-06		
	Chromium	20 7	3 0E-03	I	--	--			(a)	--	2 7E-04	0 09	6 0E-05	0 02	2 3E-05		1 7E-05		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	8 2E-05	0 3	1 8E-05	0 06	7 0E-06		5 2E-06		
	Iron	18437	7 0E-01	P	--	--				Gastrointestinal	2 4E-01	0 3	5 3E-02	0 08	2 0E-02		1 5E-02		
	Manganese	327	2 4E-02	S	--	--				Nervous	4 2E-03	0 2	9 4E-04	0 04	3 6E-04		2 7E-04		
	Nickel	15 5	1 1E-02	C	--	--				Developmental	2 0E-04	0 02	4 5E-05	0 004	1 7E-05		1 3E-05		
	Thallium	0 67	1 0E-05	X	--	--				Skin, Hair & Nails	8 5E-06	0 9	1 9E-06	0 2	7 3E-07		5 5E-07		
	Vanadium	36 7	5 0E-03	S	--	--				Skin, Hair & Nails	4 7E-04	0 09	1 1E-04	0 02	4 0E-05		3 0E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**6E-06**		**5E-06**	**1E-05**
Dermal Contact with Soil	Aluminum	11796	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	5 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	27 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 5E-05	0 08	4 1E-06	0 01	2 1E-06	3E-06	1 2E-06	2E-06	5E-06
	Cadmium	7 1	1 0E-03	I	--	--	0 001	0 025		Urinary	2 2E-07	0 009	3 6E-08	0 001	1 9E-08		1 0E-08		
	Chromium	24 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	22080	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	391	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	18 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 80	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.09**		**0.02**		**3E-06**		**2E-06**	**5E-06**
										Soil/Dust Total		**2**		**0.5**		**9E-06**		**6E-06**	**2E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 05
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 08
Hematologic HI	0 2	0 04
Nervous HI	0 3	0 07
Skin, Hair and Nails HI	1	0 3
Urinary HI	0 08	0 02

Table 56. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O3 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16533	1 0E+00	P	--	--				Nervous	2 1E-01	0 2	4 8E-02	0 05	1 8E-02		1 4E-02		
	Antimony	2 9	4 0E-04	I	--	--				Hematologic	3 7E-05	0 09	8 2E-06	0 02	3 1E-06		2 4E-06		
	RBA adjusted Arsenic	2 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	8 1E-06	0 03	3 1E-06	5E-06	2 3E-06	3E-06	8E-06
	Cadmium	6 6	1 0E-03	I	--	--				Urinary	8 4E-05	0 08	1 9E-05	0 02	7 2E-06		5 4E-06		
	Chromium	27 6	3 0E-03	I	--	--			(a)	--	3 5E-04	0 1	7 9E-05	0 03	3 0E-05		2 3E-05		
	Cobalt	9 9	3 0E-04	P	--	--				Endocrine	1 3E-04	0 4	2 9E-05	0 1	1 1E-05		8 2E-06		
	Iron	21643	7 0E-01	P	--	--				Gastrointestinal	2 8E-01	0 4	6 2E-02	0 09	2 4E-02		1 8E-02		
	Manganese	547	2 4E-02	S	--	--				Nervous	7 0E-03	0 3	1 6E-03	0 07	6 0E-04		4 5E-04		
	Nickel	22 2	1 1E-02	C	--	--				Developmental	2 8E-04	0 03	6 4E-05	0 006	2 4E-05		1 8E-05		
	Thallium	0 40	1 0E-05	X	--	--				Skin, Hair & Nails	5 2E-06	0 5	1 2E-06	0 1	4 4E-07		3 3E-07		
	Vanadium	46 1	5 0E-03	S	--	--				Skin, Hair & Nails	5 9E-04	0 1	1 3E-04	0 03	5 1E-05		3 8E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**5E-06**		**3E-06**	**8E-06**
Dermal Contact with Soil	Aluminum	19800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 4	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	20 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	3 1E-06	0 01	1 6E-06	2E-06	9 0E-07	1E-06	4E-06
	Cadmium	7 9	1 0E-03	I	--	--	0 001	0 025		Urinary	2 4E-07	0 01	4 0E-08	0 002	2 0E-08		1 1E-08		
	Chromium	33 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25920	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	655	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	26 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 48	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	55 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.07**		**0.01**		**2E-06**		**1E-06**	**4E-06**
										Soil/Dust Total		**2**		**0.6**		**7E-06**		**5E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 04
Developmental HI	0 03	0 006
Endocrine HI	0 4	0 1
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 09	0 02
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 8	0 2
Urinary HI	0 09	0 02

Table 57. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 804-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12306	1 0E+00	P	--	--				Nervous	1 6E-01	0 2	3 5E-02	0 04	1 3E-02		1 0E-02		
	Antimony	1 3	4 0E-04	I	--	--				Hematologic	1 7E-05	0 04	3 8E-06	0 009	1 4E-06		1 1E-06		
	RBA adjusted Arsenic	1 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	3 2E-06	0 01	1 2E-06	2E-06	9 2E-07	1E-06	3E-06
	Cadmium	2 9	1 0E-03	I	--	--				Urinary	3 7E-05	0 04	8 3E-06	0 008	3 2E-06		2 4E-06		
	Chromium	25 7	3 0E-03	I	--	--			(a)	--	3 3E-04	0 1	7 4E-05	0 02	2 8E-05		2 1E-05		
	Cobalt	7 0	3 0E-04	P	--	--				Endocrine	8 9E-05	0 3	2 0E-05	0 07	7 7E-06		5 8E-06		
	Iron	17946	7 0E-01	P	--	--				Gastrointestinal	2 3E-01	0 3	5 2E-02	0 07	2 0E-02		1 5E-02		
	Manganese	449	2 4E-02	S	--	--				Nervous	5 7E-03	0 2	1 3E-03	0 05	4 9E-04		3 7E-04		
	Nickel	17 3	1 1E-02	C	--	--				Developmental	2 2E-04	0 02	5 0E-05	0 005	1 9E-05		1 4E-05		
	Thallium	0 22	1 0E-05	X	--	--				Skin, Hair & Nails	2 8E-06	0 3	6 4E-07	0 06	2 4E-07		1 8E-07		
	Vanadium	29 7	5 0E-03	S	--	--				Skin, Hair & Nails	3 8E-04	0 08	8 6E-05	0 02	3 3E-05		2 4E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**2E-06**		**1E-06**	**3E-06**
Dermal Contact with Soil	Aluminum	14737	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	8 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	7 5E-06	0 02	1 2E-06	0 004	6 4E-07	1E-06	3 6E-07	5E-07	1E-06
	Cadmium	3 5	1 0E-03	I	--	--	0 001	0 025		Urinary	1 1E-07	0 004	1 8E-08	0 0007	9 0E-09		5 0E-09		
	Chromium	30 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21492	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	538	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 27	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	35 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**5E-07**	**1E-06**
										Soil/Dust Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 07	0 01
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 04	0 009
Nervous HI	0 4	0 09
Skin, Hair and Nails HI	0 4	0 1
Urinary HI	0 04	0 009

Table 58. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 804-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	13828	1 0E+00	P	--	--				Nervous	1 8E-01	0 2	4 0E-02	0 04	1 5E-02		1 1E-02		
	Antimony	4 1	4 0E-04	I	--	--				Hematologic	5 3E-05	0 1	1 2E-05	0 03	4 5E-06		3 4E-06		
	RBA adjusted Arsenic	2 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 1E-05	0 1	7 0E-06	0 02	2 7E-06	4E-06	2 0E-06	3E-06	7E-06
	Cadmium	8 8	1 0E-03	I	--	--				Urinary	1 1E-04	0 1	2 5E-05	0 03	9 7E-06		7 2E-06		
	Chromium	20 2	3 0E-03	I	--	--			(a)	--	2 6E-04	0 09	5 8E-05	0 02	2 2E-05		1 7E-05		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	8 1E-05	0 3	1 8E-05	0 06	7 0E-06		5 2E-06		
	Iron	18036	7 0E-01	P	--	--				Gastrointestinal	2 3E-01	0 3	5 2E-02	0 07	2 0E-02		1 5E-02		
	Manganese	422	2 4E-02	S	--	--				Nervous	5 4E-03	0 2	1 2E-03	0 05	4 6E-04		3 5E-04		
	Nickel	19 0	1 1E-02	C	--	--				Developmental	2 4E-04	0 02	5 5E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 36	1 0E-05	X	--	--				Skin, Hair & Nails	4 6E-06	0 5	1 0E-06	0 1	3 9E-07		2 9E-07		
	Vanadium	34 8	5 0E-03	S	--	--				Skin, Hair & Nails	4 4E-04	0 09	1 0E-04	0 02	3 8E-05		2 9E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**4E-06**		**3E-06**	**7E-06**
Dermal Contact with Soil	Aluminum	16560	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	5 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-05	0 05	2 7E-06	0 009	1 4E-06	2E-06	7 8E-07	1E-06	3E-06
	Cadmium	10 6	1 0E-03	I	--	--	0 001	0 025		Urinary	3 2E-07	0 01	5 3E-08	0 002	2 7E-08		1 5E-08		
	Chromium	24 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21600	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	505	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 43	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.07**		**0.01**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.5**		**6E-06**		**4E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 03
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 1	0 03
Nervous HI	0 4	0 09
Skin, Hair and Nails HI	0 7	0 2
Urinary HI	0 1	0 03

Table 59. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 805-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	17034	1 0E+00	P	--	--				Nervous	2 2E-01	0 2	4 9E-02	0 05	1 9E-02		1 4E-02		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	1 1E-05	0 03	2 5E-06	0 006	9 7E-07		7 3E-07		
	RBA adjusted Arsenic	2 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 6E-05	0 09	5 9E-06	0 02	2 3E-06	3E-06	1 7E-06	3E-06	6E-06
	Cadmium	1 4	1 0E-03	I	--	--				Urinary	1 8E-05	0 02	4 2E-06	0 004	1 6E-06		1 2E-06		
	Chromium	24 8	3 0E-03	I	--	--			(a)	--	3 2E-04	0 1	7 1E-05	0 02	2 7E-05		2 0E-05		
	Cobalt	9 2	3 0E-04	P	--	--				Endocrine	1 2E-04	0 4	2 7E-05	0 09	1 0E-05		7 6E-06		
	Iron	21242	7 0E-01	P	--	--				Gastrointestinal	2 7E-01	0 4	6 1E-02	0 09	2 3E-02		1 7E-02		
	Manganese	537	2 4E-02	S	--	--				Nervous	6 9E-03	0 3	1 5E-03	0 06	5 9E-04		4 4E-04		
	Nickel	20 7	1 1E-02	C	--	--				Developmental	2 7E-04	0 02	6 0E-05	0 005	2 3E-05		1 7E-05		
	Thallium	0 16	1 0E-05	X	--	--				Skin, Hair & Nails	2 0E-06	0 2	4 6E-07	0 05	1 8E-07		1 3E-07		
	Vanadium	33 6	5 0E-03	S	--	--				Skin, Hair & Nails	4 3E-04	0 09	9 7E-05	0 02	3 7E-05		2 8E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**3E-06**		**3E-06**	**6E-06**
Dermal Contact with Soil	Aluminum	20400	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	15 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	2 3E-06	0 008	1 2E-06	2E-06	6 6E-07	1E-06	3E-06
	Cadmium	1 7	1 0E-03	I	--	--	0 001	0 025		Urinary	5 2E-08	0 002	8 7E-09	0 0003	4 5E-09		2 5E-09		
	Chromium	29 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25440	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	643	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	24 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 19	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	40 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.05**		**0.008**		**2E-06**		**1E-06**	**3E-06**
										Soil/Dust Total		**2**		**0.4**		**5E-06**		**4E-06**	**9E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 03
Developmental HI	0 02	0 005
Endocrine HI	0 4	0 09
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 03	0 006
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 4	0 09
Urinary HI	0 02	0 005

Table 60. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 805-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9261	1 0E+00	P	--	--				Nervous	1 2E-01	0 1	2 7E-02	0 03	1 0E-02		7 6E-03		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	9 4E-06	0 02	2 1E-06	0 005	8 1E-07		6 1E-07		
	RBA adjusted Arsenic	0 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	9 6E-06	0 03	2 2E-06	0 007	8 2E-07	1E-06	6 2E-07	9E-07	2E-06
	Cadmium	1 5	1 0E-03	I	--	--				Urinary	1 9E-05	0 02	4 2E-06	0 004	1 6E-06		1 2E-06		
	Chromium	16 4	3 0E-03	I	--	--			(a)	--	2 1E-04	0 07	4 7E-05	0 02	1 8E-05		1 3E-05		
	Cobalt	5 6	3 0E-04	P	--	--				Endocrine	7 1E-05	0 2	1 6E-05	0 05	6 1E-06		4 6E-06		
	Iron	13604	7 0E-01	P	--	--				Gastrointestinal	1 7E-01	0 2	3 9E-02	0 06	1 5E-02		1 1E-02		
	Manganese	344	2 4E-02	S	--	--				Nervous	4 4E-03	0 2	9 9E-04	0 04	3 8E-04		2 8E-04		
	Nickel	13 6	1 1E-02	C	--	--				Developmental	1 7E-04	0 02	3 9E-05	0 004	1 5E-05		1 1E-05		
	Thallium	0 13	1 0E-05	X	--	--				Skin, Hair & Nails	1 6E-06	0 2	3 6E-07	0 04	1 4E-07		1 0E-07		
	Vanadium	21 9	5 0E-03	S	--	--				Skin, Hair & Nails	2 8E-04	0 06	6 3E-05	0 01	2 4E-05		1 8E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**1E-06**		**9E-07**	**2E-06**
Dermal Contact with Soil	Aluminum	11091	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	5 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	5 0E-06	0 02	8 4E-07	0 003	4 3E-07	6E-07	2 4E-07	4E-07	1E-06
	Cadmium	1 7	1 0E-03	I	--	--	0 001	0 025		Urinary	5 3E-08	0 002	8 8E-09	0 0004	4 5E-09		2 5E-09		
	Chromium	19 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16292	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	412	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 15	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	26 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.003**		**6E-07**		**4E-07**	**1E-06**
										Soil/Dust Total		**1**		**0.3**		**2E-06**		**1E-06**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 05	0 01
Developmental HI	0 02	0 004
Endocrine HI	0 2	0 05
Gastrointestinal HI	0 2	0 06
Hematologic HI	0 02	0 005
Nervous HI	0 3	0 07
Skin, Hair and Nails HI	0 3	0 06
Urinary HI	0 02	0 005

Table 61. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12926	1 0E+00	P	--	--				Nervous	1 7E-01	0 2	3 7E-02	0 04	1 4E-02		1 1E-02		
	Antimony	0 6	4 0E-04	I	--	--				Hematologic	8 3E-06	0 02	1 9E-06	0 005	7 1E-07		5 3E-07		
	RBA adjusted Arsenic	1 6	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 0E-05	0 07	4 6E-06	0 02	1 8E-06	3E-06	1 3E-06	2E-06	5E-06
	Cadmium	2 4	1 0E-03	I	--	--				Urinary	3 1E-05	0 03	6 9E-06	0 007	2 6E-06		2 0E-06		
	Chromium	25 6	3 0E-03	I	--	--			(a)	--	3 3E-04	0 1	7 4E-05	0 02	2 8E-05		2 1E-05		
	Cobalt	8 2	3 0E-04	P	--	--				Endocrine	1 1E-04	0 4	2 4E-05	0 08	9 0E-06		6 8E-06		
	Iron	20741	7 0E-01	P	--	--				Gastrointestinal	2 7E-01	0 4	6 0E-02	0 09	2 3E-02		1 7E-02		
	Manganese	494	2 4E-02	S	--	--				Nervous	6 3E-03	0 3	1 4E-03	0 06	5 4E-04		4 1E-04		
	Nickel	23 0	1 1E-02	C	--	--				Developmental	2 9E-04	0 03	6 6E-05	0 006	2 5E-05		1 9E-05		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	1 5E-06	0 2	3 4E-07	0 03	1 3E-07		9 7E-08		
	Vanadium	36 4	5 0E-03	S	--	--				Skin, Hair & Nails	4 7E-04	0 09	1 0E-04	0 02	4 0E-05		3 0E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**
Dermal Contact with Soil	Aluminum	15480	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	11 7	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	1 8E-06	0 006	9 1E-07	1E-06	5 1E-07	8E-07	2E-06
	Cadmium	2 9	1 0E-03	I	--	--	0 001	0 025		Urinary	8 7E-08	0 003	1 5E-08	0 0006	7 5E-09		4 2E-09		
	Chromium	30 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	9 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24840	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	592	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	27 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.04**		**0.007**		**1E-06**		**8E-07**	**2E-06**
										Soil/Dust Total		**2**		**0.4**		**4E-06**		**3E-06**	**7E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 02
Developmental HI	0 03	0 006
Endocrine HI	0 4	0 08
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 02	0 005
Nervous HI	0 4	0 1
Skin, Hair and Nails HI	0 3	0 08
Urinary HI	0 03	0 008

Table 62. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16733	1 0E+00	P	--	--				Nervous	2 1E-01	0 2	4 8E-02	0 05	1 8E-02		1 4E-02		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	1 0E-05	0 03	2 3E-06	0 006	8 9E-07		6 6E-07		
	RBA adjusted Arsenic	2 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 7E-05	0 1	8 3E-06	0 03	3 1E-06	5E-06	2 4E-06	4E-06	8E-06
	Cadmium	2 7	1 0E-03	I	--	--				Urinary	3 5E-05	0 04	7 9E-06	0 008	3 0E-06		2 3E-06		
	Chromium	30 8	3 0E-03	I	--	--			(a)	--	3 9E-04	0 1	8 8E-05	0 03	3 4E-05		2 5E-05		
	Cobalt	10 7	3 0E-04	P	--	--				Endocrine	1 4E-04	0 5	3 1E-05	0 1	1 2E-05		8 8E-06		
	Iron	22645	7 0E-01	P	--	--				Gastrointestinal	2 9E-01	0 4	6 5E-02	0 09	2 5E-02		1 9E-02		
	Manganese	545	2 4E-02	S	--	--				Nervous	7 0E-03	0 3	1 6E-03	0 07	6 0E-04		4 5E-04		
	Nickel	32 0	1 1E-02	C	--	--				Developmental	4 1E-04	0 04	9 2E-05	0 008	3 5E-05		2 6E-05		
	Thallium	0 17	1 0E-05	X	--	--				Skin, Hair & Nails	2 1E-06	0 2	4 8E-07	0 05	1 8E-07		1 4E-07		
	Vanadium	37 1	5 0E-03	S	--	--				Skin, Hair & Nails	4 7E-04	0 09	1 1E-04	0 02	4 1E-05		3 0E-05		
										Soil/Dust Ingestion Total		**2**		**0.5**		**5E-06**		**4E-06**	**8E-06**
Dermal Contact with Soil	Aluminum	20040	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	21 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	3 2E-06	0 01	1 6E-06	2E-06	9 1E-07	1E-06	4E-06
	Cadmium	3 3	1 0E-03	I	--	--	0 001	0 025		Urinary	1 0E-07	0 004	1 7E-08	0 0007	8 6E-09		4 8E-09		
	Chromium	36 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	12 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27120	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	653	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	38 3	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 20	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	44 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.07**		**0.01**		**2E-06**		**1E-06**	**4E-06**
										Soil/Dust Total		**2**		**0.5**		**7E-06**		**5E-06**	**1E-05**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 04
Developmental HI	0 04	0 008
Endocrine HI	0 5	0 1
Gastrointestinal HI	0 4	0 09
Hematologic HI	0 03	0 006
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 5	0 1
Urinary HI	0 04	0 009

Table 63. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O3 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	13427	1 0E+00	P	--	--				Nervous	1 7E-01	0 2	3 9E-02	0 04	1 5E-02		1 1E-02		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	1 2E-05	0 03	2 6E-06	0 007	1 0E-06		7 5E-07		
	RBA adjusted Arsenic	1 3	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 7E-05	0 06	3 8E-06	0 01	1 4E-06	2E-06	1 1E-06	2E-06	4E-06
	Cadmium	1 7	1 0E-03	I	--	--				Urinary	2 2E-05	0 02	4 9E-06	0 005	1 9E-06		1 4E-06		
	Chromium	23 3	3 0E-03	I	--	--			(a)	--	3 0E-04	0 1	6 7E-05	0 02	2 6E-05		1 9E-05		
	Cobalt	6 7	3 0E-04	P	--	--				Endocrine	8 6E-05	0 3	1 9E-05	0 06	7 3E-06		5 5E-06		
	Iron	20341	7 0E-01	P	--	--				Gastrointestinal	2 6E-01	0 4	5 9E-02	0 08	2 2E-02		1 7E-02		
	Manganese	598	2 4E-02	S	--	--				Nervous	7 6E-03	0 3	1 7E-03	0 07	6 6E-04		4 9E-04		
	Nickel	18 9	1 1E-02	C	--	--				Developmental	2 4E-04	0 02	5 4E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 11	1 0E-05	X	--	--				Skin, Hair & Nails	1 4E-06	0 1	3 3E-07	0 03	1 2E-07		9 3E-08		
	Vanadium	35 4	5 0E-03	S	--	--				Skin, Hair & Nails	4 5E-04	0 09	1 0E-04	0 02	3 9E-05		2 9E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**2E-06**		**2E-06**	**4E-06**
Dermal Contact with Soil	Aluminum	16080	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 7E-06	0 03	1 4E-06	0 005	7 4E-07	1E-06	4 1E-07	6E-07	2E-06
	Cadmium	2 0	1 0E-03	I	--	--	0 001	0 025		Urinary	6 2E-08	0 002	1 0E-08	0 0004	5 3E-09		2 9E-09		
	Chromium	28 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 0	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24360	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	716	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	42 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**6E-07**	**2E-06**
										Soil/Dust Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 08	0 02
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 4	0 08
Hematologic HI	0 03	0 007
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 3	0 07
Urinary HI	0 02	0 005

Table 64. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O4 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12377	1 0E+00	P	--	--				Nervous	1 6E-01	0 2	3 6E-02	0 04	1 4E-02		1 0E-02		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	8 4E-06	0 02	1 9E-06	0 005	7 2E-07		5 4E-07		
	RBA adjusted Arsenic	1 3	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 7E-05	0 06	3 8E-06	0 01	1 5E-06	2E-06	1 1E-06	2E-06	4E-06
	Cadmium	1 5	1 0E-03	I	--	--				Urinary	1 9E-05	0 02	4 2E-06	0 004	1 6E-06		1 2E-06		
	Chromium	20 2	3 0E-03	I	--	--			(a)	--	2 6E-04	0 09	5 8E-05	0 02	2 2E-05		1 7E-05		
	Cobalt	6 9	3 0E-04	P	--	--				Endocrine	8 9E-05	0 3	2 0E-05	0 07	7 6E-06		5 7E-06		
	Iron	17026	7 0E-01	P	--	--				Gastrointestinal	2 2E-01	0 3	4 9E-02	0 07	1 9E-02		1 4E-02		
	Manganese	496	2 4E-02	S	--	--				Nervous	6 3E-03	0 3	1 4E-03	0 06	5 4E-04		4 1E-04		
	Nickel	17 9	1 1E-02	C	--	--				Developmental	2 3E-04	0 02	5 1E-05	0 005	2 0E-05		1 5E-05		
	Thallium	0 10	1 0E-05	X	--	--				Skin, Hair & Nails	1 3E-06	0 1	3 0E-07	0 03	1 1E-07		8 6E-08		
	Vanadium	31 2	5 0E-03	S	--	--				Skin, Hair & Nails	4 0E-04	0 08	9 0E-05	0 02	3 4E-05		2 6E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**2E-06**		**2E-06**	**4E-06**
Dermal Contact with Soil	Aluminum	14823	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 9E-06	0 03	1 5E-06	0 005	7 6E-07	1E-06	4 2E-07	6E-07	2E-06
	Cadmium	1 8	1 0E-03	I	--	--	0 001	0 025		Urinary	5 3E-08	0 002	8 9E-09	0 0004	4 6E-09		2 5E-09		
	Chromium	24 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	20391	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	594	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	21 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 13	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	37 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**6E-07**	**2E-06**
										Soil/Dust Total		**1**		**0.3**		**3E-06**		**2E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 09	0 02
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 02	0 005
Nervous HI	0 4	0 1
Skin, Hair and Nails HI	0 3	0 07
Urinary HI	0 02	0 005

Table 65. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O5 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	15230	1 0E+00	P	--	--				Nervous	1 9E-01	0 2	4 4E-02	0 04	1 7E-02		1 3E-02		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	9 5E-06	0 02	2 1E-06	0 005	8 1E-07		6 1E-07		
	RBA adjusted Arsenic	1 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	4 2E-06	0 01	1 6E-06	2E-06	1 2E-06	2E-06	4E-06
	Cadmium	1 6	1 0E-03	I	--	--				Urinary	2 0E-05	0 02	4 6E-06	0 005	1 7E-06		1 3E-06		
	Chromium	21 9	3 0E-03	I	--	--			(a)	--	2 8E-04	0 09	6 3E-05	0 02	2 4E-05		1 8E-05		
	Cobalt	7 4	3 0E-04	P	--	--				Endocrine	9 5E-05	0 3	2 1E-05	0 07	8 1E-06		6 1E-06		
	Iron	19739	7 0E-01	P	--	--				Gastrointestinal	2 5E-01	0 4	5 7E-02	0 08	2 2E-02		1 6E-02		
	Manganese	598	2 4E-02	S	--	--				Nervous	7 6E-03	0 3	1 7E-03	0 07	6 6E-04		4 9E-04		
	Nickel	19 1	1 1E-02	C	--	--				Developmental	2 4E-04	0 02	5 5E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	1 5E-06	0 2	3 4E-07	0 03	1 3E-07		9 8E-08		
	Vanadium	34 7	5 0E-03	S	--	--				Skin, Hair & Nails	4 4E-04	0 09	1 0E-04	0 02	3 8E-05		2 8E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**2E-06**		**2E-06**	**4E-06**
Dermal Contact with Soil	Aluminum	18240	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	10 7	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	9 7E-06	0 03	1 6E-06	0 005	8 3E-07	1E-06	4 6E-07	7E-07	2E-06
	Cadmium	1 9	1 0E-03	I	--	--	0 001	0 025		Urinary	5 8E-08	0 002	9 7E-09	0 0004	5 0E-09		2 8E-09		
	Chromium	26 3	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	716	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.006**		**1E-06**		**7E-07**	**2E-06**
										Soil/Dust Total		**2**		**0.4**		**4E-06**		**2E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 09	0 02
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 4	0 08
Hematologic HI	0 02	0 005
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 3	0 07
Urinary HI	0 02	0 005

Table 66. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 807-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	21355	1 0E+00	P	--	--				Nervous	2 7E-01	0 3	6 1E-02	0 06	2 3E-02		1 8E-02		
	Antimony	0 5	4 0E-04	I	--	--				Hematologic	5 8E-06	0 01	1 3E-06	0 003	5 0E-07		3 7E-07		
	RBA adjusted Arsenic	1 6	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 1E-05	0 07	4 7E-06	0 02	1 8E-06	3E-06	1 3E-06	2E-06	5E-06
	Cadmium	0 8	1 0E-03	I	--	--				Urinary	1 0E-05	0 01	2 3E-06	0 002	8 6E-07		6 5E-07		
	Chromium	20 1	3 0E-03	I	--	--			(a)	--	2 6E-04	0 09	5 8E-05	0 02	2 2E-05		1 7E-05		
	Cobalt	7 2	3 0E-04	P	--	--				Endocrine	9 2E-05	0 3	2 1E-05	0 07	7 9E-06		5 9E-06		
	Iron	18004	7 0E-01	P	--	--				Gastrointestinal	2 3E-01	0 3	5 2E-02	0 07	2 0E-02		1 5E-02		
	Manganese	736	2 4E-02	S	--	--				Nervous	9 4E-03	0 4	2 1E-03	0 09	8 1E-04		6 0E-04		
	Nickel	19 3	1 1E-02	C	--	--				Developmental	2 5E-04	0 02	5 5E-05	0 005	2 1E-05		1 6E-05		
	Thallium	0 14	1 0E-05	X	--	--				Skin, Hair & Nails	1 8E-06	0 2	4 0E-07	0 04	1 5E-07		1 1E-07		
	Vanadium	32 9	5 0E-03	S	--	--				Skin, Hair & Nails	4 2E-04	0 08	9 5E-05	0 02	3 6E-05		2 7E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**
Dermal Contact with Soil	Aluminum	25574	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	12 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	1 8E-06	0 006	9 3E-07	1E-06	5 2E-07	8E-07	2E-06
	Cadmium	0 9	1 0E-03	I	--	--	0 001	0 025		Urinary	2 9E-08	0 001	4 8E-09	0 0002	2 4E-09		1 4E-09		
	Chromium	24 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21561	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	881	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	23 1	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 16	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	39 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.04**		**0.006**		**1E-06**		**8E-07**	**2E-06**
										Soil/Dust Total		**2**		**0.4**		**4E-06**		**3E-06**	**7E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 02
Developmental HI	0 02	0 005
Endocrine HI	0 3	0 07
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 01	0 003
Nervous HI	0 7	0 1
Skin, Hair and Nails HI	0 4	0 08
Urinary HI	0 01	0 002

Table 67. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 808-O1 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9733	1 0E+00	P	--	--				Nervous	1 2E-01	0 1	2 8E-02	0 03	1 1E-02		8 0E-03		
	Antimony	0 5	4 0E-04	I	--	--				Hematologic	6 7E-06	0 02	1 5E-06	0 004	5 8E-07		4 3E-07		
	RBA adjusted Arsenic	1 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	2 9E-06	0 01	1 1E-06	2E-06	8 2E-07	1E-06	3E-06
	Cadmium	1 1	1 0E-03	I	--	--				Urinary	1 5E-05	0 01	3 3E-06	0 003	1 2E-06		9 3E-07		
	Chromium	22 3	3 0E-03	I	--	--			(a)	--	2 9E-04	0 1	6 4E-05	0 02	2 4E-05		1 8E-05		
	Cobalt	6 5	3 0E-04	P	--	--				Endocrine	8 4E-05	0 3	1 9E-05	0 06	7 2E-06		5 4E-06		
	Iron	17323	7 0E-01	P	--	--				Gastrointestinal	2 2E-01	0 3	5 0E-02	0 07	1 9E-02		1 4E-02		
	Manganese	453	2 4E-02	S	--	--				Nervous	5 8E-03	0 2	1 3E-03	0 05	5 0E-04		3 7E-04		
	Nickel	16 7	1 1E-02	C	--	--				Developmental	2 1E-04	0 02	4 8E-05	0 004	1 8E-05		1 4E-05		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	1 5E-06	0 1	3 3E-07	0 03	1 3E-07		9 5E-08		
	Vanadium	31 8	5 0E-03	S	--	--				Skin, Hair & Nails	4 1E-04	0 08	9 2E-05	0 02	3 5E-05		2 6E-05		
										Soil/Dust Ingestion Total		**1**		**0.3**		**2E-06**		**1E-06**	**3E-06**
Dermal Contact with Soil	Aluminum	11656	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	7 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	6 7E-06	0 02	1 1E-06	0 004	5 7E-07	9E-07	3 2E-07	5E-07	1E-06
	Cadmium	1 4	1 0E-03	I	--	--	0 001	0 025		Urinary	4 1E-08	0 002	6 9E-09	0 0003	3 5E-09		2 0E-09		
	Chromium	26 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	20746	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	542	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	38 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.004**		**9E-07**		**5E-07**	**1E-06**
										Soil/Dust Total		**1**		**0.3**		**3E-06**		**2E-06**	**4E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 06	0 01
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 07
Hematologic HI	0 02	0 004
Nervous HI	0 4	0 08
Skin, Hair and Nails HI	0 3	0 06
Urinary HI	0 02	0 004

Table 68. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 808-O2 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12425	1 0E+00	P	--	--				Nervous	1 6E-01	0 2	3 6E-02	0 04	1 4E-02		1 0E-02		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	1 2E-05	0 03	2 7E-06	0 007	1 0E-06		7 6E-07		
	RBA adjusted Arsenic	1 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 5E-05	0 05	3 3E-06	0 01	1 3E-06	2E-06	9 4E-07	1E-06	3E-06
	Cadmium	1 1	1 0E-03	I	--	--				Urinary	1 4E-05	0 01	3 2E-06	0 003	1 2E-06		9 1E-07		
	Chromium	21 4	3 0E-03	I	--	--			(a)	--	2 7E-04	0 09	6 2E-05	0 02	2 3E-05		1 8E-05		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	8 2E-05	0 3	1 8E-05	0 06	7 0E-06		5 3E-06		
	Iron	18938	7 0E-01	P	--	--				Gastrointestinal	2 4E-01	0 3	5 4E-02	0 08	2 1E-02		1 6E-02		
	Manganese	573	2 4E-02	S	--	--				Nervous	7 3E-03	0 3	1 6E-03	0 07	6 3E-04		4 7E-04		
	Nickel	17 1	1 1E-02	C	--	--				Developmental	2 2E-04	0 02	4 9E-05	0 004	1 9E-05		1 4E-05		
	Thallium	0 26	1 0E-05	X	--	--				Skin, Hair & Nails	3 4E-06	0 3	7 6E-07	0 08	2 9E-07		2 2E-07		
	Vanadium	27 5	5 0E-03	S	--	--				Skin, Hair & Nails	3 5E-04	0 07	7 9E-05	0 02	3 0E-05		2 3E-05		
										Soil/Dust Ingestion Total		**2**		**0.4**		**2E-06**		**1E-06**	**3E-06**
Dermal Contact with Soil	Aluminum	14880	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	8 4	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	7 6E-06	0 03	1 3E-06	0 004	6 5E-07	1E-06	3 6E-07	5E-07	2E-06
	Cadmium	1 3	1 0E-03	I	--	--	0 001	0 025		Urinary	4 0E-08	0 002	6 7E-09	0 0003	3 4E-09		1 9E-09		
	Chromium	25 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	22680	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	686	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 32	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.005**		**1E-06**		**5E-07**	**2E-06**
										Soil/Dust Total		**2**		**0.4**		**3E-06**		**2E-06**	**5E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 07	0 02
Developmental HI	0 02	0 004
Endocrine HI	0 3	0 06
Gastrointestinal HI	0 3	0 08
Hematologic HI	0 03	0 007
Nervous HI	0 5	0 1
Skin, Hair and Nails HI	0 5	0 1
Urinary HI	0 02	0 003

Table 69. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 258 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	17585	1 0E+00	P	--	--				Nervous	6 6E-02	0 07	7 7E-03	0 008	1 9E-03		8 8E-04		
	Antimony	10 2	4 0E-04	I	--	--				Hematologic	3 8E-05	0 1	4 5E-06	0 01	1 1E-06		5 1E-07		
	RBA adjusted Arsenic	11 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 4E-05	0 1	5 2E-06	0 02	1 3E-06	2E-06	5 9E-07	9E-07	3E-06
	Cadmium	16 0	1 0E-03	I	--	--				Urinary	6 0E-05	0 06	7 0E-06	0 007	1 7E-06		8 0E-07		
	Chromium	10 3	3 0E-03	I	--	--			(a)	--	3 8E-05	0 01	4 5E-06	0 001	1 1E-06		5 1E-07		
	Cobalt	4 8	3 0E-04	P	--	--				Endocrine	1 8E-05	0 06	2 1E-06	0 007	5 1E-07		2 4E-07		
	Iron	12238	7 0E-01	P	--	--				Gastrointestinal	4 6E-02	0 07	5 4E-03	0 008	1 3E-03		6 1E-04		
	Manganese	670	2 4E-02	S	--	--				Nervous	2 5E-03	0 1	2 9E-04	0 01	7 2E-05		3 4E-05		
	Nickel	9 2	1 1E-02	C	--	--				Developmental	3 4E-05	0 003	4 0E-06	0 0004	9 8E-07		4 6E-07		
	Thallium	0 50	1 0E-05	X	--	--				Skin, Hair & Nails	1 9E-06	0 2	2 2E-07	0 02	5 3E-08		2 5E-08		
	Vanadium	20 8	5 0E-03	S	--	--				Skin, Hair & Nails	7 8E-05	0 02	9 1E-06	0 002	2 2E-06		1 0E-06		
										Soil/Dust Ingestion Total		**0.8**		**0.1**		**2E-06**		**9E-07**	**3E-06**
Dermal Contact with Soil	Aluminum	21060	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	12 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	51 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	6 9E-06	0 02	8 2E-07	0 003	2 0E-07	3E-07	9 4E-08	1E-07	4E-07
	Cadmium	19 1	1 0E-03	I	--	--	0 001	0 025		Urinary	8 5E-08	0 003	1 0E-08	0 0004	2 4E-09		1 2E-09		
	Chromium	12 3	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	5 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	14656	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	802	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	11 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 60	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	25 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.003**		**3E-07**		**1E-07**	**4E-07**
										Soil/Dust Total		**0.8**		**0.1**		**2E-06**		**1E-06**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 02
Developmental HI	0 003	0 0004
Endocrine HI	0 06	0 007
Gastrointestinal HI	0 07	0 008
Hematologic HI	0 1	0 01
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 4	0 04
Urinary HI	0 06	0 007

Table 70. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 259 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	15631	1 0E+00	P	--	--				Nervous	5 8E-02	0 06	6 9E-03	0 007	1 7E-03		7 8E-04		
	Antimony	3 2	4 0E-04	I	--	--				Hematologic	1 2E-05	0 03	1 4E-06	0 003	3 4E-07		1 6E-07		
	RBA adjusted Arsenic	5 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 0E-05	0 07	2 4E-06	0 008	5 8E-07	9E-07	2 7E-07	4E-07	1E-06
	Cadmium	5 7	1 0E-03	I	--	--				Urinary	2 1E-05	0 02	2 5E-06	0 003	6 1E-07		2 9E-07		
	Chromium	14 7	3 0E-03	I	--	--			(a)	--	5 5E-05	0 02	6 5E-06	0 002	1 6E-06		7 4E-07		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	2 0E-05	0 07	2 3E-06	0 008	5 6E-07		2 6E-07		
	Iron	14830	7 0E-01	P	--	--				Gastrointestinal	5 5E-02	0 08	6 5E-03	0 009	1 6E-03		7 4E-04		
	Manganese	511	2 4E-02	S	--	--				Nervous	1 9E-03	0 08	2 2E-04	0 009	5 5E-05		2 6E-05		
	Nickel	11 5	1 1E-02	C	--	--				Developmental	4 3E-05	0 004	5 1E-06	0 0005	1 2E-06		5 8E-07		
	Thallium	0 29	1 0E-05	X	--	--				Skin, Hair & Nails	1 1E-06	0 1	1 3E-07	0 01	3 1E-08		1 4E-08		
	Vanadium	26 3	5 0E-03	S	--	--				Skin, Hair & Nails	9 8E-05	0 02	1 2E-05	0 002	2 8E-06		1 3E-06		
										Soil/Dust Ingestion Total		**0.6**		**0.06**		**9E-07**		**4E-07**	**1E-06**
Dermal Contact with Soil	Aluminum	18720	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	23 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 1E-06	0 01	3 8E-07	0 001	9 0E-08	1E-07	4 3E-08	6E-08	2E-07
	Cadmium	6 9	1 0E-03	I	--	--	0 001	0 025		Urinary	3 1E-08	0 001	3 6E-09	0 0001	8 7E-10		4 2E-10		
	Chromium	17 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17760	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	612	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	13 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 34	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	31 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.001**		**1E-07**		**6E-08**	**2E-07**
										Soil/Dust Total		**0.6**		**0.07**		**1E-06**		**5E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 08	0 009
Developmental HI	0 004	0 0005
Endocrine HI	0 07	0 008
Gastrointestinal HI	0 08	0 009
Hematologic HI	0 03	0 003
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 2	0 02
Urinary HI	0 02	0 003

Table 71. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 401 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	26152	1 0E+00	P	--	--				Nervous	9 8E-02	0 1	1 1E-02	0 01	2 8E-03		1 3E-03		
	Antimony	15 7	4 0E-04	I	--	--				Hematologic	5 9E-05	0 1	6 9E-06	0 02	1 7E-06		7 9E-07		
	RBA adjusted Arsenic	21 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 9E-05	0 3	9 3E-06	0 03	2 3E-06	3E-06	1 1E-06	2E-06	5E-06
	Cadmium	20 5	1 0E-03	I	--	--				Urinary	7 7E-05	0 08	9 0E-06	0 009	2 2E-06		1 0E-06		
	Chromium	16 7	3 0E-03	I	--	--			(a)	--	6 3E-05	0 02	7 3E-06	0 002	1 8E-06		8 4E-07		
	Cobalt	7 3	3 0E-04	P	--	--				Endocrine	2 7E-05	0 09	3 2E-06	0 01	7 8E-07		3 7E-07		
	Iron	19639	7 0E-01	P	--	--				Gastrointestinal	7 3E-02	0 1	8 6E-03	0 01	2 1E-03		9 8E-04		
	Manganese	949	2 4E-02	S	--	--				Nervous	3 5E-03	0 1	4 2E-04	0 02	1 0E-04		4 8E-05		
	Nickel	13 9	1 1E-02	C	--	--				Developmental	5 2E-05	0 005	6 1E-06	0 0006	1 5E-06		7 0E-07		
	Thallium	0 79	1 0E-05	X	--	--				Skin, Hair & Nails	3 0E-06	0 3	3 5E-07	0 03	8 5E-08		4 0E-08		
	Vanadium	34 3	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 5E-05	0 003	3 7E-06		1 7E-06		
										Soil/Dust Ingestion Total		**1**		**0.1**		**3E-06**		**2E-06**	**5E-06**
Dermal Contact with Soil	Aluminum	31320	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	18 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	97 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	1 5E-06	0 005	3 7E-07	6E-07	1 8E-07	3E-07	8E-07
	Cadmium	24 6	1 0E-03	I	--	--	0 001	0 025		Urinary	1 1E-07	0 004	1 3E-08	0 0005	3 1E-09		1 5E-09		
	Chromium	20 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23520	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1136	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 95	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.05**		**0.006**		**6E-07**		**3E-07**	**8E-07**
										Soil/Dust Total		**1**		**0.2**		**4E-06**		**2E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 3	0 04
Developmental HI	0 005	0 0006
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 1	0 02
Nervous HI	0 2	0 03
Skin, Hair and Nails HI	0 6	0 07
Urinary HI	0 08	0 01

Table 72. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 402 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12122	1 0E+00	P	--	--				Nervous	4 5E-02	0 05	5 3E-03	0 005	1 3E-03		6 1E-04		
	Antimony	6 3	4 0E-04	I	--	--				Hematologic	2 3E-05	0 06	2 7E-06	0 007	6 7E-07		3 1E-07		
	RBA adjusted Arsenic	8 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 3E-05	0 1	3 9E-06	0 01	9 4E-07	1E-06	4 4E-07	7E-07	2E-06
	Cadmium	8 9	1 0E-03	I	--	--				Urinary	3 3E-05	0 03	3 9E-06	0 004	9 6E-07		4 5E-07		
	Chromium	14 9	3 0E-03	I	--	--			(a)	--	5 6E-05	0 02	6 5E-06	0 002	1 6E-06		7 5E-07		
	Cobalt	4 8	3 0E-04	P	--	--				Endocrine	1 8E-05	0 06	2 1E-06	0 007	5 2E-07		2 4E-07		
	Iron	13534	7 0E-01	P	--	--				Gastrointestinal	5 1E-02	0 07	5 9E-03	0 008	1 4E-03		6 8E-04		
	Manganese	469	2 4E-02	S	--	--				Nervous	1 8E-03	0 07	2 1E-04	0 009	5 0E-05		2 3E-05		
	Nickel	11 4	1 1E-02	C	--	--				Developmental	4 2E-05	0 004	5 0E-06	0 0005	1 2E-06		5 7E-07		
	Thallium	0 48	1 0E-05	X	--	--				Skin, Hair & Nails	1 8E-06	0 2	2 1E-07	0 02	5 1E-08		2 4E-08		
	Vanadium	23 2	5 0E-03	S	--	--				Skin, Hair & Nails	8 7E-05	0 02	1 0E-05	0 002	2 5E-06		1 2E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**1E-06**		**7E-07**	**2E-06**
Dermal Contact with Soil	Aluminum	14518	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	38 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	5 1E-06	0 02	6 1E-07	0 002	1 5E-07	2E-07	6 9E-08	1E-07	3E-07
	Cadmium	10 7	1 0E-03	I	--	--	0 001	0 025		Urinary	4 8E-08	0 002	5 7E-09	0 0002	1 4E-09		6 5E-10		
	Chromium	17 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	5 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16208	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	561	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	13 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 57	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	27 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.002**		**2E-07**		**1E-07**	**3E-07**
										Soil/Dust Total		**0.7**		**0.08**		**2E-06**		**8E-07**	**2E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 01
Developmental HI	0 004	0 0005
Endocrine HI	0 06	0 007
Gastrointestinal HI	0 07	0 008
Hematologic HI	0 06	0 007
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 3	0 04
Urinary HI	0 04	0 004

Table 73. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 403 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12826	1 0E+00	P	--	--				Nervous	4 8E-02	0 05	5 6E-03	0 006	1 4E-03		6 4E-04		
	Antimony	4 1	4 0E-04	I	--	--				Hematologic	1 5E-05	0 04	1 8E-06	0 004	4 4E-07		2 0E-07		
	RBA adjusted Arsenic	7 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 7E-05	0 09	3 1E-06	0 01	7 7E-07	1E-06	3 6E-07	5E-07	2E-06
	Cadmium	9 4	1 0E-03	I	--	--				Urinary	3 5E-05	0 04	4 1E-06	0 004	1 0E-06		4 7E-07		
	Chromium	28 9	3 0E-03	I	--	--			(a)	--	1 1E-04	0 04	1 3E-05	0 004	3 1E-06		1 4E-06		
	Cobalt	8 0	3 0E-04	P	--	--				Endocrine	3 0E-05	0 1	3 5E-06	0 01	8 6E-07		4 0E-07		
	Iron	19238	7 0E-01	P	--	--				Gastrointestinal	7 2E-02	0 1	8 4E-03	0 01	2 1E-03		9 6E-04		
	Manganese	715	2 4E-02	S	--	--				Nervous	2 7E-03	0 1	3 1E-04	0 01	7 6E-05		3 6E-05		
	Nickel	18 9	1 1E-02	C	--	--				Developmental	7 1E-05	0 006	8 3E-06	0 0008	2 0E-06		9 5E-07		
	Thallium	0 40	1 0E-05	X	--	--				Skin, Hair & Nails	1 5E-06	0 1	1 7E-07	0 02	4 2E-08		2 0E-08		
	Vanadium	31 9	5 0E-03	S	--	--				Skin, Hair & Nails	1 2E-04	0 02	1 4E-05	0 003	3 4E-06		1 6E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.09**		**1E-06**		**5E-07**	**2E-06**
Dermal Contact with Soil	Aluminum	15360	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	4 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	31 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	4 2E-06	0 01	4 9E-07	0 002	1 2E-07	2E-07	5 7E-08	8E-08	3E-07
	Cadmium	11 2	1 0E-03	I	--	--	0 001	0 025		Urinary	5 0E-08	0 002	5 9E-09	0 0002	1 4E-09		6 8E-10		
	Chromium	34 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	9 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23040	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	857	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 47	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	38 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.002**		**2E-07**		**8E-08**	**3E-07**
										Soil/Dust Total		**0.8**		**0.09**		**1E-06**		**6E-07**	**2E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 01
Developmental HI	0 006	0 0008
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 04	0 004
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 3	0 03
Urinary HI	0 04	0 004

Table 74. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 410 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	24048	1 0E+00	P	--	--				Nervous	9 0E-02	0 09	1 1E-02	0 01	2 6E-03		1 2E-03		
	Antimony	6 3	4 0E-04	I	--	--				Hematologic	2 4E-05	0 06	2 8E-06	0 007	6 8E-07		3 2E-07		
	RBA adjusted Arsenic	9 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	4 2E-06	0 01	1 0E-06	2E-06	4 8E-07	7E-07	2E-06
	Cadmium	8 9	1 0E-03	I	--	--				Urinary	3 3E-05	0 03	3 9E-06	0 004	9 5E-07		4 5E-07		
	Chromium	14 5	3 0E-03	I	--	--			(a)	--	5 4E-05	0 02	6 4E-06	0 002	1 6E-06		7 3E-07		
	Cobalt	6 5	3 0E-04	P	--	--				Endocrine	2 4E-05	0 08	2 8E-06	0 009	6 9E-07		3 2E-07		
	Iron	16333	7 0E-01	P	--	--				Gastrointestinal	6 1E-02	0 09	7 2E-03	0 01	1 7E-03		8 2E-04		
	Manganese	594	2 4E-02	S	--	--				Nervous	2 2E-03	0 09	2 6E-04	0 01	6 4E-05		3 0E-05		
	Nickel	13 5	1 1E-02	C	--	--				Developmental	5 1E-05	0 005	5 9E-06	0 0005	1 4E-06		6 8E-07		
	Thallium	0 43	1 0E-05	X	--	--				Skin, Hair & Nails	1 6E-06	0 2	1 9E-07	0 02	4 6E-08		2 2E-08		
	Vanadium	29 8	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 3E-05	0 003	3 2E-06		1 5E-06		
										Soil/Dust Ingestion Total		**0.8**		**0.09**		**2E-06**		**7E-07**	**2E-06**
Dermal Contact with Soil	Aluminum	28800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	42 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	5 6E-06	0 02	6 7E-07	0 002	1 6E-07	2E-07	7 6E-08	1E-07	4E-07
	Cadmium	10 7	1 0E-03	I	--	--	0 001	0 025		Urinary	4 7E-08	0 002	5 6E-09	0 0002	1 4E-09		6 4E-10		
	Chromium	17 4	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19560	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	712	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 52	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	35 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.002**		**2E-07**		**1E-07**	**4E-07**
										Soil/Dust Total		**0.8**		**0.09**		**2E-06**		**8E-07**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 02
Developmental HI	0 005	0 0005
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 09	0 01
Hematologic HI	0 06	0 007
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 3	0 04
Urinary HI	0 04	0 004

Table 75. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 412 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	11690	1 0E+00	P	--	--				Nervous	4 4E-02	0 04	5 1E-03	0 005	1 2E-03		5 9E-04		
	Antimony	0 6	4 0E-04	I	--	--				Hematologic	2 3E-06	0 006	2 7E-07	0 0007	6 7E-08		3 1E-08		
	RBA adjusted Arsenic	1 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 7E-06	0 02	6 7E-07	0 002	1 6E-07	2E-07	7 6E-08	1E-07	4E-07
	Cadmium	0 6	1 0E-03	I	--	--				Urinary	2 2E-06	0 002	2 6E-07	0 0003	6 3E-08		3 0E-08		
	Chromium	10 0	3 0E-03	I	--	--			(a)	--	3 7E-05	0 01	4 4E-06	0 001	1 1E-06		5 0E-07		
	Cobalt	9 2	3 0E-04	P	--	--				Endocrine	3 4E-05	0 1	4 0E-06	0 01	9 8E-07		4 6E-07		
	Iron	14195	7 0E-01	P	--	--				Gastrointestinal	5 3E-02	0 08	6 2E-03	0 009	1 5E-03		7 1E-04		
	Manganese	643	2 4E-02	S	--	--				Nervous	2 4E-03	0 1	2 8E-04	0 01	6 9E-05		3 2E-05		
	Nickel	20 9	1 1E-02	C	--	--				Developmental	7 8E-05	0 007	9 2E-06	0 0008	2 2E-06		1 0E-06		
	Thallium	0 09	1 0E-05	X	--	--				Skin, Hair & Nails	3 3E-07	0 03	3 8E-08	0 004	9 4E-09		4 4E-09		
	Vanadium	15 9	5 0E-03	S	--	--				Skin, Hair & Nails	5 9E-05	0 01	7 0E-06	0 001	1 7E-06		7 9E-07		
										Soil/Dust Ingestion Total		**0.4**		**0.05**		**2E-07**		**1E-07**	**4E-07**
Dermal Contact with Soil	Aluminum	14000	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	6 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	8 8E-07	0 003	1 0E-07	0 0003	2 5E-08	4E-08	1 2E-08	2E-08	6E-08
	Cadmium	0 7	1 0E-03	I	--	--	0 001	0 025		Urinary	3 2E-09	0 0001	3 8E-10	0 00002	9 0E-11		4 3E-11		
	Chromium	12 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 0	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17000	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	770	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	25 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 11	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	19 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.003**		**0.0004**		**4E-08**		**2E-08**	**6E-08**
										Soil/Dust Total		**0.4**		**0.05**		**3E-07**		**1E-07**	**4E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 003
Developmental HI	0 007	0 0008
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 08	0 009
Hematologic HI	0 006	0 0007
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 07	0 008
Urinary HI	0 002	0 0003

Table 76. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 413 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	23046	1 0E+00	P	--	--				Nervous	8 6E-02	0 09	1 0E-02	0 01	2 5E-03		1 2E-03		
	Antimony	8 4	4 0E-04	I	--	--				Hematologic	3 1E-05	0 08	3 7E-06	0 009	9 0E-07		4 2E-07		
	RBA adjusted Arsenic	11 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 5E-05	0 1	5 2E-06	0 02	1 3E-06	2E-06	6 0E-07	9E-07	3E-06
	Cadmium	12 4	1 0E-03	I	--	--				Urinary	4 6E-05	0 05	5 4E-06	0 005	1 3E-06		6 2E-07		
	Chromium	15 4	3 0E-03	I	--	--			(a)	--	5 8E-05	0 02	6 8E-06	0 002	1 6E-06		7 7E-07		
	Cobalt	6 3	3 0E-04	P	--	--				Endocrine	2 3E-05	0 08	2 7E-06	0 009	6 7E-07		3 1E-07		
	Iron	16433	7 0E-01	P	--	--				Gastrointestinal	6 1E-02	0 09	7 2E-03	0 01	1 8E-03		8 2E-04		
	Manganese	729	2 4E-02	S	--	--				Nervous	2 7E-03	0 1	3 2E-04	0 01	7 8E-05		3 7E-05		
	Nickel	13 0	1 1E-02	C	--	--				Developmental	4 9E-05	0 004	5 7E-06	0 0005	1 4E-06		6 5E-07		
	Thallium	0 48	1 0E-05	X	--	--				Skin, Hair & Nails	1 8E-06	0 2	2 1E-07	0 02	5 1E-08		2 4E-08		
	Vanadium	30 7	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 3E-05	0 003	3 3E-06		1 5E-06		
										Soil/Dust Ingestion Total		**0.9**		**0.1**		**2E-06**		**9E-07**	**3E-06**
Dermal Contact with Soil	Aluminum	27600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	10 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	51 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	6 9E-06	0 02	8 2E-07	0 003	2 0E-07	3E-07	9 4E-08	1E-07	4E-07
	Cadmium	14 9	1 0E-03	I	--	--	0 001	0 025		Urinary	6 6E-08	0 003	7 9E-09	0 0003	1 9E-09		9 0E-10		
	Chromium	18 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 5	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19680	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	874	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 57	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	36 7	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.003**		**3E-07**		**1E-07**	**4E-07**
										Soil/Dust Total		**0.9**		**0.1**		**2E-06**		**1E-06**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 02
Developmental HI	0 004	0 0005
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 09	0 01
Hematologic HI	0 08	0 009
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 4	0 04
Urinary HI	0 05	0 006

Table 77. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 420 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	26152	1 0E+00	P	--	--				Nervous	9 8E-02	0 1	1 1E-02	0 01	2 8E-03		1 3E-03		
	Antimony	7 0	4 0E-04	I	--	--				Hematologic	2 6E-05	0 07	3 1E-06	0 008	7 5E-07		3 5E-07		
	RBA adjusted Arsenic	7 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 7E-05	0 09	3 1E-06	0 01	7 7E-07	1E-06	3 6E-07	5E-07	2E-06
	Cadmium	10 5	1 0E-03	I	--	--				Urinary	3 9E-05	0 04	4 6E-06	0 005	1 1E-06		5 3E-07		
	Chromium	13 9	3 0E-03	I	--	--			(a)	--	5 2E-05	0 02	6 1E-06	0 002	1 5E-06		7 0E-07		
	Cobalt	6 7	3 0E-04	P	--	--				Endocrine	2 5E-05	0 08	3 0E-06	0 01	7 2E-07		3 4E-07		
	Iron	16232	7 0E-01	P	--	--				Gastrointestinal	6 1E-02	0 09	7 1E-03	0 01	1 7E-03		8 1E-04		
	Manganese	714	2 4E-02	S	--	--				Nervous	2 7E-03	0 1	3 1E-04	0 01	7 6E-05		3 6E-05		
	Nickel	13 4	1 1E-02	C	--	--				Developmental	5 0E-05	0 005	5 9E-06	0 0005	1 4E-06		6 7E-07		
	Thallium	0 45	1 0E-05	X	--	--				Skin, Hair & Nails	1 7E-06	0 2	2 0E-07	0 02	4 9E-08		2 3E-08		
	Vanadium	29 1	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 3E-05	0 003	3 1E-06		1 5E-06		
										Soil/Dust Ingestion Total		**0.8**		**0.09**		**1E-06**		**5E-07**	**2E-06**
Dermal Contact with Soil	Aluminum	31320	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	8 4	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	47 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	6 4E-06	0 02	7 6E-07	0 003	1 8E-07	3E-07	8 7E-08	1E-07	4E-07
	Cadmium	12 6	1 0E-03	I	--	--	0 001	0 025		Urinary	5 6E-08	0 002	6 7E-09	0 0003	1 6E-09		7 6E-10		
	Chromium	16 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19440	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	856	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 1	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 54	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	34 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.02**		**0.003**		**3E-07**		**1E-07**	**4E-07**
										Soil/Dust Total		**0.8**		**0.1**		**1E-06**		**7E-07**	**2E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 1	0 01
Developmental HI	0 005	0 0005
Endocrine HI	0 08	0 01
Gastrointestinal HI	0 09	0 01
Hematologic HI	0 07	0 008
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 3	0 04
Urinary HI	0 04	0 005

Table 78. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 421 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	14098	1 0E+00	P	--	--				Nervous	5 3E-02	0 05	6 2E-03	0 006	1 5E-03		7 1E-04		
	Antimony	3 0	4 0E-04	I	--	--				Hematologic	1 1E-05	0 03	1 3E-06	0 003	3 2E-07		1 5E-07		
	RBA adjusted Arsenic	3 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	1 5E-06	0 005	3 8E-07	6E-07	1 8E-07	3E-07	8E-07
	Cadmium	5 2	1 0E-03	I	--	--				Urinary	1 9E-05	0 02	2 3E-06	0 002	5 5E-07		2 6E-07		
	Chromium	28 6	3 0E-03	I	--	--			(a)	--	1 1E-04	0 04	1 3E-05	0 004	3 1E-06		1 4E-06		
	Cobalt	7 0	3 0E-04	P	--	--				Endocrine	2 6E-05	0 09	3 1E-06	0 01	7 5E-07		3 5E-07		
	Iron	20849	7 0E-01	P	--	--				Gastrointestinal	7 8E-02	0 1	9 1E-03	0 01	2 2E-03		1 0E-03		
	Manganese	253	2 4E-02	S	--	--				Nervous	9 5E-04	0 04	1 1E-04	0 005	2 7E-05		1 3E-05		
	Nickel	16 3	1 1E-02	C	--	--				Developmental	6 1E-05	0 006	7 1E-06	0 0006	1 7E-06		8 2E-07		
	Thallium	0 31	1 0E-05	X	--	--				Skin, Hair & Nails	1 2E-06	0 1	1 4E-07	0 01	3 3E-08		1 6E-08		
	Vanadium	50 5	5 0E-03	S	--	--				Skin, Hair & Nails	1 9E-04	0 04	2 2E-05	0 004	5 4E-06		2 5E-06		
										Soil/Dust Ingestion Total		**0.6**		**0.07**		**6E-07**		**3E-07**	**8E-07**
Dermal Contact with Soil	Aluminum	16884	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	15 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 0E-06	0 007	2 4E-07	0 0008	5 8E-08	9E-08	2 8E-08	4E-08	1E-07
	Cadmium	6 2	1 0E-03	I	--	--	0 001	0 025		Urinary	2 8E-08	0 001	3 3E-09	0 0001	7 9E-10		3 8E-10		
	Chromium	34 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24969	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	303	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	19 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 37	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	60 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.008**		**0.0009**		**9E-08**		**4E-08**	**1E-07**
										Soil/Dust Total		**0.6**		**0.07**		**7E-07**		**3E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 05	0 006
Developmental HI	0 006	0 0006
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 03	0 003
Nervous HI	0 09	0 01
Skin, Hair and Nails HI	0 2	0 02
Urinary HI	0 02	0 002

Table 79. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 430 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	8768	1 0E+00	P	--	--				Nervous	3 3E-02	0 03	3 8E-03	0 004	9 4E-04		4 4E-04		
	Antimony	2 6	4 0E-04	I	--	--				Hematologic	9 9E-06	0 02	1 2E-06	0 003	2 8E-07		1 3E-07		
	RBA adjusted Arsenic	4 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 5E-05	0 05	1 8E-06	0 006	4 4E-07	7E-07	2 0E-07	3E-07	1E-06
	Cadmium	5 9	1 0E-03	I	--	--				Urinary	2 2E-05	0 02	2 6E-06	0 003	6 3E-07		2 9E-07		
	Chromium	17 5	3 0E-03	I	--	--			(a)	--	6 6E-05	0 02	7 7E-06	0 003	1 9E-06		8 8E-07		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	2 0E-05	0 07	2 3E-06	0 008	5 6E-07		2 6E-07		
	Iron	14729	7 0E-01	P	--	--				Gastrointestinal	5 5E-02	0 08	6 5E-03	0 009	1 6E-03		7 4E-04		
	Manganese	486	2 4E-02	S	--	--				Nervous	1 8E-03	0 08	2 1E-04	0 009	5 2E-05		2 4E-05		
	Nickel	12 8	1 1E-02	C	--	--				Developmental	4 8E-05	0 004	5 6E-06	0 0005	1 4E-06		6 4E-07		
	Thallium	0 29	1 0E-05	X	--	--				Skin, Hair & Nails	1 1E-06	0 1	1 3E-07	0 01	3 1E-08		1 4E-08		
	Vanadium	27 3	5 0E-03	S	--	--				Skin, Hair & Nails	1 0E-04	0 02	1 2E-05	0 002	2 9E-06		1 4E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**7E-07**		**3E-07**	**1E-06**
Dermal Contact with Soil	Aluminum	10500	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-06	0 008	2 8E-07	0 0009	6 8E-08	1E-07	3 2E-08	5E-08	1E-07
	Cadmium	7 0	1 0E-03	I	--	--	0 001	0 025		Urinary	3 1E-08	0 001	3 7E-09	0 0001	8 9E-10		4 3E-10		
	Chromium	21 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	582	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 34	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.009**		**0.001**		**1E-07**		**5E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**8E-07**		**4E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 06	0 007
Developmental HI	0 004	0 0005
Endocrine HI	0 07	0 008
Gastrointestinal HI	0 08	0 009
Hematologic HI	0 02	0 003
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 2	0 02
Urinary HI	0 02	0 003

Table 80. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 431 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	6808	1 0E+00	P	--	--				Nervous	2 5E-02	0 03	3 0E-03	0 003	7 3E-04		3 4E-04		
	Antimony	1 0	4 0E-04	I	--	--				Hematologic	3 7E-06	0 009	4 3E-07	0 001	1 1E-07		5 0E-08		
	RBA adjusted Arsenic	2 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 8E-06	0 03	9 2E-07	0 003	2 2E-07	3E-07	1 0E-07	2E-07	5E-07
	Cadmium	2 3	1 0E-03	I	--	--				Urinary	8 5E-06	0 008	1 0E-06	0 001	2 4E-07		1 1E-07		
	Chromium	16 8	3 0E-03	I	--	--			(a)	--	6 3E-05	0 02	7 4E-06	0 002	1 8E-06		8 4E-07		
	Cobalt	5 1	3 0E-04	P	--	--				Endocrine	1 9E-05	0 06	2 2E-06	0 007	5 4E-07		2 5E-07		
	Iron	13516	7 0E-01	P	--	--				Gastrointestinal	5 1E-02	0 07	5 9E-03	0 008	1 4E-03		6 8E-04		
	Manganese	259	2 4E-02	S	--	--				Nervous	9 7E-04	0 04	1 1E-04	0 005	2 8E-05		1 3E-05		
	Nickel	12 2	1 1E-02	C	--	--				Developmental	4 6E-05	0 004	5 3E-06	0 0005	1 3E-06		6 1E-07		
	Thallium	0 18	1 0E-05	X	--	--				Skin, Hair & Nails	6 6E-07	0 07	7 7E-08	0 008	1 9E-08		8 8E-09		
	Vanadium	25 2	5 0E-03	S	--	--				Skin, Hair & Nails	9 4E-05	0 02	1 1E-05	0 002	2 7E-06		1 3E-06		
										Soil/Dust Ingestion Total		**0.4**		**0.04**		**3E-07**		**2E-07**	**5E-07**
Dermal Contact with Soil	Aluminum	8154	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 2E-06	0 004	1 4E-07	0 0005	3 5E-08	5E-08	1 6E-08	2E-08	8E-08
	Cadmium	2 7	1 0E-03	I	--	--	0 001	0 025		Urinary	1 2E-08	0 0005	1 4E-09	0 00006	3 5E-10		1 6E-10		
	Chromium	20 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16186	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	310	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	14 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	30 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0005**		**5E-08**		**2E-08**	**8E-08**
										Soil/Dust Total		**0.4**		**0.04**		**4E-07**		**2E-07**	**6E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 004
Developmental HI	0 004	0 0005
Endocrine HI	0 06	0 007
Gastrointestinal HI	0 07	0 008
Hematologic HI	0 009	0 001
Nervous HI	0 07	0 008
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 009	0 001

Table 81. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 432 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	7705	1 0E+00	P	--	--				Nervous	2 9E-02	0 03	3 4E-03	0 003	8 2E-04		3 9E-04		
	Antimony	2 2	4 0E-04	I	--	--				Hematologic	8 1E-06	0 02	9 4E-07	0 002	2 3E-07		1 1E-07		
	RBA adjusted Arsenic	5 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	2 2E-06	0 007	5 4E-07	8E-07	2 6E-07	4E-07	1E-06
	Cadmium	4 9	1 0E-03	I	--	--				Urinary	1 8E-05	0 02	2 2E-06	0 002	5 3E-07		2 5E-07		
	Chromium	18 5	3 0E-03	I	--	--			(a)	--	6 9E-05	0 02	8 1E-06	0 003	2 0E-06		9 3E-07		
	Cobalt	6 1	3 0E-04	P	--	--				Endocrine	2 3E-05	0 08	2 7E-06	0 009	6 6E-07		3 1E-07		
	Iron	15331	7 0E-01	P	--	--				Gastrointestinal	5 7E-02	0 08	6 7E-03	0 01	1 6E-03		7 7E-04		
	Manganese	300	2 4E-02	S	--	--				Nervous	1 1E-03	0 05	1 3E-04	0 005	3 2E-05		1 5E-05		
	Nickel	14 8	1 1E-02	C	--	--				Developmental	5 5E-05	0 005	6 5E-06	0 0006	1 6E-06		7 4E-07		
	Thallium	0 33	1 0E-05	X	--	--				Skin, Hair & Nails	1 2E-06	0 1	1 4E-07	0 01	3 5E-08		1 7E-08		
	Vanadium	28 4	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 2E-05	0 002	3 0E-06		1 4E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**8E-07**		**4E-07**	**1E-06**
Dermal Contact with Soil	Aluminum	9228	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-06	0 008	2 8E-07	0 0009	6 8E-08	1E-07	3 2E-08	5E-08	1E-07
	Cadmium	5 9	1 0E-03	I	--	--	0 001	0 025		Urinary	2 6E-08	0 001	3 1E-09	0 0001	7 5E-10		3 6E-10		
	Chromium	22 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	18360	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	359	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	17 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 39	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	34 0	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.009**		**0.001**		**1E-07**		**5E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**9E-07**		**4E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 07	0 008
Developmental HI	0 005	0 0006
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 08	0 01
Hematologic HI	0 02	0 002
Nervous HI	0 08	0 009
Skin, Hair and Nails HI	0 2	0 03
Urinary HI	0 02	0 002

Table 82. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 440 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	11599	1 0E+00	P	--	--				Nervous	4 3E-02	0 04	5 1E-03	0 005	1 2E-03		5 8E-04		
	Antimony	1 6	4 0E-04	I	--	--				Hematologic	5 9E-06	0 01	6 9E-07	0 002	1 7E-07		7 9E-08		
	RBA adjusted Arsenic	2 2	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	8 2E-06	0 03	9 6E-07	0 003	2 3E-07	4E-07	1 1E-07	2E-07	5E-07
	Cadmium	2 7	1 0E-03	I	--	--				Urinary	1 0E-05	0 01	1 2E-06	0 001	2 9E-07		1 4E-07		
	Chromium	27 2	3 0E-03	I	--	--			(a)	--	1 0E-04	0 03	1 2E-05	0 004	2 9E-06		1 4E-06		
	Cobalt	5 3	3 0E-04	P	--	--				Endocrine	2 0E-05	0 07	2 3E-06	0 008	5 6E-07		2 6E-07		
	Iron	14753	7 0E-01	P	--	--				Gastrointestinal	5 5E-02	0 08	6 5E-03	0 009	1 6E-03		7 4E-04		
	Manganese	173	2 4E-02	S	--	--				Nervous	6 5E-04	0 03	7 6E-05	0 003	1 9E-05		8 7E-06		
	Nickel	13 3	1 1E-02	C	--	--				Developmental	5 0E-05	0 005	5 8E-06	0 0005	1 4E-06		6 7E-07		
	Thallium	0 18	1 0E-05	X	--	--				Skin, Hair & Nails	6 6E-07	0 07	7 7E-08	0 008	1 9E-08		8 8E-09		
	Vanadium	30 2	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 3E-05	0 003	3 2E-06		1 5E-06		
										Soil/Dust Ingestion Total		**0.4**		**0.05**		**4E-07**		**2E-07**	**5E-07**
Dermal Contact with Soil	Aluminum	13891	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 3E-06	0 004	1 5E-07	0 0005	3 6E-08	5E-08	1 7E-08	3E-08	8E-08
	Cadmium	3 3	1 0E-03	I	--	--	0 001	0 025		Urinary	1 4E-08	0 0006	1 7E-09	0 00007	4 1E-10		2 0E-10		
	Chromium	32 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17669	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	207	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	36 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0006**		**5E-08**		**3E-08**	**8E-08**
										Soil/Dust Total		**0.4**		**0.05**		**4E-07**		**2E-07**	**6E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 004
Developmental HI	0 005	0 0005
Endocrine HI	0 07	0 008
Gastrointestinal HI	0 08	0 009
Hematologic HI	0 01	0 002
Nervous HI	0 07	0 008
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 01	0 001

Table 83. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 441 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	23046	1 0E+00	P	--	--				Nervous	8 6E-02	0 09	1 0E-02	0 01	2 5E-03		1 2E-03		
	Antimony	6 7	4 0E-04	I	--	--				Hematologic	2 5E-05	0 06	2 9E-06	0 007	7 1E-07		3 3E-07		
	RBA adjusted Arsenic	14 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 4E-05	0 2	6 3E-06	0 02	1 5E-06	2E-06	7 2E-07	1E-06	3E-06
	Cadmium	15 0	1 0E-03	I	--	--				Urinary	5 6E-05	0 06	6 6E-06	0 007	1 6E-06		7 5E-07		
	Chromium	20 4	3 0E-03	I	--	--			(a)	--	7 6E-05	0 03	9 0E-06	0 003	2 2E-06		1 0E-06		
	Cobalt	9 8	3 0E-04	P	--	--				Endocrine	3 7E-05	0 1	4 3E-06	0 01	1 0E-06		4 9E-07		
	Iron	17936	7 0E-01	P	--	--				Gastrointestinal	6 7E-02	0 1	7 9E-03	0 01	1 9E-03		9 0E-04		
	Manganese	1122	2 4E-02	S	--	--				Nervous	4 2E-03	0 2	4 9E-04	0 02	1 2E-04		5 6E-05		
	Nickel	19 6	1 1E-02	C	--	--				Developmental	7 3E-05	0 007	8 6E-06	0 0008	2 1E-06		9 8E-07		
	Thallium	0 51	1 0E-05	X	--	--				Skin, Hair & Nails	1 9E-06	0 2	2 2E-07	0 02	5 5E-08		2 6E-08		
	Vanadium	32 9	5 0E-03	S	--	--				Skin, Hair & Nails	1 2E-04	0 02	1 4E-05	0 003	3 5E-06		1 6E-06		
										Soil/Dust Ingestion Total		**1**		**0.1**		**2E-06**		**1E-06**	**3E-06**
Dermal Contact with Soil	Aluminum	27600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	8 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	52 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	7 0E-06	0 02	8 3E-07	0 003	2 0E-07	3E-07	9 5E-08	1E-07	4E-07
	Cadmium	18 0	1 0E-03	I	--	--	0 001	0 025		Urinary	8 0E-08	0 003	9 5E-09	0 0004	2 3E-09		1 1E-09		
	Chromium	24 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21480	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1344	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	23 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 61	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	39 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.03**		**0.003**		**3E-07**		**1E-07**	**4E-07**
										Soil/Dust Total		**1**		**0.1**		**3E-06**		**1E-06**	**4E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 2	0 02
Developmental HI	0 007	0 0008
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 06	0 007
Nervous HI	0 3	0 03
Skin, Hair and Nails HI	0 4	0 05
Urinary HI	0 06	0 007

Table 84. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 442 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16533	1 0E+00	P	--	--				Nervous	6 2E-02	0 06	7 2E-03	0 007	1 8E-03		8 3E-04		
	Antimony	3 2	4 0E-04	I	--	--				Hematologic	1 2E-05	0 03	1 4E-06	0 004	3 4E-07		1 6E-07		
	RBA adjusted Arsenic	6 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 2E-05	0 07	2 6E-06	0 009	6 4E-07	1E-06	3 0E-07	5E-07	1E-06
	Cadmium	5 4	1 0E-03	I	--	--				Urinary	2 0E-05	0 02	2 4E-06	0 002	5 8E-07		2 7E-07		
	Chromium	30 7	3 0E-03	I	--	--			(a)	--	1 1E-04	0 04	1 3E-05	0 004	3 3E-06		1 5E-06		
	Cobalt	8 4	3 0E-04	P	--	--				Endocrine	3 2E-05	0 1	3 7E-06	0 01	9 0E-07		4 2E-07		
	Iron	21142	7 0E-01	P	--	--				Gastrointestinal	7 9E-02	0 1	9 3E-03	0 01	2 3E-03		1 1E-03		
	Manganese	771	2 4E-02	S	--	--				Nervous	2 9E-03	0 1	3 4E-04	0 01	8 2E-05		3 9E-05		
	Nickel	19 1	1 1E-02	C	--	--				Developmental	7 2E-05	0 007	8 4E-06	0 0008	2 0E-06		9 6E-07		
	Thallium	0 27	1 0E-05	X	--	--				Skin, Hair & Nails	1 0E-06	0 1	1 2E-07	0 01	2 9E-08		1 4E-08		
	Vanadium	44 2	5 0E-03	S	--	--				Skin, Hair & Nails	1 7E-04	0 03	1 9E-05	0 004	4 7E-06		2 2E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**1E-06**		**5E-07**	**1E-06**
Dermal Contact with Soil	Aluminum	19800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	26 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 5E-06	0 01	4 1E-07	0 001	9 9E-08	1E-07	4 7E-08	7E-08	2E-07
	Cadmium	6 5	1 0E-03	I	--	--	0 001	0 025		Urinary	2 9E-08	0 001	3 4E-09	0 0001	8 2E-10		3 9E-10		
	Chromium	36 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	10 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25320	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	923	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 33	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	52 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.002**		**1E-07**		**7E-08**	**2E-07**
										Soil/Dust Total		**0.7**		**0.08**		**1E-06**		**5E-07**	**2E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 09	0 01
Developmental HI	0 007	0 0008
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 03	0 004
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 2	0 03
Urinary HI	0 02	0 003

Table 85. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	21387	1 0E+00	P	--	--				Nervous	8 0E-02	0 08	9 4E-03	0 009	2 3E-03		1 1E-03		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	3 0E-06	0 007	3 5E-07	0 0009	8 5E-08		4 0E-08		
	RBA adjusted Arsenic	2 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	8 9E-06	0 03	1 0E-06	0 003	2 5E-07	4E-07	1 2E-07	2E-07	6E-07
	Cadmium	1 4	1 0E-03	I	--	--				Urinary	5 1E-06	0 005	5 9E-07	0 0006	1 4E-07		6 8E-08		
	Chromium	33 1	3 0E-03	I	--	--			(a)	--	1 2E-04	0 04	1 5E-05	0 005	3 5E-06		1 7E-06		
	Cobalt	12 4	3 0E-04	P	--	--				Endocrine	4 6E-05	0 2	5 4E-06	0 02	1 3E-06		6 2E-07		
	Iron	23342	7 0E-01	P	--	--				Gastrointestinal	8 7E-02	0 1	1 0E-02	0 01	2 5E-03		1 2E-03		
	Manganese	708	2 4E-02	S	--	--				Nervous	2 6E-03	0 1	3 1E-04	0 01	7 6E-05		3 5E-05		
	Nickel	31 5	1 1E-02	C	--	--				Developmental	1 2E-04	0 01	1 4E-05	0 001	3 4E-06		1 6E-06		
	Thallium	0 17	1 0E-05	X	--	--				Skin, Hair & Nails	6 5E-07	0 06	7 6E-08	0 008	1 8E-08		8 7E-09		
	Vanadium	35 6	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 6E-05	0 003	3 8E-06		1 8E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**4E-07**		**2E-07**	**6E-07**
Dermal Contact with Soil	Aluminum	25613	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 4	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 3E-06	0 008	2 8E-07	0 0009	6 6E-08	1E-07	3 2E-08	5E-08	1E-07
	Cadmium	1 6	1 0E-03	I	--	--	0 001	0 025		Urinary	7 2E-09	0 0003	8 6E-10	0 00003	2 1E-10		9 8E-11		
	Chromium	39 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	14 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27955	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	848	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	37 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 21	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	42 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.008**		**0.001**		**1E-07**		**5E-08**	**1E-07**
										Soil/Dust Total		**0.7**		**0.08**		**5E-07**		**2E-07**	**7E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 04	0 004
Developmental HI	0 01	0 001
Endocrine HI	0 2	0 02
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 007	0 0009
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 1	0 02
Urinary HI	0 005	0 0006

Table 86. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	27555	1 0E+00	P	--	--				Nervous	1 0E-01	0 1	1 2E-02	0 01	2 9E-03		1 4E-03		
	Antimony	1 7	4 0E-04	I	--	--				Hematologic	6 5E-06	0 02	7 6E-07	0 002	1 9E-07		8 7E-08		
	RBA adjusted Arsenic	1 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 8E-06	0 01	4 5E-07	0 001	1 1E-07	2E-07	5 1E-08	8E-08	2E-07
	Cadmium	2 1	1 0E-03	I	--	--				Urinary	7 7E-06	0 008	9 0E-07	0 0009	2 2E-07		1 0E-07		
	Chromium	61 3	3 0E-03	I	--	--			(a)	--	2 3E-04	0 08	2 7E-05	0 009	6 6E-06		3 1E-06		
	Cobalt	18 7	3 0E-04	P	--	--				Endocrine	7 0E-05	0 2	8 2E-06	0 03	2 0E-06		9 4E-07		
	Iron	34769	7 0E-01	P	--	--				Gastrointestinal	1 3E-01	0 2	1 5E-02	0 02	3 7E-03		1 7E-03		
	Manganese	1543	2 4E-02	S	--	--				Nervous	5 8E-03	0 2	6 8E-04	0 03	1 6E-04		7 7E-05		
	Nickel	42 3	1 1E-02	C	--	--				Developmental	1 6E-04	0 01	1 9E-05	0 002	4 5E-06		2 1E-06		
	Thallium	0 27	1 0E-05	X	--	--				Skin, Hair & Nails	1 0E-06	0 1	1 2E-07	0 01	2 9E-08		1 4E-08		
	Vanadium	59 9	5 0E-03	S	--	--				Skin, Hair & Nails	2 2E-04	0 04	2 6E-05	0 005	6 4E-06		3 0E-06		
										Soil/Dust Ingestion Total		**1**		**0.1**		**2E-07**		**8E-08**	**2E-07**
Dermal Contact with Soil	Aluminum	33000	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	26 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-06	0 01	4 2E-07	0 001	1 0E-07	2E-07	4 9E-08	7E-08	2E-07
	Cadmium	2 5	1 0E-03	I	--	--	0 001	0 025		Urinary	1 1E-08	0 0004	1 3E-09	0 00005	3 1E-10		1 5E-10		
	Chromium	73 4	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	22 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	41640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	1848	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	50 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 33	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	71 8	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.001**		**2E-07**		**7E-08**	**2E-07**
										Soil/Dust Total		**1**		**0.1**		**3E-07**		**1E-07**	**5E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 003
Developmental HI	0 01	0 002
Endocrine HI	0 2	0 03
Gastrointestinal HI	0 2	0 02
Hematologic HI	0 02	0 002
Nervous HI	0 3	0 04
Skin, Hair and Nails HI	0 2	0 02
Urinary HI	0 008	0 001

Table 87. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 801-O3 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	18036	1 0E+00	P	--	--				Nervous	6 7E-02	0 07	7 9E-03	0 008	1 9E-03		9 0E-04		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	2 9E-06	0 007	3 4E-07	0 0008	8 3E-08		3 9E-08		
	RBA adjusted Arsenic	2 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	9 3E-06	0 03	1 1E-06	0 004	2 6E-07	4E-07	1 2E-07	2E-07	6E-07
	Cadmium	3 6	1 0E-03	I	--	--				Urinary	1 4E-05	0 01	1 6E-06	0 002	3 9E-07		1 8E-07		
	Chromium	30 0	3 0E-03	I	--	--			(a)	--	1 1E-04	0 04	1 3E-05	0 004	3 2E-06		1 5E-06		
	Cobalt	11 9	3 0E-04	P	--	--				Endocrine	4 5E-05	0 1	5 2E-06	0 02	1 3E-06		6 0E-07		
	Iron	23246	7 0E-01	P	--	--				Gastrointestinal	8 7E-02	0 1	1 0E-02	0 01	2 5E-03		1 2E-03		
	Manganese	660	2 4E-02	S	--	--				Nervous	2 5E-03	0 1	2 9E-04	0 01	7 1E-05		3 3E-05		
	Nickel	40 3	1 1E-02	C	--	--				Developmental	1 5E-04	0 01	1 8E-05	0 002	4 3E-06		2 0E-06		
	Thallium	0 19	1 0E-05	X	--	--				Skin, Hair & Nails	6 9E-07	0 07	8 1E-08	0 008	2 0E-08		9 3E-09		
	Vanadium	37 9	5 0E-03	S	--	--				Skin, Hair & Nails	1 4E-04	0 03	1 7E-05	0 003	4 0E-06		1 9E-06		
										Soil/Dust Ingestion Total		**0.6**		**0.08**		**4E-07**		**2E-07**	**6E-07**
Dermal Contact with Soil	Aluminum	21600	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	18 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-06	0 008	2 9E-07	0 001	6 9E-08	1E-07	3 3E-08	5E-08	2E-07
	Cadmium	4 3	1 0E-03	I	--	--	0 001	0 025		Urinary	1 9E-08	0 0008	2 3E-09	0 00009	5 5E-10		2 6E-10		
	Chromium	35 9	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	14 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27840	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	791	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	48 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 22	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	45 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.009**		**0.001**		**1E-07**		**5E-08**	**2E-07**
										Soil/Dust Total		**0.7**		**0.08**		**5E-07**		**2E-07**	**7E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 04	0 005
Developmental HI	0 01	0 002
Endocrine HI	0 1	0 02
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 007	0 0008
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 1	0 02
Urinary HI	0 01	0 002

Table 88. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 802-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	10675	1 0E+00	P	--	--				Nervous	4 0E-02	0 04	4 7E-03	0 005	1 1E-03		5 3E-04		
	Antimony	1 8	4 0E-04	I	--	--				Hematologic	6 9E-06	0 02	8 1E-07	0 002	2 0E-07		9 2E-08		
	RBA adjusted Arsenic	1 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 1E-06	0 02	8 3E-07	0 003	2 0E-07	3E-07	9 5E-08	1E-07	4E-07
	Cadmium	4 7	1 0E-03	I	--	--				Urinary	1 8E-05	0 02	2 1E-06	0 002	5 0E-07		2 4E-07		
	Chromium	15 5	3 0E-03	I	--	--			(a)	--	5 8E-05	0 02	6 8E-06	0 002	1 7E-06		7 8E-07		
	Cobalt	5 6	3 0E-04	P	--	--				Endocrine	2 1E-05	0 07	2 4E-06	0 008	6 0E-07		2 8E-07		
	Iron	14558	7 0E-01	P	--	--				Gastrointestinal	5 4E-02	0 08	6 4E-03	0 009	1 6E-03		7 3E-04		
	Manganese	647	2 4E-02	S	--	--				Nervous	2 4E-03	0 1	2 8E-04	0 01	6 9E-05		3 2E-05		
	Nickel	13 3	1 1E-02	C	--	--				Developmental	5 0E-05	0 005	5 8E-06	0 0005	1 4E-06		6 7E-07		
	Thallium	0 24	1 0E-05	X	--	--				Skin, Hair & Nails	8 9E-07	0 09	1 0E-07	0 01	2 6E-08		1 2E-08		
	Vanadium	23 8	5 0E-03	S	--	--				Skin, Hair & Nails	8 9E-05	0 02	1 0E-05	0 002	2 5E-06		1 2E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**3E-07**		**1E-07**	**4E-07**
Dermal Contact with Soil	Aluminum	12784	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	2 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	13 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 8E-06	0 006	2 2E-07	0 0007	5 3E-08	8E-08	2 5E-08	4E-08	1E-07
	Cadmium	5 6	1 0E-03	I	--	--	0 001	0 025		Urinary	2 5E-08	0 001	3 0E-09	0 0001	7 2E-10		3 4E-10		
	Chromium	18 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	17435	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	775	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 29	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	28 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.007**		**0.0009**		**8E-08**		**4E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**4E-07**		**2E-07**	**6E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 004
Developmental HI	0 005	0 0005
Endocrine HI	0 07	0 008
Gastrointestinal HI	0 08	0 009
Hematologic HI	0 02	0 002
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 1	0 02
Urinary HI	0 02	0 002

Table 89. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9095	1 0E+00	P	--	--				Nervous	3 4E-02	0 03	4 0E-03	0 004	9 7E-04		4 6E-04		
	Antimony	6 0	4 0E-04	I	--	--				Hematologic	2 2E-05	0 06	2 6E-06	0 007	6 4E-07		3 0E-07		
	RBA adjusted Arsenic	3 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	1 7E-06	0 006	4 1E-07	6E-07	1 9E-07	3E-07	9E-07
	Cadmium	10 2	1 0E-03	I	--	--				Urinary	3 8E-05	0 04	4 5E-06	0 004	1 1E-06		5 1E-07		
	Chromium	21 0	3 0E-03	I	--	--			(a)	--	7 9E-05	0 03	9 2E-06	0 003	2 2E-06		1 1E-06		
	Cobalt	6 9	3 0E-04	P	--	--				Endocrine	2 6E-05	0 09	3 0E-06	0 01	7 4E-07		3 5E-07		
	Iron	15880	7 0E-01	P	--	--				Gastrointestinal	5 9E-02	0 08	7 0E-03	0 01	1 7E-03		8 0E-04		
	Manganese	418	2 4E-02	S	--	--				Nervous	1 6E-03	0 07	1 8E-04	0 008	4 5E-05		2 1E-05		
	Nickel	15 8	1 1E-02	C	--	--				Developmental	5 9E-05	0 005	6 9E-06	0 0006	1 7E-06		7 9E-07		
	Thallium	0 58	1 0E-05	X	--	--				Skin, Hair & Nails	2 2E-06	0 2	2 5E-07	0 03	6 2E-08		2 9E-08		
	Vanadium	36 0	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 6E-05	0 003	3 8E-06		1 8E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**6E-07**		**3E-07**	**9E-07**
Dermal Contact with Soil	Aluminum	10892	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	7 2	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	27 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 7E-06	0 01	4 4E-07	0 001	1 1E-07	2E-07	5 0E-08	8E-08	2E-07
	Cadmium	12 2	1 0E-03	I	--	--	0 001	0 025		Urinary	5 4E-08	0 002	6 5E-09	0 0003	1 6E-09		7 4E-10		
	Chromium	25 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	19018	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	500	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	18 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 70	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.002**		**2E-07**		**8E-08**	**2E-07**
										Soil/Dust Total		**0.7**		**0.08**		**8E-07**		**4E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 06	0 007
Developmental HI	0 005	0 0006
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 08	0 01
Hematologic HI	0 06	0 007
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 3	0 04
Urinary HI	0 04	0 005

Table 90. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9850	1 0E+00	P	--	--				Nervous	3 7E-02	0 04	4 3E-03	0 004	1 1E-03		4 9E-04		
	Antimony	4 9	4 0E-04	I	--	--				Hematologic	1 8E-05	0 05	2 1E-06	0 005	5 2E-07		2 4E-07		
	RBA adjusted Arsenic	3 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	1 6E-06	0 005	4 0E-07	6E-07	1 9E-07	3E-07	9E-07
	Cadmium	6 0	1 0E-03	I	--	--				Urinary	2 2E-05	0 02	2 6E-06	0 003	6 4E-07		3 0E-07		
	Chromium	20 7	3 0E-03	I	--	--			(a)	--	7 8E-05	0 03	9 1E-06	0 003	2 2E-06		1 0E-06		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	2 4E-05	0 08	2 8E-06	0 009	6 8E-07		3 2E-07		
	Iron	18437	7 0E-01	P	--	--				Gastrointestinal	6 9E-02	0 1	8 1E-03	0 01	2 0E-03		9 2E-04		
	Manganese	327	2 4E-02	S	--	--				Nervous	1 2E-03	0 05	1 4E-04	0 006	3 5E-05		1 6E-05		
	Nickel	15 5	1 1E-02	C	--	--				Developmental	5 8E-05	0 005	6 8E-06	0 0006	1 7E-06		7 8E-07		
	Thallium	0 67	1 0E-05	X	--	--				Skin, Hair & Nails	2 5E-06	0 2	2 9E-07	0 03	7 1E-08		3 3E-08		
	Vanadium	36 7	5 0E-03	S	--	--				Skin, Hair & Nails	1 4E-04	0 03	1 6E-05	0 003	3 9E-06		1 8E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**6E-07**		**3E-07**	**9E-07**
Dermal Contact with Soil	Aluminum	11796	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	5 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	27 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-06	0 01	4 3E-07	0 001	1 0E-07	2E-07	4 9E-08	7E-08	2E-07
	Cadmium	7 1	1 0E-03	I	--	--	0 001	0 025		Urinary	3 2E-08	0 001	3 8E-09	0 0002	9 1E-10		4 3E-10		
	Chromium	24 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	22080	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	391	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	18 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 80	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.002**		**2E-07**		**7E-08**	**2E-07**
										Soil/Dust Total		**0.7**		**0.08**		**8E-07**		**4E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 06	0 007
Developmental HI	0 005	0 0006
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 05	0 005
Nervous HI	0 09	0 01
Skin, Hair and Nails HI	0 3	0 04
Urinary HI	0 02	0 003

Table 91. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 803-O3 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16533	1 0E+00	P	--	--				Nervous	6 2E-02	0 06	7 2E-03	0 007	1 8E-03		8 3E-04		
	Antimony	2 9	4 0E-04	I	--	--				Hematologic	1 1E-05	0 03	1 3E-06	0 003	3 1E-07		1 4E-07		
	RBA adjusted Arsenic	2 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	1 2E-06	0 004	3 0E-07	5E-07	1 4E-07	2E-07	7E-07
	Cadmium	6 6	1 0E-03	I	--	--				Urinary	2 5E-05	0 02	2 9E-06	0 003	7 0E-07		3 3E-07		
	Chromium	27 6	3 0E-03	I	--	--			(a)	--	1 0E-04	0 03	1 2E-05	0 004	2 9E-06		1 4E-06		
	Cobalt	9 9	3 0E-04	P	--	--				Endocrine	3 7E-05	0 1	4 3E-06	0 01	1 1E-06		5 0E-07		
	Iron	21643	7 0E-01	P	--	--				Gastrointestinal	8 1E-02	0 1	9 5E-03	0 01	2 3E-03		1 1E-03		
	Manganese	547	2 4E-02	S	--	--				Nervous	2 0E-03	0 09	2 4E-04	0 01	5 8E-05		2 7E-05		
	Nickel	22 2	1 1E-02	C	--	--				Developmental	8 3E-05	0 008	9 8E-06	0 0009	2 4E-06		1 1E-06		
	Thallium	0 40	1 0E-05	X	--	--				Skin, Hair & Nails	1 5E-06	0 2	1 8E-07	0 02	4 3E-08		2 0E-08		
	Vanadium	46 1	5 0E-03	S	--	--				Skin, Hair & Nails	1 7E-04	0 03	2 0E-05	0 004	4 9E-06		2 3E-06		
										Soil/Dust Ingestion Total		**0.7**		**0.08**		**5E-07**		**2E-07**	**7E-07**
Dermal Contact with Soil	Aluminum	19800	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	3 4	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	20 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 7E-06	0 009	3 3E-07	0 001	7 9E-08	1E-07	3 7E-08	6E-08	2E-07
	Cadmium	7 9	1 0E-03	I	--	--	0 001	0 025		Urinary	3 5E-08	0 001	4 2E-09	0 0002	1 0E-09		4 8E-10		
	Chromium	33 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25920	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	655	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	26 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 48	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	55 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.001**		**1E-07**		**6E-08**	**2E-07**
										Soil/Dust Total		**0.7**		**0.08**		**6E-07**		**3E-07**	**8E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 04	0 005
Developmental HI	0 008	0 0009
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 03	0 003
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 2	0 03
Urinary HI	0 03	0 003

Table 92. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 804-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12306	1 0E+00	P	--	--				Nervous	4 6E-02	0 05	5 4E-03	0 005	1 3E-03		6 2E-04		
	Antimony	1 3	4 0E-04	I	--	--				Hematologic	4 9E-06	0 01	5 8E-07	0 001	1 4E-07		6 6E-08		
	RBA adjusted Arsenic	1 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 2E-06	0 01	4 9E-07	0 002	1 2E-07	2E-07	5 6E-08	8E-08	3E-07
	Cadmium	2 9	1 0E-03	I	--	--				Urinary	1 1E-05	0 01	1 3E-06	0 001	3 1E-07		1 5E-07		
	Chromium	25 7	3 0E-03	I	--	--			(a)	--	9 6E-05	0 03	1 1E-05	0 004	2 8E-06		1 3E-06		
	Cobalt	7 0	3 0E-04	P	--	--				Endocrine	2 6E-05	0 09	3 1E-06	0 01	7 5E-07		3 5E-07		
	Iron	17946	7 0E-01	P	--	--				Gastrointestinal	6 7E-02	0 1	7 9E-03	0 01	1 9E-03		9 0E-04		
	Manganese	449	2 4E-02	S	--	--				Nervous	1 7E-03	0 07	2 0E-04	0 008	4 8E-05		2 2E-05		
	Nickel	17 3	1 1E-02	C	--	--				Developmental	6 5E-05	0 006	7 6E-06	0 0007	1 9E-06		8 7E-07		
	Thallium	0 22	1 0E-05	X	--	--				Skin, Hair & Nails	8 3E-07	0 08	9 8E-08	0 01	2 4E-08		1 1E-08		
	Vanadium	29 7	5 0E-03	S	--	--				Skin, Hair & Nails	1 1E-04	0 02	1 3E-05	0 003	3 2E-06		1 5E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**2E-07**		**8E-08**	**3E-07**
Dermal Contact with Soil	Aluminum	14737	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	8 2	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 1E-06	0 004	1 3E-07	0 0004	3 1E-08	5E-08	1 5E-08	2E-08	7E-08
	Cadmium	3 5	1 0E-03	I	--	--	0 001	0 025		Urinary	1 5E-08	0 0006	1 8E-09	0 00007	4 4E-10		2 1E-10		
	Chromium	30 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21492	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	538	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 27	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	35 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.004**		**0.0005**		**5E-08**		**2E-08**	**7E-08**
										Soil/Dust Total		**0.5**		**0.06**		**2E-07**		**1E-07**	**3E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 002
Developmental HI	0 006	0 0007
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 01	0 001
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 01	0 001

Table 93. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 804-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	13828	1 0E+00	P	--	--				Nervous	5 2E-02	0 05	6 1E-03	0 006	1 5E-03		6 9E-04		
	Antimony	4 1	4 0E-04	I	--	--				Hematologic	1 6E-05	0 04	1 8E-06	0 005	4 4E-07		2 1E-07		
	RBA adjusted Arsenic	2 4	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	9 1E-06	0 03	1 1E-06	0 004	2 6E-07	4E-07	1 2E-07	2E-07	6E-07
	Cadmium	8 8	1 0E-03	I	--	--				Urinary	3 3E-05	0 03	3 9E-06	0 004	9 4E-07		4 4E-07		
	Chromium	20 2	3 0E-03	I	--	--			(a)	--	7 6E-05	0 03	8 9E-06	0 003	2 2E-06		1 0E-06		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	2 4E-05	0 08	2 8E-06	0 009	6 8E-07		3 2E-07		
	Iron	18036	7 0E-01	P	--	--				Gastrointestinal	6 7E-02	0 1	7 9E-03	0 01	1 9E-03		9 0E-04		
	Manganese	422	2 4E-02	S	--	--				Nervous	1 6E-03	0 07	1 8E-04	0 008	4 5E-05		2 1E-05		
	Nickel	19 0	1 1E-02	C	--	--				Developmental	7 1E-05	0 006	8 3E-06	0 0008	2 0E-06		9 5E-07		
	Thallium	0 36	1 0E-05	X	--	--				Skin, Hair & Nails	1 3E-06	0 1	1 6E-07	0 02	3 8E-08		1 8E-08		
	Vanadium	34 8	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 5E-05	0 003	3 7E-06		1 7E-06		
										Soil/Dust Ingestion Total		**0.6**		**0.07**		**4E-07**		**2E-07**	**6E-07**
Dermal Contact with Soil	Aluminum	16560	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	5 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	17 9	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-06	0 008	2 8E-07	0 0009	6 8E-08	1E-07	3 2E-08	5E-08	2E-07
	Cadmium	10 6	1 0E-03	I	--	--	0 001	0 025		Urinary	4 7E-08	0 002	5 6E-09	0 0002	1 3E-09		6 4E-10		
	Chromium	24 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 6	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21600	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	505	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 43	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.001**		**1E-07**		**5E-08**	**2E-07**
										Soil/Dust Total		**0.6**		**0.07**		**5E-07**		**2E-07**	**7E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 04	0 005
Developmental HI	0 006	0 0008
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 04	0 005
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 2	0 02
Urinary HI	0 03	0 004

Table 94. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 805-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	17034	1 0E+00	P	--	--				Nervous	6 4E-02	0 06	7 5E-03	0 007	1 8E-03		8 5E-04		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	3 3E-06	0 008	3 9E-07	0 001	9 4E-08		4 4E-08		
	RBA adjusted Arsenic	2 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	7 7E-06	0 03	9 1E-07	0 003	2 2E-07	3E-07	1 0E-07	2E-07	5E-07
	Cadmium	1 4	1 0E-03	I	--	--				Urinary	5 4E-06	0 005	6 3E-07	0 0006	1 5E-07		7 2E-08		
	Chromium	24 8	3 0E-03	I	--	--			(a)	--	9 3E-05	0 03	1 1E-05	0 004	2 7E-06		1 2E-06		
	Cobalt	9 2	3 0E-04	P	--	--				Endocrine	3 5E-05	0 1	4 1E-06	0 01	9 9E-07		4 6E-07		
	Iron	21242	7 0E-01	P	--	--				Gastrointestinal	7 9E-02	0 1	9 3E-03	0 01	2 3E-03		1 1E-03		
	Manganese	537	2 4E-02	S	--	--				Nervous	2 0E-03	0 08	2 4E-04	0 01	5 7E-05		2 7E-05		
	Nickel	20 7	1 1E-02	C	--	--				Developmental	7 8E-05	0 007	9 1E-06	0 0008	2 2E-06		1 0E-06		
	Thallium	0 16	1 0E-05	X	--	--				Skin, Hair & Nails	6 0E-07	0 06	7 0E-08	0 007	1 7E-08		8 0E-09		
	Vanadium	33 6	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 02	1 5E-05	0 003	3 6E-06		1 7E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**3E-07**		**2E-07**	**5E-07**
Dermal Contact with Soil	Aluminum	20400	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	15 1	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 0E-06	0 007	2 4E-07	0 0008	5 8E-08	9E-08	2 7E-08	4E-08	1E-07
	Cadmium	1 7	1 0E-03	I	--	--	0 001	0 025		Urinary	7 7E-09	0 0003	9 1E-10	0 00004	2 2E-10		1 0E-10		
	Chromium	29 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	11 1	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	25440	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	643	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	24 8	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 19	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	40 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.007**		**0.0008**		**9E-08**		**4E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**4E-07**		**2E-07**	**6E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 004
Developmental HI	0 007	0 0008
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 008	0 001
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 006	0 0007

Table 95. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 805-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9261	1 0E+00	P	--	--				Nervous	3 5E-02	0 03	4 1E-03	0 004	9 9E-04		4 6E-04		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	2 8E-06	0 007	3 2E-07	0 0008	7 9E-08		3 7E-08		
	RBA adjusted Arsenic	0 8	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	2 8E-06	0 009	3 3E-07	0 001	8 0E-08	1E-07	3 8E-08	6E-08	2E-07
	Cadmium	1 5	1 0E-03	I	--	--				Urinary	5 5E-06	0 005	6 4E-07	0 0006	1 6E-07		7 3E-08		
	Chromium	16 4	3 0E-03	I	--	--			(a)	--	6 1E-05	0 02	7 2E-06	0 002	1 8E-06		8 2E-07		
	Cobalt	5 6	3 0E-04	P	--	--				Endocrine	2 1E-05	0 07	2 4E-06	0 008	6 0E-07		2 8E-07		
	Iron	13604	7 0E-01	P	--	--				Gastrointestinal	5 1E-02	0 07	6 0E-03	0 009	1 5E-03		6 8E-04		
	Manganese	344	2 4E-02	S	--	--				Nervous	1 3E-03	0 05	1 5E-04	0 006	3 7E-05		1 7E-05		
	Nickel	13 6	1 1E-02	C	--	--				Developmental	5 1E-05	0 005	5 9E-06	0 0005	1 4E-06		6 8E-07		
	Thallium	0 13	1 0E-05	X	--	--				Skin, Hair & Nails	4 7E-07	0 05	5 5E-08	0 006	1 3E-08		6 3E-09		
	Vanadium	21 9	5 0E-03	S	--	--				Skin, Hair & Nails	8 2E-05	0 02	9 6E-06	0 002	2 3E-06		1 1E-06		
										Soil/Dust Ingestion Total		**0.3**		**0.04**		**1E-07**		**6E-08**	**2E-07**
Dermal Contact with Soil	Aluminum	11091	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	5 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	7 3E-07	0 002	8 7E-08	0 0003	2 1E-08	3E-08	1 0E-08	1E-08	5E-08
	Cadmium	1 7	1 0E-03	I	--	--	0 001	0 025		Urinary	7 8E-09	0 0003	9 2E-10	0 00004	2 2E-10		1 1E-10		
	Chromium	19 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	6 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	16292	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	412	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	16 2	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 15	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	26 2	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.003**		**0.0003**		**3E-08**		**1E-08**	**5E-08**
										Soil/Dust Total		**0.3**		**0.04**		**2E-07**		**7E-08**	**2E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 01	0 001
Developmental HI	0 005	0 0005
Endocrine HI	0 07	0 008
Gastrointestinal HI	0 07	0 009
Hematologic HI	0 007	0 0008
Nervous HI	0 09	0 01
Skin, Hair and Nails HI	0 08	0 009
Urinary HI	0 006	0 0007

Table 96. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12926	1 0E+00	P	--	--				Nervous	4 8E-02	0 05	5 7E-03	0 006	1 4E-03		6 5E-04		
	Antimony	0 6	4 0E-04	I	--	--				Hematologic	2 4E-06	0 006	2 8E-07	0 0007	6 9E-08		3 2E-08		
	RBA adjusted Arsenic	1 6	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	6 0E-06	0 02	7 0E-07	0 002	1 7E-07	3E-07	8 0E-08	1E-07	4E-07
	Cadmium	2 4	1 0E-03	I	--	--				Urinary	9 0E-06	0 009	1 1E-06	0 001	2 6E-07		1 2E-07		
	Chromium	25 6	3 0E-03	I	--	--			(a)	--	9 6E-05	0 03	1 1E-05	0 004	2 7E-06		1 3E-06		
	Cobalt	8 2	3 0E-04	P	--	--				Endocrine	3 1E-05	0 1	3 6E-06	0 01	8 8E-07		4 1E-07		
	Iron	20741	7 0E-01	P	--	--				Gastrointestinal	7 8E-02	0 1	9 1E-03	0 01	2 2E-03		1 0E-03		
	Manganese	494	2 4E-02	S	--	--				Nervous	1 8E-03	0 08	2 2E-04	0 009	5 3E-05		2 5E-05		
	Nickel	23 0	1 1E-02	C	--	--				Developmental	8 6E-05	0 008	1 0E-05	0 0009	2 5E-06		1 2E-06		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	4 4E-07	0 04	5 2E-08	0 005	1 3E-08		5 9E-09		
	Vanadium	36 4	5 0E-03	S	--	--				Skin, Hair & Nails	1 4E-04	0 03	1 6E-05	0 003	3 9E-06		1 8E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**3E-07**		**1E-07**	**4E-07**
Dermal Contact with Soil	Aluminum	15480	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	11 7	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-06	0 005	1 9E-07	0 0006	4 5E-08	7E-08	2 1E-08	3E-08	1E-07
	Cadmium	2 9	1 0E-03	I	--	--	0 001	0 025		Urinary	1 3E-08	0 0005	1 5E-09	0 00006	3 7E-10		1 7E-10		
	Chromium	30 6	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	9 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24840	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	592	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	27 6	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	43 6	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.006**		**0.0007**		**7E-08**		**3E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**3E-07**		**2E-07**	**5E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 003
Developmental HI	0 008	0 0009
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 006	0 0007
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 01	0 001

Table 97. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	16733	1 0E+00	P	--	--				Nervous	6 3E-02	0 06	7 3E-03	0 007	1 8E-03		8 4E-04		
	Antimony	0 8	4 0E-04	I	--	--				Hematologic	3 0E-06	0 008	3 5E-07	0 0009	8 6E-08		4 0E-08		
	RBA adjusted Arsenic	2 9	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	1 3E-06	0 004	3 1E-07	5E-07	1 4E-07	2E-07	7E-07
	Cadmium	2 7	1 0E-03	I	--	--				Urinary	1 0E-05	0 01	1 2E-06	0 001	2 9E-07		1 4E-07		
	Chromium	30 8	3 0E-03	I	--	--			(a)	--	1 2E-04	0 04	1 3E-05	0 004	3 3E-06		1 5E-06		
	Cobalt	10 7	3 0E-04	P	--	--				Endocrine	4 0E-05	0 1	4 7E-06	0 02	1 1E-06		5 4E-07		
	Iron	22645	7 0E-01	P	--	--				Gastrointestinal	8 5E-02	0 1	9 9E-03	0 01	2 4E-03		1 1E-03		
	Manganese	545	2 4E-02	S	--	--				Nervous	2 0E-03	0 08	2 4E-04	0 01	5 8E-05		2 7E-05		
	Nickel	32 0	1 1E-02	C	--	--				Developmental	1 2E-04	0 01	1 4E-05	0 001	3 4E-06		1 6E-06		
	Thallium	0 17	1 0E-05	X	--	--				Skin, Hair & Nails	6 3E-07	0 06	7 3E-08	0 007	1 8E-08		8 4E-09		
	Vanadium	37 1	5 0E-03	S	--	--				Skin, Hair & Nails	1 4E-04	0 03	1 6E-05	0 003	4 0E-06		1 9E-06		
										Soil/Dust Ingestion Total		**0.6**		**0.07**		**5E-07**		**2E-07**	**7E-07**
Dermal Contact with Soil	Aluminum	20040	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 0	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	21 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 8E-06	0 009	3 3E-07	0 001	8 0E-08	1E-07	3 8E-08	6E-08	2E-07
	Cadmium	3 3	1 0E-03	I	--	--	0 001	0 025		Urinary	1 5E-08	0 0006	1 7E-09	0 00007	4 2E-10		2 0E-10		
	Chromium	36 8	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	12 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	27120	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	653	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	38 3	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 20	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	44 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.01**		**0.001**		**1E-07**		**6E-08**	**2E-07**
										Soil/Dust Total		**0.6**		**0.07**		**6E-07**		**3E-07**	**9E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 05	0 005
Developmental HI	0 01	0 001
Endocrine HI	0 1	0 02
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 008	0 0009
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 1	0 02
Urinary HI	0 01	0 001

Table 98. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O3 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	13427	1 0E+00	P	--	--				Nervous	5 0E-02	0 05	5 9E-03	0 006	1 4E-03		6 7E-04		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	3 4E-06	0 009	4 0E-07	0 001	9 8E-08		4 6E-08		
	RBA adjusted Arsenic	1 3	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 9E-06	0 02	5 7E-07	0 002	1 4E-07	2E-07	6 5E-08	1E-07	3E-07
	Cadmium	1 7	1 0E-03	I	--	--				Urinary	6 4E-06	0 006	7 5E-07	0 0007	1 8E-07		8 5E-08		
	Chromium	23 3	3 0E-03	I	--	--			(a)	--	8 7E-05	0 03	1 0E-05	0 003	2 5E-06		1 2E-06		
	Cobalt	6 7	3 0E-04	P	--	--				Endocrine	2 5E-05	0 08	2 9E-06	0 01	7 2E-07		3 4E-07		
	Iron	20341	7 0E-01	P	--	--				Gastrointestinal	7 6E-02	0 1	8 9E-03	0 01	2 2E-03		1 0E-03		
	Manganese	598	2 4E-02	S	--	--				Nervous	2 2E-03	0 09	2 6E-04	0 01	6 4E-05		3 0E-05		
	Nickel	18 9	1 1E-02	C	--	--				Developmental	7 1E-05	0 006	8 3E-06	0 0008	2 0E-06		9 5E-07		
	Thallium	0 11	1 0E-05	X	--	--				Skin, Hair & Nails	4 2E-07	0 04	5 0E-08	0 005	1 2E-08		5 7E-09		
	Vanadium	35 4	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 6E-05	0 003	3 8E-06		1 8E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**2E-07**		**1E-07**	**3E-07**
Dermal Contact with Soil	Aluminum	16080	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 5	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 3E-06	0 004	1 5E-07	0 0005	3 6E-08	5E-08	1 7E-08	3E-08	8E-08
	Cadmium	2 0	1 0E-03	I	--	--	0 001	0 025		Urinary	9 1E-09	0 0004	1 1E-09	0 00004	2 6E-10		1 2E-10		
	Chromium	28 0	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 0	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	24360	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	716	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 7	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	42 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0005**		**5E-08**		**3E-08**	**8E-08**
										Soil/Dust Total		**0.5**		**0.06**		**3E-07**		**1E-07**	**4E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 002
Developmental HI	0 006	0 0008
Endocrine HI	0 08	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 009	0 001
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 09	0 01
Urinary HI	0 007	0 0008

Table 99. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O4 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12377	1 0E+00	P	--	--				Nervous	4 6E-02	0 05	5 4E-03	0 005	1 3E-03		6 2E-04		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	2 5E-06	0 006	2 9E-07	0 0007	7 0E-08		3 3E-08		
	RBA adjusted Arsenic	1 3	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-06	0 02	5 8E-07	0 002	1 4E-07	2E-07	6 7E-08	1E-07	3E-07
	Cadmium	1 5	1 0E-03	I	--	--				Urinary	5 5E-06	0 006	6 5E-07	0 0006	1 6E-07		7 4E-08		
	Chromium	20 2	3 0E-03	I	--	--			(a)	--	7 6E-05	0 03	8 9E-06	0 003	2 2E-06		1 0E-06		
	Cobalt	6 9	3 0E-04	P	--	--				Endocrine	2 6E-05	0 09	3 0E-06	0 01	7 4E-07		3 5E-07		
	Iron	17026	7 0E-01	P	--	--				Gastrointestinal	6 4E-02	0 09	7 5E-03	0 01	1 8E-03		8 5E-04		
	Manganese	496	2 4E-02	S	--	--				Nervous	1 9E-03	0 08	2 2E-04	0 009	5 3E-05		2 5E-05		
	Nickel	17 9	1 1E-02	C	--	--				Developmental	6 7E-05	0 006	7 8E-06	0 0007	1 9E-06		9 0E-07		
	Thallium	0 10	1 0E-05	X	--	--				Skin, Hair & Nails	3 9E-07	0 04	4 6E-08	0 005	1 1E-08		5 2E-09		
	Vanadium	31 2	5 0E-03	S	--	--				Skin, Hair & Nails	1 2E-04	0 02	1 4E-05	0 003	3 3E-06		1 6E-06		
										Soil/Dust Ingestion Total		**0.4**		**0.05**		**2E-07**		**1E-07**	**3E-07**
Dermal Contact with Soil	Aluminum	14823	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 8	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	9 8	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 3E-06	0 004	1 5E-07	0 0005	3 7E-08	6E-08	1 8E-08	3E-08	8E-08
	Cadmium	1 8	1 0E-03	I	--	--	0 001	0 025		Urinary	7 8E-09	0 0003	9 3E-10	0 00004	2 2E-10		1 1E-10		
	Chromium	24 2	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 3	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	20391	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	594	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	21 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 13	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	37 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0006**		**6E-08**		**3E-08**	**8E-08**
										Soil/Dust Total		**0.4**		**0.05**		**3E-07**		**1E-07**	**4E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 002
Developmental HI	0 006	0 0007
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 09	0 01
Hematologic HI	0 006	0 0007
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 08	0 01
Urinary HI	0 006	0 0007

Table 100. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 806-O5 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	15230	1 0E+00	P	--	--				Nervous	5 7E-02	0 06	6 7E-03	0 007	1 6E-03		7 6E-04		
	Antimony	0 7	4 0E-04	I	--	--				Hematologic	2 8E-06	0 007	3 3E-07	0 0008	7 9E-08		3 7E-08		
	RBA adjusted Arsenic	1 5	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 5E-06	0 02	6 4E-07	0 002	1 6E-07	2E-07	7 3E-08	1E-07	3E-07
	Cadmium	1 6	1 0E-03	I	--	--				Urinary	6 0E-06	0 006	7 0E-07	0 0007	1 7E-07		8 0E-08		
	Chromium	21 9	3 0E-03	I	--	--			(a)	--	8 2E-05	0 03	9 6E-06	0 003	2 3E-06		1 1E-06		
	Cobalt	7 4	3 0E-04	P	--	--				Endocrine	2 8E-05	0 09	3 3E-06	0 01	7 9E-07		3 7E-07		
	Iron	19739	7 0E-01	P	--	--				Gastrointestinal	7 4E-02	0 1	8 7E-03	0 01	2 1E-03		9 9E-04		
	Manganese	598	2 4E-02	S	--	--				Nervous	2 2E-03	0 09	2 6E-04	0 01	6 4E-05		3 0E-05		
	Nickel	19 1	1 1E-02	C	--	--				Developmental	7 2E-05	0 007	8 4E-06	0 0008	2 0E-06		9 6E-07		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	4 5E-07	0 04	5 2E-08	0 005	1 3E-08		6 0E-09		
	Vanadium	34 7	5 0E-03	S	--	--				Skin, Hair & Nails	1 3E-04	0 03	1 5E-05	0 003	3 7E-06		1 7E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**2E-07**		**1E-07**	**3E-07**
Dermal Contact with Soil	Aluminum	18240	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 9	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	10 7	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 4E-06	0 005	1 7E-07	0 0006	4 1E-08	6E-08	1 9E-08	3E-08	9E-08
	Cadmium	1 9	1 0E-03	I	--	--	0 001	0 025		Urinary	8 5E-09	0 0003	1 0E-09	0 00004	2 4E-10		1 2E-10		
	Chromium	26 3	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 9	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23640	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	716	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	22 9	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	41 5	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0006**		**6E-08**		**3E-08**	**9E-08**
										Soil/Dust Total		**0.5**		**0.06**		**3E-07**		**1E-07**	**4E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 003
Developmental HI	0 007	0 0008
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 007	0 0008
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 09	0 01
Urinary HI	0 006	0 0007

Table 101. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 807-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	21355	1 0E+00	P	--	--				Nervous	8 0E-02	0 08	9 4E-03	0 009	2 3E-03		1 1E-03		
	Antimony	0 5	4 0E-04	I	--	--				Hematologic	1 7E-06	0 004	2 0E-07	0 0005	4 9E-08		2 3E-08		
	RBA adjusted Arsenic	1 6	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	6 1E-06	0 02	7 2E-07	0 002	1 7E-07	3E-07	8 2E-08	1E-07	4E-07
	Cadmium	0 8	1 0E-03	I	--	--				Urinary	2 9E-06	0 003	3 4E-07	0 0003	8 4E-08		3 9E-08		
	Chromium	20 1	3 0E-03	I	--	--			(a)	--	7 5E-05	0 03	8 8E-06	0 003	2 1E-06		1 0E-06		
	Cobalt	7 2	3 0E-04	P	--	--				Endocrine	2 7E-05	0 09	3 2E-06	0 01	7 7E-07		3 6E-07		
	Iron	18004	7 0E-01	P	--	--				Gastrointestinal	6 7E-02	0 1	7 9E-03	0 01	1 9E-03		9 0E-04		
	Manganese	736	2 4E-02	S	--	--				Nervous	2 8E-03	0 1	3 2E-04	0 01	7 9E-05		3 7E-05		
	Nickel	19 3	1 1E-02	C	--	--				Developmental	7 2E-05	0 007	8 5E-06	0 0008	2 1E-06		9 7E-07		
	Thallium	0 14	1 0E-05	X	--	--				Skin, Hair & Nails	5 2E-07	0 05	6 0E-08	0 006	1 5E-08		6 9E-09		
	Vanadium	32 9	5 0E-03	S	--	--				Skin, Hair & Nails	1 2E-04	0 02	1 4E-05	0 003	3 5E-06		1 6E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**3E-07**		**1E-07**	**4E-07**
Dermal Contact with Soil	Aluminum	25574	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	12 0	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 6E-06	0 005	1 9E-07	0 0006	4 5E-08	7E-08	2 2E-08	3E-08	1E-07
	Cadmium	0 9	1 0E-03	I	--	--	0 001	0 025		Urinary	4 2E-09	0 0002	5 0E-10	0 00002	1 2E-10		5 7E-11		
	Chromium	24 1	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	8 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	21561	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	881	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	23 1	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 16	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	39 4	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.005**		**0.0007**		**7E-08**		**3E-08**	**1E-07**
										Soil/Dust Total		**0.5**		**0.06**		**3E-07**		**2E-07**	**5E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 03	0 003
Developmental HI	0 007	0 0008
Endocrine HI	0 09	0 01
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 004	0 0005
Nervous HI	0 2	0 02
Skin, Hair and Nails HI	0 1	0 01
Urinary HI	0 003	0 0004

Table 102. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 808-O1 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	9733	1 0E+00	P	--	--				Nervous	3 6E-02	0 04	4 3E-03	0 004	1 0E-03		4 9E-04		
	Antimony	0 5	4 0E-04	I	--	--				Hematologic	2 0E-06	0 005	2 3E-07	0 0006	5 6E-08		2 6E-08		
	RBA adjusted Arsenic	1 0	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	3 7E-06	0 01	4 4E-07	0 001	1 1E-07	2E-07	5 0E-08	8E-08	2E-07
	Cadmium	1 1	1 0E-03	I	--	--				Urinary	4 2E-06	0 004	5 0E-07	0 0005	1 2E-07		5 7E-08		
	Chromium	22 3	3 0E-03	I	--	--			(a)	--	8 3E-05	0 03	9 8E-06	0 003	2 4E-06		1 1E-06		
	Cobalt	6 5	3 0E-04	P	--	--				Endocrine	2 4E-05	0 08	2 9E-06	0 01	7 0E-07		3 3E-07		
	Iron	17323	7 0E-01	P	--	--				Gastrointestinal	6 5E-02	0 09	7 6E-03	0 01	1 9E-03		8 7E-04		
	Manganese	453	2 4E-02	S	--	--				Nervous	1 7E-03	0 07	2 0E-04	0 008	4 8E-05		2 3E-05		
	Nickel	16 7	1 1E-02	C	--	--				Developmental	6 3E-05	0 006	7 3E-06	0 0007	1 8E-06		8 4E-07		
	Thallium	0 12	1 0E-05	X	--	--				Skin, Hair & Nails	4 3E-07	0 04	5 1E-08	0 005	1 2E-08		5 8E-09		
	Vanadium	31 8	5 0E-03	S	--	--				Skin, Hair & Nails	1 2E-04	0 02	1 4E-05	0 003	3 4E-06		1 6E-06		
										Soil/Dust Ingestion Total		**0.4**		**0.05**		**2E-07**		**8E-08**	**2E-07**
Dermal Contact with Soil	Aluminum	11656	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 6	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	7 3	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	9 8E-07	0 003	1 2E-07	0 0004	2 8E-08	4E-08	1 3E-08	2E-08	6E-08
	Cadmium	1 4	1 0E-03	I	--	--	0 001	0 025		Urinary	6 0E-09	0 0002	7 2E-10	0 00003	1 7E-10		8 2E-11		
	Chromium	26 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 8	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	20746	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	542	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 0	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 14	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	38 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.003**		**0.0004**		**4E-08**		**2E-08**	**6E-08**
										Soil/Dust Total		**0.4**		**0.05**		**2E-07**		**1E-07**	**3E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 002
Developmental HI	0 006	0 0007
Endocrine HI	0 08	0 01
Gastrointestinal HI	0 09	0 01
Hematologic HI	0 005	0 0006
Nervous HI	0 1	0 01
Skin, Hair and Nails HI	0 08	0 01
Urinary HI	0 004	0 0005

Table 103. Non-Cancer and Cancer Risks from Incidental Ingestion of Soil/Dust and Dermal Contact with Soil at Tribal Allotment DU 808-O2 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Soil/Dust EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil/Dust	Aluminum	12425	1 0E+00	P	--	--				Nervous	4 6E-02	0 05	5 4E-03	0 005	1 3E-03		6 2E-04		
	Antimony	0 9	4 0E-04	I	--	--				Hematologic	3 4E-06	0 009	4 0E-07	0 001	9 9E-08		4 6E-08		
	RBA adjusted Arsenic	1 1	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	4 3E-06	0 01	5 0E-07	0 002	1 2E-07	2E-07	5 7E-08	9E-08	3E-07
	Cadmium	1 1	1 0E-03	I	--	--				Urinary	4 1E-06	0 004	4 8E-07	0 0005	1 2E-07		5 5E-08		
	Chromium	21 4	3 0E-03	I	--	--			(a)	--	8 0E-05	0 03	9 4E-06	0 003	2 3E-06		1 1E-06		
	Cobalt	6 4	3 0E-04	P	--	--				Endocrine	2 4E-05	0 08	2 8E-06	0 009	6 8E-07		3 2E-07		
	Iron	18938	7 0E-01	P	--	--				Gastrointestinal	7 1E-02	0 1	8 3E-03	0 01	2 0E-03		9 5E-04		
	Manganese	573	2 4E-02	S	--	--				Nervous	2 1E-03	0 09	2 5E-04	0 01	6 1E-05		2 9E-05		
	Nickel	17 1	1 1E-02	C	--	--				Developmental	6 4E-05	0 006	7 5E-06	0 0007	1 8E-06		8 6E-07		
	Thallium	0 26	1 0E-05	X	--	--				Skin, Hair & Nails	9 9E-07	0 1	1 2E-07	0 01	2 8E-08		1 3E-08		
	Vanadium	27 5	5 0E-03	S	--	--				Skin, Hair & Nails	1 0E-04	0 02	1 2E-05	0 002	2 9E-06		1 4E-06		
										Soil/Dust Ingestion Total		**0.5**		**0.06**		**2E-07**		**9E-08**	**3E-07**
Dermal Contact with Soil	Aluminum	14880	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	1 1	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	8 4	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 1E-06	0 004	1 3E-07	0 0004	3 2E-08	5E-08	1 5E-08	2E-08	7E-08
	Cadmium	1 3	1 0E-03	I	--	--	0 001	0 025		Urinary	5 9E-09	0 0002	7 0E-10	0 00003	1 7E-10		8 0E-11		
	Chromium	25 7	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 7	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	22680	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	686	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	20 5	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 32	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 9	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.004**		**0.0005**		**5E-08**		**2E-08**	**7E-08**
										Soil/Dust Total		**0.5**		**0.06**		**2E-07**		**1E-07**	**3E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 02	0 002
Developmental HI	0 006	0 0007
Endocrine HI	0 08	0 009
Gastrointestinal HI	0 1	0 01
Hematologic HI	0 009	0 001
Nervous HI	0 1	0 02
Skin, Hair and Nails HI	0 1	0 02
Urinary HI	0 004	0 0005

Table 104. Non-Cancer and Cancer Risks from Incidental Ingestion of Sediment and Dermal Contact with Sediment at Tribal Allotment DU 411 for Non-Lead COPCS for the RME: CHIRU

Exposure Pathway	Analyte Name	Sediment EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Sediment	Aluminum	6112	1 0E+00	P	--	--				Nervous	1 4E-02	0 01	3 1E-03	0 003	1 2E-03		8 9E-04		
	Antimony	11 5	4 0E-04	I	--	--				Hematologic	2 6E-05	0 07	5 9E-06	0 01	2 2E-06		1 7E-06		
	RBA adjusted Arsenic	4 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	2 4E-06	0 008	9 2E-07	1E-06	6 9E-07	1E-06	2E-06
	Cadmium	5 1	1 0E-03	I	--	--				Urinary	1 1E-05	0 01	2 6E-06	0 003	9 8E-07		7 4E-07		
	Chromium	22 5	3 0E-03	I	--	--			(a)	--	5 1E-05	0 02	1 1E-05	0 004	4 4E-06		3 3E-06		
	Cobalt	7 4	3 0E-04	P	--	--				Endocrine	1 7E-05	0 06	3 8E-06	0 01	1 4E-06		1 1E-06		
	Iron	31917	7 0E-01	P	--	--				Gastrointestinal	7 2E-02	0 1	1 6E-02	0 02	6 2E-03		4 6E-03		
	Manganese	415	2 4E-02	S	--	--				Nervous	9 4E-04	0 04	2 1E-04	0 009	8 1E-05		6 0E-05		
	Nickel	15 4	1 1E-02	C	--	--				Developmental	3 5E-05	0 003	7 8E-06	0 0007	3 0E-06		2 2E-06		
	Thallium	0 30	1 0E-05	X	--	--				Skin, Hair & Nails	6 9E-07	0 07	1 6E-07	0 02	5 9E-08		4 4E-08		
	Vanadium	32 1	5 0E-03	S	--	--				Skin, Hair & Nails	7 3E-05	0 01	1 6E-05	0 003	6 2E-06		4 7E-06		
										Sediment Ingestion Total		**0.4**		**0.1**		**1E-06**		**1E-06**	**2E-06**
Dermal Contact with Sediment	Aluminum	6112	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	11 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	14 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	2 4E-06	0 008	4 8E-07	0 002	2 0E-07	3E-07	1 4E-07	2E-07	5E-07
	Cadmium	5 1	1 0E-03	I	--	--	0 001	0 025		Urinary	2 7E-08	0 001	5 5E-09	0 0002	2 3E-09		1 6E-09		
	Chromium	22 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	31917	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	415	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 30	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Sediment Dermal Total		**0.009**		**0.002**		**3E-07**		**2E-07**	**5E-07**
										Sediment Total		**0.4**		**0.1**		**2E-06**		**1E-06**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 04	0 01
Developmental HI	0 003	0 0007
Endocrine HI	0 06	0 01
Gastrointestinal HI	0 1	0 02
Hematologic HI	0 07	0 01
Nervous HI	0 05	0 01
Skin, Hair and Nails HI	0 1	0 03
Urinary HI	0 01	0 003

Table 105. Non-Cancer and Cancer Risks from Incidental Ingestion of Sediment and Dermal Contact with Sediment at Tribal Allotment DU 411 for Non-Lead COPCS for the CTE: CHIRU

Exposure Pathway	Analyte Name	Sediment EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Sediment	Aluminum	6112	1 0E+00	P	--	--				Nervous	1 6E-03	0 002	1 9E-04	0 0002	4 6E-05		2 2E-05		
	Antimony	11 5	4 0E-04	I	--	--				Hematologic	3 0E-06	0 008	3 5E-07	0 0009	8 6E-08		4 0E-08		
	RBA adjusted Arsenic	4 7	3 0E-04	I	1 5	I				Cardiovascular; Skin, Hair & Nails	1 2E-06	0 004	1 5E-07	0 0005	3 6E-08	5E-08	1 7E-08	2E-08	8E-08
	Cadmium	5 1	1 0E-03	I	--	--				Urinary	1 3E-06	0 001	1 6E-07	0 0002	3 8E-08		1 8E-08		
	Chromium	22 5	3 0E-03	I	--	--			(a)	--	5 9E-06	0 002	6 9E-07	0 0002	1 7E-07		7 9E-08		
	Cobalt	7 4	3 0E-04	P	--	--				Endocrine	2 0E-06	0 007	2 3E-07	0 0008	5 6E-08		2 6E-08		
	Iron	31917	7 0E-01	P	--	--				Gastrointestinal	8 4E-03	0 01	9 8E-04	0 001	2 4E-04		1 1E-04		
	Manganese	415	2 4E-02	S	--	--				Nervous	1 1E-04	0 005	1 3E-05	0 0005	3 1E-06		1 5E-06		
	Nickel	15 4	1 1E-02	C	--	--				Developmental	4 0E-06	0 0004	4 7E-07	0 00004	1 2E-07		5 4E-08		
	Thallium	0 30	1 0E-05	X	--	--				Skin, Hair & Nails	8 0E-08	0 008	9 4E-09	0 0009	2 3E-09		1 1E-09		
	Vanadium	32 1	5 0E-03	S	--	--				Skin, Hair & Nails	8 4E-06	0 002	9 9E-07	0 0002	2 4E-07		1 1E-07		
										Sediment Ingestion Total		**0.05**		**0.006**		**5E-08**		**2E-08**	**8E-08**
Dermal Contact with Sediment	Aluminum	6112	1 0E+00	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	11 5	4 0E-04	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	14 6	3 0E-04	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	1 4E-07	0 0005	2 0E-08	0 00007	3 9E-09	6E-09	2 3E-09	3E-09	9E-09
	Cadmium	5 1	1 0E-03	I	--	--	0 001	0 025		Urinary	1 6E-09	0 00006	2 3E-10	0 000009	4 5E-11		2 6E-11		
	Chromium	22 5	3 0E-03	I	--	--	--	0 025	(a)	--	--		--		--		--		
	Cobalt	7 4	3 0E-04	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	31917	7 0E-01	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	415	2 4E-02	S	--	--	--	0 04		Nervous	--		--		--		--		
	Nickel	15 4	1 1E-02	C	--	--	--	0 04		Developmental	--		--		--		--		
	Thallium	0 30	1 0E-05	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	32 1	5 0E-03	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Sediment Dermal Total		**0.0005**		**0.00008**		**6E-09**		**3E-09**	**9E-09**
										Sediment Total		**0.05**		**0.006**		**6E-08**		**3E-08**	**9E-08**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: A = ATSDR, C = Cal EPA, H = HEAST, I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	0 005	0 0006
Developmental HI	0 0004	0 00004
Endocrine HI	0 007	0 0008
Gastrointestinal HI	0 01	0 001
Hematologic HI	0 008	0 0009
Nervous HI	0 006	0 0007
Skin, Hair and Nails HI	0 01	0 002
Urinary HI	0 001	0 0002

Table 106. Non-Cancer and Cancer Risks from Incidental Ingestion of and Dermal Contact with Surface Water for Non-Lead COPCS for the RME: CHIRU

Pathway	Analyte Name	Surface Water EPC (unfiltered; µg/L)	Toxicity Values				Notes	Primary Target Organ(s)	Permeability Coefficient (K_p) (cm/hr)	GI Absorption Efficiency (ABS_{GI})	Non-Cancer				Cancer				TWA
											Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Ingestion	Aluminum	722	1	P	--	--		Nervous			4 8E-03	0 005	0 0006753	0 0007	4 1E-04		1 9E-04		
	Antimony	0 643	0 0004	I	--	--		Hematologic			4 3E-06	0 01	6 0E-07	0 002	3 7E-07		1 7E-07		
	RBA Adjusted Arsenic	0 174	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails			1 2E-06	0 004	1 6E-07	0 0005	9 9E-08	1E-07	4 6E-08	7E-08	2E-07
	Barium	154	0 2	I	--	--		Urinary			1 0E-03	0 005	1 4E-04	0 0007	8 8E-05		4 1E-05		
	Beryllium	0 189	0 002	I	--	--		Gastrointestinal			1 3E-06	0 0006	1 8E-07	0 00009	1 1E-07		5 0E-08		
	Cadmium	0 233	0 0005	I	--	--	(a)	Urinary			1 5E-06	0 003	2 2E-07	0 0004	1 3E-07		6 2E-08		
	Chromium	3 67	0 003	I	--	--	(b)	None			2 4E-05	0 008	3 4E-06	0 001	2 1E-06		9 8E-07		
	Cobalt	4 35	0 0003	P	--	--		Endocrine			2 9E-05	0 1	4 1E-06	0 01	2 5E-06		1 2E-06		
	Iron	1817	0 7	P	--	--		Gastrointestinal			1 2E-02	0 02	1 7E-03	0 002	1 0E-03		4 9E-04		
	Manganese	419	0 024	S	--	--		Neurological			2 8E-03	0 1	3 9E-04	0 02	2 4E-04		1 1E-04		
	Thallium	0 0358	0 00001	X	--	--		Skin, Hair & Nails			2 4E-07	0 02	3 3E-08	0 003	2 0E-08		9 6E-09		
	Uranium	0 756	0 0002	A	--	--		Urinary			5 0E-06	0 03	7 1E-07	0 004	4 3E-07		2 0E-07		
	Vanadium	5 07	0 00504	S	--	--		Skin, Hair & Nails			3 4E-05	0 007	4 7E-06	0 0009	2 9E-06		1 4E-06		
										Ingestion Total		**0.3**		**0.05**		**1E-07**		**7E-08**	**2E-07**
Dermal	Aluminum	722 30	1	P	--	--		Nervous	0 001	1	2 8E-04	0 0003	1 6E-04	0 0002	2 4E-05		4 7E-05		
	Antimony	0 64	0 0004	I	--	--		Hematologic	0 001	0 15	2 5E-07	0 004	1 5E-07	0 002	2 2E-08		4 2E-08		
	Arsenic	0 84	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	0 001	1	3 3E-07	0 001	1 9E-07	0 0006	2 8E-08	4E-08	5 5E-08	8E-08	1E-07
	Barium	154	0 2	I	--	--		Urinary	0 001	0 07	6 1E-05	0 004	3 5E-05	0 003	5 2E-06		1 0E-05		
	Beryllium	0 19	0 002	I	--	--		Gastrointestinal	0 001	0 007	7 5E-08	0 005	4 3E-08	0 003	6 4E-09		1 2E-08		
	Cadmium	0 23	0 0005	I	--	--	(a)	Urinary	0 001	0 05	9 2E-08	0 004	5 3E-08	0 002	7 9E-09		1 5E-08		
	Chromium	3 67	0 003	I	--	--	(b)	None	0 002	0 025	2 9E-06	0 04	1 7E-06	0 02	2 5E-07		4 8E-07		
	Cobalt	4 35	0 0003	P	--	--		Endocrine	0 0004	1	6 9E-07	0 002	4 0E-07	0 001	5 9E-08		1 1E-07		
	Iron	1817	0 7	P	--	--		Gastrointestinal	0 001	1	7 2E-04	0 001	4 2E-04	0 0006	6 1E-05		1 2E-04		
	Manganese	419	0 024	S	--	--		Neurological	0 001	0 04	1 7E-04	0 2	9 6E-05	0 1	1 4E-05		2 7E-05		
	Thallium	0 0358	0 00001	X	--	--		Skin, Hair & Nails	0 001	1	1 4E-08	0 001	8 2E-09	0 0008	1 2E-09		2 3E-09		
	Uranium	0 756	0 0002	A	--	--		Urinary	0 001	1	3 0E-07	0 001	1 7E-07	0 0009	2 6E-08		4 9E-08		
	Vanadium	5 07	0 00504	S	--	--		Skin, Hair & Nails	0 001	0 026	2 0E-06	0 02	1 2E-06	0 009	1 7E-07		3 3E-07		
										Dermal Total		**0.3**		**0.1**		**4E-08**		**8E-08**	**1E-07**
										Ingestion and Dermal Total		**0.6**		**0.2**		**2E-07**		**2E-07**	**3E-07**

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

Sources: I = IRIS, A = ATSDR, P = PPRTV, S = see RSL table user's guide Section 5, X = Appendix PPRTV Screen

Cardiovascular HI	0 005	0 001
Endocrine HI	0 1	0 01
Gastrointestinal HI	0 02	0 006
Hematologic HI	0 01	0 004
Nervous HI	0 3	0 1
Skin, Hair & Nails HI	0 05	0 02
Urinary HI	0 04	0 01

Table 107. Non-Cancer and Cancer Risks from Incidental Ingestion of and Dermal Contact with Surface Water for Non-Lead COPCS for the CTE: CHIRU

Pathway	Analyte Name	Surface Water EPC (unfiltered; µg/L)	Toxicity Values				Notes	Primary Target Organ(s)	Permeability Coefficient (K_p) (cm/hr)	GI Absorption Efficiency (ABS_{GI})	Non-Cancer				Cancer				TWA
											Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Ingestion	Aluminum	722	1	P	--	--		Nervous			2 3E-07	0 0003	4 5E-05	0 00005	6 4E-09		5 2E-06		
	Antimony	0 643	0 0004	I	--	--		Hematologic			2 0E-10	0 0007	4 0E-08	0 0001	5 7E-12		4 6E-09		
	RBA Adjusted Arsenic	0 174	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails			5 4E-11	0 0003	1 1E-08	0 00004	1 6E-12	2E-12	1 3E-09	2E-09	2E-09
	Barium	154	0 2	I	--	--		Urinary			4 8E-08	0 0003	9 7E-06	0 00005	1 4E-09		1 1E-06		
	Beryllium	0 189	0 002	I	--	--		Gastrointestinal			5 9E-11	0 00004	1 2E-08	0 00001	1 7E-12		1 4E-09		
	Cadmium	0 233	0 0005	I	--	--	(a)	Urinary			7 3E-11	0 0002	1 5E-08	0 00003	2 1E-12		1 7E-09		
	Chromium	3 67	0 003	I	--	--	(b)	None			1 1E-09	0 0005	2 3E-07	0 00008	3 3E-11		2 6E-08		
	Cobalt	4 35	0 0003	P	--	--		Endocrine			1 4E-09	0 006	2 7E-07	0 0009	3 9E-11		3 1E-08		
	Iron	1817	0 7	P	--	--		Gastrointestinal			5 7E-07	0 001	1 1E-04	0 0002	1 6E-08		1 3E-05		
	Manganese	418 9	0 024	S	--	--		Neurological			1 3E-07	0 008	2 6E-05	0 001	3 7E-09		3 0E-06		
	Thallium	0 0358	0 00001	X	--	--		Skin, Hair & Nails			1 1E-11	0 002	2 3E-09	0 0002	3 2E-13		2 6E-10		
	Uranium	0 756	0 0002	A	--	--		Urinary			2 4E-10	0 002	4 8E-08	0 0002	6 7E-12		5 4E-09		
	Vanadium	5 07	0 00504	S	--	--		Skin, Hair & Nails			1 6E-09	0 0004	3 2E-07	0 00006	4 5E-11		3 6E-08		
										Ingestion Total		**0.02**		**0.003**		**2E-12**		**2E-09**	**2E-09**
Dermal	Aluminum	722	1	P	--	--		Nervous	0 001	1	3 8E-05	0 00004	2 2E-05	0 00002	1 1E-06		2 5E-06		
	Antimony	0 643	0 0004	I	--	--		Hematologic	0 001	0 15	3 4E-08	0 0006	2 0E-08	0 0003	9 7E-10		2 3E-09		
	Arsenic	0 841	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	0 001	1	4 5E-08	0 0001	2 6E-08	0 00009	1 3E-09	2E-09	3 0E-09	4E-09	6E-09
	Barium	154	0 2	I	--	--		Urinary	0 001	0 07	8 1E-06	0 0006	4 7E-06	0 0003	2 3E-07		5 4E-07		
	Beryllium	0 189	0 002	I	--	--		Gastrointestinal	0 001	0 007	1 0E-08	0 0007	5 8E-09	0 0004	2 9E-10		6 6E-10		
	Cadmium	0 233	0 0005	I	--	--	(a)	Urinary	0 001	0 05	1 2E-08	0 0005	7 2E-09	0 0003	3 5E-10		8 2E-10		
	Chromium	3 67	0 003	I	--	--	(b)	None	0 002	0 025	3 9E-07	0 005	2 3E-07	0 003	1 1E-08		2 6E-08		
	Cobalt	4 35	0 0003	P	--	--		Endocrine	0 0004	1	9 2E-08	0 0003	5 3E-08	0 0002	2 6E-09		6 1E-09		
	Iron	1817	0 7	P	--	--		Gastrointestinal	0 001	1	9 6E-05	0 0001	5 6E-05	0 00008	2 8E-06		6 4E-06		
	Manganese	419	0 024	S	--	--		Neurological	0 001	0 04	2 2E-05	0 02	1 3E-05	0 01	6 3E-07		1 5E-06		
	Thallium	0 0358	0 00001	X	--	--		Skin, Hair & Nails	0 001	1	1 9E-09	0 0002	1 1E-09	0 0001	5 4E-11		1 3E-10		
	Uranium	0 756	0 0002	A	--	--		Urinary	0 001	1	4 0E-08	0 0002	2 3E-08	0 0001	1 1E-09		2 7E-09		
	Vanadium	5 07	0 00504	S	--	--		Skin, Hair & Nails	0 001	0 026	2 7E-07	0 002	1 6E-07	0 001	7 7E-09		1 8E-08		
										Dermal Total		**0.03**		**0.02**		**2E-09**		**4E-09**	**6E-09**
										Ingestion and Dermal Total		**0.06**		**0.02**		**2E-09**		**6E-09**	**8E-09**

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

Sources: I = IRIS, A = ATSDR, P = PPRTV, S = see RSL table user's guide Section 5, X = Appendix PPRTV Screen

Cardiovascular HI	0 0004	0 0001
Endocrine HI	0 007	0 001
Gastrointestinal HI	0 002	0 0007
Hematologic HI	0 001	0 0004
Nervous HI	0 03	0 01
Skin, Hair & Nails HI	0 005	0 002
Urinary HI	0 004	0 001

Table 108a. Non-Cancer and Cancer Risks from Inhalation of Air for Non-Lead COPCS for the RME: CHIRU

Analyte Name	Air EPC ($\mu g/m^3$)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		iRfC (mg/m^3)	iRfC Source	iUR $(ug/m^3)^{-1}$	iUR Source			EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Arsenic	0.0059	1.5E-05	C	0.0043	I		Nervous	5.7E-06	0.4	5.7E-06	0.4	4.8E-04	2E-06	1.6E-03	7E-06	9E-06
Cadmium	0.00201	0.00001	A	0.0018	I	(a)	Urinary	1.9E-06	0.2	1.9E-06	0.2	1.7E-04	3E-07	5.5E-04	1E-06	1E-06
								Total	**0.6**		**0.6**		**2E-06**		**8E-06**	**1E-05**

(a) Based on toxicity values for food.

Total by Target Organ System:

Sources: I = IRIS A = ATSDR C = California EPA

Nervous HQ:	0.4	0.4
Urinary HQ:	0.2	0.2

Table 108b. Non-Cancer and Cancer Risks from Inhalation of Air for Non-Lead COPCS for the CTE: CHIRU

Analyte Name	Air EPC ($\mu g/m^3$)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		iRfC (mg/m^3)	iRfC Source	iUR $(ug/m^3)^{-1}$	iUR Source			EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Arsenic	0.0059	1.5E-05	C	0.0043	I		Nervous	4.1E-06	0.3	4.1E-06	0.3	1.2E-04	5E-07	4.7E-04	2E-06	3E-06
Cadmium	0.00201	0.00001	A	0.0018	I	(a)	Urinary	1.4E-06	0.1	1.4E-06	0.1	4.0E-05	7E-08	1.6E-04	3E-07	4E-07
								Total	**0.4**		**0.4**		**6E-07**		**2E-06**	**3E-06**

(a) Based on toxicity values for food.

Total by Target Organ System:

Sources: I = IRIS A = ATSDR C = California EPA

Nervous HQ:	0.3	0.3
Urinary HQ:	0.1	0.1

Table 109. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Burbot Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.697*	mg/kg ww	1	P	--	--		Nervous	9 3E-03	0 009	3 5E-03	0 003	8 0E-04	--	1 0E-03	--	--
	Antimony	*0.0277*	mg/kg ww	0 0004	I	--	--		Hematologic	3 7E-04	0 9	1 4E-04	0 3	3 2E-05	--	4 0E-05	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0625*	mg/kg ww	0 003	I	--	--	(b)	None	8 3E-04	0 3	3 1E-04	0 1	7 1E-05	--	8 9E-05	--	--
	Methylmercury	*0.245*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	3 3E-03	30	1 2E-03	10	2 8E-04	--	3 5E-04	--	--
	Selenium	*0.357*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	4 8E-03	1	1 8E-03	0 4	4 1E-04	--	5 1E-04	--	--
	Thallium	*0.00733*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	9 8E-05	10	3 7E-05	4	8 4E-06	--	1 0E-05	--	--
	Zirconium	*0.00214*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 9E-05	0 4	1 1E-05	0 1	2 4E-06	--	3 1E-06	--	--
Pesticides	4,4'-DDE	*0.00102*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 4E-05	0 05	5 1E-06	0 02	1 2E-06	4E-07	1 5E-06	5E-07	9E-07
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*ND*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
PBDEs	PBDE-47	*0.00159*	mg/kg ww	0 0001	I	--	--		Nervous	2 1E-05	0 2	8 0E-06	0 08	1 8E-06	--	2 3E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		6		1E-04		2E-04	3E-04
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	8 1E-09	*10*	3 0E-09	*4*	6 9E-10	*9E-05*	8 6E-10	*1E-04*	*2E-04*
	PCB TEQ only	*0.000000275*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	3 7E-09	*5*	1 4E-09	*2*	3 1E-10	*4E-05*	3 9E-10	*5E-05*	*9E-05*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00189*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 5E-05	--	9 5E-06	--	2 2E-06	*4E-06*	2 7E-06	*5E-06*	*1E-05*
									Consumption Total		**60**		**20**		**1E-04**		**2E-04**	**3E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 4	0 1
Developmental HI	30	10
Endocrine HI	0 4	0 1
Gastrointestinal HI	0 05	0 02
Hematologic HI	2	0 7
Nervous HI	30	10
Reproductive HI	20	6
Skin, Hair & Nails HI	10	4

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 110. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Kokanee Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.698*	mg/kg ww	1	P	--	--		Nervous	9 3E-03	0 009	3 5E-03	0 003	8 0E-04	--	1 0E-03	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	1 4E-04	0 4	5 3E-05	0 1	1 2E-05	--	1 5E-05	--	--
	Inorganic Arsenic	*0.00387*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	5 2E-05	0 2	1 9E-05	0 06	4 4E-06	7E-06	5 5E-06	8E-06	1E-05
	Chromium	*0.0665*	mg/kg ww	0 003	I	--	--	(b)	None	8 9E-04	0 3	3 3E-04	0 1	7 6E-05	--	9 5E-05	--	--
	Methylmercury	*0.0652*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	8 7E-04	9	3 3E-04	3	7 5E-05	--	9 3E-05	--	--
	Selenium	*0.286*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	3 8E-03	0 8	1 4E-03	0 3	3 3E-04	--	4 1E-04	--	--
	Thallium	*0.0294*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 9E-04	40	1 5E-04	10	3 4E-05	--	4 2E-05	--	--
	Zirconium	*0.00763*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	1 0E-04	1	3 8E-05	0 5	8 7E-06	--	1 1E-05	--	--
Pesticides	4,4'-DDE	*0.00237*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	3 2E-05	0 1	1 2E-05	0 04	2 7E-06	9E-07	3 4E-06	1E-06	2E-06
	Dieldrin	*0.00027*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	3 6E-06	0 07	1 4E-06	0 03	3 1E-07	5E-06	3 9E-07	6E-06	1E-05
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00136*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	1 8E-05	0 02	6 8E-06	0 009	1 6E-06	2E-06	1 9E-06	3E-06	6E-06
PBDEs	PBDE-47	*0.00265*	mg/kg ww	0 0001	I	--	--		Nervous	3 5E-05	0 4	1 3E-05	0 1	3 0E-06	--	3 8E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		10		4		8E-05		1E-04	2E-04
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 5E-09	*4*	9 3E-10	*1*	2 1E-10	*3E-05*	2 7E-10	*3E-05*	*6E-05*
	PCB TEQ only	*0.000000375*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 0E-09	*7*	1 9E-09	*3*	4 3E-10	*6E-05*	5 4E-10	*7E-05*	*1E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00772*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 0E-04	--	3 9E-05	--	8 8E-06	*2E-05*	1 1E-05	*2E-05*	*4E-05*
									Consumption Total		**60**		**20**		**1E-04**		**1E-04**	**2E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	1	0 5
Developmental HI	9	3
Endocrine HI	1	0 5
Gastrointestinal HI	0 2	0 08
Hematologic HI	1	0 4
Nervous HI	10	4
Reproductive HI	10	4
Skin, Hair & Nails HI	40	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 111. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Northern Pike Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*0.434*	mg/kg ww	1	P	--	--		Nervous	5 8E-03	0 006	2 2E-03	0 002	5 0E-04	--	6 2E-04	--	--
	Antimony	*0.00103*	mg/kg ww	0 0004	I	--	--		Hematologic	1 4E-05	0 03	5 2E-06	0 01	1 2E-06	--	1 5E-06	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.114*	mg/kg ww	0 003	I	--	--	(b)	None	1 5E-03	0 5	5 7E-04	0 2	1 3E-04	--	1 6E-04	--	--
	Methylmercury	*0.122*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 6E-03	20	6 1E-04	6	1 4E-04	--	1 7E-04	--	--
	Selenium	*0.647*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	8 6E-03	2	3 2E-03	0 6	7 4E-04	--	9 2E-04	--	--
	Thallium	*0.0131*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	1 7E-04	20	6 6E-05	7	1 5E-05	--	1 9E-05	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*NA*	mg/kg ww	0 0001	I	--	--		Nervous	NA	NA	NA	NA	NA	--	NA	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		NA		NA		NA		NA	NA
	Dioxin/Furan TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
	PCB TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
									Consumption Total		**40**		**10**		**ND**		**ND**	**ND**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	20	6
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	2	0 7
Nervous HI	20	7
Reproductive HI	NA	NA
Skin, Hair & Nails HI	20	7

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 112. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Rainbow Trout Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.667*	mg/kg ww	1	P	--	--		Nervous	8 9E-03	0 009	3 3E-03	0 003	7 6E-04	--	9 5E-04	--	--
	Antimony	*0.0129*	mg/kg ww	0 0004	I	--	--		Hematologic	1 7E-04	0 4	6 5E-05	0 2	1 5E-05	--	1 8E-05	--	--
	Inorganic Arsenic	*0.00398*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	5 3E-05	0 2	2 0E-05	0 07	4 5E-06	7E-06	5 7E-06	9E-06	2E-05
	Chromium	*0.273*	mg/kg ww	0 003	I	--	--	(b)	None	3 6E-03	1	1 4E-03	0 5	3 1E-04	--	3 9E-04	--	--
	Methylmercury	*0.0847*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 1E-03	10	4 2E-04	4	9 7E-05	--	1 2E-04	--	--
	Selenium	*0.339*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	4 5E-03	0 9	1 7E-03	0 3	3 9E-04	--	4 8E-04	--	--
	Thallium	*0.025*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 3E-04	30	1 3E-04	10	2 9E-05	--	3 6E-05	--	--
	Zirconium	*0.00586*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	7 8E-05	1	2 9E-05	0 4	6 7E-06	--	8 4E-06	--	--
Pesticides	4,4'-DDE	*0.00755*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 0E-04	0 3	3 8E-05	0 1	8 6E-06	3E-06	1 1E-05	4E-06	7E-06
	Dieldrin	*0.00023*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	3 1E-06	0 06	1 2E-06	0 02	2 6E-07	4E-06	3 3E-07	5E-06	9E-06
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00146*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	1 9E-05	0 02	7 3E-06	0 009	1 7E-06	3E-06	2 1E-06	3E-06	6E-06
PBDEs	PBDE-47	*0.0077*	mg/kg ww	0 0001	I	--	--		Nervous	1 0E-04	1	3 9E-05	0 4	8 8E-06	--	1 1E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		7		1E-04		2E-04	3E-04
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	8 1E-09	*10*	3 0E-09	*4*	6 9E-10	*9E-05*	8 6E-10	*1E-04*	*2E-04*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	4 7E-09	*7*	1 8E-09	*3*	4 1E-10	*5E-05*	5 1E-10	*7E-05*	*1E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		5E-05		6E-05	1E-04
	as Aroclor	*0.0187*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	2 5E-04	--	9 4E-05	--	2 1E-05	*4E-05*	2 7E-05	*5E-05*	*1E-04*
	as PCB Congener Sum	*0.021*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 8E-04	--	1 1E-04	--	2 4E-05	*5E-05*	3 0E-05	*6E-05*	*1E-04*
									Consumption Total		**70**		**30**		**2E-04**		**3E-04**	**5E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	1	0 4
Developmental HI	10	4
Endocrine HI	1	0 4
Gastrointestinal HI	0 4	0 2
Hematologic HI	1	0 5
Nervous HI	10	5
Reproductive HI	20	7
Skin, Hair & Nails HI	30	10

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 113. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Smallmouth Bass Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.548*	mg/kg ww	1	P	--	--		Nervous	7 3E-03	0 007	2 7E-03	0 003	6 3E-04	--	7 8E-04	--	--
	Antimony	*0.00932*	mg/kg ww	0 0004	I	--	--		Hematologic	1 2E-04	0 3	4 7E-05	0 1	1 1E-05	--	1 3E-05	--	--
	Inorganic Arsenic	*0.0051*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	6 8E-05	0 2	2 6E-05	0 09	5 8E-06	9E-06	7 3E-06	1E-05	2E-05
	Chromium	*0.111*	mg/kg ww	0 003	I	--	--	(b)	None	1 5E-03	0 5	5 6E-04	0 2	1 3E-04	--	1 6E-04	--	--
	Methylmercury	*0.173*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 3E-03	20	8 7E-04	9	2 0E-04	--	2 5E-04	--	--
	Selenium	*0.471*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	6 3E-03	1	2 4E-03	0 5	5 4E-04	--	6 7E-04	--	--
	Thallium	*0.0258*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 4E-04	30	1 3E-04	10	2 9E-05	--	3 7E-05	--	--
	Zirconium	*0.00173*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 3E-05	0 3	8 7E-06	0 1	2 0E-06	--	2 5E-06	--	--
Pesticides	4,4'-DDE	*0.0032*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	4 3E-05	0 1	1 6E-05	0 05	3 7E-06	1E-06	4 6E-06	2E-06	3E-06
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.001*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	1 3E-05	0 02	5 0E-06	0 006	1 1E-06	2E-06	1 4E-06	2E-06	4E-06
PBDEs	PBDE-47	*0.00745*	mg/kg ww	0 0001	I	--	--		Nervous	9 9E-05	1	3 7E-05	0 4	8 5E-06	--	1 1E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		8		2E-04		2E-04	4E-04
	Dioxin/Furan TEQ only	*0.000000753*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 0E-08	*10*	3 8E-09	*5*	8 6E-10	*1E-04*	1 1E-09	*1E-04*	*3E-04*
	PCB TEQ only	*0.000000307*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	4 1E-09	*6*	1 5E-09	*2*	3 5E-10	*5E-05*	4 4E-10	*6E-05*	*1E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0072*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	9 6E-05	--	3 6E-05	--	8 2E-06	*2E-05*	1 0E-05	*2E-05*	*4E-05*
									Consumption Total		**80**		**30**		**2E-04**		**2E-04**	**4E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 5	0 2
Developmental HI	20	9
Endocrine HI	0 3	0 1
Gastrointestinal HI	0 2	0 06
Hematologic HI	2	0 6
Nervous HI	30	9
Reproductive HI	20	8
Skin, Hair & Nails HI	40	10

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 114. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: White Sturgeon Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*0.712*	mg/kg ww	1	P	--	--		Nervous	9 5E-03	0 009	3 6E-03	0 004	8 1E-04	--	1 0E-03	--	--
	Antimony	*ND*	mg/kg ww	0 0004	I	--	--		Hematologic	ND	ND	ND	ND	ND	--	ND	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0938*	mg/kg ww	0 003	I	--	--	(b)	None	1 3E-03	0 4	4 7E-04	0 2	1 1E-04	--	1 3E-04	--	--
	Methylmercury	*0.0946*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 3E-03	10	4 7E-04	5	1 1E-04	--	1 4E-04	--	--
	Selenium	*1.14*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 5E-02	3	5 7E-03	1	1 3E-03	--	1 6E-03	--	--
	Thallium	*0.00384*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	5 1E-05	5	1 9E-05	2	4 4E-06	--	5 5E-06	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*0.00238*	mg/kg ww	0 0001	I	--	--		Nervous	3 2E-05	0 3	1 2E-05	0 1	2 7E-06	--	3 4E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		8		3		6E-05		8E-05	1E-04
	Dioxin/Furan TEQ only	*0.000000177*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 4E-09	*3*	8 8E-10	*1*	2 0E-10	*3E-05*	2 5E-10	*3E-05*	*6E-05*
	PCB TEQ only	*0.000000235*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	3 1E-09	*4*	1 2E-09	*2*	2 7E-10	*3E-05*	3 4E-10	*4E-05*	*8E-05*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00871*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 2E-04	--	4 4E-05	--	1 0E-05	*2E-05*	1 2E-05	*2E-05*	*4E-05*
									Consumption Total		**30**		**10**		**6E-05**		**8E-05**	**1E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	10	5
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	3	1
Nervous HI	20	6
Reproductive HI	8	3
Skin, Hair & Nails HI	8	3

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 115. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Sucker Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*1.11*	mg/kg ww	1	P	--	--		Nervous	1 5E-02	0 01	5 5E-03	0 006	1 3E-03	--	1 6E-03	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	1 4E-04	0 4	5 3E-05	0 1	1 2E-05	--	1 5E-05	--	--
	Inorganic Arsenic	*0.00492*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	6 6E-05	0 2	2 5E-05	0 08	5 6E-06	8E-06	7 0E-06	1E-05	2E-05
	Chromium	*0.112*	mg/kg ww	0 003	I	--	--	(b)	None	1 5E-03	0 5	5 6E-04	0 2	1 3E-04	--	1 6E-04	--	--
	Methylmercury	*0.296*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	3 9E-03	40	1 5E-03	10	3 4E-04	--	4 2E-04	--	--
	Selenium	*0.296*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	3 9E-03	0 8	1 5E-03	0 3	3 4E-04	--	4 2E-04	--	--
	Thallium	*0.0134*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	1 8E-04	20	6 7E-05	7	1 5E-05	--	1 9E-05	--	--
	Zirconium	*0.00225*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	3 0E-05	0 4	1 1E-05	0 1	2 6E-06	--	3 2E-06	--	--
Pesticides	4,4'-DDE	*0.0167*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 2E-04	0 7	8 4E-05	0 3	1 9E-05	6E-06	2 4E-05	8E-06	1E-05
	Dieldrin	*0.000253*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	3 4E-06	0 07	1 3E-06	0 03	2 9E-07	5E-06	3 6E-07	6E-06	1E-05
	Heptachlor epoxide	*0.000368*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	4 9E-06	0 4	1 8E-06	0 1	4 2E-07	4E-06	5 3E-07	5E-06	9E-06
SVOC	bis(2-Ethylhexyl)phthalate	*0.49*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	6 5E-03	0 3	2 5E-03	0 1	5 6E-04	8E-06	7 0E-04	1E-05	2E-05
	Hexachlorobenzene	*0.00215*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	2 9E-05	0 04	1 1E-05	0 01	2 5E-06	4E-06	3 1E-06	5E-06	9E-06
PBDEs	PBDE-47	*0.028*	mg/kg ww	0 0001	I	--	--		Nervous	3 7E-04	4	1 4E-04	1	3 2E-05	--	4 0E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		30		10		2E-04		3E-04	5E-04
	Dioxin/Furan TEQ only	*0.00000107*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 4E-08	*20*	5 3E-09	*8*	1 2E-09	*2E-04*	1 5E-09	*2E-04*	*4E-04*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	4 7E-09	*7*	1 8E-09	*3*	4 1E-10	*5E-05*	5 1E-10	*7E-05*	*1E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0596*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	7 9E-04	--	3 0E-04	--	6 8E-05	*1E-04*	8 5E-05	*2E-04*	*3E-04*
									Consumption Total		**90**		**30**		**2E-04**		**3E-04**	**6E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 6	0 2
Developmental HI	40	10
Endocrine HI	0 4	0 1
Gastrointestinal HI	2	0 6
Hematologic HI	1	0 4
Nervous HI	40	20
Reproductive HI	30	10
Skin, Hair & Nails HI	20	7

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 116. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Walleye Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*30.8*	mg/kg ww	1	P	--	--		Nervous	4 1E-01	0 4	1 5E-01	0 2	3 5E-02	--	4 4E-02	--	--
	Antimony	*0.011*	mg/kg ww	0 0004	I	--	--		Hematologic	1 5E-04	0 4	5 5E-05	0 1	1 3E-05	--	1 6E-05	--	--
	Inorganic Arsenic	*0.00528*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	7 0E-05	0 2	2 6E-05	0 09	6 0E-06	9E-06	7 5E-06	1E-05	2E-05
	Chromium	*0.321*	mg/kg ww	0 003	I	--	--	(b)	None	4 3E-03	1	1 6E-03	0 5	3 7E-04	--	4 6E-04	--	--
	Methylmercury	*0.179*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 4E-03	20	9 0E-04	9	2 0E-04	--	2 6E-04	--	--
	Selenium	*0.361*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	4 8E-03	1	1 8E-03	0 4	4 1E-04	--	5 2E-04	--	--
	Thallium	*0.0368*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	4 9E-04	50	1 8E-04	20	4 2E-05	--	5 3E-05	--	--
	Zirconium	*0.0786*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	1 0E-03	10	3 9E-04	5	9 0E-05	--	1 1E-04	--	--
Pesticides	4,4'-DDE	*0.00128*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 7E-05	0 06	6 4E-06	0 02	1 5E-06	5E-07	1 8E-06	6E-07	1E-06
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*0.22*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	2 9E-03	0 1	1 1E-03	0 06	2 5E-04	4E-06	3 1E-04	4E-06	8E-06
	Hexachlorobenzene	*0.0012*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	1 6E-05	0 02	6 0E-06	0 008	1 4E-06	2E-06	1 7E-06	3E-06	5E-06
PBDEs	PBDE-47	*0.00351*	mg/kg ww	0 0001	I	--	--		Nervous	4 7E-05	0 5	1 8E-05	0 2	4 0E-06	--	5 0E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		8		3		6E-05		8E-05	1E-04
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 5E-09	*4*	9 4E-10	*1*	2 1E-10	*3E-05*	2 7E-10	*3E-05*	*6E-05*
	PCB TEQ only	*0.000000242*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	3 2E-09	*5*	1 2E-09	*2*	2 8E-10	*4E-05*	3 5E-10	*5E-05*	*8E-05*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		1E-05		2E-05	3E-05
	as Aroclor	*0.00505*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	6 7E-05	--	2 5E-05	--	5 8E-06	*1E-05*	7 2E-06	*1E-05*	*3E-05*
	as PCB Congener Sum	*0.00624*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	8 3E-05	--	3 1E-05	--	7 1E-06	*1E-05*	8 9E-06	*2E-05*	*3E-05*
									Consumption Total		**100**		**40**		**9E-05**		**1E-04**	**2E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	10	5
Developmental HI	20	9
Endocrine HI	10	5
Gastrointestinal HI	0 2	0 08
Hematologic HI	1	0 5
Nervous HI	30	10
Reproductive HI	8	3
Skin, Hair & Nails HI	50	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 117. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME CHIRU: Whitefish Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*1.86*	mg/kg ww	1	P	--	--		Nervous	2 5E-02	0 02	9 3E-03	0 009	2 1E-03	--	2 7E-03	--	--
	Antimony	*0.00613*	mg/kg ww	0 0004	I	--	--		Hematologic	8 2E-05	0 2	3 1E-05	0 08	7 0E-06	--	8 8E-06	--	--
	Inorganic Arsenic	*0.00716*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	9 5E-05	0 3	3 6E-05	0 1	8 2E-06	1E-05	1 0E-05	2E-05	3E-05
	Chromium	*0.0512*	mg/kg ww	0 003	I	--	--	(b)	None	6 8E-04	0 2	2 6E-04	0 09	5 9E-05	--	7 3E-05	--	--
	Methylmercury	*0.0973*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 3E-03	10	4 9E-04	5	1 1E-04	--	1 4E-04	--	--
	Selenium	*0.303*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	4 0E-03	0 8	1 5E-03	0 3	3 5E-04	--	4 3E-04	--	--
	Thallium	*0.0164*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	2 2E-04	20	8 2E-05	8	1 9E-05	--	2 3E-05	--	--
	Zirconium	*0.0128*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	1 7E-04	2	6 4E-05	0 8	1 5E-05	--	1 8E-05	--	--
Pesticides	4,4'-DDE	*0.00574*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	7 7E-05	0 3	2 9E-05	0 1	6 6E-06	2E-06	8 2E-06	3E-06	5E-06
	Dieldrin	*0.000327*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	4 4E-06	0 09	1 6E-06	0 03	3 7E-07	6E-06	4 7E-07	7E-06	1E-05
	Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	6 0E-06	0 5	2 3E-06	0 2	5 1E-07	5E-06	6 4E-07	6E-06	1E-05
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00257*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 4E-05	0 04	1 3E-05	0 02	2 9E-06	5E-06	3 7E-06	6E-06	1E-05
PBDEs	PBDE-47	*0.0182*	mg/kg ww	0 0001	I	--	--		Nervous	2 4E-04	2	9 1E-05	0 9	2 1E-05	--	2 6E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		30		10		2E-04		3E-04	5E-04
	Dioxin/Furan TEQ only	*0.000000819*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 1E-08	*20*	4 1E-09	*6*	9 4E-10	*1E-04*	1 2E-09	*2E-04*	*3E-04*
	PCB TEQ only	*0.000000684*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	9 1E-09	*10*	3 4E-09	*5*	7 8E-10	*1E-04*	9 8E-10	*1E-04*	*2E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0234*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	3 1E-04	--	1 2E-04	--	2 7E-05	*5E-05*	3 3E-05	*7E-05*	*1E-04*
									Consumption Total		**70**		**30**		**3E-04**		**3E-04**	**6E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	2	0 9
Developmental HI	10	5
Endocrine HI	2	0 8
Gastrointestinal HI	0 8	0 3
Hematologic HI	1	0 4
Nervous HI	20	6
Reproductive HI	30	10
Skin, Hair & Nails HI	20	9

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 118. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Burbot Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.697*	mg/kg ww	1	P	--	--		Nervous	1 9E-03	0 002	7 0E-04	0 0007	5 3E-05	--	8 0E-05	--	--
	Antimony	*0.0277*	mg/kg ww	0 0004	I	--	--		Hematologic	7 4E-05	0 2	2 8E-05	0 07	2 1E-06	--	3 2E-06	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0625*	mg/kg ww	0 003	I	--	--	(b)	None	1 7E-04	0 06	6 3E-05	0 02	4 8E-06	--	7 1E-06	--	--
	Methylmercury	*0.245*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	6 5E-04	7	2 5E-04	2	1 9E-05	--	2 8E-05	--	--
	Selenium	*0.357*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	9 5E-04	0 2	3 6E-04	0 07	2 7E-05	--	4 1E-05	--	--
	Thallium	*0.00733*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	2 0E-05	2	7 3E-06	0 7	5 6E-07	--	8 4E-07	--	--
	Zirconium	*0.00214*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	5 7E-06	0 07	2 1E-06	0 03	1 6E-07	--	2 4E-07	--	--
Pesticides	4,4'-DDE	*0.00102*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 7E-06	0 009	1 0E-06	0 003	7 8E-08	3E-08	1 2E-07	4E-08	7E-08
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*ND*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
PBDEs	PBDE-47	*0.00159*	mg/kg ww	0 0001	I	--	--		Nervous	4 2E-06	0 04	1 6E-06	0 02	1 2E-07	--	1 8E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		3		1		9E-06		1E-05	2E-05
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 6E-09	*2*	6 0E-10	*0.9*	4 6E-11	*6E-06*	6 9E-11	*9E-06*	*1E-05*
	PCB TEQ only	*0.000000275*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	7 3E-10	*1*	2 8E-10	*0.4*	2 1E-11	*3E-06*	3 1E-11	*4E-06*	*7E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00189*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	5 0E-06	--	1 9E-06	--	1 4E-07	*3E-07*	2 2E-07	*4E-07*	*7E-07*
									Consumption Total		**10**		**5**		**9E-06**		**1E-05**	**2E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 07	0 03
Developmental HI	7	2
Endocrine HI	0 07	0 03
Gastrointestinal HI	0 009	0 003
Hematologic HI	0 4	0 1
Nervous HI	7	3
Reproductive HI	3	1
Skin, Hair & Nails HI	2	0 8

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 119. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Kokanee Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.698*	mg/kg ww	1	P	--	--		Nervous	1 9E-03	0 002	7 0E-04	0 0007	5 3E-05	--	8 0E-05	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	2 8E-05	0 07	1 1E-05	0 03	8 1E-07	--	1 2E-06	--	--
	Inorganic Arsenic	*0.00387*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 0E-05	0 03	3 9E-06	0 01	2 9E-07	4E-07	4 4E-07	7E-07	1E-06
	Chromium	*0.0665*	mg/kg ww	0 003	I	--	--	(b)	None	1 8E-04	0 06	6 7E-05	0 02	5 1E-06	--	7 6E-06	--	--
	Methylmercury	*0.0652*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 7E-04	2	6 5E-05	0 7	5 0E-06	--	7 5E-06	--	--
	Selenium	*0.286*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	7 6E-04	0 2	2 9E-04	0 06	2 2E-05	--	3 3E-05	--	--
	Thallium	*0.0294*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	7 8E-05	8	2 9E-05	3	2 2E-06	--	3 4E-06	--	--
	Zirconium	*0.00763*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 0E-05	0 3	7 6E-06	0 1	5 8E-07	--	8 7E-07	--	--
Pesticides	4,4'-DDE	*0.00237*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	6 3E-06	0 02	2 4E-06	0 008	1 8E-07	6E-08	2 7E-07	9E-08	2E-07
	Dieldrin	*0.00027*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	7 2E-07	0 01	2 7E-07	0 005	2 1E-08	3E-07	3 1E-08	5E-07	8E-07
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00136*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 6E-06	0 005	1 4E-06	0 002	1 0E-07	2E-07	1 6E-07	2E-07	4E-07
PBDEs	PBDE-47	*0.00265*	mg/kg ww	0 0001	I	--	--		Nervous	7 1E-06	0 07	2 7E-06	0 03	2 0E-07	--	3 0E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		2		0 8		6E-06		8E-06	1E-05
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 0E-10	*0.7*	1 9E-10	*0.3*	1 4E-11	*2E-06*	2 1E-11	*3E-06*	*5E-06*
	PCB TEQ only	*0.000000375*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 0E-09	*1*	3 8E-10	*0.5*	2 9E-11	*4E-06*	4 3E-11	*6E-06*	*9E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00772*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 1E-05	--	7 7E-06	--	5 9E-07	*1E-06*	8 8E-07	*2E-06*	*3E-06*
									Consumption Total		**10**		**5**		**7E-06**		**1E-05**	**2E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 3	0 1
Developmental HI	2	0 7
Endocrine HI	0 3	0 1
Gastrointestinal HI	0 04	0 02
Hematologic HI	0 2	0 08
Nervous HI	2	0 7
Reproductive HI	2	0 8
Skin, Hair & Nails HI	8	3

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 120. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Northern Pike Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*0.434*	mg/kg ww	1	P	--	--		Nervous	1 2E-03	0 001	4 3E-04	0 0004	3 3E-05	--	5 0E-05	--	--
	Antimony	*0.00103*	mg/kg ww	0 0004	I	--	--		Hematologic	2 7E-06	0 007	1 0E-06	0 003	7 8E-08	--	1 2E-07	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.114*	mg/kg ww	0 003	I	--	--	(b)	None	3 0E-04	0 1	1 1E-04	0 04	8 7E-06	--	1 3E-05	--	--
	Methylmercury	*0.122*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	3 3E-04	3	1 2E-04	1	9 3E-06	--	1 4E-05	--	--
	Selenium	*0.647*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 7E-03	0 3	6 5E-04	0 1	4 9E-05	--	7 4E-05	--	--
	Thallium	*0.0131*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 5E-05	3	1 3E-05	1	1 0E-06	--	1 5E-06	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*NA*	mg/kg ww	0 0001	I	--	--		Nervous	NA	NA	NA	NA	NA	--	NA	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		NA		NA		NA		NA	NA
	Dioxin/Furan TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
	PCB TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
									Consumption Total		**7**		**3**		**ND**		**ND**	**ND**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	3	1
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	0 4	0 1
Nervous HI	4	1
Reproductive HI	NA	NA
Skin, Hair & Nails HI	4	1

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 121. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Rainbow Trout Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.667*	mg/kg ww	1	P	--	--		Nervous	1 8E-03	0 002	6 7E-04	0 0007	5 1E-05	--	7 6E-05	--	--
	Antimony	*0.0129*	mg/kg ww	0 0004	I	--	--		Hematologic	3 4E-05	0 09	1 3E-05	0 03	9 8E-07	--	1 5E-06	--	--
	Inorganic Arsenic	*0.00398*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	4 0E-06	0 01	3 0E-07	5E-07	4 5E-07	7E-07	1E-06
	Chromium	*0.273*	mg/kg ww	0 003	I	--	--	(b)	None	7 3E-04	0 2	2 7E-04	0 09	2 1E-05	--	3 1E-05	--	--
	Methylmercury	*0.0847*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 3E-04	2	8 5E-05	0 8	6 5E-06	--	9 7E-06	--	--
	Selenium	*0.339*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	9 0E-04	0 2	3 4E-04	0 07	2 6E-05	--	3 9E-05	--	--
	Thallium	*0.025*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	6 7E-05	7	2 5E-05	3	1 9E-06	--	2 9E-06	--	--
	Zirconium	*0.00586*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	1 6E-05	0 2	5 9E-06	0 07	4 5E-07	--	6 7E-07	--	--
Pesticides	4,4'-DDE	*0.00755*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 0E-05	0 07	7 6E-06	0 03	5 8E-07	2E-07	8 6E-07	3E-07	5E-07
	Dieldrin	*0.00023*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	6 1E-07	0 01	2 3E-07	0 005	1 8E-08	3E-07	2 6E-08	4E-07	7E-07
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00146*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 9E-06	0 005	1 5E-06	0 002	1 1E-07	2E-07	1 7E-07	3E-07	4E-07
PBDEs	PBDE-47	*0.0077*	mg/kg ww	0 0001	I	--	--		Nervous	2 1E-05	0 2	7 7E-06	0 08	5 9E-07	--	8 8E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		4		1		1E-05		1E-05	2E-05
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 6E-09	*2*	6 0E-10	*0.9*	4 6E-11	*6E-06*	6 9E-11	*9E-06*	*1E-05*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	9 5E-10	*1*	3 6E-10	*0.5*	2 7E-11	*4E-06*	4 1E-11	*5E-06*	*9E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		3E-06		5E-06	8E-06
	as Aroclor	*0.0187*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	5 0E-05	--	1 9E-05	--	1 4E-06	*3E-06*	2 1E-06	*4E-06*	*7E-06*
	as PCB Congener Sum	*0.021*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	5 6E-05	--	2 1E-05	--	1 6E-06	*3E-06*	2 4E-06	*5E-06*	*8E-06*
									Consumption Total		**10**		**5**		**1E-05**		**2E-05**	**3E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 2	0 09
Developmental HI	2	0 8
Endocrine HI	0 2	0 07
Gastrointestinal HI	0 08	0 03
Hematologic HI	0 3	0 1
Nervous HI	3	1
Reproductive HI	4	1
Skin, Hair & Nails HI	7	3

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 122. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Smallmouth Bass Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.548*	mg/kg ww	1	P	--	--		Nervous	1 5E-03	0 001	5 5E-04	0 0005	4 2E-05	--	6 3E-05	--	--
	Antimony	*0.00932*	mg/kg ww	0 0004	I	--	--		Hematologic	2 5E-05	0 06	9 3E-06	0 02	7 1E-07	--	1 1E-06	--	--
	Inorganic Arsenic	*0.0051*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	5 1E-06	0 02	3 9E-07	6E-07	5 8E-07	9E-07	1E-06
	Chromium	*0.111*	mg/kg ww	0 003	I	--	--	(b)	None	3 0E-04	0 1	1 1E-04	0 04	8 5E-06	--	1 3E-05	--	--
	Methylmercury	*0.173*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	4 6E-04	5	1 7E-04	2	1 3E-05	--	2 0E-05	--	--
	Selenium	*0.471*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 3E-03	0 3	4 7E-04	0 09	3 6E-05	--	5 4E-05	--	--
	Thallium	*0.0258*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	6 9E-05	7	2 6E-05	3	2 0E-06	--	2 9E-06	--	--
	Zirconium	*0.00173*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	4 6E-06	0 06	1 7E-06	0 02	1 3E-07	--	2 0E-07	--	--
Pesticides	4,4'-DDE	*0.0032*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	8 5E-06	0 03	3 2E-06	0 01	2 4E-07	8E-08	3 7E-07	1E-07	2E-07
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.001*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	2 7E-06	0 003	1 0E-06	0 001	7 6E-08	1E-07	1 1E-07	2E-07	3E-07
PBDEs	PBDE-47	*0.00745*	mg/kg ww	0 0001	I	--	--		Nervous	2 0E-05	0 2	7 5E-06	0 07	5 7E-07	--	8 5E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		4		2		1E-05		2E-05	3E-05
	Dioxin/Furan TEQ only	*0.000000753*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 0E-09	*3*	7 5E-10	*1*	5 7E-11	*7E-06*	8 6E-11	*1E-05*	*2E-05*
	PCB TEQ only	*0.000000307*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	8 2E-10	*1*	3 1E-10	*0.4*	2 3E-11	*3E-06*	3 5E-11	*5E-06*	*8E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0072*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 9E-05	--	7 2E-06	--	5 5E-07	*1E-06*	8 2E-07	*2E-06*	*3E-06*
									Consumption Total		**20**		**6**		**1E-05**		**2E-05**	**3E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 1	0 04
Developmental HI	5	2
Endocrine HI	0 06	0 02
Gastrointestinal HI	0 03	0 01
Hematologic HI	0 3	0 1
Nervous HI	5	2
Reproductive HI	4	2
Skin, Hair & Nails HI	7	3

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 123. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: White Sturgeon Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.712*	mg/kg ww	1	P	--	--		Nervous	1 9E-03	0 002	7 1E-04	0 0007	5 4E-05	--	8 1E-05	--	--
	Antimony	*ND*	mg/kg ww	0 0004	I	--	--		Hematologic	ND	ND	ND	ND	ND	--	ND	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0938*	mg/kg ww	0 003	I	--	--	(b)	None	2 5E-04	0 08	9 4E-05	0 03	7 1E-06	--	1 1E-05	--	--
	Methylmercury	*0.0946*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 5E-04	3	9 5E-05	0 9	7 2E-06	--	1 1E-05	--	--
	Selenium	*1.14*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	3 0E-03	0 6	1 1E-03	0 2	8 7E-05	--	1 3E-04	--	--
	Thallium	*0.00384*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	1 0E-05	1	3 8E-06	0 4	2 9E-07	--	4 4E-07	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*0.00238*	mg/kg ww	0 0001	I	--	--		Nervous	6 3E-06	0 06	2 4E-06	0 02	1 8E-07	--	2 7E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		2		0 6		4E-06		6E-06	1E-05
	Dioxin/Furan TEQ only	*0.000000177*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	4 7E-10	*0.7*	1 8E-10	*0.3*	1 3E-11	*2E-06*	2 0E-11	*3E-06*	*4E-06*
	PCB TEQ only	*0.000000235*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	6 3E-10	*0.9*	2 4E-10	*0.3*	1 8E-11	*2E-06*	2 7E-11	*3E-06*	*6E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00871*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 3E-05	--	8 7E-06	--	6 6E-07	*1E-06*	1 0E-06	*2E-06*	*3E-06*
									Consumption Total		**6**		**2**		**4E-06**		**6E-06**	**1E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	3	0 9
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	0 6	0 2
Nervous HI	3	1
Reproductive HI	2	0 6
Skin, Hair & Nails HI	2	0 6

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 124. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Sucker Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*1.11*	mg/kg ww	1	P	--	--		Nervous	3 0E-03	0 003	1 1E-03	0 001	8 4E-05	--	1 3E-04	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	2 8E-05	0 07	1 1E-05	0 03	8 1E-07	--	1 2E-06	--	--
	Inorganic Arsenic	*0.00492*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	4 9E-06	0 02	3 7E-07	6E-07	5 6E-07	8E-07	1E-06
	Chromium	*0.112*	mg/kg ww	0 003	I	--	--	(b)	None	3 0E-04	0 1	1 1E-04	0 04	8 5E-06	--	1 3E-05	--	--
	Methylmercury	*0.296*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	7 9E-04	8	3 0E-04	3	2 3E-05	--	3 4E-05	--	--
	Selenium	*0.296*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	7 9E-04	0 2	3 0E-04	0 06	2 3E-05	--	3 4E-05	--	--
	Thallium	*0.0134*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 6E-05	4	1 3E-05	1	1 0E-06	--	1 5E-06	--	--
	Zirconium	*0.00225*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	6 0E-06	0 08	2 3E-06	0 03	1 7E-07	--	2 6E-07	--	--
Pesticides	4,4'-DDE	*0.0167*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	4 5E-05	0 1	1 7E-05	0 06	1 3E-06	4E-07	1 9E-06	6E-07	1E-06
	Dieldrin	*0.000253*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	6 8E-07	0 01	2 5E-07	0 005	1 9E-08	3E-07	2 9E-08	5E-07	8E-07
	Heptachlor epoxide	*0.000368*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	9 8E-07	0 08	3 7E-07	0 03	2 8E-08	3E-07	4 2E-08	4E-07	6E-07
SVOC	bis(2-Ethylhexyl)phthalate	*0.49*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	1 3E-03	0 07	4 9E-04	0 02	3 7E-05	5E-07	5 6E-05	8E-07	1E-06
	Hexachlorobenzene	*0.00215*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	5 7E-06	0 007	2 2E-06	0 003	1 6E-07	3E-07	2 5E-07	4E-07	7E-07
PBDEs	PBDE-47	*0.028*	mg/kg ww	0 0001	I	--	--		Nervous	7 5E-05	0 7	2 8E-05	0 3	2 1E-06	--	3 2E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		5		2		1E-05		2E-05	4E-05
	Dioxin/Furan TEQ only	*0.00000107*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 8E-09	*4*	1 1E-09	*2*	8 1E-11	*1E-05*	1 2E-10	*2E-05*	*3E-05*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	9 5E-10	*1*	3 6E-10	*0.5*	2 7E-11	*4E-06*	4 1E-11	*5E-06*	*9E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0596*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 6E-04	--	6 0E-05	--	4 5E-06	*9E-06*	6 8E-06	*1E-05*	*2E-05*
									Consumption Total		**20**		**7**		**2E-05**		**2E-05**	**4E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 1	0 04
Developmental HI	8	3
Endocrine HI	0 08	0 03
Gastrointestinal HI	0 3	0 1
Hematologic HI	0 2	0 09
Nervous HI	9	3
Reproductive HI	5	2
Skin, Hair & Nails HI	4	1

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 125. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Walleye Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*30.8*	mg/kg ww	1	P	--	--		Nervous	8 2E-02	0 08	3 1E-02	0 03	2 3E-03	--	3 5E-03	--	--
	Antimony	*0.011*	mg/kg ww	0 0004	I	--	--		Hematologic	2 9E-05	0 07	1 1E-05	0 03	8 4E-07	--	1 3E-06	--	--
	Inorganic Arsenic	*0.00528*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 4E-05	0 05	5 3E-06	0 02	4 0E-07	6E-07	6 0E-07	9E-07	2E-06
	Chromium	*0.321*	mg/kg ww	0 003	I	--	--	(b)	None	8 6E-04	0 3	3 2E-04	0 1	2 4E-05	--	3 7E-05	--	--
	Methylmercury	*0.179*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	4 8E-04	5	1 8E-04	2	1 4E-05	--	2 0E-05	--	--
	Selenium	*0.361*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	9 6E-04	0 2	3 6E-04	0 07	2 8E-05	--	4 1E-05	--	--
	Thallium	*0.0368*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	9 8E-05	10	3 7E-05	4	2 8E-06	--	4 2E-06	--	--
	Zirconium	*0.0786*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 1E-04	3	7 9E-05	1	6 0E-06	--	9 0E-06	--	--
Pesticides	4,4'-DDE	*0.00128*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	3 4E-06	0 01	1 3E-06	0 004	9 8E-08	3E-08	1 5E-07	5E-08	8E-08
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*0.22*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	5 9E-04	0 03	2 2E-04	0 01	1 7E-05	2E-07	2 5E-05	4E-07	6E-07
	Hexachlorobenzene	*0.0012*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 2E-06	0 004	1 2E-06	0 002	9 1E-08	1E-07	1 4E-07	2E-07	4E-07
PBDEs	PBDE-47	*0.00351*	mg/kg ww	0 0001	I	--	--		Nervous	9 4E-06	0 09	3 5E-06	0 04	2 7E-07	--	4 0E-07	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		2		0 6		4E-06		6E-06	1E-05
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 0E-10	*0.7*	1 9E-10	*0.3*	1 4E-11	*2E-06*	2 1E-11	*3E-06*	*5E-06*
	PCB TEQ only	*0.000000242*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	6 5E-10	*0.9*	2 4E-10	*0.3*	1 8E-11	*2E-06*	2 8E-11	*4E-06*	*6E-06*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		1E-06		1E-06	2E-06
	as Aroclor	*0.00505*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	1 3E-05	--	5 1E-06	--	3 8E-07	*8E-07*	5 8E-07	*1E-06*	*2E-06*
	as PCB Congener Sum	*0.00624*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 7E-05	--	6 2E-06	--	4 8E-07	*1E-06*	7 1E-07	*1E-06*	*2E-06*
									Consumption Total		**20**		**7**		**6E-06**		**9E-06**	**2E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	3	1
Developmental HI	5	2
Endocrine HI	3	1
Gastrointestinal HI	0 04	0 02
Hematologic HI	0 3	0 1
Nervous HI	5	2
Reproductive HI	2	0 6
Skin, Hair & Nails HI	10	4

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 126. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the CTE CHIRU: Whitefish Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*1.86*	mg/kg ww	1	P	--	--		Nervous	5 0E-03	0 005	1 9E-03	0 002	1 4E-04	--	2 1E-04	--	--
	Antimony	*0.00613*	mg/kg ww	0 0004	I	--	--		Hematologic	1 6E-05	0 04	6 1E-06	0 02	4 7E-07	--	7 0E-07	--	--
	Inorganic Arsenic	*0.00716*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 9E-05	0 06	7 2E-06	0 02	5 5E-07	8E-07	8 2E-07	1E-06	2E-06
	Chromium	*0.0512*	mg/kg ww	0 003	I	--	--	(b)	None	1 4E-04	0 05	5 1E-05	0 02	3 9E-06	--	5 9E-06	--	--
	Methylmercury	*0.0973*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 6E-04	3	9 7E-05	1	7 4E-06	--	1 1E-05	--	--
	Selenium	*0.303*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	8 1E-04	0 2	3 0E-04	0 06	2 3E-05	--	3 5E-05	--	--
	Thallium	*0.0164*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	4 4E-05	4	1 6E-05	2	1 2E-06	--	1 9E-06	--	--
	Zirconium	*0.0128*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	3 4E-05	0 4	1 3E-05	0 2	9 8E-07	--	1 5E-06	--	--
Pesticides	4,4'-DDE	*0.00574*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 5E-05	0 05	5 7E-06	0 02	4 4E-07	1E-07	6 6E-07	2E-07	4E-07
	Dieldrin	*0.000327*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	8 7E-07	0 02	3 3E-07	0 007	2 5E-08	4E-07	3 7E-08	6E-07	1E-06
	Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	1 2E-06	0 09	4 5E-07	0 03	3 4E-08	3E-07	5 1E-08	5E-07	8E-07
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00257*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	6 9E-06	0 009	2 6E-06	0 003	2 0E-07	3E-07	2 9E-07	5E-07	8E-07
PBDEs	PBDE-47	*0.0182*	mg/kg ww	0 0001	I	--	--		Nervous	4 9E-05	0 5	1 8E-05	0 2	1 4E-06	--	2 1E-06	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		6		2		1E-05		2E-05	4E-05
	Dioxin/Furan TEQ only	*0.000000819*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 2E-09	*3*	8 2E-10	*1*	6 2E-11	*8E-06*	9 4E-11	*1E-05*	*2E-05*
	PCB TEQ only	*0.000000684*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 8E-09	*3*	6 8E-10	*1*	5 2E-11	*7E-06*	7 8E-11	*1E-05*	*2E-05*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0234*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	6 2E-05	--	2 3E-05	--	1 8E-06	*4E-06*	2 7E-06	*5E-06*	*9E-06*
									Consumption Total		**10**		**5**		**2E-05**		**3E-05**	**4E-05**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	0 5	0 2
Developmental HI	3	1
Endocrine HI	0 4	0 2
Gastrointestinal HI	0 2	0 06
Hematologic HI	0 2	0 08
Nervous HI	3	1
Reproductive HI	6	2
Skin, Hair & Nails HI	5	2

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 127. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Mussel Consumption within Site Reaches

Analyte Group	Analyte Name	Mussel EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Antimony	0 0134	0 0004	I	--	--		Hematologic	2 6E-06	0 006	9 7E-07	0 002	2 2E-07		2 8E-07		
	Inorganic Arsenic	0 0666	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 3E-05	0 04	4 8E-06	0 02	1 1E-06	2E-06	1 4E-06	2E-06	4E-06
	Barium	63 6	0 2	I	--	--		Urinary	1 2E-02	0 06	4 6E-03	0 02	*1.1E-03*		1 3E-03		
	Cadmium	0 574	0 001	I	--	--		Urinary	1 1E-04	0 1	4 2E-05	0 04	*9.5E-06*		1 2E-05		
	Chromium	0 664	0 003	I	--	--	(b)	None	1 3E-04	0 04	4 8E-05	0 02	*1.1E-05*		1 4E-05		
	Cobalt	0 107	0 0003	P	--	--		Endocrine	2 1E-05	0 07	7 8E-06	0 03	*1.8E-06*		2 2E-06		
	Iron	238	0 7	P	--	--		Gastrointestinal	4 6E-02	0 07	1 7E-02	0 02	*3.9E-03*		4 9E-03		
	Manganese	420	0 14	I	--	--		Nervous	8 1E-02	0 6	3 0E-02	0 2	*7.0E-03*		8 7E-03		
	Thallium	0 00625	0 00001	X	--	--		Skin, Hair & Nails	1 2E-06	0 1	4 5E-07	0 05	*1.0E-07*		1 3E-07		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 05		0 02		4E-07		5E-07	8E-07
	Dioxin/Furan TEQ Only	*1.19E-07*	*7E-10*	*I*	*130000*	*C*			*2.3E-11*	*0.03*	*8.6E-12*	*0.01*	*2.0E-12*	*3E-07*	*2.5E-12*	*3E-07*	*6E-07*
	PCB TEQ Only	*5.62E-08*	*7E-10*	*I*	*130000*	*C*			*1.1E-11*	*0.02*	*4.1E-12*	*0.006*	*9.3E-13*	*1E-07*	*1.2E-12*	*2E-07*	*3E-07*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0134	--	--	2	I	(c)	--	2 6E-06		9 7E-07		2 2E-07	4E-07	2 8E-07	6E-07	1E-06
								Total		**1**		**0.4**		**2E-06**		**3E-06**	**6E-06**

-- = no toxicity value available

(a) Samples without an inorganic arsenic result reported by the lab used a calculted inorganic arsenic result (site-specific fraction of inorganic arsenic [7 7%] multiplied by the total arsenic result) when calculating EPCs

(b) Based on toxicity values for Chromium (VI)

(c) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen, C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 04	0 02
Endocrine HI	0 07	0 03
Gastrointestinal HI	0 07	0 02
Hematologic HI	0 006	0 002
Nervous HI	0 6	0 2
Reproductive HI	0 05	0 02
Hair, Skin, & Nails HI	0 2	0 06
Urinary HI	0 2	0 06

Table 128. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Mussel Consumption within Site Reaches

Analyte Group	Analyte Name	Mussel EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Antimony	0 0134	0 0004	I	--	--		Hematologic	7 6E-07	0 002	2 8E-07	0 0007	2 2E-08		3 3E-08		
	Inorganic Arsenic	0 0666	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	3 8E-06	0 01	1 4E-06	0 005	1 1E-07	2E-07	1 6E-07	2E-07	4E-07
	Barium	63 6	0 2	I	--	--		Urinary	3 6E-03	0 02	1 4E-03	0 007	*1.0E-04*		1 5E-04		
	Cadmium	0 574	0 001	I	--	--		Urinary	3 3E-05	0 03	1 2E-05	0 01	*9.3E-07*		1 4E-06		
	Chromium	0 664	0 003	I	--	--	(b)	None	3 8E-05	0 01	1 4E-05	0 005	*1.1E-06*		1 6E-06		
	Cobalt	0 107	0 0003	P	--	--		Endocrine	6 1E-06	0 02	2 3E-06	0 008	*1.7E-07*		2 6E-07		
	Iron	238	0 7	P	--	--		Gastrointestinal	1 3E-02	0 02	5 0E-03	0 007	*3.8E-04*		5 8E-04		
	Manganese	420	0 14	I	--	--		Nervous	2 4E-02	0 2	8 9E-03	0 06	*6.8E-04*		1 0E-03		
	Thallium	0 00625	0 00001	X	--	--		Skin, Hair & Nails	3 5E-07	0 04	1 3E-07	0 01	*1.0E-08*		1 5E-08		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 01		0 005		4E-08		6E-08	9E-08
	Dioxin/Furan TEQ Only	*1.19E-07*	*7E-10*	*I*	*130000*	*C*			*6.7E-12*	*0.01*	*2.5E-12*	*0.004*	*1.9E-13*	*3E-08*	*2.9E-13*	*4E-08*	*6E-08*
	PCB TEQ Only	*5.62E-08*	*7E-10*	*I*	*130000*	*C*			*3.2E-12*	*0.005*	*1.2E-12*	*0.002*	*9.1E-14*	*1E-08*	*1.4E-13*	*2E-08*	*3E-08*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0134	--	--	2	I	(c)	--	7 6E-07		2 8E-07		2 2E-08	4E-08	3 3E-08	7E-08	1E-07
								Total		**0.3**		**0.1**		**2E-07**		**4E-07**	**6E-07**

-- = no toxicity value available

(a) Samples without an inorganic arsenic result reported by the lab used a calculted inorganic arsenic result (site-specific fraction of inorganic arsenic [7 7%] multiplied by the total arsenic result) when calculating EPCs

(b) Based on toxicity values for Chromium (VI)

(c) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen, C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 01	0 005
Endocrine HI	0 02	0 008
Gastrointestinal HI	0 02	0 007
Hematologic HI	0 002	0 0007
Nervous HI	0 2	0 06
Reproductive HI	0 01	0 005
Hair, Skin, & Nails HI	0 05	0 02
Urinary HI	0 05	0 02

Table 129. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Mussel Consumption within Reference Areas

Analyte Group	Analyte Name	Mussel EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Antimony	ND	0 0004	I	--	--		Hematologic	ND		ND		ND		ND		
	Inorganic Arsenic	0 0561	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	4 1E-06	0 01	9 3E-07	1E-06	1 2E-06	2E-06	3E-06
	Barium	27 3	0 2	I	--	--		Urinary	5 3E-03	0 03	2 0E-03	0 01	*4.5E-04*		5 6E-04		
	Cadmium	0 0899	0 001	I	--	--		Urinary	1 7E-05	0 02	6 5E-06	0 007	*1.5E-06*		1 9E-06		
	Chromium	0 782	0 003	I	--	--	(b)	None	1 5E-04	0 05	5 7E-05	0 02	*1.3E-05*		1 6E-05		
	Cobalt	0 104	0 0003	P	--	--		Endocrine	2 0E-05	0 07	7 5E-06	0 03	*1.7E-06*		2 2E-06		
	Iron	205	0 7	P	--	--		Gastrointestinal	4 0E-02	0 06	1 5E-02	0 02	*3.4E-03*		4 2E-03		
	Manganese	302	0 14	I	--	--		Nervous	5 8E-02	0 4	2 2E-02	0 2	*5.0E-03*		6 3E-03		
	Thallium	0 0007	0 00001	X	--	--		Skin, Hair & Nails	1 4E-07	0 01	5 1E-08	0 005	*1.2E-08*		1 5E-08		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 04		0 01		3E-07		4E-07	7E-07
	Dioxin/Furan TEQ Only	*1.67E-08*	*7E-10*	*I*	*130000*	*C*			*2.3E-11*	*0.03*	*8.6E-12*	*0.01*	*2.0E-12*	*3E-07*	*2.5E-12*	*3E-07*	*6E-07*
	PCB TEQ Only	*1.36E-07*	*7E-10*	*I*	*130000*	*C*			*3.2E-12*	*0.005*	*1.2E-12*	*0.002*	*2.8E-13*	*4E-08*	*3.5E-13*	*5E-08*	*8E-08*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 000631	--	--	2	I	(c)	--	1 2E-07		4 6E-08		1 0E-08	2E-08	1 3E-08	3E-08	5E-08
								Total		**0.7**		**0.3**		**2E-06**		**2E-06**	**4E-06**

ND = not detected

-- = no toxicity value available

(a) Samples without an inorganic arsenic result reported by the lab used a calculted inorganic arsenic result (site-specific fraction of inorganic arsenic [7 7%] multiplied by the total arsenic result) when calculating EPCs

(b) Based on toxicity values for Chromium (VI)

(c) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen, C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 04	0 01
Endocrine HI	0 07	0 03
Gastrointestinal HI	0 06	0 02
Hematologic HI	ND	ND
Nervous HI	0 4	0 2
Reproductive HI	0 04	0 01
Hair, Skin, & Nails HI	0 05	0 02
Urinary HI	0 04	0 02

Table 130. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Mussel Consumption within Reference Areas

Analyte Group	Analyte Name	Mussel EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Antimony	ND	0 0004	I	--	--		Hematologic	ND		ND		ND		ND		
	Inorganic Arsenic	0 0561	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	3 2E-06	0 01	1 2E-06	0 004	9 1E-08	1E-07	1 4E-07	2E-07	3E-07
	Barium	27 3	0 2	I	--	--		Urinary	1 5E-03	0 008	5 8E-04	0 003	*4.4E-05*		6 6E-05		
	Cadmium	0 0899	0 001	I	--	--		Urinary	5 1E-06	0 005	1 9E-06	0 002	*1.5E-07*		2 2E-07		
	Chromium	0 782	0 003	I	--	--	(b)	None	4 4E-05	0 01	1 7E-05	0 006	*1.3E-06*		1 9E-06		
	Cobalt	0 104	0 0003	P	--	--		Endocrine	5 9E-06	0 02	2 2E-06	0 007	*1.7E-07*		2 5E-07		
	Iron	205	0 7	P	--	--		Gastrointestinal	1 2E-02	0 02	4 3E-03	0 006	*3.3E-04*		5 0E-04		
	Manganese	302	0 14	I	--	--		Nervous	1 7E-02	0 1	6 4E-03	0 05	*4.9E-04*		7 3E-04		
	Thallium	0 0007	0 00001	X	--	--		Skin, Hair & Nails	4 0E-08	0 004	1 5E-08	0 001	*1.1E-09*		1 7E-09		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 01		0 004		3E-08		4E-08	7E-08
	Dioxin/Furan TEQ Only	*1.67E-08*	*7E-10*	*I*	*130000*	*C*			*6.8E-12*	*0.01*	*2.5E-12*	*0.004*	*1.9E-13*	*3E-08*	*2.9E-13*	*4E-08*	*6E-08*
	PCB TEQ Only	*1.36E-07*	*7E-10*	*I*	*130000*	*C*			*9.5E-13*	*0.001*	*3.6E-13*	*0.001*	*2.7E-14*	*4E-09*	*4.1E-14*	*5E-09*	*9E-09*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 000631	--	--	2	I	(c)	--	3 6E-08		1 3E-08		1 0E-09	2E-09	1 5E-09	3E-09	5E-09
								Total		**0.2**		**0.08**		**2E-07**		**3E-07**	**4E-07**

ND = not detected

-- = no toxicity value available

(a) Samples without an inorganic arsenic result reported by the lab used a calculted inorganic arsenic result (site-specific fraction of inorganic arsenic [7 7%] multiplied by the total arsenic result) when calculating EPCs

(b) Based on toxicity values for Chromium (VI)

(c) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen, C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 01	0 004
Endocrine HI	0 02	0 007
Gastrointestinal HI	0 02	0 006
Hematologic HI	ND	ND
Nervous HI	0 1	0 05
Reproductive HI	0 01	0 004
Hair, Skin, & Nails HI	0 01	0 005
Urinary HI	0 01	0 005

Table 131. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Crayfish Consumption within Site Reaches

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0797	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 5E-05	0 05	5 8E-06	0 02	1 3E-06	2E-06	1 7E-06	2E-06	4E-06
	Barium	72 7	0 2	I	--	--		Urinary	1 4E-02	0 07	5 3E-03	0 03	*1.2E-03*		1 5E-03		
	Cadmium	0 36	0 001	I	--	--		Urinary	7 0E-05	0 07	2 6E-05	0 03	*6.0E-06*		7 5E-06		
	Chromium	0 903	0 003	I	--	--	(a)	None	1 7E-04	0 06	6 5E-05	0 02	*1.5E-05*		1 9E-05		
	Cobalt	0 148	0 0003	P	--	--		Endocrine	2 9E-05	0 1	1 1E-05	0 04	*2.5E-06*		3 1E-06		
	Copper	39 9	0 04	H	--	--		Gastrointestinal	7 7E-03	0 2	2 9E-03	0 07	*6.6E-04*		8 3E-04		
	Methylmercury	0 0245	0 0001	I	--	--		Nervous; Developmental	4 7E-06	0 05	1 8E-06	0 02	*4.1E-07*		5 1E-07		
	Thallium	0 0184	0 00001	X	--	--		Skin, Hair & Nails	3 6E-06	0 4	1 3E-06	0 1	*3.0E-07*		3 8E-07		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 04		0 02		3E-07		4E-07	8E-07
	Dioxin/Furan TEQ Only	*1.15E-07*	*7E-10*	*I*	*130000*	*C*			*2.2E-11*	*0.03*	*8.3E-12*	*0.01*	*1.9E-12*	*2E-07*	*2.4E-12*	*3E-07*	*6E-07*
	PCB TEQ Only	*4.66E-08*	*7E-10*	*I*	*130000*	*C*			*9.0E-12*	*0.01*	*3.4E-12*	*0.00*	*7.7E-13*	*1E-07*	*9.7E-13*	*1E-07*	*2E-07*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0106	--	--	2	I	(b)	--	*2.0E-06*		*7.7E-07*		*1.8E-07*	*4E-07*	*2.2E-07*	*4E-07*	*8E-07*
								Total		**1**		**0.4**		**3E-06**		**3E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 05	0 02
Developmental HI	0 05	0 02
Endocrine HI	0 1	0 04
Gastrointestinal HI	0 2	0 07
Nervous HI	0 05	0 02
Reproductive HI	0 04	0 02
Skin, Hair, & Nails HI	0 4	0 2
Urinary HI	0 1	0 05

Table 132. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Crayfish Consumption within Site Reaches

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0797	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 6E-06	0 02	2 5E-06	0 008	1 9E-07	3E-07	2 8E-07	4E-07	7E-07
	Barium	72 7	0 2	I	--	--		Urinary	6 1E-03	0 03	2 3E-03	0 01	*1.7E-04*		2 6E-04		
	Cadmium	0 36	0 001	I	--	--		Urinary	3 0E-05	0 03	1 1E-05	0 01	*8.6E-07*		1 3E-06		
	Chromium	0 903	0 003	I	--	--	(a)	None	7 5E-05	0 03	2 8E-05	0 009	*2.2E-06*		3 2E-06		
	Cobalt	0 148	0 0003	P	--	--		Endocrine	1 2E-05	0 04	4 6E-06	0 02	*3.5E-07*		5 3E-07		
	Copper	39 9	0 04	H	--	--		Gastrointestinal	3 3E-03	0 08	1 2E-03	0 03	*9.5E-05*		1 4E-04		
	Methylmercury	0 0245	0 0001	I	--	--		Nervous; Developmental	2 0E-06	0 02	7 7E-07	0 008	*5.8E-08*		8 8E-08		
	Thallium	0 0184	0 00001	X	--	--		Skin, Hair & Nails	1 5E-06	0 2	5 8E-07	0 06	*4.4E-08*		6 6E-08		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 02		0 01		5E-08		7E-08	1E-07
	Dioxin/Furan TEQ Only	*1.15E-07*	*7E-10*	*I*	*130000*	*C*			*9.6E-12*	*0.01*	*3.6E-12*	*0.01*	*2.7E-13*	*4E-08*	*4.1E-13*	*5E-08*	*9E-08*
	PCB TEQ Only	*4.66E-08*	*7E-10*	*I*	*130000*	*C*			*3.9E-12*	*0.01*	*1.5E-12*	*0.00*	*1.1E-13*	*1E-08*	*1.7E-13*	*2E-08*	*4E-08*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0106	--	--	2	I	(b)	--	*8.8E-07*		*3.3E-07*		*2.5E-08*	*5E-08*	*3.8E-08*	*8E-08*	*1E-07*
								Total		**0.4**		**0.2**		**4E-07**		**6E-07**	**1E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 02	0 008
Developmental HI	0 02	0 008
Endocrine HI	0 04	0 02
Gastrointestinal HI	0 08	0 03
Nervous HI	0 02	0 008
Reproductive HI	0 02	0 007
Skin, Hair, & Nails HI	0 2	0 07
Urinary HI	0 06	0 02

Table 133. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Crayfish Consumption within Reference Areas

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0357	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 9E-06	0 02	2 6E-06	0 009	5 9E-07	9E-07	7 4E-07	1E-06	2E-06
	Barium	141	0 2	I	--	--		Urinary	2 7E-02	0 1	1 0E-02	0 05	*2.3E-03*		2 9E-03		
	Cadmium	0 0244	0 001	I	--	--		Urinary	4 7E-06	0 005	1 8E-06	0 002	*4.0E-07*		5 1E-07		
	Chromium	0 599	0 003	I	--	--	(a)	None	1 2E-04	0 04	4 3E-05	0 01	*9.9E-06*		1 2E-05		
	Cobalt	0 0925	0 0003	P	--	--		Endocrine	1 8E-05	0 06	6 7E-06	0 02	*1.5E-06*		1 9E-06		
	Copper	25 5	0 04	H	--	--		Gastrointestinal	4 9E-03	0 1	1 9E-03	0 05	*4.2E-04*		5 3E-04		
	Methylmercury	0 0536	0 0001	I	--	--		Nervous; Developmental	1 0E-05	0 1	3 9E-06	0 04	*8.9E-07*		1 1E-06		
	Thallium	0 00166	0 00001	X	--	--		Skin, Hair & Nails	3 2E-07	0 03	1 2E-07	0 01	*2.8E-08*		3 4E-08		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 04		0 02		3E-07		4E-07	8E-07
	Dioxin/Furan TEQ Only	*1.19E-07*	*7E-10*	*I*	*130000*	*C*			*2.3E-11*	*0.03*	*8.7E-12*	*0.01*	*2.0E-12*	*3E-07*	*2.5E-12*	*3E-07*	*6E-07*
	PCB TEQ Only	*3.99E-08*	*7E-10*	*I*	*130000*	*C*			*7.7E-12*	*0.01*	*2.9E-12*	*0.00*	*6.6E-13*	*9E-08*	*8.3E-13*	*1E-07*	*2E-07*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 000961	--	--	2	I	(b)	--	*1.9E-07*		*7.0E-08*		*1.6E-08*	*3E-08*	*2.0E-08*	*4E-08*	*7E-08*
								Total		**0.6**		**0.2**		**1E-06**		**2E-06**	**3E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 02	0 009
Developmental HI	0 1	0 04
Endocrine HI	0 06	0 02
Gastrointestinal HI	0 1	0 05
Nervous HI	0 1	0 04
Reproductive HI	0 04	0 02
Skin, Hair, & Nails HI	0 06	0 02
Urinary HI	0 1	0 05

Table 134. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Crayfish Consumption within Reference Areas

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0357	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	3 0E-06	0 01	1 1E-06	0 004	8 5E-08	1E-07	1 3E-07	2E-07	3E-07
	Barium	141	0 2	I	--	--		Urinary	1 2E-02	0 06	4 4E-03	0 02	*3.4E-04*		5 0E-04		
	Cadmium	0 0244	0 001	I	--	--		Urinary	2 0E-06	0 002	7 6E-07	0 0008	*5.8E-08*		8 7E-08		
	Chromium	0 599	0 003	I	--	--	(a)	None	5 0E-05	0 02	1 9E-05	0 006	*1.4E-06*		2 1E-06		
	Cobalt	0 0925	0 0003	P	--	--		Endocrine	7 7E-06	0 03	2 9E-06	0 01	*2.2E-07*		3 3E-07		
	Copper	25 5	0 04	H	--	--		Gastrointestinal	2 1E-03	0 05	8 0E-04	0 02	*6.1E-05*		9 1E-05		
	Methylmercury	0 0536	0 0001	I	--	--		Nervous; Developmental	4 5E-06	0 04	1 7E-06	0 02	*1.3E-07*		1 9E-07		
	Thallium	0 00166	0 00001	X	--	--		Skin, Hair & Nails	1 4E-07	0 01	5 2E-08	0 005	*4.0E-09*		5 9E-09		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 02		0 01		5E-08		7E-08	1E-07
	Dioxin/Furan TEQ Only	*1.19E-07*	*7E-10*	*I*	*130000*	*C*			*1.0E-11*	*0.01*	*3.7E-12*	*0.01*	*2.8E-13*	*4E-08*	*4.3E-13*	*6E-08*	*9E-08*
	PCB TEQ Only	*3.99E-08*	*7E-10*	*I*	*130000*	*C*			*3.3E-12*	*0.00*	*1.2E-12*	*0.00*	*9.5E-14*	*1E-08*	*1.4E-13*	*2E-08*	*3E-08*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 000961	--	--	2	I	(b)	--	*8.0E-08*		*3.0E-08*		*2.3E-09*	*5E-09*	*3.4E-09*	*7E-09*	*1E-08*
								Total		**0.2**		**0.09**		**2E-07**		**3E-07**	**5E-07**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 01	0 004
Developmental HI	0 04	0 02
Endocrine HI	0 03	0 01
Gastrointestinal HI	0 05	0 02
Nervous HI	0 04	0 02
Reproductive HI	0 02	0 007
Skin, Hair, & Nails HI	0 02	0 009
Urinary HI	0 06	0 02

Table 135. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Amphibian and Reptile Consumption within Site Reaches

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0797	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 5E-05	0 05	5 8E-06	0 02	1 3E-06	2E-06	1 7E-06	2E-06	4E-06
	Barium	72 7	0 2	I	--	--		Urinary	1 4E-02	0 07	5 3E-03	0 03	*1.2E-03*		1 5E-03		
	Cadmium	0 36	0 001	I	--	--		Urinary	7 0E-05	0 07	2 6E-05	0 03	*6.0E-06*		7 5E-06		
	Chromium	0 903	0 003	I	--	--	(a)	None	1 7E-04	0 06	6 5E-05	0 02	*1.5E-05*		1 9E-05		
	Cobalt	0 148	0 0003	P	--	--		Endocrine	2 9E-05	0 1	1 1E-05	0 04	*2.5E-06*		3 1E-06		
	Copper	39 9	0 04	H	--	--		Gastrointestinal	7 7E-03	0 2	2 9E-03	0 07	*6.6E-04*		8 3E-04		
	Methylmercury	0 0245	0 0001	I	--	--		Nervous; Developmental	4 7E-06	0 05	1 8E-06	0 02	*4.1E-07*		5 1E-07		
	Thallium	0 0184	0 00001	X	--	--		Skin, Hair & Nails	3 6E-06	0 4	1 3E-06	0 1	*3.0E-07*		3 8E-07		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 04		0 02		3E-07		4E-07	8E-07
	Dioxin/Furan TEQ Only	*1.15E-07*	*7E-10*	*I*	*130000*	*C*			*2.2E-11*	*0.03*	*8.3E-12*	*0.01*	*1.9E-12*	*2E-07*	*2.4E-12*	*3E-07*	*6E-07*
	PCB TEQ Only	*4.66E-08*	*7E-10*	*I*	*130000*	*C*			*9.0E-12*	*0.01*	*3.4E-12*	*0.00*	*7.7E-13*	*1E-07*	*9.7E-13*	*1E-07*	*2E-07*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0106	--	--	2	I	(b)	--	*2.0E-06*		*7.7E-07*		*1.8E-07*	*4E-07*	*2.2E-07*	*4E-07*	*8E-07*
								Total		**1**		**0.4**		**3E-06**		**3E-06**	**6E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 05	0 02
Developmental HI	0 05	0 02
Endocrine HI	0 1	0 04
Gastrointestinal HI	0 2	0 07
Nervous HI	0 05	0 02
Reproductive HI	0 04	0 02
Skin, Hair, & Nails HI	0 4	0 2
Urinary HI	0 1	0 05

Table 136. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Amphibian and Reptile Consumption within Site Reaches

Analyte Group	Analyte Name	Crayfish EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organs(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Inorganic Arsenic	0 0797	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 1E-05	0 04	4 2E-06	0 01	3 2E-07	5E-07	4 8E-07	7E-07	1E-06
	Barium	72 7	0 2	I	--	--		Urinary	1 0E-02	0 05	3 8E-03	0 02	*2.9E-04*		4 4E-04		
	Cadmium	0 36	0 001	I	--	--		Urinary	5 0E-05	0 05	1 9E-05	0 02	*1.4E-06*		2 2E-06		
	Chromium	0 903	0 003	I	--	--	(a)	None	1 3E-04	0 04	4 7E-05	0 02	*3.6E-06*		5 4E-06		
	Cobalt	0 148	0 0003	P	--	--		Endocrine	2 1E-05	0 07	7 8E-06	0 03	*5.9E-07*		8 9E-07		
	Copper	39 9	0 04	H	--	--		Gastrointestinal	5 6E-03	0 1	2 1E-03	0 05	*1.6E-04*		2 4E-04		
	Methylmercury	0 0245	0 0001	I	--	--		Nervous; Developmental	3 4E-06	0 03	1 3E-06	0 01	*9.8E-08*		1 5E-07		
	Thallium	0 0184	0 00001	X	--	--		Skin, Hair & Nails	2 6E-06	0 3	9 7E-07	0 1	*7.4E-08*		1 1E-07		
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ		7E-10	I	130000	C		Reproductive		0 03		0 01		8E-08		1E-07	2E-07
	Dioxin/Furan TEQ Only	*1.15E-07*	*7E-10*	*I*	*130000*	*C*			*1.6E-11*	*0.02*	*6.0E-12*	*0.01*	*4.6E-13*	*6E-08*	*6.9E-13*	*9E-08*	*1E-07*
	PCB TEQ Only	*4.66E-08*	*7E-10*	*I*	*130000*	*C*			*6.5E-12*	*0.01*	*2.4E-12*	*0.00*	*1.9E-13*	*2E-08*	*2.8E-13*	*4E-08*	*6E-08*
Non-dioxin-like PCBs	Total non-dioxin-like PCB Congeners (ND=0)	0 0106	--	--	2	I	(b)	--	*1.5E-06*		*5.6E-07*		*4.2E-08*	*8E-08*	*6.4E-08*	*1E-07*	*2E-07*
								Total		**0.7**		**0.3**		**6E-07**		**1E-06**	**2E-06**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

(b) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

Sources: I = IRIS H = HEAST P = EPA provisional peer-reviewed value C = Cal EPA

Total by Target Organ System:

Cardiovascular HI	0 04	0 01
Developmental HI	0 03	0 01
Endocrine HI	0 07	0 03
Gastrointestinal HI	0 1	0 05
Nervous HI	0 03	0 01
Reproductive HI	0 03	0 01
Skin, Hair, & Nails HI	0 3	0 1
Urinary HI	0 1	0 04

Table 137. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Waterfowl Consumption

Pathway	River Region	Analyte Name	Waterfowl EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				
									Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Ingestion	Lower	Arsenic	0.0137	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	7 31E-07	0.002	2.74E-07	0.0009	6.3E-08	9E-08	7.8E-08	1E-07	2E-07
		Cadmium	0.00482	1.0E-03	I	--	--	Urinary	2 57E-07	0.0003	9.65E-08	0.0001	2.2E-08		2.8E-08		
		Selenium	ND	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	--		--		--		--		
		Lower Ingestion Total								**0.003**		**0.001**		**9E-08**		**1E-07**	**2E-07**
	Middle	Arsenic	0.0095	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	5.07E-07	0.002	1.90E-07	0.0006	4.3E-08	7E-08	5.4E-08	8E-08	1E-07
		Cadmium	0.0155	1.0E-03	I	--	--	Urinary	8 24E-07	0.0008	3.09E-07	0.0003	7.1E-08		8.8E-08		
		Selenium	0.00642	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	3.42E-07	0.00007	1.28E-07	0.00003	2.9E-08		3.7E-08		
		Middle Ingestion Total								**0.003**		**0.001**		**7E-08**		**8E-08**	**1E-07**
	Upper	Arsenic	0.0232	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	1 24E-06	0.004	4.65E-07	0.002	1.1E-07	2E-07	1.3E-07	2E-07	4E-07
		Cadmium	0.0304	1.0E-03	I	--	--	Urinary	1.62E-06	0.002	6.08E-07	0.0006	1.4E-07		1.7E-07		
		Selenium	0.0699	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	3.73E-06	0.0007	1.40E-06	0.0003	3.2E-07		4.0E-07		
		Upper Ingestion Total								**0.007**		**0.002**		**2E-07**		**2E-07**	**4E-07**

ND = not detected
-- = no toxicity value available

Sources: I = IRIS H = HEAST A = HEAST Alternate M = ATSDR MRL (chronic)
E = EPA-NCEA provisional value O = other P = EPA provisional peer-reviewed value

Total HQ by Target Organ System

River Region	*Lower*		*Middle*		*Upper*	
Organ System	Child	Adult	Child	Adult	Child	Adult
Cardiovascular	0.002	0.0009	0.002	0.0006	0.004	0.002
Hematologic	ND	ND	0.00007	0.00003	0.0007	0.0003
Skin, Hair & Nails	0.002	0.0009	0.002	0.0007	0.005	0.002
Urinary	0.0003	0.0001	0.0008	0.0003	0.002	0.0006

Table 138. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Waterfowl Consumption

Pathway	River Region	Analyte Name	Waterfowl EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				TWA
									Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Ingestion	Lower	Arsenic	0.0137	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	6.40E-07	0.002	2.40E-07	0.0008	1.8E-08	3E-08	2.7E-08	4E-08	7E-08
		Cadmium	0.00482	1.0E-03	I	--	--	Urinary	2 25E-07	0.0002	8.44E-08	0.00008	6.4E-09		9.6E-09		
		Selenium	ND	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	--		--		--		--		
		Lower Ingestion Total								**0.002**		**0.0009**		**3E-08**		**4E-08**	**7E-08**
	Middle	Arsenic	0.0095	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	4.43E-07	0.001	1.66E-07	0.0006	1.3E-08	2E-08	1.9E-08	3E-08	5E-08
		Cadmium	0.0155	1.0E-03	I	--	--	Urinary	7 21E-07	0.0007	2.70E-07	0.0003	2.1E-08		3.1E-08		
		Selenium	0.00642	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	3.00E-07	0.00006	1.12E-07	0.00002	8.6E-09		1.3E-08		
		Middle Ingestion Total								**0.002**		**0.0009**		**2E-08**		**3E-08**	**5E-08**
	Upper	Arsenic	0.0232	3.0E-04	I	1.5	I	Cardiovascular; Skin, Hair & Nails	1.08E-06	0.004	4.07E-07	0.001	3.1E-08	5E-08	4.6E-08	7E-08	1E-07
		Cadmium	0.0304	1.0E-03	I	--	--	Urinary	1.42E-06	0.001	5.32E-07	0.0005	4.1E-08		6.1E-08		
		Selenium	0.0699	5.0E-03	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	3 26E-06	0.0007	1.22E-06	0.0002	9.3E-08		1.4E-07		
		Upper Ingestion Total								**0.006**		**0.002**		**5E-08**		**7E-08**	**1E-07**

ND = not detected
-- = no toxicity value available

Sources: I = IRIS H = HEAST A = HEAST Alternate M = ATSDR MRL (chronic)
E = EPA-NCEA provisional value O = other P = EPA provisional peer-reviewed value

Total HQ by Target Organ System

River Region	*Lower*		*Middle*		*Upper*	
Organ System	Child	Adult	Child	Adult	Child	Adult
Cardiovascular	0.002	0.0008	0.001	0.0006	0.004	0.001
Hematologic			0.00006	0.00002	0.0007	0.0002
Skin, Hair & Nails	0.002	0.0008	0.002	0.0006	0.004	0.002
Urinary	0.0002	0.00008	0.0007	0.0003	0.001	0.0005

Table 139. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Incidential Ingestion of Tule

Analyte Name	Aquatic Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer		Cancer		
								Adult		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	TWA
Antimony	0.00267	0.0004	I	--	--	(a)	Hematologic	3.7E-08	0.00009	1.0E-08		
Arsenic	0.0152	0.0003	I	1.5	I		Cardiovascular; Skin, Hair & Nails	2.1E-07	0.0007	6.0E-08	9E-08	9E-08
Chromium	1.19	0.003	I	--	--	(b)	None	1.6E-05	0.005	4.7E-06		
Cobalt	0.023	0.0003	P	--	--		Endocrine	3.2E-07	0.001	9.0E-08		
Iron	20	0.7	P	--	--		Gastrointestinal	2.7E-04	0.0004	7.8E-05		
Manganese	38.9	0.14	I	--	--		Nervous	5.3E-04	0.004	1.5E-04		
Mercury	0.0013	0.0001	I	--	--	(c)	Nervous; Developmental	1.8E-08	0.0002	5.1E-09		
Thallium	0.00129	0.00001	X	--	--		Skin, Hair & Nails	1.8E-08	0.002	5.1E-09		
							Ingestion Total		0.01		**9E-08**	**9E-08**

-- = no toxicity value available

(a) Based on toxicity values for water.

(b) Based on toxicity values for Chromium (VI).

(c) Assumes chemical form of mercury in tissue is methylmercury.

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen

Cardiovascular HI	0.0007
Developmental HI	0.0002
Endocrine HI	0.001
Gastrointestinal HI	0.0004
Hematologic HI	0.00009
Nervous HI	0.004
Skin, Hair & Nails HI	0.002

Table 140. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Incidential Ingestion of Willow

Analyte Name	Aquatic Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer		Cancer		
								Adult		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	TWA
Antimony	0.0105	0.0004	I	--	--	(a)	Hematologic	1.4E-07	0.0004	4.1E-08		
Arsenic	0.0424	0.0003	I	1.5	I		Cardiovascular; Skin, Hair & Nails	5.8E-07	0.002	1.7E-07	2E-07	2E-07
Chromium	0.464	0.003	I	--	--	(b)	None	6.4E-06	0.002	1.8E-06		
Cobalt	0.032	0.0003	P	--	--		Endocrine	4.4E-07	0.001	1.3E-07		
Iron	25	0.7	P	--	--		Gastrointestinal	3.4E-04	0.0005	9.8E-05		
Manganese	18.7	0.14	I	--	--		Nervous	2.6E-04	0.002	7.3E-05		
Mercury	0.00161	0.0001	I	--	--	(c)	Nervous; Developmental	2.2E-08	0.0002	6.3E-09		
Thallium	0.0912	0.00001	X	--	--		Skin, Hair & Nails	1.3E-06	0.1	3.6E-07		
							Ingestion Total		0.1		**2E-07**	**2E-07**

-- = no toxicity value available

(a) Based on toxicity values for water.

(b) Based on toxicity values for Chromium (VI).

(c) Assumes chemical form of mercury in tissue is methylmercury.

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen

Cardiovascular HI	0.002
Developmental HI	0.0002
Endocrine HI	0.001
Gastrointestinal HI	0.0005
Hematologic HI	0.0004
Nervous HI	0.002
Skin, Hair & Nails HI	0.1

Table 141. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Incidential Ingestion of Tule

Analyte Name	Aquatic Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer		Cancer		
								Adult		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	TWA
Antimony	0.00267	0.0004	I	--	--	(a)	Hematologic	3.3E-09	0.000008	3.8E-10		
Arsenic	0.0152	0.0003	I	1.5	I		Cardiovascular; Skin, Hair & Nails	1.9E-08	0.00006	2.2E-09	3E-09	3E-09
Chromium	1.19	0.003	I	--	--	(b)	None	1.5E-06	0.0005	1.7E-07		
Cobalt	0.023	0.0003	P	--	--		Endocrine	2.9E-08	0.0001	3.3E-09		
Iron	20	0.7	P	--	--		Gastrointestinal	2.5E-05	0.00004	2.9E-06		
Manganese	38.9	0.14	I	--	--		Nervous	4.9E-05	0.0003	5.6E-06		
Mercury	0.0013	0.0001	I	--	--	(c)	Nervous; Developmental	1.6E-09	0.00002	1.9E-10		
Thallium	0.00129	0.00001	X	--	--		Skin, Hair & Nails	1.6E-09	0.0002	1.8E-10		
							Ingestion Total		0.001		**3E-09**	**3E-09**

-- = no toxicity value available

(a) Based on toxicity values for water.

(b) Based on toxicity values for Chromium (VI).

(c) Assumes chemical form of mercury in tissue is methylmercury.

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen

Cardiovascular HI	0.00006
Developmental HI	0.00002
Endocrine HI	0.0001
Gastrointestinal HI	0.00004
Hematologic HI	0.000008
Nervous HI	0.0004
Skin, Hair & Nails HI	0.0002

Table 142. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Incidential Ingestion of Willow

Analyte Name	Aquatic Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer		Cancer		
								Adult		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	TWA
Antimony	0.0105	0.0004	I	--	--	(a)	Hematologic	1.3E-08	0.00003	1.5E-09		
Arsenic	0.0424	0.0003	I	1.5	I		Cardiovascular; Skin, Hair & Nails	5.3E-08	0.0002	6.1E-09	9E-09	9E-09
Chromium	0.464	0.003	I	--	--	(b)	None	5.8E-07	0.0002	6.6E-08		
Cobalt	0.032	0.0003	P	--	--		Endocrine	4.0E-08	0.0001	4.6E-09		
Iron	25	0.7	P	--	--		Gastrointestinal	3.1E-05	0.00004	3.6E-06		
Manganese	18.7	0.14	I	--	--		Nervous	2.3E-05	0.0002	2.7E-06		
Mercury	0.00161	0.0001	I	--	--	(c)	Nervous; Developmental	2.0E-09	0.00002	2.3E-10		
Thallium	0.0912	0.00001	X	--	--		Skin, Hair & Nails	1.1E-07	0.01	1.3E-08		
							Ingestion Total		0.01		**9E-09**	**9E-09**

-- = no toxicity value available

(a) Based on toxicity values for water.

(b) Based on toxicity values for Chromium (VI).

(c) Assumes chemical form of mercury in tissue is methylmercury.

Sources: I = IRIS, P = EPA provisional peer-reviewed value, X = Appendix PPRTV Screen

Cardiovascular HI	0.0002
Developmental HI	0.00002
Endocrine HI	0.0001
Gastrointestinal HI	0.00004
Hematologic HI	0.00003
Nervous HI	0.0002
Skin, Hair & Nails HI	0.01

Table 143. Summary of Total Non-Cancer and Cancer Risks for non-lead COPCs for the CHIRU: Plant Consumption

Pathway	Plant Species	RME			CTE		
		Total Child HI	Total Adult HQ	TWA Cancer Risk	Total Child HQ	Total Adult HQ	TWA Cancer Risk
Consumption Terrestrial Plants	Chokecherry	0.08	0.03	1E-06	0.04	0.01	2E-07
	Huckleberry	0.05	0.02	5E-07	0.02	0.006	6E-08
	Sarvisberry	0.3	0.1	3E-06	0.2	0.08	7E-07
	Black Tree Lichen	0.7	0.3	2E-05	0.6	0.2	6E-06
	Rose hips	0.1	0.04	6E-07	0.04	0.01	8E-08
	Kinnikinnick	0.003	0.001	4E-08	0.003	0.001	1E-08
	Rose stems/leaves	0.03	0.01	2E-07	0.01	0.005	2E-08
	Wild Mint	0.04	0.02	4E-07	0.04	0.02	1E-07
	Hazelnut	0.2	0.08	4E-07	0.09	0.03	6E-08
	Pine Nut	0.5	0.2	2E-06	0.2	0.07	2E-07
	Lomatium	2	0.6	2E-05	0.9	0.3	4E-06
	Camas	1	0.5	1E-05	0.8	0.3	2E-06
	Spring Beauty/Indian Potato	2	0.8	2E-05	2	0.8	7E-06
Incidental Ingestion of Aquatic Plants	Tule[a]	--	0.01	9E-08	--	0.001	3E-09
	Willow[a]	--	0.1	2E-07	--	0.01	9E-09

ND = not detected

[a] Child pathway incomplete. Cancer Risk presented in the table is the adult cancer risk.

Table 144. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Chokecherry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	1 06	1	P	--	--		Nervous	4 7E-04	0 0005	1 76E-04	0 0002	4 0E-05		5 0E-05		
Antimony	0 00235	0 0004	I	--	--	(a)	Hematologic	1 0E-06	0 003	3 88E-07	0 001	8 9E-08		1 1E-07		
Arsenic	0 00879	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	3 9E-06	0 01	1 45E-06	0 005	3 3E-07	5E-07	4 1E-07	6E-07	1E-06
Cadmium	0 0016	0 001	I	--	--		Urinary	7 0E-07	0 0007	2 64E-07	0 0003	6 0E-08		7 5E-08		
Chromium	0 0467	0 003	I	--	--	(b)	None	2 1E-05	0 007	7 71E-06	0 003	1 8E-06		2 2E-06		
Cobalt	0 00346	0 0003	P	--	--		Endocrine	1 5E-06	0 005	5 71E-07	0 002	1 3E-07		1 6E-07		
Iron	3 58	0 7	P	--	--		Gastrointestinal	1 6E-03	0 002	5 90E-04	0 0008	1 3E-04		1 7E-04		
Manganese	2 94	0 14	I	--	--		Nervous	1 3E-03	0 009	4 85E-04	0 003	1 1E-04		1 4E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 192	0 02	I	--	--	(c)	Developmental	8 4E-05	0 004	3 17E-05	0 002	7 2E-06		9 1E-06		
Thallium	0 000788	0 00001	X	--	--		Skin, Hair & Nails	3 5E-07	0 03	1 30E-07	0 01	3 0E-08		3 7E-08		
Vanadium	0 00466	0 00504	S	--	--		Skin, Hair & Nails	2 1E-06	0 0004	7 69E-07	0 0002	1 8E-07		2 2E-07		
							Ingestion Total		**0.08**		**0.03**		**5E-07**		**6E-07**	**1E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 01	0 005
Developmental HI	0 004	0 01
Endocrine HI	0 005	0 002
Gastrointestinal HI	0 002	0 0008
Hematologic HI	0 003	0 001
Nervous HI	0 009	0 003
Skin, Hair & Nails HI	0 05	0 02
Urinary HI	0 0007	0 0003

Table 145. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Huckleberry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	6 4	1	P	--	--		Nervous	1 4E-03	0 001	5 28E-04	0 0005	1 2E-04		1 5E-04		
Antimony	0 00174	0 0004	I	--	--	(a)	Hematologic	3 8E-07	0 001	1 44E-07	0 0004	3 3E-08		4 1E-08		
Arsenic	0 00862	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 9E-06	0 006	7 11E-07	0 002	1 6E-07	2E-07	2 0E-07	3E-07	5E-07
Cadmium	0 0941	0 001	I	--	--		Urinary	2 1E-05	0 02	7 76E-06	0 008	1 8E-06		2 2E-06		
Chromium	0 013	0 003	I	--	--	(b)	None	2 9E-06	0 001	1 07E-06	0 0004	2 5E-07		3 1E-07		
Cobalt	0 00835	0 0003	P	--	--		Endocrine	1 8E-06	0 006	6 89E-07	0 002	1 6E-07		2 0E-07		
Iron	2 29	0 7	P	--	--		Gastrointestinal	5 0E-04	0 0007	1 89E-04	0 0003	4 3E-05		5 4E-05		
Manganese	8 89	0 14	I	--	--		Nervous	2 0E-03	0 01	7 33E-04	0 005	1 7E-04		2 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 0968	0 02	I	--	--	(c)	Developmental	2 1E-05	0 001	7 99E-06	0 0004	1 8E-06		2 3E-06		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	N/A	0 00504	S	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
							Ingestion Total		**0.05**		**0.02**		**2E-07**		**3E-07**	**5E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 006	0 002
Developmental HI	0 001	0 0004
Endocrine HI	0 006	0 002
Gastrointestinal HI	0 0007	0 0003
Hematologic HI	0 001	0 0004
Nervous HI	0 01	0 005
Skin, Hair & Nails HI	0 006	0 002
Urinary HI	0 02	0 008

Table 146. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Sarvisberry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Aluminum	6 63	1	P	--	--		Nervous	2 6E-03	0 003	9 62E-04	0 001	2 2E-04		2 7E-04		
Antimony	0 0149	0 0004	I	--	--	(a)	Hematologic	5 8E-06	0 01	2 16E-06	0 005	4 9E-07		6 2E-07		
Arsenic	0 0254	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	9 8E-06	0 03	3 68E-06	0 01	8 4E-07	1E-06	1 1E-06	2E-06	3E-06
Cadmium	0 163	0 001	I	--	--		Urinary	6 3E-05	0 06	2 36E-05	0 02	5 4E-06		6 8E-06		
Chromium	0 39	0 003	I	--	--	(b)	None	1 5E-04	0 05	5 66E-05	0 02	1 3E-05		1 6E-05		
Cobalt	0 0408	0 0003	P	--	--		Endocrine	1 6E-05	0 05	5 92E-06	0 02	1 4E-06		1 7E-06		
Iron	19 7	0 7	P	--	--		Gastrointestinal	7 6E-03	0 01	2 85E-03	0 004	6 5E-04		8 1E-04		
Manganese	34 5	0 14	I	--	--		Nervous	1 3E-02	0 1	5 01E-03	0 04	1 1E-03		1 4E-03		
Mercury	0 0021	0 0001	I	--	--	(d)	Nervous; Developmental	8 1E-07	0 008	3 05E-07	0 003	7 0E-08		8 7E-08		
Nickel	0 814	0 02	I	--	--	(c)	Developmental	3 1E-04	0 02	1 18E-04	0 006	2 7E-05		3 4E-05		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 0217	0 00504	S	--	--		Skin, Hair & Nails	8 4E-06	0 002	3 15E-06	0 0006	7 2E-07		9 0E-07		
							Ingestion Total		**0.3**		**0.1**		**1E-06**		**2E-06**	**3E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 03	0 01
Developmental HI	0 02	0 006
Endocrine HI	0 05	0 02
Gastrointestinal HI	0 01	0 004
Hematologic HI	0 01	0 005
Nervous HI	0 1	0 04
Skin, Hair & Nails HI	0 03	0 01
Urinary HI	0 06	0 02

Table 147. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Black Tree Lichen Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Aluminum	201	1	P	--	--		Nervous	1 1E-02	0 01	4 26E-03	0 004	9 7E-04		1 2E-03		
Antimony	1 09	0 0004	I	--	--	(a)	Hematologic	6 2E-05	0 2	2 31E-05	0 06	5 3E-06		6 6E-06		
Arsenic	1 16	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 6E-05	0 2	2 47E-05	0 08	5 7E-06	8E-06	7 1E-06	1E-05	2E-05
Cadmium	2 01	0 001	I	--	--		Urinary	1 1E-04	0 1	4 27E-05	0 04	9 8E-06		1 2E-05		
Chromium	0 576	0 003	I	--	--	(b)	None	3 3E-05	0 01	1 22E-05	0 004	2 8E-06		3 5E-06		
Cobalt	0 115	0 0003	P	--	--		Endocrine	6 5E-06	0 02	2 44E-06	0 008	5 6E-07		7 0E-07		
Iron	252	0 7	P	--	--		Gastrointestinal	1 4E-02	0 02	5 35E-03	0 008	1 2E-03		1 5E-03		
Manganese	20	0 14	I	--	--		Nervous	1 1E-03	0 008	4 25E-04	0 003	9 7E-05		1 2E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 382	0 02	I	--	--	(c)	Developmental	2 2E-05	0 001	8 12E-06	0 0004	1 9E-06		2 3E-06		
Thallium	0 0281	0 00001	X	--	--		Skin, Hair & Nails	1 6E-06	0 2	5 97E-07	0 06	1 4E-07		1 7E-07		
Vanadium	0 598	0 00504	S	--	--		Skin, Hair & Nails	3 4E-05	0 007	1 27E-05	0 003	2 9E-06		3 6E-06		
							Ingestion Total		**0.7**		**0.3**		**8E-06**		**1E-05**	**2E-05**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 2	0 08
Developmental HI	0 001	0 06
Endocrine HI	0 02	0 008
Gastrointestinal HI	0 02	0 008
Hematologic HI	0 2	0 06
Nervous HI	0 008	0 003
Skin, Hair & Nails HI	0 4	0 1
Urinary HI	0 1	0 04

Table 148. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Rose Hips Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	5 09	1	P	--	--		Nervous	8 0E-04	0 0008	2 99E-04	0 0003	6 8E-05		8 5E-05		
Antimony	0 00367	0 0004	I	--	--	(a)	Hematologic	5 7E-07	0 001	2 16E-07	0 0005	4 9E-08		6 2E-08		
Arsenic	0 0136	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	2 1E-06	0 007	7 99E-07	0 003	1 8E-07	3E-07	2 3E-07	3E-07	6E-07
Cadmium	0 0235	0 001	I	--	--		Urinary	3 7E-06	0 004	1 38E-06	0 001	3 2E-07		3 9E-07		
Chromium	0 871	0 003	I	--	--	(b)	None	1 4E-04	0 05	5 12E-05	0 02	1 2E-05		1 5E-05		
Cobalt	0 0181	0 0003	P	--	--		Endocrine	2 8E-06	0 009	1 06E-06	0 004	2 4E-07		3 0E-07		
Iron	14 2	0 7	P	--	--		Gastrointestinal	2 2E-03	0 003	8 35E-04	0 001	1 9E-04		2 4E-04		
Manganese	23 4	0 14	I	--	--		Nervous	3 7E-03	0 03	1 38E-03	0 01	3 1E-04		3 9E-04		
Mercury	0 00047	0 0001	I	--	--	(d)	Nervous; Developmental	7 4E-08	0 0007	2 76E-08	0 0003	6 3E-09		7 9E-09		
Nickel	0 509	0 02	I	--	--	(c)	Developmental	8 0E-05	0 004	2 99E-05	0 001	6 8E-06		8 5E-06		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 021	0 00504	S	--	--		Skin, Hair & Nails	3 3E-06	0 0007	1 23E-06	0 0002	2 8E-07		3 5E-07		
							Ingestion Total		**0.1**		**0.04**		**3E-07**		**3E-07**	**6E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 007	0 003
Developmental HI	0 005	0 001
Endocrine HI	0 009	0 004
Gastrointestinal HI	0 003	0 001
Hematologic HI	0 001	0 0005
Nervous HI	0 03	0 01
Skin, Hair & Nails HI	0 008	0 003
Urinary HI	0 004	0 001

Table 149. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Kinnikinnick Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	21 2	1	P	--	--		Nervous	5 6E-05	0 00006	2 12E-05	0 00002	4 8E-06		6 0E-06		
Antimony	0 022	0 0004	I	--	--	(a)	Hematologic	5 9E-08	0 0001	2 20E-08	0 00006	5 0E-09		6 3E-09		
Arsenic	0 0518	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 4E-07	0 0005	5 18E-08	0 0002	1 2E-08	2E-08	1 5E-08	2E-08	4E-08
Cadmium	0 0704	0 001	I	--	--		Urinary	1 9E-07	0 0002	7 04E-08	0 00007	1 6E-08		2 0E-08		
Chromium	0 138	0 003	I	--	--	(b)	None	3 7E-07	0 0001	1 38E-07	0 00005	3 2E-08		3 9E-08		
Cobalt	0 011	0 0003	P	--	--		Endocrine	2 9E-08	0 0001	1 10E-08	0 00004	2 5E-09		3 1E-09		
Iron	20 8	0 7	P	--	--		Gastrointestinal	5 5E-05	0 00008	2 08E-05	0 00003	4 7E-06		5 9E-06		
Manganese	16 8	0 14	I	--	--		Nervous	4 5E-05	0 0003	1 68E-05	0 0001	3 8E-06		4 8E-06		
Mercury	0 00239	0 0001	I	--	--	(d)	Nervous; Developmental	6 4E-09	0 00006	2 39E-09	0 00002	5 5E-10		6 8E-10		
Nickel	0 105	0 02	I	--	--	(c)	Developmental	2 8E-07	0 00001	1 05E-07	0 000005	2 4E-08		3 0E-08		
Thallium	0 00701	0 00001	X	--	--		Skin, Hair & Nails	1 9E-08	0 002	7 01E-09	0 0007	1 6E-09		2 0E-09		
Vanadium	0 0346	0 00504	S	--	--		Skin, Hair & Nails	9 2E-08	0 00002	3 46E-08	0 000007	7 9E-09		9 9E-09		
							Ingestion Total		**0.003**		**0.001**		**2E-08**		**2E-08**	**4E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 0005	0 0002
Developmental HI	0 00008	0 0007
Endocrine HI	0 0001	0 00004
Gastrointestinal HI	0 00008	0 00003
Hematologic HI	0 0001	0 00006
Nervous HI	0 0004	0 0001
Skin, Hair & Nails HI	0 002	0 0009
Urinary HI	0 0002	0 00007

Table 150. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Rose Stems/Leaves Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	13 2	1	P	--	--		Nervous	2 2E-04	0 0002	8 26E-05	0 00008	1 9E-05		2 4E-05		
Antimony	0 0141	0 0004	I	--	--	(a)	Hematologic	2 4E-07	0 0006	8 81E-08	0 0002	2 0E-08		2 5E-08		
Arsenic	0 0338	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	5 6E-07	0 002	2 11E-07	0 0007	4 8E-08	7E-08	6 0E-08	9E-08	2E-07
Cadmium	0 294	0 001	I	--	--		Urinary	4 9E-06	0 005	1 84E-06	0 002	4 2E-07		5 3E-07		
Chromium	1 7	0 003	I	--	--	(b)	None	2 8E-05	0 009	1 06E-05	0 004	2 4E-06		3 0E-06		
Cobalt	0 0166	0 0003	P	--	--		Endocrine	2 8E-07	0 0009	1 04E-07	0 0003	2 4E-08		3 0E-08		
Iron	33	0 7	P	--	--		Gastrointestinal	5 5E-04	0 0008	2 06E-04	0 0003	4 7E-05		5 9E-05		
Manganese	57 5	0 14	I	--	--		Nervous	9 6E-04	0 007	3 60E-04	0 003	8 2E-05		1 0E-04		
Mercury	0 00323	0 0001	I	--	--	(d)	Nervous; Developmental	5 4E-08	0 0005	2 02E-08	0 0002	4 6E-09		5 8E-09		
Nickel	0 278	0 02	I	--	--	(c)	Developmental	4 6E-06	0 0002	1 74E-06	0 00009	4 0E-07		5 0E-07		
Thallium	0 00423	0 00001	X	--	--		Skin, Hair & Nails	7 1E-08	0 007	2 64E-08	0 003	6 0E-09		7 6E-09		
Vanadium	0 0396	0 00504	S	--	--		Skin, Hair & Nails	6 6E-07	0 0001	2 48E-07	0 00005	5 7E-08		7 1E-08		
							Ingestion Total		**0.03**		**0.01**		**7E-08**		**9E-08**	**2E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 002	0 0007
Developmental HI	0 0008	0 003
Endocrine HI	0 0009	0 0003
Gastrointestinal HI	0 0008	0 0003
Hematologic HI	0 0006	0 0002
Nervous HI	0 007	0 003
Skin, Hair & Nails HI	0 009	0 003
Urinary HI	0 005	0 002

Table 151. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Wild Mint Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	47 8	1	P	--	--		Nervous	4 0E-03	0 004	1 49E-03	0 001	3 4E-04		4 3E-04		
Antimony	0 00655	0 0004	I	--	--	(a)	Hematologic	5 5E-07	0 001	2 05E-07	0 0005	4 7E-08		5 8E-08		
Arsenic	0 0149	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 2E-06	0 004	4 66E-07	0 002	1 1E-07	2E-07	1 3E-07	2E-07	4E-07
Cadmium	0 0123	0 001	I	--	--		Urinary	1 0E-06	0 001	3 84E-07	0 0004	8 8E-08		1 1E-07		
Chromium	0 186	0 003	I	--	--	(b)	None	1 6E-05	0 005	5 81E-06	0 002	1 3E-06		1 7E-06		
Cobalt	0 0164	0 0003	P	--	--		Endocrine	1 4E-06	0 005	5 13E-07	0 002	1 2E-07		1 5E-07		
Iron	33 5	0 7	P	--	--		Gastrointestinal	2 8E-03	0 004	1 05E-03	0 001	2 4E-04		3 0E-04		
Manganese	7 98	0 14	I	--	--		Nervous	6 6E-04	0 005	2 49E-04	0 002	5 7E-05		7 1E-05		
Mercury	0 00282	0 0001	I	--	--	(d)	Nervous; Developmental	2 4E-07	0 002	8 81E-08	0 0009	2 0E-08		2 5E-08		
Nickel	0 0789	0 02	I	--	--	(c)	Developmental	6 6E-06	0 0003	2 47E-06	0 0001	5 6E-07		7 0E-07		
Thallium	0 000785	0 00001	X	--	--		Skin, Hair & Nails	6 5E-08	0 007	2 45E-08	0 002	5 6E-09		7 0E-09		
Vanadium	0 11	0 00504	S	--	--		Skin, Hair & Nails	9 2E-06	0 002	3 44E-06	0 0007	7 9E-07		9 8E-07		
							Ingestion Total		**0.04**		**0.02**		**2E-07**		**2E-07**	**4E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 004	0 002
Developmental HI	0 003	0 003
Endocrine HI	0 005	0 002
Gastrointestinal HI	0 004	0 001
Hematologic HI	0 001	0 0005
Nervous HI	0 007	0 003
Skin, Hair & Nails HI	0 01	0 005
Urinary HI	0 001	0 0004

Table 152. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Hazelnut Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	0 57	1	P	--	--		Nervous	3 6E-05	0 00004	1 35E-05	0 00001	3 1E-06		3 9E-06		
Antimony	0 0051	0 0004	I	--	--	(a)	Hematologic	3 2E-07	0 0008	1 21E-07	0 0003	2 8E-08		3 5E-08		
Arsenic	0 0207	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 3E-06	0 004	4 92E-07	0 002	1 1E-07	2E-07	1 4E-07	2E-07	4E-07
Cadmium	0 0476	0 001	I	--	--		Urinary	3 0E-06	0 003	1 13E-06	0 001	2 6E-07		3 2E-07		
Chromium	4 08	0 003	I	--	--	(b)	None	2 6E-04	0 09	9 70E-05	0 03	2 2E-05		2 8E-05		
Cobalt	0 0352	0 0003	P	--	--		Endocrine	2 2E-06	0 007	8 36E-07	0 003	1 9E-07		2 4E-07		
Iron	28 8	0 7	P	--	--		Gastrointestinal	1 8E-03	0 003	6 83E-04	0 001	1 6E-04		2 0E-04		
Manganese	119	0 14	I	--	--		Nervous	7 5E-03	0 05	2 82E-03	0 02	6 4E-04		8 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	1 87	0 02	I	--	--	(c)	Developmental	1 2E-04	0 006	4 45E-05	0 002	1 0E-05		1 3E-05		
Thallium	0 0081	0 00001	X	--	--		Skin, Hair & Nails	5 1E-07	0 05	1 92E-07	0 02	4 4E-08		5 5E-08		
Vanadium	0 0199	0 00504	S	--	--		Skin, Hair & Nails	1 3E-06	0 0003	4 73E-07	0 00009	1 1E-07		1 4E-07		
Ingestion Total									**0.2**		**0.08**		**2E-07**		**2E-07**	**4E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 004	0 002
Developmental HI	0 006	0 02
Endocrine HI	0 007	0 003
Gastrointestinal HI	0 003	0 001
Hematologic HI	0 0008	0 0003
Nervous HI	0 05	0 02
Skin, Hair & Nails HI	0 06	0 02
Urinary HI	0 003	0 001

Table 153. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Pine Nut Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	35 2	1	P	--	--		Nervous	3 6E-03	0 004	1 36E-03	0 001	3 1E-04		3 9E-04		
Antimony	0 0291	0 0004	I	--	--	(a)	Hematologic	3 0E-06	0 008	1 13E-06	0 003	2 6E-07		3 2E-07		
Arsenic	0 056	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	5 8E-06	0 02	2 17E-06	0 007	5 0E-07	7E-07	6 2E-07	9E-07	2E-06
Cadmium	0 874	0 001	I	--	--		Urinary	9 0E-05	0 09	3 39E-05	0 03	7 7E-06		9 7E-06		
Chromium	7 06	0 003	I	--	--	(b)	None	7 3E-04	0 2	2 74E-04	0 09	6 3E-05		7 8E-05		
Cobalt	0 128	0 0003	P	--	--		Endocrine	1 3E-05	0 04	4 96E-06	0 02	1 1E-06		1 4E-06		
Iron	90 7	0 7	P	--	--		Gastrointestinal	9 4E-03	0 01	3 52E-03	0 005	8 0E-04		1 0E-03		
Manganese	65 1	0 14	I	--	--		Nervous	6 7E-03	0 05	2 52E-03	0 02	5 8E-04		7 2E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	4 47	0 02	I	--	--	(c)	Developmental	4 6E-04	0 02	1 73E-04	0 009	4 0E-05		4 9E-05		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 0543	0 00504	S	--	--		Skin, Hair & Nails	5 6E-06	0 001	2 10E-06	0 0004	4 8E-07		6 0E-07		
							Ingestion Total		**0.5**		**0.2**		**7E-07**		**9E-07**	**2E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 02	0 007
Developmental HI	0 02	0 009
Endocrine HI	0 04	0 02
Gastrointestinal HI	0 01	0 005
Hematologic HI	0 008	0 003
Nervous HI	0 05	0 02
Skin, Hair & Nails HI	0 02	0 008
Urinary HI	0 09	0 03

Table 154. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Lomatium Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	343	1	P	--	--		Nervous	5 5E-02	0 05	2 06E-02	0 02	4 7E-03		5 9E-03		
Antimony	0 439	0 0004	I	--	--	(a)	Hematologic	7 0E-05	0 2	2 63E-05	0 07	6 0E-06		7 5E-06		
Arsenic	0 397	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 4E-05	0 2	2 38E-05	0 08	5 4E-06	8E-06	6 8E-06	1E-05	2E-05
Cadmium	1 22	0 001	I	--	--		Urinary	2 0E-04	0 2	7 31E-05	0 07	1 7E-05		2 1E-05		
Chromium	2 23	0 003	I	--	--	(b)	None	3 6E-04	0 1	1 34E-04	0 04	3 1E-05		3 8E-05		
Cobalt	0 187	0 0003	P	--	--		Endocrine	3 0E-05	0 1	1 12E-05	0 04	2 6E-06		3 2E-06		
Iron	303	0 7	P	--	--		Gastrointestinal	4 9E-02	0 07	1 82E-02	0 03	4 2E-03		5 2E-03		
Manganese	29 6	0 14	I	--	--		Nervous	4 7E-03	0 03	1 78E-03	0 01	4 1E-04		5 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	2 17	0 02	I	--	--	(c)	Developmental	3 5E-04	0 02	1 30E-04	0 007	3 0E-05		3 7E-05		
Thallium	0 0376	0 00001	X	--	--		Skin, Hair & Nails	6 0E-06	0 6	2 26E-06	0 2	5 2E-07		6 4E-07		
Vanadium	2 8	0 00504	S	--	--		Skin, Hair & Nails	4 5E-04	0 09	1 68E-04	0 03	3 8E-05		4 8E-05		
							Ingestion Total		**2**		**0.6**		**8E-06**		**1E-05**	**2E-05**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 2	0 08
Developmental HI	0 02	0 2
Endocrine HI	0 1	0 04
Gastrointestinal HI	0 07	0 03
Hematologic HI	0 2	0 07
Nervous HI	0 03	0 01
Skin, Hair & Nails HI	0 9	0 3
Urinary HI	0 2	0 07

Table 155. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Camas Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	120	1	P	--	--		Nervous	1 9E-02	0 02	7 17E-03	0 007	1 6E-03		2 0E-03		
Antimony	0 254	0 0004	I	--	--	(a)	Hematologic	4 1E-05	0 1	1 52E-05	0 04	3 5E-06		4 4E-06		
Arsenic	0 263	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	4 2E-05	0 1	1 58E-05	0 05	3 6E-06	5E-06	4 5E-06	7E-06	1E-05
Cadmium	2 34	0 001	I	--	--		Urinary	3 7E-04	0 4	1 41E-04	0 1	3 2E-05		4 0E-05		
Chromium	0 18	0 003	I	--	--	(b)	None	2 9E-05	0 01	1 08E-05	0 004	2 5E-06		3 1E-06		
Cobalt	0 0582	0 0003	P	--	--		Endocrine	9 3E-06	0 03	3 49E-06	0 01	8 0E-07		1 0E-06		
Iron	107	0 7	P	--	--		Gastrointestinal	1 7E-02	0 02	6 42E-03	0 009	1 5E-03		1 8E-03		
Manganese	17 7	0 14	I	--	--		Nervous	2 8E-03	0 02	1 06E-03	0 008	2 4E-04		3 0E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 158	0 02	I	--	--	(c)	Developmental	2 5E-05	0 001	9 48E-06	0 0005	2 2E-06		2 7E-06		
Thallium	0 0425	0 00001	X	--	--		Skin, Hair & Nails	6 8E-06	0 7	2 55E-06	0 3	5 8E-07		7 3E-07		
Vanadium	0 285	0 00504	S	--	--		Skin, Hair & Nails	4 6E-05	0 009	1 71E-05	0 003	3 9E-06		4 9E-06		
							Ingestion Total		**1**		**0.5**		**5E-06**		**7E-06**	**1E-05**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 1	0 05
Developmental HI	0 001	0 3
Endocrine HI	0 03	0 01
Gastrointestinal HI	0 02	0 009
Hematologic HI	0 1	0 04
Nervous HI	0 02	0 008
Skin, Hair & Nails HI	0 8	0 3
Urinary HI	0 4	0 1

Table 156. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME CHIRU: Spring Beauty/Indian Potato Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	326	1	P	--	--		Nervous	2 4E-02	0 02	8 96E-03	0 009	2 0E-03		2 6E-03		
Antimony	0 444	0 0004	I	--	--	(a)	Hematologic	3 3E-05	0 08	1 22E-05	0 03	2 8E-06		3 5E-06		
Arsenic	0 875	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 4E-05	0 2	2 41E-05	0 08	5 5E-06	8E-06	6 9E-06	1E-05	2E-05
Cadmium	4 55	0 001	I	--	--		Urinary	3 3E-04	0 3	1 25E-04	0 1	2 9E-05		3 6E-05		
Chromium	0 651	0 003	I	--	--	(b)	None	4 8E-05	0 02	1 79E-05	0 006	4 1E-06		5 1E-06		
Cobalt	0 164	0 0003	P	--	--		Endocrine	1 2E-05	0 04	4 51E-06	0 02	1 0E-06		1 3E-06		
Iron	528	0 7	P	--	--		Gastrointestinal	3 9E-02	0 06	1 45E-02	0 02	3 3E-03		4 1E-03		
Manganese	26 6	0 14	I	--	--		Nervous	1 9E-03	0 01	7 31E-04	0 005	1 7E-04		2 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 559	0 02	I	--	--	(c)	Developmental	4 1E-05	0 002	1 54E-05	0 0008	3 5E-06		4 4E-06		
Thallium	0 174	0 00001	X	--	--		Skin, Hair & Nails	1 3E-05	1	4 79E-06	0 5	1 1E-06		1 4E-06		
Vanadium	1 03	0 00504	S	--	--		Skin, Hair & Nails	7 5E-05	0 01	2 83E-05	0 006	6 5E-06		8 1E-06		
							Ingestion Total		**2**		**0.8**		**8E-06**		**1E-05**	**2E-05**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 2	0 08
Developmental HI	0 002	0 5
Endocrine HI	0 04	0 02
Gastrointestinal HI	0 06	0 02
Hematologic HI	0 08	0 03
Nervous HI	0 01	0 005
Skin, Hair & Nails HI	2	0 6
Urinary HI	0 3	0 1

Table 157. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Chokecherry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	1 06	1	P	--	--		Nervous	2 3E-04	0 0002	8 78E-05	0 00009	6 7E-06		1 0E-05		
Antimony	0 00235	0 0004	I	--	--	(a)	Hematologic	5 2E-07	0 001	1 94E-07	0 0005	1 5E-08		2 2E-08		
Arsenic	0 00879	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 9E-06	0 006	7 25E-07	0 002	5 5E-08	8E-08	8 3E-08	1E-07	2E-07
Cadmium	0 0016	0 001	I	--	--		Urinary	3 5E-07	0 0004	1 32E-07	0 0001	1 0E-08		1 5E-08		
Chromium	0 0467	0 003	I	--	--	(b)	None	1 0E-05	0 003	3 85E-06	0 001	2 9E-07		4 4E-07		
Cobalt	0 00346	0 0003	P	--	--		Endocrine	7 6E-07	0 003	2 85E-07	0 001	2 2E-08		3 3E-08		
Iron	3 58	0 7	P	--	--		Gastrointestinal	7 9E-04	0 001	2 95E-04	0 0004	2 2E-05		3 4E-05		
Manganese	2 94	0 14	I	--	--		Nervous	6 5E-04	0 005	2 42E-04	0 002	1 8E-05		2 8E-05		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 192	0 02	I	--	--	(c)	Developmental	4 2E-05	0 002	1 58E-05	0 0008	1 2E-06		1 8E-06		
Thallium	0 000788	0 00001	X	--	--		Skin, Hair & Nails	1 7E-07	0 02	6 50E-08	0 007	5 0E-09		7 4E-09		
Vanadium	0 00466	0 00504	S	--	--		Skin, Hair & Nails	1 0E-06	0 0002	3 84E-07	0 00008	2 9E-08		4 4E-08		
							Ingestion Total		**0.04**		**0.01**		**8E-08**		**1E-07**	**2E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 006	0 002
Developmental HI	0 002	0 007
Endocrine HI	0 003	0 001
Gastrointestinal HI	0 001	0 0004
Hematologic HI	0 001	0 0005
Nervous HI	0 005	0 002
Skin, Hair & Nails HI	0 02	0 009
Urinary HI	0 0004	0 0001

Table 158. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Huckleberry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	6 4	1	P	--	--		Nervous	4 1E-04	0 0004	1 52E-04	0 0002	1 2E-05		1 7E-05		
Antimony	0 00174	0 0004	I	--	--	(a)	Hematologic	1 1E-07	0 0003	4 13E-08	0 0001	3 1E-09		4 7E-09		
Arsenic	0 00862	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	5 5E-07	0 002	2 05E-07	0 0007	1 6E-08	2E-08	2 3E-08	4E-08	6E-08
Cadmium	0 0941	0 001	I	--	--		Urinary	6 0E-06	0 006	2 23E-06	0 002	1 7E-07		2 6E-07		
Chromium	0 013	0 003	I	--	--	(b)	None	8 2E-07	0 0003	3 09E-07	0 0001	2 4E-08		3 5E-08		
Cobalt	0 00835	0 0003	P	--	--		Endocrine	5 3E-07	0 002	1 98E-07	0 0007	1 5E-08		2 3E-08		
Iron	2 29	0 7	P	--	--		Gastrointestinal	1 4E-04	0 0002	5 44E-05	0 00008	4 1E-06		6 2E-06		
Manganese	8 89	0 14	I	--	--		Nervous	5 6E-04	0 004	2 11E-04	0 002	1 6E-05		2 4E-05		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 0968	0 02	I	--	--	(c)	Developmental	6 1E-06	0 0003	2 30E-06	0 0001	1 8E-07		2 6E-07		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	N/A	0 00504	S	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
							Ingestion Total		**0.02**		**0.006**		**2E-08**		**4E-08**	**6E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 002	0 0007
Developmental HI	0 0003	0 0001
Endocrine HI	0 002	0 0007
Gastrointestinal HI	0 0002	0 00008
Hematologic HI	0 0003	0 0001
Nervous HI	0 004	0 002
Skin, Hair & Nails HI	0 002	0 0007
Urinary HI	0 006	0 002

Table 159. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Sarvisberry Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	6 63	1	P	--	--		Nervous	1 7E-03	0 002	6 22E-04	0 0006	4 7E-05		7 1E-05		
Antimony	0 0149	0 0004	I	--	--	(a)	Hematologic	3 7E-06	0 009	1 40E-06	0 003	1 1E-07		1 6E-07		
Arsenic	0 0254	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 4E-06	0 02	2 38E-06	0 008	1 8E-07	3E-07	2 7E-07	4E-07	7E-07
Cadmium	0 163	0 001	I	--	--		Urinary	4 1E-05	0 04	1 53E-05	0 02	1 2E-06		1 7E-06		
Chromium	0 39	0 003	I	--	--	(b)	None	9 8E-05	0 03	3 66E-05	0 01	2 8E-06		4 2E-06		
Cobalt	0 0408	0 0003	P	--	--		Endocrine	1 0E-05	0 03	3 83E-06	0 01	2 9E-07		4 4E-07		
Iron	19 7	0 7	P	--	--		Gastrointestinal	4 9E-03	0 007	1 84E-03	0 003	1 4E-04		2 1E-04		
Manganese	34 5	0 14	I	--	--		Nervous	8 6E-03	0 06	3 24E-03	0 02	2 5E-04		3 7E-04		
Mercury	0 0021	0 0001	I	--	--	(d)	Nervous; Developmental	5 3E-07	0 005	1 97E-07	0 002	1 5E-08		2 3E-08		
Nickel	0 814	0 02	I	--	--	(c)	Developmental	2 0E-04	0 01	7 63E-05	0 004	5 8E-06		8 7E-06		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 0217	0 00504	S	--	--		Skin, Hair & Nails	5 4E-06	0 001	2 03E-06	0 0004	1 6E-07		2 3E-07		
							Ingestion Total		**0.2**		**0.08**		**3E-07**		**4E-07**	**7E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 02	0 008
Developmental HI	0 02	0 004
Endocrine HI	0 03	0 01
Gastrointestinal HI	0 007	0 003
Hematologic HI	0 009	0 003
Nervous HI	0 07	0 03
Skin, Hair & Nails HI	0 02	0 008
Urinary HI	0 04	0 02

Table 160. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Black Tree Lichen Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	201	1	P	--	--		Nervous	1 0E-02	0 01	3 76E-03	0 004	2 9E-04		4 3E-04		
Antimony	1 09	0 0004	I	--	--	(a)	Hematologic	5 4E-05	0 1	2 04E-05	0 05	1 6E-06		2 3E-06		
Arsenic	1 16	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	5 8E-05	0 2	2 18E-05	0 07	1 7E-06	2E-06	2 5E-06	4E-06	6E-06
Cadmium	2 01	0 001	I	--	--		Urinary	1 0E-04	0 1	3 77E-05	0 04	2 9E-06		4 3E-06		
Chromium	0 576	0 003	I	--	--	(b)	None	2 9E-05	0 01	1 08E-05	0 004	8 2E-07		1 2E-06		
Cobalt	0 115	0 0003	P	--	--		Endocrine	5 8E-06	0 02	2 16E-06	0 007	1 6E-07		2 5E-07		
Iron	252	0 7	P	--	--		Gastrointestinal	1 3E-02	0 02	4 72E-03	0 007	3 6E-04		5 4E-04		
Manganese	20	0 14	I	--	--		Nervous	1 0E-03	0 007	3 75E-04	0 003	2 9E-05		4 3E-05		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 382	0 02	I	--	--	(c)	Developmental	1 9E-05	0 001	7 16E-06	0 0004	5 5E-07		8 2E-07		
Thallium	0 0281	0 00001	X	--	--		Skin, Hair & Nails	1 4E-06	0 1	5 27E-07	0 05	4 0E-08		6 0E-08		
Vanadium	0 598	0 00504	S	--	--		Skin, Hair & Nails	3 0E-05	0 006	1 12E-05	0 002	8 5E-07		1 3E-06		
							Ingestion Total		**0.6**		**0.2**		**2E-06**		**4E-06**	**6E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 2	0 07
Developmental HI	0 001	0 05
Endocrine HI	0 02	0 007
Gastrointestinal HI	0 02	0 007
Hematologic HI	0 1	0 05
Nervous HI	0 007	0 003
Skin, Hair & Nails HI	0 3	0 1
Urinary HI	0 1	0 04

Table 161. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Rose Hips Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	5 09	1	P	--	--		Nervous	2 9E-04	0 0003	1 08E-04	0 0001	8 2E-06		1 2E-05		
Antimony	0 00367	0 0004	I	--	--	(a)	Hematologic	2 1E-07	0 0005	7 80E-08	0 0002	5 9E-09		8 9E-09		
Arsenic	0 0136	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	7 7E-07	0 003	2 89E-07	0 001	2 2E-08	3E-08	3 3E-08	5E-08	8E-08
Cadmium	0 0235	0 001	I	--	--		Urinary	1 3E-06	0 001	4 99E-07	0 0005	3 8E-08		5 7E-08		
Chromium	0 871	0 003	I	--	--	(b)	None	4 9E-05	0 02	1 85E-05	0 006	1 4E-06		2 1E-06		
Cobalt	0 0181	0 0003	P	--	--		Endocrine	1 0E-06	0 003	3 85E-07	0 001	2 9E-08		4 4E-08		
Iron	14 2	0 7	P	--	--		Gastrointestinal	8 1E-04	0 001	3 02E-04	0 0004	2 3E-05		3 5E-05		
Manganese	23 4	0 14	I	--	--		Nervous	1 3E-03	0 009	4 98E-04	0 004	3 8E-05		5 7E-05		
Mercury	0 00047	0 0001	I	--	--	(d)	Nervous; Developmental	2 7E-08	0 0003	9 99E-09	0 0001	7 6E-10		1 1E-09		
Nickel	0 509	0 02	I	--	--	(c)	Developmental	2 9E-05	0 001	1 08E-05	0 0005	8 2E-07		1 2E-06		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 021	0 00504	S	--	--		Skin, Hair & Nails	1 2E-06	0 0002	4 46E-07	0 00009	3 4E-08		5 1E-08		
							Ingestion Total		**0.04**		**0.01**		**3E-08**		**5E-08**	**8E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 003	0 001
Developmental HI	0 002	0 0005
Endocrine HI	0 003	0 001
Gastrointestinal HI	0 001	0 0004
Hematologic HI	0 0005	0 0002
Nervous HI	0 01	0 004
Skin, Hair & Nails HI	0 003	0 001
Urinary HI	0 001	0 0005

Table 162. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Kinnikinnick Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	21 2	1	P	--	--		Nervous	5 6E-05	0 00006	2 12E-05	0 00002	1 6E-06		2 4E-06		
Antimony	0 022	0 0004	I	--	--	(a)	Hematologic	5 9E-08	0 0001	2 20E-08	0 00006	1 7E-09		2 5E-09		
Arsenic	0 0518	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 4E-07	0 0005	5 18E-08	0 0002	3 9E-09	6E-09	5 9E-09	9E-09	1E-08
Cadmium	0 0704	0 001	I	--	--		Urinary	1 9E-07	0 0002	7 04E-08	0 00007	5 4E-09		8 0E-09		
Chromium	0 138	0 003	I	--	--	(b)	None	3 7E-07	0 0001	1 38E-07	0 00005	1 1E-08		1 6E-08		
Cobalt	0 011	0 0003	P	--	--		Endocrine	2 9E-08	0 0001	1 10E-08	0 00004	8 4E-10		1 3E-09		
Iron	20 8	0 7	P	--	--		Gastrointestinal	5 5E-05	0 00008	2 08E-05	0 00003	1 6E-06		2 4E-06		
Manganese	16 8	0 14	I	--	--		Nervous	4 5E-05	0 0003	1 68E-05	0 0001	1 3E-06		1 9E-06		
Mercury	0 00239	0 0001	I	--	--	(d)	Nervous; Developmental	6 4E-09	0 00006	2 39E-09	0 00002	1 8E-10		2 7E-10		
Nickel	0 105	0 02	I	--	--	(c)	Developmental	2 8E-07	0 00001	1 05E-07	0 000005	8 0E-09		1 2E-08		
Thallium	0 00701	0 00001	X	--	--		Skin, Hair & Nails	1 9E-08	0 002	7 01E-09	0 0007	5 3E-10		8 0E-10		
Vanadium	0 0346	0 00504	S	--	--		Skin, Hair & Nails	9 2E-08	0 00002	3 46E-08	0 000007	2 6E-09		4 0E-09		
							Ingestion Total		**0.003**		**0.001**		**6E-09**		**9E-09**	**1E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 0005	0 0002
Developmental HI	0 00008	0 0007
Endocrine HI	0 0001	0 00004
Gastrointestinal HI	0 00008	0 00003
Hematologic HI	0 0001	0 00006
Nervous HI	0 0004	0 0001
Skin, Hair & Nails HI	0 002	0 0009
Urinary HI	0 0002	0 00007

Table 163. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Rose Stems/Leaves Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				
								Child		Adult		Child		Adult		TWA
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	13 2	1	P	--	--		Nervous	8 8E-05	0 00009	3 30E-05	0 00003	2 5E-06		3 8E-06		
Antimony	0 0141	0 0004	I	--	--	(a)	Hematologic	9 4E-08	0 0002	3 53E-08	0 00009	2 7E-09		4 0E-09		
Arsenic	0 0338	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	2 3E-07	0 0008	8 45E-08	0 0003	6 4E-09	1E-08	9 7E-09	1E-08	2E-08
Cadmium	0 294	0 001	I	--	--		Urinary	2 0E-06	0 002	7 35E-07	0 0007	5 6E-08		8 4E-08		
Chromium	1 7	0 003	I	--	--	(b)	None	1 1E-05	0 004	4 25E-06	0 001	3 2E-07		4 9E-07		
Cobalt	0 0166	0 0003	P	--	--		Endocrine	1 1E-07	0 0004	4 15E-08	0 0001	3 2E-09		4 7E-09		
Iron	33	0 7	P	--	--		Gastrointestinal	2 2E-04	0 0003	8 26E-05	0 0001	6 3E-06		9 4E-06		
Manganese	57 5	0 14	I	--	--		Nervous	3 8E-04	0 003	1 44E-04	0 001	1 1E-05		1 6E-05		
Mercury	0 00323	0 0001	I	--	--	(d)	Nervous; Developmental	2 2E-08	0 0002	8 09E-09	0 00008	6 2E-10		9 2E-10		
Nickel	0 278	0 02	I	--	--	(c)	Developmental	1 9E-06	0 00009	6 95E-07	0 00003	5 3E-08		7 9E-08		
Thallium	0 00423	0 00001	X	--	--		Skin, Hair & Nails	2 8E-08	0 003	1 06E-08	0 001	8 1E-10		1 2E-09		
Vanadium	0 0396	0 00504	S	--	--		Skin, Hair & Nails	2 6E-07	0 00005	9 90E-08	0 00002	7 5E-09		1 1E-08		
							Ingestion Total		**0.01**		**0.005**		**1E-08**		**1E-08**	**2E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 0008	0 0003
Developmental HI	0 0003	0 001
Endocrine HI	0 0004	0 0001
Gastrointestinal HI	0 0003	0 0001
Hematologic HI	0 0002	0 00009
Nervous HI	0 003	0 001
Skin, Hair & Nails HI	0 004	0 001
Urinary HI	0 002	0 0007

Table 164. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Wild Mint Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	47 8	1	P	--	--		Nervous	4 0E-03	0 004	1 49E-03	0 001	1 1E-04		1 7E-04		
Antimony	0 00655	0 0004	I	--	--	(a)	Hematologic	5 5E-07	0 001	2 05E-07	0 0005	1 6E-08		2 3E-08		
Arsenic	0 0149	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	1 2E-06	0 004	4 66E-07	0 002	3 5E-08	5E-08	5 3E-08	8E-08	1E-07
Cadmium	0 0123	0 001	I	--	--		Urinary	1 0E-06	0 001	3 84E-07	0 0004	2 9E-08		4 4E-08		
Chromium	0 186	0 003	I	--	--	(b)	None	1 6E-05	0 005	5 81E-06	0 002	4 4E-07		6 6E-07		
Cobalt	0 0164	0 0003	P	--	--		Endocrine	1 4E-06	0 005	5 13E-07	0 002	3 9E-08		5 9E-08		
Iron	33 5	0 7	P	--	--		Gastrointestinal	2 8E-03	0 004	1 05E-03	0 001	8 0E-05		1 2E-04		
Manganese	7 98	0 14	I	--	--		Nervous	6 6E-04	0 005	2 49E-04	0 002	1 9E-05		2 8E-05		
Mercury	0 00282	0 0001	I	--	--	(d)	Nervous; Developmental	2 4E-07	0 002	8 81E-08	0 0009	6 7E-09		1 0E-08		
Nickel	0 0789	0 02	I	--	--	(c)	Developmental	6 6E-06	0 0003	2 47E-06	0 0001	1 9E-07		2 8E-07		
Thallium	0 000785	0 00001	X	--	--		Skin, Hair & Nails	6 5E-08	0 007	2 45E-08	0 002	1 9E-09		2 8E-09		
Vanadium	0 11	0 00504	S	--	--		Skin, Hair & Nails	9 2E-06	0 002	3 44E-06	0 0007	2 6E-07		3 9E-07		
							Ingestion Total		**0.04**		**0.02**		**5E-08**		**8E-08**	**1E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 004	0 002
Developmental HI	0 003	0 003
Endocrine HI	0 005	0 002
Gastrointestinal HI	0 004	0 001
Hematologic HI	0 001	0 0005
Nervous HI	0 007	0 003
Skin, Hair & Nails HI	0 01	0 005
Urinary HI	0 001	0 0004

Table 165. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Hazelnut Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	0 57	1	P	--	--		Nervous	1 5E-05	0 00002	5 70E-06	0 000006	4 3E-07		6 5E-07		
Antimony	0 0051	0 0004	I	--	--	(a)	Hematologic	1 4E-07	0 0003	5 10E-08	0 0001	3 9E-09		5 8E-09		
Arsenic	0 0207	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	5 5E-07	0 002	2 07E-07	0 0007	1 6E-08	2E-08	2 4E-08	4E-08	6E-08
Cadmium	0 0476	0 001	I	--	--		Urinary	1 3E-06	0 001	4 76E-07	0 0005	3 6E-08		5 4E-08		
Chromium	4 08	0 003	I	--	--	(b)	None	1 1E-04	0 04	4 08E-05	0 01	3 1E-06		4 7E-06		
Cobalt	0 0352	0 0003	P	--	--		Endocrine	9 4E-07	0 003	3 52E-07	0 001	2 7E-08		4 0E-08		
Iron	28 8	0 7	P	--	--		Gastrointestinal	7 7E-04	0 001	2 88E-04	0 0004	2 2E-05		3 3E-05		
Manganese	119	0 14	I	--	--		Nervous	3 2E-03	0 02	1 19E-03	0 008	9 0E-05		1 4E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	1 87	0 02	I	--	--	(c)	Developmental	5 0E-05	0 002	1 87E-05	0 0009	1 4E-06		2 1E-06		
Thallium	0 0081	0 00001	X	--	--		Skin, Hair & Nails	2 2E-07	0 02	8 10E-08	0 008	6 2E-09		9 3E-09		
Vanadium	0 0199	0 00504	S	--	--		Skin, Hair & Nails	5 3E-07	0 0001	1 99E-07	0 00004	1 5E-08		2 3E-08		
							Ingestion Total		**0.09**		**0.03**		**2E-08**		**4E-08**	**6E-08**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 002	0 0007
Developmental HI	0 002	0 009
Endocrine HI	0 003	0 001
Gastrointestinal HI	0 001	0 0004
Hematologic HI	0 0003	0 0001
Nervous HI	0 02	0 008
Skin, Hair & Nails HI	0 02	0 009
Urinary HI	0 001	0 0005

Table 166. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Pine Nut Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	35 2	1	P	--	--		Nervous	1 4E-03	0 001	5 28E-04	0 0005	4 0E-05		6 0E-05		
Antimony	0 0291	0 0004	I	--	--	(a)	Hematologic	1 2E-06	0 003	4 37E-07	0 001	3 3E-08		5 0E-08		
Arsenic	0 056	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	2 2E-06	0 007	8 40E-07	0 003	6 4E-08	1E-07	9 6E-08	1E-07	2E-07
Cadmium	0 874	0 001	I	--	--		Urinary	3 5E-05	0 03	1 31E-05	0 01	1 0E-06		1 5E-06		
Chromium	7 06	0 003	I	--	--	(b)	None	2 8E-04	0 09	1 06E-04	0 04	8 1E-06		1 2E-05		
Cobalt	0 128	0 0003	P	--	--		Endocrine	5 1E-06	0 02	1 92E-06	0 006	1 5E-07		2 2E-07		
Iron	90 7	0 7	P	--	--		Gastrointestinal	3 6E-03	0 005	1 36E-03	0 002	1 0E-04		1 6E-04		
Manganese	65 1	0 14	I	--	--		Nervous	2 6E-03	0 02	9 76E-04	0 007	7 4E-05		1 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	4 47	0 02	I	--	--	(c)	Developmental	1 8E-04	0 009	6 70E-05	0 003	5 1E-06		7 7E-06		
Thallium	N/A	0 00001	X	--	--		Skin, Hair & Nails	ND		ND		ND		ND		
Vanadium	0 0543	0 00504	S	--	--		Skin, Hair & Nails	2 2E-06	0 0004	8 15E-07	0 0002	6 2E-08		9 3E-08		
							Ingestion Total		**0.2**		**0.07**		**1E-07**		**1E-07**	**2E-07**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 007	0 003
Developmental HI	0 009	0 003
Endocrine HI	0 02	0 006
Gastrointestinal HI	0 005	0 002
Hematologic HI	0 003	0 001
Nervous HI	0 02	0 007
Skin, Hair & Nails HI	0 008	0 003
Urinary HI	0 03	0 01

Table 167. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Lomatium Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	343	1	P	--	--		Nervous	3 0E-02	0 03	1 11E-02	0 01	8 5E-04		1 3E-03		
Antimony	0 439	0 0004	I	--	--	(a)	Hematologic	3 8E-05	0 1	1 43E-05	0 04	1 1E-06		1 6E-06		
Arsenic	0 397	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	3 4E-05	0 1	1 29E-05	0 04	9 8E-07	1E-06	1 5E-06	2E-06	4E-06
Cadmium	1 22	0 001	I	--	--		Urinary	1 1E-04	0 1	3 96E-05	0 04	3 0E-06		4 5E-06		
Chromium	2 23	0 003	I	--	--	(b)	None	1 9E-04	0 06	7 25E-05	0 02	5 5E-06		8 3E-06		
Cobalt	0 187	0 0003	P	--	--		Endocrine	1 6E-05	0 05	6 08E-06	0 02	4 6E-07		6 9E-07		
Iron	303	0 7	P	--	--		Gastrointestinal	2 6E-02	0 04	9 86E-03	0 01	7 5E-04		1 1E-03		
Manganese	29 6	0 14	I	--	--		Nervous	2 6E-03	0 02	9 63E-04	0 007	7 3E-05		1 1E-04		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	2 17	0 02	I	--	--	(c)	Developmental	1 9E-04	0 009	7 06E-05	0 004	5 4E-06		8 1E-06		
Thallium	0 0376	0 00001	X	--	--		Skin, Hair & Nails	3 3E-06	0 3	1 22E-06	0 1	9 3E-08		1 4E-07		
Vanadium	2 8	0 00504	S	--	--		Skin, Hair & Nails	2 4E-04	0 05	9 10E-05	0 02	6 9E-06		1 0E-05		
							Ingestion Total		**0.9**		**0.3**		**1E-06**		**2E-06**	**4E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 1	0 04
Developmental HI	0 009	0 1
Endocrine HI	0 05	0 02
Gastrointestinal HI	0 04	0 01
Hematologic HI	0 1	0 04
Nervous HI	0 02	0 007
Skin, Hair & Nails HI	0 5	0 2
Urinary HI	0 1	0 04

Table 168. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Camas Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	120	1	P	--	--		Nervous	1 0E-02	0 01	3 88E-03	0 004	3 0E-04		4 4E-04		
Antimony	0 254	0 0004	I	--	--	(a)	Hematologic	2 2E-05	0 06	8 26E-06	0 02	6 3E-07		9 4E-07		
Arsenic	0 263	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	2 3E-05	0 08	8 55E-06	0 03	6 5E-07	1E-06	9 8E-07	1E-06	2E-06
Cadmium	2 34	0 001	I	--	--		Urinary	2 0E-04	0 2	7 61E-05	0 08	5 8E-06		8 7E-06		
Chromium	0 18	0 003	I	--	--	(b)	None	1 6E-05	0 005	5 85E-06	0 002	4 5E-07		6 7E-07		
Cobalt	0 0582	0 0003	P	--	--		Endocrine	5 0E-06	0 02	1 89E-06	0 006	1 4E-07		2 2E-07		
Iron	107	0 7	P	--	--		Gastrointestinal	9 3E-03	0 01	3 48E-03	0 005	2 6E-04		4 0E-04		
Manganese	17 7	0 14	I	--	--		Nervous	1 5E-03	0 01	5 76E-04	0 004	4 4E-05		6 6E-05		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 158	0 02	I	--	--	(c)	Developmental	1 4E-05	0 0007	5 14E-06	0 0003	3 9E-07		5 9E-07		
Thallium	0 0425	0 00001	X	--	--		Skin, Hair & Nails	3 7E-06	0 4	1 38E-06	0 1	1 1E-07		1 6E-07		
Vanadium	0 285	0 00504	S	--	--		Skin, Hair & Nails	2 5E-05	0 005	9 26E-06	0 002	7 1E-07		1 1E-06		
							Ingestion Total		**0.8**		**0.3**		**1E-06**		**1E-06**	**2E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 08	0 03
Developmental HI	0 0007	0 1
Endocrine HI	0 02	0 006
Gastrointestinal HI	0 01	0 005
Hematologic HI	0 06	0 02
Nervous HI	0 01	0 004
Skin, Hair & Nails HI	0 4	0 2
Urinary HI	0 2	0 08

Table 169. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE CHIRU: Spring Beauty/Indian Potato Consumption

Analyte Name	Terrestrial Plant EPC (mg/kg ww)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
								Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Aluminum	326	1	P	--	--		Nervous	2 4E-02	0 02	8 96E-03	0 009	6 8E-04		1 0E-03		
Antimony	0 444	0 0004	I	--	--	(a)	Hematologic	3 3E-05	0 08	1 22E-05	0 03	9 3E-07		1 4E-06		
Arsenic	0 875	0 0003	I	1 5	I		Cardiovascular; Skin, Hair & Nails	6 4E-05	0 2	2 41E-05	0 08	1 8E-06	3E-06	2 8E-06	4E-06	7E-06
Cadmium	4 55	0 001	I	--	--		Urinary	3 3E-04	0 3	1 25E-04	0 1	9 5E-06		1 4E-05		
Chromium	0 651	0 003	I	--	--	(b)	None	4 8E-05	0 02	1 79E-05	0 006	1 4E-06		2 0E-06		
Cobalt	0 164	0 0003	P	--	--		Endocrine	1 2E-05	0 04	4 51E-06	0 02	3 4E-07		5 2E-07		
Iron	528	0 7	P	--	--		Gastrointestinal	3 9E-02	0 06	1 45E-02	0 02	1 1E-03		1 7E-03		
Manganese	26 6	0 14	I	--	--		Nervous	1 9E-03	0 01	7 31E-04	0 005	5 6E-05		8 4E-05		
Mercury	N/A	0 0001	I	--	--	(d)	Nervous; Developmental	N/A		N/A		N/A		N/A		
Nickel	0 559	0 02	I	--	--	(c)	Developmental	4 1E-05	0 002	1 54E-05	0 0008	1 2E-06		1 8E-06		
Thallium	0 174	0 00001	X	--	--		Skin, Hair & Nails	1 3E-05	1	4 79E-06	0 5	3 6E-07		5 5E-07		
Vanadium	1 03	0 00504	S	--	--		Skin, Hair & Nails	7 5E-05	0 01	2 83E-05	0 006	2 2E-06		3 2E-06		
Ingestion Total									**2**		**0.8**		**3E-06**		**4E-06**	**7E-06**

N/A = no data available ND = not detected

-- = no toxicity value available

(a) Based on toxicity values for water

(b) Based on toxicity values for Chromium (VI)

(c) Based on toxicity value for nickel, soluble salts

(d) Assumes chemical form of mercury in tissue is methylmercury

Sources: I = IRIS, P = EPA provisional peer-reviewed value,
X = Appendix PPRTV Screen, S = RSL table user's guide Section 5

Cardiovascular HI	0 2	0 08
Developmental HI	0 002	0 5
Endocrine HI	0 04	0 02
Gastrointestinal HI	0 06	0 02
Hematologic HI	0 08	0 03
Nervous HI	0 01	0 005
Skin, Hair & Nails HI	2	0 6
Urinary HI	0 3	0 1

Table 170. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Upland Bird Consumption

Analyte Name	EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				
							Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Arsenic	0.0236	0.0003	I	1.5	I	Cardiovascular; Skin, Hair & Nails	5.3E-06	0.02	2.0E-06	0.007	4.6E-07	7E-07	5.7E-07	9E-07	2E-06
Beryllium	0.00246	0.002	I	--	--	Gastrointestinal	5.6E-07	0.0003	2.1E-07	0.0001	4.8E-08		6.0E-08		
Cadmium	0.336	0.001	I	--	--	Urinary	7.6E-05	0.08	2.9E-05	0.03	6.5E-06		8.2E-06		
Mercury	0.000280	0.0001	I	--	--	Nervous; Developmental	6.3E-08	0.0006	2.4E-08	0.0002	5.4E-09		6.8E-09		
Nickel	0.0163	0.011	C	--	--	Developmental	3.7E-06	0.0003	1.4E-06	0.0001	3.2E-07		4.0E-07		
Selenium	0.0266	0.005	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	6.0E-06	0.001	2.3E-06	0.0005	5.2E-07		6.5E-07		
						Total		**0.1**		**0.04**		**7E-07**		**9E-07**	**2E-06**

-- = no toxicity value available

Sources: I = IRIS C = California EPA

Total by Target Organ System:

Cardiovascular HI	0.02	0.007
Developmental HI	0.001	0.0004
Gastrointestinal HI	0.0003	0.0001
Hematologic HI	0.001	0.0005
Nervous HI	0.002	0.0007
Skin, Hair, and Nails HI	0.02	0.007
Urinary HI	0.08	0.03

Table 171. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Upland Bird Consumption

Analyte Name	EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				
							Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Arsenic	0.0236	0.0003	I	1.5	I	Cardiovascular; Skin, Hair & Nails	2.5E-06	0.008	9.4E-07	0.003	7.2E-08	1E-07	1.1E-07	2E-07	3E-07
Beryllium	0.00246	0.002	I	--	--	Gastrointestinal	2.6E-07	0.0001	9.8E-08	0.00005	7.5E-09		1.1E-08		
Cadmium	0.336	0.001	I	--	--	Urinary	3.6E-05	0.04	1.3E-05	0.01	1.0E-06		1.5E-06		
Mercury	0.000280	0.0001	I	--	--	Nervous; Developmental	3.0E-08	0.0003	1.7E-06	0.0001	8.5E-10		1.3E-09		
Nickel	0.0163	0.011	C	--	--	Developmental	1.7E-06	0.0002	6.5E-07	0.00006	5.0E-08		7.5E-08		
Selenium	0.0266	0.005	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	2.8E-06	0.0006	1.1E-06	0.0002	8.1E-08		1.2E-07		
						Total		**0.05**		**0.02**		**1E-07**		**2E-07**	**3E-07**

-- = no toxicity value available

Sources: I = IRIS C = California EPA

Total by Target Organ System:

Cardiovascular HI	0.008	0.003
Developmental HI	0.0005	0.0002
Gastrointestinal HI	0.0001	0.00005
Hematologic HI	0.0006	0.0002
Nervous HI	0.0009	0.0003
Skin, Hair, and Nails HI	0.009	0.003
Urinary HI	0.04	0.01

Table 172. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the RME: CHIRU Wild Game (Mammals) Consumption

Analyte Name	EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				
							Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Arsenic	0.00161	0.0003	I	1.5	I	Cardiovascular; Skin, Hair & Nails	1.4E-06	0.005	8.5E-07	0.003	1.2E-07	2E-07	2.4E-07	4E-07	5E-07
Beryllium	0.00000566	0.002	I	--	--	Gastrointestinal	4.9E-09	0.000002	3.0E-09	0.000001	4.2E-10		8.5E-10		
Cadmium	0.000576	0.001	I	--	--	Urinary	5.0E-07	0.0005	3.0E-07	0.0003	4.3E-08		8.6E-08		
Mercury	0.00000556	0.0001	I	--	--	Nervous; Developmental	4.8E-09	0.00005	2.9E-09	0.00003	4.1E-10		8.3E-10		
Nickel	0.00065233	0.011	C	--	--	Developmental	5.7E-07	0.00005	3.4E-07	0.00003	4.8E-08		9.8E-08		
Selenium	0.00888	0.005	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	7.7E-06	0.002	4.7E-06	0.0009	6.6E-07		1.3E-06		
						Total		**0.007**		**0.004**		**2E-07**		**4E-07**	**5E-07**

-- = no toxicity value available

Sources: I = IRIS C = California EPA

Total by Target Organ System:

Cardiovascular HI	0.005	0.003
Developmental HI	0.0001	0.00006
Gastrointestinal HI	0.000002	0.000001
Hematologic HI	0.002	0.0009
Nervous HI	0.002	0.001
Skin, Hair, and Nails HI	0.006	0.004
Urinary HI	0.0005	0.0003

Table 173. Non-Cancer and Cancer Risks and Target Organ System Hazards for non-lead COPCs for the CTE: CHIRU Wild Game (Mammals) Consumption

Analyte Name	EPC (mg/kg ww)	Toxicity Values				Primary Target Organ(s)	Non-Cancer				Cancer				
							Child		Adult		Child		Adult		
		oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source		Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	**TWA**
Arsenic	0.00161	0.0003	I	1.5	I	Cardiovascular; Skin, Hair & Nails	4.1E-07	0.001	2.4E-07	0.0008	1.2E-08	2E-08	2.8E-08	4E-08	6E-08
Beryllium	0.00000566	0.002	I	--	--	Gastrointestinal	1.4E-09	0.0000007	8.5E-10	0.0000004	4.1E-11		9.7E-11		
Cadmium	0.000576	0.001	I	--	--	Urinary	1.5E-07	0.0001	8.6E-08	0.00009	4.2E-09		9.9E-09		
Mercury	0.00000556	0.0001	I	--	--	Nervous; Developmental	1.4E-09	0.00001	8.3E-10	0.000008	4.0E-11		9.5E-11		
Nickel	0.00065233	0.011	C	--	--	Developmental	1.7E-07	0.00002	9.8E-08	0.000009	4.7E-09		1.1E-08		
Selenium	0.00888	0.005	I	--	--	Nervous; Hematologic; Skin, Hair & Nails	2.2E-06	0.0004	1.3E-06	0.0003	6.4E-08		1.5E-07		
						Total		**0.002**		**0.001**		**2E-08**		**4E-08**	**6E-08**

-- = no toxicity value available

Sources: I = IRIS C = California EPA

Total by Target Organ System:

Cardiovascular HI	0.001	0.0008
Developmental HI	0.00003	0.00002
Gastrointestinal HI	0.0000007	0.0000004
Hematologic HI	0.0004	0.0003
Nervous HI	0.0005	0.0003
Skin, Hair, and Nails HI	0.002	0.001
Urinary HI	0.0001	0.00009

Table 174. Comparison of Estimated and Measured Plant Tissue Concentrations

COPC	Mean Soil Conc (mg/kg)	Estimated Plant Conc (mg/kg dw)	Mean Measured Plant Conc (mg/kg dw)							
			All Plants	Black Tree Lichen	Camas	Choke-cherry	Hazel-nut	Huckle-berry	Kinni-kinnick	Lomatium
Arsenic	33.8	1.29	0.57	**1.52**	0.83	0.03	0.03	0.04	0.09	**1.34**
Beryllium	0.58	0.39	0.03	0.01	0.02	ND	ND	ND	0.02	0.04
Cadmium	13.1	2.53	2.34	**2.60**	**8.55**	0.01	0.05	0.25	0.12	**3.84**
Lead	552	9.15	**17.3**	**54.69**	**58.73**	0.05	0.01	0.05	1.23	**41.82**
Nickel	16.9	0.90	**1.33**	0.41	0.57	0.55	**1.90**	0.28	0.18	**5.15**
Selenium	0.92	0.46	0.14	0.32	0.05	ND	0.1	ND	0.07	0.14

COPC	Mean Soil Conc (mg/kg)	Estimated Plant Conc (mg/kg dw)	Mean Measured Plant Conc (mg/kg dw)							
			Wild Mint	Pine Nut	Rose Hips	Rose Stems/ Leaves	Sarvis-berry	Spring Beauty	Tule	Willow
Arsenic	33.8	1.29	0.08	0.05	0.03	0.07	0.03	**1.45**	0.05	0.08
Beryllium	0.58	0.39	0.01	ND	ND	ND	ND	0.03	ND	ND
Cadmium	13.1	2.53	0.05	0.77	0.039	0.40	0.17	**10.79**	0.01	**2.83**
Lead	552	9.15	0.65	0.57	0.11	1.36	2.05	**55.27**	0.12	0.23
Nickel	16.9	0.90	0.39	**4.31**	0.68	0.51	0.88	**0.92**	**1.70**	0.42
Selenium	0.92	0.46	0.06	ND	0.13	0.26	0.11	0.08	0.04	0.11

Bold text indicates measured plant concentration > estimated plant concentration. ND = not detected

Table 175. Predicted Lead Intakes from Consumption of Site-related Biota

Biota Consumed	Mean Lead Conc (µg/g ww)	DCR (g/day)	Lead Intake (µg Pb/day)
Black Tree Lichen	33.35	0.75	**25**
Spring Beauty/Indian Potato	15.44	1.1	**17**
Camas	12.09	1.3	**15.7**
Lomatium	10.54	1.3	**13.7**
Sarvisberry	1.684	3.75	**6.3**
Sucker (Site-wide)	0.135	40	**5.4**
Upland birds (Site-wide)	1.53	1.6	**2.4**
Amphibians/Reptiles (UCR Reach 5)	0.697	2.1	**1.5**
Amphibians/Reptiles (UCR Reach 2)	0.557	2.1	**1.2**
Amphibians/Reptiles (Site-wide)	0.533	2.1	**1.1**
Walleye (Site-wide)	0.026	40	**1.0**
Crayfish (UCR Reach 5)	0.697	1.27	0.9
Rainbow Trout (Site-wide)	0.0216	40	0.9
Burbot (Site-wide)	0.0213	40	0.9
Crayfish (UCR Reach 2)	0.557	1.27	0.7
Crayfish (Site-wide)	0.533	1.27	0.7
Amphibians/Reptiles (UCR Reach 6)	0.347	2.1	0.7
Smallmouth Bass (Site-wide)	0.0168	40	0.7
Mussels (UCR Reach 1)	0.69	0.85	0.6
Mussels (UCR Reach 2)	0.498	0.85	0.4
Mussels (UCR Reach 3)	0.454	0.85	0.4
Crayfish (UCR Reach 6)	0.347	1.27	0.4
Whitefish (Site-wide)	0.00892	40	0.4
Ponderosa Pine	0.477	0.6	0.3
Mussels (Site-wide)	0.366	0.85	0.3
Waterfowl (Upper region)	0.35	0.7	0.2
Mussels (UCR Reach 5)	0.215	0.85	0.2
Mussels (UCR Reach 6)	0.237	0.85	0.2
White Sturgeon (Site-wide)	0.00504	40	0.2
Kokanee (Site-wide)	0.00397	40	0.2
Northern Pike (Site-wide)	0.00355	40	0.1
Rose stems/leaves	0.59	0.1	0.1
Wild Mint	0.0908	1.25	0.1
Mussels (UCR Reach 4)	0.1	0.85	0.1
Mussels (Reference area)	0.0778	0.85	0.1
Crayfish (Reference area)	0.0587	1.27	0.1
Waterfowl (Middle region)	0.048	0.7	<0.1
Chokecherry	0.0139	3.3	<0.1
Rose hips	0.0499	0.85	<0.1
Waterfowl (Lower region)	0.012	0.7	<0.1
Kinnikinnick	0.621	0.04	<0.1
Wild game/mammals (Site-wide)	0.0044	3.8	<0.1
Willow	0.155	0.1	<0.1
Huckleberry	0.0126	0.95	<0.1
Tule	0.0307	0.1	<0.1
Hazelnut	0.00437	0.4	<0.1

Table 176. Non-Cancer Target Organ Child HIs for Pathways with Total HI >1: RME

Pathway	Exposure Area/ Species	Cardio-vascular	Develop-mental	Endo-crine	GI	Hemat-ologic	Nervous	Repro-ductive	Skin, Hair & Nails	Urinary
Incidental Ingestion of Soil/Dust & Dermal Contact with Soil	DU 258	0.7	0.01	0.2	0.2	0.3	0.6	NA	1	0.2
	DU 259	0.3	0.01	0.2	0.3	0.1	0.5	NA	0.7	0.08
	DU 401	1	0.02	0.3	0.4	0.5	0.8	NA	2	0.3
	DU 402	0.5	0.01	0.2	0.2	0.2	0.4	NA	1	0.1
	DU 403	0.4	0.02	0.3	0.4	0.1	0.5	NA	1	0.1
	DU 410	0.5	0.02	0.3	0.3	0.2	0.6	NA	1	0.1
	DU 413	0.7	0.02	0.3	0.3	0.3	0.7	NA	1	0.2
	DU 420	0.5	0.02	0.3	0.3	0.2	0.7	NA	1	0.1
	DU 421	0.2	0.02	0.3	0.4	0.1	0.3	NA	0.7	0.07
	DU 430	0.2	0.01	0.2	0.3	0.08	0.4	NA	0.7	0.08
	DU 432	0.3	0.02	0.3	0.3	0.07	0.3	NA	0.8	0.07
	DU 441	0.8	0.02	0.4	0.3	0.2	0.9	NA	2	0.2
	DU 442	0.3	0.02	0.4	0.4	0.1	0.6	NA	0.8	0.08
	DU 801-O1	0.2	0.04	0.5	0.4	0.03	0.7	NA	0.5	0.02
	DU 801-O2	0.1	0.05	0.8	0.6	0.06	1	NA	0.6	0.03
	DU 801-O3	0.2	0.05	0.5	0.4	0.02	0.6	NA	0.5	0.05
	DU 802-O1	0.1	0.02	0.2	0.3	0.06	0.5	NA	0.5	0.07
	DU 803-O1	0.2	0.02	0.3	0.3	0.2	0.3	NA	1	0.1
	DU 803-O2	0.2	0.02	0.3	0.3	0.2	0.3	NA	1	0.08
	DU 803-O3	0.2	0.03	0.4	0.4	0.09	0.5	NA	0.8	0.09
	DU 804-O1	0.07	0.02	0.3	0.3	0.04	0.4	NA	0.4	0.04
	DU 804-O2	0.2	0.02	0.3	0.3	0.1	0.4	NA	0.7	0.1
	DU 805-O1	0.1	0.02	0.4	0.4	0.03	0.5	NA	0.4	0.02
	DU 806-O1	0.1	0.03	0.35	0.4	0.02	0.4	NA	0.3	0.03
	DU 806-O2	0.2	0.04	0.5	0.4	0.03	0.5	NA	0.5	0.04
	DU 806-O3	0.08	0.02	0.3	0.4	0.03	0.5	NA	0.3	0.02
	DU 806-O5	0.09	0.02	0.3	0.4	0.02	0.5	NA	0.3	0.02
	DU 807-O1	0.1	0.02	0.3	0.3	0.01	0.7	NA	0.4	0.1
	DU 808-O2	0.07	0.02	0.3	0.3	0.03	0.5	NA	0.5	0.02
Ingestion of Fish	Burbot	0.4	30	0.4	0.05	2	30	20	10	NA
	Kokanee	1	9	1	0.2	1	10	10	40	NA
	Northern Pike	ND	20	NA	NA	2	20	NA	20	NA
	Rainbow Trout	1	10	1	0.4	1	10	20	30	NA
	Smallmouth Bass	0.5	20	0.3	0.2	2	30	20	40	NA
	White Sturgeon	ND	10	NA	NA	3	20	8	8	NA
	Sucker	0.6	40	0.4	2	1	40	30	20	NA
	Walleye	10	20	10	0.2	1	30	8	50	NA
	Whitefish	2	10	2	0.8	1	20	30	20	NA
Ingestion of Plants	Lomatium	0.2	0.02	0.1	0.07	0.2	0.03	NA	0.9	0.2
	Spring Beauty/ Indian Potato	0.2	0.002	0.04	0.06	0.08	0.01	NA	2	0.3

Notes: NA = not applicable. ND = not detected. HI results are rounded to 1 significant figure.

Table 177. Non-Cancer Target Organ Adult HIs for Pathways with Total HI >1: RME

Pathway	Exposure Area/ Species	Cardio-vascular	Develop-mental	Endo-crine	GI	Hemat-ologic	Nervous	Repro-ductive	Skin, Hair & Nails	Urinary
Ingestion of Fish	Burbot	0.1	10	0.1	0.02	0.7	10	6	4	NA
	Kokanee	0.5	3	0.5	0.08	0.4	4	4	20	NA
	Northern Pike	ND	6	NA	NA	0.7	7	NA	7	NA
	Rainbow Trout	0.4	4	0.4	0.2	0.5	5	7	10	NA
	Smallmouth Bass	0.2	9	0.1	0.06	0.6	9	8	10	NA
	White Sturgeon	ND	5	NA	NA	1	6	3	3	NA
	Sucker	0.2	10	0.1	0.6	0.4	20	10	7	NA
	Walleye	5	9	5	0.08	0.5	10	3	20	NA
	Whitefish	0.9	5	0.8	0.3	0.4	6	10	9	NA

Notes: NA = not applicable. ND = not detected. HI results are rounded to 1 significant figure.

Table 178. Non-Cancer Target Organ Child HIs for Pathways with Total HI >1: CTE

Pathway	Exposure Area/ Species	Cardio-vascular	Develop-mental	Endo-crine	GI	Hemat-ologic	Nervous	Repro-ductive	Skin, Hair & Nails	Urinary
Ingestion of Fish	Burbot	0.07	7	0.07	0.009	0.4	7	3	2	NA
	Kokanee	0.3	2	0.3	0.04	0.2	2	2	8	NA
	Northern Pike	ND	3	NA	NA	0.4	4	NA	4	NA
	Rainbow Trout	0.2	2	0.2	0.08	0.3	3	4	7	NA
	Smallmouth Bass	0.1	5	0.06	0.03	0.3	5	4	7	NA
	White Sturgeon	ND	3	NA	NA	0.6	3	2	2	NA
	Sucker	0.1	8	0.08	0.3	0.2	9	5	4	NA
	Walleye	3	5	3	0.04	0.3	5	2	10	NA
	Whitefish	0.5	3	0.4	0.2	0.2	3	6	5	NA
Ingestion of Plants	Spring Beauty/Indian Potato	0.2	0.002	0.04	0.06	0.08	0.01	NA	2	0.3

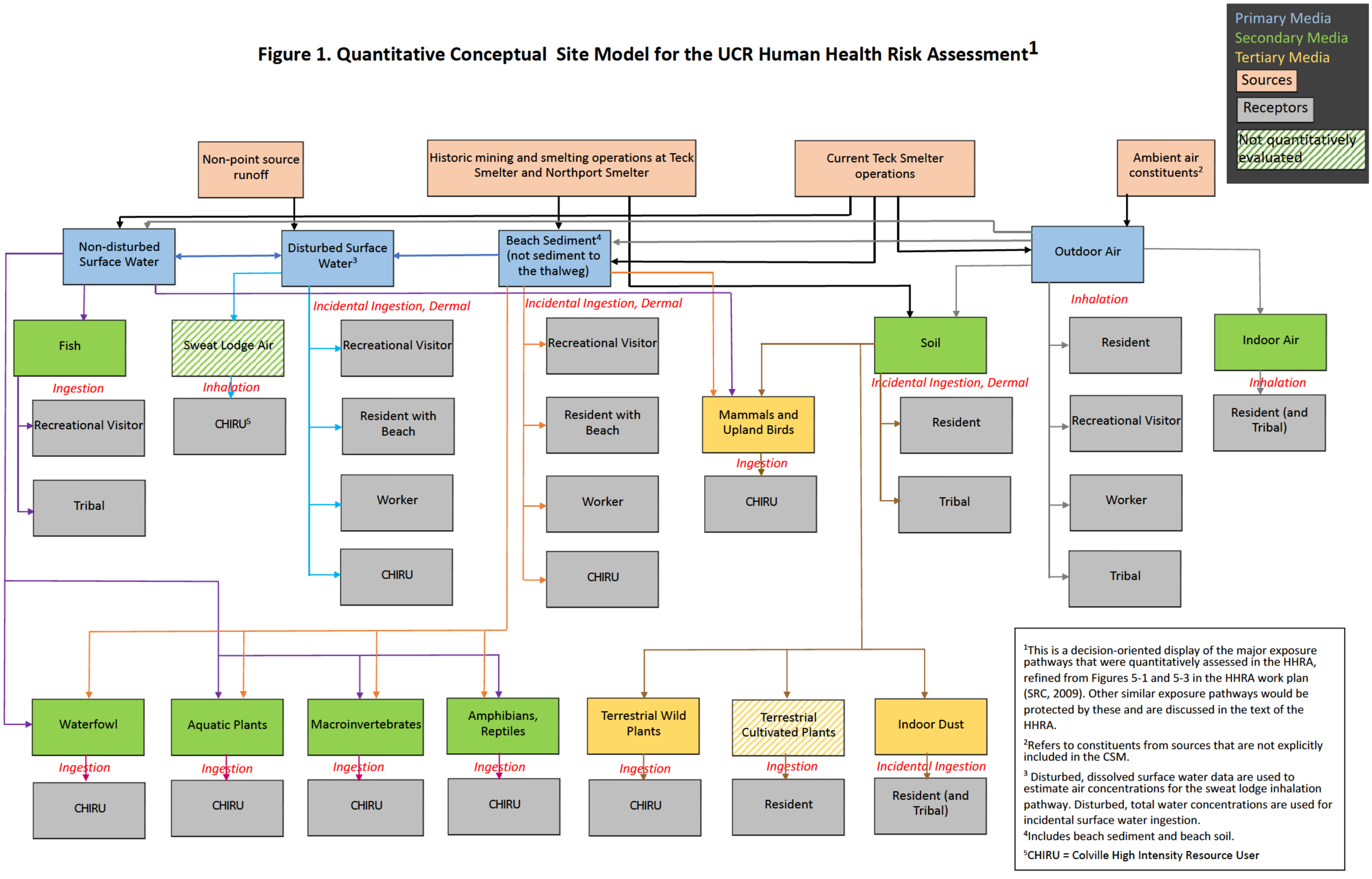
Notes: NA = not applicable. ND = not detected. HI results are rounded to 1 significant figure.

Table 179. Non-Cancer Target Organ Adult HIs for Pathways with Total HI >1: CTE

Pathway	Exposure Area/ Species	Cardio-vascular	Develop-mental	Endo-crine	GI	Hemat-ologic	Nervous	Repro-ductive	Skin, Hair & Nails	Urinary
Ingestion of Fish	Burbot	0.03	2	0.03	0.003	0.1	3	1	0.8	NA
	Kokanee	0.1	0.7	0.1	0.02	0.08	0.7	0.8	3	NA
	Northern Pike	ND	1	NA	NA	0.1	1	NA	1	NA
	Rainbow Trout	0.09	0.8	0.07	0.03	0.1	1	1	3	NA
	Smallmouth Bass	0.04	2	0.02	0.01	0.1	2	2	3	NA
	White Sturgeon	ND	0.9	NA	NA	0.2	1	0.6	0.6	NA
	Sucker	0.04	3	0.03	0.1	0.09	3	2	1	NA
	Walleye	1	2	1	0.02	0.1	2	0.6	4	NA
	Whitefish	0.2	1	0.2	0.06	0.08	1	2	2	NA

Notes: NA = not applicable. ND = not detected. HI results are rounded to 1 significant figure.

Figure 1. Quantitative Conceptual Site Model for the UCR Human Health Risk Assessment[1]



[1]This is a decision-oriented display of the major exposure pathways that were quantitatively assessed in the HHRA, refined from Figures 5-1 and 5-3 in the HHRA work plan (SRC, 2009). Other similar exposure pathways would be protected by these and are discussed in the text of the HHRA.

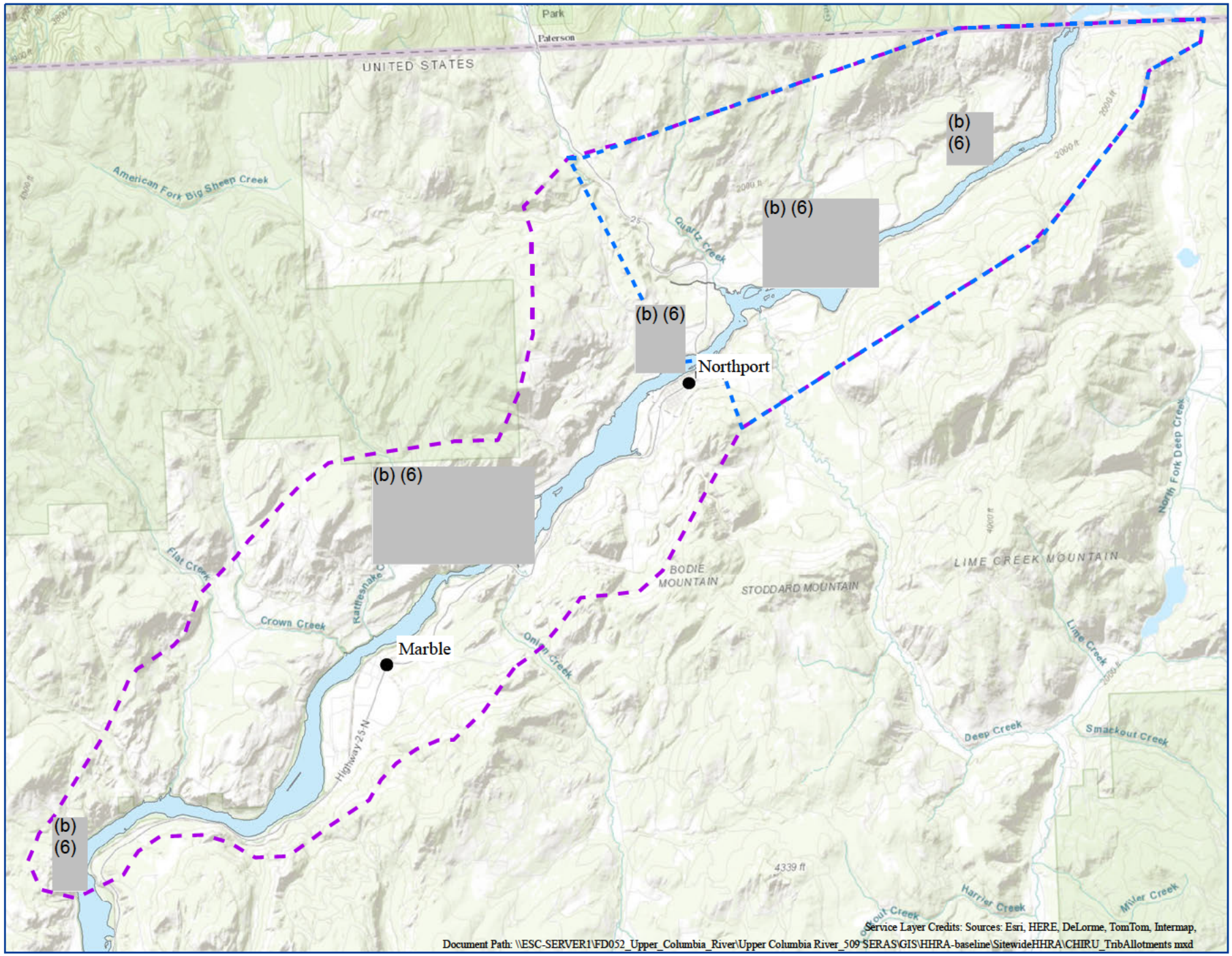
[2]Refers to constituents from sources that are not explicitly included in the CSM.

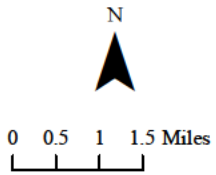
[3] Disturbed, dissolved surface water data are used to estimate air concentrations for the sweat lodge inhalation pathway. Disturbed, total water concentrations are used for incidental surface water ingestion.

[4]Includes beach sediment and beach soil.

[5]CHIRU = Colville High Intensity Resource User

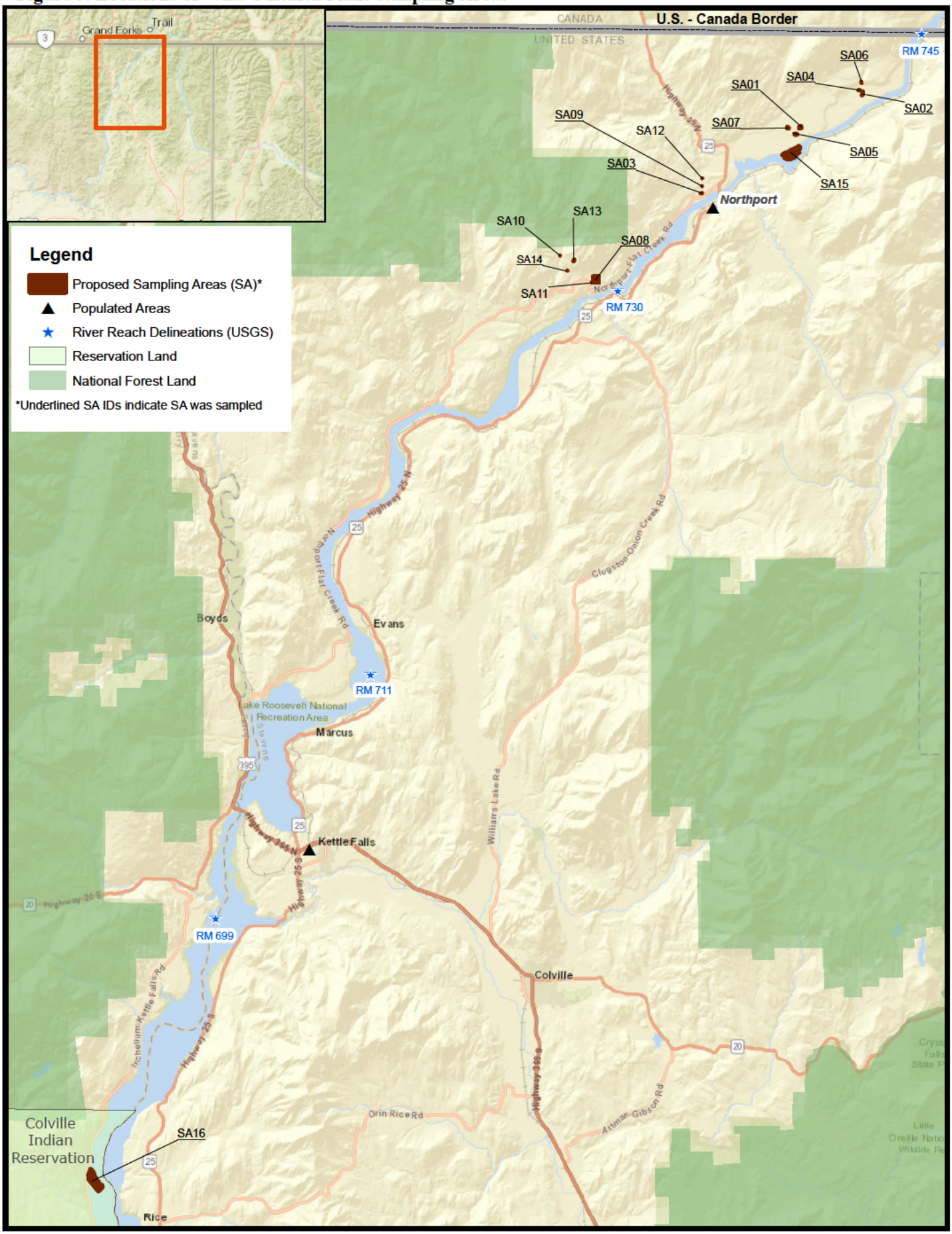
Figure 2. Tribal Allotments Sampled in the 2014 and 2016 Residential Soil Studies





- Tribal Allotment IC Soil Samples from 2014
- Tribal Allotment IC Soil Samples from 2016
- 2014 Residential Soil Sampling Area
- 2016 Residential Soil Sampling Area

Figure 3. Locations of Wild/Cultural Plant Sampling Areas



RAMBOLL

0 1 2 4 Kilometers

0 1 2 4 Miles

N

Figure 3. Cultural Plant Study Area Map
Upper Columbia River, WA

Appendix 2:
Upper Columbia River (UCR): Final Site-Wide Human Health Risk Assessment (HHRA) for the Spokane Tribe of Indians (STI) Population

Appendix 2. Upper Columbia River (UCR): Final Site-Wide Human Health Risk Assessment (HHRA) for the Spokane Tribe of Indians (STI) Population

1 Introduction

The Upper Columbia River (UCR) Site ("the Site") is located wholly within the state of Washington, in the northeast portion of the state, and includes approximately 150 river miles of the Columbia River, extending downstream from the United States (U.S.) – Canada border south and west to the Grand Coulee Dam. The Site includes land and waters within the boundaries of the Colville Reservation and the Spokane Reservation, over which the Tribes have civil regulatory jurisdiction, as well as land and waters administered by the National Park Service and the Bureau of Reclamation within the U.S. Department of the Interior (U.S. Environmental Protection Agency [EPA], 2006). A remedial investigation and feasibility study (RI/FS) is currently underway in response to concerns regarding historical discharges of hazardous substances into the Columbia River from smelting processes and facility operations by Teck Metals Ltd. ("Teck") and its affiliated predecessors at the Trail facility located in Trail, British Columbia (B.C.). In accordance with a Settlement Agreement signed by the U.S. and Teck American Incorporated (TAI) (EPA, 2006), TAI will complete the RI/FS and baseline ecological risk assessment (BERA), and EPA will complete the human health risk assessment (HHRA).

The purpose of the HHRA is to assess the potential risks to humans, both under current conditions and in the future, from exposure to Site-related contaminants present in environmental media associated with the UCR, assuming no steps are taken to remediate the environment or to reduce human contact with contaminated environmental media. The results of the HHRA are intended to help inform risk managers and the public about potential human health risks attributable to exposure to Site-related contaminants and to help determine if there is a need for action at the Site (EPA, 1989). The methods used to evaluate risks in this HHRA are consistent with current EPA guidelines for HHRA at Superfund sites (e.g., EPA, 1989, 1992, 2001, 2004a, 2004b, 2011, 2014).

The conceptual site model (CSM) for the UCR Site, as first defined in the HHRA work plan (SRC, 2009), identifies residential, recreational, occupational, and tribal populations as potential receptors exposed to Site-related contamination. Two Native American populations with reservations in the vicinity of the Site are the Confederated Tribes of the Colville Reservation (CCT) and the Spokane Tribe of Indians (STI). The HHRA for the Colville High Intensity Resource User (CHIRU) population of the CCT is presented in Appendix 1 of the Site-wide HHRA. This appendix contains the HHRA for the STI population. This population represents residents of the Spokane Reservation who engage in a traditional lifestyle, obtaining most of their food by fishing at the UCR Site. Calculations for the STI population utilized exposure parameters provided to EPA by the STI to represent a traditional Spokane Indian subsistence scenario (STI Hazardous Substances Control Act [STI HSCA], 2006; STI Surface Water Quality Standards [STI WQS], 2010).

HHRAs typically contain the following sections: Introduction, Site Characterization, Exposure Assessment, Toxicity Assessment, Risk Characterization, Uncertainty Assessment, and Summary/Conclusion. Given that the STI HHRA in this appendix is part of the broader HHRA for the UCR Site, only sections pertaining specifically to the STI are included here for the sake

of brevity. The Site Characterization, which includes descriptions of UCR Site history and usage, physical characteristics, and ecological resources, as well as summaries of all Site-related data collected to date, is presented in Section 2 of the Site-wide HHRA to which this document is appended and is not repeated here. Similarly, the Toxicity Assessment, which identifies potential adverse human health effects from a chemical and how those effects depend on exposure level (i.e., "dose-response"), as well as how toxic effects of a chemical depend on the route of exposure (oral, inhalation, dermal) and duration of exposure (subchronic, chronic, or lifetime), is presented in Section 4 of the Site-wide HHRA and is not repeated here. This appendix primarily focuses on the Exposure Assessment and Risk Characterization of the UCR HHRA for the STI population and contains portions of the Uncertainty Analysis pertinent to this tribal-specific risk assessment.

2 Exposure Assessment

Exposure is the process by which receptors (representing hypothetical populations) contact chemicals in the environment.[1] Receptors can be exposed to chemicals in soil, dust, sediment, water, air, or food, and these exposures can occur via: ingestion (intentional or incidental), dermal contact, and inhalation. This section summarizes the environmental media and chemicals of potential concern (COPCs) evaluated in this appendix, identifies complete exposure pathways for the STI population, and describes the methods used to quantify exposure from each pathway.

2.1 Conceptual Site Model (CSM)

Figure 1 presents the CSM that summarizes the current understanding of how chemical contaminants that have been released to the environment at the Site might result in the exposure of receptors. The environmental media evaluated in this appendix include soil/dust, air, and fish. STI exposure to beach sediment and UCR surface water is expected to be consistent with the recreational visitor population and is evaluated as such in the main body of the Site-wide HHRA. Sweat lodge air was not quantitatively evaluated in this HHRA and is expected to make a negligible contribution to risk (see Appendix 3 of the Site-wide HHRA for further discussion).

2.1.1 Exposure Areas

An exposure area (also referred to as an exposure unit) is an area where a receptor may be exposed to one or more environmental media. Within the exposure area, contact with each medium is assumed to be random when considered on the time scale of the exposure scenario being evaluated (usually many years). Selection of the bounds of an exposure area is based mainly on consideration of the likely activity patterns of the exposed receptor populations as well as the spatial extent of data that are available to estimate exposure parameters and exposure concentrations. Table 1 presents the exposure areas defined for evaluation in this HHRA appendix by medium. The rationale for these exposure areas follows.

2.1.1.1 Soil and Indoor Dust

The STI population was assumed to be exposed to soil and dust on the Spokane Reservation. The 2014 and 2016 sampling events (described in Section 2 of the Site-wide HHRA) did not include locations on the Spokane Reservation. Soil data for the Spokane Reservation were available from

[1] For more explanation of the terminology used in this Appendix, please see the Note to Readers on page xxxiii of the Site-wide HHRA.

a reanalysis of 56 archived National Uranium Resource Evaluation (NURE) soil samples by Church et al. (2008). These data were used to estimate exposure for the Spokane Reservation because they represent soil on the Spokane Reservation that is unaffected by mining or smelting operations. The samples were collected from within the boundaries of the reservation and exclude locations that may be affected by the Midnite Mine (Church et al., 2008).[2] Additional information about these data is provided in Appendix 4 of the Site-wide HHRA. Indoor dust, which would be associated with any current building or buildings added to the Spokane Reservation in the future, was also assumed to have been impacted by contaminants in an exposure area representative of the Spokane Reservation and was derived from the NURE soil data using the assumed relationship between outdoor soil and indoor dust from the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK model).

2.1.1.2 Air

Outdoor air samples were collected from one location near Northport, Washington, by TAI (see Figure 2-12 in the Site-wide HHRA; Washington State Department of Ecology [ECY], 2017). The exposure area for air was identified as the entire Site.

2.1.1.3 Fish

The measured concentrations of COPCs in fish collected from all six river reaches were used to calculate EPCs for each species (CH2MHill, 2007; Exponent, 2013; TAI, 2013; Windward Environmental LLC [Windward], 2017; TAI, 2018; see Figures 2-14 through 2-16 in the Site-wide HHRA). Species evaluated included sucker (*Catostomus spp.*), Walleye (*Sander vitreus*), Rainbow Trout (*Oncorhynchus mykiss*), Burbot (*Lota lota*), Smallmouth Bass (*Micropterus dolomieu*), Lake Whitefish (*Coregonus clupeaformis*), White Sturgeon (*Acipenser transmontanus*), kokanee (*Oncorhynchus nerka*), and Northern Pike (*Esox lucius*).[3] In the northernmost sampling areas, Mountain Whitefish (*Prosopium williamsoni*) were collected instead of Lake Whitefish because of habitat limitations. Similarly, Longnose Sucker (*C. catostomus*) were collected as surrogates for Largescale Sucker (*C. macrocheilus*) when necessary.

The exposure area for fish was UCR Reaches 1-6. The rationale for combining the fish tissue data across reaches assumed that at least some of the fish species have home ranges that span more than one river reach, resulting in exposures throughout the river. More detail can be found in Section 3.1.1.3 of the Site-wide HHRA.

2.1.2 Exposed Population

The receptor population of concern addressed in this appendix to the Site-wide HHRA is the STI population. This population was assumed to follow a traditional lifestyle, living completely off the land in accordance with Native American traditions and utilizing the Spokane Reservation for recreating and tribal activities. STI adults and children may be exposed to COPCs in soil during outdoor activities, and also via exposure to indoor dust tracked into structures on the reservation. STI adults and children may be exposed to COPCs while breathing air on the

[2] Data for antimony were not included in the NURE dataset. Soil data for antimony were taken from ECY (2019).
[3] Common names for fish in this document were capitalized following the American Fisheries Society guidelines, Section 2.15; https://fisheries.org/docs/pub_stylefl.pdf and https://fisheries.org/docs/pub_style10.pdf.

Spokane Reservation, as well as air inside any structures on the reservation. The STI population was also assumed to consume fish harvested from the UCR.

EPA (1989) recommends evaluating exposure and risk to individuals using intake parameter values (e.g., soil ingestion rate) that are near the upper end of the range (e.g., the 95th percentile [P95]) and "average," near the central portion of the range. These exposure scenarios are referred to as the Reasonable Maximum Exposure (RME) scenario when the intake parameters are from the upper end of the range, and the Central Tendency Exposure (CTE) scenario when average values are used. For the STI population, based on discussions with the tribe and their risk assessment guidance (STI HSCA, 2006), only the RME scenario was evaluated.

2.1.3 Exposure Pathways

As described above, several types of media may be contaminated at the Site, including air, soil/dust, and fish. Only exposure pathways considered complete and for which data were available were carried through the HHRA, including this appendix.

Exposure pathways evaluated for the STI population included:

- Incidental ingestion of surface soil and indoor dust on the Spokane Reservation,
- Dermal contact with surface soil on the Spokane Reservation,
- Inhalation of outdoor and indoor air, and
- Consumption of fish harvested from the UCR.

2.2 Section of Chemicals of Potential Concern (COPCs)

The HHRA work plan for the UCR Site (SRC, 2009) presented a list of initial contaminants of interest (COIs) developed using information about known and potential sources of contamination and data obtained during investigations and monitoring events near or at the Site. The COI list included metals and metalloids, pesticides, semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins/furans, polybrominated diphenyl ethers (PBDEs), and radionuclides associated with the uranium-238 decay chain. The list of COIs analyzed differed by each medium depending on the Site-specific data collected during RI sampling events. COIs were evaluated in a risk-based screen described in detail in Section 3.2 of the Site-wide HHRA to identify COPCs. Table 2 lists the COPCs identified for each medium in this appendix.

2.2.1 Air COPCs

The air COI screen is presented in detail in Section 3.2.5 of the Site-wide HHRA. Air COPCs that have toxicity values and measured concentrations (CH2MHill, 2015; ECY, 2017) that exceeded risk-based screening levels (RBSLs) and were evaluated quantitatively are:

- Arsenic
- Cadmium
- Lead

2.2.2 Surface Soil and Indoor Dust COPCs

Surface soil samples at the Site were collected in multiple sampling events from 2014 through 2016, as described in Section 2.6 of the Site-wide HHRA. However, none of these data were collected on the Spokane Reservation. Instead, surface soil data evaluated in this appendix were obtained from an analysis of 56 archived NURE soil samples by Church et al. (2008) which provided data for all COPCs except antimony. Soil data for antimony were from ECY (2019). The soil COI screen is described in detail in Section 3.2.6.1 of the Site-wide HHRA. Surface soil COPCs[4] that have toxicity values and measured concentrations that exceeded RBSLs and were evaluated quantitatively are:

- Aluminum
- Antimony
- Arsenic
- Cadmium
- Chromium
- Cobalt
- Iron
- Lead
- Manganese
- Nickel
- Thallium
- Vanadium

In the absence of Site-specific data, indoor dust was evaluated based on soil data. Therefore, COPCs identified for surface soil were the COPCs identified for indoor dust.

2.2.3 Fish COPCs

The fish COI screen is described in detail in Section 3.2.6.2 of the Site-wide HHRA. Fish COPCs that have toxicity values and measured concentrations (CH2MHill, 2007; Exponent, 2013; TAI, 2013; Windward, 2017; TAI, 2018) that exceeded RBSLs and were evaluated quantitatively are:

- 4,4'-DDE
- Aluminum
- Antimony
- Inorganic arsenic[5]

[4] Based on the 2014 and 2016 residential soil data set as described in Section 3.2.6.1 of the Site-wide HHRA.
[5] See Section 4.5 of the Site-wide HHRA for discussion of evaluation of arsenic/inorganic arsenic in fish.

- Bis(2-ethylhexyl)phthalate
- Chromium
- Dieldrin
- Heptachlor epoxide
- Hexachlorobenzene
- Lead
- Methylmercury6
- PBDE congener 47
- Selenium
- Toxic equivalent (TEQ) (dioxin-like PCBs and dioxins/furans)
- Thallium
- Total PCBs
- Zirconium

The fish COI screen for the Site-wide HHRA was conducted using a fish consumption rate lower than that used by the STI. Use of the STI fish consumption rate results in the identification of additional fish COPCs, including cadmium, copper, and zinc. Including these COPCs may have resulted in a small amount of additional risk to the STI.

2.3 Exposure Point Concentrations (EPCs)

An EPC is an estimate of the concentration of a COPC in a site medium, averaged over the area to which a receptor is exposed (i.e., exposure area). For chemicals other than lead, EPA (1992) recommends that the 95 percent (%) upper confidence limit of the arithmetic mean (95UCL) be used as the EPC for quantifying exposure and risk to individuals. For lead, the IEUBK model requires inputs to be arithmetic mean or average values (EPA 1994a, 1994b). The approaches used to calculate EPCs for lead and other COPCs in soil/dust, air, and fish are described in detail in Section 3.3 of the Site-wide HHRA.

[6] Mercury was analyzed using EPA Method 1631e, which only measures total mercury. In fish, methylmercury and inorganic mercury are absorbed by the gut; methylmercury is then transferred to blood and distributed to other body tissues (Ribeiro et al., 1999), ultimately accumulating in skeletal muscle tissue. As a result, most mercury in the muscle of fish is methylmercury (Wiener et al., 2003). Chumchal et al. (2011) collected invertebrates and vertebrates from a freshwater lake, including six fish species, and analyzed for total mercury and methylmercury. The percentage of mercury in muscle tissue present as methylmercury ranged from 84 to 100%. As part of the Environmental Monitoring and Assessment Program (EMAP) sampling program, 10 species were collected from 14 estuaries in southern Florida (Kannan et al., 1998). Total mercury and methylmercury were measured in fish muscle tissue; on average, methylmercury contributed 83% of the total mercury tissue concentration (range 62-100%). Because the majority of mercury present in fish fillets is methylmercury, and the toxicity value is for methylmercury, mercury is referred to as “methylmercury” in this report.

EPCs for air and fish are the 95UCL for non-lead COPCs and the mean for lead, and are presented in Tables 3 and 4. In most cases, fish EPCs were calculated for each individual species sampled, on a Site-wide basis. As noted in Section 2.1.1.3, two species of whitefish (Lake Whitefish and Mountain Whitefish) and two species of sucker (Longnose Sucker and Largescale Sucker) were collected to increase the sample size to get a more accurate representation of chemical concentrations. Thus, data for all whitefish samples were combined, and data for all sucker samples were combined, to generate EPCs for whitefish and sucker, respectively. There are differences in the preferred habitat and geographic location of the two whitefish species that were sampled, such that STI tribal members may target one or the other of these species while fishing. Therefore, separate EPCs for Lake Whitefish and Mountain Whitefish were generated and evaluated along with the "whitefish (combined)" EPC.

EPCs for soil/dust are shown in Table 5, along with the rationale for selecting the EPC. No site-specific information on the bioavailability of lead and arsenic in soil on the Spokane Reservation was available, as in vitro bioavailability analysis (IVBA) was not conducted on the NURE samples. EPA default bioavailability values (60% for both arsenic [EPA, 2012] and lead [EPA, 1994a]) were used to account for relative bioavailability (RBA) according to EPA (2020).

2.4 Exposure Evaluation

Details of the methods used to evaluate exposure to lead and non-lead COPCs are provided in Sections 3.4 and 3.5 of the Site-wide HHRA and are summarized below.

2.4.1 Methodology of Lead Exposure Evaluation

The primary population of concern for risk from exposure to lead in this appendix is STI children younger than age six. For the assessment of lead, EPA recommends the use of the IEUBK model to evaluate exposures of children to lead-contaminated media in a residential setting (EPA, 1994a, 1994b, 1998; Vandenberg, 2020). The IEUBK model predicts the probability distribution of blood lead concentrations (PbBs) in a population of young children (12-72-month age range was used in this HHRA per EPA, 2017a) exposed to a user-specified set of environmental lead levels (EPA, 1994a, 1998; Vandenberg, 2020). This model allows users to input data on the levels of lead in soil, dust, water, air, diet, and other (user-defined intake) for a specific location, as well as data on the amounts of these media ingested or inhaled by a child living at that location. All inputs to the IEUBK model are central tendency point estimates (EPA, 1994a, 1994b). These point estimates are then integrated to calculate an estimate of the central tendency (the geometric mean) of the distribution of PbBs that might occur in a population of children exposed to the specified conditions. Assuming the distribution is lognormal and given an estimate of the variability in PbBs (this is specified by the geometric standard deviation [GSD] term in the IEUBK model), the model calculates the geometric mean of PbBs for a population of similarly exposed children, as well as an estimate of the probability (expressed as a percentage) of PbB exceeding the target PbB level specified by the user.

Risk benchmarks are risk levels that EPA uses to distinguish risks that are a potential concern from risks that are below the level of concern. Recognizing the recent advances in lead toxicology (Agency for Toxic Substances and Disease Registry [ATSDR], 2020), this risk assessment has evaluated a range of blood lead levels and the associated soil concentrations within which the risk management decision will most likely be made, from 3 to 8 micrograms

per deciliter (µg/dL). For this Appendix to the Site-wide HHRA, the risk evaluation benchmarks selected for elevated lead risk were defined as greater than (>) 5% probability of exceeding a PbB of 3, 5, or 8 µg/dL (referred to as "P3," "P5," and "P8," respectively). The IEUBK model cannot be used with a risk benchmark below P3 (such as P2) because the risk goal would be exceeded even if soil lead concentration is 0 ppm due to dietary lead exposure. The estimated background soil lead concentration at the Site is approximately 35 parts per million (ppm; Appendix 4 of the Site-wide HHRA). P3 was selected as a lead risk benchmark to quantitatively evaluate the low end of the risk range of child PbBs associated with adverse health effects and P8 was selected as a less protective benchmark.

The IEUBK model (V1.1, build 11 with inputs shown in Table 6) was used to derive Preliminary Remediation Goals (PRGs) for residential soil lead exposures for each of these risk benchmarks as follows:

- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 3 µg/dL was associated with a concentration of approximately 50 ppm lead in soil.
- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 5 µg/dL was associated with a concentration of approximately 200 ppm lead in soil.
- Utilizing the IEUBK model, a 5% probability of exceeding a blood lead level of 8 µg/dL was associated with a concentration of approximately 400 ppm lead in soil.

The PRGs associated with each of these risk benchmarks is based on an assumed default RBA of 60% for lead.

In general, the IEUBK model predicts that lead intakes of at least 1 µg/day (at 30% absolute bioavailability [ABA]) are needed to decrease the soil PRG by approximately 20 ppm for a target risk goal of 5% exceeding a PbB of 5 µg/dL (P5). For example, the PRG decreases from 200 to 180 ppm when lead intake increases 1 µg/day (i.e., the alternate exposure pathway in the IEUBK model). In this risk assessment, exposures that were predicted to contribute <1 µg lead/day were classified as minimal.

2.4.2 Methodology of Non-Lead Exposure Evaluation

The rate of a chemical that is ingested, inhaled, or absorbed through the skin is referred to as "intake" or "dose." Chemical intakes estimated for specific averaging times (e.g., lifetime) are referred to as average daily intakes (ADI). For non-lead chemicals, exposure is quantified using equations that include variables such as the EPC, the intake rate of the chemical, the assumed body weight of the exposed receptor, the exposure frequency (EF; how often a receptor is likely to be exposed to the contaminated medium over the course of a typical year), and the exposure duration (ED; how long a receptor is likely to be exposed during his or her lifetime). Aside from the EPC, variables in the equations used to calculate chemical intakes are referred to as "exposure parameters" and are specific for the population being evaluated. The specific equations used to quantify the amount of non-lead COPCs ingested, absorbed through the skin, or inhaled are given in Section 3.5.1 of the Site-wide HHRA. When the same receptor may be exposed to a chemical beginning as a child and extending into adulthood, exposure was calculated as the time weighted average (TWA) lifetime exposure for evaluating cancer risks.

For non-cancer hazards, children and adults were evaluated separately. The RME exposure parameters used to calculate chemical intakes for the STI population are shown in Table 7.

3 Risk Characterization

3.1 Lead Risk Calculations and Results

The IEUBK model was used for all analyses involving lead exposure for children, as described in detail in the Site-wide HHRA to which this document is appended. Tables 6 and 8 present the input parameters used for evaluating lead exposures to children using the IEUBK model for selected pathways at the UCR Site. Table 6 shows IEUBK model values with defaults as recommended by EPA and the Site-specific information. Table 8 provides the values for the age-specific parameters for the IEUBK model. Batch mode results of IEUBK model runs are included in Attachment 1 to this appendix.

Lead risk was quantitatively assessed in terms of whether the exposure exceeded the risk benchmark. For this HHRA, the selected benchmarks for quantitative risk evaluation were "does the exposure result in more than 5% probability of exceeding a PbB of 3, 5, or 8 µg/dL;" P3, P5, and P8, respectively. For media other than residential soil, lead risk may also be presented in terms of how exposure to the medium contributed to overall risk given a selected concentration of lead in residential soil. When lead intake from the subject medium was <1 µg of lead per day, then that intake contributed minimally to lead risk. Below, lead risk results are presented by exposure pathway.

3.1.1 Incidental Ingestion of Surface Soil and Indoor Dust

The results in Table 9 indicate that for the Spokane Reservation, ingestion of fish from the UCR and incidental ingestion of soil and soil-derived dust exceeded risk benchmarks for lead as follows:

- Incidental ingestion of soil and soil-derived dust, in the absence of exposure from consuming fish from the UCR, did not exceed any risk benchmarks for lead.
- The lead risk benchmark of P3 was exceeded for the STI child population, regardless of which species of fish was consumed.
- The lead risk benchmark of P5 was exceeded for the STI child population when Burbot, Rainbow Trout, Smallmouth Bass, sucker, or Walleye was consumed.
- The lead risk benchmark of P8 was exceeded for the STI child population when sucker was consumed.

3.1.2 Inhalation of Air

The concentration of lead in UCR air (CH2MHill, 2015) is an order of magnitude lower than the default air lead concentration in the IEUBK model and is not likely to influence results. Additionally, EPA evaluated air lead concentration data measured at the Sheep Creek monitoring station near Northport, Washington. EPA has analyzed numerous studies that compared air lead

concentration to PbBs in children.[7] The analysis indicated that the air-associated exposure from inhalation or ingestion of lead in house dust and surface soil resulted in a PbB that is 5-10 times the value in air. Based on air results at the Sheep Creek monitoring station during the 1999-2009 monitoring period, the lead in air concentration is 0.0242 micrograms per cubic meter (µg/m^3) in air. This could lead to a 0.12-0.24 µg/dL level of lead in blood, which is low risk (EPA, 2018). The EPC value used in this HHRA appendix, for lead in air measured at Sheep Creek from 2002 to 2009, was 0.023 µg/m^3 (Table 3).

For lead, the air concentration from the Sheep Creek monitoring station is well below the levels expected to pose significant human health risks based on current understanding of relationships between air lead concentrations and PbBs resulting from direct and indirect exposures to air lead (Appendix 8 of the Site-wide HHRA). As such, risk from lead in air was included in the risk calculations as an input to the IEUBK model for all evaluations; however, this pathway was not evaluated as a separate exposure for lead.

3.1.3 Consumption of Fish

The fish-specific EPC was multiplied by the daily consumption rate (DCR) for the STI child receptor population (433 g/day) to derive a biota-specific ADI of lead. Table 10 presents the calculated lead intakes associated with consumption of fish harvested from the UCR. Lead intakes exceeded 1 µg lead/day for all fish species evaluated.

3.2 Non-Lead Risk Calculations and Results

3.2.1 Non-Cancer Hazard Summary

Risk of non-cancer effects is evaluated by comparing the estimated exposure concentration over a specified time period to a toxicity reference value (threshold) that represents the exposure below which it is unlikely for sensitive populations to experience adverse health effects (EPA, 1989). This ratio of exposure to toxicity is called a hazard quotient (HQ). To assess the overall potential for non-cancer effects posed by more than one chemical, or if exposure to a COPC occurs by more than one route, HQs are summed to yield a Hazard Index (HI). Within an exposure pathway (e.g., incidental ingestion of soil), HQs were summed across COPCs to derive an HI. HQs were also summed across pathways (e.g., incidental ingestion and dermal contact with soil) to derive an HI.

Non-cancer hazards were assessed against risk benchmarks. Risk benchmarks are risk levels that EPA uses to distinguish risks that are a potential concern from risks that are below the level of concern. The benchmark for non-cancer hazards used in this assessment was an HQ >1 (EPA, 1989; EPA and Clay, 1991). If the HQ for a chemical is ≤1, there is no appreciable risk (e.g., the probability is close to zero) that non-cancer health effects will occur. If an HQ is >1, then there is some possibility that an adverse non-cancer effect may occur (e.g., the probability is >0, but is likely not close to 1). This is because of the margin of safety inherent in the derivation of all toxicity values (see Section 4.3 of the Site-wide HHRA). However, the larger the HQ value, the more likely it is that an adverse effect may occur. When an HI is calculated, the risk benchmark is also HI >1. The HI can exceed one even if no single chemical exposure exceeds its reference

[7] Integrated Science Assessment (ISA, 2017) for lead (https://www.epa.gov/isa/integrated-science-assessment-isa-lead); April 2017.

dose/reference concentration (RfD/RfC; EPA, 1989). This is likely to overestimate actual exposures.

The assumption of dose additivity in the HI approach is most relevant to chemicals that induce the same effect by the same mode of action. If an HI is >1 because of summing several HQs, then the chemicals can be segregated by effect and mode of action, and an HI can be calculated for each target organ group (EPA, 1989). Target organs were assigned to each COPC as shown in Table 4-2 of the Site-wide HHRA, based on data in EPA (2019). Target organ group HI calculation results are discussed below for receptors with total HI >1.

In this assessment, the following terminology is used to categorize non-cancer hazard based on the HQ or HI. Risks are considered to be below non-cancer hazard benchmarks used by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) if the HQ or HI is ≤1; if the HQ or HI is >1, there is a possibility that non-cancer health effects may occur (EPA, 1989, 1997; EPA and Clay, 1991). Detailed methodology for estimating non-cancer hazards is provided in Section 5.2.1 of the Site-wide HHRA. The results of the non-cancer evaluation for each exposure pathway are summarized below.

3.2.1.1 Surface Soil/Indoor Dust Exposure

Risks for incidental ingestion of surface soil and indoor dust, and dermal contact with soil, are presented separately and shown in Table 11.

Incidental Ingestion of Surface Soil and Indoor Dust

Current and future STI adults and children were assumed to be exposed to non-lead COPCs in soil and indoor dust via incidental ingestion at the Spokane Reservation. For the adult STI population, total soil/dust ingestion non-cancer hazards (summed across COPCs) did not exceed 1. Total soil/dust ingestion non-cancer hazards for the child STI population (summed across COPCs) were >1. The HQ for arsenic was >1 for children.

Dermal Contact with Surface Soil

Current and future STI adults and children were assumed to be exposed to non-lead COPCs in soil via dermal exposure at the Spokane Reservation. For both STI adults and children, all total soil dermal non-cancer hazards (summed across COPCs) were <1.

Total Exposure to Surface Soil and Indoor Dust

When exposure to non-lead COPCs in Spokane Reservation soil was summed across pathways (incidental ingestion of soil/dust and dermal contact with soil), the total non-cancer HI for adults did not exceed 1, and the HI for children was 5 (Table 11). When the HIs for children were aggregated by target organ, HIs were >1 for the cardiovascular system and the skin/hair/nails system. Based on HIs being >1 when evaluated by target organ system, there is potential for non-cancer health effects from exposure to non-lead COPCs through the total exposure to the surface soil and indoor dust pathway.

3.2.1.2 Air Exposure

The STI population was assumed to be exposed to non-lead COPCs (arsenic and cadmium) in air 24 hours/day. For both adults and children, total non-cancer HIs were <1 (summed across

COPCs) for air (Table 12). HIs grouped by target organ were <1 as well. Based on the HI being <1, risks of non-cancer health effects from exposure to non-lead COPCs through this pathway are below non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

3.2.1.3 Exposure to Non-Lead COPCs from Consumption of Fish from the UCR

The STI population (adults and children) was assumed to be exposed to non-lead COPCs in fish caught from the UCR and consumed. Exposure to non-lead COPCs from consumption of fish was evaluated using EPCs calculated for each fish species[8], UCR reaches 1 to 6 combined, to inform whether there is variability in risk based on consumption by species (Tables 13 through 23). HIs for all fish species evaluated were >1 for adults and children. COPCs contributing the most to non-cancer risk were mercury, thallium, and total TEQ, which had child HQs ≥10 and adult HQs >1 for each species (Tables 13 through 23).

For the adult STI population, risk was highest from consumption of Walleye (HI = 80), sucker (HI = 70), and Smallmouth Bass (HI = 70), though all HIs were at least 20. Target organ systems with HIs >1 for the adult population included the cardiovascular system, the developmental system, the endocrine system, the hematologic system, the nervous system, the reproductive system, and the skin/hair/nails system, depending on the fish species (see Tables 13 through 23). For the child STI population, risk was highest from consumption of Smallmouth Bass, sucker, Walleye, and whitefish (HI = 200 for both species individually and combined), and was lowest from consumption of White Sturgeon (HI = 60). When HIs were aggregated by target organ system for the child STI population, all target organs exceeded an HI of 1 for at least one fish species (see Tables 13 through 23).

Based on HIs being >1 when evaluated by target organ system, there is potential for non-cancer health effects from exposure to non-lead COPCs through the consumption of fish harvested from the UCR.

3.2.2 Cancer Summary

The excess risk of cancer from exposure to a chemical is described in terms of the probability of developing cancer because of that exposure. Cancer risks are summed across all carcinogenic chemicals and all exposure pathways that contribute to exposure for a given population. If there is exposure to the same chemical in more than one medium, the total risk from that chemical is the sum of the risks across each medium. If exposure is to more than one chemical, the total cancer risk is estimated by summing the chemical-specific risks across all carcinogenic chemicals.

In general, EPA considers excess cancer risks below 10^{-6} to be negligible, and risks above 10^{-4} to warrant action.[9] The STI HSCA (2006) specifies that cancer risks that exceed 10^{-6} are unacceptable. In this appendix, the following terminology is used to categorize cancer risks.

[8] The two whitefish species sampled (Lake Whitefish and Mountain Whitefish) were evaluated individually and combined.

[9] Note that excess cancer risk can be expressed in several formats. A cancer risk of 10^{-6} is equivalent to 1 in 1,000,000 and can be expressed in scientific notation format as 1E-06. Similarly, a cancer risk of 10^{-4} is equivalent to 1 in 10,000 or 1E-04. For the purposes of this document, all cancer risks are presented as 10^{-4}, 10^{-6}, etc.

Cancer risks that are $\leq 10^{-6}$ are within an acceptable range and risks above 10^{-6} are unacceptable (STI HSCA, 2006). As recommended in EPA's *An Examination of EPA Risk Assessment Principles and Practices* (EPA, 2004a), calculated cancer risks retained more than one significant figure and are presented in summary tables shown to one significant figure.

Cancer risks for each COPC were calculated as described in Section 5.2.2 of the Site-wide HHRA. Total excess cancer risks for each COPC, receptor, and exposure pathway are described separately by exposure pathway below.

3.2.2.1 Surface Soil/Indoor Dust Exposure

Because arsenic is the only non-lead COPC in Spokane Reservation soil that has both a slope factor and a dermal absorption fraction, cancer risk from exposure to soil is solely attributable to arsenic. Current and potential future STI adult and child populations were evaluated for exposure to arsenic in Spokane Reservation soil and dust via incidental ingestion, and dermal contact with soil. Total excess cancer risks from soil/dust ingestion, and from dermal contact with soil, exceeded 10^{-6} (Table 11). Based on the exceedance of the cancer risk benchmark, there is potential for excess cancer risk from total exposure to surface soil and the indoor dust pathway (Table 11).

3.2.2.2 Air Exposure

The STI population was assumed to be exposed to arsenic in air via inhalation. Total excess cancer risk for inhalation of air exceeded 10^{-6} (Table 12). Based on the exceedance of the cancer risk benchmark, there is potential for excess cancer risk from total exposure to air (Table 12).

3.2.2.3 Exposure to Non-Lead COPCs from Consumption of Fish from the UCR

Total excess cancer risks for the consumption of all individual fish species except Northern Pike exceeded 10^{-6} on a TWA basis (Tables 13 through 23). Arsenic was the only non-lead COPC analyzed in Northern Pike that had a slope factor and contributed to excess cancer risk, and it was not detected in any Northern Pike fillets. Based on the exceedance of the cancer risk benchmark for all fish except Northern Pike, there is potential for excess cancer risk through consumption of fish harvested from the UCR.

3.2.3 Summary of Non-Lead COPC Risks Across Exposure Pathways

The discussion above described calculated risk to receptors from exposure to an environmental medium, across exposure pathways relevant for that medium. An individual living on the Spokane Reservation may be exposed to COPCs in multiple environmental media through several exposure pathways, as described in the CSM developed for this Site (Figure 1). The total exposure to various chemicals will equal the sum of the exposures from all exposure pathways.

To assess the overall potential for non-carcinogenic effects posed by several exposure pathways, the HIs for each exposure pathway evaluated for that receptor population are summed. For multiple exposure pathways, the total HI can be >1 even if no single exposure pathway HI exceeds one. If an HI is >1 because of summing several HQs, the COPCs can be segregated by effect and mode of action, and an HI can be calculated for each target organ group (EPA, 1989). HIs summed across exposure pathways and aggregated by target organ group are discussed below for the STI adult and child populations. Cancer risks from various exposure pathways are

also assumed to be additive, if less-than-lifetime exposures have all been converted to equivalent lifetime exposures. Total exposure cancer risk is equal to the sum of cancer risk for each exposure pathway evaluated for a receptor population.

The exposure pathways evaluated for residents of the Spokane Reservation were:

- Incidental ingestion of surface soil and indoor dust, and dermal contact with surface soil, on the Spokane Reservation,
- Inhalation of outdoor and indoor air, and
- Consumption of individual fish species harvested from the UCR.

Non-cancer HIs aggregated by target organ system for the adult and child STI population, both summed across COPCs by exposure pathway and summed across pathways, are shown in Tables 24 through 32. For the adult STI population, non-cancer HIs for exposure to air and soil did not exceed the benchmark of 1 on their own. However, consumption of each fish species resulted in non-cancer HIs >1; as a result, when non-cancer HIs were summed across pathways, total non-cancer hazard >1. Multiple target organ systems had HIs >1 for the adult STI population when summed across pathways, depending on the fish species consumed (Tables 24 through 32). For the child STI population, non-cancer HIs for exposure to air did not exceed the benchmark of 1. However, exposure to soil and consumption of each species of fish resulted in non-cancer HIs >1. Therefore, when summed across pathways, total non-cancer hazard >1 for the child STI population (Tables 24 through 32). As with the adult population, multiple target organ systems had HIs >1 when summed across pathways, depending on the fish species.

Based on some target organ HIs being >1, risks of non-cancer health effects from exposure to non-lead COPCs for the adult and child STI population exceeded the acceptable risk range (STI HSCA, 2006). As lifetime cancer risks exceeded the 10^{-6} risk benchmark for each individual exposure pathway, total exposure cancer risk exceeded the 10^{-6} risk benchmark for the STI population.

4 Uncertainty

Risk estimates such as those reported in this appendix were derived from combining exposure and toxicity estimates for cancer and non-cancer effects. Uncertainty is generally accounted for in HHRA calculations by making health-protective assumptions in estimating the parameters used in risk calculations. Section 6 of the Site-wide HHRA contains detailed discussions of uncertainty in lead and non-lead risk assessment.

5 Summary

Exposure to COPCs in surface soil, indoor dust, air, and fish harvested from the UCR were evaluated for the STI adult and child populations. Risks from exposure to lead were assessed using the IEUBK model for children. Risks from exposure to non-lead COPCs were estimated using standard exposure equations and exposure pathways based on EPA guidance, STI guidance (STI HSCA, 2006), and personal communication with the STI.

The risk evaluation benchmarks selected for quantitative evaluation of lead risk were defined as >5% probability of exceeding each of these target PbBs: >5% probability of exceeding 3 µg/dL (referred to as "P3"), >5% probability of exceeding 5 µg/dL (referred to as "P5"), or >5% probability of exceeding 8 µg/dL (referred to as "P8"). Each of these risk benchmarks for lead was evaluated separately. Risk benchmarks used for COPCs other than lead were either a non-cancer HQ or HI >1 or a TWA excess cancer risk $>10^{-6}$.

Incidental ingestion of soil and soil-derived dust, in the absence of exposure from consuming fish from the UCR, did not exceed any risk benchmarks for lead. Child residents of the Spokane Reservation who are exposed to lead from consuming fish from the UCR and lead in soil on the reservation are likely to exceed the P3 risk benchmark. Exposure is only predicted to exceed the P5 and P8 lead risk benchmarks when certain species are consumed:

- P5: Burbot, Rainbow Trout, Smallmouth Bass, sucker, and Walleye
- P8: sucker

By avoiding these species and selecting other species when consuming fish from the UCR, residents can reduce their exposure to lead.

For non-lead COPCs, total non-cancer HIs were >1 for exposure of the STI receptor populations via the following pathways:

- Incidental ingestion of surface soil and indoor dust by children.
- Consumption of all individual fish species evaluated by adults and children.

Because the total HI was >1 for these pathways, non-cancer risks were aggregated by target organ effects (Tables 11, and 13 through 23). Risks from exposure to non-lead COPCs exceeded non-cancer risk benchmarks (i.e., target organ HIs >1) for the following exposure pathways:

- Total exposure to surface soil and indoor dust: target organ HIs >1 for the cardiovascular and skin/hair/nails systems
- Consumption of Burbot by adults and children: target organ HIs >1 for the developmental, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of kokanee by adults: target organ HIs >1 for the developmental, nervous, reproductive, and skin/hair/nails systems.
- Consumption of kokanee by children: target organ HIs >1 for the cardiovascular, developmental, endocrine, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Northern Pike by adults: target organ HIs >1 for the developmental, nervous, and skin/hair/nails systems.
- Consumption of Northern Pike by children: target organ HIs >1 for the developmental, hematologic, nervous, and skin/hair/nails systems.

- Consumption of Rainbow Trout by adults: target organ HIs >1 for the developmental, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Rainbow Trout by children: target organ HIs >1 for the cardiovascular, developmental, endocrine, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Smallmouth Bass by adults: target organ HIs >1 for the developmental, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Smallmouth Bass by children: target organ HIs >1 for the developmental, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of White Sturgeon by adults and children: target organ HIs >1 for the developmental, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of sucker by adults: target organ HIs >1 for the developmental, nervous, reproductive, and skin/hair/nails systems.
- Consumption of sucker by children: target organ HIs >1 for the developmental, gastrointestinal, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Walleye by adults: target organ HIs >1 for the cardiovascular, developmental, endocrine, nervous, reproductive, and skin/hair/nails systems.
- Consumption of Walleye by children: target organ HIs >1 for the cardiovascular, developmental, endocrine, hematologic, nervous, reproductive, and skin/hair/nails systems.
- Consumption of whitefish (Lake Whitefish, Mountain Whitefish, and whitefish combined) by adults: target organ HIs >1 for the cardiovascular, developmental, endocrine, nervous, reproductive, and skin/hair/nails systems.
- Consumption of whitefish (Lake Whitefish, Mountain Whitefish, and whitefish combined) by children: target organ HIs >1 for the cardiovascular, developmental, endocrine, gastrointestinal, hematologic, nervous, reproductive, and skin/hair/nails systems.

Risks from exposure to non-lead COPCs exceeded cancer risk benchmarks (i.e., total excess cancer risk $>10^{-6}$) for all exposure pathways (air, soil/dust, and all species of fish).

References

ATSDR. 2020. Toxicological profile for lead. Agency for Toxic Substances and Disease Registry. https://www.atsdr.cdc.gov/toxprofiles/tp13.pdf.

CDC (Centers for Disease Control and Prevention). 2010a. National Health and Nutrition Examination Survey. 2003-2004 Examination, dietary, and demographics files. http://www.cdc.gov/nchs/nhanes/nhanes2003-2004.

CDC. 2010b. National Health and Nutrition Examination Survey. 2005-2006 Examination, Dietary and Files. Centers for Disease Control and Prevention. http://www.cdc.gov/nchs/nhanes/nhanes2005-2006.

CH2MHill. 2007. Final Phase I fish tissue sampling data evaluation - Upper Columbia River Site. CERCLA RI/FS. Prepared for the U.S. Environmental Protection Agency, Region 10, Seattle, WA.

CH2MHill. 2015. Evaluation of air quality monitoring data for Upper Columbia River Site. Draft technical memorandum. Prepared for U.S. Environmental Protection Agency, Region 10.

Chumchal, M.M., Rainwater, T.R., Osborn, S.C., Roberts, A.P, Abel, M.T., et al. 2011. Mercury speciation and biomagnification in the food web of Caddo Lake, Texas and Louisiana, USA, a subtropical freshwater ecosystem. Environ Toxicol Chem 30(5):1153-1162. https://doi.org/10.1002/etc.477.

Church, S.E., Kirschner, F.K., Choate, L.M., Lamothe, P.J., Budahn, J.R., et al. 2008. Determination of premining geochemical background, Blue Creek Drainage, Stevens County, Washington: U.S. Geological Survey Scientific Investigations Report 2007-5262. http://pubs.usgs.gov/sir/2007/5262/.

ECY. 2017. Preliminary review and evaluation of available air quality monitoring data and consideration of potential present-day health risks: Upper Columbia River Valley, near Northport, Washington. Washington Department of Ecology, Air Quality Program. ECY Publication No. 17-02-003.

ECY. 2019. Upland regional soil background characterization in Northeast Washington watersheds. Washington State Department of Ecology. Publication No. 19-03-014. https://fortress.wa.gov/ecy/publications/SummaryPages/1903014.html.

EPA. 1989. Risk Assessment Guidance for Superfund, Volume I. Human health evaluation manual (Part A). Interim final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, D.C. EPA540189002.

EPA. 1992. Supplemental guidance to RAGS: Calculating the concentration term. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. Publication 9285.7-081.

EPA. 1994a. Guidance manual for the Integrated Exposure Uptake Biokinetic Model for lead in children. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. EPA540R93081. Publication Number 9285.7-15-1.

EPA. 1994b. Technical support document: Parameters and equations used in the Integrated Exposure Uptake Biokinetic Model for lead in children (v0.99d). U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 540R94040. OSWER #9285.7-22.

EPA. 1997. Rules of thumb for Superfund remedy selection. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. http://www.epa.gov/superfund/policy/remedy/rules/rulesthm.pdf.

EPA. 1998. Clarification to the 1994 revised interim soil lead guidance for CERCLA sites and RCRA corrective action facilities. U.S. Environmental Protection Agency. EPA540F98030. OSWER Directive 9200. 4-27.

EPA. 2001. Risk Assessment Guidance for Superfund: Volume I. Human Health Evaluation Manual (Part D, Standardized planning, reporting, and review of Superfund risk assessments) Final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. Publication 9285.7-47.

EPA. 2004a. An examination of EPA risk assessment principles and practices. Staff paper prepared for the U.S. EPA by members of the Risk Assessment Task Force. U.S. Environmental Protection Agency, Office of the Science Advisor, Washington, DC. EPA100B04001.

EPA. 2004b. Risk Assessment Guidance for Superfund. Volume I: Human health evaluation manual (Part E, Supplemental guidance for dermal risk assessment) Final. U.S. Environmental Protection Agency. EPA540R99005.

EPA. 2006. Settlement agreement for implementation of remedial investigation and feasibility study at the Upper Columbia River Site. U.S. Environmental Protection Agency, Region 10, Seattle, WA.

EPA. 2010a. Final six-year review of national primary drinking water regulations: “Final_6Yr_Lead_12.23.10.accdb”. Microsoft Access Database. As provided by Rebecca Allen, U.S. Environmental Protection Agency, Office of Groundwater and Drinking Water. Received December 23, 2010.

EPA. 2010b. The analysis of regulated contaminant occurrence data from public water systems in support of the second six-year review of national primary drinking water regulations. U.S. Environmental Protection Agency, Office of Ground Water and Drinking Water. EPA815B09006.

EPA. 2011. Exposure factors handbook: 2011 edition (final report). U.S. Environmental Protection Agency, Office of Research and Development. EPA600R090052F.

EPA. 2012. Recommendations for default value for relative bioavailability of arsenic in soil. U.S. Environmental Protection Agency. OSWER 9200.1-113.

EPA. 2014. Human health evaluation manual, supplemental guidance: Update of standard default exposure factors. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. OSWER Directive 9200.1-20.

EPA. 2015. ProUCL Version 5.1. Statistical software for environmental applications for data sets with and without nondetect observations. U.S. Environmental Protection Agency. https://www.epa.gov/land-research/proucl-software.

EPA. 2017a. Recommendations for default age range in the Integrated Exposure Uptake Biokinetic (IEUBK) model U.S. Environmental Protection Agency. OLEM Directive #9200.2-1.

EPA. 2017b. Update to the adult lead methodology's default baseline blood lead concentration and geometric standard deviation parameters. U.S. Environmental Protection Agency. OLEM Directive 9285.6-56.

EPA. 2018. Response to December 2017 petition re: A comprehensive air monitoring program from Northport to the U.S. – Canada border. U.S. Environmental Protection Agency, Seattle, WA. April 18. https://semspub.epa.gov/work/10/100092427.pdf.

EPA. 2019. Regional screening levels (RSLs) – generic tables (May 2019). U.S. Environmental Protection Agency. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

EPA. 2020. Guidance for sample collection for in vitro bioaccessibility assay for arsenic and lead in soil and applications of relative bioavailability data in human health risk assessment. U.S. Environmental Protection Agency. Office of Land and Emergency Management, Office of Superfund Remediation and Technology Innovation.

EPA and Clay, D. R. 1991. Role of the baseline risk assessment in Superfund remedy selection decisions. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. http://www.epa.gov/superfund/programs/risk/baseline.pdf.

Exponent. 2013. Upper Columbia River final fish tissue data summary and data gap report. Prepared for Teck American Incorporated.

FDA (Food and Drug Administration). 2010. Total diet study. U.S. Food and Drug Administration, Center for Food Safety and Applied Nutrition. http://www.fda.gov/Food/FoodScienceResearch/TotalDietStudy/ucm184293.htm.

IOM. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acid (2005). Institute of Medicine, Washington, DC.

ISA. 2017. Integrated Science Assessment for lead. https://www.epa.gov/isa/integrated-science-assessment-isa-lead.

Kahn, H.D., Stralka, K. 2009. Estimated daily average per capita water ingestion by child and adult age categories based on USDA's 1994-1996 and 1998 continuing survey of food intakes by individuals. J Expo Sci Environ Epidemiol 19(4):396-404.

Kannan, K., Smith, R.G., Lee, R.F., Windom, H.L., Heitmuller P.T., et al. 1998. Distribution of total mercury and methylmercury in water, sediment and fish from South Florida estuaries. Arch Environ Contam Toxicol 34:109-118.

Parsons, R., Munuo, S.S., Buckman, D.W., Tooze, J.A., Dodd, K.W. 2009. User's guide for analysis of usual intakes.

Ribeiro, C.A.O., Rouleau, C.H., Pelletier, E., Audet, C., Tjalve, H. 1999. Distribution kinetics of dietary methylmercury in the Arctic charr (*Salvelinus alpinus*). Environ Sci Technol 33:902-907.

SRC. 2009. Human health risk assessment work plan for the Upper Columbia River Site. Remedial investigation and feasibility study. Prepared for U.S. Environmental Protection Agency Region 10.

STI HSCA. 2006. Law and Order Code of the Spokane Tribe of Indians, Chapter 34: Hazardous Substances Control Act. Originally adopted December 2003 (Resolution No. 2004-85); amended July 2006 (Resolution No. 2006-518).

STI WQS. 2010. Spokane Tribe of Indians Surface Water Quality Standards. February 25, 2010. Resolution 2010-173.

TAI. 2013. Upper Columbia River final fish tissue data summary and data gap report. Prepared for Teck American Incorporated by Exponent and Parametrix in consultation with Integral Consulting Inc.

TAI. 2018. Upper Columbia River draft Northern Pike tissue study data summary report. Prepared for Teck American Incorporated.

Tooze, J.A., Midthune, D., Dodd, K.W., Freedman, L.S., Krebs-Smith, S.M., et al. 2006. A new statistical method for estimating the usual intake of episodically consumed foods with application to their distribution. J Am Diet Assoc 106(10):1575-1587.

Vandenberg, J. 2020. Evaluation of IEUBK version 2.0 model performance. Memorandum to B. Lowery, Assessment and Remediation Division, OSRI, OLEM. U.S. Environmental Protection Agency, Center for Public Health and Environmental Assessment. Research Triangle Park, NC.

von Lindern, I., Spalinger, Stifelman, M.L., Stanek, L.W., Bartrem, C. 2016. Estimating children's soil/dust ingestion rates through retrospective analyses of blood lead biomonitoring

from the Bunker Hill Superfund site in Idaho. Environ Health Perspect 124(9):1462-1470. http://dx.doi.org/10.1289/ehp.1510144.

Wiener, J.G., Krabbenhoft, D.P., Hines, G.H., Scheuhammer, A.M. 2003. Ecotoxicology of mercury. Handbook of ecotoxicology, 2nd edition. Hoffman, D.J., Rattner, B.A., Burton, G.A., Cairns, J.J., eds. Boca Raton, FL: Lewis, 409-464.

Windward. 2017. Upper Columbia River final White Sturgeon tissue study data summary report. Prepared for Teck American Incorporated.

Table 1. Exposure Areas by Environmental Medium

Medium	Exposure Area
Soil and indoor dust	Area representative of the Spokane Reservation
Air	Entire Site
Fish	UCR reaches 1-6 combined

Table 2. COPCs Evaluated in Each Medium

COPC	Air	Surface Soil/ Indoor Dust	Fish
4,4'-DDE			X
Aluminum		X	X
Antimony		X	X
Arsenic/Inorganic arsenic	X	X	X
Bis(2-ethylhexyl)phthalate			X
Cadmium	X	X	
Chromium		X	X
Cobalt		X	
Dieldrin			X
Heptachlor epoxide			X
Hexachlorobenzene			X
Iron		X	
Lead	X	X	X
Manganese		X	
Mercury/Methylmercury			X
Nickel		X	
PBDE congener 47			X
Selenium			X
Toxic Equivalent (TEQ) (dioxin-like PCBs and dioxins/furans)			X
Thallium		X	X
Total PCBs			X
Vanadium		X	
Zirconium			X

Table 3. Air EPCs

Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration ($\mu g/m^3$)	Arithmetic Mean Detected Concentration ($\mu g/m^3$)	Standard Deviation ($\mu g/m^3$)	95% UCL[a] ($\mu g/m^3$)	UCL Statistic[a]	Selected Exposure Point Concentration		
							Value	Units	Rationale[a]
Arsenic	295 / 390	0.103	0.005	0.009	0.0059	95% KM Chebyshev UCL	0.0059	$\mu g/m^3$	UCL-NP
Cadmium	170 / 390	0.0335	0.002	0.004	0.00201	95% KM Chebyshev UCL	0.00201	$\mu g/m^3$	UCL-NP
Lead	314 / 390	0.45	0.028	0.041	0.0315	95% KM Chebyshev UCL	0.0233	$\mu g/m^3$	KM Mean[b]

[a] Based on recommendations from ProUCL, version 5.1.00 software (EPA 2015); includes non-detects treated per recommendations for each statistical method:

UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL

95% KM Chebyshev UCL = UCL based on Kaplan-Meier method using the Chebyshev inequality

[b]Mean calculated using Kaplan-Meier method

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Burbot	4,4'-DDE	6 / 10	0 0013	0 00105	0 000182	0 00102	95% KM (t) UCL	0 00102	mg/kg ww	UCL-NP
	Aluminum	11 / 26	1 76	0 811	0 493	0 697	95% KM (t) UCL	0 697	mg/kg ww	UCL-NP
	Antimony	5 / 26	0 109	0 0264	0 0466	0 0277	Gamma Adjusted KM-UCL	0 0277	mg/kg ww	UCL-NP
	Inorganic Arsenic	0 / 26	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	bis(2-Ethylhexyl)phthalate	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	23 / 26	0 24	0 053	0 0547	0 0625	KM H-UCL	0 0625	mg/kg ww	UCL-NP
	Dieldrin	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Lead	18 / 26	0 0838	0 0234	0 016	0 0237	KM Student's t	0 0213	mg/kg ww	KM Mean [b]
	Mercury	26 / 26	0 292	0 232	0 0377	0 245	95% Student's-t UCL	0 245	mg/kg ww	UCL-P
	PBDE_cong_47	10 / 10	0 00248	0 0012	0 000669	0 00159	95% Student's-t UCL	0 00159	mg/kg ww	UCL-P
	Selenium	26 / 26	0 528	0 331	0 0771	0 357	95% Student's-t UCL	0 357	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	26 / 26	1 34E-08	7 04E-09	3 51E-09	8 22E-09	95% Student's-t UCL	8 22E-09	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	26 / 26	0 000000792	0 000000352	0 000000294	0 000000604	95% Chebyshev (Mean, Sd) UCL	0 000000604	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	23 / 26	7 83E-08	2 96E-08	1 56E-08	3 38E-08	95% KM Adjusted Gamma UCL	3 38E-08	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	23 / 26	0 000000514	0 000000247	0 000000122	0 000000275	95% KM (t) UCL	0 000000275	mg/kg ww	UCL-NP
	Thallium	15 / 26	0 0123	0 0076	0 00224	0 00733	95% KM (t) UCL	0 00733	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	26 / 26	0 00308	0 00164	0 000757	0 00189	95% Student's-t UCL	0 00189	mg/kg ww	UCL-P
	Zirconium	1 / 10	0 00214	0 00214	N/A	N/A	N/A	0 00214	mg/kg ww	Maximum
Kokanee	4,4'-DDE	12 / 12	0 0036	0 00204	0 000651	0 00237	95% Student's-t UCL	0 00237	mg/kg ww	UCL-P
	Aluminum	30 / 35	2 25	0 617	0 344	0 698	95% KM Adjusted Gamma UCL	0 698	mg/kg ww	UCL-NP
	Antimony	30 / 35	0 0348	0 00852	0 00703	0 0106	95% GROS Adjusted Gamma UCL	0 0106	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	13 / 35	0 00556	0 00417	0 000782	0 00387	95% KM (t) UCL	0 00387	mg/kg ww	UCL-P
	bis(2-Ethylhexyl)phthalate	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	26 / 35	0 184	0 0667	0 0425	0 0665	95% KM (t) UCL	0 0665	mg/kg ww	UCL-NP
	Dieldrin	2 / 12	0 00027	0 00025	0 0000283	N/A	N/A	0 00027	mg/kg ww	Maximum
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	12 / 12	0 0029	0 000996	0 000656	0 00136	95% Modified-t UCL	0 00136	mg/kg ww	UCL-P
	Lead	22 / 35	0 0203	0 00467	0 00383	0 00639	95% KM (Chebyshev) UCL	0 00397	mg/kg ww	KM Mean [b]
	Mercury	35 / 35	0 0753	0 0634	0 00608	0 0652	95% Student's-t UCL	0 0652	mg/kg ww	UCL-P
	PBDE_cong_47	12 / 12	0 00333	0 00239	0 000508	0 00265	95% Student's-t UCL	0 00265	mg/kg ww	UCL-P
	Selenium	35 / 35	0 529	0 265	0 0673	0 286	95% Adjusted Gamma UCL	0 286	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	35 / 35	0 000000277	2 26E-08	4 44E-08	5 54E-08	95% Chebyshev (Mean, Sd) UCL	5 54E-08	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	35 / 35	0 000000315	0 000000179	0 000000024	0 000000187	95% Modified-t UCL	0 000000187	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	35 / 35	9 33E-08	6 78E-08	9 32E-09	7 05E-08	95% Student's-t UCL	7 05E-08	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	35 / 35	0 000000566	0 000000343	0 000000113	0 000000375	95% Student's-t UCL	0 000000375	mg/kg ww	UCL-P
	Thallium	33 / 35	0 0354	0 0287	0 00324	0 0294	95% KM (t) UCL	0 0294	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	35 / 35	0 0117	0 00727	0 00157	0 00772	95% Student's-t UCL	0 00772	mg/kg ww	UCL-P
	Zirconium	5 / 12	0 0248	0 00774	0 00985	0 00763	95% KM (t) UCL	0 00763	mg/kg ww	UCL-NP

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Lake Whitefish	4,4'-DDE	6 / 6	0 0059	0 00397	0 00152	0 00522	95% Student's-t UCL	0 00522	mg/kg ww	UCL-P
	Aluminum	11 / 16	2 79	1 23	0 742	1 32	95% KM (t) UCL	1 32	mg/kg ww	UCL-NP
	Antimony	12 / 16	0 0159	0 00462	0 00375	0 00775	95% KM (Chebyshev) UCL	0 00775	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	10 / 16	0 0123	0 00905	0 00192	0 00846	95% KM (t) UCL	0 00846	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 6	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	2 / 16	0 0263	0 0255	0 00117	0 024	95% KM (t) UCL	0 024	mg/kg ww	UCL-NP
	Dieldrin	5 / 6	0 00044	0 000304	0 0000814	0 000357	95% KM (t) UCL	0 000357	mg/kg ww	UCL-NP
	Heptachlor epoxide	1 / 6	0 00027	0 00027	N/A	N/A	N/A	0 00027	mg/kg ww	Maximum
	Hexachlorobenzene	6 / 6	0 0029	0 00169	0 000739	0 0023	95% Student's-t UCL	0 0023	mg/kg ww	UCL-P
	Lead	16 / 16	0 0215	0 00928	0 00438	0 0112	95% Student's-t UCL	0 00928	mg/kg ww	KM Mean[b]
	Mercury	16 / 16	0 139	0 091	0 0223	0 101	95% Student's-t UCL	0 101	mg/kg ww	UCL-P
	PBDE_cong_47	6 / 6	0 0243	0 0112	0 00797	0 0178	95% Student's-t UCL	0 0178	mg/kg ww	UCL-P
	Selenium	16 / 16	0 393	0 309	0 0578	0 334	95% Student's-t UCL	0 334	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	16 / 16	0 000000959	0 000000615	0 000000181	0 000000695	95% Student's-t UCL	0 000000695	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	16 / 16	0 000000959	0 000000624	0 000000182	0 000000719	95% Adjusted Gamma UCL	0 000000719	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	16 / 16	0 000000834	0 000000471	0 00000022	0 000000568	95% Student's-t UCL	0 000000568	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	16 / 16	0 00000106	0 000000619	0 000000216	0 000000713	95% Student's-t UCL	0 000000713	mg/kg ww	UCL-P
	Thallium	14 / 16	0 0289	0 0162	0 00512	0 0176	95% KM (t) UCL	0 0176	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	16 / 16	0 0365	0 0182	0 00692	0 0214	95% H-UCL	0 0214	mg/kg ww	UCL-P
	Zirconium	1 / 6	0 0146	0 0146	N/A	N/A	N/A	0 0146	mg/kg ww	Maximum
Mountain Whitefish	4,4'-DDE	3 / 3	0 0076	0 00607	0 00133	0 00831	95% Student's-t UCL	0 00831	mg/kg ww	UCL-P
	Aluminum	5 / 7	6 42	1 86	2 55	5 2	95% KM (Chebyshev) UCL	5 2	mg/kg ww	UCL-NP
	Antimony	1 / 7	0 00324	0 00324	N/A	N/A	N/A	0 00324	mg/kg ww	Maximum
	Inorganic Arsenic[c]	4 / 7	0 00711	0 00477	0 00182	0 00535	95% KM (t) UCL	0 00535	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 3	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	1 / 7	0 0512	0 0512	N/A	N/A	N/A	0 0512	mg/kg ww	Maximum
	Dieldrin	1 / 3	0 00035	0 00035	N/A	N/A	N/A	0 00035	mg/kg ww	Maximum
	Heptachlor epoxide	1 / 3	0 00045	0 00045	N/A	N/A	N/A	0 00045	mg/kg ww	Maximum
	Hexachlorobenzene	2 / 3	0 0036	0 00325	0 000495	0 0456	KM H-UCL	0 0456	mg/kg ww	UCL-NP
	Lead	4 / 7	0 0149	0 0114	0 00325	0 0117	95% KM (t) UCL	0 0079	mg/kg ww	KM Mean[b]
	Mercury	7 / 7	0 141	0 0828	0 0299	0 105	95% Student's-t UCL	0 105	mg/kg ww	UCL-P
	PBDE_cong_47	3 / 3	0 0217	0 0181	0 00407	0 025	95% Student's-t UCL	0 025	mg/kg ww	UCL-P
	Selenium	6 / 7	0 29	0 2	0 0884	0 253	95% KM (t) UCL	0 253	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	7 / 7	0 00000187	0 000000781	0 000000576	0 0000012	95% Student's-t UCL	0 0000012	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	7 / 7	0 00000188	0 000000894	0 000000458	0 00000145	95% Adjusted Gamma UCL	0 00000145	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	7 / 7	0 000000986	0 000000509	0 000000261	0 000000701	95% Student's-t UCL	0 000000701	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	7 / 7	0 00000105	0 000000562	0 000000264	0 000000896	95% Adjusted Gamma UCL	0 000000896	mg/kg ww	UCL-P
	Thallium	7 / 7	0 0212	0 0131	0 00398	0 016	95% Student's-t UCL	0 016	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	7 / 7	0 0499	0 0235	0 0133	0 0333	95% Student's-t UCL	0 0333	mg/kg ww	UCL-P
	Zirconium	3 / 3	0 00205	0 00138	0 000602	0 00239	95% Student's-t UCL	0 00239	mg/kg ww	UCL-P

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Northern Pike	Aluminum	8 / 12	0 81	0 382	0 265	0 434	95% KM (t) UCL	0 434	mg/kg ww	UCL-NP
	Antimony	2 / 12	0 00103	0 00103	0 00000707	0 00103	95% KM (t) UCL	0 00103	mg/kg ww	UCL-NP
	Inorganic Arsenic	0 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	12 / 12	0 177	0 0911	0 0446	0 114	95% Student's-t UCL	0 114	mg/kg ww	UCL-P
	Lead	12 / 12	0 0196	0 00355	0 00508	0 00994	95% Chebyshev (Mean, Sd) UCL	0 00355	mg/kg ww	KM Mean [b]
	Mercury	12 / 12	0 211	0 0962	0 0415	0 122	95% Adjusted Gamma UCL	0 122	mg/kg ww	UCL-P
	Selenium	12 / 12	0 772	0 56	0 168	0 647	95% Student's-t UCL	0 647	mg/kg ww	UCL-P
	Thallium	12 / 12	0 0153	0 012	0 00201	0 0131	95% Student's-t UCL	0 0131	mg/kg ww	UCL-P
Rainbow Trout	4,4'-DDE	12 / 12	0 018	0 00455	0 00472	0 00755	95% H-UCL	0 00755	mg/kg ww	UCL-P
	Aluminum	34 / 51	1 43	0 616	0 243	0 667	95% KM (t) UCL	0 667	mg/kg ww	UCL-NP
	Antimony	25 / 51	0 0521	0 0121	0 0117	0 0129	95% GROS Approximate Gamma UCL	0 0129	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	33 / 51	0 00611	0 00406	0 00113	0 00398	95% KM (t) UCL	0 00398	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	41 / 51	0 721	0 184	0 209	0 273	95% KM (Chebyshev) UCL	0 273	mg/kg ww	UCL-NP
	Dieldrin	2 / 12	0 00023	0 00022	0 0000141	N/A	N/A	0 00023	mg/kg ww	Maximum
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	10 / 12	0 0021	0 0013	0 000354	0 00146	95% KM (t) UCL	0 00146	mg/kg ww	UCL-NP
	Lead	32 / 51	0 0765	0 0323	0 024	0 0361	95% KM (Chebyshev) UCL	0 0216	mg/kg ww	KM Mean [b]
	Mercury	51 / 51	0 133	0 0792	0 0233	0 0847	95% Student's-t UCL	0 0847	mg/kg ww	UCL-P
	PBDE_cong_47	12 / 12	0 0128	0 00577	0 00372	0 0077	95% Student's-t UCL	0 0077	mg/kg ww	UCL-P
	Selenium	51 / 51	0 609	0 315	0 0964	0 339	95% Approximate Gamma UCL	0 339	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	40 / 40	0 0000015	0 000000297	0 000000371	0 000000553	95% Chebyshev (Mean, Sd) UCL	0 000000553	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	40 / 40	0 0000015	0 00000039	0 000000311	0 000000604	95% Chebyshev (Mean, Sd) UCL	0 000000604	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	48 / 51	0 00000038	0 000000132	9 96E-08	0 000000152	95% KM Approximate Gamma UCL	0 000000152	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	48 / 51	0 000000939	0 000000311	0 000000221	0 000000356	KM H-UCL	0 000000356	mg/kg ww	UCL-NP
	Thallium	36 / 51	0 0424	0 0232	0 00623	0 025	95% KM (t) UCL	0 025	mg/kg ww	UCL-NP
	Total PCBs (aroclors;ND=0)	15 / 15	0 0366	0 0132	0 00912	0 0187	95% Adjusted Gamma UCL	0 0187	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	40 / 40	0 0507	0 0137	0 0105	0 021	95% Chebyshev (Mean, Sd) UCL	0 021	mg/kg ww	UCL-NP
	Zirconium	5 / 10	0 00972	0 00636	0 00312	0 00586	95% KM (t) UCL	0 00586	mg/kg ww	UCL-NP

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Smallmouth Bass	4,4'-DDE	7 / 10	0 0054	0 00293	0 00128	0 0032	95% KM (t) UCL	0 0032	mg/kg ww	UCL-NP
	Aluminum	18 / 24	1 01	0 524	0 182	0 548	KM Student's t	0 548	mg/kg ww	UCL-NP
	Antimony	16 / 24	0 0168	0 00897	0 00455	0 00932	95% KM (t) UCL	0 00932	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	13 / 24	0 00855	0 00549	0 00172	0 0051	95% KM (t) UCL	0 0051	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	23 / 24	0 414	0 0837	0 0868	0 111	KM H-UCL	0 111	mg/kg ww	UCL-NP
	Dieldrin	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 10	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	2 / 10	0 001	0 000805	0 000276	N/A	N/A	0 001	mg/kg ww	Maximum
	Lead	10 / 24	0 0573	0 039	0 0184	0 0373	95% KM (Chebyshev) UCL	0 0168	mg/kg ww	KM Mean[b]
	Mercury	87 / 87	0 41	0 162	0 0593	0 173	95% Approximate Gamma UCL	0 173	mg/kg ww	UCL-P
	PBDE_cong_47	9 / 9	0 0134	0 00406	0 00368	0 00745	95% Adjusted Gamma UCL	0 00745	mg/kg ww	UCL-P
	Selenium	22 / 24	0 853	0 41	0 178	0 471	95% KM Adjusted Gamma UCL	0 471	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	24 / 24	0 000000536	4 75E-08	0 000000123	0 000000157	95% Chebyshev (Mean, Sd) UCL	0 000000157	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	24 / 24	0 000000836	0 000000481	0 000000306	0 000000753	95% Chebyshev (Mean, Sd) UCL	0 000000753	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=0)	24 / 24	6 36E-08	2 51E-08	0 000000013	2 96E-08	95% Student's-t UCL	2 96E-08	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	24 / 24	0 000000755	0 000000158	0 000000167	0 000000307	95% Chebyshev (Mean, Sd) UCL	0 000000307	mg/kg ww	UCL-NP
	Thallium	19 / 24	0 037	0 0243	0 00789	0 0258	95% KM Adjusted Gamma UCL	0 0258	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	24 / 24	0 0265	0 00557	0 00493	0 0072	95% Adjusted Gamma UCL	0 0072	mg/kg ww	UCL-P
	Zirconium	2 / 10	0 00173	0 00136	0 000515	N/A	N/A	0 00173	mg/kg ww	Maximum
White Sturgeon	Aluminum	6 / 9	1 23	0 644	0 303	0 712	95% KM (t) UCL	0 712	mg/kg ww	UCL-NP
	Antimony	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	All ND
	Inorganic Arsenic	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	All ND
	Chromium	9 / 9	0 143	0 0713	0 0363	0 0938	95% Student's-t UCL	0 0938	mg/kg ww	UCL-P
	Lead	9 / 9	0 0111	0 00504	0 00241	0 007	95% Adjusted Gamma UCL	0 00504	mg/kg ww	KM Mean[b]
	Mercury	9 / 9	0 108	0 0822	0 0201	0 0946	95% Student's-t UCL	0 0946	mg/kg ww	UCL-P
	PBDE_cong_47	9 / 9	0 00354	0 00187	0 000835	0 00238	95% Student's-t UCL	0 00238	mg/kg ww	UCL-P
	Selenium	9 / 9	1 23	1 06	0 137	1 14	95% Student's-t UCL	1 14	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	9 / 9	0 000000229	0 00000014	5 95E-08	0 000000177	95% Student's-t UCL	0 000000177	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	9 / 9	0 000000229	0 00000014	5 95E-08	0 000000177	95% Student's-t UCL	0 000000177	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	9 / 9	0 000000192	0 000000104	0 000000051	0 000000136	95% Student's-t UCL	0 000000136	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	9 / 9	0 00000029	0 000000204	5 06E-08	0 000000235	95% Student's-t UCL	0 000000235	mg/kg ww	UCL-P
	Thallium	9 / 9	0 0042	0 00332	0 000834	0 00384	95% Student's-t UCL	0 00384	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	9 / 9	0 0121	0 00723	0 00239	0 00871	95% Student's-t UCL	0 00871	mg/kg ww	UCL-P

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Sucker	4,4'-DDE	15 / 16	0 052	0 0119	0 0127	0 0167	95% KM (t) UCL	0 0167	mg/kg ww	UCL-NP
	Aluminum	23 / 43	3 25	1 36	0 815	1 11	95% KM (t) UCL	1 11	mg/kg ww	UCL-NP
	Antimony	22 / 43	0 027	0 00839	0 00671	0 0106	95% GROS Adjusted Gamma UCL	0 0106	mg/kg ww	UCL-P
	Inorganic Arsenic[c]	22 / 43	0 0118	0 00569	0 00178	0 00492	95% KM (BCA) UCL	0 00492	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	2 / 16	0 49	0 38	0 156	N/A	N/A	0 49	mg/kg ww	Maximum
	Chromium	32 / 43	0 569	0 107	0 12	0 112	KM H-UCL	0 112	mg/kg ww	UCL-NP
	Dieldrin	1 / 16	0 000253	0 000253	N/A	N/A	N/A	0 000253	mg/kg ww	Maximum
	Heptachlor epoxide	4 / 16	0 00077	0 000523	0 00024	0 000368	95% KM (t) UCL	0 000368	mg/kg ww	UCL-NP
	Hexachlorobenzene	15 / 16	0 00363	0 00182	0 000934	0 00215	95% KM (t) UCL	0 00215	mg/kg ww	UCL-NP
	Lead	35 / 43	0 775	0 163	0 19	0 199	Gamma Adjusted KM-UCL	0 135	mg/kg ww	KM Mean[b]
	Mercury	43 / 43	0 584	0 256	0 156	0 296	95% Student's-t UCL	0 296	mg/kg ww	UCL-P
	PBDE_cong_47	16 / 16	0 0501	0 0213	0 0153	0 028	95% Student's-t UCL	0 028	mg/kg ww	UCL-P
	Selenium	40 / 43	0 552	0 278	0 0787	0 296	95% KM (t) UCL	0 296	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	43 / 43	0 00000238	0 000000725	0 000000628	0 00000101	95% Adjusted Gamma UCL	0 00000101	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	43 / 43	0 00000238	0 000000919	0 000000499	0 00000107	95% Adjusted Gamma UCL	0 00000107	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	43 / 43	0 000000646	0 000000159	0 000000149	0 000000204	95% Adjusted Gamma UCL	0 000000204	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	43 / 43	0 00000083	0 000000298	0 000000191	0 000000356	95% Adjusted Gamma UCL	0 000000356	mg/kg ww	UCL-P
	Thallium	38 / 43	0 0356	0 0126	0 00643	0 0134	95% KM (t) UCL	0 0134	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	43 / 43	0 217	0 0457	0 0468	0 0596	95% Adjusted Gamma UCL	0 0596	mg/kg ww	UCL-P
	Zirconium	6 / 16	0 0061	0 00266	0 00196	0 00225	95% KM (t) UCL	0 00225	mg/kg ww	UCL-NP
Walleye	4,4'-DDE	12 / 12	0 0015	0 00113	0 000291	0 00128	95% Student's-t UCL	0 00128	mg/kg ww	UCL-P
	Aluminum	32 / 50	280	9 41	49 4	30 8	95% KM (Chebyshev) UCL	30 8	mg/kg ww	UCL-NP
	Antimony	21 / 50	0 0293	0 0116	0 00724	0 011	95% KM (t) UCL	0 011	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	38 / 50	0 00984	0 00538	0 00141	0 00528	95% KM (t) UCL	0 00528	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	1 / 12	0 22	0 22	N/A	N/A	N/A	0 22	mg/kg ww	Maximum
	Chromium	49 / 50	0 9	0 197	0 207	0 321	95% KM (Chebyshev) UCL	0 321	mg/kg ww	UCL-NP
	Dieldrin	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Heptachlor epoxide	0 / 12	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Hexachlorobenzene	1 / 12	0 0012	0 0012	N/A	N/A	N/A	0 0012	mg/kg ww	Maximum
	Lead	33 / 50	0 0624	0 0373	0 0148	0 0384	95% KM (Chebyshev) UCL	0 026	mg/kg ww	KM Mean[b]
	Mercury	265 / 265	0 487	0 172	0 0717	0 179	95% Approximate Gamma UCL	0 179	mg/kg ww	UCL-P
	PBDE_cong_47	12 / 12	0 00468	0 00297	0 00103	0 00351	95% Student's-t UCL	0 00351	mg/kg ww	UCL-P
	Selenium	50 / 50	0 57	0 341	0 0842	0 361	95% Student's-t UCL	0 361	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=0)	39 / 39	0 0000003	0 000000028	5 67E-08	6 76E-08	95% Chebyshev (Mean, Sd) UCL	6 76E-08	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=1/2DL)	39 / 39	0 000000317	0 000000178	3 49E-08	0 000000187	95% Modified-t UCL	0 000000187	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	40 / 50	7 96E-08	2 42E-08	2 13E-08	4 95E-08	99% KM (Chebyshev) UCL	4 95E-08	mg/kg ww	UCL-NP
	TEQ - Dioxins/Furans (ND=1/2DL)	40 / 50	0 000000412	0 000000225	9 21E-08	0 000000242	95% KM (t) UCL	0 000000242	mg/kg ww	UCL-NP
	Thallium	37 / 50	0 0739	0 0355	0 0147	0 0368	95% KM (t) UCL	0 0368	mg/kg ww	UCL-NP
	Total PCBs (aroclors;ND=0)	15 / 15	0 014	0 00391	0 00294	0 00505	95% H-UCL	0 00505	mg/kg ww	UCL-P
	Total PCBs (non-dioxin-like congeners;ND=0)	39 / 39	0 0113	0 00568	0 00208	0 00624	95% Student's-t UCL	0 00624	mg/kg ww	UCL-P
	Zirconium	5 / 12	0 191	0 0914	0 0915	0 0786	95% KM (t) UCL	0 0786	mg/kg ww	UCL-NP

Table 4. Fish Tissue EPCs by Species

Species	Analyte	Number of Detects / Number of Samples	Maximum Detected Concentration (mg/kg ww)	Arithmetic Mean Detected Concentration (mg/kg ww)	Standard Deviation (mg/kg ww)	95% UCL[a] (mg/kg ww)	UCL Statistic[a]	Selected Exposure Point Concentration for both RME and CT risks		
								Value	Units	Rationale[a]
Whitefish (combined)	4,4'-DDE	9 / 9	0 0076	0 00467	0 00173	0 00574	95% Student's-t UCL	0 00574	mg/kg ww	UCL-P
	Aluminum	16 / 23	6 42	1 43	1 48	1 86	95% KM Adjusted Gamma UCL	1 86	mg/kg ww	UCL-NP
	Antimony	13 / 23	0 0159	0 00452	0 00361	0 00613	95% KM (Chebyshev) UCL	0 00613	mg/kg ww	UCL-NP
	Inorganic Arsenic[c]	9 / 23	0 0123	0 00783	0 0027	0 00716	95% KM (t) UCL	0 00716	mg/kg ww	UCL-NP
	bis(2-Ethylhexyl)phthalate	0 / 9	N/A	N/A	N/A	N/A	N/A	N/A	mg/kg ww	All ND
	Chromium	3 / 23	0 0512	0 034	0 0148	N/A	N/A	0 0512	mg/kg ww	Maximum
	Dieldrin	6 / 9	0 00044	0 000312	0 0000752	0 000327	95% KM (t) UCL	0 000327	mg/kg ww	UCL-NP
	Heptachlor epoxide	2 / 9	0 00045	0 00036	0 000127	N/A	N/A	0 00045	mg/kg ww	Maximum
	Hexachlorobenzene	8 / 9	0 0036	0 00208	0 000973	0 00257	95% KM (t) UCL	0 00257	mg/kg ww	UCL-NP
	Lead	20 / 23	0 0215	0 0097	0 00419	0 0105	95% KM (t) UCL	0 00892	mg/kg ww	KM Mean[b]
	Mercury	23 / 23	0 141	0 0885	0 0245	0 0973	95% Student's-t UCL	0 0973	mg/kg ww	UCL-P
	PBDE_cong_47	9 / 9	0 0243	0 0135	0 00746	0 0182	95% Student's-t UCL	0 0182	mg/kg ww	UCL-P
	Selenium	22 / 23	0 393	0 279	0 0819	0 303	95% KM (t) UCL	0 303	mg/kg ww	UCL-NP
	TEQ - DL PCBs (ND=0)	23 / 23	0 00000187	0 000000666	0 000000345	0 000000789	95% Student's-t UCL	0 000000789	mg/kg ww	UCL-P
	TEQ - DL PCBs (ND=1/2DL)	23 / 23	0 00000188	0 000000706	0 00000031	0 000000819	95% Adjusted Gamma UCL	0 000000819	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=0)	23 / 23	0 000000986	0 000000483	0 000000228	0 000000564	95% Student's-t UCL	0 000000564	mg/kg ww	UCL-P
	TEQ - Dioxins/Furans (ND=1/2DL)	23 / 23	0 00000106	0 000000602	0 000000227	0 000000684	95% Modified-t UCL	0 000000684	mg/kg ww	UCL-P
	Thallium	21 / 23	0 0289	0 0152	0 00491	0 0164	95% KM (t) UCL	0 0164	mg/kg ww	UCL-NP
	Total PCBs (non-dioxin-like congeners;ND=0)	23 / 23	0 0499	0 0198	0 00935	0 0234	95% Adjusted Gamma UCL	0 0234	mg/kg ww	UCL-P
	Zirconium	4 / 9	0 0146	0 00467	0 00661	0 0128	Gamma Adjusted KM-UCL	0 0128	mg/kg ww	UCL-NP

N/A = not applicable; ND = not detected; UCL = Upper confidence limit; UCL-P = Parametric UCL; UCL-NP = Nonparametric UCL

[a] Based on recommendations from ProUCL, version 5 1 00 software (EPA 2015); includes non-detects treated per recommendations for each statistical method:
Adjusted Gamma UCL assumes approximate gamma distribution
H-UCL based on Land's H-statistic; assumes lognormality
KM (Chebyshev) UCL based on Kaplan-Meier method using the Chebyshev inequality
KM (t) UCL based on Kaplan-Meier method using the t-distribution cutoff value
KM H-UCL based on Kaplan-Meier method and Land's H-Statistic
Student's t UCL based on Student's t-distribution

[b] Mean calculated using KM method

[c] Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inroganic arsenic to total arsenic

Table 5. Spokane Reservation Soil[a] EPCs

Analyte	Number of Detects / Number of Samples[a]	Maximum Detected Concentration (mg/kg)	Arithmetic Mean Detected Concentration (mg/kg)	Standard Deviation, Detected Concentrations (mg/kg)	95% UCL (mg/kg)	Selected EPC for both RME and CTE Risks		
						Ingestion[d] (mg/kg)	Dermal[e] (mg/kg)	Rationale
Aluminum	56 / 56	44100	22500	7300	24100	20200	24100	95% Student's-t UCL
Antimony[b]	--	--	0.42[b]	--	--	0.351	0.42	Median[b]
Arsenic	56 / 56	182	19.3	30.7	37.2	31	37.2	95% Chebyshev (Mean, Sd) UCL
RBA adjusted Arsenic[c]	--	--	--	--	22.3[c]	18.6	22.3	95% Chebyshev (Mean, Sd) UCL
Cadmium	56 / 56	0.65	0.219	0.127	0.248	0.207	0.248	95% Approximate Gamma UCL
Chromium	56 / 56	41	17.3	6.63	18.8	15.7	18.8	95% Approximate Gamma UCL
Cobalt	56 / 56	21.7	8.92	4.34	9.89	8.26	9.89	95% Student's-t UCL
Iron	56 / 56	4.16	2.18	0.629	23200	19400	23200	95% Approximate Gamma UCL
Lead	56 / 56	30.1	15.5	5	16.6	15.5	15.5	Mean
Manganese	56 / 56	1230	610	207	657	548	657	95% Student's-t UCL
Nickel	56 / 56	43.4	16.2	8.3	18.1	15.1	18.1	95% Student's-t UCL
Thallium	56 / 56	0.89	0.313	0.137	0.343	0.286	0.343	95% Student's-t UCL
Vanadium	56 / 56	60	32.8	8.12	34.6	28.8	34.6	95% Approximate Gamma UCL

[a]56 archived NURE soil samples by Church et al. (2008)

[b]Antimony data are not included in the NURE data. The EPC of 0.42 mg/kg for antimony is the median reported in Table 4.2, Appendix E of ECY (2019).

[c]IVBA information is not available for the NURE data. The national default RBA assumption for arsenic (60%) was used to adjust the EPC (EPA, 2012).

[d]With the exception of Lead, an adjustment factor of 0.7 was applied to the soil concentration to generate an indoor dust concentration (where indoor dust EPC = outdoor soil EPC *0.7). A combined Soil/Dust EPC was generated for use in Ingestion pathway risk calculations [combined soil/dust EPC = (outdoor soil EPC * 0.45) + ((outdoor soil EPC * 0.7) * 0.55)]. The soil lead EPC was used to derive a dust lead EPC within the IEUBK model.

[e]Only arsenic and cadmium have dermal absorption fractions.

Table 6. IEUBK Input Parameters Based on TRW Lead Committee Recommendations and Site-Specific Information

Parameter	Value	Basis
Soil concentration (mg/kg)	15.48	EPC soil concentration was based on the mean of 56 archived NURE soil samples (Church et al., 2008); see Section 2.3 for more information
Dust concentration (mg/kg)	13.14	Indoor dust lead was derived from soil concentration and outdoor air concentration using the equation: $Pb_{dust} = (Pb_{soil} \bullet 0.7) + (Pb_{air} \bullet 100)$ (EPA, 1994a, 1994b)
Outdoor air concentration (µg per cubic meter [m^3])	0.023‡	ProUCL (the KM mean) based on Sheep Creek 2002-2009 monitoring data
Indoor air concentration (µg/m^3)	30% of outdoor air concentration	IEUBK Default (EPA, 1994a, 1994b)
Drinking water concentration (µg per liter [L])	0.9	TRW Lead Committee analysis of Office of Water Six-Year data (EPA, 2010a, 2010b)
Maternal PbB at birth (µg/dL)*	0.6	Based on National Health and Nutrition Examination Survey (NHANES) update (2009-2014) (EPA, 2017b)
Absorption fractions† at low intakes: Air Diet Water Soil/dust Sediment and disturbed surface water	 32% 50% 50% 30% 30%	 IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b) IEUBK Default (EPA, 1994a, 1994b)
RBA (soil/dust)	60%	See Appendix 11
Fraction soil	45%	IEUBK Default (EPA, 1994a, 1994b)
GSD	1.6	IEUBK Default (EPA, 1994a, 1994b)
Target PbB	3, 5, and 8 µg/dL	Within the risk range of child PbBs associated with adverse health effects (ATSDR, 2020)

*Maternal PbB at birth does not impact results for the 12-72-month age range.
† Absorption fraction% = RBA% * 0.5.
‡ Note that the concentration of lead in UCR air (CH2MHill, 2015) is an order of magnitude lower than the default air lead concentration in the IEUBK model (0.1 µg/m^3) and is not likely to influence the results.

TABLE 7
EXPOSURE PARAMETERS FOR THE SPOKANE TRIBE OF INDIANS (STI)

Exposure Pathway	Exposure Parameter	Units	RME Value and Source			
			Adult		Child	
General	Body weight	kg	80	EPA, 2011, 2014	15	EPA, 2011, 2014
	Exposure Duration	years	64	STI HSCA, 2006	6	STI HSCA, 2006
	Averaging Time (non-cancer)	days	23,360	EPA, 1989	2,190	EPA, 1989
	Averaging Time (cancer)	days	25,550	EPA, 1989	25,550	EPA, 1989
Inhalation of air	Exposure Time	hrs/day	24	Professional judgment	24	Professional judgment
	Exposure Frequency	days/yr	365	Professional judgment	365	Professional judgment
	TWF (non-cancer)	**unitless**	**1.00E+00**		**1.00E+00**	
	TWF (cancer)	**unitless**	**9.14E-01**		**8.57E-02**	
Incidental ingestion of soil	Ingestion rate	mg/day	400	STI HSCA, 2006	400	STI HSCA, 2006
	Exposure Frequency	days/yr	365	STI HSCA, 2006	365	STI HSCA, 2006
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**5.00E-06**		**2.67E-05**	
	HIF (cancer)	**kg/kg-d**	**4.57E-06**		**2.29E-06**	
Dermal contact with soil	Adherence Factor	mg/cm^2	0 07	EPA, 2014	0 2	EPA, 2014
	Exposed Skin Surface Area	cm^2	7,329	EPA, 2011 [a]	2,406	EPA, 2011 [b]
	Exposure Frequency	days/yr	365	STI HSCA, 2006	365	STI HSCA, 2006
	Conversion factor	*kg/mg*	*1E-06*		*1E-06*	
	HIF (non-cancer)	**kg/kg/d**	**6.41E-06**		**3.21E-05**	
	HIF (cancer)	**kg/kg-d**	**5.86E-06**		**2.75E-06**	
Consumption of fish	Exposure Frequency	days/yr	365	STI HSCA, 2006	365	STI HSCA, 2006
	Average ingestion rate	g/day	865	STI WQS, 2010	433	IOM, 2005 [c]
	Conversion factor	*kg/g*	*1E-03*		*1E-03*	
	HIF (non-cancer)	**kg ww/kg/d**	**1.08E-02**		**2.88E-02**	
	HIF (cancer)	**kg ww/kg/d**	**9.89E-03**		**2.47E-03**	

Notes:

[a] Weighted mean of head, hands, forearms, lower legs, and feet (male and female, age 21+ years)

[b] Tables 7-2 and 7-8 of EPA (2011): weighted average of mean values for head, hands, forearms, lower legs, and feet (male and female, birth to <6 yrs) Forearm and lower leg-specific data used when available, ratios for nearest available age group used elsewhere (per EPA, 2011)

[c] Child daily consumption rate (DCR) was derived by multiplying the adult DCR by a ratio of children-to-adult dietary intake which was estimated using energy requirements for children and adults based on regression models presented in IOM (2005) (see Appendix 14 of the Site-wide HHRA)

Table 8. Age-dependent Inputs to the IEUBK Model Based on TRW Lead Committee Recommendations

Age[1] (months)	Air		Diet[3]	Water[4]	Soil-Dust[5]
	Time Outdoors (hrs)	Ventilation Rate[2] (m^3/day)	Dietary Intake (μg/day)	Intake (L/day)	Incidental Ingestion Rate (mg/day)[6]
0 to <12	1.0	3.22	2.66	0.4	86
12 to <24	2.0	4.97	5.03	0.43	94
24 to <36	3.0	6.09	5.21	0.51	67
36 to <48	4.0	6.95	5.38	0.54	63
48 to <60	4.0	7.68	5.64	0.57	67
60 to <72	4.0	8.32	6.04	0.6	52

[1] The recommended age range for Superfund sites using the IEUBK model is 12-72 months (EPA, 2017a). The IEUBK model was run in batch mode using 32 months as a surrogate for the 12-72 month age range (EPA, 2017a). For more information see https://www.epa.gov/superfund/lead-superfund-sites-frequent-questions-risk-assessors-integrated-exposure-uptake#batchmode

[2] The values shown are the midpoint of the age range. This version of the IEUBK model (version 1.1, build 11) uses the midpoint values of the regression equation used to calculate inhalation rate as a continuous non-linear function of age based on TRW Lead Committee analysis

[3] TRW Lead Committee analysis of Dietary Pb Concentration 1995-2005 TDS (FDA, 2010); Dietary Intake 2003-06 NHANES WWEIA (CDC, 2010a, 2010b); Methodology NCI Method (Parsons et al., 2009; Tooze et al., 2006)

[4] TRW Lead Committee analysis of Kahn and Stralka (2009; All Water Sources, Consumers only)

[5] Soil-dust ingestion rate in the IEUBK model is apportioned as follows: 45% intake is soil and 55% intake is dust

[6] TRW Lead Committee analysis of age-specific values derived from structural equations modeling of children from Bunker Hill Superfund site assuming 50% dust, 25% yard soil, 10% neighborhood soil, and 15% community soil (von Lindern et al., 2016)

Table 9. IEUBK Model Results for STI Children Exposed to Lead in Soil Representative of the Spokane Indian Reservation (15.5 mg/kg) or also to Lead in Fish Tissue (by Species)

Fish Species	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Sucker	**99**	**92**	**65**
Walleye	**52**	**15**	2.0
Rainbow Trout	**42**	**10**	1.1
Burbot	**42**	**9.8**	1.1
Smallmouth Bass	**32**	**5.9**	0.5
Lake Whitefish	**15**	1.7	0.1
Whitefish combined	**14**	1.6	0.1
Mountain Whitefish	**12**	1.2	0.1
Sturgeon	**7.5**	0.6	0.0
Kokanee	**6.0**	0.4	0.0
Northern Pike	**5.5**	0.4	0.0
Soil only (no fish)	2.0	0.1	0.0

Note: Bolded values exceed lead risk benchmark (>5% probability of exceeding PbB of 3, 5, or 8 µg/dL).

Table 10. Lead Intakes for UCR Fish Species for the STI Child Receptor Population

Fish Species	Lead Intake (µg Pb/day)
Sucker	58
Walleye	11
Rainbow Trout	9.3
Burbot	9.2
Smallmouth Bass	7.3
Lake Whitefish	4.0
Whitefish (combined)	3.9
Mountain Whitefish	3.4
White Sturgeon	2.2
Kokanee	1.7
Northern Pike	1.5

Table 11. Non-Cancer and Cancer Risks from Incidental Ingestion of and Dermal Contact with Soil Representative of the Spokane Reservation for Non-Lead COPCS for the RME:STI

Exposure Pathway	Analyte Name	Soil EPC (mg/kg)	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Target Organ System	Non-Cancer				Cancer				
											Child		Adult		Child		Adult		TWA
			oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source					Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	Risk
Incidental Ingestion of Soil	Aluminum	20200	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02		9 2E-02		
	Antimony	0 351	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07		1 6E-06		
	RBA adjusted Arsenic	18 6	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
	Cadmium	0 207	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07		9 5E-07		
	Chromium	15 7	0 003	I	--	--			(a)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05		7 2E-05		
	Cobalt	8 26	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05		3 8E-05		
	Iron	19400	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02		8 9E-02		
	Manganese	548	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03		2 5E-03		
	Thallium	0 286	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07		1 3E-06		
	Vanadium	28 8	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05		1 3E-04		
										Soil Ingestion Total		**5**		**1**		**6E-05**		**1E-04**	**2E-04**
Dermal Contact with Soil	Aluminum	24100	1	P	--	--	--	1		Nervous	--		--		--		--		
	Antimony	0 42	0 0004	I	--	--	--	0 15		Hematologic	--		--		--		--		
	Arsenic	37 2	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
	Cadmium	0 248	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	0 00006	8 8E-13		1 5E-09		
	Chromium	18 8	0 003	I	--	--	--	0 025	(a)	None	--		--		--		--		
	Cobalt	9 89	0 0003	P	--	--	--	1		Endocrine	--		--		--		--		
	Iron	23200	0 7	P	--	--	--	1		Gastrointestinal	--		--		--		--		
	Manganese	657	0 024	S	--	--	--	0 04		Nervous	--		--		--		--		
	Thallium	0 343	0 00001	X	--	--	--	1		Skin, Hair & Nails	--		--		--		--		
	Vanadium	34 6	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--		--		--		--		
										Soil Dermal Total		**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
										Ingestion and Dermal Total		**5**		**1**		**7E-05**		**1E-04**	**2E-04**

-- = no toxicity value available

(a) Based on toxicity values for Chromium (VI)

Sources: I = IRIS, P = PPRTV, S = See RSL User's Guide Section 5
X = Appendix PPRTV Screen (see RSL FAQ #29)

Total by Target Organ System:

Cardiovascular HI	2	0 3
Endocrine HI	0 7	0 1
Gastrointestinal HI	0 7	0 1
Hematologic HI	0 02	0 004
Nervous HI	1	0 2
Skin, Hair and Nails HI	3	0 5
Urinary HI	0 006	0 001

Table 12. Non-Cancer and Cancer Risks from Inhalation of Air for Non-Lead COPCS for the RME: STI

Analyte Name	Air EPC ($\mu g/m^3$)	Toxicity Values				Notes	Primary Target Organ(s)	Non-Cancer				Cancer				
								Child		Adult		Child		Adult		
		iRfC (mg/m^3)	iRfC Source	iUR $(ug/m^3)^{-1}$	iUR Source			EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	TWA
Arsenic	0.0059	1.5E-05	C	0.0043	I		Nervous	5.9E-06	0.4	5.9E-06	0.4	5.1E-04	2E-06	5.4E-03	2E-05	3E-05
Cadmium	0.00201	0.00001	A	0.0018	I	(a)	Urinary	2.0E-06	0.2	2.0E-06	0.2	1.7E-04	3E-07	1.8E-03	3E-06	4E-06
							Total		**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**

(a) Based on toxicity values for food.

Sources: I = IRIS A = ATSDR C = California EPA

Total by Target Organ System:

Nervous HI	0.4	0.4
Urinary HI	0.2	0.2

Table 13. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Burbot Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.697*	mg/kg ww	1	P	--	--		Nervous	2 0E-02	0 02	7 5E-03	0 008	1 7E-03	--	6 9E-03	--	--
	Antimony	*0.0277*	mg/kg ww	0 0004	I	--	--		Hematologic	8 0E-04	2	3 0E-04	0 7	6 8E-05	--	2 7E-04	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0625*	mg/kg ww	0 003	I	--	--	(b)	None	1 8E-03	0 6	6 8E-04	0 2	1 5E-04	--	6 2E-04	--	--
	Methylmercury	*0.245*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	7 1E-03	70	2 6E-03	30	6 1E-04	--	2 4E-03	--	--
	Selenium	*0.357*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 0E-02	2	3 9E-03	0 8	8 8E-04	--	3 5E-03	--	--
	Thallium	*0.00733*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	2 1E-04	20	7 9E-05	8	1 8E-05	--	7 2E-05	--	--
	Zirconium	*0.00214*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	6 2E-05	0 8	2 3E-05	0 3	5 3E-06	--	2 1E-05	--	--
Pesticides	4,4'-DDE	*0.00102*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 9E-05	0 1	1 1E-05	0 04	2 5E-06	9E-07	1 0E-05	3E-06	4E-06
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*ND*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
PBDEs	PBDE-47	*0.00159*	mg/kg ww	0 0001	I	--	--		Nervous	4 6E-05	0 5	1 7E-05	0 2	3 9E-06	--	1 6E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		40		10		3E-04		1E-03	1E-03
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 7E-08	*20*	6 5E-09	*9*	1 5E-09	*2E-04*	6 0E-09	*8E-04*	*1E-03*
	PCB TEQ only	*0.000000275*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	7 9E-09	*10*	3 0E-09	*4*	6 8E-10	*9E-05*	2 7E-09	*4E-04*	*4E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00189*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	5 4E-05	--	2 0E-05	--	4 7E-06	*9E-06*	1 9E-05	*4E-05*	*5E-05*
									Consumption Total		**100**		**50**		**3E-04**		**1E-03**	**1E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	0 8	0 3
Developmental HI	70	30
Endocrine HI	0 8	0 3
Gastrointestinal HI	0 1	0 04
Hematologic HI	4	2
Nervous HI	70	30
Reproductive HI	40	10
Skin, Hair & Nails HI	20	9

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 14. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Kokanee Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.698*	mg/kg ww	1	P	--	--		Nervous	2 0E-02	0 02	7 5E-03	0 008	1 7E-03	--	6 9E-03	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	3 1E-04	0 8	1 1E-04	0 3	2 6E-05	--	1 0E-04	--	--
	Inorganic Arsenic	*0.00387*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 1E-04	0 4	4 2E-05	0 1	9 6E-06	1E-05	3 8E-05	6E-05	7E-05
	Chromium	*0.0665*	mg/kg ww	0 003	I	--	--	(b)	None	1 9E-03	0 6	7 2E-04	0 2	1 6E-04	--	6 6E-04	--	--
	Methylmercury	*0.0652*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	1 9E-03	20	7 0E-04	7	1 6E-04	--	6 4E-04	--	--
	Selenium	*0.286*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	8 2E-03	2	3 1E-03	0 6	7 1E-04	--	2 8E-03	--	--
	Thallium	*0.0294*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	8 5E-04	80	3 2E-04	30	7 3E-05	--	2 9E-04	--	--
	Zirconium	*0.00763*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 2E-04	3	8 2E-05	1	1 9E-05	--	7 5E-05	--	--
Pesticides	4,4'-DDE	*0.00237*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	6 8E-05	0 2	2 6E-05	0 09	5 9E-06	2E-06	2 3E-05	8E-06	1E-05
	Dieldrin	*0.00027*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	7 8E-06	0 2	2 9E-06	0 06	6 7E-07	1E-05	2 7E-06	4E-05	5E-05
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00136*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 9E-05	0 05	1 5E-05	0 02	3 4E-06	5E-06	1 3E-05	2E-05	3E-05
PBDEs	PBDE-47	*0.00265*	mg/kg ww	0 0001	I	--	--		Nervous	7 6E-05	0 8	2 9E-05	0 3	6 5E-06	--	2 6E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		9		2E-04		7E-04	9E-04
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 4E-09	*8*	2 0E-09	*3*	4 6E-10	*6E-05*	1 8E-09	*2E-04*	*3E-04*
	PCB TEQ only	*0.000000375*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 1E-08	*20*	4 1E-09	*6*	9 3E-10	*1E-04*	3 7E-09	*5E-04*	*6E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00772*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 2E-04	--	8 3E-05	--	1 9E-05	*4E-05*	7 6E-05	*2E-04*	*2E-04*
									Consumption Total		**100**		**50**		**2E-04**		**9E-04**	**1E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	3	1
Developmental HI	20	7
Endocrine HI	3	1
Gastrointestinal HI	0 4	0 2
Hematologic HI	2	0 9
Nervous HI	20	8
Reproductive HI	20	9
Skin, Hair & Nails HI	90	30

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 15. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Northern Pike Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.434*	mg/kg ww	1	P	--	--		Nervous	1 3E-02	0 01	4 7E-03	0 005	1 1E-03	--	4 3E-03	--	--
	Antimony	*0.00103*	mg/kg ww	0 0004	I	--	--		Hematologic	3 0E-05	0 07	1 1E-05	0 03	2 5E-06	--	1 0E-05	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.114*	mg/kg ww	0 003	I	--	--	(b)	None	3 3E-03	1	1 2E-03	0 4	2 8E-04	--	1 1E-03	--	--
	Methylmercury	*0.122*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	3 5E-03	40	1 3E-03	10	3 0E-04	--	1 2E-03	--	--
	Selenium	*0.647*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 9E-02	4	7 0E-03	1	1 6E-03	--	6 4E-03	--	--
	Thallium	*0.0131*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 8E-04	40	1 4E-04	10	3 2E-05	--	1 3E-04	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*NA*	mg/kg ww	0 0001	I	--	--		Nervous	NA	NA	NA	NA	NA	--	NA	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		NA		NA		NA		NA	NA
	Dioxin/Furan TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
	PCB TEQ only	*NA*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	NA	*NA*	NA	*NA*	NA	*NA*	NA	*NA*	*NA*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
									Consumption Total		**80**		**30**		**ND**		**ND**	**ND**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	40	10
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	4	1
Nervous HI	40	10
Reproductive HI	NA	NA
Skin, Hair & Nails HI	40	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 16. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Rainbow Trout Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.667*	mg/kg ww	1	P	--	--		Nervous	1 9E-02	0 02	7 2E-03	0 007	1 6E-03	--	6 6E-03	--	--
	Antimony	*0.0129*	mg/kg ww	0 0004	I	--	--		Hematologic	3 7E-04	0 9	1 4E-04	0 3	3 2E-05	--	1 3E-04	--	--
	Inorganic Arsenic	*0.00398*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 1E-04	0 4	4 3E-05	0 1	9 8E-06	1E-05	3 9E-05	6E-05	7E-05
	Chromium	*0.273*	mg/kg ww	0 003	I	--	--	(b)	None	7 9E-03	3	3 0E-03	1	6 7E-04	--	2 7E-03	--	--
	Methylmercury	*0.0847*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 4E-03	20	9 2E-04	9	2 1E-04	--	8 4E-04	--	--
	Selenium	*0.339*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	9 8E-03	2	3 7E-03	0 7	8 4E-04	--	3 4E-03	--	--
	Thallium	*0.025*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	7 2E-04	70	2 7E-04	30	6 2E-05	--	2 5E-04	--	--
	Zirconium	*0.00586*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	1 7E-04	2	6 3E-05	0 8	1 4E-05	--	5 8E-05	--	--
Pesticides	4,4'-DDE	*0.00755*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 2E-04	0 7	8 2E-05	0 3	1 9E-05	6E-06	7 5E-05	3E-05	3E-05
	Dieldrin	*0.00023*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	6 6E-06	0 1	2 5E-06	0 05	5 7E-07	9E-06	2 3E-06	4E-05	5E-05
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00146*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	4 2E-05	0 05	1 6E-05	0 02	3 6E-06	6E-06	1 4E-05	2E-05	3E-05
PBDEs	PBDE-47	*0.0077*	mg/kg ww	0 0001	I	--	--		Nervous	2 2E-04	2	8 3E-05	0 8	1 9E-05	--	7 6E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		40		10		3E-04		1E-03	2E-03
	Dioxin/Furan TEQ only	*0.000000604*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 7E-08	*20*	6 5E-09	*9*	1 5E-09	*2E-04*	6 0E-09	*8E-04*	*1E-03*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 0E-08	*10*	3 9E-09	*6*	8 8E-10	*1E-04*	3 5E-09	*5E-04*	*6E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		1E-04		4E-04	5E-04
	as Aroclor	*0.0187*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	5 4E-04	--	2 0E-04	--	4 6E-05	*9E-05*	1 8E-04	*4E-04*	*5E-04*
	as PCB Congener Sum	*0.021*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	6 1E-04	--	2 3E-04	--	5 2E-05	*1E-04*	2 1E-04	*4E-04*	*5E-04*
									Consumption Total		**100**		**60**		**4E-04**		**2E-03**	**2E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	2	0 9
Developmental HI	20	9
Endocrine HI	2	0 8
Gastrointestinal HI	0 9	0 3
Hematologic HI	3	1
Nervous HI	30	10
Reproductive HI	40	10
Skin, Hair & Nails HI	70	30

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 17. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Smallmouth Bass Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.548*	mg/kg ww	1	P	--	--		Nervous	1 6E-02	0 02	5 9E-03	0 006	1 4E-03	--	5 4E-03	--	--
	Antimony	*0.00932*	mg/kg ww	0 0004	I	--	--		Hematologic	2 7E-04	0 7	1 0E-04	0 3	2 3E-05	--	9 2E-05	--	--
	Inorganic Arsenic	*0.0051*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 5E-05	0 2	1 3E-05	2E-05	5 0E-05	8E-05	9E-05
	Chromium	*0.111*	mg/kg ww	0 003	I	--	--	(b)	None	3 2E-03	1	1 2E-03	0 4	2 7E-04	--	1 1E-03	--	--
	Methylmercury	*0.173*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	5 0E-03	50	1 9E-03	20	4 3E-04	--	1 7E-03	--	--
	Selenium	*0.471*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 4E-02	3	5 1E-03	1	1 2E-03	--	4 7E-03	--	--
	Thallium	*0.0258*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	7 4E-04	70	2 8E-04	30	6 4E-05	--	2 6E-04	--	--
	Zirconium	*0.00173*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	5 0E-05	0 6	1 9E-05	0 2	4 3E-06	--	1 7E-05	--	--
Pesticides	4,4'-DDE	*0.0032*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	9 2E-05	0 3	3 5E-05	0 1	7 9E-06	3E-06	3 2E-05	1E-05	1E-05
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.001*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	2 9E-05	0 04	1 1E-05	0 01	2 5E-06	4E-06	9 9E-06	2E-05	2E-05
PBDEs	PBDE-47	*0.00745*	mg/kg ww	0 0001	I	--	--		Nervous	2 1E-04	2	8 1E-05	0 8	1 8E-05	--	7 4E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		40		20		3E-04		1E-03	2E-03
	Dioxin/Furan TEQ only	*0.000000753*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 2E-08	*30*	8 1E-09	*10*	1 9E-09	*2E-04*	7 4E-09	*1E-03*	*1E-03*
	PCB TEQ only	*0.000000307*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	8 9E-09	*10*	3 3E-09	*5*	7 6E-10	*1E-04*	3 0E-09	*4E-04*	*5E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0072*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 1E-04	--	7 8E-05	--	1 8E-05	*4E-05*	7 1E-05	*1E-04*	*2E-04*
									Consumption Total		**200**		**70**		**4E-04**		**1E-03**	**2E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	1	0 4
Developmental HI	50	20
Endocrine HI	0 6	0 2
Gastrointestinal HI	0 3	0 1
Hematologic HI	3	1
Nervous HI	50	20
Reproductive HI	40	20
Skin, Hair & Nails HI	80	30

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 18. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: White Sturgeon Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*0.712*	mg/kg ww	1	P	--	--		Nervous	2 1E-02	0 02	7 7E-03	0 008	1 8E-03	--	7 0E-03	--	--
	Antimony	*ND*	mg/kg ww	0 0004	I	--	--		Hematologic	ND	ND	ND	ND	ND	--	ND	--	--
	Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	*0.0938*	mg/kg ww	0 003	I	--	--	(b)	None	2 7E-03	0 9	1 0E-03	0 3	2 3E-04	--	9 3E-04	--	--
	Methylmercury	*0.0946*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 7E-03	30	1 0E-03	10	2 3E-04	--	9 4E-04	--	--
	Selenium	*1.14*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	3 3E-02	7	1 2E-02	2	2 8E-03	--	1 1E-02	--	--
	Thallium	*0.00384*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	1 1E-04	10	4 2E-05	4	9 5E-06	--	3 8E-05	--	--
	Zirconium	*NA*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	NA	NA	NA	NA	NA	--	NA	--	--
Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
PBDEs	PBDE-47	*0.00238*	mg/kg ww	0 0001	I	--	--		Nervous	6 9E-05	0 7	2 6E-05	0 3	5 9E-06	--	2 4E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		6		1E-04		5E-04	7E-04
	Dioxin/Furan TEQ only	*0.000000177*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 1E-09	*7*	1 9E-09	*3*	4 4E-10	*6E-05*	1 7E-09	*2E-04*	*3E-04*
	PCB TEQ only	*0.000000235*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	6 8E-09	*10*	2 5E-09	*4*	5 8E-10	*8E-05*	2 3E-09	*3E-04*	*4E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.00871*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	2 5E-04	--	9 4E-05	--	2 2E-05	*4E-05*	8 6E-05	*2E-04*	*2E-04*
									Consumption Total		**60**		**20**		**1E-04**		**5E-04**	**7E-04**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	ND	ND
Developmental HI	30	10
Endocrine HI	NA	NA
Gastrointestinal HI	NA	NA
Hematologic HI	7	2
Nervous HI	30	10
Reproductive HI	20	6
Skin, Hair & Nails HI	20	7

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 19. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Sucker Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*1.11*	mg/kg ww	1	P	--	--		Nervous	3 2E-02	0 03	1 2E-02	0 01	2 7E-03	--	1 1E-02	--	--
	Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--		Hematologic	3 1E-04	0 8	1 1E-04	0 3	2 6E-05	--	1 0E-04	--	--
	Inorganic Arsenic	*0.00492*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 4E-04	0 5	5 3E-05	0 2	1 2E-05	2E-05	4 9E-05	7E-05	9E-05
	Chromium	*0.112*	mg/kg ww	0 003	I	--	--	(b)	None	3 2E-03	1	1 2E-03	0 4	2 8E-04	--	1 1E-03	--	--
	Methylmercury	*0.296*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	8 5E-03	90	3 2E-03	30	7 3E-04	--	2 9E-03	--	--
	Selenium	*0.296*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	8 5E-03	2	3 2E-03	0 6	7 3E-04	--	2 9E-03	--	--
	Thallium	*0.0134*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	3 9E-04	40	1 4E-04	10	3 3E-05	--	1 3E-04	--	--
	Zirconium	*0.00225*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	6 5E-05	0 8	2 4E-05	0 3	5 6E-06	--	2 2E-05	--	--
Pesticides	4,4'-DDE	*0.0167*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	4 8E-04	2	1 8E-04	0 6	4 1E-05	1E-05	1 7E-04	6E-05	7E-05
	Dieldrin	*0.000253*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	7 3E-06	0 1	2 7E-06	0 05	6 3E-07	1E-05	2 5E-06	4E-05	5E-05
	Heptachlor epoxide	*0.000368*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	1 1E-05	0 8	4 0E-06	0 3	9 1E-07	8E-06	3 6E-06	3E-05	4E-05
SVOC	bis(2-Ethylhexyl)phthalate	*0.49*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	1 4E-02	0 7	5 3E-03	0 3	1 2E-03	2E-05	4 8E-03	7E-05	8E-05
	Hexachlorobenzene	*0.00215*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	6 2E-05	0 08	2 3E-05	0 03	5 3E-06	9E-06	2 1E-05	3E-05	4E-05
PBDEs	PBDE-47	*0.028*	mg/kg ww	0 0001	I	--	--		Nervous	8 1E-04	8	3 0E-04	3	6 9E-05	--	2 8E-04	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		60		20		5E-04		2E-03	2E-03
	Dioxin/Furan TEQ only	*0.00000107*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	3 1E-08	*40*	1 2E-08	*20*	2 6E-09	*3E-04*	1 1E-08	*1E-03*	*2E-03*
	PCB TEQ only	*0.000000356*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	1 0E-08	*10*	3 8E-09	*5*	8 8E-10	*1E-04*	3 5E-09	*5E-04*	*6E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0596*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 7E-03	--	6 4E-04	--	1 5E-04	*3E-04*	5 9E-04	*1E-03*	*1E-03*
									Consumption Total		**200**		**70**		**5E-04**		**2E-03**	**3E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	1	0 5
Developmental HI	90	30
Endocrine HI	0 8	0 3
Gastrointestinal HI	3	1
Hematologic HI	2	0 9
Nervous HI	100	40
Reproductive HI	60	20
Skin, Hair & Nails HI	40	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 20. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Walleye Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*30.8*	mg/kg ww	1	P	--	--		Nervous	8 9E-01	0 9	3 3E-01	0 3	7 6E-02	--	3 0E-01	--	--
	Antimony	*0.011*	mg/kg ww	0 0004	I	--	--		Hematologic	3 2E-04	0 8	1 2E-04	0 3	2 7E-05	--	1 1E-04	--	--
	Inorganic Arsenic	*0.00528*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 7E-05	0 2	1 3E-05	2E-05	5 2E-05	8E-05	1E-04
	Chromium	*0.321*	mg/kg ww	0 003	I	--	--	(b)	None	9 3E-03	3	3 5E-03	1	7 9E-04	--	3 2E-03	--	--
	Methylmercury	*0.179*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	5 2E-03	50	1 9E-03	20	4 4E-04	--	1 8E-03	--	--
	Selenium	*0.361*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	1 0E-02	2	3 9E-03	0 8	8 9E-04	--	3 6E-03	--	--
	Thallium	*0.0368*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	1 1E-03	100	4 0E-04	40	9 1E-05	--	3 6E-04	--	--
	Zirconium	*0.0786*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	2 3E-03	30	8 5E-04	10	1 9E-04	--	7 8E-04	--	--
Pesticides	4,4'-DDE	*0.00128*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	3 7E-05	0 1	1 4E-05	0 05	3 2E-06	1E-06	1 3E-05	4E-06	5E-06
	Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
SVOC	bis(2-Ethylhexyl)phthalate	*0.22*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	6 3E-03	0 3	2 4E-03	0 1	5 4E-04	8E-06	2 2E-03	3E-05	4E-05
	Hexachlorobenzene	*0.0012*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	3 5E-05	0 04	1 3E-05	0 02	3 0E-06	5E-06	1 2E-05	2E-05	2E-05
PBDEs	PBDE-47	*0.00351*	mg/kg ww	0 0001	I	--	--		Nervous	1 0E-04	1	3 8E-05	0 4	8 7E-06	--	3 5E-05	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		20		7		1E-04		6E-04	7E-04
	Dioxin/Furan TEQ only	*0.000000187*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	5 4E-09	*8*	2 0E-09	*3*	4 6E-10	*6E-05*	1 9E-09	*2E-04*	*3E-04*
	PCB TEQ only	*0.000000242*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	7 0E-09	*10*	2 6E-09	*4*	6 0E-10	*8E-05*	2 4E-09	*3E-04*	*4E-04*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		3E-05		1E-04	2E-04
	as Aroclor	*0.00505*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	1 5E-04	--	5 5E-05	--	1 2E-05	*2E-05*	5 0E-05	*1E-04*	*1E-04*
	as PCB Congener Sum	*0.00624*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	1 8E-04	--	6 7E-05	--	1 5E-05	*3E-05*	6 2E-05	*1E-04*	*2E-04*
									Consumption Total		**200**		**80**		**2E-04**		**8E-04**	**1E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	30	10
Developmental HI	50	20
Endocrine HI	30	10
Gastrointestinal HI	0 5	0 2
Hematologic HI	3	1
Nervous HI	60	20
Reproductive HI	20	7
Skin, Hair & Nails HI	100	40

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 21. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Whitefish (combined) Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*1.86*	mg/kg ww	1	P	--	--		Nervous	5 4E-02	0 05	2 0E-02	0 02	4 6E-03	--	1 8E-02	--	--
	Antimony	*0.00613*	mg/kg ww	0 0004	I	--	--		Hematologic	1 8E-04	0 4	6 6E-05	0 2	1 5E-05	--	6 1E-05	--	--
	Inorganic Arsenic	*0.00716*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	2 1E-04	0 7	7 7E-05	0 3	1 8E-05	3E-05	7 1E-05	1E-04	1E-04
	Chromium	*0.0512*	mg/kg ww	0 003	I	--	--	(b)	None	1 5E-03	0 5	5 5E-04	0 2	1 3E-04	--	5 1E-04	--	--
	Methylmercury	*0.0973*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 8E-03	30	1 1E-03	10	2 4E-04	--	9 6E-04	--	--
	Selenium	*0.303*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	8 7E-03	2	3 3E-03	0 7	7 5E-04	--	3 0E-03	--	--
	Thallium	*0.0164*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	4 7E-04	50	1 8E-04	20	4 1E-05	--	1 6E-04	--	--
	Zirconium	*0.0128*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	3 7E-04	5	1 4E-04	2	3 2E-05	--	1 3E-04	--	--
Pesticides	4,4'-DDE	*0.00574*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 7E-04	0 6	6 2E-05	0 2	1 4E-05	5E-06	5 7E-05	2E-05	2E-05
	Dieldrin	*0.000327*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	9 4E-06	0 2	3 5E-06	0 07	8 1E-07	1E-05	3 2E-06	5E-05	6E-05
	Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	1 3E-05	1	4 9E-06	0 4	1 1E-06	1E-05	4 4E-06	4E-05	5E-05
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.00257*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	7 4E-05	0 09	2 8E-05	0 03	6 4E-06	1E-05	2 5E-05	4E-05	5E-05
PBDEs	PBDE-47	*0.0182*	mg/kg ww	0 0001	I	--	--		Nervous	5 2E-04	5	2 0E-04	2	4 5E-05	--	1 8E-04	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		60		20		5E-04		2E-03	2E-03
	Dioxin/Furan TEQ only	*8.19E-07*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 4E-08	*30*	8 9E-09	*10*	2 0E-09	*3E-04*	8 1E-09	*1E-03*	*1E-03*
	PCB TEQ only	*0.000000684*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 0E-08	*30*	7 4E-09	*10*	1 7E-09	*2E-04*	6 8E-09	*9E-04*	*1E-03*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0234*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	6 7E-04	--	2 5E-04	--	5 8E-05	*1E-04*	2 3E-04	*5E-04*	*6E-04*
									Consumption Total		**200**		**60**		**5E-04**		**2E-03**	**3E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	5	2
Developmental HI	30	10
Endocrine HI	5	2
Gastrointestinal HI	2	0 7
Hematologic HI	2	0 8
Nervous HI	40	10
Reproductive HI	60	20
Skin, Hair & Nails HI	50	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 22. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Lake Whitefish Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				TWA
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	
Metals and Metalloids	Aluminum	*1.32*	mg/kg ww	1	P	--	--		Nervous	3 8E-02	0 04	1 4E-02	0 01	3 3E-03	--	1 3E-02	--	--
	Antimony	*0.00775*	mg/kg ww	0 0004	I	--	--		Hematologic	2 2E-04	0 6	8 4E-05	0 2	1 9E-05	--	7 7E-05	--	--
	Inorganic Arsenic	*0.00846*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	2 4E-04	0 8	9 1E-05	0 3	2 1E-05	3E-05	8 4E-05	1E-04	2E-04
	Chromium	*0.024*	mg/kg ww	0 003	I	--	--	(b)	None	6 9E-04	0 2	2 6E-04	0 09	5 9E-05	--	2 4E-04	--	--
	Methylmercury	*0.101*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	2 9E-03	30	1 1E-03	10	2 5E-04	--	1 0E-03	--	--
	Selenium	*0.334*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	9 6E-03	2	3 6E-03	0 7	8 3E-04	--	3 3E-03	--	--
	Thallium	*0.0176*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	5 1E-04	50	1 9E-04	20	4 3E-05	--	1 7E-04	--	--
	Zirconium	*0.0146*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	4 2E-04	5	1 6E-04	2	3 6E-05	--	1 4E-04	--	--
Pesticides	4,4'-DDE	*0.00522*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	1 5E-04	0 5	5 6E-05	0 2	1 3E-05	4E-06	5 2E-05	2E-05	2E-05
	Dieldrin	*0.000357*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	1 0E-05	0 2	3 9E-06	0 08	8 8E-07	1E-05	3 5E-06	6E-05	7E-05
	Heptachlor epoxide	*0.00027*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	7 8E-06	0 6	2 9E-06	0 2	6 7E-07	6E-06	2 7E-06	2E-05	3E-05
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.0023*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	6 6E-05	0 08	2 5E-05	0 03	5 7E-06	9E-06	2 3E-05	4E-05	5E-05
PBDEs	PBDE-47	*0.0178*	mg/kg ww	0 0001	I	--	--		Nervous	5 1E-04	5	1 9E-04	2	4 4E-05	--	1 8E-04	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		60		20		5E-04		2E-03	2E-03
	Dioxin/Furan TEQ only	*7.19E-07*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 1E-08	*30*	7 8E-09	*10*	1 8E-09	*2E-04*	7 1E-09	*9E-04*	*1E-03*
	PCB TEQ only	*0.000000713*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 1E-08	*30*	7 7E-09	*10*	1 8E-09	*2E-04*	7 0E-09	*9E-04*	*1E-03*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0214*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	6 2E-04	--	2 3E-04	--	5 3E-05	*1E-04*	2 1E-04	*4E-04*	*5E-04*
									Consumption Total		**200**		**60**		**5E-04**		**2E-03**	**3E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	6	2
Developmental HI	30	10
Endocrine HI	5	2
Gastrointestinal HI	1	0 5
Hematologic HI	2	0 9
Nervous HI	40	10
Reproductive HI	60	20
Skin, Hair & Nails HI	50	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 23. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI: Mountain Whitefish Consumption

Analyte Group	Analyte Name	Fish Tissue EPC (fillet) (mg/kg ww)		Toxicity Values				Notes	Primary Target Organ System(s)	Non-Cancer				Cancer				
										Child		Adult		Child		Adult		
				oRfD (mg/kg-d)	oRfD Source	oSF $(mg/kg\text{-}d)^{-1}$	oSF Source			Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	HQ	Dose (mg/kg-d)	Risk	Dose (mg/kg-d)	Risk	TWA
Metals and Metalloids	Aluminum	*5.2*	mg/kg ww	1	P	--	--		Nervous	1 5E-01	0 1	5 6E-02	0 06	1 3E-02	--	5 1E-02	--	--
	Antimony	*0.00324*	mg/kg ww	0 0004	I	--	--		Hematologic	9 3E-05	0 2	3 5E-05	0 09	8 0E-06	--	3 2E-05	--	--
	Inorganic Arsenic	*0.00535*	mg/kg ww	0 0003	I	1 5	I	(a)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 8E-05	0 2	1 3E-05	2E-05	5 3E-05	8E-05	1E-04
	Chromium	*0.0512*	mg/kg ww	0 003	I	--	--	(b)	None	1 5E-03	0 5	5 5E-04	0 2	1 3E-04	--	5 1E-04	--	--
	Methylmercury	*0.105*	mg/kg ww	0 0001	I	--	--	(c)	Nervous; Developmental	3 0E-03	30	1 1E-03	10	2 6E-04	--	1 0E-03	--	--
	Selenium	*0.253*	mg/kg ww	0 005	I	--	--		Nervous; Hematologic; Skin, Hair & Nails	7 3E-03	1	2 7E-03	0 5	6 3E-04	--	2 5E-03	--	--
	Thallium	*0.016*	mg/kg ww	0 00001	X	--	--		Skin, Hair & Nails	4 6E-04	50	1 7E-04	20	4 0E-05	--	1 6E-04	--	--
	Zirconium	*0.00239*	mg/kg ww	0 00008	X	--	--		Cardiovascular; Endocrine	6 9E-05	0 9	2 6E-05	0 3	5 9E-06	--	2 4E-05	--	--
Pesticides	4,4'-DDE	*0.00831*	mg/kg ww	0 0003	X	0 34	I		Gastrointestinal	2 4E-04	0 8	9 0E-05	0 3	2 1E-05	7E-06	8 2E-05	3E-05	3E-05
	Dieldrin	*0.00035*	mg/kg ww	0 00005	I	16	I		Gastrointestinal	1 0E-05	0 2	3 8E-06	0 08	8 7E-07	1E-05	3 5E-06	6E-05	7E-05
	Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I		Gastrointestinal	1 3E-05	1	4 9E-06	0 4	1 1E-06	1E-05	4 4E-06	4E-05	5E-05
SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I		Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Hexachlorobenzene	*0.0456*	mg/kg ww	0 0008	I	1 6	I		Gastrointestinal	1 3E-03	2	4 9E-04	0 6	1 1E-04	2E-04	4 5E-04	7E-04	9E-04
PBDEs	PBDE-47	*0.025*	mg/kg ww	0 0001	I	--	--		Nervous	7 2E-04	7	2 7E-04	3	6 2E-05	--	2 5E-04	--	--
Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ								Reproductive		100		40		8E-04		3E-03	4E-03
	Dioxin/Furan TEQ only	*1.45E-06*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	4 2E-08	*60*	1 6E-08	*20*	3 6E-09	*5E-04*	1 4E-08	*2E-03*	*2E-03*
	PCB TEQ only	*0.000000896*	*mg/kg ww*	*7E-10*	I	*130000*	*C*		*Reproductive*	2 6E-08	*40*	9 7E-09	*10*	2 2E-09	*3E-04*	8 9E-09	*1E-03*	*1E-03*
Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--	(f,g)			--		--		NA		NA	NA
	as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*	*(d,h)*	--	NA	--	NA	--	NA	*NA*	NA	*NA*	*NA*
	as PCB Congener Sum	*0.0333*	*mg/kg ww*	--	--	*2*	*I*	*(e,h)*	--	9 6E-04	--	3 6E-04	--	8 2E-05	*2E-04*	3 3E-04	*7E-04*	*8E-04*
									Consumption Total		**200**		**70**		**1E-03**		**4E-03**	**5E-03**

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(b) Based on toxicity values for Chromium (VI)

(c) Assumes chemical form of mercury in tissue is methylmercury

(d) Non-dioxin-like component evaluated based on Aroclor

(e) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(f) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(g) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(h) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	1	0 5
Developmental HI	30	10
Endocrine HI	0 9	0 3
Gastrointestinal HI	4	1
Hematologic HI	2	0 6
Nervous HI	40	10
Reproductive HI	100	40
Skin, Hair & Nails HI	50	20

Sources: A = HEAST Alternate H = HEAST I = IRIS E = EPA-NCEA provisional value
M = ATSDR MRL (chronic) O = other P = EPA provisional peer-reviewed value X = Appendix PPRTV Screen

Table 24. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Northern Pike

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	$\mu g/m^3$	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	$\mu g/m^3$	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*0.434*	mg/kg ww	1	P	--	--				Nervous	1 3E-02	0 01	4 7E-03	0 005	1 1E-03	--	4 3E-03	--	--
			Antimony	*0.00103*	mg/kg ww	0 0004	I	--	--				Hematologic	3 0E-05	0 07	1 1E-05	0 03	2 5E-06	--	1 0E-05	--	--
			Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Chromium	*0.114*	mg/kg ww	0 003	I	--	--			(b)	None	3 3E-03	1	1 2E-03	0 4	2 8E-04	--	1 1E-03	--	--
			Methylmercury	*0.122*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	3 5E-03	40	1 3E-03	10	3 0E-04	--	1 2E-03	--	--
			Selenium	*0.647*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	1 9E-02	4	7 0E-03	1	1 6E-03	--	6 4E-03	--	--
			Thallium	*0.0131*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	3 8E-04	40	1 4E-04	10	3 2E-05	--	1 3E-04	--	--
			Zirconium	*NA*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
		PBDEs	PBDE-47	*NA*	mg/kg ww	0 0001	I	--	--				Nervous	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive									
			Dioxin/Furan TEQ only	*NA*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*
			PCB TEQ only	*NA*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*

Table 24. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Northern Pike

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child EC (mg/m^3)	Non-Cancer: Child HQ	Non-Cancer: Adult EC (mg/m^3)	Non-Cancer: Adult HQ	Cancer: Child EC (ug/m^3)	Cancer: Child Risk	Cancer: Adult EC (ug/m^3)	Cancer: Adult Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)										
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
		Consumption of Fish Tissue Total													**80**		**30**		**ND/NA**		**ND/NA**	**ND/NA**
		Total Across All Pathways													**80**		**30**		**7E-05**		**2E-04**	**2E-04**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	2	0 3
Developmental HI	40	10
Endocrine HI	0 7	0 1
Gastrointestinal HI	0 7	0 1
Hematologic HI	4	1
Nervous HI	40	20
Reproductive HI	NA	NA
Skin, Hair & Nails HI	40	20
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 25. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Rainbow Trout

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*0.667*	mg/kg ww	1	P	--	--				Nervous	1 9E-02	0 02	7 2E-03	0 007	1 6E-03	--	6 6E-03	--	--
			Antimony	*0.0129*	mg/kg ww	0 0004	I	--	--				Hematologic	3 7E-04	0 9	1 4E-04	0 3	3 2E-05	--	1 3E-04	--	--
			Inorganic Arsenic	*0.00398*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	1 1E-04	0 4	4 3E-05	0 1	9 8E-06	4E-04	3 9E-05	1E-03	2E-03
			Chromium	*0.273*	mg/kg ww	0 003	I	--	--			(b)	None	7 9E-03	3	3 0E-03	1	6 7E-04	--	2 7E-03	--	--
			Methylmercury	*0.0847*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	2 4E-03	20	9 2E-04	9	2 1E-04	--	8 4E-04	--	--
			Selenium	*0.339*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	9 8E-03	2	3 7E-03	0 7	8 4E-04	--	3 4E-03	--	--
			Thallium	*0.025*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	7 2E-04	70	2 7E-04	30	6 2E-05	--	2 5E-04	--	--
			Zirconium	*0.00586*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	1 7E-04	2	6 3E-05	0 8	1 4E-05	--	5 8E-05	--	--
		Pesticides	4,4'-DDE	*0.00755*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	2 2E-04	0 7	8 2E-05	0 3	1 9E-05	7E-04	7 5E-05	3E-03	3E-03
			Dieldrin	*0.00023*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	6 6E-06	0 1	2 5E-06	0 05	5 7E-07	2E-05	2 3E-06	8E-05	1E-04
			Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Hexachlorobenzene	*0.00146*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	4 2E-05	0 05	1 6E-05	0 02	3 6E-06	1E-04	1 4E-05	5E-04	7E-04
		PBDEs	PBDE-47	*0.0077*	mg/kg ww	0 0001	I	--	--				Nervous	2 2E-04	2	8 3E-05	0 8	1 9E-05	--	7 6E-05	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		40		10		9E-08		4E-07	4E-07
			Dioxin/Furan TEQ only	*3.56E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*1.0E-08*	*10*	*3.9E-09*	*6*	*8.8E-10*	*3E-08*	*3.5E-09*	*1E-07*	*2E-07*
			PCB TEQ only	*6.04E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*1.7E-08*	*20*	*6.5E-09*	*9*	*1.5E-09*	*6E-08*	*6.0E-09*	*2E-07*	*3E-07*

Table 25. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Rainbow Trout

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					Child		Adult		Child		Adult		
														EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							2E-03		8E-03	2E-02
			as Aroclor	*0.0187*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*5.4E-04*	--	*2.0E-04*	--	*4.6E-05*	*2E-03*	*1.8E-04*	*7E-03*	*9E-03*
			as PCB Congener Sum	*0.021*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*6.1E-04*	--	*2.3E-04*	--	*5.2E-05*	*2E-03*	*2.1E-04*	*8E-03*	*1E-02*
													Consumption of Fish Tissue Total		**100**		**60**		**3E-03**		**1E-02**	**2E-02**
													Total Across All Pathways		**200**		**60**		**3E-03**		**1E-02**	**2E-02**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	4	1
Developmental HI	20	9
Endocrine HI	3	0 9
Gastrointestinal HI	2	0 5
Hematologic HI	3	1
Nervous HI	30	10
Reproductive HI	40	10
Skin, Hair & Nails HI	80	30
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 26. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Smallmouth Bass

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*0.548*	mg/kg ww	1	P	--	--				Nervous	1 6E-02	0 02	5 9E-03	0 006	1 4E-03	--	5 4E-03	--	--
			Antimony	*0.00932*	mg/kg ww	0 0004	I	--	--				Hematologic	2 7E-04	0 7	1 0E-04	0 3	2 3E-05	--	9 2E-05	--	--
			Inorganic Arsenic	*0.0051*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 5E-05	0 2	1 3E-05	5E-04	5 0E-05	2E-03	2E-03
			Chromium	*0.111*	mg/kg ww	0 003	I	--	--			(b)	None	3 2E-03	1	1 2E-03	0 4	2 7E-04	--	1 1E-03	--	--
			Methylmercury	*0.173*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	5 0E-03	50	1 9E-03	20	4 3E-04	--	1 7E-03	--	--
			Selenium	*0.471*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	1 4E-02	3	5 1E-03	1	1 2E-03	--	4 7E-03	--	--
			Thallium	*0.0258*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	7 4E-04	70	2 8E-04	30	6 4E-05	--	2 6E-04	--	--
			Zirconium	*0.00173*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	5 0E-05	0 6	1 9E-05	0 2	4 3E-06	--	1 7E-05	--	--
		Pesticides	4,4'-DDE	*0.0032*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	9 2E-05	0 3	3 5E-05	0 1	7 9E-06	3E-04	3 2E-05	1E-03	1E-03
			Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Hexachlorobenzene	*0.001*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	2 9E-05	0 04	1 1E-05	0 01	2 5E-06	9E-05	9 9E-06	4E-04	5E-04
		PBDEs	PBDE-47	*0.00745*	mg/kg ww	0 0001	I	--	--				Nervous	2 1E-04	2	8 1E-05	0 8	1 8E-05	--	7 4E-05	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		40		20		1E-07		4E-07	5E-07
			Dioxin/Furan TEQ only	*3.07E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*8.9E-09*	*10*	*3.3E-09*	*5*	*7.6E-10*	*3E-08*	*3.0E-09*	*1E-07*	*1E-07*
			PCB TEQ only	*7.53E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.2E-08*	*30*	*8.1E-09*	*10*	*1.9E-09*	*7E-08*	*7.4E-09*	*3E-07*	*3E-07*

Table 26. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Smallmouth Bass

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child EC (mg/m^3)	Non-Cancer: Child HQ	Non-Cancer: Adult EC (mg/m^3)	Non-Cancer: Adult HQ	Cancer: Child EC (ug/m^3)	Cancer: Child Risk	Cancer: Adult EC (ug/m^3)	Cancer: Adult Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							7E-04		3E-03	8E-03
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.0072*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*2.1E-04*	--	*7.8E-05*	--	*1.8E-05*	*7E-04*	*7.1E-05*	*3E-03*	*3E-03*
		Consumption of Fish Tissue Total													**200**		**70**		**2E-03**		**6E-03**	**8E-03**
		Total Across All Pathways													**200**		**70**		**2E-03**		**6E-03**	**8E-03**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	3	0 8
Developmental HI	50	20
Endocrine HI	1	0 4
Gastrointestinal HI	1	0 3
Hematologic HI	3	1
Nervous HI	60	20
Reproductive HI	40	20
Skin, Hair & Nails HI	80	30
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 27. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes White Sturgeon

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*0.712*	mg/kg ww	1	P	--	--				Nervous	2 1E-02	0 02	7 7E-03	0 008	1 8E-03	--	7 0E-03	--	--
			Antimony	*ND*	mg/kg ww	0 0004	I	--	--				Hematologic	ND	ND	ND	ND	ND	ND	ND	ND	--
			Inorganic Arsenic	*ND*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Chromium	*0.0938*	mg/kg ww	0 003	I	--	--			(b)	None	2 7E-03	0 9	1 0E-03	0 3	2 3E-04	--	9 3E-04	--	--
			Methylmercury	*0.0946*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	2 7E-03	30	1 0E-03	10	2 3E-04	--	9 4E-04	--	--
			Selenium	*1.14*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	3 3E-02	7	1 2E-02	2	2 8E-03	--	1 1E-02	--	--
			Thallium	*0.00384*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	1 1E-04	10	4 2E-05	4	9 5E-06	--	3 8E-05	--	--
			Zirconium	*NA*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Pesticides	4,4'-DDE	*NA*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Dieldrin	*NA*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Heptachlor epoxide	*NA*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
		SVOC	bis(2-Ethylhexyl)phthalate	*NA*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Hexachlorobenzene	*NA*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	NA	NA	NA	NA	NA	NA	NA	NA	NA
		PBDEs	PBDE-47	*0.00238*	mg/kg ww	0 0001	I	--	--				Nervous	6 9E-05	0 7	2 6E-05	0 3	5 9E-06	--	2 4E-05	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		20		6		4E-08		2E-07	2E-07
			Dioxin/Furan TEQ only	*2.35E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*6.8E-09*	*10*	*2.5E-09*	*4*	*5.8E-10*	*2E-08*	*2.3E-09*	*9E-08*	*1E-07*
			PCB TEQ only	*1.77E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*5.1E-09*	*7*	*1.9E-09*	*3*	*4.4E-10*	*2E-08*	*1.7E-09*	*6E-08*	*8E-08*

Table 27. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes White Sturgeon

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child EC (mg/m^3)	Non-Cancer: Child HQ	Non-Cancer: Adult EC (mg/m^3)	Non-Cancer: Adult HQ	Cancer: Child EC (ug/m^3)	Cancer: Child Risk	Cancer: Adult EC (ug/m^3)	Cancer: Adult Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							8E-04		3E-03	4E-03
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.00871*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*2.5E-04*	--	*9.4E-05*	--	*2.2E-05*	*8E-04*	*8.6E-05*	*3E-03*	*4E-03*
		Consumption of Fish Tissue Total													**60**		**20**		**8E-04**		**3E-03**	**4E-03**
		Total Across All Pathways													**70**		**30**		**9E-04**		**3E-03**	**4E-03**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	2	0 3
Developmental HI	30	10
Endocrine HI	0 7	0 1
Gastrointestinal HI	0 7	0 1
Hematologic HI	7	2
Nervous HI	40	10
Reproductive HI	20	6
Skin, Hair & Nails HI	20	7
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 28. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Sucker

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					Child		Adult		Child		Adult		
														EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	$\mu g/m^3$	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	$\mu g/m^3$	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*1.11*	mg/kg ww	1	P	--	--				Nervous	3 2E-02	0 03	1 2E-02	0 01	2 7E-03	--	1 1E-02	--	--
			Antimony	*0.0106*	mg/kg ww	0 0004	I	--	--				Hematologic	3 1E-04	0 8	1 1E-04	0 3	2 6E-05	--	1 0E-04	--	--
			Inorganic Arsenic	*0.00492*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	1 4E-04	0 5	5 3E-05	0 2	1 2E-05	4E-04	4 9E-05	2E-03	2E-03
			Chromium	*0.112*	mg/kg ww	0 003	I	--	--			(b)	None	3 2E-03	1	1 2E-03	0 4	2 8E-04	--	1 1E-03	--	--
			Methylmercury	*0.296*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	8 5E-03	90	3 2E-03	30	7 3E-04	--	2 9E-03	--	--
			Selenium	*0.296*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	8 5E-03	2	3 2E-03	0 6	7 3E-04	--	2 9E-03	--	--
			Thallium	*0.0134*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	3 9E-04	40	1 4E-04	10	3 3E-05	--	1 3E-04	--	--
			Zirconium	*0.00225*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	6 5E-05	0 8	2 4E-05	0 3	5 6E-06	--	2 2E-05	--	--
		Pesticides	4,4'-DDE	*0.0167*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	4 8E-04	2	1 8E-04	0 6	4 1E-05	2E-03	1 7E-04	6E-03	8E-03
			Dieldrin	*0.000253*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	7 3E-06	0 1	2 7E-06	0 05	6 3E-07	2E-05	2 5E-06	9E-05	1E-04
			Heptachlor epoxide	*0.000368*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	1 1E-05	0 8	4 0E-06	0 3	9 1E-07	3E-05	3 6E-06	1E-04	2E-04
		SVOC	bis(2-Ethylhexyl)phthalate	*0.49*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	1 4E-02	0 7	5 3E-03	0 3	1 2E-03	4E-02	4 8E-03	2E-01	2E-01
			Hexachlorobenzene	*0.00215*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	6 2E-05	0 08	2 3E-05	0 03	5 3E-06	2E-04	2 1E-05	8E-04	1E-03
		PBDEs	PBDE-47	*0.028*	mg/kg ww	0 0001	I	--	--				Nervous	8 1E-04	8	3 0E-04	3	6 9E-05	--	2 8E-04	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		60		20		1E-07		5E-07	7E-07
			Dioxin/Furan TEQ only	*3.56E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*1.0E-08*	*10*	*3.8E-09*	*5*	*8.8E-10*	*3E-08*	*3.5E-09*	*1E-07*	*2E-07*
			PCB TEQ only	*1.07E-06*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*3.1E-08*	*40*	*1.2E-08*	*20*	*2.6E-09*	*1E-07*	*1.1E-08*	*4E-07*	*5E-07*

Table 28. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Sucker

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child EC (mg/m^3)	Non-Cancer: Child HQ	Non-Cancer: Adult EC (mg/m^3)	Non-Cancer: Adult HQ	Cancer: Child EC (ug/m^3)	Cancer: Child Risk	Cancer: Adult EC (ug/m^3)	Cancer: Adult Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							5E-03		2E-02	3E-01
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.0596*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*1.7E-03*	--	*6.4E-04*	--	*1.5E-04*	*5E-03*	*5.9E-04*	*2E-02*	*3E-02*
		Consumption of Fish Tissue Total													**200**		**80**		**5E-02**		**2E-01**	**3E-01**
		Total Across All Pathways													**200**		**80**		**5E-02**		**2E-01**	**3E-01**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	3	0 8
Developmental HI	90	30
Endocrine HI	2	0 4
Gastrointestinal HI	4	1
Hematologic HI	2	0 9
Nervous HI	100	40
Reproductive HI	60	20
Skin, Hair & Nails HI	40	20
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 29. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Walleye

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					Child		Adult		Child		Adult		
														EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*30.8*	mg/kg ww	1	P	--	--				Nervous	8 9E-01	0 9	3 3E-01	0 3	7 6E-02	--	3 0E-01	--	--
			Antimony	*0.011*	mg/kg ww	0 0004	I	--	--				Hematologic	3 2E-04	0 8	1 2E-04	0 3	2 7E-05	--	1 1E-04	--	--
			Inorganic Arsenic	*0.00528*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 7E-05	0 2	1 3E-05	5E-04	5 2E-05	2E-03	2E-03
			Chromium	*0.321*	mg/kg ww	0 003	I	--	--			(b)	None	9 3E-03	3	3 5E-03	1	7 9E-04	--	3 2E-03	--	--
			Methylmercury	*0.179*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	5 2E-03	50	1 9E-03	20	4 4E-04	--	1 8E-03	--	--
			Selenium	*0.361*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	1 0E-02	2	3 9E-03	0 8	8 9E-04	--	3 6E-03	--	--
			Thallium	*0.0368*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	1 1E-03	100	4 0E-04	40	9 1E-05	--	3 6E-04	--	--
			Zirconium	*0.0786*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	2 3E-03	30	8 5E-04	10	1 9E-04	--	7 8E-04	--	--
		Pesticides	4,4'-DDE	*0.00128*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	3 7E-05	0 1	1 4E-05	0 05	3 2E-06	1E-04	1 3E-05	5E-04	6E-04
			Dieldrin	*ND*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Heptachlor epoxide	*ND*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
		SVOC	bis(2-Ethylhexyl)phthalate	*0.22*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	6 3E-03	0 3	2 4E-03	0 1	5 4E-04	2E-02	2 2E-03	8E-02	1E-01
			Hexachlorobenzene	*0.0012*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	3 5E-05	0 04	1 3E-05	0 02	3 0E-06	1E-04	1 2E-05	4E-04	5E-04
		PBDEs	PBDE-47	*0.00351*	mg/kg ww	0 0001	I	--	--				Nervous	1 0E-04	1	3 8E-05	0 4	8 7E-06	--	3 5E-05	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		20		7		4E-08		2E-07	2E-07
			Dioxin/Furan TEQ only	*2.42E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*7.0E-09*	*10*	*2.6E-09*	*4*	*6.0E-10*	*2E-08*	*2.4E-09*	*9E-08*	*1E-07*
			PCB TEQ only	*1.87E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*5.4E-09*	*8*	*2.0E-09*	*3*	*4.6E-10*	*2E-08*	*1.9E-09*	*7E-08*	*9E-08*

Table 29. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Walleye

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child EC (mg/m^3)	Non-Cancer: Child HQ	Non-Cancer: Adult EC (mg/m^3)	Non-Cancer: Adult HQ	Cancer: Child EC (ug/m^3)	Cancer: Child Risk	Cancer: Adult EC (ug/m^3)	Cancer: Adult Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							6E-04		2E-03	1E-01
			as Aroclor	*0.00505*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*1.5E-04*	--	*5.5E-05*	--	*1.2E-05*	*5E-04*	*5.0E-05*	*2E-03*	*2E-03*
			as PCB Congener Sum	*0.00624*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*1.8E-04*	--	*6.7E-05*	--	*1.5E-05*	*6E-04*	*6.2E-05*	*2E-03*	*3E-03*
		Consumption of Fish Tissue Total													**200**		**80**		**2E-02**		**9E-02**	**1E-01**
		Total Across All Pathways													**200**		**80**		**2E-02**		**9E-02**	**1E-01**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4 in the Site-wide HHRA)

Total by Target Organ System:

Cardiovascular HI	30	10
Developmental HI	50	20
Endocrine HI	30	10
Gastrointestinal HI	1	0 3
Hematologic HI	3	1
Nervous HI	60	20
Reproductive HI	20	7
Skin, Hair & Nails HI	100	40
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 30. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Whitefish (combined)

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*1.86*	mg/kg ww	1	P	--	--				Nervous	5 4E-02	0 05	2 0E-02	0 02	4 6E-03	--	1 8E-02	--	--
			Antimony	*0.00613*	mg/kg ww	0 0004	I	--	--				Hematologic	1 8E-04	0 4	6 6E-05	0 2	1 5E-05	--	6 1E-05	--	--
			Inorganic Arsenic	*0.00716*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	2 1E-04	0 7	7 7E-05	0 3	1 8E-05	7E-04	7 1E-05	3E-03	3E-03
			Chromium	*0.0512*	mg/kg ww	0 003	I	--	--			(b)	None	1 5E-03	0 5	5 5E-04	0 2	1 3E-04	--	5 1E-04	--	--
			Methylmercury	*0.0973*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	2 8E-03	30	1 1E-03	10	2 4E-04	--	9 6E-04	--	--
			Selenium	*0.303*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	8 7E-03	2	3 3E-03	0 7	7 5E-04	--	3 0E-03	--	--
			Thallium	*0.0164*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	4 7E-04	50	1 8E-04	20	4 1E-05	--	1 6E-04	--	--
			Zirconium	*0.0128*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	3 7E-04	5	1 4E-04	2	3 2E-05	--	1 3E-04	--	--
		Pesticides	4,4'-DDE	*0.00574*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	1 7E-04	0 6	6 2E-05	0 2	1 4E-05	5E-04	5 7E-05	2E-03	3E-03
			Dieldrin	*0.000327*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	9 4E-06	0 2	3 5E-06	0 07	8 1E-07	3E-05	3 2E-06	1E-04	1E-04
			Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	1 3E-05	1	4 9E-06	0 4	1 1E-06	4E-05	4 4E-06	2E-04	2E-04
		SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Hexachlorobenzene	*0.00257*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	7 4E-05	0 09	2 8E-05	0 03	6 4E-06	2E-04	2 5E-05	9E-04	1E-03
		PBDEs	PBDE-47	*0.0182*	mg/kg ww	0 0001	I	--	--				Nervous	5 2E-04	5	2 0E-04	2	4 5E-05	--	1 8E-04	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		60		20		1E-07		5E-07	7E-07
			Dioxin/Furan TEQ only	*6.84E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.0E-08*	*30*	*7.4E-09*	*10*	*1.7E-09*	*6E-08*	*6.8E-09*	*3E-07*	*3E-07*
			PCB TEQ only	*8.19E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.4E-08*	*30*	*8.9E-09*	*10*	*2.0E-09*	*7E-08*	*8.1E-09*	*3E-07*	*4E-07*

Table 30. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Whitefish (combined)

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR (ug/m^3)$^{-1}$ /oSF (mg/kg-d)$^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child: EC (mg/m^3)	Non-Cancer: Child: HQ	Non-Cancer: Adult: EC (mg/m^3)	Non-Cancer: Adult: HQ	Cancer: Child: EC (ug/m^3)	Cancer: Child: Risk	Cancer: Adult: EC (ug/m^3)	Cancer: Adult: Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							2E-03		9E-03	2E-02
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.0234*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*6.7E-04*	--	*2.5E-04*	--	*5.8E-05*	*2E-03*	*2.3E-04*	*9E-03*	*1E-02*
			Consumption of Fish Tissue Total												**200**		**60**		**4E-03**		**1E-02**	**2E-02**
			Total Across All Pathways												**200**		**60**		**4E-03**		**1E-02**	**2E-02**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	7	2
Developmental HI	30	10
Endocrine HI	5	2
Gastrointestinal HI	3	0 8
Hematologic HI	2	0 8
Nervous HI	40	10
Reproductive HI	60	20
Skin, Hair & Nails HI	50	20
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 31. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Lake Whitefish

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	TWA
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*1.32*	mg/kg ww	1	P	--	--				Nervous	3 8E-02	0 04	1 4E-02	0 01	3 3E-03	--	1 3E-02	--	--
			Antimony	*0.00775*	mg/kg ww	0 0004	I	--	--				Hematologic	2 2E-04	0 6	8 4E-05	0 2	1 9E-05	--	7 7E-05	--	--
			Inorganic Arsenic	*0.00846*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	2 4E-04	0 8	9 1E-05	0 3	2 1E-05	8E-04	8 4E-05	3E-03	4E-03
			Chromium	*0.024*	mg/kg ww	0 003	I	--	--			(b)	None	6 9E-04	0 2	2 6E-04	0 09	5 9E-05	--	2 4E-04	--	--
			Methylmercury	*0.101*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	2 9E-03	30	1 1E-03	10	2 5E-04	--	1 0E-03	--	--
			Selenium	*0.334*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	9 6E-03	2	3 6E-03	0 7	8 3E-04	--	3 3E-03	--	--
			Thallium	*0.0176*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	5 1E-04	50	1 9E-04	20	4 3E-05	--	1 7E-04	--	--
			Zirconium	*0.0146*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	4 2E-04	5	1 6E-04	2	3 6E-05	--	1 4E-04	--	--
		Pesticides	4,4'-DDE	*0.00522*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	1 5E-04	0 5	5 6E-05	0 2	1 3E-05	5E-04	5 2E-05	2E-03	2E-03
			Dieldrin	*0.000357*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	1 0E-05	0 2	3 9E-06	0 08	8 8E-07	3E-05	3 5E-06	1E-04	2E-04
			Heptachlor epoxide	*0.00027*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	7 8E-06	0 6	2 9E-06	0 2	6 7E-07	2E-05	2 7E-06	1E-04	1E-04
		SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Hexachlorobenzene	*0.0023*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	6 6E-05	0 08	2 5E-05	0 03	5 7E-06	2E-04	2 3E-05	8E-04	1E-03
		PBDEs	PBDE-47	*0.0178*	mg/kg ww	0 0001	I	--	--				Nervous	5 1E-04	5	1 9E-04	2	4 4E-05	--	1 8E-04	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		60		20		1E-07		5E-07	7E-07
			Dioxin/Furan TEQ only	*7.13E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.1E-08*	*30*	*7.7E-09*	*10*	*1.8E-09*	*7E-08*	*7.0E-09*	*3E-07*	*3E-07*
			PCB TEQ only	*7.19E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.1E-08*	*30*	*7.8E-09*	*10*	*1.8E-09*	*7E-08*	*7.1E-09*	*3E-07*	*3E-07*

Table 31. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Lake Whitefish

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR (ug/m^3)$^{-1}$ /oSF (mg/kg-d)$^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child: EC (mg/m^3)	Non-Cancer: Child: HQ	Non-Cancer: Adult: EC (mg/m^3)	Non-Cancer: Adult: HQ	Cancer: Child: EC (ug/m^3)	Cancer: Child: Risk	Cancer: Adult: EC (ug/m^3)	Cancer: Adult: Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							2E-03		8E-03	2E-02
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.0214*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*6.2E-04*	--	*2.3E-04*	--	*5.3E-05*	*2E-03*	*2.1E-04*	*8E-03*	*1E-02*
			Consumption of Fish Tissue Total												**200**		**60**		**3E-03**		**1E-02**	**2E-02**
			Total Across All Pathways												**200**		**60**		**4E-03**		**1E-02**	**2E-02**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	8	3
Developmental HI	30	10
Endocrine HI	6	2
Gastrointestinal HI	2	0 7
Hematologic HI	3	0 9
Nervous HI	40	10
Reproductive HI	60	20
Skin, Hair & Nails HI	60	20
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Table 32. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Mountain Whitefish

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values				Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer				Cancer				TWA
														Child		Adult		Child		Adult		
						iRfC (mg/m^3) /oRfD (mg/kg-d)	iRfC/ cRfD Source	iUR $(ug/m^3)^{-1}$ /oSF $(mg/kg\text{-}d)^{-1}$	iUR/ oSF Source					EC (mg/m^3)	HQ	EC (mg/m^3)	HQ	EC (ug/m^3)	Risk	EC (ug/m^3)	Risk	
Air	Inhalation	Metals	Arsenic	0 0059	µg/m³	0 000015	C	0 0043	I				Nervous	5 9E-06	0 4	5 9E-06	0 4	5 1E-04	2E-06	5 4E-03	2E-05	3E-05
			Cadmium	0 00201	µg/m³	0 00001	A	0 0018	I			(a)	Urinary	2 0E-06	0 2	2 0E-06	0 2	1 7E-04	3E-07	1 8E-03	3E-06	4E-06
			Inhalation of Air Total												**0.6**		**0.6**		**2E-06**		**3E-05**	**3E-05**
Soil	Incidental Ingestion	Metals	Aluminum	20200	mg/kg	1	P	--	--				Nervous	5 4E-01	0 5	1 0E-01	0 1	4 6E-02	--	9 2E-02	--	--
			Antimony	0 351	mg/kg	0 0004	I	--	--				Hematologic	9 4E-06	0 02	1 8E-06	0 004	8 0E-07	--	1 6E-06	--	--
			RBA adjusted Arsenic	18 6	mg/kg	0 0003	I	1 5	I				Cardiovascular; Skin, Hair & Nails	5 0E-04	2	9 3E-05	0 3	4 3E-05	6E-05	8 5E-05	1E-04	2E-04
			Cadmium	0 207	mg/kg	0 001	I	--	--				Urinary	5 5E-06	0 006	1 0E-06	0 001	4 7E-07	--	9 5E-07	--	--
			Chromium	15 7	mg/kg	0 003	I	--	--			(b)	None	4 2E-04	0 1	7 8E-05	0 03	3 6E-05	--	7 2E-05	--	--
			Cobalt	8 26	mg/kg	0 0003	P	--	--				Endocrine	2 2E-04	0 7	4 1E-05	0 1	1 9E-05	--	3 8E-05	--	--
			Iron	19400	mg/kg	0 7	P	--	--				Gastrointestinal	5 2E-01	0 7	9 7E-02	0 1	4 4E-02	--	8 9E-02	--	--
			Manganese	548	mg/kg	0 024	S	--	--				Nervous	1 5E-02	0 6	2 7E-03	0 1	1 3E-03	--	2 5E-03	--	--
			Thallium	0 286	mg/kg	0 00001	X	--	--				Skin, Hair & Nails	7 6E-06	0 8	1 4E-06	0 1	6 5E-07	--	1 3E-06	--	--
			Vanadium	28 8	mg/kg	0 00504	S	--	--				Skin, Hair & Nails	7 7E-04	0 2	1 4E-04	0 03	6 6E-05	--	1 3E-04	--	--
			Incidental Ingestion of Soil Total												**5**		**1**		**6E-05**		**1E-04**	**2E-04**
	Dermal Contact	Metals	Aluminum	24100	mg/kg	1	P	--	--	--	1		Nervous	--	--	--	--	--	--	--	--	--
			Antimony	0 42	mg/kg	0 0004	I	--	--	--	0 15		Hematologic	--	--	--	--	--	--	--	--	--
			Arsenic	37 2	mg/kg	0 0003	I	1 5	I	0 03	1		Cardiovascular; Skin, Hair & Nails	3 6E-05	0 1	7 1E-06	0 02	3 1E-06	5E-06	6 5E-06	1E-05	1E-05
			Cadmium	0 248	mg/kg	0 001	I	--	--	0 001	0 025		Urinary	8 0E-09	0 0003	1 6E-09	6E-05	6 8E-10	--	1 5E-09	--	--
			Chromium	18 8	mg/kg	0 003	I	--	--	--	0 025	(b)	None	--	--	--	--	--	--	--	--	--
			Cobalt	9 89	mg/kg	0 0003	P	--	--	--	1		Endocrine	--	--	--	--	--	--	--	--	--
			Iron	23200	mg/kg	0 7	P	--	--	--	1		Gastrointestinal	--	--	--	--	--	--	--	--	--
			Manganese	657	mg/kg	0 024	S	--	--	--	0 04		Nervous	--	--	--	--	--	--	--	--	--
			Thallium	0 343	mg/kg	0 00001	X	--	--	--	1		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Vanadium	34 6	mg/kg	0 00504	S	--	--	--	0 026		Skin, Hair & Nails	--	--	--	--	--	--	--	--	--
			Dermal Contact with Soil Total												**0.1**		**0.02**		**5E-06**		**1E-05**	**1E-05**
			Incidental Ingestion of and Dermal Contact with Soil Total												**5**		**1**		**7E-05**		**1E-04**	**2E-04**
Fish Tissue	Consumption	Metals and Metalloids	Aluminum	*5.2*	mg/kg ww	1	P	--	--				Nervous	1 5E-01	0 1	5 6E-02	0 06	1 3E-02	--	5 1E-02	--	--
			Antimony	*0.00324*	mg/kg ww	0 0004	I	--	--				Hematologic	9 3E-05	0 2	3 5E-05	0 09	8 0E-06	--	3 2E-05	--	--
			Inorganic Arsenic	*0.00535*	mg/kg ww	0 0003	I	1 5	I			(c)	Cardiovascular; Skin, Hair & Nails	1 5E-04	0 5	5 8E-05	0 2	1 3E-05	5E-04	5 3E-05	2E-03	2E-03
			Chromium	*0.0512*	mg/kg ww	0 003	I	--	--			(b)	None	1 5E-03	0 5	5 5E-04	0 2	1 3E-04	--	5 1E-04	--	--
			Methylmercury	*0.105*	mg/kg ww	0 0001	I	--	--			(d)	Nervous; Developmental	3 0E-03	30	1 1E-03	10	2 6E-04	--	1 0E-03	--	--
			Selenium	*0.253*	mg/kg ww	0 005	I	--	--				Nervous; Hematologic; Skin, Hair & Nails	7 3E-03	1	2 7E-03	0 5	6 3E-04	--	2 5E-03	--	--
			Thallium	*0.016*	mg/kg ww	0 00001	X	--	--				Skin, Hair & Nails	4 6E-04	50	1 7E-04	20	4 0E-05	--	1 6E-04	--	--
			Zirconium	*0.00239*	mg/kg ww	0 00008	X	--	--				Cardiovascular; Endocrine	6 9E-05	0 9	2 6E-05	0 3	5 9E-06	--	2 4E-05	--	--
		Pesticides	4,4'-DDE	*0.00831*	mg/kg ww	0 0003	X	0 34	I				Gastrointestinal	2 4E-04	0 8	9 0E-05	0 3	2 1E-05	8E-04	8 2E-05	3E-03	4E-03
			Dieldrin	*0.00035*	mg/kg ww	0 00005	I	16	I				Gastrointestinal	1 0E-05	0 2	3 8E-06	0 08	8 7E-07	3E-05	3 5E-06	1E-04	2E-04
			Heptachlor epoxide	*0.00045*	mg/kg ww	0 000013	I	9 1	I				Gastrointestinal	1 3E-05	1	4 9E-06	0 4	1 1E-06	4E-05	4 4E-06	2E-04	2E-04
		SVOC	bis(2-Ethylhexyl)phthalate	*ND*	mg/kg ww	0 02	I	0 014	I				Gastrointestinal	ND	ND	ND	ND	ND	ND	ND	ND	ND
			Hexachlorobenzene	*0.0456*	mg/kg ww	0 0008	I	1 6	I				Gastrointestinal	1 3E-03	2	4 9E-04	0 6	1 1E-04	4E-03	4 5E-04	2E-02	2E-02
		PBDEs	PBDE-47	*0.025*	mg/kg ww	0 0001	I	--	--				Nervous	7 2E-04	7	2 7E-04	3	6 2E-05	--	2 5E-04	--	--
		Dioxin-like TEQ (ND=0 5 DL)	Total (Dioxin/Furan+PCB) TEQ			--	--	--					Reproductive		100		40		2E-07		9E-07	1E-06
			Dioxin/Furan TEQ only	*8.96E-07*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*2.6E-08*	*40*	*9.7E-09*	*10*	*2.2E-09*	*8E-08*	*8.9E-09*	*3E-07*	*4E-07*
			PCB TEQ only	*1.45E-06*	*mg/kg ww*	*7E-10*	*I*	*130000*	*C*				*Reproductive*	*4.2E-08*	*60*	*1.6E-08*	*20*	*3.6E-09*	*1E-07*	*1.4E-08*	*5E-07*	*7E-07*

Table 32. Non-Cancer and Cancer Risks and Target Organ System Hazards for Non-Lead COPCs for the RME STI who Consumes Mountain Whitefish

Media	Pathway	Analyte Group	Analyte Name	EPC	EPC Unit	Toxicity Values: iRfC (mg/m^3) /oRfD (mg/kg-d)	Toxicity Values: iRfC/ cRfD Source	Toxicity Values: iUR (ug/m^3)$^{-1}$ /oSF (mg/kg-d)$^{-1}$	Toxicity Values: iUR/ oSF Source	Dermal Absorption Fraction	GI Absorption Efficiency (ABS_{GI})	Notes	Primary Target Organ(s)	Non-Cancer: Child: EC (mg/m^3)	Non-Cancer: Child: HQ	Non-Cancer: Adult: EC (mg/m^3)	Non-Cancer: Adult: HQ	Cancer: Child: EC (ug/m^3)	Cancer: Child: Risk	Cancer: Adult: EC (ug/m^3)	Cancer: Adult: Risk	TWA
		Non-dioxin-like PCBs	Total non-dioxin-like PCBs:			--	--	--	--			(g,h)							3E-03		1E-02	4E-02
			as Aroclor	*NA*	*mg/kg ww*	--	--	*2*	*I*			*(e,i)*	--	*NA*	--	*NA*	--	*NA*	*NA*	*NA*	*NA*	*NA*
			as PCB Congener Sum	*0.0333*	*mg/kg ww*	--	--	*2*	*I*			*(f,i)*	--	*9.6E-04*	--	*3.6E-04*	--	*8.2E-05*	*3E-03*	*3.3E-04*	*1E-02*	*2E-02*
			Consumption of Fish Tissue Total												**200**		**70**		**9E-03**		**3E-02**	**4E-02**
			Total Across All Pathways												**200**		**70**		**9E-03**		**3E-02**	**4E-02**

Notes:

-- = no toxicity value available ND = not detected NA = not analyzed

(a) Based on toxicity values for food

(b) Based on toxicity values for Chromium (VI)

(c) Some samples were not analyzed for inorganic arsenic For these samples, a calculated inorganic arsenic result was generated by multiplying the total arsenic result by the site-specific fraction (5 5%) of inorganic arsenic to total arsenic

(d) Assumes chemical form of mercury in tissue is methylmercury

(e) Non-dioxin-like component evaluated based on Aroclor

(f) Non-dioxin-like component evaluated based on sum of non-dioxin-like congeners

(g) When calculating total HQs from PCBs, the HQ was set equal to max of the Aroclor HQ or PCB congener sum HQ

(h) When calculating total cancer risks from non-dioxin-like PCBs, the non-dioxin-like risk was set equal to max of the Aroclor risk or congener sum risk

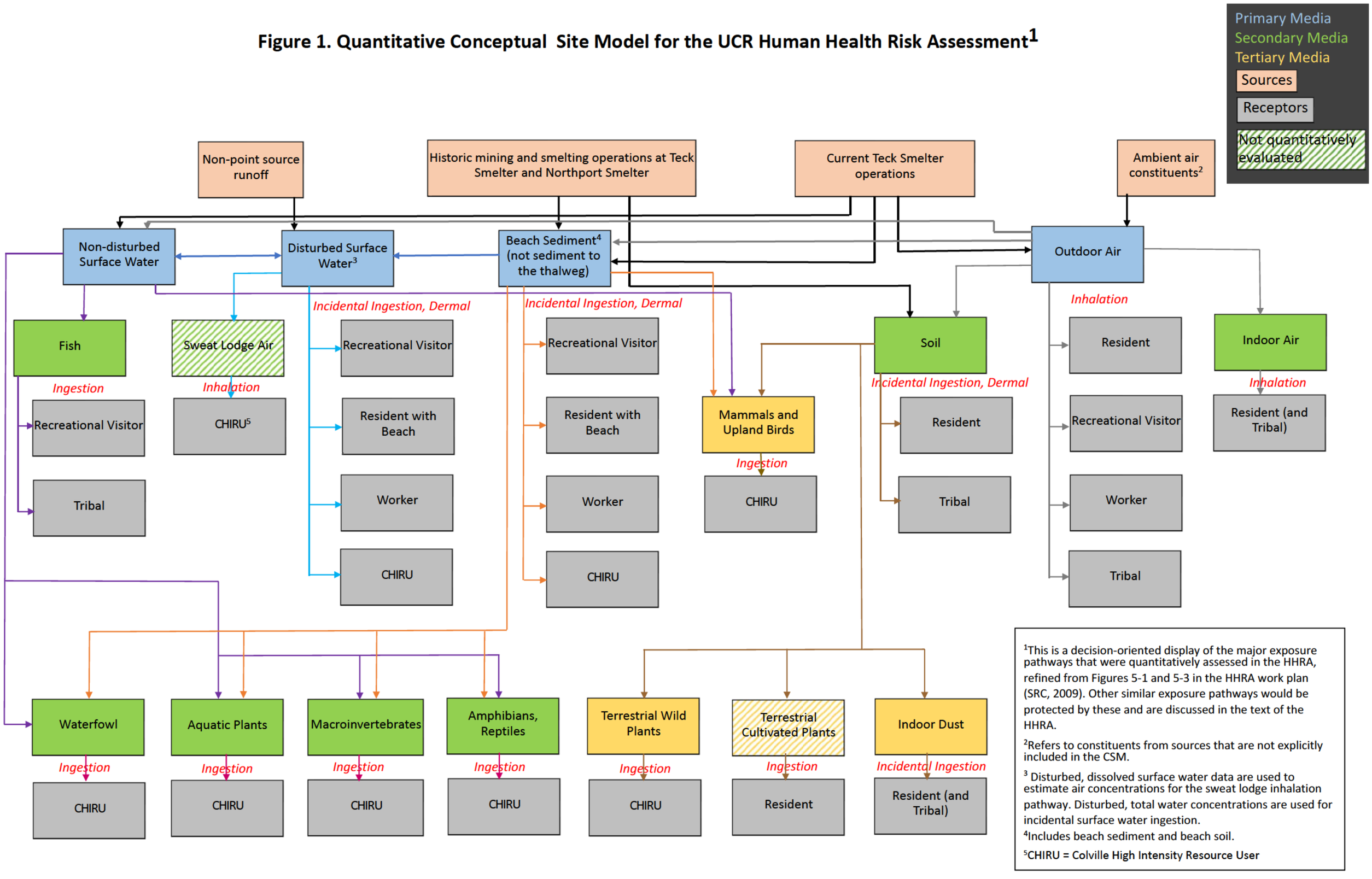
(i) oRfD based on Aroclor-1254; oSF based on high risk and persistence tier (see Tables 4-2 and 4-4)

Total by Target Organ System:

Cardiovascular HI	3	0 8
Developmental HI	30	10
Endocrine HI	2	0 5
Gastrointestinal HI	4	2
Hematologic HI	2	0 6
Nervous HI	40	20
Reproductive HI	100	40
Skin, Hair & Nails HI	50	20
Urinary HI	0 2	0 2

Sources: A = ATSDR,C = California EPA, I = IRIS, P = Appendix PPRTV Screen (see RSL FAQ #29)
S = RSL table User's Guide (Section 5), X = Appendix PPRTV Screen

Figure 1. Quantitative Conceptual Site Model for the UCR Human Health Risk Assessment[1]



[1]This is a decision-oriented display of the major exposure pathways that were quantitatively assessed in the HHRA, refined from Figures 5-1 and 5-3 in the HHRA work plan (SRC, 2009). Other similar exposure pathways would be protected by these and are discussed in the text of the HHRA.

[2]Refers to constituents from sources that are not explicitly included in the CSM.

[3] Disturbed, dissolved surface water data are used to estimate air concentrations for the sweat lodge inhalation pathway. Disturbed, total water concentrations are used for incidental surface water ingestion.

[4]Includes beach sediment and beach soil.

[5]CHIRU = Colville High Intensity Resource User

Attachment 1
IEUBK Model Run Output

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: v2_BT_1-13-2021_STI_AllFish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
SUC	0	0	32	15.5	13.1	0.9	0.02	58.39	0	9.63	99	92	65
WAL	0	0	32	15.5	13.1	0.9	0.02	11.25	0	3.05	52	15	2.0
RAI	0	0	32	15.5	13.1	0.9	0.02	9.34	0	2.74	42	10	1.1
BUR	0	0	32	15.5	13.1	0.9	0.02	9.21	0	2.72	42	9.8	1.1
SMB	0	0	32	15.5	13.1	0.9	0.02	7.27	0	2.4	32	5.9	0.5
WHIL	0	0	32	15.5	13.1	0.9	0.02	4.01	0	1.8	15	1.7	0.1
WHI	0	0	32	15.5	13.1	0.9	0.02	3.86	0	1.8	14	1.6	0.1
WHIM	0	0	32	15.5	13.1	0.9	0.02	3.42	0	1.7	12	1.2	0.1
STU	0	0	32	15.5	13.1	0.9	0.02	2.18	0	1.5	7.5	0.6	0.0
KOK	0	0	32	15.5	13.1	0.9	0.02	1.72	0	1.4	6.0	0.4	0.0
NOR	0	0	32	15.5	13.1	0.9	0.02	1.54	0	1.4	5.5	0.4	0.0
NoFish	0	0	32	15.5	13.1	0.9	0.02	0	0	1.1	2.0	0.1	0.0

STI No Fish: IEUBK Results

Inputs

- Soil EPC = 15.48
- Dust EPC = 13.14
- Air EPC = 0.023
- All others are IEUBK v1.1 Build 11 updates

GM PbB = 1.1 µg/dL

P3 = 1.9%

P5 = 0.1%

P8 = 0.0%

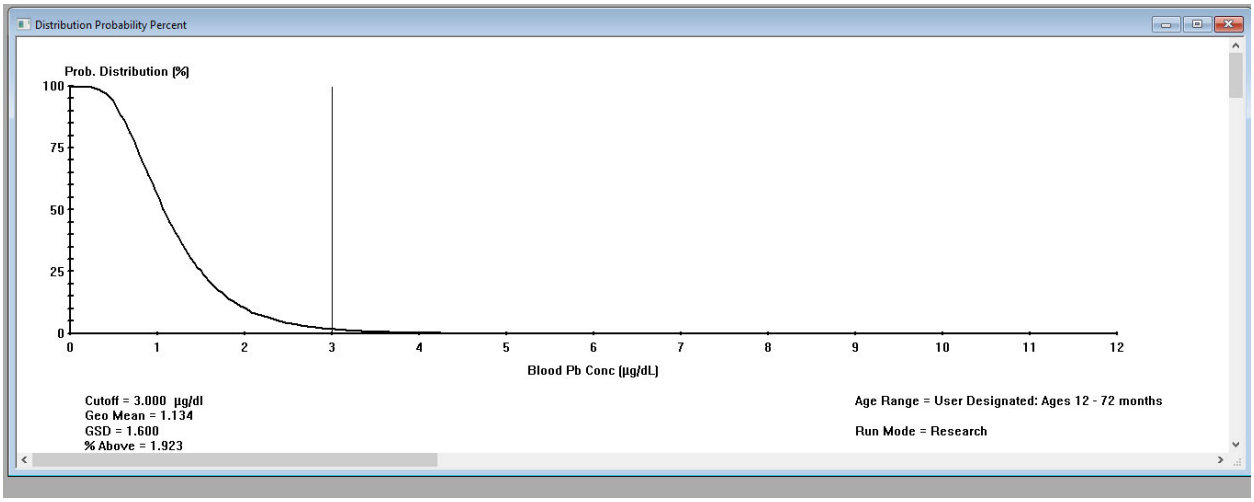


Figure 1. IEUBK v1.1 Build 11 Model Results for STI Reservation Soil Using P3 as Target PbB

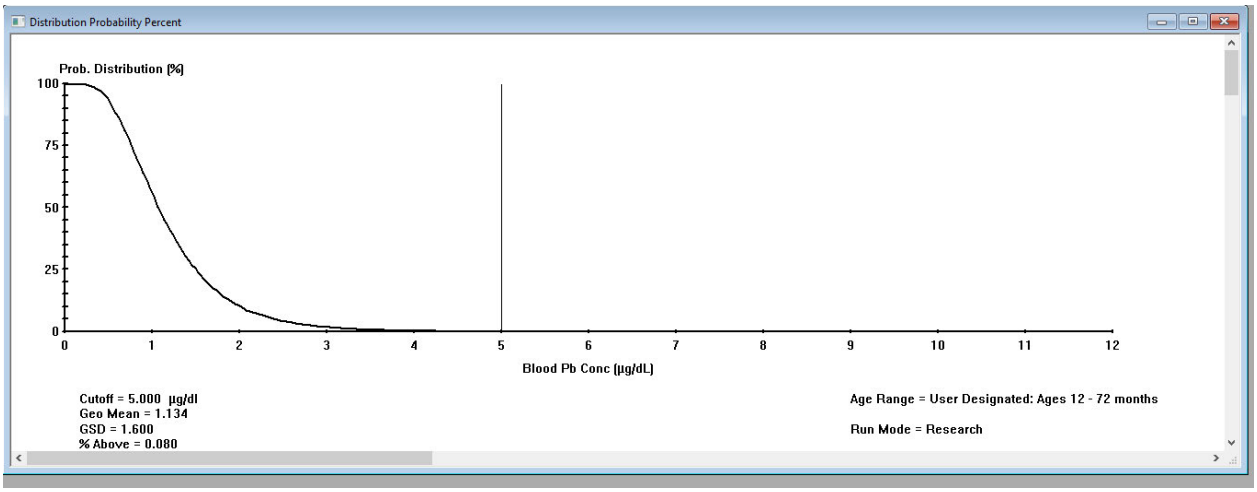


Figure 2. IEUBK v1.1 Build 11 Model Results for STI Reservation Soil Using P5 as Target PbB

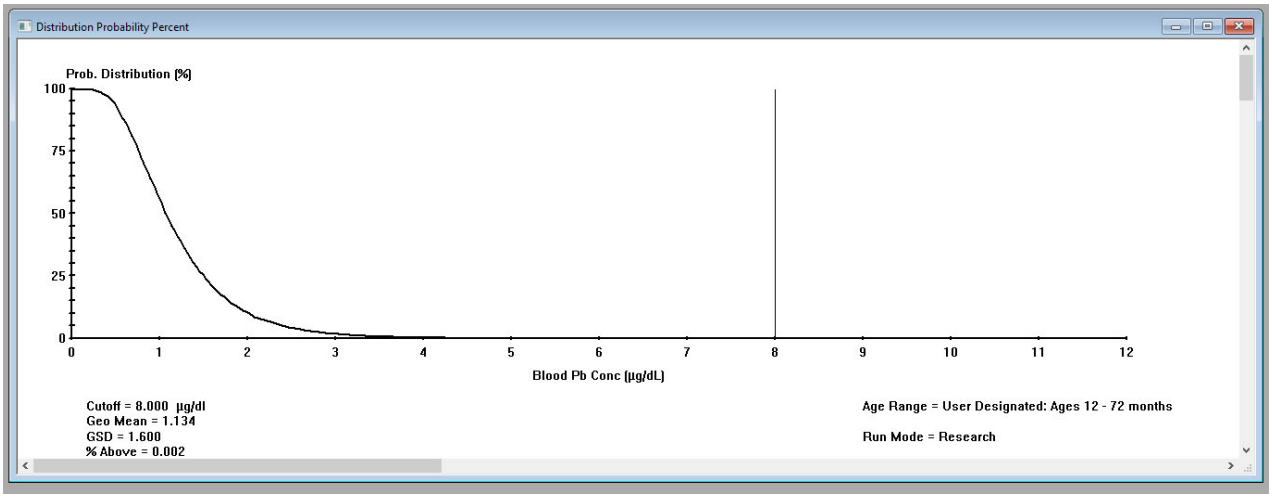


Figure 3. IEUBK v1.1 Build 11 Model Results for STI Reservation Soil Using P8 as Target PbB

Appendix 3:
Sweat Lodge Air Exposure Pathway for Metals in Surface Water at UCR Site

TO: Marc Stifelman, Monica Tonel, EPA Region 10
FROM: Gary Diamond, SRC
DATE: 05/25/18
RE: Sweat lodge air exposure pathway for metals in surface water at UCR site

SRC has reviewed the sweat lodge air pathway in the UCR HHRA. We recommend that potential exposure to airborne low-volatile COPC metals in UCR surface water during sweat lodge not be quantitatively assessed in the HHRA because:

- Non-volatile metals will not vaporize at sweat lodge temperatures
- Intake of non-volatile metals in surface water in a sweat lodge will be limited to ingestion of metals in water droplets formed from contact with heated rocks (the relatively large diameter of the spray droplets would result in deposition in the upper airway and transport to the esophagus and gastrointestinal tract)
- Ingestion of dissolved contaminants in a sweat lodge is a negligible contributor to risk, relative to ingestion of unfiltered disturbed surface water from direct contact during other water activities such as swimming and wading

We also recommend that no further data collection to evaluate this pathway is warranted since such efforts are unlikely to improve confidence in characterization of human health risk at the site. This memorandum provides the basis for these recommendations.

Inhaled/Ingested Metals in Water Spray – Insignificant Pathway
Formation of spray in a sweat lodge would involve recoil of surface water from the heated rocks into the air. Were it to occur in the sweat lodge, recoil alone (e.g., without an aerosolizer) would result in relatively large airborne droplets that would quickly be removed from air by gravitational settling. If inhaled, these large droplets would be preferentially deposited in the upper airways and transferred to the gastrointestinal tract, rather than being absorbed across the alveolar region of the lung (ICRP, 1994). Even in highly aerosolized sprays (e.g., bathing showers), aerosol droplet sizes are sufficiently large (> 5 µm) to predict preferential deposition in the upper airway (Zhou et al., 2007). If a sweat lodge were to produce aerosols of the magnitude produced in a hot bath shower (e.g., delivering 9 L water/minute), the water ingestion rate in the sweat lodge would be approximately 72 mL (12 mL/10 minutes × 60 minutes/hour; based on Zhou et al., 2007). As most of the water applied to rocks in sweat lodges is expected to evaporate (Harris and Harper, 1997), this ingestion rate is likely to be a substantial overestimate of the water droplet ingestion rate in the sweat lodge. In comparison, rates of incidental ingestion of surface water while engaged in water related activities are considerably higher than the rate predicted for a 10-minute hot shower (12 mL). For recreational visitors who ingest water while swimming, the estimated ingestion is 213 mL during a beach trip (71 mL/hour × 3 hours/day; Table 3-31 in the river-associated HHRA), and for residents with subsistence lifestyles who ingest water during water-related activities, the estimated ingestion rate is 210 mL (21 mL/hour × 10 hours/day; Table 3-32 in the river-associated HHRA).

Volatilization of Metals in Steam – Incomplete Pathway
Metals identified as surface water COPCs have very low vapor pressures at the assumed temperature of the sweat lodge (150° F; Harper et al. 2002; Harris and Harper, 1997) and, as a

result, the steam produced from heating surface water on the rocks should not have appreciable concentrations of metals (see further discussion below).

Uncertainties related to Midnite Mine model for calculating sweat lodge air concentrations of low volatility metals. EPA (2005c) described an approach for calculating concentrations of chemicals, including metals, in sweat lodge air from volatilization transfer of chemicals from water to water vapor. The calculation is based on the following assumptions: (1) water vapor (steam) is produced in the sweat lodge from pouring surface water over heated rocks; (2) the sweat lodge is heated to a temperature of 150° F (Harper et al. 2002; Harper et al. 2002; Harris and Harper, 1997); (3) the sweat lodge atmosphere achieves a saturating water concentration (0.15 L/m^3 [Lide, 2002]); (4) chemicals in the surface water applied to the rocks are transferred to water vapor; (5) this transfer results in concentrations in the saturating water vapor that are the same as the concentrations in the surface water (i.e., 1 µg metal/L surface water produces a concentration of 0.15 µg/m^3 water vapor). Although applicable to volatile chemicals, the Midnite Mine model does not specify or simulate a plausible mechanism for transfer of COPC metals from surface water to water vapor. For the following reasons, the above Midnite Mine model will grossly overestimate air concentrations of COPC metals in sweat lodge air and, therefore, is not being used to estimate air pathway exposures in sweat lodges at the UCR site.

To illustrate the extent to which the Midnite Mine model overestimates concentrations of metals in sweat lodge air, the model was implemented as a pseudo-screen for COPC metals in surface water. Metals identified as COPCs in this pseudo-screen have very low vapor pressures at the assumed temperature of sweat lodges (150° F; Harper et al. 2002; Harris and Harper, 1997) and, as a result, the vapor produced from heating surface water on the rocks should not have appreciable concentrations of metals. For example, at 150° F, the vapor pressure of barium would be approximately 1 x 10^{-17} Pascals (Pa) (5 x 10^{-22} atmospheres), compared to approximately 2.5 x 10^4 Pa (0.25 atmospheres) for water. The corresponding air concentration for barium would be approximately 5 x10^{-12} µg Ba/m^3, which is a factor of 10^{-12} lower than the concentration predicted from the assumptions in the Midnite Mine model (5 µg/m^3). These estimates are for elemental barium; however, vapor pressure would not be expected to be substantially higher for barium compounds. Vapor pressures for other COPCs identified in the pseudo-screen ranged from 10^{-32} Pa (manganese) to 10^{-70} Pa (uranium).[1] Therefore, vaporization should result in air concentrations of COPC metals that are far lower than the concentrations predicted from the model.

A possible exception to this would be elemental mercury (Hg^0) or methylmercury (MeHg); both forms of this metal would have appreciable vapor pressures at ambient temperatures (ATSDR, 1999; Huber et al., 2006; Lindqvist and Rodhe, 1985). Total mercury was measured in non-disturbed and disturbed surface water and in public beach sediment. Mercury in these samples was not speciated, therefore, the concentrations of Hg^0 or MeHg relative to total mercury concentration in these media is unknown. However, the dominant form present in any well-oxygenated medium is likely to be inorganic mercuric salts (ATSDR, 1999).

[1] Vapor pressures of the elements (data page). (2017, August 26). In Wikipedia, The Free Encyclopedia. Retrieved 19:26, January 19, 2018, from https://en.wikipedia.org/w/index.php?title=Vapor_pressures_of_the_elements_(data_page)&oldid=797289367

The maximum concentrations of total mercury measured in disturbed water at the UCR site were 6.8E-04 micrograms per liter (µg/L) (dissolved) and 1.15E-01 µg/L total (including suspended sediment). Worst-case scenarios can be calculated for the concentration of elemental Hg (Hg^0) or MeHg in sweat lodge air, based on these maximum surface water concentrations.

Worst-case assumptions for exposure to Hg^0 or MeHg in sweat lodge air:

- 100% of the mercury measured in surface water was either Hg^0 (highly unlikely because at least some if not most of any elemental Hg^0 in surface water would be oxidized) or MeHg (highly unlikely to find complete conversion of mercury in water or sediment to MeHg, ATSDR, 1999)
- 4 L of water were brought into the sweat lodge and poured over the heated rocks (Harper et al., 2002)
- sweat lodge volume is 2.1 cubic meters (m^3) (based on sweat lodge dimensions reported in Harper et al., 2002)
- all Hg^0 or MeHg in water applied to rocks is transferred to air (it is possible for this to occur if the amount of Hg transferred to heated rocks is less than the amount required to achieve saturation equilibrium in sweat lodge air; 3.6E+03 µg/m^3 for Hg^0 at 150° F based on Huber et al., 2006)

Based on these worst-case assumptions, surface water concentrations for Hg^0 or MeHg of 6.8E-04 µg/L (dissolved) or 1.15E-01 µg/L (total) would correspond to 2.7E-04 µg and 4.6E-01 µg transferred to the sweat lodge rocks from surface water, and corresponding concentrations in air within the sweat lodge of 1.3E-03 µg/m^3 or 2.2E-01 µg/m^3, respectively. Both worst-case sweat lodge air concentrations are below the current EPA chronic inhalation reference concentration (RfC) for Hg^0 (3E-01 µg/m^3, U.S. EPA 2018). There are no reference values for MeHg in air. This worst-case scenario is more health protective than the Midnite Mine model because it assumes complete transfer of mercury to sweat lodge air rather than transfer only with water vapor.

Alternative models for predicting concentrations of metals in sweat lodge air. The CCT circulated a draft report (Cohen & Associates, 2012). This report summarizes many of the same limitations of the Midnite Mine model, including criticisms from ATSDR, DOE and WADOH (see text beginning on page 3-42). An alternative to the Midnite Mine approach is described based on data for radionuclides in air after sudden decompression of superheated water (i.e., reactor accident that is likely to have produced at least some spray). Based on these data, the fraction released was estimated to be 0.006. The report also cites a NUREG-1140 report in which the release fraction for nonvolatiles was assigned a value of 0.001. The corresponding transfer coefficient in the Midnite Mine model is 1 (which results in a ratio of 0.15 for concentrations in sweat lodge air/surface water). Neither of the above release fractions is relevant to transfers of metals from water to air ambient pressures and temperatures of sweat lodges.

Conclusion. Transfer of low-volatile metal COPCs to sweat lodge air is likely to be negligible. Vaporization will not occur to any significant extent because of the low vapor pressures of these metals at sweat lodge temperatures. Water spray would be ingested post-inhalation rather than absorbed across the lung. Risks from ingestion of UCR surface water are addressed in the HHRA in the assessment of incidental ingestion of disturbed water while swimming or wading,

and the addition of the small amount of dissolved metals ingested during sweat lodge activities will not result in a change to the risk estimate. Given the above considerations, we recommend that inhalation exposure in sweat lodges be considered in the risk assessment as an ingestion pathway and that this ingestion pathway be considered negligible and not addressed quantitatively in the HHRA; and that further efforts to collect data to assess air pathway exposures to metals in sweat lodges are not needed to support the HHRA.

References:

ATSDR. 1999. Toxicological Profile for Mercury. Centers for Disease Control, Agency for Toxic Substances and Disease Registry. Atlanta GA.

Cohen & Associates. 2012. Ground Water Modeling Studies at In Situ Leaching Facilities and Evaluation of Doses and Risks to Off-Site Receptors from Contaminated Ground Water Revision 2. December 20012. Prepared for U.S. EPA Office of Radiation and Indoor Air under Contract Number EP-D-10-042, Work Assignment 2-06, Task 2)

EPA. 2005c. Final Midnite Mine Human Health Risk Assessment Report. Prepared by U.S. Environmental Protection Agency, Region 10. Seattle, WA. September.

Harper, B.L., Flett, B., Harrris, S., Abeyta, C., Kirschner, F. 2002. The Spokane Tribe's multipathway subsistence exposure scenario and screening level RME. Risk Anal. 22:513-526

Harris, S.G. and B.L. Harper. 1997. A Native American Exposure Scenario. Risk Analysis 17(6):789-795.

Huber, M.L., Laesecke, A., Friend, D.G. 2006. Correlation for the vapor pressure of mercury. Ind. Eng. Chem. Res. 45:7351-7361

ICRP. 1994. Human respiratory tract model. International Commission on Radiological Protection. ICRP Publication. Vol. 66. Oxford: Pergamon Press.

Lide, D. 2002. CRC Handbook of Chemistry and Physics, 2002-2003. CRC Press: Boca Raton, FL.

Lindkvist, O. and Rodhe, H. 1985. Atmospheric mercury-a review. Tells B: Chemical and Physical Meteorology 37:136-156

Zhou, Y. Benson, J. M., Irvin, C., Irshad, H., Cheng, Y-S. 2007. Particle size distribution and inhalation dose of shower water under selected operating conditions. Inhal. Toxicol. 19:333-342.

Appendix 4:
Estimates for Background Concentrations of COPCs in Soil

Appendix 4. Estimates for Background Concentrations of COPCs in Soil

This appendix presents estimates of background concentrations for soil chemicals of potential concern (COPCs) for use in the baseline Human Health Risk Assessment (HHRA) for the Upper Columbia River (UCR) Site. Site-specific background estimates are being developed as part of the Remedial Investigation and Feasibility Study (RI/FS) for this Site but are not available yet; therefore, interim background estimates were developed for use in the HHRA. Stream sediment and soil samples collected within the UCR drainage basin as part of the National Uranium Resource Evaluation (NURE) program (Smith, 2006; Smith et al., 2013) were used as the basis for the soil background estimates presented in Table 1. The background concentrations are upper confidence limits on estimates of the 95th percentile; as such, we would expect the majority of Site-specific soil data that do not reflect Site-related contamination to be below the background estimates presented in Table 1.

The data used to estimate the soil background concentrations for COPCs in this Appendix were derived from stream sediment and soil samples collected by the NURE program in the Colville River, Kettle River, Lower Spokane, Sanpoil River, and UCR sub-basins of the Columbia River drainage basin.[1] The NURE samples were sieved to <149 μm fraction (Smith et al., 2013). The majority of the COPC results in the background dataset were determined by the Savannah River Laboratory (SRL) using neutron activation analysis (Al, Fe, Mn and V) and atomic absorption (Co, Cr, Ni, and Pb) as part of the original NURE program analysis. The SRL data for 21 sample locations located within the 5 sub-basins were replaced with data available from a reanalysis of NURE archived samples undertaken as part of the U.S. Geological Survey (USGS) National Geochemical Survey (NGS) (Grossman et al., 2008). The NGS program used inductively-coupled plasma – atomic emission spectroscopy (ICP-AES) to measure the COPCs listed in Table 1 except arsenic, which was analyzed by hydride generation-atomic absorption spectrophotometry (HG-AAS; Hageman, 2002). Church et al. (2008) reanalyzed archived NURE samples for locations within the Lower Spokane sub-basin by ICP-mass spectrometry (MS) following digestion by Environmental Protection Agency (EPA) Method 3050B. The archived material analyzed by Church et al. (2008) corresponded to sample locations that SRL had not previously analyzed. Smith et al. (2013) provides a good overview of the NURE and USGS NGS data (as well as other national geochemical datasets).

The NURE data included some errors in the arsenic data for sample locations in the Kettle River, Sanpoil River and UCB sub-basins (Church, 2010a, 2010b); these data were replaced with data provided by Smith (2007). One record (rec_no = 5184673) was removed from the background dataset because the sample was located within the 100-year floodplain of the UCR. Two records (rec_no = 5185476 and 5185477) were removed because the NURE data indicated they were potentially affected by mining activities (field [contamc] contained the word *mining*). Another record (rec_no = 5184696) was removed because the NURE database indicated the

[1] The five sub-basins correspond to hydrologic unit code (HUC) 8-digit hydrologic units, while the Columbia River Drainage Basin is a HUC-4 or subregion level unit. The five sub-basins correspond to the Washington State Water Resource Inventory Areas (WRIAs) hydrologic units.

sampled material may have contained mine tailings [field [samptyp] = 99). Seven sample locations, all located south of the community of Marble, are within the area that had exhibited effects of SO_2 emissions on vegetation (Scheffer and Hedgcock, 1955). These data were retained in the background analysis dataset because they had no effect on the estimates of the UTL95-95.

The background dataset includes 571 sample locations. The majority of the sample locations are west of the UCR (Figure 1). The number of samples ranges widely among the sub-basins: Colville River (n=14), Lower Spokane (n=56), UCR (n=156), Kettle River (n=161) and Sanpoil River (n=184). The sample sizes exceed 500 for each COPC with the exception of cadmium and thallium (n=56 each) and arsenic (n=443) (Table 1). The only results available for thallium and cadmium in the background dataset were provided by the reanalysis of NURE archived samples from the Lower Spokane sub-basin by Church et al. (2008). Thallium was not previously measured in NURE samples. While cadmium was measured by SRL, the detection limit for SRL's analysis of NURE samples collected exceeds the maximum concentration measured in the Lower Spokane by Church et al. (2008). The background dataset does not include any results for antimony.

The data were checked for outliers using the *MM* method (Yohai, 1987). The background estimates were calculated with all data included and compared to the estimates obtained after removing the records that were flagged as possible outliers. The potential outliers had no discernable effect on the background estimates, likely due to the large sample sizes that were available. The data were also checked for spatial outliers using the local Moran I statistic (Anselin, 1995). A group of 19 sample locations with high chromium concentrations was identified in the Kettle River sub-basin. The mean and standard deviation of the chromium concentration for the 19 locations were 467 and 441 ppm, respectively, while the mean and standard deviation for the rest of the chromium data were 47 and 46 ppm, respectively. The 19 sample locations were removed prior to estimating the background concentration for chromium.

An estimate of the 95% upper tolerance limit for the 95^{th} percentile of the population (95UTL95) was used to define the background concentration for each COPC in soil. The UTL95-95 was estimated using ProUCL version 5.1 (EPA, 2015). Goodness-of-fit tests indicated the normal, gamma and lognormal distributions did not provide a good fit for the COPCs. The UTL95-95s were estimated using a nonparametric method based on the binomial distribution (EPA, 2015, Equation 3-10). Non-parametric estimates of the 95% of the population distribution are also presented in Table 1. The 95% were estimated using the ranks (*order statistics*) of the sample data, with interpolation when needed (EPA, 2015, Equation 3-1). Antimony data were not available from the NURE database; Table 1 includes a background estimate reported by Washington State Department of Ecology (ECY, 2019) for antimony of 2.15 mg/kg (this value is a UTL90-95).

For comparison purposes, the background soil concentration estimates were compared with residential soil screening levels (RSLs) calculated for a target hazard quotient (HQ) of 1.0 and a cancer risk of 10^{-4} (Table 1). The same toxicity values used in the COI screen were used for this calculation except for chromium. Toxicity values for hexavalent chromium were used in the

COI screen, but toxicity values for trivalent chromium were used in these RSL calculations, as the medium of interest is soil and the expected form of chromium in soil is likely trivalent (ATSDR, 2012). RSLs were the residential RSLs from EPA (2019), with the exception of inorganic arsenic. The inorganic arsenic RSL was the non-carcinogenic screening level for a resident child, calculated using the RSL Calculator tool (EPA, 2019). All calculated HQs are less than (<) 1. Based on the HQ being <1, the risk of non-cancer health effects from exposure to non-lead COPCs at estimated background soil concentrations is below the non-cancer hazard benchmarks used by CERCLA (EPA, 1989, 1997; EPA and Clay, 1991).

References

Anselin, L. 1995. Local Indicators of Spatial Association. Geographical Analysis. 27(2): 94-115.

ATSDR. 2012. Toxicological Profile for Chromium. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry. https://www.atsdr.cdc.gov/toxprofiles/tp7.pdf.

Church, S.E., Kirschner, F.K., Choate, L.M., Lamothe, P.J., Budahn, J.R., et al. 2008. Determination of premining geochemical background, Blue Creek Drainage, Stevens County, Washington: U.S. Geological Survey Scientific Investigations Report 2007-5262. http://pubs.usgs.gov/sir/2007/5262/.

Church, S.E. 2010a. Assessment of geochemical background from NURE sediment, Upper Columbia Watershed, N.E. Washington. Prepared in support of Pakootas et al. vs. Teck Cominco Metals, Ltd. August.

Church, S.E. 2010b. Summary report on NURE-HSSR Program. Prepared for CH2M Hill. Purchase Order No. 937078. January

ECY. 2019. Upland regional soil background characterization in northeast Washington watersheds. Washington State Department of Ecology. Publication No. 19-03-014. https://fortress.wa.gov/ecy/publications/SummaryPages/1903014.html.

EPA. 1989. Risk assessment guidance for Superfund, Volume I. Human health evaluation manual (part A). Interim final. U.S. Environmental Protection Agency, Washington, D.C. EPA/540/1-89/002. December. https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part

EPA. 1997. Rules of thumb for Superfund remedy selection. U.S. Environmental Protection Agency, Washington, DC. http://semspub.epa.gov/src/document/HQ/174931.

EPA. 2015. ProUCL Version 5.1. Statistical software for environmental applications for data sets with and without nondetect observations. https://www.epa.gov/land-research/proucl-software. U.S. Environmental Protection Agency, Office of Research and Development.

EPA. 2019. Regional screening levels (RSLs) - Generic tables (May 2019). U.S. Environmental Protection Agency. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

EPA, D.R. Clay. 1991. Role of the baseline risk assessment in Superfund remedy selection decisions. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, Washington, DC. OSWER Directive 9355.0-30. April. http://www.epa.gov/superfund/programs/risk/baseline.pdf.

Grossman, J.N., Grosc, A.W., Schweitzer, P.N., P.G. Schruben. 2008. The National Geochemical Survey – Database and Documentation. USGS Open-File Report 2004-1001. Version 5.0. Updated September 20, 2008.

Hageman, P.L., Brown, Z.A., E. Welsch. 2002. Arsenic and selenium by flow injection or continuous flow-hydride generation-atomic absorption spectrophotometry. Chapter L. Analytical methods for chemical analysis of geologic and other materials, U.S. Geological Survey, U.S. Geological Survey Open File Report 02-223-L.

Scheffer, T.C., G.G. Hedgcock. 1955. Injury to northwestern forest trees by sulfur dioxide from smelters. Technical Bulletin No. 1117, U.S. Department of Agriculture, Forest Service. Washington, D.C. June.

Smith, S.M. 2006. National Geochemical Database—Reformatted data from the National Uranium Resource Evaluation (NURE) Hydrogeochemical and Stream Sediment Reconnaissance (HSSR) Program: Version 1.40: U.S. Geological Survey Open-File Report 97-492. http://pubs.er.usgs.gov/usgspubs/ofr/ofr97492 (accessed December 3, 2009).

Smith, S.M. 2007. Personal communication: NURE-HSSR database email to Bill Thayer (SRC). U.S. Geological Survey. February 13, 2007.

Smith, D.B., Smith, M., J.D. Horton. 2013. History and evaluation of national-scale geochemical data sets for the United States. Geosci Frontiers 4:167-183 DOI 10.1016/j.gsf.2012.07.002

Yohai, V.J. 1987. High breakdown point and high efficiency robust estimates for regression. Ann Stat 15:642–656.

Table 1. Background Estimates for COPCs for the UCR Site-wide HHRA

Metal COPCs	n	NDs	Min	Mean	Median	Max	95%	95UTL95	RSL	HQ
Aluminum	565	0	260	52,190	55,420	92,530	68,530	70,950	77,400	0.9
Arsenic	443	62	< 1	5.033	3.0	182	14	18.3	34.9	0.5
Antimony								2.15[a]	31.3	0.1
Cadmium	56	0	0.04	0.219	0.195	0.65	0.48	0.61	71.1	0.0
Chromium	552	0	5	47.4	35	385	125	145	117,000	0.001
Cobalt	565	144	< 5	7.392	7	30	15	15	23.4	0.7
Iron	557	0	2,830	28,560	27,210	92,470	49,010	51,690	54,800	0.9
Lead	565	100	< 10	15.75	15	78	30	35	P3 = 50	0.7
									P5 = 200	0.2
									P8 = 400	0.1
Manganese	565	0	66	642.9	596	1815	1070	1182	1830	0.7
Nickel	563	55	< 5	18.92	15	450	48	57	825	0.1
Thallium	56	0	0.15	0.313	0.28	0.89	0.61	0.68	0.782	0.9
Vanadium	563	0	3.0	77.1	69	323	152	161	393	0.4

All units are ppm (mg/kg).

95%: 95% estimated using ProUCL

95UTL95: non-parametric 95% upper tolerance limit for the 95%.

Mean: arithmetic mean for COPCs without non-detects (NDs); Kaplan Meier mean for COPCs with NDs.

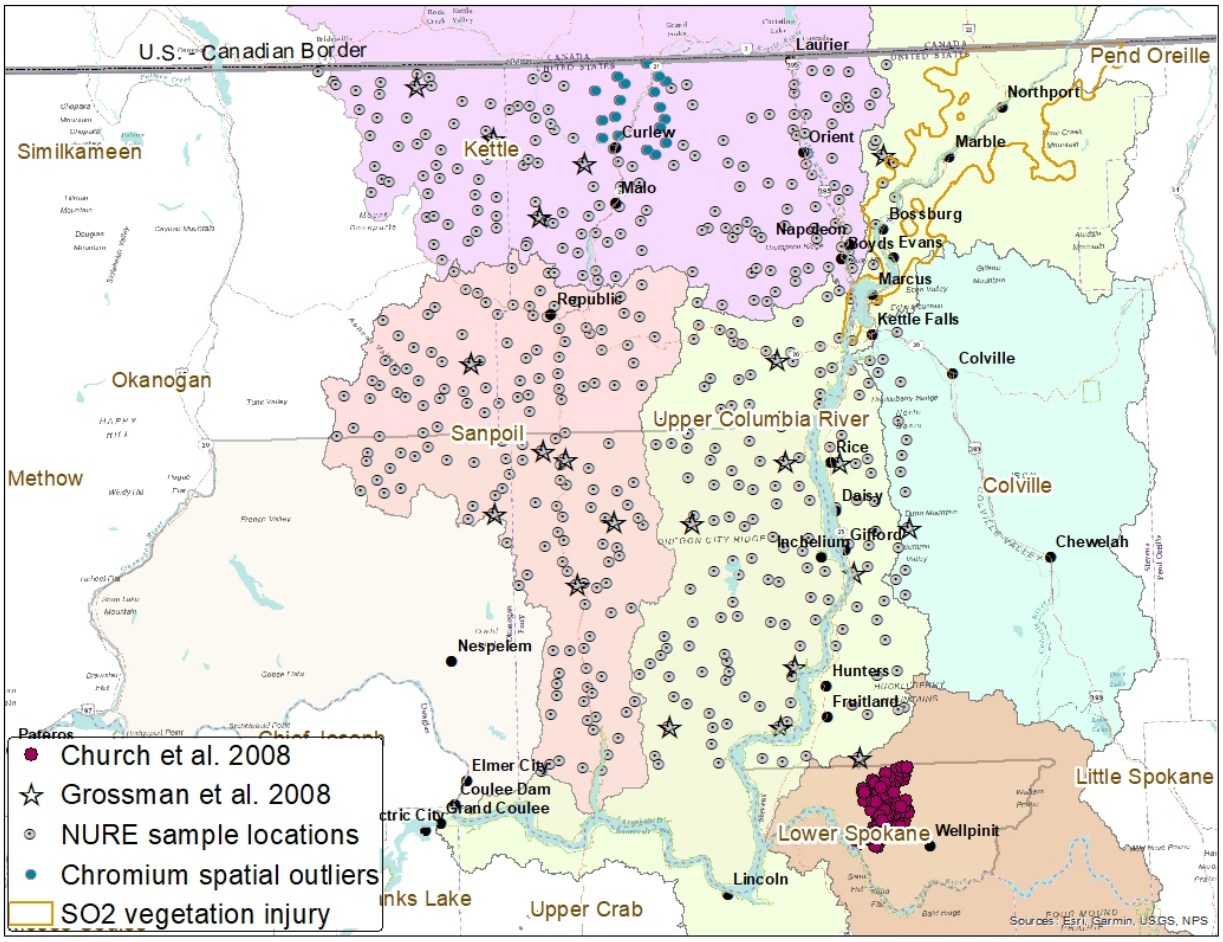
[a]Antimony data not included in the NURE data set. Value is 95UTL90 by unspecified method of bootstrapping from ECY (2019).

RSL: Regional Screening Level (EPA, 2019). RSLs are residential soil screening levels with a target hazard quotient of 1.0, except for inorganic arsenic. The RSL for inorganic arsenic is the noncarcinogenic screening level for a resident child, with a target hazard quotient of 1.0.

RSLs were selected for the following chemical forms: antimony (metallic); inorganic arsenic; chromium III; nickel refinery dust; and thallium soluble salts.

HQ calculated as 95UTL95/RSL

Figure 1. Stream Sediment and Soil Samples Collected by NURE in the Columbia River Drainage Basin



Appendix 5:
Results of IEUBK Batch Mode Runs

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Burbot
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES BUR_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.09	0	1.63	**9.607**	0.84	0.035
14	1	0	32	77.1	56.3	0.9	0.02	0.09	0	1.53	**7.656**	0.594	0.022
15	1	0	32	93.6	67.8	0.9	0.02	0.09	0	1.63	**9.759**	0.86	0.036
16	1	0	32	356	251.5	0.9	0.02	0.09	0	3.15	**54.171**	**16.302**	2.373
17	1	0	32	150.5	107.7	0.9	0.02	0.09	0	1.97	**18.568**	2.381	0.144
9	1	0	32	91.8	66.5	0.9	0.02	0.09	0	1.62	**9.516**	0.828	0.034
40	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.09	0	1.35	4.532	0.273	0.008
1017	1	0	32	139.2	99.8	0.9	0.02	0.09	0	1.9	**16.673**	1.999	0.113
1018	1	0	32	51.9	38.6	0.9	0.02	0.09	0	1.38	4.929	0.309	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.09	0	2.43	**32.798**	**6.272**	0.567
44	1	0	32	99.7	72.1	0.9	0.02	0.09	0	1.67	**10.602**	0.978	0.043
46	1	0	32	188.7	134.4	0.9	0.02	0.09	0	2.2	**25.314**	3.993	0.297
47	1	0	32	222.3	157.9	0.9	0.02	0.09	0	2.39	**31.454**	**5.822**	0.509
49	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.09	0	1.43	**5.662**	0.379	0.012
61	1	0	32	137.2	98.3	0.9	0.02	0.09	0	1.89	**16.334**	1.933	0.108
22	1	0	32	118.9	85.5	0.9	0.02	0.09	0	1.78	**13.418**	1.413	0.07
25	1	0	32	54.5	40.4	0.9	0.02	0.09	0	1.4	**5.18**	0.332	0.01
27	1	0	32	135.3	97	0.9	0.02	0.09	0	1.88	**16.017**	1.873	0.103
28	1	0	32	49.2	36.8	0.9	0.02	0.09	0	1.36	4.683	0.286	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.09	0	1.32	4.099	0.236	0.007
30	1	0	32	51.6	38.4	0.9	0.02	0.09	0	1.38	4.902	0.306	0.009
31	1	0	32	255.8	181.3	0.9	0.02	0.09	0	2.58	**37.531**	**8.006**	0.809
33	1	0	32	206.4	146.8	0.9	0.02	0.09	0	2.3	**28.546**	4.911	0.398
35	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.09	0	3.37	**59.776**	**20.065**	3.294
55	1	0	32	67.1	49.2	0.9	0.02	0.09	0	1.47	**6.496**	0.464	0.016
56	1	0	32	185.9	132.4	0.9	0.02	0.09	0	2.18	**24.812**	3.859	0.283
58	1	0	32	73.3	53.6	0.9	0.02	0.09	0	1.51	**7.206**	0.543	0.019
59	1	0	32	206.6	146.9	0.9	0.02	0.09	0	2.3	**28.579**	4.921	0.399
59A	1	0	32	335.3	237	0.9	0.02	0.09	0	3.04	**50.993**	**14.413**	1.961
62	1	0	32	118.1	85	0.9	0.02	0.09	0	1.78	**13.297**	1.393	0.069
62G	1	0	32	70.6	51.7	0.9	0.02	0.09	0	1.49	**6.891**	0.507	0.018
66	1	0	32	141.1	101	0.9	0.02	0.09	0	1.91	**16.975**	2.057	0.118

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
67	1	0	32	174.5	124.4	0.9	0.02	0.09	0	2.11	**22.754**	3.334	0.23
70	1	0	32	202.6	144.1	0.9	0.02	0.09	0	2.28	**27.851**	4.705	0.375
71	1	0	32	127	91.2	0.9	0.02	0.09	0	1.83	**14.685**	1.63	0.085
72M	1	0	32	253.9	180.1	0.9	0.02	0.09	0	2.57	**37.203**	**7.878**	0.79
72U	1	0	32	109.7	79.1	0.9	0.02	0.09	0	1.73	**12.035**	1.191	0.056
75	1	0	32	381.8	269.6	0.9	0.02	0.09	0	3.3	**57.922**	**18.755**	2.958
82	1	0	32	54.8	40.6	0.9	0.02	0.09	0	1.4	**5.211**	0.335	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.09	0	1.41	**5.47**	0.36	0.011
86	1	0	32	115.3	83	0.9	0.02	0.09	0	1.76	**12.88**	1.324	0.064
87	1	0	32	99.5	72	0.9	0.02	0.09	0	1.67	**10.578**	0.974	0.042
94M	1	0	32	73.9	54	0.9	0.02	0.09	0	1.51	**7.277**	0.551	0.02
106	1	0	32	387.2	273.4	0.9	0.02	0.09	0	3.33	**58.678**	**19.281**	3.091
107	1	0	32	169.3	120.8	0.9	0.02	0.09	0	2.08	**21.842**	3.113	0.209
108	1	0	32	185.4	132.1	0.9	0.02	0.09	0	2.18	**24.722**	3.835	0.28
109	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.09	0	1.6	**9.09**	0.772	0.031
110G	1	0	32	41.5	31.4	0.9	0.02	0.09	0	1.32	3.999	0.227	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.09	0	1.49	**6.867**	0.505	0.018
112	1	0	32	471.3	332.2	0.9	0.02	0.09	0	3.79	**68.997**	**27.723**	**5.58**
112G	1	0	32	181.5	129.4	0.9	0.02	0.09	0	2.15	**24.024**	3.653	0.262
113low	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.83**	**8.525**	0.888
113up	1	0	32	398.8	281.5	0.9	0.02	0.09	0	3.39	**60.256**	**20.415**	3.386
115SP	1	0	32	493.1	347.5	0.9	0.02	0.09	0	3.91	**71.261**	**29.95**	**6.352**
21	1	0	32	104.1	75.2	0.9	0.02	0.09	0	1.69	**11.219**	1.067	0.048
21G	1	0	32	337.4	238.5	0.9	0.02	0.09	0	3.05	**51.332**	**14.606**	2.001
116M	1	0	32	347.4	245.4	0.9	0.02	0.09	0	3.1	**52.869**	**15.508**	2.196
122	1	0	32	69	50.6	0.9	0.02	0.09	0	1.48	**6.717**	0.488	0.017
121	1	0	32	148.3	106.1	0.9	0.02	0.09	0	1.96	**18.189**	2.302	0.137
123	1	0	32	336.5	237.9	0.9	0.02	0.09	0	3.04	**51.197**	**14.529**	1.985
135	1	0	32	130.2	93.5	0.9	0.02	0.09	0	1.85	**15.204**	1.723	0.092
146	1	0	32	81.4	59.3	0.9	0.02	0.09	0	1.56	**8.185**	0.658	0.025
146G	1	0	32	43.2	32.6	0.9	0.02	0.09	0	1.33	4.146	0.239	0.007
147	1	0	32	50.9	37.9	0.9	0.02	0.09	0	1.37	4.838	0.3	0.009
151	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.09	0	2.16	**24.364**	3.742	0.271
160	1	0	32	153.4	109.7	0.9	0.02	0.09	0	1.99	**19.054**	2.484	0.152
163	1	0	32	158.1	113	0.9	0.02	0.09	0	2.02	**19.873**	2.662	0.168
163G	1	0	32	222.8	158.3	0.9	0.02	0.09	0	2.39	**31.551**	**5.854**	0.513
164	1	0	32	118	84.9	0.9	0.02	0.09	0	1.78	**13.279**	1.39	0.069
167	1	0	32	71.4	52.3	0.9	0.02	0.09	0	1.5	**6.988**	0.518	0.018
168	1	0	32	365.9	258.4	0.9	0.02	0.09	0	3.21	**55.642**	**17.234**	2.589
169	1	0	32	262	185.7	0.9	0.02	0.09	0	2.62	**38.639**	**8.447**	0.876
169A	1	0	32	238.9	169.5	0.9	0.02	0.09	0	2.49	**34.481**	**6.861**	0.646
320new	1	0	32	555.7	391.3	0.9	0.02	0.09	0	4.24	**76.92**	**36.293**	**8.841**
216	1	0	32	310.2	219.4	0.9	0.02	0.09	0	2.89	**46.951**	**12.234**	1.526
1030	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.09	0	2.8	**44.235**	**10.9**	1.281
174M	1	0	32	23.7	18.9	0.9	0.02	0.09	0	1.21	2.656	0.126	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.09	0	2.09	**22.189**	3.196	0.217
238G	1	0	32	47.1	35.3	0.9	0.02	0.09	0	1.35	4.491	0.269	0.008
238M	1	0	32	34.9	26.8	0.9	0.02	0.09	0	1.28	3.463	0.184	0.005
176G	1	0	32	140.1	100.4	0.9	0.02	0.09	0	1.91	**16.824**	2.028	0.115
176M	1	0	32	215.9	153.4	0.9	0.02	0.09	0	2.35	**30.28**	**5.444**	0.462

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
177	1	0	32	172.8	123.2	0.9	0.02	0.09	0	2.1	**22.453**	3.26	0.223
206	1	0	32	142.4	101.9	0.9	0.02	0.09	0	1.92	**17.19**	2.1	0.121
208	1	0	32	161.9	115.6	0.9	0.02	0.09	0	2.04	**20.53**	2.809	0.181
208AA	1	0	32	173.4	123.6	0.9	0.02	0.09	0	2.11	**22.556**	3.285	0.225
208BM	1	0	32	112.5	81.1	0.9	0.02	0.09	0	1.75	**12.457**	1.257	0.06
208G	1	0	32	92.1	66.7	0.9	0.02	0.09	0	1.62	**9.554**	0.833	0.034
209A	1	0	32	115.7	83.3	0.9	0.02	0.09	0	1.76	**12.934**	1.333	0.065
213	1	0	32	440.1	310.4	0.9	0.02	0.09	0	3.62	**65.466**	**24.544**	4.562
185	1	0	32	196.7	140	0.9	0.02	0.09	0	2.24	**26.763**	4.393	0.34
185G	1	0	32	71	52	0.9	0.02	0.09	0	1.5	**6.943**	0.513	0.018
186	1	0	32	242.3	171.9	0.9	0.02	0.09	0	2.51	**35.103**	**7.086**	0.677
1035	1	0	32	114.9	82.8	0.9	0.02	0.09	0	1.76	**12.82**	1.315	0.064
1036	1	0	32	76.8	56	0.9	0.02	0.09	0	1.53	**7.618**	0.59	0.022
1037	1	0	32	98.4	71.2	0.9	0.02	0.09	0	1.66	**10.424**	0.952	0.041
189	1	0	32	154.4	110.4	0.9	0.02	0.09	0	1.99	**19.24**	2.524	0.156
1060	1	0	32	127.8	91.8	0.9	0.02	0.09	0	1.84	**14.813**	1.653	0.087
192	1	0	32	262.5	186	0.9	0.02	0.09	0	2.62	**38.724**	**8.482**	0.881
1020	1	0	32	96.5	69.9	0.9	0.02	0.09	0	1.65	**10.16**	0.915	0.039
1021	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.09	0	1.91	**16.835**	2.03	0.115
194	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.09	0	3.66	**66.288**	**25.254**	4.781
201G	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.09	0	1.36	4.624	0.281	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.09	0	1.55	**8.019**	0.638	0.024
196	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.09	0	1.82	**14.446**	1.588	0.082
231Lower	1	0	32	137	98.9	0.9	0.02	0.09	0	1.965	**18.395**	2.345	0.141
7	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.09	0	1.47	**6.418**	0.456	0.015
246	1	0	32	29.2	22.8	0.9	0.02	0.09	0	1.24	3.035	0.153	0.004
18	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.09	0	1.59	**8.755**	0.729	0.029
250	1	0	32	92.2	66.8	0.9	0.02	0.09	0	1.62	**9.569**	0.835	0.035
253	1	0	32	110	79.3	0.9	0.02	0.09	0	1.73	**12.077**	1.197	0.056
258	1	0	32	767.7	539.7	0.9	0.02	0.09	0	5.34	**88.997**	**55.549**	**19.477**
259	1	0	32	240.7	170.8	0.9	0.02	0.09	0	2.5	**34.805**	**6.978**	0.662
284M	1	0	32	152.7	109.2	0.9	0.02	0.09	0	1.98	**18.941**	2.46	0.15
285M	1	0	32	157.6	112.7	0.9	0.02	0.09	0	2.01	**19.794**	2.644	0.166
287	1	0	32	150.2	107.4	0.9	0.02	0.09	0	1.97	**18.514**	2.37	0.143
288	1	0	32	68.2	50	0.9	0.02	0.09	0	1.48	**6.618**	0.478	0.016
288G1	1	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.967**	0.631	0.024
288G2	1	0	32	59.8	44.2	0.9	0.02	0.09	0	1.43	**5.724**	0.385	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.558**	0.583	0.021
291	1	0	32	77.6	56.6	0.9	0.02	0.09	0	1.54	**7.711**	0.601	0.022
306	1	0	32	86.1	62.6	0.9	0.02	0.09	0	1.59	**8.778**	0.731	0.029
315	1	0	32	37.7	28.7	0.9	0.02	0.09	0	1.29	3.683	0.202	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.09	0	1.7	**11.375**	1.09	0.049
317	1	0	32	227.9	161.8	0.9	0.02	0.09	0	2.42	**32.478**	**6.163**	0.552
317M	1	0	32	494.8	348.7	0.9	0.02	0.09	0	3.91	**71.434**	**30.127**	**6.416**
318	1	0	32	452.2	318.9	0.9	0.02	0.09	0	3.68	**66.879**	**25.776**	4.944

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
319	1	0	32	505.5	356.2	0.9	0.02	0.09	0	3.97	**72.484**	**31.221**	**6.817**
319M	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.09	0	4.04	**73.616**	**32.444**	**7.279**
421	1	0	32	318.8	225.4	0.9	0.02	0.09	0	2.94	**48.356**	**12.964**	1.667
410	1	0	32	394	278.1	0.9	0.02	0.09	0	3.36	**59.608**	**19.943**	3.262
412	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.09	0	4.17	**75.88**	**35.034**	**8.312**
325	1	0	32	37.8	28.8	0.9	0.02	0.09	0	1.3	3.694	0.203	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.09	0	1.5	**6.992**	0.519	0.018
327	1	0	32	50	37.3	0.9	0.02	0.09	0	1.37	4.759	0.293	0.009
999G1	1	0	32	85.9	62.4	0.9	0.02	0.09	0	1.59	**8.75**	0.728	0.029
999M1	1	0	32	79.9	58.2	0.9	0.02	0.09	0	1.55	**7.993**	0.634	0.024
999M2	1	0	32	56.1	41.6	0.9	0.02	0.09	0	1.41	**5.345**	0.348	0.011
999M3	1	0	32	83.8	61	0.9	0.02	0.09	0	1.57	**8.482**	0.694	0.027
72	1	0	32	230.4	163.6	0.9	0.02	0.09	0	2.44	**32.935**	**6.319**	0.573
1001	1	0	32	408.4	288.1	0.9	0.02	0.09	0	3.44	**61.514**	**21.356**	3.64
401	1	0	32	1101.5	773.4	0.9	0.02	0.09	0	6.96	**96.338**	**75.942**	**38.379**
402	1	0	32	577.5	406.6	0.9	0.02	0.09	0	4.36	**78.631**	**38.469**	**9.798**
403	1	0	32	419.6	296	0.9	0.02	0.09	0	3.5	**62.953**	**22.475**	3.952
440	1	0	32	145.2	103.9	0.9	0.02	0.09	0	1.94	**17.666**	2.195	0.128
441	1	0	32	737.9	518.8	0.9	0.02	0.09	0	5.19	**87.808**	**53.131**	**17.841**
442	1	0	32	258.8	183.4	0.9	0.02	0.09	0	2.6	**38.07**	**8.219**	0.841
1005	1	0	32	112.1	80.8	0.9	0.02	0.09	0	1.74	**12.395**	1.247	0.059
1006	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.503**	0.826	0.034
1007	1	0	32	51.9	38.6	0.9	0.02	0.09	0	1.38	4.933	0.309	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.09	0	1.62	**9.478**	0.823	0.034
1010	1	0	32	110.8	79.8	0.9	0.02	0.09	0	1.73	**12.193**	1.215	0.057
1011	1	0	32	146.2	104.7	0.9	0.02	0.09	0	1.95	**17.841**	2.231	0.131
345	1	0	32	103.9	75	0.9	0.02	0.09	0	1.69	**11.196**	1.064	0.048
346	1	0	32	130.4	93.6	0.9	0.02	0.09	0	1.85	**15.234**	1.729	0.093
347	1	0	32	312.7	221.2	0.9	0.02	0.09	0	2.91	**47.362**	**12.445**	1.566
430	1	0	32	262	185.7	0.9	0.02	0.09	0	2.62	**38.639**	**8.447**	0.876
431	1	0	32	110.3	79.5	0.9	0.02	0.09	0	1.73	**12.119**	1.204	0.057
432	1	0	32	307.5	217.5	0.9	0.02	0.09	0	2.88	**46.496**	**12.004**	1.482
801	1	0	32	239.9	170.3	0.9	0.02	0.09	0	2.49	**34.673**	**6.93**	0.655
3000	1	0	32	26.6	20.9	0.9	0.02	0.09	0	1.23	2.853	0.14	0.003
3001	1	0	32	371	262	0.9	0.02	0.09	0	3.24	**56.384**	**17.719**	2.704
3003	1	0	32	294.5	208.5	0.9	0.02	0.09	0	2.81	**44.316**	**10.938**	1.288
3004	1	0	32	81.9	59.6	0.9	0.02	0.09	0	1.56	**8.243**	0.665	0.025
280	1	0	32	367.4	259.5	0.9	0.02	0.09	0	3.22	**55.859**	**17.375**	2.622
280yard	1	0	32	302.9	214.3	0.9	0.02	0.09	0	2.85	**45.73**	**11.622**	1.411
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.09	0	1.49	**6.835**	0.501	0.018
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.09	0	1.56	**8.225**	0.663	0.025
075-O1	1	0	32	265	187.8	0.9	0.02	0.09	0	2.64	**39.181**	**8.668**	0.91
076-G1	1	0	32	85	61.8	0.9	0.02	0.09	0	1.58	**8.631**	0.713	0.028
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.09	0	1.64	**9.962**	0.888	0.038
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.09	0	1.63	**9.734**	0.857	0.036
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.09	0	1.62	**9.471**	0.822	0.034
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.09	0	2.01	**19.74**	2.632	0.165
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.09	0	1.26	3.256	0.169	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.09	0	1.26	3.188	0.164	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.574	0.193	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.09	0	1.29	3.641	0.198	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.09	0	1.28	3.449	0.183	0.005
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.09	0	1.3	3.702	0.203	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.09	0	1.21	2.715	0.13	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.09	0	1.23	2.868	0.141	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.09	0	1.26	3.244	0.168	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.09	0	1.49	**6.806**	0.498	0.017
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.09	0	1.8	**13.857**	1.487	0.075
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.09	0	1.21	2.653	0.126	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.567	0.193	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.09	0	1.83	**14.561**	1.608	0.084
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.09	0	1.2	2.596	0.122	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.09	0	1.31	3.959	0.224	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.09	0	1.32	4.019	0.229	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.09	0	1.28	3.501	0.187	0.005
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.09	0	1.33	4.117	0.237	0.007
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.09	0	1.28	3.501	0.187	0.005
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.09	0	1.25	3.138	0.16	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.09	0	1.33	4.246	0.248	0.007
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.09	0	1.29	3.668	0.201	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.09	0	1.43	**5.744**	0.387	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.968**	0.631	0.024
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.09	0	2.01	**19.72**	2.628	0.165
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.09	0	1.5	**7.07**	0.527	0.019
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.09	0	1.43	**5.826**	0.395	0.013
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.09	0	1.38	4.907	0.306	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.09	0	2.17	**24.511**	3.78	0.274
088-H2	1	0	32	159	113.6	0.9	0.02	0.09	0	2.02	**20.032**	2.697	0.171
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.09	0	1.89	**16.188**	1.906	0.106
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.09	0	1.55	**8.061**	0.643	0.024
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.09	0	1.64	**9.962**	0.888	0.038
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.09	0	1.43	**5.773**	0.39	0.013
090-H1	1	0	32	95.3	69	0.9	0.02	0.09	0	1.64	**10**	0.893	0.038
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.09	0	2.01	**19.74**	2.632	0.165
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.09	0	1.56	**8.166**	0.655	0.025
091-H1	1	0	32	56	41.5	0.9	0.02	0.09	0	1.41	**5.333**	0.346	0.011
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.09	0	2.15	**23.805**	3.597	0.256
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.09	0	1.68	**10.896**	1.02	0.045
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.09	0	1.48	**6.586**	0.474	0.016
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.09	0	1.55	**8.027**	0.638	0.024
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.09	0	1.53	**7.658**	0.595	0.022
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.09	0	2.11	**22.7**	3.321	0.229
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.09	0	1.78	**13.381**	1.407	0.07
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.09	0	1.96	**18.334**	2.332	0.14
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.09	0	2.13	**23.301**	3.47	0.243
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.09	0	2.14	**23.603**	3.546	0.251
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.09	0	2.91	**47.472**	**12.502**	1.577
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.09	0	1.92	**17.162**	2.094	0.12
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.09	0	1.78	**13.251**	1.385	0.068
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.574	0.193	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.09	0	1.27	3.423	0.181	0.005
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.09	0	1.2	2.59	0.122	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.09	0	1.41	**5.378**	0.351	0.011
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.09	0	1.45	**6.093**	0.422	0.014
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.09	0	1.93	**17.538**	2.169	0.126
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.09	0	2.09	**22.082**	3.171	0.214
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.09	0	1.35	4.398	0.261	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.09	0	1.91	**16.894**	2.042	0.116
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.09	0	1.6	**9.071**	0.769	0.031
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.09	0	1.51	**7.239**	0.546	0.02
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.09	0	1.9	**16.541**	1.973	0.111
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.09	0	1.37	4.822	0.299	0.009
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.09	0	1.86	**15.413**	1.761	0.095
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.09	0	2.32	**29.099**	**5.078**	0.418
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.09	0	1.41	**5.378**	0.351	0.011
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.09	0	1.25	3.087	0.156	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.09	0	1.78	**13.278**	1.39	0.069
103-O1	1	0	32	99	71.6	0.9	0.02	0.09	0	1.66	**10.503**	0.964	0.042
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.09	0	2.16	**24.124**	3.679	0.264
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.09	0	2.06	**21.09**	2.937	0.193
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.09	0	1.97	**18.446**	2.355	0.142
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.09	0	1.7	**11.46**	1.103	0.05
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.09	0	2.36	**30.529**	**5.523**	0.471
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.09	0	1.24	2.986	0.149	0.004
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.09	0	1.18	2.33	0.105	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.09	0	1.22	2.735	0.131	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.09	0	2.46	**33.571**	**6.539**	0.602
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.09	0	1.51	**7.144**	0.536	0.019
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.09	0	1.79	**13.51**	1.428	0.071
108-O2	1	0	32	53.9	40	0.9	0.02	0.09	0	1.39	**5.126**	0.327	0.01
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.508**	0.827	0.034
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.09	0	1.48	**6.571**	0.472	0.016
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.09	0	1.25	3.15	0.161	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.09	0	1.42	**5.617**	0.374	0.012
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.09	0	1.35	4.395	0.261	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.09	0	1.55	**8.093**	0.646	0.025
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.09	0	1.32	4.033	0.23	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.09	0	1.65	**10.271**	0.931	0.04
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.09	0	1.58	**8.687**	0.72	0.028
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.09	0	2.82	**44.721**	**11.131**	1.322
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.09	0	2.1	**22.251**	3.211	0.218
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.09	0	2.2	**25.578**	4.064	0.304
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.561**	0.583	0.021
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.09	0	1.81	**14.031**	1.516	0.077
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.09	0	2.8	**44.019**	**10.798**	1.263
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.09	0	2.99	**49.728**	**13.705**	1.814
114-O1	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.82**	**8.521**	0.887
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.09	0	3.37	**59.704**	**20.013**	3.28
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.09	0	1.88	**16.095**	1.888	0.104
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.09	0	1.16	2.166	0.094	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.09	0	1.22	2.833	0.138	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.09	0	1.2	2.534	0.118	0.003
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.09	0	1.2	2.536	0.118	0.003
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.09	0	1.35	4.488	0.269	0.008

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.09	0	1.53	**7.551**	0.582	0.021
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.09	0	2.7	**41.086**	**9.473**	1.038
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.09	0	1.41	**5.473**	0.36	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.09	0	1.4	**5.24**	0.338	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.09	0	1.42	**5.571**	0.37	0.012
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.09	0	1.63	**9.721**	0.855	0.036
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.09	0	1.25	3.175	0.163	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.09	0	1.33	4.221	0.246	0.007
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.09	0	1.2	2.52	0.117	0.003
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.09	0	1.3	3.798	0.211	0.006
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.09	0	1.46	**6.311**	0.445	0.015
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.09	0	1.42	**5.608**	0.373	0.012
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.09	0	1.76	**12.74**	1.302	0.063
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.09	0	1.47	**6.43**	0.457	0.016
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.09	0	2.07	**21.506**	3.034	0.201
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.09	0	2.52	**35.558**	**7.254**	0.7
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.09	0	2.95	**48.704**	**13.15**	1.703
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.09	0	1.56	**8.114**	0.649	0.025
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.09	0	1.63	**9.696**	0.852	0.035
123-H1	1	0	32	72.4	53	0.9	0.02	0.09	0	1.5	**7.106**	0.531	0.019
123-O1	1	0	32	101	73	0.9	0.02	0.09	0	1.68	**10.777**	1.003	0.044
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.09	0	2.38	**31.111**	**5.71**	0.495
124-G1	1	0	32	28	21.9	0.9	0.02	0.09	0	1.24	2.95	0.146	0.004
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.09	0	1.53	**7.598**	0.588	0.022
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.09	0	1.28	3.475	0.185	0.005
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.09	0	1.23	2.921	0.144	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.09	0	1.12	1.766	0.071	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.09	0	1.53	**7.591**	0.587	0.022
125-O1	1	0	32	70	51.3	0.9	0.02	0.09	0	1.49	**6.829**	0.5	0.017
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.09	0	1.46	**6.247**	0.438	0.015
126-G1	1	0	32	49	36.6	0.9	0.02	0.09	0	1.36	4.665	0.285	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.09	0	1.32	4.052	0.232	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.09	0	1.2	2.547	0.119	0.003
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.09	0	1.36	4.642	0.283	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.09	0	1.22	2.77	0.134	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.09	0	1.37	4.751	0.292	0.009
126-P1	1	0	32	28.1	22	0.9	0.02	0.09	0	1.24	2.958	0.147	0.004
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.09	0	1.78	**13.251**	1.385	0.068
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.09	0	1.45	**6.075**	0.42	0.014
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.09	0	1.46	**6.256**	0.439	0.015
127-H1	1	0	32	96.8	70	0.9	0.02	0.09	0	1.65	**10.192**	0.92	0.039
127-H2	1	0	32	42.5	32	0.9	0.02	0.09	0	1.32	4.081	0.234	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.09	0	1.78	**13.337**	1.399	0.069
128-G1	1	0	32	37	28.2	0.9	0.02	0.09	0	1.29	3.623	0.197	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.09	0	1.48	**6.662**	0.482	0.017
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.09	0	1.31	3.865	0.216	0.006
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.09	0	1.79	**13.644**	1.451	0.073
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.09	0	1.49	**6.737**	0.49	0.017
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.09	0	2.82	**44.758**	**11.149**	1.326
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.09	0	3.04	**51.081**	**14.463**	1.971
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.09	0	1.29	3.65	0.199	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.09	0	1.17	2.28	0.101	0.002
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.09	0	1.39	**5.047**	0.319	0.01
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.09	0	1.88	**16.05**	1.88	0.104

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.09	0	1.18	2.32	0.104	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.09	0	1.11	1.715	0.068	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.09	0	1.24	2.99	0.149	0.004
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.09	0	1.27	3.332	0.175	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.09	0	2.01	**19.604**	2.603	0.163
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.09	0	1.72	**11.775**	1.151	0.053
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.09	0	4.37	**78.844**	**38.75**	**9.925**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.09	0	1.77	**12.998**	1.344	0.066
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.09	0	2.08	**21.842**	3.113	0.209
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.09	0	1.75	**12.669**	1.291	0.062
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.09	0	1.23	2.897	0.143	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.09	0	1.22	2.741	0.132	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.09	0	1.27	3.418	0.181	0.005
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.09	0	2.29	**28.208**	4.81	0.387
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.09	0	2.15	**23.854**	3.61	0.257
137-O2	1	0	32	122	87.7	0.9	0.02	0.09	0	1.8	**13.9**	1.494	0.076
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.09	0	1.28	3.508	0.188	0.005
138-G2	1	0	32	48.1	36	0.9	0.02	0.09	0	1.36	4.58	0.277	0.008
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.09	0	1.24	2.986	0.149	0.004
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.09	0	1.21	2.702	0.129	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.09	0	1.35	4.45	0.266	0.008
139-G2	1	0	32	39.6	30	0.9	0.02	0.09	0	1.31	3.84	0.214	0.006
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.09	0	1.32	4.098	0.235	0.007
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.09	0	1.34	4.345	0.256	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.83**	**8.525**	0.888
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.09	0	3.91	**71.363**	**30.055**	**6.39**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.785	0.21	0.006
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.09	0	1.48	**6.671**	0.483	0.017
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.09	0	1.55	**8.061**	0.643	0.024
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.09	0	1.46	**6.283**	0.442	0.015
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.09	0	1.24	3.052	0.154	0.004
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.09	0	1.32	4.016	0.229	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.09	0	1.14	1.975	0.083	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.09	0	1.3	3.736	0.206	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.09	0	1.33	4.204	0.244	0.007
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.09	0	1.66	**10.307**	0.936	0.04
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.09	0	1.48	**6.731**	0.49	0.017
143-A1	1	0	32	52	38.7	0.9	0.02	0.09	0	1.38	4.942	0.31	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.09	0	1.47	**6.372**	0.451	0.015
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.09	0	1.35	4.465	0.267	0.008
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.09	0	1.49	**6.893**	0.507	0.018
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.09	0	1.66	**10.443**	0.955	0.041
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.09	0	1.91	**16.882**	2.039	0.116
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.09	0	1.44	**5.884**	0.401	0.013
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.09	0	2.03	**20.178**	2.729	0.174
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.09	0	10.01	**99.484**	**93.028**	**68.364**
147-G1	1	0	32	59.7	44	0.9	0.02	0.09	0	1.43	**5.703**	0.383	0.012
147-G2	1	0	32	85	61.8	0.9	0.02	0.09	0	1.58	**8.631**	0.713	0.028
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.09	0	1.57	**8.418**	0.686	0.027
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.09	0	1.36	4.601	0.279	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.09	0	1.44	**5.914**	0.404	0.013

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.09	0	1.7	**11.376**	1.091	0.049
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.09	0	1.35	4.433	0.264	0.008
149-G1	1	0	32	49	36.6	0.9	0.02	0.09	0	1.36	4.658	0.284	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.09	0	1.4	**5.178**	0.332	0.01
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.09	0	1.51	**7.193**	0.541	0.019
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.09	0	1.27	3.423	0.181	0.005
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.09	0	1.33	4.19	0.243	0.007
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.09	0	1.3	3.702	0.203	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.09	0	1.68	**10.817**	1.008	0.045
152-G1	1	0	32	114	82.1	0.9	0.02	0.09	0	1.75	**12.675**	1.292	0.062
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.09	0	2.06	**21.209**	2.964	0.195
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.09	0	1.7	**11.445**	1.101	0.05
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.09	0	2.74	**42.201**	**9.964**	1.12
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.09	0	2.39	**31.49**	**5.834**	0.51
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.09	0	3.24	**56.602**	**17.863**	2.739
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.09	0	2.38	**31.114**	**5.711**	0.495
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.09	0	2.86	**46.013**	**11.762**	1.437
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.09	0	1.68	**10.912**	1.022	0.045
153-O7	1	0	32	361	255	0.9	0.02	0.09	0	3.18	**54.925**	**16.775**	2.482
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.09	0	2.72	**41.829**	**9.799**	1.092
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.09	0	1.19	2.504	0.116	0.003
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.09	0	1.2	2.53	0.118	0.003
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.09	0	1.91	**16.742**	2.012	0.114
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.508**	0.827	0.034
155-H1	1	0	32	52.4	39	0.9	0.02	0.09	0	1.38	4.982	0.313	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.09	0	2.08	**21.653**	3.069	0.205
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.09	0	2.67	**40.222**	**9.103**	0.979
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.09	0	1.56	**8.217**	0.662	0.025
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.09	0	1.94	**17.774**	2.217	0.13
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.09	0	1.32	4.009	0.228	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.09	0	1.45	**6.066**	0.419	0.014
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.09	0	1.47	**6.502**	0.465	0.016
158-H1	1	0	32	33.8	26	0.9	0.02	0.09	0	1.27	3.377	0.178	0.005
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.09	0	1.38	4.862	0.302	0.009
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.09	0	1.49	**6.863**	0.504	0.018
159-H1	1	0	32	59.6	44	0.9	0.02	0.09	0	1.43	**5.7**	0.382	0.012
159-H2	1	0	32	101	73	0.9	0.02	0.09	0	1.68	**10.777**	1.003	0.044
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.09	0	1.33	4.234	0.247	0.007
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.09	0	1.38	4.871	0.303	0.009
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.09	0	1.85	**15.231**	1.728	0.092
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.09	0	1.55	**8.04**	0.64	0.024
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.09	0	1.52	**7.411**	0.566	0.021
161-H1	1	0	32	129.6	93	0.9	0.02	0.09	0	1.85	**15.096**	1.704	0.091
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.09	0	1.67	**10.737**	0.997	0.044
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.09	0	1.55	**8.1**	0.647	0.025
163-G1	1	0	32	53	39.4	0.9	0.02	0.09	0	1.39	**5.039**	0.319	0.01
163-O1	1	0	32	71	52	0.9	0.02	0.09	0	1.5	**6.941**	0.513	0.018
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.09	0	1.85	**15.187**	1.72	0.092
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.09	0	1.14	2.018	0.085	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.09	0	1.45	**6.017**	0.414	0.014
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.09	0	2.57	**37.245**	**7.894**	0.793
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.09	0	1.67	**10.541**	0.969	0.042
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.09	0	1.99	**19.255**	2.527	0.156

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.09	0	2.4	**31.726**	**5.912**	0.52
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.09	0	2.12	**23.012**	3.398	0.236
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.09	0	2.4	**31.802**	**5.937**	0.523
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.09	0	2.53	**35.862**	**7.367**	0.716
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.09	0	3.38	**60.023**	**20.245**	3.341
167-O8	1	0	32	205.3	146	0.9	0.02	0.09	0	2.29	**28.338**	4.849	0.391
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.09	0	2.24	**26.802**	4.404	0.341
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.09	0	1.29	3.668	0.201	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.09	0	1.3	3.709	0.204	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.09	0	1.24	3.004	0.15	0.004
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.09	0	1.26	3.294	0.172	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.09	0	1.36	4.588	0.278	0.008
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.09	0	1.29	3.588	0.194	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.09	0	1.4	**5.211**	0.335	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.09	0	1.38	4.966	0.312	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.09	0	1.32	3.995	0.227	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.09	0	1.35	4.504	0.27	0.008
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.09	0	1.77	**13.123**	1.364	0.067
170-H1	1	0	32	77	56.2	0.9	0.02	0.09	0	1.53	**7.649**	0.594	0.022
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.09	0	2	**19.448**	2.569	0.16
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.09	0	2.5	**34.795**	**6.974**	0.661
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.09	0	2.46	**33.498**	**6.513**	0.598
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.09	0	1.36	4.681	0.286	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.09	0	1.17	2.234	0.099	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.09	0	1.59	**8.847**	0.74	0.029
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.09	0	1.79	**13.64**	1.45	0.073
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.09	0	1.22	2.816	0.137	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.09	0	1.89	**16.233**	1.914	0.106
173-P1	1	0	32	175	124.8	0.9	0.02	0.09	0	2.11	**22.85**	3.358	0.232
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.09	0	1.5	**7.047**	0.525	0.019
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.09	0	1.54	**7.876**	0.62	0.023
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.09	0	2.14	**23.654**	3.559	0.252
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.09	0	1.53	**7.671**	0.596	0.022
175-G2	1	0	32	26.8	21	0.9	0.02	0.09	0	1.23	2.864	0.14	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.09	0	1.52	**7.461**	0.572	0.021
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.09	0	1.3	3.812	0.212	0.006
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.09	0	1.37	4.783	0.295	0.009
176-H2	1	0	32	29	22.6	0.9	0.02	0.09	0	1.24	3.022	0.152	0.004
176-P1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.792	0.21	0.006
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.09	0	1.24	3.028	0.152	0.004
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.09	0	1.57	**8.373**	0.681	0.026
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.09	0	3.52	**63.221**	**22.689**	4.013
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.09	0	3.83	**69.909**	**28.601**	**5.878**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.09	0	1.71	**11.507**	1.11	0.051
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.09	0	1.36	4.63	0.281	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.09	0	1.74	**12.42**	1.251	0.06
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.09	0	1.8	**13.809**	1.478	0.075
181-H2	1	0	32	115	82.8	0.9	0.02	0.09	0	1.76	**12.83**	1.316	0.064
181-N1	1	0	32	126.7	91	0.9	0.02	0.09	0	1.83	**14.645**	1.623	0.085
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.09	0	1.9	**16.541**	1.973	0.111
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.09	0	1.41	**5.463**	0.359	0.011
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.09	0	2.26	**27.261**	4.534	0.355
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.09	0	2.14	**23.711**	3.573	0.254

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.09	0	1.9	**16.56**	1.977	0.111
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.09	0	1.87	**15.776**	1.828	0.1
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.09	0	1.73	**12.113**	1.203	0.056
182-O2	1	0	32	186	132.5	0.9	0.02	0.09	0	2.18	**24.823**	3.862	0.283
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.09	0	2.14	**23.503**	3.521	0.248
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.09	0	2.2	**25.343**	4.001	0.297
185-A1	1	0	32	33.8	26	0.9	0.02	0.09	0	1.27	3.379	0.178	0.005
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.09	0	1.26	3.282	0.171	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.09	0	3.12	**53.271**	**15.75**	2.249
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.09	0	1.72	**11.715**	1.142	0.053
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.09	0	1.54	**7.794**	0.611	0.023
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.09	0	1.77	**13.123**	1.364	0.067
188-G2	1	0	32	122	87.7	0.9	0.02	0.09	0	1.8	**13.9**	1.494	0.076
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.09	0	1.44	**5.914**	0.404	0.013
188-H1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.792	0.21	0.006
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.09	0	1.41	**5.395**	0.352	0.011
189-G1	1	0	32	44	33.1	0.9	0.02	0.09	0	1.33	4.212	0.245	0.007
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.561**	0.583	0.021
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.09	0	1.69	**11.135**	1.055	0.047
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.09	0	1.79	**13.563**	1.437	0.072
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.09	0	1.18	2.31	0.103	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.09	0	1.32	3.992	0.227	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.09	0	1.23	2.874	0.141	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.09	0	1.21	2.702	0.129	0.003
190-N3	1	0	32	21	17	0.9	0.02	0.09	0	1.19	2.477	0.114	0.003
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.09	0	1.45	**6.029**	0.416	0.014
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.09	0	2.33	**29.416**	**5.175**	0.429
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.09	0	1.29	3.662	0.2	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
192-H1	1	0	32	34	26.1	0.9	0.02	0.09	0	1.27	3.388	0.179	0.005
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.09	0	1.18	2.33	0.105	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.09	0	1.19	2.506	0.116	0.003
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.09	0	1.23	2.911	0.144	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.09	0	1.27	3.403	0.18	0.005
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.09	0	1.54	**7.743**	0.605	0.022
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.09	0	2	**19.303**	2.537	0.157
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.09	0	2.23	**26.547**	4.332	0.333
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.09	0	1.41	**5.479**	0.361	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.09	0	1.48	**6.674**	0.484	0.017
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.09	0	1.36	4.542	0.274	0.008
196-O1	1	0	32	69	50.6	0.9	0.02	0.09	0	1.48	**6.708**	0.487	0.017
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.09	0	1.91	**16.951**	2.053	0.117
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.09	0	1.54	**7.807**	0.612	0.023
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.09	0	2.08	**21.653**	3.069	0.205
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.09	0	1.15	2.102	0.09	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.09	0	1.23	2.842	0.139	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.09	0	1.25	3.083	0.156	0.004
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.09	0	1.24	3.028	0.152	0.004
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.09	0	1.23	2.927	0.145	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.09	0	2.98	**49.331**	**13.488**	1.771
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.09	0	2.11	**22.55**	3.284	0.225
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.09	0	1.42	**5.522**	0.365	0.012
202-O1	1	0	32	137	98.2	0.9	0.02	0.09	0	1.89	**16.302**	1.927	0.107
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.09	0	3.83	**69.836**	**28.53**	**5.854**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.09	0	3.98	**72.647**	**31.395**	**6.882**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.09	0	1.77	**12.995**	1.343	0.066
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.09	0	1.37	4.791	0.296	0.009
206-H1	1	0	32	18	14.9	0.9	0.02	0.09	0	1.17	2.293	0.102	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.09	0	2.75	**42.676**	**10.178**	1.156
206-O1	1	0	32	252.4	179	0.9	0.02	0.09	0	2.56	**36.925**	**7.77**	0.775
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.09	0	1.74	**12.203**	1.217	0.057
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.09	0	2.63	**39.018**	**8.602**	0.9
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.09	0	2.49	**34.442**	**6.847**	0.644
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.09	0	3.35	**59.318**	**19.735**	3.208
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.09	0	4.04	**73.616**	**32.445**	**7.279**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.09	0	1.75	**12.611**	1.281	0.062
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.09	0	1.84	**14.828**	1.656	0.087
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.09	0	1.5	**7.037**	0.524	0.019
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.09	0	1.3	3.757	0.208	0.006
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.09	0	1.34	4.27	0.25	0.007
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.09	0	1.49	**6.902**	0.509	0.018
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.09	0	1.83	**14.738**	1.64	0.086
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.09	0	2.19	**25.275**	3.983	0.296
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.09	0	1.96	**18.335**	2.332	0.14
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.09	0	1.28	3.504	0.188	0.005
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.09	0	1.58	**8.551**	0.703	0.027
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.09	0	1.41	**5.484**	0.361	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.09	0	1.24	3.014	0.151	0.004
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.09	0	1.16	2.115	0.091	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.09	0	1.25	3.175	0.163	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.09	0	1.97	**18.534**	2.374	0.143
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.09	0	3.65	**66.212**	**25.188**	4.76
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.09	0	2.92	**47.683**	**12.611**	1.598
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.09	0	2.46	**33.724**	**6.592**	0.609
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.09	0	1.68	**10.936**	1.026	0.046
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.09	0	2.57	**37.227**	**7.887**	0.792
805-O1	1	0	32	38.2	29	0.9	0.02	0.09	0	1.3	3.723	0.205	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.09	0	1.24	2.974	0.148	0.004
806-O2	1	0	32	29.6	23	0.9	0.02	0.09	0	1.24	3.064	0.155	0.004
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.09	0	1.37	4.814	0.298	0.009
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.09	0	1.29	3.621	0.197	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.09	0	1.29	3.655	0.199	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.09	0	1.24	3.024	0.152	0.004
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.09	0	1.27	3.371	0.177	0.005
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.09	0	1.28	3.534	0.19	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Kokanee
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES KOK_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.02	0	1.61	**9.337**	0.804	0.033
14	1	0	32	77.1	56.3	0.9	0.02	0.02	0	1.52	**7.414**	0.566	0.021
15	1	0	32	93.6	67.8	0.9	0.02	0.02	0	1.62	**9.487**	0.824	0.034
16	1	0	32	356	251.5	0.9	0.02	0.02	0	3.14	**53.867**	**16.114**	2.331
17	1	0	32	150.5	107.7	0.9	0.02	0.02	0	1.96	**18.222**	2.309	0.138
9	1	0	32	91.8	66.5	0.9	0.02	0.02	0	1.61	**9.247**	0.792	0.032
40	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.02	0	1.34	4.35	0.257	0.007
1017	1	0	32	139.2	99.8	0.9	0.02	0.02	0	1.89	**16.339**	1.934	0.108
1018	1	0	32	51.9	38.6	0.9	0.02	0.02	0	1.37	4.738	0.291	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.02	0	2.42	**32.428**	**6.146**	0.55
44	1	0	32	99.7	72.1	0.9	0.02	0.02	0	1.66	**10.32**	0.938	0.04
46	1	0	32	188.7	134.4	0.9	0.02	0.02	0	2.18	**24.947**	3.895	0.286
47	1	0	32	222.3	157.9	0.9	0.02	0.02	0	2.38	**31.083**	**5.701**	0.493
49	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.02	0	1.41	**5.455**	0.358	0.011
61	1	0	32	137.2	98.3	0.9	0.02	0.02	0	1.88	**16.002**	1.871	0.103
22	1	0	32	118.9	85.5	0.9	0.02	0.02	0	1.77	**13.108**	1.362	0.067
25	1	0	32	54.5	40.4	0.9	0.02	0.02	0	1.38	4.984	0.314	0.009
27	1	0	32	135.3	97	0.9	0.02	0.02	0	1.87	**15.686**	1.812	0.099
28	1	0	32	49.2	36.8	0.9	0.02	0.02	0	1.35	4.497	0.27	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.02	0	1.31	3.927	0.221	0.006
30	1	0	32	51.6	38.4	0.9	0.02	0.02	0	1.37	4.712	0.289	0.008
31	1	0	32	255.8	181.3	0.9	0.02	0.02	0	2.57	**37.167**	**7.864**	0.788
33	1	0	32	206.4	146.8	0.9	0.02	0.02	0	2.29	**28.175**	4.801	0.386
35	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.02	0	3.36	**59.501**	**19.866**	3.242

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
55	1	0	32	67.1	49.2	0.9	0.02	0.02	0	1.46	**6.274**	0.441	0.015
56	1	0	32	185.9	132.4	0.9	0.02	0.02	0	2.17	**24.446**	3.763	0.273
58	1	0	32	73.3	53.6	0.9	0.02	0.02	0	1.5	**6.971**	0.516	0.018
59	1	0	32	206.6	146.9	0.9	0.02	0.02	0	2.29	**28.208**	4.81	0.387
59A	1	0	32	335.3	237	0.9	0.02	0.02	0	3.02	**50.674**	**14.232**	1.923
62	1	0	32	118.1	85	0.9	0.02	0.02	0	1.77	**12.988**	1.342	0.065
62G	1	0	32	70.6	51.7	0.9	0.02	0.02	0	1.48	**6.662**	0.482	0.017
66	1	0	32	141.1	101	0.9	0.02	0.02	0	1.9	**16.638**	1.992	0.112
67	1	0	32	174.5	124.4	0.9	0.02	0.02	0	2.1	**22.393**	3.246	0.221
70	1	0	32	202.6	144.1	0.9	0.02	0.02	0	2.26	**27.48**	4.597	0.362
71	1	0	32	127	91.2	0.9	0.02	0.02	0	1.82	**14.365**	1.574	0.081
72M	1	0	32	253.9	180.1	0.9	0.02	0.02	0	2.56	**36.839**	**7.737**	0.77
72U	1	0	32	109.7	79.1	0.9	0.02	0.02	0	1.72	**11.738**	1.145	0.053
75	1	0	32	381.8	269.6	0.9	0.02	0.02	0	3.28	**57.637**	**18.56**	2.91
82	1	0	32	54.8	40.6	0.9	0.02	0.02	0	1.39	**5.014**	0.316	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.02	0	1.4	**5.267**	0.34	0.011
86	1	0	32	115.3	83	0.9	0.02	0.02	0	1.75	**12.574**	1.275	0.061
87	1	0	32	99.5	72	0.9	0.02	0.02	0	1.66	**10.297**	0.934	0.04
94M	1	0	32	73.9	54	0.9	0.02	0.02	0	1.5	**7.041**	0.524	0.019
106	1	0	32	387.2	273.4	0.9	0.02	0.02	0	3.31	**58.397**	**19.084**	3.041
107	1	0	32	169.3	120.8	0.9	0.02	0.02	0	2.07	**21.483**	3.028	0.201
108	1	0	32	185.4	132.1	0.9	0.02	0.02	0	2.16	**24.356**	3.739	0.27
109	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.02	0	1.59	**8.827**	0.738	0.029
110G	1	0	32	41.5	31.4	0.9	0.02	0.02	0	1.31	3.83	0.213	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.02	0	1.48	**6.638**	0.48	0.017
112	1	0	32	471.3	332.2	0.9	0.02	0.02	0	3.78	**68.778**	**27.516**	**5.51**
112G	1	0	32	181.5	129.4	0.9	0.02	0.02	0	2.14	**23.659**	3.56	0.252
113low	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.468**	**8.378**	0.865
113up	1	0	32	398.8	281.5	0.9	0.02	0.02	0	3.38	**59.983**	**20.216**	3.333
115SP	1	0	32	493.1	347.5	0.9	0.02	0.02	0	3.89	**71.056**	**29.742**	**6.278**
21	1	0	32	104.1	75.2	0.9	0.02	0.02	0	1.68	**10.93**	1.025	0.045
21G	1	0	32	337.4	238.5	0.9	0.02	0.02	0	3.04	**51.014**	**14.424**	1.963
116M	1	0	32	347.4	245.4	0.9	0.02	0.02	0	3.09	**52.558**	**15.322**	2.155
122	1	0	32	69	50.6	0.9	0.02	0.02	0	1.47	**6.491**	0.464	0.016
121	1	0	32	148.3	106.1	0.9	0.02	0.02	0	1.95	**17.846**	2.232	0.131
123	1	0	32	336.5	237.9	0.9	0.02	0.02	0	3.03	**50.879**	**14.348**	1.947
135	1	0	32	130.2	93.5	0.9	0.02	0.02	0	1.84	**14.879**	1.665	0.088
146	1	0	32	81.4	59.3	0.9	0.02	0.02	0	1.55	**7.935**	0.627	0.024
146G	1	0	32	43.2	32.6	0.9	0.02	0.02	0	1.32	3.973	0.225	0.006
147	1	0	32	50.9	37.9	0.9	0.02	0.02	0	1.36	4.649	0.283	0.008
151	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.02	0	2.15	**23.999**	3.647	0.261
160	1	0	32	153.4	109.7	0.9	0.02	0.02	0	1.98	**18.706**	2.41	0.146
163	1	0	32	158.1	113	0.9	0.02	0.02	0	2	**19.522**	2.585	0.161
163G	1	0	32	222.8	158.3	0.9	0.02	0.02	0	2.38	**31.179**	**5.733**	0.497

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
164	1	0	32	118	84.9	0.9	0.02	0.02	0	1.77	**12.97**	1.339	0.065
167	1	0	32	71.4	52.3	0.9	0.02	0.02	0	1.49	**6.758**	0.493	0.017
168	1	0	32	365.9	258.4	0.9	0.02	0.02	0	3.2	**55.344**	**17.042**	2.544
169	1	0	32	262	185.7	0.9	0.02	0.02	0	2.61	**38.277**	**8.302**	0.854
169A	1	0	32	238.9	169.5	0.9	0.02	0.02	0	2.47	**34.112**	**6.729**	0.628
320new	1	0	32	555.7	391.3	0.9	0.02	0.02	0	4.23	**76.755**	**36.09**	**8.754**
216	1	0	32	310.2	219.4	0.9	0.02	0.02	0	2.88	**46.615**	**12.064**	1.493
1030	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.02	0	2.79	**43.889**	**10.737**	1.252
174M	1	0	32	23.7	18.9	0.9	0.02	0.02	0	1.2	2.524	0.117	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.02	0	2.08	**21.829**	3.11	0.209
238G	1	0	32	47.1	35.3	0.9	0.02	0.02	0	1.34	4.309	0.253	0.007
238M	1	0	32	34.9	26.8	0.9	0.02	0.02	0	1.26	3.308	0.173	0.004
176G	1	0	32	140.1	100.4	0.9	0.02	0.02	0	1.9	**16.489**	1.963	0.11
176M	1	0	32	215.9	153.4	0.9	0.02	0.02	0	2.34	**29.908**	**5.328**	0.448
177	1	0	32	172.8	123.2	0.9	0.02	0.02	0	2.09	**22.093**	3.173	0.215
206	1	0	32	142.4	101.9	0.9	0.02	0.02	0	1.91	**16.853**	2.034	0.116
208	1	0	32	161.9	115.6	0.9	0.02	0.02	0	2.03	**20.176**	2.729	0.174
208AA	1	0	32	173.4	123.6	0.9	0.02	0.02	0	2.09	**22.195**	3.198	0.217
208BM	1	0	32	112.5	81.1	0.9	0.02	0.02	0	1.73	**12.155**	1.209	0.057
208G	1	0	32	92.1	66.7	0.9	0.02	0.02	0	1.61	**9.285**	0.797	0.032
209A	1	0	32	115.7	83.3	0.9	0.02	0.02	0	1.75	**12.628**	1.284	0.062
213	1	0	32	440.1	310.4	0.9	0.02	0.02	0	3.61	**65.225**	**24.338**	4.499
185	1	0	32	196.7	140	0.9	0.02	0.02	0	2.23	**26.394**	4.289	0.328
185G	1	0	32	71	52	0.9	0.02	0.02	0	1.48	**6.713**	0.488	0.017
186	1	0	32	242.3	171.9	0.9	0.02	0.02	0	2.49	**34.735**	**6.952**	0.658
1035	1	0	32	114.9	82.8	0.9	0.02	0.02	0	1.75	**12.515**	1.266	0.061
1036	1	0	32	76.8	56	0.9	0.02	0.02	0	1.52	**7.377**	0.562	0.02
1037	1	0	32	98.4	71.2	0.9	0.02	0.02	0	1.65	**10.145**	0.913	0.039
189	1	0	32	154.4	110.4	0.9	0.02	0.02	0	1.98	**18.891**	2.449	0.15
1060	1	0	32	127.8	91.8	0.9	0.02	0.02	0	1.82	**14.492**	1.596	0.083
192	1	0	32	262.5	186	0.9	0.02	0.02	0	2.61	**38.362**	**8.336**	0.859
1020	1	0	32	96.5	69.9	0.9	0.02	0.02	0	1.64	**9.883**	0.877	0.037
1021	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.02	0	1.9	**16.5**	1.965	0.11
194	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.02	0	3.64	**66.052**	**25.048**	4.717
201G	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.02	0	1.35	4.44	0.265	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.02	0	1.54	**7.771**	0.608	0.023
196	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.02	0	1.81	**14.127**	1.533	0.078
231Lower	1	0	32	138	98.9	0.9	0.02	0.02	0	1.88	**16.13**	1.895	0.105

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
7	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.02	0	1.46	**6.197**	0.433	0.014
246	1	0	32	29.2	22.8	0.9	0.02	0.02	0	1.23	2.892	0.142	0.003
18	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.02	0	1.57	**8.497**	0.696	0.027
250	1	0	32	92.2	66.8	0.9	0.02	0.02	0	1.61	**9.3**	0.799	0.033
253	1	0	32	110	79.3	0.9	0.02	0.02	0	1.72	**11.779**	1.151	0.053
258	1	0	32	767.7	539.7	0.9	0.02	0.02	0	5.33	**88.92**	**55.387**	**19.364**
259	1	0	32	240.7	170.8	0.9	0.02	0.02	0	2.49	**34.437**	**6.845**	0.643
284M	1	0	32	152.7	109.2	0.9	0.02	0.02	0	1.97	**18.594**	2.386	0.144
285M	1	0	32	157.6	112.7	0.9	0.02	0.02	0	2	**19.443**	2.567	0.16
287	1	0	32	150.2	107.4	0.9	0.02	0.02	0	1.96	**18.17**	2.298	0.137
288	1	0	32	68.2	50	0.9	0.02	0.02	0	1.47	**6.394**	0.454	0.015
288G1	1	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.72**	0.602	0.022
288G2	1	0	32	59.8	44.2	0.9	0.02	0.02	0	1.42	**5.516**	0.364	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.318**	0.555	0.02
291	1	0	32	77.6	56.6	0.9	0.02	0.02	0	1.52	**7.468**	0.573	0.021
306	1	0	32	86.1	62.6	0.9	0.02	0.02	0	1.57	**8.519**	0.699	0.027
315	1	0	32	37.7	28.7	0.9	0.02	0.02	0	1.28	3.521	0.189	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.02	0	1.69	**11.084**	1.047	0.047
317	1	0	32	227.9	161.8	0.9	0.02	0.02	0	2.41	**32.107**	**6.038**	0.536
317M	1	0	32	494.8	348.7	0.9	0.02	0.02	0	3.9	**71.231**	**29.92**	**6.342**
318	1	0	32	452.2	318.9	0.9	0.02	0.02	0	3.67	**66.647**	**25.569**	4.879
319	1	0	32	505.5	356.2	0.9	0.02	0.02	0	3.96	**72.288**	**31.014**	**6.74**
319M	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.02	0	4.03	**73.428**	**32.238**	**7.2**
421	1	0	32	318.8	225.4	0.9	0.02	0.02	0	2.93	**48.025**	**12.79**	1.632
410	1	0	32	394	278.1	0.9	0.02	0.02	0	3.35	**59.332**	**19.745**	3.21
412	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.02	0	4.16	**75.707**	**34.829**	**8.227**
325	1	0	32	37.8	28.8	0.9	0.02	0.02	0	1.28	3.532	0.19	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.02	0	1.49	**6.761**	0.493	0.017
327	1	0	32	50	37.3	0.9	0.02	0.02	0	1.36	4.571	0.276	0.008
999G1	1	0	32	85.9	62.4	0.9	0.02	0.02	0	1.57	**8.491**	0.695	0.027
999M1	1	0	32	79.9	58.2	0.9	0.02	0.02	0	1.54	**7.746**	0.605	0.022
999M2	1	0	32	56.1	41.6	0.9	0.02	0.02	0	1.39	**5.145**	0.329	0.01
999M3	1	0	32	83.8	61	0.9	0.02	0.02	0	1.56	**8.228**	0.663	0.025
72	1	0	32	230.4	163.6	0.9	0.02	0.02	0	2.43	**32.564**	**6.192**	0.556
1001	1	0	32	408.4	288.1	0.9	0.02	0.02	0	3.43	**61.249**	**21.155**	3.585
401	1	0	32	1101.5	773.4	0.9	0.02	0.02	0	6.95	**96.314**	**75.852**	**38.267**
402	1	0	32	577.5	406.6	0.9	0.02	0.02	0	4.35	**78.478**	**38.269**	**9.707**
403	1	0	32	419.6	296	0.9	0.02	0.02	0	3.49	**62.697**	**22.272**	3.895
440	1	0	32	145.2	103.9	0.9	0.02	0.02	0	1.93	**17.325**	2.127	0.123
441	1	0	32	737.9	518.8	0.9	0.02	0.02	0	5.18	**87.722**	**52.963**	**17.731**
442	1	0	32	258.8	183.4	0.9	0.02	0.02	0	2.59	**37.707**	**8.075**	0.82

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1005	1	0	32	112.1	80.8	0.9	0.02	0.02	0	1.73	**12.094**	1.2	0.056
1006	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.234**	0.79	0.032
1007	1	0	32	51.9	38.6	0.9	0.02	0.02	0	1.37	4.742	0.291	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.02	0	1.61	**9.21**	0.787	0.032
1010	1	0	32	110.8	79.8	0.9	0.02	0.02	0	1.72	**11.894**	1.169	0.054
1011	1	0	32	146.2	104.7	0.9	0.02	0.02	0	1.93	**17.5**	2.162	0.126
345	1	0	32	103.9	75	0.9	0.02	0.02	0	1.68	**10.908**	1.022	0.045
346	1	0	32	130.4	93.6	0.9	0.02	0.02	0	1.84	**14.909**	1.67	0.088
347	1	0	32	312.7	221.2	0.9	0.02	0.02	0	2.9	**47.027**	**12.273**	1.533
430	1	0	32	262	185.7	0.9	0.02	0.02	0	2.61	**38.277**	**8.302**	0.854
431	1	0	32	110.3	79.5	0.9	0.02	0.02	0	1.72	**11.821**	1.158	0.054
432	1	0	32	307.5	217.5	0.9	0.02	0.02	0	2.87	**46.158**	**11.834**	1.451
801	1	0	32	239.9	170.3	0.9	0.02	0.02	0	2.48	**34.304**	**6.798**	0.637
3000	1	0	32	26.6	20.9	0.9	0.02	0.02	0	1.21	2.715	0.13	0.003
3001	1	0	32	371	262	0.9	0.02	0.02	0	3.22	**56.09**	**17.526**	2.658
3003	1	0	32	294.5	208.5	0.9	0.02	0.02	0	2.79	**43.97**	**10.775**	1.259
3004	1	0	32	81.9	59.6	0.9	0.02	0.02	0	1.55	**7.992**	0.634	0.024
280	1	0	32	367.4	259.5	0.9	0.02	0.02	0	3.2	**55.562**	**17.183**	2.577
280yard	1	0	32	302.9	214.3	0.9	0.02	0.02	0	2.84	**45.389**	**11.455**	1.381
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.02	0	1.48	**6.607**	0.476	0.016
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.02	0	1.55	**7.974**	0.632	0.024
075-O1	1	0	32	265	187.8	0.9	0.02	0.02	0	2.63	**38.82**	**8.521**	0.887
076-G1	1	0	32	85	61.8	0.9	0.02	0.02	0	1.57	**8.374**	0.681	0.026
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.02	0	1.63	**9.688**	0.851	0.035
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.02	0	1.62	**9.463**	0.821	0.034
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.02	0	1.61	**9.203**	0.786	0.032
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.02	0	2	**19.389**	2.556	0.159
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.02	0	1.25	3.107	0.158	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.02	0	1.24	3.04	0.153	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.415	0.181	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.02	0	1.28	3.481	0.186	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.02	0	1.26	3.294	0.172	0.004
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.02	0	1.28	3.54	0.19	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.02	0	1.2	2.581	0.121	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.02	0	1.22	2.729	0.131	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.02	0	1.25	3.094	0.157	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.02	0	1.48	**6.579**	0.473	0.016
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.02	0	1.79	**13.543**	1.434	0.072
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.02	0	1.2	2.521	0.117	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.409	0.18	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.02	0	1.81	**14.242**	1.553	0.08
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.02	0	1.19	2.466	0.113	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.02	0	1.3	3.791	0.21	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.02	0	1.31	3.849	0.215	0.006

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.02	0	1.27	3.345	0.175	0.004
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.02	0	1.31	3.945	0.223	0.006
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.02	0	1.27	3.345	0.175	0.004
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.02	0	1.24	2.991	0.149	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.02	0	1.32	4.071	0.233	0.006
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.02	0	1.28	3.507	0.188	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.02	0	1.42	**5.536**	0.366	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.721**	0.602	0.022
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.02	0	2	**19.37**	2.552	0.158
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.02	0	1.49	**6.837**	0.501	0.018
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.02	0	1.42	**5.616**	0.374	0.012
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.02	0	1.37	4.717	0.289	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.02	0	2.16	**24.146**	3.685	0.265
088-H2	1	0	32	159	113.6	0.9	0.02	0.02	0	2.01	**19.68**	2.619	0.164
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.02	0	1.87	**15.857**	1.843	0.101
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.02	0	1.54	**7.813**	0.613	0.023
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.02	0	1.63	**9.688**	0.851	0.035
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.02	0	1.42	**5.565**	0.369	0.012
090-H1	1	0	32	95.3	69	0.9	0.02	0.02	0	1.63	**9.725**	0.856	0.036
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.02	0	2	**19.389**	2.556	0.159
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.02	0	1.55	**7.916**	0.625	0.023
091-H1	1	0	32	56	41.5	0.9	0.02	0.02	0	1.39	**5.133**	0.327	0.01
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.02	0	2.13	**23.441**	3.505	0.247
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.02	0	1.67	**10.611**	0.979	0.043
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.02	0	1.46	**6.362**	0.45	0.015
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.02	0	1.54	**7.779**	0.609	0.023
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.02	0	1.52	**7.416**	0.567	0.021
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.02	0	2.1	**22.339**	3.233	0.22
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.02	0	1.77	**13.071**	1.356	0.066
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.02	0	1.95	**17.99**	2.261	0.134
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.02	0	2.12	**22.938**	3.379	0.234
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.02	0	2.13	**23.239**	3.454	0.242
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.02	0	2.9	**47.138**	**12.33**	1.544
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.02	0	1.91	**16.825**	2.028	0.115
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.02	0	1.76	**12.942**	1.335	0.065
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.415	0.181	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.02	0	1.26	3.269	0.17	0.004
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.02	0	1.19	2.461	0.113	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.02	0	1.4	**5.178**	0.332	0.01
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.02	0	1.44	**5.878**	0.4	0.013
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.02	0	1.92	**17.198**	2.102	0.121
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.02	0	2.08	**21.723**	3.085	0.206
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.02	0	1.33	4.219	0.246	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.02	0	1.9	**16.558**	1.976	0.111

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.02	0	1.59	**8.809**	0.735	0.029
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.02	0	1.5	**7.004**	0.52	0.018
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.02	0	1.89	**16.208**	1.909	0.106
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.02	0	1.36	4.633	0.282	0.008
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.02	0	1.85	**15.087**	1.702	0.091
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.02	0	2.3	**28.728**	4.966	0.405
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.02	0	1.4	**5.178**	0.332	0.01
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.02	0	1.23	2.942	0.146	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.02	0	1.77	**12.969**	1.339	0.065
103-O1	1	0	32	99	71.6	0.9	0.02	0.02	0	1.65	**10.222**	0.924	0.04
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.02	0	2.14	**23.759**	3.586	0.255
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.02	0	2.04	**20.734**	2.855	0.185
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.02	0	1.95	**18.102**	2.284	0.136
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.02	0	1.69	**11.169**	1.06	0.048
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.02	0	2.35	**30.157**	**5.406**	0.457
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.02	0	1.23	2.844	0.139	0.003
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.02	0	1.17	2.209	0.097	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.02	0	1.2	2.601	0.122	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.02	0	2.45	**33.201**	**6.41**	0.585
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.02	0	1.49	**6.911**	0.509	0.018
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.02	0	1.77	**13.199**	1.377	0.068
108-O2	1	0	32	53.9	40	0.9	0.02	0.02	0	1.38	4.931	0.309	0.009
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.24**	0.791	0.032
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.02	0	1.46	**6.347**	0.449	0.015
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.02	0	1.24	3.003	0.15	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.02	0	1.41	**5.412**	0.354	0.011
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.02	0	1.33	4.216	0.245	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.02	0	1.54	**7.844**	0.617	0.023
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.02	0	1.31	3.862	0.216	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.02	0	1.64	**9.993**	0.892	0.038
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.02	0	1.57	**8.43**	0.688	0.027
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.02	0	2.81	**44.376**	**10.967**	1.293
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.02	0	2.08	**21.891**	3.125	0.21
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.02	0	2.19	**25.211**	3.965	0.294
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.321**	0.556	0.02
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.02	0	1.79	**13.716**	1.463	0.074
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.02	0	2.78	**43.672**	**10.636**	1.235
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.02	0	2.98	**49.402**	**13.527**	1.778
114-O1	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.459**	**8.375**	0.865
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.02	0	3.36	**59.428**	**19.814**	3.228
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.02	0	1.87	**15.765**	1.826	0.1
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.02	0	1.15	2.05	0.087	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.02	0	1.21	2.695	0.129	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.02	0	1.18	2.406	0.11	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.02	0	1.19	2.407	0.11	0.002
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.02	0	1.34	4.307	0.253	0.007
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.02	0	1.52	**7.311**	0.554	0.02
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.02	0	2.69	**40.73**	**9.319**	1.013
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.02	0	1.4	**5.271**	0.34	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.02	0	1.39	**5.042**	0.319	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.02	0	1.41	**5.366**	0.35	0.011
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.02	0	1.62	**9.45**	0.819	0.034
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.02	0	1.24	3.027	0.152	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.02	0	1.32	4.046	0.231	0.006
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.02	0	1.18	2.392	0.109	0.002
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.02	0	1.29	3.634	0.198	0.005
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.02	0	1.45	**6.092**	0.422	0.014
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.02	0	1.41	**5.403**	0.353	0.011
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.02	0	1.74	**12.436**	1.253	0.06
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.02	0	1.46	**6.209**	0.434	0.014
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.02	0	2.06	**21.148**	2.95	0.194
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.02	0	2.51	**35.191**	**7.118**	0.681
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.02	0	2.94	**48.374**	**12.974**	1.668
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.02	0	1.54	**7.865**	0.619	0.023
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.02	0	1.62	**9.425**	0.816	0.033
123-H1	1	0	32	72.4	53	0.9	0.02	0.02	0	1.49	**6.873**	0.505	0.018
123-O1	1	0	32	101	73	0.9	0.02	0.02	0	1.66	**10.493**	0.962	0.042
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.02	0	2.37	**30.74**	**5.591**	0.48
124-G1	1	0	32	28	21.9	0.9	0.02	0.02	0	1.22	2.809	0.137	0.003
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.02	0	1.52	**7.357**	0.56	0.02
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.02	0	1.27	3.319	0.174	0.004
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.02	0	1.22	2.781	0.135	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.02	0	1.1	1.664	0.065	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.02	0	1.52	**7.35**	0.559	0.02
125-O1	1	0	32	70	51.3	0.9	0.02	0.02	0	1.48	**6.601**	0.476	0.016
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.02	0	1.45	**6.029**	0.416	0.014
126-G1	1	0	32	49	36.6	0.9	0.02	0.02	0	1.35	4.48	0.268	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.02	0	1.31	3.881	0.218	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.02	0	1.19	2.418	0.11	0.002
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.02	0	1.35	4.458	0.266	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.02	0	1.21	2.634	0.125	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.02	0	1.36	4.564	0.276	0.008
126-P1	1	0	32	28.1	22	0.9	0.02	0.02	0	1.22	2.817	0.137	0.003
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.02	0	1.76	**12.942**	1.335	0.065
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.02	0	1.44	**5.86**	0.398	0.013
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.02	0	1.45	**6.038**	0.416	0.014
127-H1	1	0	32	96.8	70	0.9	0.02	0.02	0	1.64	**9.915**	0.882	0.037
127-H2	1	0	32	42.5	32	0.9	0.02	0.02	0	1.31	3.909	0.22	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.02	0	1.77	**13.028**	1.349	0.066
128-G1	1	0	32	37	28.2	0.9	0.02	0.02	0	1.28	3.463	0.184	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.02	0	1.47	**6.437**	0.458	0.016
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.02	0	1.3	3.699	0.203	0.005
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.02	0	1.78	**13.332**	1.399	0.069
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.02	0	1.47	**6.511**	0.466	0.016
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.02	0	2.81	**44.413**	**10.984**	1.296
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.02	0	3.03	**50.762**	**14.282**	1.933
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.02	0	1.28	3.49	0.187	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.02	0	1.16	2.16	0.094	0.002
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.02	0	1.38	4.854	0.302	0.009
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.02	0	1.87	**15.72**	1.818	0.099
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.02	0	1.16	2.199	0.096	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.02	0	1.1	1.615	0.062	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.02	0	1.23	2.848	0.139	0.003
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.02	0	1.25	3.18	0.163	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.02	0	1.99	**19.254**	2.527	0.156
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.02	0	1.71	**11.48**	1.106	0.05
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.02	0	4.36	**78.692**	**38.549**	**9.834**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.02	0	1.75	**12.692**	1.294	0.062
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.02	0	2.07	**21.483**	3.028	0.201
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.02	0	1.74	**12.366**	1.242	0.059
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.02	0	1.22	2.758	0.133	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.02	0	1.2	2.606	0.123	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.02	0	1.26	3.264	0.169	0.004
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.02	0	2.28	**27.837**	4.701	0.374
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.02	0	2.14	**23.49**	3.517	0.248
137-O2	1	0	32	122	87.7	0.9	0.02	0.02	0	1.79	**13.586**	1.441	0.072
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.02	0	1.27	3.351	0.176	0.004
138-G2	1	0	32	48.1	36	0.9	0.02	0.02	0	1.35	4.397	0.261	0.007
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.02	0	1.23	2.844	0.139	0.003
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.02	0	1.2	2.568	0.12	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.02	0	1.34	4.27	0.25	0.007
139-G2	1	0	32	39.6	30	0.9	0.02	0.02	0	1.29	3.675	0.201	0.005
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.02	0	1.31	3.926	0.221	0.006
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.02	0	1.33	4.167	0.241	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.468**	**8.378**	0.865
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.02	0	3.9	**71.159**	**29.847**	**6.316**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.621	0.197	0.005
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.02	0	1.47	**6.445**	0.459	0.016
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.02	0	1.54	**7.813**	0.613	0.023
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.02	0	1.45	**6.065**	0.419	0.014
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.02	0	1.23	2.908	0.144	0.003
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.02	0	1.31	3.846	0.215	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.02	0	1.13	1.866	0.076	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.02	0	1.29	3.573	0.193	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.02	0	1.32	4.03	0.23	0.006
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.02	0	1.64	**10.029**	0.897	0.038
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.02	0	1.47	**6.504**	0.465	0.016
143-A1	1	0	32	52	38.7	0.9	0.02	0.02	0	1.37	4.751	0.292	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.02	0	1.45	**6.152**	0.428	0.014
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.02	0	1.34	4.285	0.251	0.007
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.02	0	1.48	**6.663**	0.482	0.017
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.02	0	1.65	**10.163**	0.916	0.039
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.02	0	1.9	**16.546**	1.974	0.111
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.02	0	1.43	**5.674**	0.38	0.012
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.02	0	2.01	**19.826**	2.651	0.167
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.02	0	10.01	**99.481**	**93.005**	**68.301**
147-G1	1	0	32	59.7	44	0.9	0.02	0.02	0	1.42	**5.496**	0.362	0.011
147-G2	1	0	32	85	61.8	0.9	0.02	0.02	0	1.57	**8.374**	0.681	0.026
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.02	0	1.56	**8.164**	0.655	0.025
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.02	0	1.35	4.417	0.263	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.02	0	1.43	**5.703**	0.383	0.012
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.02	0	1.69	**11.086**	1.048	0.047
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.02	0	1.34	4.253	0.249	0.007
149-G1	1	0	32	49	36.6	0.9	0.02	0.02	0	1.35	4.472	0.268	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.02	0	1.38	4.981	0.313	0.009
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.02	0	1.5	**6.959**	0.515	0.018
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.02	0	1.26	3.269	0.17	0.004
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.02	0	1.32	4.015	0.229	0.006
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.02	0	1.28	3.54	0.19	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.02	0	1.67	**10.533**	0.968	0.042
152-G1	1	0	32	114	82.1	0.9	0.02	0.02	0	1.74	**12.372**	1.243	0.059
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.02	0	2.05	**20.853**	2.882	0.188
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.02	0	1.69	**11.154**	1.058	0.047
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.02	0	2.72	**41.848**	**9.807**	1.093
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.02	0	2.38	**31.119**	**5.713**	0.495
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.02	0	3.23	**56.309**	**17.669**	2.693
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.02	0	2.37	**30.742**	**5.591**	0.48
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.02	0	2.85	**45.673**	**11.594**	1.406
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.02	0	1.67	**10.626**	0.981	0.043
153-O7	1	0	32	361	255	0.9	0.02	0.02	0	3.17	**54.624**	**16.585**	2.438
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.02	0	2.71	**41.476**	**9.643**	1.066
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.02	0	1.18	2.376	0.108	0.002
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.02	0	1.18	2.402	0.109	0.002
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.02	0	1.89	**16.407**	1.948	0.109
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.24**	0.791	0.032
155-H1	1	0	32	52.4	39	0.9	0.02	0.02	0	1.37	4.79	0.296	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.02	0	2.06	**21.295**	2.984	0.197
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.02	0	2.66	**39.864**	**8.952**	0.955
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.02	0	1.55	**7.967**	0.631	0.024

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.02	0	1.93	**17.433**	2.148	0.125
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.02	0	1.31	3.839	0.214	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.02	0	1.44	**5.851**	0.397	0.013
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.02	0	1.46	**6.28**	0.441	0.015
158-H1	1	0	32	33.8	26	0.9	0.02	0.02	0	1.26	3.224	0.166	0.004
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.02	0	1.36	4.672	0.285	0.008
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.02	0	1.48	**6.634**	0.479	0.017
159-H1	1	0	32	59.6	44	0.9	0.02	0.02	0	1.42	**5.493**	0.362	0.011
159-H2	1	0	32	101	73	0.9	0.02	0.02	0	1.66	**10.493**	0.962	0.042
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.02	0	1.32	4.058	0.232	0.006
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.02	0	1.36	4.681	0.286	0.008
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.02	0	1.84	**14.906**	1.67	0.088
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.02	0	1.54	**7.793**	0.611	0.023
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.02	0	1.51	**7.173**	0.539	0.019
161-H1	1	0	32	129.6	93	0.9	0.02	0.02	0	1.83	**14.772**	1.646	0.086
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.02	0	1.66	**10.454**	0.957	0.041
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.02	0	1.54	**7.851**	0.617	0.023
163-G1	1	0	32	53	39.4	0.9	0.02	0.02	0	1.37	4.845	0.301	0.009
163-O1	1	0	32	71	52	0.9	0.02	0.02	0	1.48	**6.711**	0.488	0.017
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.02	0	1.84	**14.862**	1.662	0.088
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.02	0	1.13	1.908	0.079	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.02	0	1.43	**5.803**	0.393	0.013
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.02	0	2.56	**36.88**	**7.753**	0.772
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.02	0	1.65	**10.26**	0.929	0.04
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.02	0	1.98	**18.907**	2.452	0.15
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.02	0	2.39	**31.355**	**5.79**	0.505
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.02	0	2.11	**22.65**	3.308	0.227
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.02	0	2.39	**31.43**	**5.814**	0.508
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.02	0	2.52	**35.495**	**7.23**	0.697
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.02	0	3.37	**59.749**	**20.045**	3.288
167-O8	1	0	32	205.3	146	0.9	0.02	0.02	0	2.28	**27.967**	4.739	0.379
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.02	0	2.23	**26.433**	4.3	0.329
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.02	0	1.28	3.507	0.188	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.02	0	1.28	3.547	0.191	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.02	0	1.23	2.861	0.14	0.003
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.02	0	1.25	3.144	0.16	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.02	0	1.35	4.405	0.262	0.007
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.02	0	1.27	3.429	0.182	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.02	0	1.39	**5.014**	0.316	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.02	0	1.37	4.774	0.294	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.02	0	1.3	3.825	0.213	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.02	0	1.34	4.322	0.254	0.007
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.02	0	1.76	**12.815**	1.314	0.064
170-H1	1	0	32	77	56.2	0.9	0.02	0.02	0	1.52	**7.407**	0.565	0.021
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.02	0	1.99	**19.098**	2.493	0.153

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.02	0	2.48	**34.427**	**6.842**	0.643
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.02	0	2.44	**33.128**	**6.385**	0.581
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.02	0	1.35	4.495	0.27	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.02	0	1.16	2.116	0.091	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.02	0	1.58	**8.588**	0.707	0.028
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.02	0	1.78	**13.328**	1.398	0.069
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.02	0	1.21	2.679	0.128	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.02	0	1.88	**15.902**	1.852	0.102
173-P1	1	0	32	175	124.8	0.9	0.02	0.02	0	2.1	**22.488**	3.269	0.224
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.02	0	1.49	**6.815**	0.499	0.017
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.02	0	1.53	**7.631**	0.591	0.022
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.02	0	2.13	**23.29**	3.467	0.243
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.02	0	1.52	**7.429**	0.568	0.021
175-G2	1	0	32	26.8	21	0.9	0.02	0.02	0	1.22	2.725	0.131	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.02	0	1.51	**7.222**	0.544	0.02
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.02	0	1.29	3.647	0.199	0.005
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.02	0	1.36	4.595	0.278	0.008
176-H2	1	0	32	29	22.6	0.9	0.02	0.02	0	1.23	2.879	0.141	0.003
176-P1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.628	0.197	0.005
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.02	0	1.23	2.885	0.142	0.003
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.02	0	1.56	**8.12**	0.65	0.025
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.02	0	3.5	**62.966**	**22.485**	3.955
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.02	0	3.82	**69.696**	**28.394**	**5.807**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.02	0	1.69	**11.215**	1.067	0.048
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.02	0	1.35	4.446	0.265	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.02	0	1.73	**12.119**	1.204	0.057
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.02	0	1.79	**13.495**	1.426	0.071
181-H2	1	0	32	115	82.8	0.9	0.02	0.02	0	1.75	**12.525**	1.268	0.061
181-N1	1	0	32	126.7	91	0.9	0.02	0.02	0	1.82	**14.325**	1.567	0.081
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.02	0	1.89	**16.208**	1.909	0.106
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.02	0	1.4	**5.26**	0.34	0.01
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.02	0	2.25	**26.891**	4.429	0.344
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.02	0	2.13	**23.347**	3.481	0.244
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.02	0	1.89	**16.227**	1.913	0.106
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.02	0	1.86	**15.447**	1.768	0.095
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.02	0	1.72	**11.814**	1.157	0.054
182-O2	1	0	32	186	132.5	0.9	0.02	0.02	0	2.17	**24.456**	3.766	0.273
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.02	0	2.12	**23.139**	3.429	0.239
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.02	0	2.18	**24.976**	3.903	0.287
185-A1	1	0	32	33.8	26	0.9	0.02	0.02	0	1.26	3.226	0.167	0.004
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.02	0	1.25	3.131	0.16	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.02	0	3.11	**52.962**	**15.564**	2.208
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.02	0	1.7	**11.421**	1.097	0.05
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.02	0	1.53	**7.55**	0.582	0.021
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.02	0	1.76	**12.815**	1.314	0.064

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
188-G2	1	0	32	122	87.7	0.9	0.02	0.02	0	1.79	**13.586**	1.441	0.072
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.02	0	1.43	**5.703**	0.383	0.012
188-H1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.628	0.197	0.005
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.02	0	1.4	**5.194**	0.333	0.01
189-G1	1	0	32	44	33.1	0.9	0.02	0.02	0	1.32	4.037	0.23	0.006
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.321**	0.556	0.02
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.02	0	1.68	**10.847**	1.013	0.045
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.02	0	1.78	**13.251**	1.385	0.068
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.02	0	1.16	2.189	0.096	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.02	0	1.3	3.823	0.213	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.02	0	1.22	2.735	0.131	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.02	0	1.2	2.568	0.12	0.003
190-N3	1	0	32	21	17	0.9	0.02	0.02	0	1.18	2.35	0.106	0.002
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.02	0	1.43	**5.816**	0.394	0.013
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.02	0	2.31	**29.044**	**5.061**	0.416
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.02	0	1.28	3.501	0.187	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
192-H1	1	0	32	34	26.1	0.9	0.02	0.02	0	1.26	3.235	0.167	0.004
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.02	0	1.17	2.209	0.097	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.02	0	1.18	2.378	0.108	0.002
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.02	0	1.22	2.771	0.134	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.02	0	1.26	3.25	0.168	0.004
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.02	0	1.53	**7.5**	0.576	0.021
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.02	0	1.98	**18.954**	2.462	0.151
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.02	0	2.22	**26.178**	4.229	0.322
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.02	0	1.4	**5.277**	0.341	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.02	0	1.47	**6.448**	0.459	0.016
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.02	0	1.34	4.359	0.258	0.007
196-O1	1	0	32	69	50.6	0.9	0.02	0.02	0	1.47	**6.482**	0.463	0.016
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.02	0	1.9	**16.615**	1.987	0.112
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.02	0	1.53	**7.562**	0.583	0.021
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.02	0	2.06	**21.295**	2.984	0.197
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.02	0	1.14	1.988	0.084	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.02	0	1.21	2.705	0.129	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.02	0	1.23	2.938	0.146	0.003
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.02	0	1.23	2.885	0.142	0.003
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.02	0	1.22	2.786	0.135	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.02	0	2.97	**49.005**	**13.311**	1.735
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.02	0	2.09	**22.189**	3.196	0.217
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.02	0	1.4	**5.319**	0.345	0.011
202-O1	1	0	32	137	98.2	0.9	0.02	0.02	0	1.88	**15.97**	1.865	0.103
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.02	0	3.82	**69.622**	**28.322**	**5.782**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.02	0	3.97	**72.452**	**31.188**	**6.804**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.02	0	1.75	**12.688**	1.294	0.062

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.02	0	1.36	4.603	0.279	0.008
206-H1	1	0	32	18	14.9	0.9	0.02	0.02	0	1.16	2.173	0.095	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.02	0	2.74	**42.325**	**10.02**	1.129
206-O1	1	0	32	252.4	179	0.9	0.02	0.02	0	2.55	**36.56**	**7.63**	0.754
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.02	0	1.72	**11.904**	1.171	0.054
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.02	0	2.62	**38.657**	**8.455**	0.877
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.02	0	2.47	**34.073**	**6.715**	0.626
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.02	0	3.34	**59.04**	**19.537**	3.157
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.02	0	4.03	**73.428**	**32.238**	**7.2**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.02	0	1.74	**12.308**	1.233	0.058
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.02	0	1.82	**14.507**	1.599	0.083
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.02	0	1.49	**6.805**	0.498	0.017
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.02	0	1.29	3.594	0.195	0.005
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.02	0	1.32	4.094	0.235	0.006
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.02	0	1.48	**6.673**	0.483	0.017
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.02	0	1.82	**14.417**	1.583	0.082
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.02	0	2.18	**24.908**	3.885	0.285
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.02	0	1.95	**17.991**	2.261	0.134
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.02	0	1.27	3.348	0.176	0.004
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.02	0	1.56	**8.296**	0.671	0.026
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.02	0	1.4	**5.281**	0.341	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.02	0	1.23	2.871	0.141	0.003
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.02	0	1.14	2.001	0.084	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.02	0	1.24	3.027	0.152	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.02	0	1.96	**18.189**	2.302	0.137
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.02	0	3.64	**65.975**	**24.982**	4.696
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.02	0	2.91	**47.35**	**12.439**	1.565
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.02	0	2.45	**33.355**	**6.463**	0.592
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.02	0	1.67	**10.65**	0.985	0.043
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.02	0	2.56	**36.862**	**7.746**	0.771
805-O1	1	0	32	38.2	29	0.9	0.02	0.02	0	1.28	3.561	0.192	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.02	0	1.22	2.832	0.138	0.003
806-O2	1	0	32	29.6	23	0.9	0.02	0.02	0	1.23	2.92	0.144	0.003
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.02	0	1.36	4.626	0.281	0.008
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.02	0	1.28	3.461	0.184	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.02	0	1.28	3.494	0.187	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.02	0	1.23	2.881	0.142	0.003
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.02	0	1.26	3.218	0.166	0.004
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.02	0	1.27	3.377	0.178	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Northern Pike
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: newNOr.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.01	0	1.61	**9.299**	0.799	0.033
14	1	0	32	77.1	56.3	0.9	0.02	0.01	0	1.52	**7.38**	0.562	0.02
15	1	0	32	93.6	67.8	0.9	0.02	0.01	0	1.62	**9.449**	0.819	0.034
16	1	0	32	356	251.5	0.9	0.02	0.01	0	3.14	**53.823**	**16.087**	2.325
17	1	0	32	150.5	107.7	0.9	0.02	0.01	0	1.96	**18.173**	2.299	0.137
9	1	0	32	91.8	66.5	0.9	0.02	0.01	0	1.61	**9.209**	0.787	0.032
40	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.01	0	1.34	4.324	0.255	0.007
1017	1	0	32	139.2	99.8	0.9	0.02	0.01	0	1.89	**16.291**	1.925	0.107
1018	1	0	32	51.9	38.6	0.9	0.02	0.01	0	1.37	4.711	0.289	0.008
42	1	0	32	229.6	163.1	0.9	0.02	0.01	0	2.42	**32.375**	**6.128**	0.548
44	1	0	32	99.7	72.1	0.9	0.02	0.01	0	1.65	**10.28**	0.932	0.04
46	1	0	32	188.7	134.4	0.9	0.02	0.01	0	2.18	**24.894**	3.881	0.285
47	1	0	32	222.3	157.9	0.9	0.02	0.01	0	2.38	**31.03**	**5.684**	0.491
49	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.01	0	1.41	**5.426**	0.355	0.011
61	1	0	32	137.2	98.3	0.9	0.02	0.01	0	1.88	**15.954**	1.862	0.102
22	1	0	32	118.9	85.5	0.9	0.02	0.01	0	1.77	**13.063**	1.354	0.066
25	1	0	32	54.5	40.4	0.9	0.02	0.01	0	1.38	4.956	0.311	0.009
27	1	0	32	135.3	97	0.9	0.02	0.01	0	1.87	**15.639**	1.803	0.098
28	1	0	32	49.2	36.8	0.9	0.02	0.01	0	1.35	4.471	0.267	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.01	0	1.31	3.903	0.219	0.006
30	1	0	32	51.6	38.4	0.9	0.02	0.01	0	1.36	4.685	0.286	0.008
31	1	0	32	255.8	181.3	0.9	0.02	0.01	0	2.57	**37.115**	**7.844**	0.785
33	1	0	32	206.4	146.8	0.9	0.02	0.01	0	2.29	**28.122**	4.785	0.384
35	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.01	0	3.36	**59.461**	**19.838**	3.234

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
55	1	0	32	67.1	49.2	0.9	0.02	0.01	0	1.46	**6.242**	0.438	0.015
56	1	0	32	185.9	132.4	0.9	0.02	0.01	0	2.17	**24.394**	3.749	0.271
58	1	0	32	73.3	53.6	0.9	0.02	0.01	0	1.5	**6.938**	0.512	0.018
59	1	0	32	206.6	146.9	0.9	0.02	0.01	0	2.29	**28.155**	4.795	0.385
59A	1	0	32	335.3	237	0.9	0.02	0.01	0	3.02	**50.628**	**14.206**	1.917
62	1	0	32	118.1	85	0.9	0.02	0.01	0	1.76	**12.944**	1.335	0.065
62G	1	0	32	70.6	51.7	0.9	0.02	0.01	0	1.48	**6.629**	0.479	0.016
66	1	0	32	141.1	101	0.9	0.02	0.01	0	1.9	**16.591**	1.983	0.112
67	1	0	32	174.5	124.4	0.9	0.02	0.01	0	2.1	**22.341**	3.233	0.22
70	1	0	32	202.6	144.1	0.9	0.02	0.01	0	2.26	**27.428**	4.582	0.361
71	1	0	32	127	91.2	0.9	0.02	0.01	0	1.82	**14.319**	1.566	0.081
72M	1	0	32	253.9	180.1	0.9	0.02	0.01	0	2.56	**36.787**	**7.717**	0.767
72U	1	0	32	109.7	79.1	0.9	0.02	0.01	0	1.71	**11.696**	1.139	0.052
75	1	0	32	381.8	269.6	0.9	0.02	0.01	0	3.28	**57.596**	**18.532**	2.903
82	1	0	32	54.8	40.6	0.9	0.02	0.01	0	1.38	4.986	0.314	0.009
85	1	0	32	57.4	42.5	0.9	0.02	0.01	0	1.4	**5.239**	0.337	0.01
86	1	0	32	115.3	83	0.9	0.02	0.01	0	1.75	**12.531**	1.269	0.061
87	1	0	32	99.5	72	0.9	0.02	0.01	0	1.65	**10.257**	0.929	0.04
94M	1	0	32	73.9	54	0.9	0.02	0.01	0	1.5	**7.007**	0.52	0.018
106	1	0	32	387.2	273.4	0.9	0.02	0.01	0	3.31	**58.357**	**19.056**	3.034
107	1	0	32	169.3	120.8	0.9	0.02	0.01	0	2.07	**21.432**	3.016	0.2
108	1	0	32	185.4	132.1	0.9	0.02	0.01	0	2.16	**24.303**	3.726	0.269
109	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.01	0	1.59	**8.79**	0.733	0.029
110G	1	0	32	41.5	31.4	0.9	0.02	0.01	0	1.3	3.806	0.211	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.01	0	1.48	**6.605**	0.476	0.016
112	1	0	32	471.3	332.2	0.9	0.02	0.01	0	3.77	**68.747**	**27.486**	**5.5**
112G	1	0	32	181.5	129.4	0.9	0.02	0.01	0	2.14	**23.607**	3.547	0.251
113low	1	0	32	263	186.4	0.9	0.02	0.01	0	2.61	**38.417**	**8.358**	0.862
113up	1	0	32	398.8	281.5	0.9	0.02	0.01	0	3.38	**59.944**	**20.187**	3.326
115SP	1	0	32	493.1	347.5	0.9	0.02	0.01	0	3.89	**71.027**	**29.713**	**6.268**
21	1	0	32	104.1	75.2	0.9	0.02	0.01	0	1.68	**10.889**	1.019	0.045
21G	1	0	32	337.4	238.5	0.9	0.02	0.01	0	3.03	**50.968**	**14.399**	1.958
116M	1	0	32	347.4	245.4	0.9	0.02	0.01	0	3.09	**52.513**	**15.296**	2.149
122	1	0	32	69	50.6	0.9	0.02	0.01	0	1.47	**6.459**	0.46	0.016
121	1	0	32	148.3	106.1	0.9	0.02	0.01	0	1.94	**17.797**	2.222	0.131
123	1	0	32	336.5	237.9	0.9	0.02	0.01	0	3.03	**50.833**	**14.322**	1.942
135	1	0	32	130.2	93.5	0.9	0.02	0.01	0	1.84	**14.833**	1.657	0.087
146	1	0	32	81.4	59.3	0.9	0.02	0.01	0	1.55	**7.9**	0.623	0.023
146G	1	0	32	43.2	32.6	0.9	0.02	0.01	0	1.31	3.948	0.223	0.006
147	1	0	32	50.9	37.9	0.9	0.02	0.01	0	1.36	4.622	0.281	0.008
151	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.01	0	2.15	**23.946**	3.634	0.26
160	1	0	32	153.4	109.7	0.9	0.02	0.01	0	1.97	**18.657**	2.399	0.145
163	1	0	32	158.1	113	0.9	0.02	0.01	0	2	**19.472**	2.574	0.16
163G	1	0	32	222.8	158.3	0.9	0.02	0.01	0	2.38	**31.126**	**5.715**	0.495

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
164	1	0	32	118	84.9	0.9	0.02	0.01	0	1.76	**12.926**	1.332	0.065
167	1	0	32	71.4	52.3	0.9	0.02	0.01	0	1.48	**6.725**	0.489	0.017
168	1	0	32	365.9	258.4	0.9	0.02	0.01	0	3.19	**55.302**	**17.015**	2.538
169	1	0	32	262	185.7	0.9	0.02	0.01	0	2.61	**38.225**	**8.281**	0.851
169A	1	0	32	238.9	169.5	0.9	0.02	0.01	0	2.47	**34.06**	**6.711**	0.625
320new	1	0	32	555.7	391.3	0.9	0.02	0.01	0	4.23	**76.731**	**36.061**	**8.742**
216	1	0	32	310.2	219.4	0.9	0.02	0.01	0	2.88	**46.567**	**12.039**	1.489
1030	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.01	0	2.79	**43.839**	**10.714**	1.248
174M	1	0	32	23.7	18.9	0.9	0.02	0.01	0	1.19	2.505	0.116	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.01	0	2.08	**21.778**	3.098	0.207
238G	1	0	32	47.1	35.3	0.9	0.02	0.01	0	1.34	4.284	0.251	0.007
238M	1	0	32	34.9	26.8	0.9	0.02	0.01	0	1.26	3.286	0.171	0.004
176G	1	0	32	140.1	100.4	0.9	0.02	0.01	0	1.9	**16.441**	1.954	0.109
176M	1	0	32	215.9	153.4	0.9	0.02	0.01	0	2.34	**29.855**	**5.311**	0.446
177	1	0	32	172.8	123.2	0.9	0.02	0.01	0	2.09	**22.042**	3.161	0.213
206	1	0	32	142.4	101.9	0.9	0.02	0.01	0	1.91	**16.805**	2.024	0.115
208	1	0	32	161.9	115.6	0.9	0.02	0.01	0	2.02	**20.126**	2.718	0.173
208AA	1	0	32	173.4	123.6	0.9	0.02	0.01	0	2.09	**22.144**	3.186	0.216
208BM	1	0	32	112.5	81.1	0.9	0.02	0.01	0	1.73	**12.113**	1.203	0.056
208G	1	0	32	92.1	66.7	0.9	0.02	0.01	0	1.61	**9.247**	0.792	0.032
209A	1	0	32	115.7	83.3	0.9	0.02	0.01	0	1.75	**12.585**	1.277	0.061
213	1	0	32	440.1	310.4	0.9	0.02	0.01	0	3.6	**65.19**	**24.309**	4.491
185	1	0	32	196.7	140	0.9	0.02	0.01	0	2.23	**26.341**	4.274	0.327
185G	1	0	32	71	52	0.9	0.02	0.01	0	1.48	**6.68**	0.484	0.017
186	1	0	32	242.3	171.9	0.9	0.02	0.01	0	2.49	**34.682**	**6.933**	0.655
1035	1	0	32	114.9	82.8	0.9	0.02	0.01	0	1.75	**12.472**	1.259	0.06
1036	1	0	32	76.8	56	0.9	0.02	0.01	0	1.52	**7.342**	0.558	0.02
1037	1	0	32	98.4	71.2	0.9	0.02	0.01	0	1.65	**10.105**	0.908	0.039
189	1	0	32	154.4	110.4	0.9	0.02	0.01	0	1.98	**18.842**	2.439	0.149
1060	1	0	32	127.8	91.8	0.9	0.02	0.01	0	1.82	**14.446**	1.588	0.082
192	1	0	32	262.5	186	0.9	0.02	0.01	0	2.61	**38.311**	**8.315**	0.856
1020	1	0	32	96.5	69.9	0.9	0.02	0.01	0	1.64	**9.844**	0.872	0.037
1021	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.01	0	1.9	**16.452**	1.956	0.11
194	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.01	0	3.64	**66.018**	**25.019**	4.707
201G	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.01	0	1.35	4.414	0.262	0.007
230G	1	0	32	80.1	58.4	0.9	0.02	0.01	0	1.54	**7.736**	0.604	0.022
196	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.01	0	1.81	**14.082**	1.525	0.078
231Lower	1	0	32	138	98.9	0.9	0.02	0.01	0	1.88	**16.083**	1.886	0.104

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
7	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.01	0	1.45	**6.165**	0.43	0.014
246	1	0	32	29.2	22.8	0.9	0.02	0.01	0	1.23	2.872	0.141	0.003
18	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.01	0	1.57	**8.46**	0.692	0.027
250	1	0	32	92.2	66.8	0.9	0.02	0.01	0	1.61	**9.262**	0.794	0.032
253	1	0	32	110	79.3	0.9	0.02	0.01	0	1.72	**11.737**	1.145	0.053
258	1	0	32	767.7	539.7	0.9	0.02	0.01	0	5.33	**88.909**	**55.364**	**19.348**
259	1	0	32	240.7	170.8	0.9	0.02	0.01	0	2.48	**34.384**	**6.826**	0.641
284M	1	0	32	152.7	109.2	0.9	0.02	0.01	0	1.97	**18.545**	2.376	0.143
285M	1	0	32	157.6	112.7	0.9	0.02	0.01	0	2	**19.393**	2.557	0.159
287	1	0	32	150.2	107.4	0.9	0.02	0.01	0	1.96	**18.12**	2.288	0.136
288	1	0	32	68.2	50	0.9	0.02	0.01	0	1.46	**6.362**	0.45	0.015
288G1	1	0	32	79.7	58.1	0.9	0.02	0.01	0	1.53	**7.685**	0.598	0.022
288G2	1	0	32	59.8	44.2	0.9	0.02	0.01	0	1.41	**5.487**	0.361	0.011
289G3	1	0	32	76.3	55.7	0.9	0.02	0.01	0	1.51	**7.284**	0.551	0.02
291	1	0	32	77.6	56.6	0.9	0.02	0.01	0	1.52	**7.434**	0.569	0.021
306	1	0	32	86.1	62.6	0.9	0.02	0.01	0	1.57	**8.482**	0.694	0.027
315	1	0	32	37.7	28.7	0.9	0.02	0.01	0	1.28	3.499	0.187	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.01	0	1.69	**11.043**	1.041	0.046
317	1	0	32	227.9	161.8	0.9	0.02	0.01	0	2.41	**32.054**	**6.021**	0.534
317M	1	0	32	494.8	348.7	0.9	0.02	0.01	0	3.9	**71.202**	**29.89**	**6.331**
318	1	0	32	452.2	318.9	0.9	0.02	0.01	0	3.67	**66.613**	**25.54**	4.87
319	1	0	32	505.5	356.2	0.9	0.02	0.01	0	3.96	**72.26**	**30.985**	**6.729**
319M	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.01	0	4.02	**73.401**	**32.208**	**7.189**
421	1	0	32	318.8	225.4	0.9	0.02	0.01	0	2.93	**47.978**	**12.765**	1.628
410	1	0	32	394	278.1	0.9	0.02	0.01	0	3.35	**59.292**	**19.717**	3.203
412	1	0	32	12.8	11.3	0.9	0.02	0.01	0	1.13	1.868	0.077	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.01	0	4.16	**75.683**	**34.8**	**8.215**
325	1	0	32	37.8	28.8	0.9	0.02	0.01	0	1.28	3.51	0.188	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.01	0	1.48	**6.729**	0.49	0.017
327	1	0	32	50	37.3	0.9	0.02	0.01	0	1.36	4.545	0.274	0.008
999G1	1	0	32	85.9	62.4	0.9	0.02	0.01	0	1.57	**8.455**	0.691	0.027
999M1	1	0	32	79.9	58.2	0.9	0.02	0.01	0	1.54	**7.711**	0.601	0.022
999M2	1	0	32	56.1	41.6	0.9	0.02	0.01	0	1.39	**5.117**	0.326	0.01
999M3	1	0	32	83.8	61	0.9	0.02	0.01	0	1.56	**8.192**	0.659	0.025
72	1	0	32	230.4	163.6	0.9	0.02	0.01	0	2.42	**32.511**	**6.174**	0.554
1001	1	0	32	408.4	288.1	0.9	0.02	0.01	0	3.43	**61.211**	**21.126**	3.577
401	1	0	32	1101.5	773.4	0.9	0.02	0.01	0	6.95	**96.311**	**75.839**	**38.252**
402	1	0	32	577.5	406.6	0.9	0.02	0.01	0	4.34	**78.456**	**38.24**	**9.694**
403	1	0	32	419.6	296	0.9	0.02	0.01	0	3.49	**62.66**	**22.243**	3.887
440	1	0	32	145.2	103.9	0.9	0.02	0.01	0	1.93	**17.277**	2.117	0.122
441	1	0	32	737.9	518.8	0.9	0.02	0.01	0	5.18	**87.709**	**52.938**	**17.715**
442	1	0	32	258.8	183.4	0.9	0.02	0.01	0	2.59	**37.655**	**8.055**	0.817

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1005	1	0	32	112.1	80.8	0.9	0.02	0.01	0	1.73	**12.052**	1.193	0.056
1006	1	0	32	91.7	66.5	0.9	0.02	0.01	0	1.61	**9.196**	0.785	0.032
1007	1	0	32	51.9	38.6	0.9	0.02	0.01	0	1.37	4.715	0.289	0.008
1008	1	0	32	91.5	66.3	0.9	0.02	0.01	0	1.61	**9.172**	0.782	0.032
1010	1	0	32	110.8	79.8	0.9	0.02	0.01	0	1.72	**11.851**	1.162	0.054
1011	1	0	32	146.2	104.7	0.9	0.02	0.01	0	1.93	**17.451**	2.152	0.125
345	1	0	32	103.9	75	0.9	0.02	0.01	0	1.68	**10.867**	1.016	0.045
346	1	0	32	130.4	93.6	0.9	0.02	0.01	0	1.84	**14.863**	1.662	0.088
347	1	0	32	312.7	221.2	0.9	0.02	0.01	0	2.9	**46.979**	**12.249**	1.528
430	1	0	32	262	185.7	0.9	0.02	0.01	0	2.61	**38.225**	**8.281**	0.851
431	1	0	32	110.3	79.5	0.9	0.02	0.01	0	1.72	**11.779**	1.151	0.053
432	1	0	32	307.5	217.5	0.9	0.02	0.01	0	2.87	**46.11**	**11.81**	1.446
801	1	0	32	239.9	170.3	0.9	0.02	0.01	0	2.48	**34.251**	**6.779**	0.634
3000	1	0	32	26.6	20.9	0.9	0.02	0.01	0	1.21	2.695	0.129	0.003
3001	1	0	32	371	262	0.9	0.02	0.01	0	3.22	**56.048**	**17.498**	2.652
3003	1	0	32	294.5	208.5	0.9	0.02	0.01	0	2.79	**43.921**	**10.752**	1.255
3004	1	0	32	81.9	59.6	0.9	0.02	0.01	0	1.55	**7.957**	0.63	0.024
280	1	0	32	367.4	259.5	0.9	0.02	0.01	0	3.2	**55.52**	**17.155**	2.57
280yard	1	0	32	302.9	214.3	0.9	0.02	0.01	0	2.84	**45.34**	**11.431**	1.376
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.01	0	1.48	**6.575**	0.473	0.016
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.01	0	1.55	**7.939**	0.628	0.024
075-O1	1	0	32	265	187.8	0.9	0.02	0.01	0	2.62	**38.769**	**8.5**	0.884
076-G1	1	0	32	85	61.8	0.9	0.02	0.01	0	1.57	**8.338**	0.676	0.026
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.01	0	1.63	**9.649**	0.845	0.035
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.01	0	1.62	**9.424**	0.815	0.033
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.01	0	1.61	**9.165**	0.781	0.032
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.01	0	2	**19.339**	2.545	0.158
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.01	0	1.25	3.086	0.156	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.01	0	1.24	3.019	0.151	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.01	0	1.22	2.818	0.137	0.003
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.01	0	1.27	3.393	0.179	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.01	0	1.28	3.459	0.184	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.01	0	1.26	3.272	0.17	0.004
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.01	0	1.28	3.517	0.189	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.01	0	1.2	2.562	0.12	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.01	0	1.21	2.71	0.13	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.01	0	1.25	3.073	0.155	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.01	0	1.48	**6.546**	0.47	0.016
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.01	0	1.79	**13.498**	1.426	0.071
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.01	0	1.19	2.503	0.116	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.01	0	1.27	3.387	0.179	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.01	0	1.33	4.14	0.239	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.01	0	1.81	**14.196**	1.545	0.079
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.01	0	1.19	2.447	0.112	0.002
082-G2	1	0	32	41.1	31	0.9	0.02	0.01	0	1.3	3.767	0.208	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.01	0	1.3	3.825	0.213	0.006

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.01	0	1.27	3.323	0.174	0.004
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.01	0	1.31	3.921	0.221	0.006
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.01	0	1.27	3.323	0.174	0.004
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.01	0	1.24	2.971	0.148	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.01	0	1.32	4.046	0.231	0.006
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.01	0	1.28	3.485	0.186	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.01	0	1.42	**5.506**	0.363	0.011
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.01	0	1.53	**7.686**	0.598	0.022
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.01	0	2	**19.32**	2.541	0.157
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.01	0	1.49	**6.805**	0.498	0.017
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.01	0	1.42	**5.587**	0.371	0.012
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.01	0	1.61	**9.312**	0.801	0.033
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.01	0	1.36	4.69	0.287	0.008
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.01	0	1.61	**9.312**	0.801	0.033
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.01	0	2.16	**24.094**	3.671	0.263
088-H2	1	0	32	159	113.6	0.9	0.02	0.01	0	2.01	**19.63**	2.608	0.163
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.01	0	1.87	**15.81**	1.835	0.1
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.01	0	1.54	**7.778**	0.609	0.023
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.01	0	1.63	**9.649**	0.845	0.035
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.01	0	1.42	**5.535**	0.366	0.012
090-H1	1	0	32	95.3	69	0.9	0.02	0.01	0	1.63	**9.686**	0.85	0.035
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.01	0	2	**19.339**	2.545	0.158
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.01	0	1.54	**7.88**	0.621	0.023
091-H1	1	0	32	56	41.5	0.9	0.02	0.01	0	1.39	**5.105**	0.325	0.01
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.01	0	2.13	**23.389**	3.492	0.245
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.01	0	1.67	**10.57**	0.973	0.042
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.01	0	1.46	**6.331**	0.447	0.015
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.01	0	1.54	**7.744**	0.605	0.022
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.01	0	1.52	**7.382**	0.563	0.02
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.01	0	2.1	**22.287**	3.22	0.219
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.01	0	1.77	**13.027**	1.348	0.066
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.01	0	1.95	**17.941**	2.251	0.133
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.01	0	2.12	**22.887**	3.367	0.233
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.01	0	2.13	**23.187**	3.441	0.24
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.01	0	2.9	**47.09**	**12.305**	1.539
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.01	0	1.91	**16.777**	2.019	0.114
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.01	0	1.76	**12.898**	1.328	0.065
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.01	0	1.27	3.393	0.179	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.01	0	1.26	3.247	0.168	0.004
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.01	0	1.19	2.442	0.112	0.002
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.01	0	1.39	**5.149**	0.329	0.01
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.01	0	1.44	**5.848**	0.397	0.013
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.01	0	1.92	**17.15**	2.092	0.12
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.01	0	2.08	**21.672**	3.073	0.205
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.01	0	1.33	4.194	0.244	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.01	0	1.9	**16.51**	1.967	0.11

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.01	0	1.59	**8.772**	0.731	0.029
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.01	0	1.5	**6.971**	0.516	0.018
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.01	0	1.89	**16.16**	1.9	0.105
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.01	0	1.36	4.607	0.279	0.008
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.01	0	1.84	**15.041**	1.694	0.09
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.01	0	2.3	**28.675**	4.95	0.403
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.01	0	1.39	**5.149**	0.329	0.01
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.01	0	1.23	2.921	0.144	0.003
103-H1	1	0	32	118	84.9	0.9	0.02	0.01	0	1.76	**12.925**	1.332	0.065
103-O1	1	0	32	99	71.6	0.9	0.02	0.01	0	1.65	**10.182**	0.918	0.039
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.01	0	2.14	**23.707**	3.573	0.253
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.01	0	2.04	**20.683**	2.843	0.184
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.01	0	1.95	**18.053**	2.274	0.135
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.01	0	1.69	**11.127**	1.054	0.047
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.01	0	2.35	**30.104**	**5.389**	0.455
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.01	0	1.22	2.818	0.137	0.003
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.01	0	1.22	2.824	0.138	0.003
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.01	0	1.16	2.192	0.096	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.01	0	1.2	2.582	0.121	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.01	0	2.44	**33.148**	**6.392**	0.582
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.01	0	1.49	**6.877**	0.506	0.018
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.01	0	1.77	**13.155**	1.369	0.067
108-O2	1	0	32	53.9	40	0.9	0.02	0.01	0	1.38	4.903	0.306	0.009
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.01	0	1.61	**9.202**	0.786	0.032
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.01	0	1.46	**6.315**	0.445	0.015
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.01	0	1.24	2.982	0.149	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.01	0	1.41	**5.382**	0.351	0.011
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.01	0	1.33	4.191	0.243	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.01	0	1.54	**7.809**	0.612	0.023
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.01	0	1.31	3.838	0.214	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.01	0	1.64	**9.954**	0.887	0.037
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.01	0	1.57	**8.393**	0.683	0.026
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.01	0	2.81	**44.327**	**10.943**	1.289
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.01	0	2.08	**21.839**	3.113	0.209
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.01	0	2.19	**25.158**	3.951	0.292
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.01	0	1.51	**7.287**	0.552	0.02
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.01	0	1.79	**13.671**	1.455	0.073
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.01	0	2.78	**43.623**	**10.613**	1.231
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.01	0	2.98	**49.356**	**13.501**	1.773
114-O1	1	0	32	263	186.4	0.9	0.02	0.01	0	2.61	**38.407**	**8.354**	0.862
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.01	0	3.35	**59.388**	**19.786**	3.221
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.01	0	1.87	**15.718**	1.818	0.099
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.01	0	1.15	2.034	0.086	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.01	0	1.21	2.676	0.127	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.01	0	1.18	2.388	0.108	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.01	0	1.18	2.389	0.108	0.002
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.01	0	1.34	4.281	0.251	0.007
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.01	0	1.51	**7.277**	0.551	0.02
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.01	0	2.69	**40.679**	**9.297**	1.01
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.01	0	1.4	**5.242**	0.338	0.01
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.01	0	1.39	**5.014**	0.316	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.01	0	1.41	**5.337**	0.347	0.011
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.01	0	1.62	**9.411**	0.814	0.033
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.01	0	1.24	3.007	0.151	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.01	0	1.32	4.022	0.229	0.006
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.01	0	1.18	2.374	0.107	0.002
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.01	0	1.29	3.61	0.196	0.005
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.01	0	1.45	**6.061**	0.419	0.014
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.01	0	1.41	**5.374**	0.35	0.011
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.01	0	1.74	**12.393**	1.247	0.059
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.01	0	1.45	**6.178**	0.431	0.014
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.01	0	2.06	**21.097**	2.939	0.193
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.01	0	2.51	**35.138**	**7.099**	0.678
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.01	0	2.94	**48.327**	**12.949**	1.664
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.01	0	1.54	**7.83**	0.615	0.023
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.01	0	1.62	**9.387**	0.81	0.033
123-H1	1	0	32	72.4	53	0.9	0.02	0.01	0	1.49	**6.84**	0.502	0.018
123-O1	1	0	32	101	73	0.9	0.02	0.01	0	1.66	**10.453**	0.956	0.041
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.01	0	2.37	**30.687**	**5.574**	0.478
124-G1	1	0	32	28	21.9	0.9	0.02	0.01	0	1.22	2.789	0.135	0.003
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.01	0	1.52	**7.323**	0.556	0.02
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.01	0	1.26	3.297	0.172	0.004
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.01	0	1.22	2.761	0.133	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.01	0	1.1	1.65	0.064	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.01	0	1.52	**7.316**	0.555	0.02
125-O1	1	0	32	70	51.3	0.9	0.02	0.01	0	1.48	**6.569**	0.472	0.016
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.01	0	1.44	**5.998**	0.412	0.014
126-G1	1	0	32	49	36.6	0.9	0.02	0.01	0	1.35	4.454	0.266	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.01	0	1.31	3.857	0.216	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.01	0	1.18	2.4	0.109	0.002
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.01	0	1.35	4.431	0.264	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.01	0	1.21	2.615	0.123	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.01	0	1.35	4.537	0.273	0.008
126-P1	1	0	32	28.1	22	0.9	0.02	0.01	0	1.22	2.797	0.136	0.003
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.01	0	1.76	**12.898**	1.328	0.065
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.01	0	1.43	**5.83**	0.395	0.013
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.01	0	1.45	**6.008**	0.413	0.014
127-H1	1	0	32	96.8	70	0.9	0.02	0.01	0	1.64	**9.876**	0.876	0.037
127-H2	1	0	32	42.5	32	0.9	0.02	0.01	0	1.31	3.885	0.218	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.01	0	1.77	**12.984**	1.341	0.065
128-G1	1	0	32	37	28.2	0.9	0.02	0.01	0	1.28	3.44	0.183	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.01	0	1.47	**6.405**	0.455	0.015
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.01	0	1.29	3.676	0.201	0.005
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.01	0	1.78	**13.288**	1.391	0.069
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.01	0	1.47	**6.479**	0.463	0.016
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.01	0	2.81	**44.364**	**10.961**	1.292
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.01	0	3.03	**50.716**	**14.256**	1.928
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.01	0	1.28	3.467	0.185	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.01	0	1.16	2.143	0.093	0.002
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.01	0	1.37	4.826	0.299	0.009
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.01	0	1.87	**15.673**	1.809	0.098
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.01	0	1.16	2.182	0.095	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.01	0	1.1	1.601	0.062	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.01	0	1.22	2.828	0.138	0.003
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.01	0	1.25	3.159	0.162	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.01	0	1.99	**19.204**	2.516	0.155
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.01	0	1.7	**11.438**	1.1	0.05
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.01	0	4.36	**78.67**	**38.521**	**9.821**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.01	0	1.75	**12.648**	1.287	0.062
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.01	0	2.07	**21.432**	3.016	0.2
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.01	0	1.74	**12.323**	1.236	0.059
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.01	0	1.22	2.738	0.132	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.01	0	1.2	2.587	0.121	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.01	0	1.26	3.242	0.168	0.004
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.01	0	2.27	**27.784**	4.686	0.372
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.01	0	2.13	**23.438**	3.504	0.247
137-O2	1	0	32	122	87.7	0.9	0.02	0.01	0	1.79	**13.541**	1.433	0.072
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.01	0	1.27	3.329	0.174	0.004
138-G2	1	0	32	48.1	36	0.9	0.02	0.01	0	1.34	4.371	0.259	0.007
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.01	0	1.22	2.824	0.138	0.003
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.01	0	1.2	2.549	0.119	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.01	0	1.33	4.14	0.239	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.01	0	1.33	4.245	0.248	0.007
139-G2	1	0	32	39.6	30	0.9	0.02	0.01	0	1.29	3.651	0.199	0.005
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.01	0	1.31	3.901	0.219	0.006
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.01	0	1.33	4.142	0.239	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.01	0	2.61	**38.417**	**8.358**	0.862
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.01	0	3.9	**71.13**	**29.817**	**6.305**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.01	0	1.29	3.597	0.195	0.005
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.01	0	1.47	**6.413**	0.456	0.015
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.01	0	1.54	**7.778**	0.609	0.023
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.01	0	1.45	**6.034**	0.416	0.014
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.01	0	1.23	2.888	0.142	0.003
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.01	0	1.3	3.822	0.213	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.01	0	1.13	1.85	0.076	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.01	0	1.28	3.55	0.191	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.01	0	1.32	4.005	0.228	0.006
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.01	0	1.64	**9.989**	0.892	0.038
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.01	0	1.47	**6.472**	0.462	0.016
143-A1	1	0	32	52	38.7	0.9	0.02	0.01	0	1.37	4.724	0.29	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.01	0	1.45	**6.121**	0.425	0.014
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.01	0	1.34	4.259	0.249	0.007
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.01	0	1.48	**6.631**	0.479	0.016
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.01	0	1.65	**10.123**	0.91	0.039
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.01	0	1.9	**16.498**	1.965	0.11
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.01	0	1.42	**5.644**	0.377	0.012
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.01	0	2.01	**19.775**	2.64	0.166
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.01	0	10.01	**99.481**	**93.001**	**68.292**
147-G1	1	0	32	59.7	44	0.9	0.02	0.01	0	1.41	**5.466**	0.359	0.011
147-G2	1	0	32	85	61.8	0.9	0.02	0.01	0	1.57	**8.338**	0.676	0.026
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.01	0	1.56	**8.128**	0.651	0.025
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.01	0	1.34	4.391	0.26	0.007
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.01	0	1.43	**5.673**	0.38	0.012
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.01	0	1.69	**11.045**	1.042	0.046
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.01	0	1.33	4.228	0.246	0.007
149-G1	1	0	32	49	36.6	0.9	0.02	0.01	0	1.35	4.446	0.265	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.01	0	1.38	4.954	0.311	0.009
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.01	0	1.5	**6.926**	0.511	0.018
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.01	0	1.26	3.247	0.168	0.004
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.01	0	1.32	3.991	0.227	0.006
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.01	0	1.28	3.517	0.189	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.01	0	1.66	**10.492**	0.962	0.042
152-G1	1	0	32	114	82.1	0.9	0.02	0.01	0	1.74	**12.329**	1.237	0.059
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.01	0	2.05	**20.802**	2.871	0.186
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.01	0	1.69	**11.112**	1.052	0.047
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.01	0	2.72	**41.798**	**9.785**	1.09
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.01	0	2.38	**31.066**	**5.696**	0.493
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.01	0	3.23	**56.267**	**17.642**	2.686
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.01	0	2.37	**30.689**	**5.574**	0.478
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.01	0	2.85	**45.624**	**11.57**	1.402
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.01	0	1.67	**10.586**	0.975	0.043
153-O7	1	0	32	361	255	0.9	0.02	0.01	0	3.17	**54.58**	**16.558**	2.432
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.01	0	2.71	**41.425**	**9.621**	1.063
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.01	0	1.18	2.359	0.106	0.002
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.01	0	1.18	2.384	0.108	0.002
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.01	0	1.89	**16.36**	1.938	0.108
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.01	0	1.61	**9.202**	0.786	0.032
155-H1	1	0	32	52.4	39	0.9	0.02	0.01	0	1.37	4.763	0.293	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.01	0	2.06	**21.244**	2.973	0.196
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.01	0	2.66	**39.812**	**8.93**	0.951
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.01	0	1.55	**7.931**	0.627	0.024

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.01	0	1.93	**17.384**	2.139	0.124
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.01	0	1.3	3.816	0.212	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.01	0	1.61	**9.312**	0.801	0.033
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.01	0	1.43	**5.821**	0.394	0.013
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.01	0	1.46	**6.248**	0.438	0.015
158-H1	1	0	32	33.8	26	0.9	0.02	0.01	0	1.26	3.202	0.165	0.004
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.01	0	1.36	4.646	0.283	0.008
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.01	0	1.48	**6.602**	0.476	0.016
159-H1	1	0	32	59.6	44	0.9	0.02	0.01	0	1.41	**5.463**	0.359	0.011
159-H2	1	0	32	101	73	0.9	0.02	0.01	0	1.66	**10.453**	0.956	0.041
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.01	0	1.32	4.034	0.23	0.006
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.01	0	1.36	4.654	0.284	0.008
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.01	0	1.84	**14.86**	1.661	0.088
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.01	0	1.54	**7.757**	0.606	0.023
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.01	0	1.51	**7.139**	0.535	0.019
161-H1	1	0	32	129.6	93	0.9	0.02	0.01	0	1.83	**14.726**	1.638	0.086
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.01	0	1.66	**10.414**	0.951	0.041
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.01	0	1.54	**7.816**	0.613	0.023
163-G1	1	0	32	53	39.4	0.9	0.02	0.01	0	1.37	4.818	0.298	0.009
163-O1	1	0	32	71	52	0.9	0.02	0.01	0	1.48	**6.679**	0.484	0.017
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.01	0	1.84	**14.816**	1.654	0.087
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.01	0	1.13	1.892	0.078	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.01	0	1.43	**5.773**	0.39	0.013
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.01	0	2.56	**36.828**	**7.733**	0.769
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.01	0	1.65	**10.22**	0.924	0.04
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.01	0	1.98	**18.857**	2.442	0.149
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.01	0	2.39	**31.302**	**5.772**	0.502
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.01	0	2.11	**22.598**	3.296	0.226
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.01	0	2.39	**31.377**	**5.797**	0.506
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.01	0	2.52	**35.443**	**7.211**	0.694
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.01	0	3.37	**59.71**	**20.017**	3.281
167-O8	1	0	32	205.3	146	0.9	0.02	0.01	0	2.28	**27.914**	4.724	0.377
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.01	0	2.23	**26.38**	4.285	0.328
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.01	0	1.28	3.485	0.186	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.01	0	1.28	3.524	0.189	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.01	0	1.23	2.841	0.139	0.003
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.01	0	1.25	3.122	0.159	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.01	0	1.34	4.379	0.259	0.007
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.01	0	1.27	3.406	0.18	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.01	0	1.38	4.986	0.314	0.009
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.01	0	1.37	4.747	0.292	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.01	0	1.3	3.801	0.211	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.01	0	1.34	4.296	0.252	0.007
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.01	0	1.76	**12.771**	1.307	0.063
170-H1	1	0	32	77	56.2	0.9	0.02	0.01	0	1.52	**7.373**	0.562	0.02
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.01	0	1.99	**19.049**	2.483	0.152

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.01	0	2.48	**34.374**	**6.823**	0.64
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.01	0	2.44	**33.075**	**6.367**	0.579
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.01	0	1.35	4.469	0.267	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.01	0	1.15	2.099	0.09	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.01	0	1.58	**8.551**	0.703	0.027
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.01	0	1.78	**13.283**	1.391	0.069
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.01	0	1.21	2.659	0.126	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.01	0	1.87	**15.854**	1.843	0.101
173-P1	1	0	32	175	124.8	0.9	0.02	0.01	0	2.1	**22.437**	3.256	0.222
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.01	0	1.49	**6.782**	0.495	0.017
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.01	0	1.53	**7.596**	0.587	0.022
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.01	0	2.13	**23.238**	3.454	0.242
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.01	0	1.52	**7.395**	0.564	0.02
175-G2	1	0	32	26.8	21	0.9	0.02	0.01	0	1.21	2.706	0.129	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.01	0	1.51	**7.189**	0.541	0.019
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.01	0	1.29	3.624	0.197	0.005
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.01	0	1.36	4.568	0.276	0.008
176-H2	1	0	32	29	22.6	0.9	0.02	0.01	0	1.23	2.859	0.14	0.003
176-P1	1	0	32	39	29.6	0.9	0.02	0.01	0	1.29	3.604	0.195	0.005
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.01	0	1.23	2.865	0.14	0.003
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.01	0	1.55	**8.084**	0.645	0.024
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.01	0	3.5	**62.929**	**22.456**	3.947
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.01	0	3.82	**69.665**	**28.364**	**5.797**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.01	0	1.69	**11.174**	1.061	0.048
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.01	0	1.35	4.42	0.263	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.01	0	1.73	**12.076**	1.197	0.056
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.01	0	1.78	**13.45**	1.418	0.071
181-H2	1	0	32	115	82.8	0.9	0.02	0.01	0	1.75	**12.482**	1.261	0.06
181-N1	1	0	32	126.7	91	0.9	0.02	0.01	0	1.82	**14.279**	1.559	0.08
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.01	0	1.89	**16.16**	1.9	0.105
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.01	0	1.4	**5.232**	0.337	0.01
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.01	0	2.24	**26.838**	4.414	0.342
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.01	0	2.13	**23.295**	3.468	0.243
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.01	0	1.89	**16.179**	1.904	0.106
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.01	0	1.86	**15.401**	1.759	0.095
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.01	0	1.72	**11.772**	1.15	0.053
182-O2	1	0	32	186	132.5	0.9	0.02	0.01	0	2.17	**24.404**	3.752	0.272
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.01	0	2.12	**23.087**	3.416	0.238
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.01	0	2.18	**24.924**	3.889	0.286
185-A1	1	0	32	33.8	26	0.9	0.02	0.01	0	1.26	3.205	0.165	0.004
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.01	0	1.25	3.11	0.158	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.01	0	3.11	**52.918**	**15.537**	2.202
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.01	0	1.7	**11.379**	1.091	0.049
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.01	0	1.53	**7.515**	0.578	0.021
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.01	0	1.76	**12.771**	1.307	0.063

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
188-G2	1	0	32	122	87.7	0.9	0.02	0.01	0	1.79	**13.541**	1.433	0.072
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.01	0	1.43	**5.673**	0.38	0.012
188-H1	1	0	32	39	29.6	0.9	0.02	0.01	0	1.29	3.604	0.195	0.005
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.01	0	1.4	**5.165**	0.33	0.01
189-G1	1	0	32	44	33.1	0.9	0.02	0.01	0	1.32	4.012	0.228	0.006
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.01	0	1.51	**7.287**	0.552	0.02
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.01	0	1.68	**10.806**	1.007	0.044
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.01	0	1.77	**13.207**	1.378	0.068
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.01	0	1.16	2.172	0.095	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.01	0	1.3	3.799	0.211	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.01	0	1.21	2.715	0.13	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.01	0	1.2	2.549	0.119	0.003
190-N3	1	0	32	21	17	0.9	0.02	0.01	0	1.18	2.333	0.105	0.002
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.01	0	1.43	**5.786**	0.391	0.013
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.01	0	2.31	**28.991**	**5.045**	0.414
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.01	0	1.28	3.478	0.186	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.01	0	1.22	2.818	0.137	0.003
192-H1	1	0	32	34	26.1	0.9	0.02	0.01	0	1.26	3.213	0.166	0.004
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.01	0	1.16	2.192	0.096	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.01	0	1.18	2.36	0.107	0.002
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.01	0	1.22	2.751	0.133	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.01	0	1.26	3.228	0.167	0.004
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.01	0	1.52	**7.466**	0.572	0.021
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.01	0	1.98	**18.904**	2.452	0.15
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.01	0	2.22	**26.125**	4.214	0.32
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.01	0	1.4	**5.248**	0.338	0.01
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.01	0	1.47	**6.416**	0.456	0.015
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.01	0	1.34	4.333	0.255	0.007
196-O1	1	0	32	69	50.6	0.9	0.02	0.01	0	1.47	**6.45**	0.46	0.016
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.01	0	1.9	**16.567**	1.978	0.111
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.01	0	1.53	**7.528**	0.579	0.021
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.01	0	2.06	**21.244**	2.973	0.196
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.01	0	1.14	1.972	0.083	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.01	0	1.21	2.685	0.128	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.01	0	1.23	2.918	0.144	0.003
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.01	0	1.23	2.865	0.14	0.003
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.01	0	1.22	2.767	0.134	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.01	0	2.96	**48.958**	**13.286**	1.73
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.01	0	2.09	**22.138**	3.184	0.216
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.01	0	1.4	**5.29**	0.342	0.011
202-O1	1	0	32	137	98.2	0.9	0.02	0.01	0	1.88	**15.922**	1.856	0.102
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.01	0	3.82	**69.591**	**28.293**	**5.772**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.01	0	3.97	**72.424**	**31.159**	**6.793**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.01	0	1.75	**12.645**	1.287	0.062

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.01	0	1.36	4.576	0.277	0.008
206-H1	1	0	32	18	14.9	0.9	0.02	0.01	0	1.16	2.156	0.094	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.01	0	2.74	**42.275**	**9.997**	1.125
206-O1	1	0	32	252.4	179	0.9	0.02	0.01	0	2.55	**36.508**	**7.61**	0.751
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.01	0	1.72	**11.862**	1.164	0.054
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.01	0	2.62	**38.605**	**8.434**	0.874
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.01	0	2.47	**34.02**	**6.697**	0.623
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.01	0	3.34	**59.001**	**19.509**	3.149
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.01	0	4.02	**73.401**	**32.209**	**7.189**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.01	0	1.74	**12.265**	1.227	0.058
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.01	0	1.82	**14.461**	1.591	0.083
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.01	0	1.49	**6.773**	0.494	0.017
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.01	0	1.29	3.571	0.193	0.005
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.01	0	1.32	4.069	0.233	0.006
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.01	0	1.48	**6.64**	0.48	0.017
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.01	0	1.82	**14.372**	1.575	0.081
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.01	0	2.18	**24.856**	3.871	0.284
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.01	0	1.95	**17.942**	2.251	0.133
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.01	0	1.27	3.326	0.174	0.004
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.01	0	1.56	**8.259**	0.667	0.026
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.01	0	1.4	**5.253**	0.339	0.01
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.01	0	1.23	2.851	0.139	0.003
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.01	0	1.14	1.985	0.083	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.01	0	1.24	3.007	0.151	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.01	0	1.96	**18.14**	2.292	0.136
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.01	0	3.64	**65.941**	**24.952**	4.687
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.01	0	2.91	**47.302**	**12.414**	1.56
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.01	0	2.45	**33.302**	**6.445**	0.589
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.01	0	1.67	**10.61**	0.979	0.043
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.01	0	2.56	**36.81**	**7.726**	0.768
805-O1	1	0	32	38.2	29	0.9	0.02	0.01	0	1.28	3.538	0.19	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.01	0	1.33	4.14	0.239	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.01	0	1.22	2.812	0.137	0.003
806-O2	1	0	32	29.6	23	0.9	0.02	0.01	0	1.23	2.9	0.143	0.003
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.01	0	1.36	4.599	0.279	0.008
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.01	0	1.28	3.439	0.183	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.01	0	1.28	3.471	0.185	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.01	0	1.23	2.861	0.14	0.003
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.01	0	1.26	3.197	0.164	0.004
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.01	0	1.27	3.355	0.176	0.004
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.01	0	1.17	2.289	0.102	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Rainbow Trout
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES RAI_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.09	0	1.63	**9.607**	0.84	0.035
14	1	0	32	77.1	56.3	0.9	0.02	0.09	0	1.53	**7.656**	0.594	0.022
15	1	0	32	93.6	67.8	0.9	0.02	0.09	0	1.63	**9.759**	0.86	0.036
16	1	0	32	356	251.5	0.9	0.02	0.09	0	3.15	**54.171**	**16.302**	2.373
17	1	0	32	150.5	107.7	0.9	0.02	0.09	0	1.97	**18.568**	2.381	0.144
9	1	0	32	91.8	66.5	0.9	0.02	0.09	0	1.62	**9.516**	0.828	0.034
40	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.09	0	1.35	4.532	0.273	0.008
1017	1	0	32	139.2	99.8	0.9	0.02	0.09	0	1.9	**16.673**	1.999	0.113
1018	1	0	32	51.9	38.6	0.9	0.02	0.09	0	1.38	4.929	0.309	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.09	0	2.43	**32.798**	**6.272**	0.567
44	1	0	32	99.7	72.1	0.9	0.02	0.09	0	1.67	**10.602**	0.978	0.043
46	1	0	32	188.7	134.4	0.9	0.02	0.09	0	2.2	**25.314**	3.993	0.297
47	1	0	32	222.3	157.9	0.9	0.02	0.09	0	2.39	**31.454**	**5.822**	0.509
49	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.09	0	1.43	**5.662**	0.379	0.012
61	1	0	32	137.2	98.3	0.9	0.02	0.09	0	1.89	**16.334**	1.933	0.108
22	1	0	32	118.9	85.5	0.9	0.02	0.09	0	1.78	**13.418**	1.413	0.07
25	1	0	32	54.5	40.4	0.9	0.02	0.09	0	1.4	**5.18**	0.332	0.01
27	1	0	32	135.3	97	0.9	0.02	0.09	0	1.88	**16.017**	1.873	0.103
28	1	0	32	49.2	36.8	0.9	0.02	0.09	0	1.36	4.683	0.286	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.09	0	1.32	4.099	0.236	0.007
30	1	0	32	51.6	38.4	0.9	0.02	0.09	0	1.38	4.902	0.306	0.009
31	1	0	32	255.8	181.3	0.9	0.02	0.09	0	2.58	**37.531**	**8.006**	0.809
33	1	0	32	206.4	146.8	0.9	0.02	0.09	0	2.3	**28.546**	4.911	0.398
35	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.09	0	3.37	**59.776**	**20.065**	3.294
55	1	0	32	67.1	49.2	0.9	0.02	0.09	0	1.47	**6.496**	0.464	0.016

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
56	1	0	32	185.9	132.4	0.9	0.02	0.09	0	2.18	**24.812**	3.859	0.283
58	1	0	32	73.3	53.6	0.9	0.02	0.09	0	1.51	**7.206**	0.543	0.019
59	1	0	32	206.6	146.9	0.9	0.02	0.09	0	2.3	**28.579**	4.921	0.399
59A	1	0	32	335.3	237	0.9	0.02	0.09	0	3.04	**50.993**	**14.413**	1.961
62	1	0	32	118.1	85	0.9	0.02	0.09	0	1.78	**13.297**	1.393	0.069
62G	1	0	32	70.6	51.7	0.9	0.02	0.09	0	1.49	**6.891**	0.507	0.018
66	1	0	32	141.1	101	0.9	0.02	0.09	0	1.91	**16.975**	2.057	0.118
67	1	0	32	174.5	124.4	0.9	0.02	0.09	0	2.11	**22.754**	3.334	0.23
70	1	0	32	202.6	144.1	0.9	0.02	0.09	0	2.28	**27.851**	4.705	0.375
71	1	0	32	127	91.2	0.9	0.02	0.09	0	1.83	**14.685**	1.63	0.085
72M	1	0	32	253.9	180.1	0.9	0.02	0.09	0	2.57	**37.203**	**7.878**	0.79
72U	1	0	32	109.7	79.1	0.9	0.02	0.09	0	1.73	**12.035**	1.191	0.056
75	1	0	32	381.8	269.6	0.9	0.02	0.09	0	3.3	**57.922**	**18.755**	2.958
82	1	0	32	54.8	40.6	0.9	0.02	0.09	0	1.4	**5.211**	0.335	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.09	0	1.41	**5.47**	0.36	0.011
86	1	0	32	115.3	83	0.9	0.02	0.09	0	1.76	**12.88**	1.324	0.064
87	1	0	32	99.5	72	0.9	0.02	0.09	0	1.67	**10.578**	0.974	0.042
94M	1	0	32	73.9	54	0.9	0.02	0.09	0	1.51	**7.277**	0.551	0.02
106	1	0	32	387.2	273.4	0.9	0.02	0.09	0	3.33	**58.678**	**19.281**	3.091
107	1	0	32	169.3	120.8	0.9	0.02	0.09	0	2.08	**21.842**	3.113	0.209
108	1	0	32	185.4	132.1	0.9	0.02	0.09	0	2.18	**24.722**	3.835	0.28
109	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.09	0	1.6	**9.09**	0.772	0.031
110G	1	0	32	41.5	31.4	0.9	0.02	0.09	0	1.32	3.999	0.227	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.09	0	1.49	**6.867**	0.505	0.018
112	1	0	32	471.3	332.2	0.9	0.02	0.09	0	3.79	**68.997**	**27.723**	**5.58**
112G	1	0	32	181.5	129.4	0.9	0.02	0.09	0	2.15	**24.024**	3.653	0.262
113low	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.83**	**8.525**	0.888
113up	1	0	32	398.8	281.5	0.9	0.02	0.09	0	3.39	**60.256**	**20.415**	3.386
115SP	1	0	32	493.1	347.5	0.9	0.02	0.09	0	3.91	**71.261**	**29.95**	**6.352**
21	1	0	32	104.1	75.2	0.9	0.02	0.09	0	1.69	**11.219**	1.067	0.048
21G	1	0	32	337.4	238.5	0.9	0.02	0.09	0	3.05	**51.332**	**14.606**	2.001
116M	1	0	32	347.4	245.4	0.9	0.02	0.09	0	3.1	**52.869**	**15.508**	2.196
122	1	0	32	69	50.6	0.9	0.02	0.09	0	1.48	**6.717**	0.488	0.017
121	1	0	32	148.3	106.1	0.9	0.02	0.09	0	1.96	**18.189**	2.302	0.137
123	1	0	32	336.5	237.9	0.9	0.02	0.09	0	3.04	**51.197**	**14.529**	1.985
135	1	0	32	130.2	93.5	0.9	0.02	0.09	0	1.85	**15.204**	1.723	0.092
146	1	0	32	81.4	59.3	0.9	0.02	0.09	0	1.56	**8.185**	0.658	0.025
146G	1	0	32	43.2	32.6	0.9	0.02	0.09	0	1.33	4.146	0.239	0.007
147	1	0	32	50.9	37.9	0.9	0.02	0.09	0	1.37	4.838	0.3	0.009
151	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.09	0	2.16	**24.364**	3.742	0.271
160	1	0	32	153.4	109.7	0.9	0.02	0.09	0	1.99	**19.054**	2.484	0.152
163	1	0	32	158.1	113	0.9	0.02	0.09	0	2.02	**19.873**	2.662	0.168
163G	1	0	32	222.8	158.3	0.9	0.02	0.09	0	2.39	**31.551**	**5.854**	0.513
164	1	0	32	118	84.9	0.9	0.02	0.09	0	1.78	**13.279**	1.39	0.069
167	1	0	32	71.4	52.3	0.9	0.02	0.09	0	1.5	**6.988**	0.518	0.018

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
168	1	0	32	365.9	258.4	0.9	0.02	0.09	0	3.21	**55.642**	**17.234**	2.589
169	1	0	32	262	185.7	0.9	0.02	0.09	0	2.62	**38.639**	**8.447**	0.876
169A	1	0	32	238.9	169.5	0.9	0.02	0.09	0	2.49	**34.481**	**6.861**	0.646
320new	1	0	32	555.7	391.3	0.9	0.02	0.09	0	4.24	**76.92**	**36.293**	**8.841**
216	1	0	32	310.2	219.4	0.9	0.02	0.09	0	2.89	**46.951**	**12.234**	1.526
1030	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.09	0	2.8	**44.235**	**10.9**	1.281
174M	1	0	32	23.7	18.9	0.9	0.02	0.09	0	1.21	2.656	0.126	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.09	0	2.09	**22.189**	3.196	0.217
238G	1	0	32	47.1	35.3	0.9	0.02	0.09	0	1.35	4.491	0.269	0.008
238M	1	0	32	34.9	26.8	0.9	0.02	0.09	0	1.28	3.463	0.184	0.005
176G	1	0	32	140.1	100.4	0.9	0.02	0.09	0	1.91	**16.824**	2.028	0.115
176M	1	0	32	215.9	153.4	0.9	0.02	0.09	0	2.35	**30.28**	**5.444**	0.462
177	1	0	32	172.8	123.2	0.9	0.02	0.09	0	2.1	**22.453**	3.26	0.223
206	1	0	32	142.4	101.9	0.9	0.02	0.09	0	1.92	**17.19**	2.1	0.121
208	1	0	32	161.9	115.6	0.9	0.02	0.09	0	2.04	**20.53**	2.809	0.181
208AA	1	0	32	173.4	123.6	0.9	0.02	0.09	0	2.11	**22.556**	3.285	0.225
208BM	1	0	32	112.5	81.1	0.9	0.02	0.09	0	1.75	**12.457**	1.257	0.06
208G	1	0	32	92.1	66.7	0.9	0.02	0.09	0	1.62	**9.554**	0.833	0.034
209A	1	0	32	115.7	83.3	0.9	0.02	0.09	0	1.76	**12.934**	1.333	0.065
213	1	0	32	440.1	310.4	0.9	0.02	0.09	0	3.62	**65.466**	**24.544**	4.562
185	1	0	32	196.7	140	0.9	0.02	0.09	0	2.24	**26.763**	4.393	0.34
185G	1	0	32	71	52	0.9	0.02	0.09	0	1.5	**6.943**	0.513	0.018
186	1	0	32	242.3	171.9	0.9	0.02	0.09	0	2.51	**35.103**	**7.086**	0.677
1035	1	0	32	114.9	82.8	0.9	0.02	0.09	0	1.76	**12.82**	1.315	0.064
1036	1	0	32	76.8	56	0.9	0.02	0.09	0	1.53	**7.618**	0.59	0.022
1037	1	0	32	98.4	71.2	0.9	0.02	0.09	0	1.66	**10.424**	0.952	0.041
189	1	0	32	154.4	110.4	0.9	0.02	0.09	0	1.99	**19.24**	2.524	0.156
1060	1	0	32	127.8	91.8	0.9	0.02	0.09	0	1.84	**14.813**	1.653	0.087
192	1	0	32	262.5	186	0.9	0.02	0.09	0	2.62	**38.724**	**8.482**	0.881
1020	1	0	32	96.5	69.9	0.9	0.02	0.09	0	1.65	**10.16**	0.915	0.039
1021	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.09	0	1.91	**16.835**	2.03	0.115
194	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.09	0	3.66	**66.288**	**25.254**	4.781
201G	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.09	0	1.36	4.624	0.281	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.09	0	1.55	**8.019**	0.638	0.024
196	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.09	0	1.82	**14.446**	1.588	0.082
231Lower	1	0	32	138	98.9	0.9	0.02	0.09	0	1.9	**16.463**	1.958	0.11
7	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.09	0	1.47	**6.418**	0.456	0.015
246	1	0	32	29.2	22.8	0.9	0.02	0.09	0	1.24	3.035	0.153	0.004

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
18	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.09	0	1.59	**8.755**	0.729	0.029
250	1	0	32	92.2	66.8	0.9	0.02	0.09	0	1.62	**9.569**	0.835	0.035
253	1	0	32	110	79.3	0.9	0.02	0.09	0	1.73	**12.077**	1.197	0.056
258	1	0	32	767.7	539.7	0.9	0.02	0.09	0	5.34	**88.997**	**55.549**	**19.477**
259	1	0	32	240.7	170.8	0.9	0.02	0.09	0	2.5	**34.805**	**6.978**	0.662
284M	1	0	32	152.7	109.2	0.9	0.02	0.09	0	1.98	**18.941**	2.46	0.15
285M	1	0	32	157.6	112.7	0.9	0.02	0.09	0	2.01	**19.794**	2.644	0.166
287	1	0	32	150.2	107.4	0.9	0.02	0.09	0	1.97	**18.514**	2.37	0.143
288	1	0	32	68.2	50	0.9	0.02	0.09	0	1.48	**6.618**	0.478	0.016
288G1	1	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.967**	0.631	0.024
288G2	1	0	32	59.8	44.2	0.9	0.02	0.09	0	1.43	**5.724**	0.385	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.558**	0.583	0.021
291	1	0	32	77.6	56.6	0.9	0.02	0.09	0	1.54	**7.711**	0.601	0.022
306	1	0	32	86.1	62.6	0.9	0.02	0.09	0	1.59	**8.778**	0.731	0.029
315	1	0	32	37.7	28.7	0.9	0.02	0.09	0	1.29	3.683	0.202	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.09	0	1.7	**11.375**	1.09	0.049
317	1	0	32	227.9	161.8	0.9	0.02	0.09	0	2.42	**32.478**	**6.163**	0.552
317M	1	0	32	494.8	348.7	0.9	0.02	0.09	0	3.91	**71.434**	**30.127**	**6.416**
318	1	0	32	452.2	318.9	0.9	0.02	0.09	0	3.68	**66.879**	**25.776**	4.944
319	1	0	32	505.5	356.2	0.9	0.02	0.09	0	3.97	**72.484**	**31.221**	**6.817**
319M	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.09	0	4.04	**73.616**	**32.444**	**7.279**
421	1	0	32	318.8	225.4	0.9	0.02	0.09	0	2.94	**48.356**	**12.964**	1.667
410	1	0	32	394	278.1	0.9	0.02	0.09	0	3.36	**59.608**	**19.943**	3.262
412	1	0	32	12.8	11.3	0.9	0.02	0.09	0	1.14	1.993	0.084	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.09	0	4.17	**75.88**	**35.034**	**8.312**
325	1	0	32	37.8	28.8	0.9	0.02	0.09	0	1.3	3.694	0.203	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.09	0	1.5	**6.992**	0.519	0.018
327	1	0	32	50	37.3	0.9	0.02	0.09	0	1.37	4.759	0.293	0.009
999G1	1	0	32	85.9	62.4	0.9	0.02	0.09	0	1.59	**8.75**	0.728	0.029
999M1	1	0	32	79.9	58.2	0.9	0.02	0.09	0	1.55	**7.993**	0.634	0.024
999M2	1	0	32	56.1	41.6	0.9	0.02	0.09	0	1.41	**5.345**	0.348	0.011
999M3	1	0	32	83.8	61	0.9	0.02	0.09	0	1.57	**8.482**	0.694	0.027
72	1	0	32	230.4	163.6	0.9	0.02	0.09	0	2.44	**32.935**	**6.319**	0.573
1001	1	0	32	408.4	288.1	0.9	0.02	0.09	0	3.44	**61.514**	**21.356**	3.64
401	1	0	32	1101.5	773.4	0.9	0.02	0.09	0	6.96	**96.338**	**75.942**	**38.379**
402	1	0	32	577.5	406.6	0.9	0.02	0.09	0	4.36	**78.631**	**38.469**	**9.798**
403	1	0	32	419.6	296	0.9	0.02	0.09	0	3.5	**62.953**	**22.475**	3.952
440	1	0	32	145.2	103.9	0.9	0.02	0.09	0	1.94	**17.666**	2.195	0.128
441	1	0	32	737.9	518.8	0.9	0.02	0.09	0	5.19	**87.808**	**53.131**	**17.841**
442	1	0	32	258.8	183.4	0.9	0.02	0.09	0	2.6	**38.07**	**8.219**	0.841
1005	1	0	32	112.1	80.8	0.9	0.02	0.09	0	1.74	**12.395**	1.247	0.059
1006	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.503**	0.826	0.034
1007	1	0	32	51.9	38.6	0.9	0.02	0.09	0	1.38	4.933	0.309	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.09	0	1.62	**9.478**	0.823	0.034

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1010	1	0	32	110.8	79.8	0.9	0.02	0.09	0	1.73	**12.193**	1.215	0.057
1011	1	0	32	146.2	104.7	0.9	0.02	0.09	0	1.95	**17.841**	2.231	0.131
345	1	0	32	103.9	75	0.9	0.02	0.09	0	1.69	**11.196**	1.064	0.048
346	1	0	32	130.4	93.6	0.9	0.02	0.09	0	1.85	**15.234**	1.729	0.093
347	1	0	32	312.7	221.2	0.9	0.02	0.09	0	2.91	**47.362**	**12.445**	1.566
430	1	0	32	262	185.7	0.9	0.02	0.09	0	2.62	**38.639**	**8.447**	0.876
431	1	0	32	110.3	79.5	0.9	0.02	0.09	0	1.73	**12.119**	1.204	0.057
432	1	0	32	307.5	217.5	0.9	0.02	0.09	0	2.88	**46.496**	**12.004**	1.482
801	1	0	32	239.9	170.3	0.9	0.02	0.09	0	2.49	**34.673**	**6.93**	0.655
3000	1	0	32	26.6	20.9	0.9	0.02	0.09	0	1.23	2.853	0.14	0.003
3001	1	0	32	371	262	0.9	0.02	0.09	0	3.24	**56.384**	**17.719**	2.704
3003	1	0	32	294.5	208.5	0.9	0.02	0.09	0	2.81	**44.316**	**10.938**	1.288
3004	1	0	32	81.9	59.6	0.9	0.02	0.09	0	1.56	**8.243**	0.665	0.025
280	1	0	32	367.4	259.5	0.9	0.02	0.09	0	3.22	**55.859**	**17.375**	2.622
280yard	1	0	32	302.9	214.3	0.9	0.02	0.09	0	2.85	**45.73**	**11.622**	1.411
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.09	0	1.49	**6.835**	0.501	0.018
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.09	0	1.56	**8.225**	0.663	0.025
075-O1	1	0	32	265	187.8	0.9	0.02	0.09	0	2.64	**39.181**	**8.668**	0.91
076-G1	1	0	32	85	61.8	0.9	0.02	0.09	0	1.58	**8.631**	0.713	0.028
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.09	0	1.64	**9.962**	0.888	0.038
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.09	0	1.63	**9.734**	0.857	0.036
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.09	0	1.62	**9.471**	0.822	0.034
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.09	0	2.01	**19.74**	2.632	0.165
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.09	0	1.26	3.256	0.169	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.09	0	1.26	3.188	0.164	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.574	0.193	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.09	0	1.29	3.641	0.198	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.09	0	1.28	3.449	0.183	0.005
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.09	0	1.3	3.702	0.203	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.09	0	1.21	2.715	0.13	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.09	0	1.23	2.868	0.141	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.09	0	1.26	3.244	0.168	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.09	0	1.49	**6.806**	0.498	0.017
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.09	0	1.8	**13.857**	1.487	0.075
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.09	0	1.21	2.653	0.126	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.567	0.193	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.09	0	1.83	**14.561**	1.608	0.084
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.09	0	1.2	2.596	0.122	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.09	0	1.31	3.959	0.224	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.09	0	1.32	4.019	0.229	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.09	0	1.28	3.501	0.187	0.005
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.09	0	1.33	4.117	0.237	0.007
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.09	0	1.28	3.501	0.187	0.005
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.09	0	1.25	3.138	0.16	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.09	0	1.33	4.246	0.248	0.007

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.09	0	1.29	3.668	0.201	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.09	0	1.43	**5.744**	0.387	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.968**	0.631	0.024
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.09	0	2.01	**19.72**	2.628	0.165
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.09	0	1.5	**7.07**	0.527	0.019
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.09	0	1.43	**5.826**	0.395	0.013
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.09	0	1.38	4.907	0.306	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.09	0	2.17	**24.511**	3.78	0.274
088-H2	1	0	32	159	113.6	0.9	0.02	0.09	0	2.02	**20.032**	2.697	0.171
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.09	0	1.89	**16.188**	1.906	0.106
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.09	0	1.55	**8.061**	0.643	0.024
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.09	0	1.64	**9.962**	0.888	0.038
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.09	0	1.43	**5.773**	0.39	0.013
090-H1	1	0	32	95.3	69	0.9	0.02	0.09	0	1.64	**10**	0.893	0.038
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.09	0	2.01	**19.74**	2.632	0.165
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.09	0	1.56	**8.166**	0.655	0.025
091-H1	1	0	32	56	41.5	0.9	0.02	0.09	0	1.41	**5.333**	0.346	0.011
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.09	0	2.15	**23.805**	3.597	0.256
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.09	0	1.68	**10.896**	1.02	0.045
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.09	0	1.48	**6.586**	0.474	0.016
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.09	0	1.55	**8.027**	0.638	0.024
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.09	0	1.53	**7.658**	0.595	0.022
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.09	0	2.11	**22.7**	3.321	0.229
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.09	0	1.78	**13.381**	1.407	0.07
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.09	0	1.96	**18.334**	2.332	0.14
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.09	0	2.13	**23.301**	3.47	0.243
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.09	0	2.14	**23.603**	3.546	0.251
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.09	0	2.91	**47.472**	**12.502**	1.577
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.09	0	1.92	**17.162**	2.094	0.12
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.09	0	1.78	**13.251**	1.385	0.068
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.09	0	1.29	3.574	0.193	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.09	0	1.27	3.423	0.181	0.005
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.09	0	1.2	2.59	0.122	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.09	0	1.41	**5.378**	0.351	0.011
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.09	0	1.45	**6.093**	0.422	0.014
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.09	0	1.93	**17.538**	2.169	0.126
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.09	0	2.09	**22.082**	3.171	0.214
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.09	0	1.35	4.398	0.261	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.09	0	1.91	**16.894**	2.042	0.116
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.09	0	1.6	**9.071**	0.769	0.031
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.09	0	1.51	**7.239**	0.546	0.02
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.09	0	1.9	**16.541**	1.973	0.111
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.09	0	1.37	4.822	0.299	0.009
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.09	0	1.86	**15.413**	1.761	0.095
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.09	0	2.32	**29.099**	**5.078**	0.418

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.09	0	1.41	**5.378**	0.351	0.011
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.09	0	1.25	3.087	0.156	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.09	0	1.78	**13.278**	1.39	0.069
103-O1	1	0	32	99	71.6	0.9	0.02	0.09	0	1.66	**10.503**	0.964	0.042
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.09	0	2.16	**24.124**	3.679	0.264
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.09	0	2.06	**21.09**	2.937	0.193
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.09	0	1.97	**18.446**	2.355	0.142
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.09	0	1.7	**11.46**	1.103	0.05
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.09	0	2.36	**30.529**	**5.523**	0.471
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.09	0	1.24	2.986	0.149	0.004
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.09	0	1.18	2.33	0.105	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.09	0	1.22	2.735	0.131	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.09	0	2.46	**33.571**	**6.539**	0.602
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.09	0	1.51	**7.144**	0.536	0.019
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.09	0	1.79	**13.51**	1.428	0.071
108-O2	1	0	32	53.9	40	0.9	0.02	0.09	0	1.39	**5.126**	0.327	0.01
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.508**	0.827	0.034
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.09	0	1.48	**6.571**	0.472	0.016
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.09	0	1.25	3.15	0.161	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.09	0	1.42	**5.617**	0.374	0.012
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.09	0	1.35	4.395	0.261	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.09	0	1.55	**8.093**	0.646	0.025
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.09	0	1.32	4.033	0.23	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.09	0	1.65	**10.271**	0.931	0.04
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.09	0	1.58	**8.687**	0.72	0.028
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.09	0	2.82	**44.721**	**11.131**	1.322
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.09	0	2.1	**22.251**	3.211	0.218
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.09	0	2.2	**25.578**	4.064	0.304
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.561**	0.583	0.021
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.09	0	1.81	**14.031**	1.516	0.077
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.09	0	2.8	**44.019**	**10.798**	1.263
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.09	0	2.99	**49.728**	**13.705**	1.814
114-O1	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.82**	**8.521**	0.887
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.09	0	3.37	**59.704**	**20.013**	3.28
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.09	0	1.88	**16.095**	1.888	0.104
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.09	0	1.16	2.166	0.094	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.09	0	1.22	2.833	0.138	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.09	0	1.2	2.534	0.118	0.003
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.09	0	1.2	2.536	0.118	0.003
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.09	0	1.35	4.488	0.269	0.008
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.09	0	1.53	**7.551**	0.582	0.021
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.09	0	2.7	**41.086**	**9.473**	1.038
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.09	0	1.41	**5.473**	0.36	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.09	0	1.4	**5.24**	0.338	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.09	0	1.42	**5.571**	0.37	0.012

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.09	0	1.63	**9.721**	0.855	0.036
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.09	0	1.25	3.175	0.163	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.09	0	1.33	4.221	0.246	0.007
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.09	0	1.2	2.52	0.117	0.003
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.09	0	1.3	3.798	0.211	0.006
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.09	0	1.46	**6.311**	0.445	0.015
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.09	0	1.42	**5.608**	0.373	0.012
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.09	0	1.76	**12.74**	1.302	0.063
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.09	0	1.47	**6.43**	0.457	0.016
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.09	0	2.07	**21.506**	3.034	0.201
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.09	0	2.52	**35.558**	**7.254**	0.7
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.09	0	2.95	**48.704**	**13.15**	1.703
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.09	0	1.56	**8.114**	0.649	0.025
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.09	0	1.63	**9.696**	0.852	0.035
123-H1	1	0	32	72.4	53	0.9	0.02	0.09	0	1.5	**7.106**	0.531	0.019
123-O1	1	0	32	101	73	0.9	0.02	0.09	0	1.68	**10.777**	1.003	0.044
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.09	0	2.38	**31.111**	**5.71**	0.495
124-G1	1	0	32	28	21.9	0.9	0.02	0.09	0	1.24	2.95	0.146	0.004
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.09	0	1.53	**7.598**	0.588	0.022
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.09	0	1.28	3.475	0.185	0.005
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.09	0	1.23	2.921	0.144	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.09	0	1.12	1.766	0.071	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.09	0	1.53	**7.591**	0.587	0.022
125-O1	1	0	32	70	51.3	0.9	0.02	0.09	0	1.49	**6.829**	0.5	0.017
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.09	0	1.46	**6.247**	0.438	0.015
126-G1	1	0	32	49	36.6	0.9	0.02	0.09	0	1.36	4.665	0.285	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.09	0	1.32	4.052	0.232	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.09	0	1.2	2.547	0.119	0.003
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.09	0	1.36	4.642	0.283	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.09	0	1.22	2.77	0.134	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.09	0	1.37	4.751	0.292	0.009
126-P1	1	0	32	28.1	22	0.9	0.02	0.09	0	1.24	2.958	0.147	0.004
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.09	0	1.78	**13.251**	1.385	0.068
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.09	0	1.45	**6.075**	0.42	0.014
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.09	0	1.46	**6.256**	0.439	0.015
127-H1	1	0	32	96.8	70	0.9	0.02	0.09	0	1.65	**10.192**	0.92	0.039
127-H2	1	0	32	42.5	32	0.9	0.02	0.09	0	1.32	4.081	0.234	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.09	0	1.78	**13.337**	1.399	0.069
128-G1	1	0	32	37	28.2	0.9	0.02	0.09	0	1.29	3.623	0.197	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.09	0	1.48	**6.662**	0.482	0.017
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.09	0	1.31	3.865	0.216	0.006
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.09	0	1.79	**13.644**	1.451	0.073
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.09	0	1.49	**6.737**	0.49	0.017
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.09	0	2.82	**44.758**	**11.149**	1.326
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.09	0	3.04	**51.081**	**14.463**	1.971
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.09	0	1.29	3.65	0.199	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.09	0	1.17	2.28	0.101	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.09	0	1.39	**5.047**	0.319	0.01
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.09	0	1.88	**16.05**	1.88	0.104
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.09	0	1.18	2.32	0.104	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.09	0	1.11	1.715	0.068	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.09	0	1.24	2.99	0.149	0.004
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.09	0	1.27	3.332	0.175	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.09	0	2.01	**19.604**	2.603	0.163
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.09	0	1.72	**11.775**	1.151	0.053
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.09	0	4.37	**78.844**	**38.75**	**9.925**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.09	0	1.77	**12.998**	1.344	0.066
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.09	0	2.08	**21.842**	3.113	0.209
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.09	0	1.75	**12.669**	1.291	0.062
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.09	0	1.23	2.897	0.143	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.09	0	1.22	2.741	0.132	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.09	0	1.27	3.418	0.181	0.005
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.09	0	2.29	**28.208**	4.81	0.387
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.09	0	2.15	**23.854**	3.61	0.257
137-O2	1	0	32	122	87.7	0.9	0.02	0.09	0	1.8	**13.9**	1.494	0.076
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.09	0	1.28	3.508	0.188	0.005
138-G2	1	0	32	48.1	36	0.9	0.02	0.09	0	1.36	4.58	0.277	0.008
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.09	0	1.24	2.986	0.149	0.004
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.09	0	1.21	2.702	0.129	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.09	0	1.35	4.45	0.266	0.008
139-G2	1	0	32	39.6	30	0.9	0.02	0.09	0	1.31	3.84	0.214	0.006
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.09	0	1.32	4.098	0.235	0.007
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.09	0	1.34	4.345	0.256	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.09	0	2.63	**38.83**	**8.525**	0.888
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.09	0	3.91	**71.363**	**30.055**	**6.39**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.785	0.21	0.006
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.09	0	1.48	**6.671**	0.483	0.017
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.09	0	1.55	**8.061**	0.643	0.024
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.09	0	1.46	**6.283**	0.442	0.015
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.09	0	1.24	3.052	0.154	0.004
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.09	0	1.32	4.016	0.229	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.09	0	1.14	1.975	0.083	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.09	0	1.3	3.736	0.206	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.09	0	1.33	4.204	0.244	0.007
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.09	0	1.66	**10.307**	0.936	0.04
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.09	0	1.48	**6.731**	0.49	0.017
143-A1	1	0	32	52	38.7	0.9	0.02	0.09	0	1.38	4.942	0.31	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.09	0	1.47	**6.372**	0.451	0.015
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.09	0	1.35	4.465	0.267	0.008
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.09	0	1.49	**6.893**	0.507	0.018
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.09	0	1.66	**10.443**	0.955	0.041

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.09	0	1.91	**16.882**	2.039	0.116
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.09	0	1.44	**5.884**	0.401	0.013
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.09	0	2.03	**20.178**	2.729	0.174
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.09	0	10.01	**99.484**	**93.028**	**68.364**
147-G1	1	0	32	59.7	44	0.9	0.02	0.09	0	1.43	**5.703**	0.383	0.012
147-G2	1	0	32	85	61.8	0.9	0.02	0.09	0	1.58	**8.631**	0.713	0.028
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.09	0	1.57	**8.418**	0.686	0.027
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.09	0	1.36	4.601	0.279	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.09	0	1.44	**5.914**	0.404	0.013
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.09	0	1.7	**11.376**	1.091	0.049
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.09	0	1.35	4.433	0.264	0.008
149-G1	1	0	32	49	36.6	0.9	0.02	0.09	0	1.36	4.658	0.284	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.09	0	1.4	**5.178**	0.332	0.01
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.09	0	1.51	**7.193**	0.541	0.019
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.09	0	1.27	3.423	0.181	0.005
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.09	0	1.33	4.19	0.243	0.007
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.09	0	1.3	3.702	0.203	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.09	0	1.68	**10.817**	1.008	0.045
152-G1	1	0	32	114	82.1	0.9	0.02	0.09	0	1.75	**12.675**	1.292	0.062
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.09	0	2.06	**21.209**	2.964	0.195
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.09	0	1.7	**11.445**	1.101	0.05
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.09	0	2.74	**42.201**	**9.964**	1.12
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.09	0	2.39	**31.49**	**5.834**	0.51
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.09	0	3.24	**56.602**	**17.863**	2.739
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.09	0	2.38	**31.114**	**5.711**	0.495
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.09	0	2.86	**46.013**	**11.762**	1.437
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.09	0	1.68	**10.912**	1.022	0.045
153-O7	1	0	32	361	255	0.9	0.02	0.09	0	3.18	**54.925**	**16.775**	2.482
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.09	0	2.72	**41.829**	**9.799**	1.092
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.09	0	1.19	2.504	0.116	0.003
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.09	0	1.2	2.53	0.118	0.003
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.09	0	1.91	**16.742**	2.012	0.114
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.09	0	1.62	**9.508**	0.827	0.034
155-H1	1	0	32	52.4	39	0.9	0.02	0.09	0	1.38	4.982	0.313	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.09	0	2.08	**21.653**	3.069	0.205
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.09	0	2.67	**40.222**	**9.103**	0.979
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.09	0	1.56	**8.217**	0.662	0.025
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.09	0	1.94	**17.774**	2.217	0.13
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.09	0	1.32	4.009	0.228	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.09	0	1.63	**9.62**	0.842	0.035
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.09	0	1.45	**6.066**	0.419	0.014
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.09	0	1.47	**6.502**	0.465	0.016
158-H1	1	0	32	33.8	26	0.9	0.02	0.09	0	1.27	3.377	0.178	0.005
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.09	0	1.38	4.862	0.302	0.009
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.09	0	1.49	**6.863**	0.504	0.018
159-H1	1	0	32	59.6	44	0.9	0.02	0.09	0	1.43	**5.7**	0.382	0.012
159-H2	1	0	32	101	73	0.9	0.02	0.09	0	1.68	**10.777**	1.003	0.044

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.09	0	1.33	4.234	0.247	0.007
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.09	0	1.38	4.871	0.303	0.009
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.09	0	1.85	**15.231**	1.728	0.092
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.09	0	1.55	**8.04**	0.64	0.024
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.09	0	1.52	**7.411**	0.566	0.021
161-H1	1	0	32	129.6	93	0.9	0.02	0.09	0	1.85	**15.096**	1.704	0.091
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.09	0	1.67	**10.737**	0.997	0.044
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.09	0	1.55	**8.1**	0.647	0.025
163-G1	1	0	32	53	39.4	0.9	0.02	0.09	0	1.39	**5.039**	0.319	0.01
163-O1	1	0	32	71	52	0.9	0.02	0.09	0	1.5	**6.941**	0.513	0.018
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.09	0	1.85	**15.187**	1.72	0.092
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.09	0	1.14	2.018	0.085	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.09	0	1.45	**6.017**	0.414	0.014
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.09	0	2.57	**37.245**	**7.894**	0.793
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.09	0	1.67	**10.541**	0.969	0.042
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.09	0	1.99	**19.255**	2.527	0.156
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.09	0	2.4	**31.726**	**5.912**	0.52
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.09	0	2.12	**23.012**	3.398	0.236
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.09	0	2.4	**31.802**	**5.937**	0.523
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.09	0	2.53	**35.862**	**7.367**	0.716
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.09	0	3.38	**60.023**	**20.245**	3.341
167-O8	1	0	32	205.3	146	0.9	0.02	0.09	0	2.29	**28.338**	4.849	0.391
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.09	0	2.24	**26.802**	4.404	0.341
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.09	0	1.29	3.668	0.201	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.09	0	1.3	3.709	0.204	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.09	0	1.24	3.004	0.15	0.004
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.09	0	1.26	3.294	0.172	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.09	0	1.36	4.588	0.278	0.008
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.09	0	1.29	3.588	0.194	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.09	0	1.4	**5.211**	0.335	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.09	0	1.38	4.966	0.312	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.09	0	1.32	3.995	0.227	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.09	0	1.35	4.504	0.27	0.008
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.09	0	1.77	**13.123**	1.364	0.067
170-H1	1	0	32	77	56.2	0.9	0.02	0.09	0	1.53	**7.649**	0.594	0.022
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.09	0	2	**19.448**	2.569	0.16
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.09	0	2.5	**34.795**	**6.974**	0.661
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.09	0	2.46	**33.498**	**6.513**	0.598
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.09	0	1.36	4.681	0.286	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.09	0	1.17	2.234	0.099	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.09	0	1.59	**8.847**	0.74	0.029
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.09	0	1.79	**13.64**	1.45	0.073
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.09	0	1.22	2.816	0.137	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.09	0	1.89	**16.233**	1.914	0.106
173-P1	1	0	32	175	124.8	0.9	0.02	0.09	0	2.11	**22.85**	3.358	0.232
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.09	0	1.5	**7.047**	0.525	0.019
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.09	0	1.54	**7.876**	0.62	0.023

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.09	0	2.14	**23.654**	3.559	0.252
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.09	0	1.53	**7.671**	0.596	0.022
175-G2	1	0	32	26.8	21	0.9	0.02	0.09	0	1.23	2.864	0.14	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.09	0	1.52	**7.461**	0.572	0.021
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.09	0	1.3	3.812	0.212	0.006
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.09	0	1.37	4.783	0.295	0.009
176-H2	1	0	32	29	22.6	0.9	0.02	0.09	0	1.24	3.022	0.152	0.004
176-P1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.792	0.21	0.006
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.09	0	1.24	3.028	0.152	0.004
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.09	0	1.57	**8.373**	0.681	0.026
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.09	0	3.52	**63.221**	**22.689**	4.013
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.09	0	3.83	**69.909**	**28.601**	**5.878**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.09	0	1.71	**11.507**	1.11	0.051
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.09	0	1.36	4.63	0.281	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.09	0	1.74	**12.42**	1.251	0.06
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.09	0	1.8	**13.809**	1.478	0.075
181-H2	1	0	32	115	82.8	0.9	0.02	0.09	0	1.76	**12.83**	1.316	0.064
181-N1	1	0	32	126.7	91	0.9	0.02	0.09	0	1.83	**14.645**	1.623	0.085
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.09	0	1.9	**16.541**	1.973	0.111
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.09	0	1.41	**5.463**	0.359	0.011
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.09	0	2.26	**27.261**	4.534	0.355
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.09	0	2.14	**23.711**	3.573	0.254
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.09	0	1.9	**16.56**	1.977	0.111
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.09	0	1.87	**15.776**	1.828	0.1
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.09	0	1.73	**12.113**	1.203	0.056
182-O2	1	0	32	186	132.5	0.9	0.02	0.09	0	2.18	**24.823**	3.862	0.283
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.09	0	2.14	**23.503**	3.521	0.248
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.09	0	2.2	**25.343**	4.001	0.297
185-A1	1	0	32	33.8	26	0.9	0.02	0.09	0	1.27	3.379	0.178	0.005
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.09	0	1.26	3.282	0.171	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.09	0	3.12	**53.271**	**15.75**	2.249
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.09	0	1.72	**11.715**	1.142	0.053
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.09	0	1.54	**7.794**	0.611	0.023
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.09	0	1.77	**13.123**	1.364	0.067
188-G2	1	0	32	122	87.7	0.9	0.02	0.09	0	1.8	**13.9**	1.494	0.076
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.09	0	1.44	**5.914**	0.404	0.013
188-H1	1	0	32	39	29.6	0.9	0.02	0.09	0	1.3	3.792	0.21	0.006
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.09	0	1.41	**5.395**	0.352	0.011
189-G1	1	0	32	44	33.1	0.9	0.02	0.09	0	1.33	4.212	0.245	0.007
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.09	0	1.53	**7.561**	0.583	0.021
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.09	0	1.69	**11.135**	1.055	0.047
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.09	0	1.79	**13.563**	1.437	0.072
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.09	0	1.18	2.31	0.103	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.09	0	1.32	3.992	0.227	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.09	0	1.23	2.874	0.141	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.09	0	1.21	2.702	0.129	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
190-N3	1	0	32	21	17	0.9	0.02	0.09	0	1.19	2.477	0.114	0.003
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.09	0	1.45	**6.029**	0.416	0.014
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.09	0	2.33	**29.416**	**5.175**	0.429
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.09	0	1.29	3.662	0.2	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.09	0	1.24	2.98	0.149	0.004
192-H1	1	0	32	34	26.1	0.9	0.02	0.09	0	1.27	3.388	0.179	0.005
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.09	0	1.18	2.33	0.105	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.09	0	1.19	2.506	0.116	0.003
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.09	0	1.23	2.911	0.144	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.09	0	1.27	3.403	0.18	0.005
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.09	0	1.54	**7.743**	0.605	0.022
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.09	0	2	**19.303**	2.537	0.157
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.09	0	2.23	**26.547**	4.332	0.333
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.09	0	1.41	**5.479**	0.361	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.09	0	1.48	**6.674**	0.484	0.017
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.09	0	1.36	4.542	0.274	0.008
196-O1	1	0	32	69	50.6	0.9	0.02	0.09	0	1.48	**6.708**	0.487	0.017
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.09	0	1.91	**16.951**	2.053	0.117
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.09	0	1.54	**7.807**	0.612	0.023
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.09	0	2.08	**21.653**	3.069	0.205
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.09	0	1.15	2.102	0.09	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.09	0	1.23	2.842	0.139	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.09	0	1.25	3.083	0.156	0.004
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.09	0	1.24	3.028	0.152	0.004
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.09	0	1.23	2.927	0.145	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.09	0	2.98	**49.331**	**13.488**	1.771
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.09	0	2.11	**22.55**	3.284	0.225
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.09	0	1.42	**5.522**	0.365	0.012
202-O1	1	0	32	137	98.2	0.9	0.02	0.09	0	1.89	**16.302**	1.927	0.107
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.09	0	3.83	**69.836**	**28.53**	**5.854**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.09	0	3.98	**72.647**	**31.395**	**6.882**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.09	0	1.77	**12.995**	1.343	0.066
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.09	0	1.37	4.791	0.296	0.009
206-H1	1	0	32	18	14.9	0.9	0.02	0.09	0	1.17	2.293	0.102	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.09	0	2.75	**42.676**	**10.178**	1.156
206-O1	1	0	32	252.4	179	0.9	0.02	0.09	0	2.56	**36.925**	**7.77**	0.775
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.09	0	1.74	**12.203**	1.217	0.057
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.09	0	2.63	**39.018**	**8.602**	0.9
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.09	0	2.49	**34.442**	**6.847**	0.644
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.09	0	3.35	**59.318**	**19.735**	3.208
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.09	0	4.04	**73.616**	**32.445**	**7.279**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.09	0	1.75	**12.611**	1.281	0.062
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.09	0	1.84	**14.828**	1.656	0.087
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.09	0	1.5	**7.037**	0.524	0.019
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.09	0	1.3	3.757	0.208	0.006

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.09	0	1.34	4.27	0.25	0.007
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.09	0	1.49	**6.902**	0.509	0.018
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.09	0	1.83	**14.738**	1.64	0.086
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.09	0	2.19	**25.275**	3.983	0.296
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.09	0	1.96	**18.335**	2.332	0.14
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.09	0	1.28	3.504	0.188	0.005
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.09	0	1.58	**8.551**	0.703	0.027
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.09	0	1.41	**5.484**	0.361	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.09	0	1.24	3.014	0.151	0.004
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.09	0	1.16	2.115	0.091	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.09	0	1.25	3.175	0.163	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.09	0	1.97	**18.534**	2.374	0.143
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.09	0	3.65	**66.212**	**25.188**	4.76
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.09	0	2.92	**47.683**	**12.611**	1.598
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.09	0	2.46	**33.724**	**6.592**	0.609
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.09	0	1.68	**10.936**	1.026	0.046
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.09	0	2.57	**37.227**	**7.887**	0.792
805-O1	1	0	32	38.2	29	0.9	0.02	0.09	0	1.3	3.723	0.205	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.09	0	1.34	4.343	0.256	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.09	0	1.24	2.974	0.148	0.004
806-O2	1	0	32	29.6	23	0.9	0.02	0.09	0	1.24	3.064	0.155	0.004
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.09	0	1.37	4.814	0.298	0.009
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.09	0	1.29	3.621	0.197	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.09	0	1.29	3.655	0.199	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.09	0	1.24	3.024	0.152	0.004
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.09	0	1.27	3.371	0.177	0.005
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.09	0	1.28	3.534	0.19	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.09	0	1.19	2.432	0.111	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Smallmouth Bass
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES SMB_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.07	0	1.62	**9.53**	0.829	0.034
14	1	0	32	77.1	56.3	0.9	0.02	0.07	0	1.53	**7.586**	0.586	0.022
15	1	0	32	93.6	67.8	0.9	0.02	0.07	0	1.63	**9.681**	0.85	0.035
16	1	0	32	356	251.5	0.9	0.02	0.07	0	3.15	**54.084**	**16.249**	2.361
17	1	0	32	150.5	107.7	0.9	0.02	0.07	0	1.97	**18.469**	2.36	0.142
9	1	0	32	91.8	66.5	0.9	0.02	0.07	0	1.62	**9.439**	0.817	0.034
40	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.07	0	1.35	4.48	0.268	0.008
1017	1	0	32	139.2	99.8	0.9	0.02	0.07	0	1.9	**16.577**	1.98	0.111
1018	1	0	32	51.9	38.6	0.9	0.02	0.07	0	1.38	4.874	0.303	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.07	0	2.43	**32.692**	**6.236**	0.562
44	1	0	32	99.7	72.1	0.9	0.02	0.07	0	1.67	**10.521**	0.966	0.042
46	1	0	32	188.7	134.4	0.9	0.02	0.07	0	2.19	**25.209**	3.965	0.294
47	1	0	32	222.3	157.9	0.9	0.02	0.07	0	2.39	**31.348**	**5.787**	0.504
49	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.07	0	1.42	**5.602**	0.373	0.012
61	1	0	32	137.2	98.3	0.9	0.02	0.07	0	1.89	**16.239**	1.915	0.106
22	1	0	32	118.9	85.5	0.9	0.02	0.07	0	1.78	**13.329**	1.398	0.069
25	1	0	32	54.5	40.4	0.9	0.02	0.07	0	1.39	**5.124**	0.327	0.01
27	1	0	32	135.3	97	0.9	0.02	0.07	0	1.88	**15.922**	1.856	0.102
28	1	0	32	49.2	36.8	0.9	0.02	0.07	0	1.36	4.629	0.281	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.07	0	1.32	4.049	0.231	0.006
30	1	0	32	51.6	38.4	0.9	0.02	0.07	0	1.38	4.847	0.301	0.009
31	1	0	32	255.8	181.3	0.9	0.02	0.07	0	2.58	**37.427**	**7.965**	0.803
33	1	0	32	206.4	146.8	0.9	0.02	0.07	0	2.3	**28.44**	4.879	0.395
35	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.07	0	3.37	**59.698**	**20.008**	3.279
55	1	0	32	67.1	49.2	0.9	0.02	0.07	0	1.47	**6.432**	0.458	0.016
56	1	0	32	185.9	132.4	0.9	0.02	0.07	0	2.18	**24.707**	3.832	0.28
58	1	0	32	73.3	53.6	0.9	0.02	0.07	0	1.51	**7.138**	0.535	0.019

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
59	1	0	32	206.6	146.9	0.9	0.02	0.07	0	2.3	**28.473**	4.889	0.396
59A	1	0	32	335.3	237	0.9	0.02	0.07	0	3.03	**50.902**	**14.361**	1.95
62	1	0	32	118.1	85	0.9	0.02	0.07	0	1.78	**13.208**	1.378	0.068
62G	1	0	32	70.6	51.7	0.9	0.02	0.07	0	1.49	**6.825**	0.5	0.017
66	1	0	32	141.1	101	0.9	0.02	0.07	0	1.91	**16.878**	2.039	0.116
67	1	0	32	174.5	124.4	0.9	0.02	0.07	0	2.11	**22.651**	3.309	0.228
70	1	0	32	202.6	144.1	0.9	0.02	0.07	0	2.27	**27.745**	4.674	0.371
71	1	0	32	127	91.2	0.9	0.02	0.07	0	1.83	**14.593**	1.614	0.084
72M	1	0	32	253.9	180.1	0.9	0.02	0.07	0	2.57	**37.099**	**7.838**	0.784
72U	1	0	32	109.7	79.1	0.9	0.02	0.07	0	1.72	**11.95**	1.178	0.055
75	1	0	32	381.8	269.6	0.9	0.02	0.07	0	3.29	**57.841**	**18.699**	2.944
82	1	0	32	54.8	40.6	0.9	0.02	0.07	0	1.39	**5.155**	0.329	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.07	0	1.41	**5.412**	0.354	0.011
86	1	0	32	115.3	83	0.9	0.02	0.07	0	1.76	**12.792**	1.31	0.063
87	1	0	32	99.5	72	0.9	0.02	0.07	0	1.66	**10.498**	0.963	0.042
94M	1	0	32	73.9	54	0.9	0.02	0.07	0	1.51	**7.209**	0.543	0.019
106	1	0	32	387.2	273.4	0.9	0.02	0.07	0	3.32	**58.598**	**19.225**	3.077
107	1	0	32	169.3	120.8	0.9	0.02	0.07	0	2.08	**21.739**	3.089	0.207
108	1	0	32	185.4	132.1	0.9	0.02	0.07	0	2.17	**24.617**	3.808	0.277
109	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.07	0	1.6	**9.014**	0.762	0.031
110G	1	0	32	41.5	31.4	0.9	0.02	0.07	0	1.31	3.95	0.223	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.07	0	1.49	**6.801**	0.497	0.017
112	1	0	32	471.3	332.2	0.9	0.02	0.07	0	3.78	**68.935**	**27.664**	**5.56**
112G	1	0	32	181.5	129.4	0.9	0.02	0.07	0	2.15	**23.92**	3.627	0.259
113low	1	0	32	263	186.4	0.9	0.02	0.07	0	2.62	**38.727**	**8.483**	0.881
113up	1	0	32	398.8	281.5	0.9	0.02	0.07	0	3.39	**60.178**	**20.358**	3.371
115SP	1	0	32	493.1	347.5	0.9	0.02	0.07	0	3.9	**71.202**	**29.891**	**6.331**
21	1	0	32	104.1	75.2	0.9	0.02	0.07	0	1.69	**11.136**	1.055	0.047
21G	1	0	32	337.4	238.5	0.9	0.02	0.07	0	3.04	**51.241**	**14.554**	1.99
116M	1	0	32	347.4	245.4	0.9	0.02	0.07	0	3.1	**52.78**	**15.455**	2.184
122	1	0	32	69	50.6	0.9	0.02	0.07	0	1.48	**6.652**	0.481	0.017
121	1	0	32	148.3	106.1	0.9	0.02	0.07	0	1.95	**18.091**	2.282	0.136
123	1	0	32	336.5	237.9	0.9	0.02	0.07	0	3.04	**51.106**	**14.477**	1.974
135	1	0	32	130.2	93.5	0.9	0.02	0.07	0	1.85	**15.111**	1.706	0.091
146	1	0	32	81.4	59.3	0.9	0.02	0.07	0	1.56	**8.113**	0.649	0.025
146G	1	0	32	43.2	32.6	0.9	0.02	0.07	0	1.32	4.096	0.235	0.007
147	1	0	32	50.9	37.9	0.9	0.02	0.07	0	1.37	4.784	0.295	0.009
151	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.07	0	2.16	**24.259**	3.714	0.268
160	1	0	32	153.4	109.7	0.9	0.02	0.07	0	1.98	**18.954**	2.462	0.151
163	1	0	32	158.1	113	0.9	0.02	0.07	0	2.01	**19.773**	2.64	0.166
163G	1	0	32	222.8	158.3	0.9	0.02	0.07	0	2.39	**31.445**	**5.819**	0.508
164	1	0	32	118	84.9	0.9	0.02	0.07	0	1.77	**13.19**	1.375	0.068
167	1	0	32	71.4	52.3	0.9	0.02	0.07	0	1.5	**6.922**	0.511	0.018
168	1	0	32	365.9	258.4	0.9	0.02	0.07	0	3.2	**55.557**	**17.179**	2.576
169	1	0	32	262	185.7	0.9	0.02	0.07	0	2.62	**38.536**	**8.406**	0.87
169A	1	0	32	238.9	169.5	0.9	0.02	0.07	0	2.48	**34.376**	**6.823**	0.64
320new	1	0	32	555.7	391.3	0.9	0.02	0.07	0	4.24	**76.873**	**36.235**	**8.816**

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
216	1	0	32	310.2	219.4	0.9	0.02	0.07	0	2.89	**46.855**	**12.186**	1.516
1030	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.07	0	2.8	**44.136**	**10.853**	1.273
174M	1	0	32	23.7	18.9	0.9	0.02	0.07	0	1.21	2.618	0.123	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.07	0	2.09	**22.086**	3.172	0.214
238G	1	0	32	47.1	35.3	0.9	0.02	0.07	0	1.35	4.439	0.265	0.008
238M	1	0	32	34.9	26.8	0.9	0.02	0.07	0	1.27	3.418	0.181	0.005
176G	1	0	32	140.1	100.4	0.9	0.02	0.07	0	1.91	**16.728**	2.009	0.114
176M	1	0	32	215.9	153.4	0.9	0.02	0.07	0	2.35	**30.174**	**5.411**	0.458
177	1	0	32	172.8	123.2	0.9	0.02	0.07	0	2.1	**22.35**	3.235	0.22
206	1	0	32	142.4	101.9	0.9	0.02	0.07	0	1.92	**17.094**	2.081	0.119
208	1	0	32	161.9	115.6	0.9	0.02	0.07	0	2.03	**20.429**	2.786	0.179
208AA	1	0	32	173.4	123.6	0.9	0.02	0.07	0	2.1	**22.453**	3.26	0.223
208BM	1	0	32	112.5	81.1	0.9	0.02	0.07	0	1.74	**12.37**	1.243	0.059
208G	1	0	32	92.1	66.7	0.9	0.02	0.07	0	1.62	**9.477**	0.822	0.034
209A	1	0	32	115.7	83.3	0.9	0.02	0.07	0	1.76	**12.846**	1.319	0.064
213	1	0	32	440.1	310.4	0.9	0.02	0.07	0	3.61	**65.398**	**24.485**	4.544
185	1	0	32	196.7	140	0.9	0.02	0.07	0	2.24	**26.658**	4.363	0.336
185G	1	0	32	71	52	0.9	0.02	0.07	0	1.49	**6.877**	0.506	0.018
186	1	0	32	242.3	171.9	0.9	0.02	0.07	0	2.5	**34.998**	**7.048**	0.671
1035	1	0	32	114.9	82.8	0.9	0.02	0.07	0	1.76	**12.733**	1.301	0.063
1036	1	0	32	76.8	56	0.9	0.02	0.07	0	1.53	**7.548**	0.582	0.021
1037	1	0	32	98.4	71.2	0.9	0.02	0.07	0	1.66	**10.344**	0.941	0.041
189	1	0	32	154.4	110.4	0.9	0.02	0.07	0	1.99	**19.14**	2.502	0.154
1060	1	0	32	127.8	91.8	0.9	0.02	0.07	0	1.83	**14.721**	1.637	0.086
192	1	0	32	262.5	186	0.9	0.02	0.07	0	2.62	**38.621**	**8.44**	0.875
1020	1	0	32	96.5	69.9	0.9	0.02	0.07	0	1.65	**10.08**	0.904	0.038
1021	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.07	0	1.91	**16.739**	2.011	0.114
194	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.07	0	3.65	**66.221**	**25.195**	4.762
201G	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.07	0	1.36	4.571	0.276	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.07	0	1.55	**7.948**	0.629	0.024
196	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.07	0	1.82	**14.355**	1.572	0.081
231Lower	1	0	32	138	98.9	0.9	0.02	0.07	0	1.89	**16.368**	1.94	0.108
7	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.07	0	1.46	**6.354**	0.449	0.015
246	1	0	32	29.2	22.8	0.9	0.02	0.07	0	1.24	2.994	0.15	0.004
18	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.07	0	1.58	**8.681**	0.719	0.028
250	1	0	32	92.2	66.8	0.9	0.02	0.07	0	1.62	**9.492**	0.824	0.034
253	1	0	32	110	79.3	0.9	0.02	0.07	0	1.73	**11.992**	1.184	0.055
258	1	0	32	767.7	539.7	0.9	0.02	0.07	0	5.34	**88.975**	**55.502**	**19.444**

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
259	1	0	32	240.7	170.8	0.9	0.02	0.07	0	2.49	**34.7**	**6.94**	0.656
284M	1	0	32	152.7	109.2	0.9	0.02	0.07	0	1.98	**18.842**	2.438	0.149
285M	1	0	32	157.6	112.7	0.9	0.02	0.07	0	2.01	**19.693**	2.622	0.164
287	1	0	32	150.2	107.4	0.9	0.02	0.07	0	1.97	**18.416**	2.349	0.141
288	1	0	32	68.2	50	0.9	0.02	0.07	0	1.48	**6.554**	0.471	0.016
288G1	1	0	32	79.7	58.1	0.9	0.02	0.07	0	1.54	**7.896**	0.623	0.023
288G2	1	0	32	59.8	44.2	0.9	0.02	0.07	0	1.43	**5.664**	0.379	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.07	0	1.52	**7.489**	0.575	0.021
291	1	0	32	77.6	56.6	0.9	0.02	0.07	0	1.53	**7.641**	0.593	0.022
306	1	0	32	86.1	62.6	0.9	0.02	0.07	0	1.58	**8.703**	0.722	0.028
315	1	0	32	37.7	28.7	0.9	0.02	0.07	0	1.29	3.636	0.198	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.07	0	1.7	**11.291**	1.078	0.049
317	1	0	32	227.9	161.8	0.9	0.02	0.07	0	2.42	**32.372**	**6.127**	0.548
317M	1	0	32	494.8	348.7	0.9	0.02	0.07	0	3.91	**71.376**	**30.068**	**6.395**
318	1	0	32	452.2	318.9	0.9	0.02	0.07	0	3.68	**66.813**	**25.717**	4.926
319	1	0	32	505.5	356.2	0.9	0.02	0.07	0	3.97	**72.428**	**31.162**	**6.795**
319M	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.07	0	4.03	**73.562**	**32.385**	**7.257**
421	1	0	32	318.8	225.4	0.9	0.02	0.07	0	2.94	**48.262**	**12.915**	1.657
410	1	0	32	394	278.1	0.9	0.02	0.07	0	3.36	**59.529**	**19.887**	3.247
412	1	0	32	12.8	11.3	0.9	0.02	0.07	0	1.14	1.961	0.082	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.07	0	4.17	**75.831**	**34.975**	**8.288**
325	1	0	32	37.8	28.8	0.9	0.02	0.07	0	1.29	3.647	0.199	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.07	0	1.5	**6.926**	0.511	0.018
327	1	0	32	50	37.3	0.9	0.02	0.07	0	1.37	4.705	0.288	0.008
999G1	1	0	32	85.9	62.4	0.9	0.02	0.07	0	1.58	**8.676**	0.719	0.028
999M1	1	0	32	79.9	58.2	0.9	0.02	0.07	0	1.55	**7.922**	0.626	0.024
999M2	1	0	32	56.1	41.6	0.9	0.02	0.07	0	1.4	**5.288**	0.342	0.011
999M3	1	0	32	83.8	61	0.9	0.02	0.07	0	1.57	**8.409**	0.685	0.027
72	1	0	32	230.4	163.6	0.9	0.02	0.07	0	2.43	**32.829**	**6.282**	0.568
1001	1	0	32	408.4	288.1	0.9	0.02	0.07	0	3.44	**61.438**	**21.299**	3.624
401	1	0	32	1101.5	773.4	0.9	0.02	0.07	0	6.96	**96.331**	**75.916**	**38.347**
402	1	0	32	577.5	406.6	0.9	0.02	0.07	0	4.35	**78.587**	**38.412**	**9.772**
403	1	0	32	419.6	296	0.9	0.02	0.07	0	3.5	**62.88**	**22.418**	3.936
440	1	0	32	145.2	103.9	0.9	0.02	0.07	0	1.94	**17.568**	2.175	0.127
441	1	0	32	737.9	518.8	0.9	0.02	0.07	0	5.19	**87.783**	**53.083**	**17.81**
442	1	0	32	258.8	183.4	0.9	0.02	0.07	0	2.6	**37.967**	**8.178**	0.835
1005	1	0	32	112.1	80.8	0.9	0.02	0.07	0	1.74	**12.309**	1.233	0.058
1006	1	0	32	91.7	66.5	0.9	0.02	0.07	0	1.62	**9.426**	0.816	0.033
1007	1	0	32	51.9	38.6	0.9	0.02	0.07	0	1.38	4.878	0.304	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.07	0	1.62	**9.401**	0.812	0.033
1010	1	0	32	110.8	79.8	0.9	0.02	0.07	0	1.73	**12.107**	1.202	0.056
1011	1	0	32	146.2	104.7	0.9	0.02	0.07	0	1.94	**17.743**	2.211	0.13
345	1	0	32	103.9	75	0.9	0.02	0.07	0	1.69	**11.114**	1.052	0.047
346	1	0	32	130.4	93.6	0.9	0.02	0.07	0	1.85	**15.141**	1.712	0.091
347	1	0	32	312.7	221.2	0.9	0.02	0.07	0	2.9	**47.267**	**12.396**	1.556
430	1	0	32	262	185.7	0.9	0.02	0.07	0	2.62	**38.536**	**8.406**	0.87
431	1	0	32	110.3	79.5	0.9	0.02	0.07	0	1.73	**12.034**	1.191	0.056
432	1	0	32	307.5	217.5	0.9	0.02	0.07	0	2.88	**46.4**	**11.955**	1.473

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
801	1	0	32	239.9	170.3	0.9	0.02	0.07	0	2.49	**34.567**	**6.892**	0.65
3000	1	0	32	26.6	20.9	0.9	0.02	0.07	0	1.22	2.813	0.137	0.003
3001	1	0	32	371	262	0.9	0.02	0.07	0	3.23	**56.3**	**17.663**	2.691
3003	1	0	32	294.5	208.5	0.9	0.02	0.07	0	2.8	**44.217**	**10.892**	1.28
3004	1	0	32	81.9	59.6	0.9	0.02	0.07	0	1.56	**8.171**	0.656	0.025
280	1	0	32	367.4	259.5	0.9	0.02	0.07	0	3.21	**55.774**	**17.32**	2.609
280yard	1	0	32	302.9	214.3	0.9	0.02	0.07	0	2.85	**45.633**	**11.574**	1.403
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.07	0	1.49	**6.77**	0.494	0.017
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.07	0	1.56	**8.153**	0.654	0.025
075-O1	1	0	32	265	187.8	0.9	0.02	0.07	0	2.63	**39.078**	**8.626**	0.904
076-G1	1	0	32	85	61.8	0.9	0.02	0.07	0	1.58	**8.557**	0.704	0.027
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.07	0	1.64	**9.883**	0.877	0.037
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.07	0	1.63	**9.656**	0.846	0.035
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.07	0	1.62	**9.394**	0.811	0.033
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.07	0	2.01	**19.639**	2.61	0.163
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.07	0	1.26	3.213	0.166	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.07	0	1.25	3.145	0.161	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.07	0	1.23	2.939	0.146	0.003
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.07	0	1.28	3.528	0.19	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.07	0	1.29	3.595	0.195	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.07	0	1.27	3.404	0.18	0.005
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.07	0	1.29	3.655	0.199	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.07	0	1.21	2.676	0.127	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.07	0	1.22	2.828	0.138	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.07	0	1.26	3.201	0.165	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.07	0	1.49	**6.741**	0.491	0.017
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.07	0	1.8	**13.767**	1.471	0.074
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.07	0	1.21	2.615	0.123	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.07	0	1.28	3.522	0.189	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.07	0	1.34	4.291	0.252	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.07	0	1.82	**14.47**	1.592	0.083
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.07	0	1.2	2.558	0.12	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.07	0	1.31	3.911	0.22	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.07	0	1.32	3.97	0.225	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.07	0	1.28	3.456	0.184	0.005
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.07	0	1.32	4.068	0.233	0.006
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.07	0	1.28	3.456	0.184	0.005
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.07	0	1.25	3.096	0.157	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.07	0	1.33	4.196	0.244	0.007
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.07	0	1.29	3.622	0.197	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.07	0	1.43	**5.684**	0.381	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.07	0	1.54	**7.897**	0.623	0.023
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.07	0	2.01	**19.62**	2.606	0.163
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.07	0	1.5	**7.003**	0.52	0.018
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.07	0	1.43	**5.766**	0.389	0.013
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.07	0	1.62	**9.543**	0.831	0.034
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.07	0	1.38	4.852	0.301	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.07	0	1.62	**9.543**	0.831	0.034
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.07	0	2.17	**24.407**	3.753	0.272

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
088-H2	1	0	32	159	113.6	0.9	0.02	0.07	0	2.02	**19.931**	2.674	0.169
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.07	0	1.88	**16.093**	1.888	0.104
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.07	0	1.55	**7.99**	0.634	0.024
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.07	0	1.64	**9.883**	0.877	0.037
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.07	0	1.43	**5.713**	0.384	0.012
090-H1	1	0	32	95.3	69	0.9	0.02	0.07	0	1.64	**9.921**	0.882	0.037
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.07	0	2.01	**19.639**	2.61	0.163
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.07	0	1.55	**8.094**	0.647	0.025
091-H1	1	0	32	56	41.5	0.9	0.02	0.07	0	1.4	**5.276**	0.341	0.011
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.07	0	2.14	**23.701**	3.571	0.253
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.07	0	1.68	**10.814**	1.008	0.044
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.07	0	1.47	**6.522**	0.467	0.016
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.07	0	1.55	**7.955**	0.63	0.024
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.07	0	1.53	**7.589**	0.587	0.022
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.07	0	2.11	**22.597**	3.295	0.226
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.07	0	1.78	**13.292**	1.392	0.069
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.07	0	1.96	**18.236**	2.312	0.138
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.07	0	2.13	**23.197**	3.444	0.241
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.07	0	2.14	**23.499**	3.52	0.248
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.07	0	2.91	**47.377**	**12.453**	1.567
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.07	0	1.92	**17.065**	2.075	0.119
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.07	0	1.77	**13.163**	1.371	0.067
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.07	0	1.28	3.528	0.19	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.07	0	1.27	3.378	0.178	0.005
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.07	0	1.2	2.553	0.119	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.07	0	1.4	**5.321**	0.345	0.011
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.07	0	1.45	**6.031**	0.416	0.014
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.07	0	1.93	**17.441**	2.15	0.125
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.07	0	2.09	**21.98**	3.146	0.212
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.07	0	1.34	4.347	0.257	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.07	0	1.91	**16.797**	2.023	0.115
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.07	0	1.6	**8.996**	0.759	0.03
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.07	0	1.51	**7.172**	0.539	0.019
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.07	0	1.9	**16.446**	1.955	0.11
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.07	0	1.37	4.768	0.294	0.009
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.07	0	1.85	**15.32**	1.744	0.094
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.07	0	2.31	**28.993**	**5.046**	0.414
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.07	0	1.4	**5.321**	0.345	0.011
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.07	0	1.24	3.045	0.153	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.07	0	1.77	**13.189**	1.375	0.068
103-O1	1	0	32	99	71.6	0.9	0.02	0.07	0	1.66	**10.422**	0.952	0.041
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.07	0	2.15	**24.02**	3.653	0.262
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.07	0	2.05	**20.988**	2.913	0.19
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.07	0	1.96	**18.348**	2.335	0.14
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.07	0	1.7	**11.377**	1.091	0.049
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.07	0	2.36	**30.423**	**5.489**	0.467
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.07	0	1.23	2.939	0.146	0.003
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.07	0	1.23	2.945	0.146	0.004
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.07	0	1.17	2.295	0.102	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.07	0	1.21	2.696	0.129	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.07	0	2.45	**33.465**	**6.502**	0.597
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.07	0	1.5	**7.077**	0.528	0.019
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.07	0	1.78	**13.421**	1.413	0.07
108-O2	1	0	32	53.9	40	0.9	0.02	0.07	0	1.39	**5.07**	0.322	0.01
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.07	0	1.62	**9.431**	0.816	0.034
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.07	0	1.47	**6.506**	0.465	0.016
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.07	0	1.25	3.107	0.158	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.07	0	1.42	**5.558**	0.368	0.012
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.07	0	1.34	4.343	0.256	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.07	0	1.55	**8.021**	0.638	0.024
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.07	0	1.32	3.984	0.226	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.07	0	1.65	**10.192**	0.92	0.039
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.07	0	1.58	**8.613**	0.711	0.028
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.07	0	2.82	**44.623**	**11.084**	1.314
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.07	0	2.09	**22.148**	3.186	0.216
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.07	0	2.2	**25.473**	4.036	0.301
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.07	0	1.52	**7.492**	0.575	0.021
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.07	0	1.8	**13.941**	1.501	0.076
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.07	0	2.79	**43.92**	**10.752**	1.255
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.07	0	2.99	**49.635**	**13.654**	1.804
114-O1	1	0	32	263	186.4	0.9	0.02	0.07	0	2.62	**38.717**	**8.479**	0.881
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.07	0	3.36	**59.625**	**19.956**	3.265
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.07	0	1.88	**16.001**	1.87	0.103
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.07	0	1.16	2.133	0.092	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.07	0	1.22	2.793	0.135	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.07	0	1.19	2.497	0.115	0.003
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.07	0	1.19	2.499	0.116	0.003
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.07	0	1.35	4.436	0.264	0.008
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.07	0	1.52	**7.482**	0.574	0.021
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.07	0	2.7	**40.984**	**9.429**	1.031
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.07	0	1.41	**5.415**	0.354	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.07	0	1.4	**5.183**	0.332	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.07	0	1.42	**5.512**	0.364	0.011
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.07	0	1.63	**9.643**	0.845	0.035
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.07	0	1.25	3.132	0.16	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.07	0	1.33	4.171	0.242	0.007
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.07	0	1.19	2.483	0.115	0.003
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.07	0	1.3	3.751	0.207	0.006
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.07	0	1.46	**6.248**	0.438	0.015
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.07	0	1.42	**5.549**	0.367	0.012
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.07	0	1.75	**12.653**	1.288	0.062
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.07	0	1.47	**6.366**	0.451	0.015
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.07	0	2.07	**21.403**	3.01	0.199
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.07	0	2.52	**35.453**	**7.215**	0.695
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.07	0	2.95	**48.61**	**13.099**	1.693
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.07	0	1.55	**8.042**	0.64	0.024
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.07	0	1.63	**9.618**	0.841	0.035

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
123-H1	1	0	32	72.4	53	0.9	0.02	0.07	0	1.5	**7.039**	0.524	0.019
123-O1	1	0	32	101	73	0.9	0.02	0.07	0	1.67	**10.696**	0.991	0.043
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.07	0	2.38	**31.005**	**5.676**	0.49
124-G1	1	0	32	28	21.9	0.9	0.02	0.07	0	1.23	2.91	0.144	0.003
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.07	0	1.53	**7.529**	0.58	0.021
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.07	0	1.27	3.43	0.182	0.005
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.07	0	1.23	2.88	0.142	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.07	0	1.11	1.736	0.069	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.07	0	1.53	**7.522**	0.579	0.021
125-O1	1	0	32	70	51.3	0.9	0.02	0.07	0	1.49	**6.764**	0.493	0.017
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.07	0	1.46	**6.184**	0.432	0.014
126-G1	1	0	32	49	36.6	0.9	0.02	0.07	0	1.36	4.612	0.28	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.07	0	1.32	4.003	0.228	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.07	0	1.2	2.509	0.116	0.003
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.07	0	1.36	4.589	0.278	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.07	0	1.22	2.731	0.131	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.07	0	1.37	4.697	0.287	0.008
126-P1	1	0	32	28.1	22	0.9	0.02	0.07	0	1.23	2.917	0.144	0.003
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.07	0	1.77	**13.163**	1.371	0.067
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.07	0	1.45	**6.013**	0.414	0.014
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.07	0	1.46	**6.194**	0.433	0.014
127-H1	1	0	32	96.8	70	0.9	0.02	0.07	0	1.65	**10.113**	0.909	0.039
127-H2	1	0	32	42.5	32	0.9	0.02	0.07	0	1.32	4.031	0.23	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.07	0	1.78	**13.249**	1.385	0.068
128-G1	1	0	32	37	28.2	0.9	0.02	0.07	0	1.29	3.577	0.193	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.07	0	1.48	**6.597**	0.475	0.016
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.07	0	1.3	3.817	0.212	0.006
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.07	0	1.79	**13.555**	1.436	0.072
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.07	0	1.48	**6.672**	0.483	0.017
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.07	0	2.82	**44.659**	**11.102**	1.317
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.07	0	3.04	**50.99**	**14.411**	1.96
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.07	0	1.29	3.604	0.195	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.07	0	1.17	2.245	0.099	0.002
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.07	0	1.38	4.991	0.314	0.009
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.07	0	1.88	**15.956**	1.862	0.102
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.07	0	1.17	2.285	0.102	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.07	0	1.11	1.686	0.066	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.07	0	1.24	2.949	0.146	0.004
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.07	0	1.26	3.289	0.171	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.07	0	2	**19.504**	2.581	0.161
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.07	0	1.71	**11.69**	1.138	0.052
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.07	0	4.37	**78.8**	**38.692**	**9.899**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.07	0	1.76	**12.91**	1.329	0.065
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.07	0	2.08	**21.739**	3.089	0.207
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.07	0	1.75	**12.582**	1.277	0.061
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.07	0	1.23	2.857	0.14	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.07	0	1.21	2.702	0.129	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.07	0	1.27	3.374	0.178	0.005
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.07	0	2.28	**28.102**	4.779	0.383

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.07	0	2.14	**23.75**	3.583	0.255
137-O2	1	0	32	122	87.7	0.9	0.02	0.07	0	1.8	**13.81**	1.479	0.075
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.07	0	1.28	3.462	0.184	0.005
138-G2	1	0	32	48.1	36	0.9	0.02	0.07	0	1.35	4.527	0.272	0.008
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.07	0	1.23	2.945	0.146	0.004
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.07	0	1.21	2.663	0.127	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.07	0	1.34	4.291	0.252	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.07	0	1.35	4.398	0.261	0.007
139-G2	1	0	32	39.6	30	0.9	0.02	0.07	0	1.3	3.793	0.21	0.006
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.07	0	1.32	4.048	0.231	0.006
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.07	0	1.34	4.294	0.252	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.07	0	2.62	**38.727**	**8.483**	0.881
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.07	0	3.91	**71.305**	**29.995**	**6.369**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.07	0	1.3	3.737	0.206	0.005
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.07	0	1.48	**6.606**	0.476	0.016
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.07	0	1.55	**7.99**	0.634	0.024
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.07	0	1.46	**6.22**	0.435	0.015
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.07	0	1.24	3.011	0.151	0.004
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.07	0	1.32	3.967	0.225	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.07	0	1.14	1.943	0.081	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.07	0	1.29	3.689	0.202	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.07	0	1.33	4.154	0.24	0.007
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.07	0	1.65	**10.227**	0.925	0.04
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.07	0	1.48	**6.666**	0.483	0.017
143-A1	1	0	32	52	38.7	0.9	0.02	0.07	0	1.38	4.887	0.305	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.07	0	1.46	**6.309**	0.445	0.015
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.07	0	1.35	4.413	0.262	0.007
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.07	0	1.49	**6.827**	0.5	0.017
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.07	0	1.66	**10.363**	0.944	0.041
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.07	0	1.91	**16.786**	2.021	0.115
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.07	0	1.43	**5.824**	0.395	0.013
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.07	0	2.02	**20.077**	2.707	0.172
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.07	0	10.01	**99.483**	**93.022**	**68.346**
147-G1	1	0	32	59.7	44	0.9	0.02	0.07	0	1.42	**5.643**	0.377	0.012
147-G2	1	0	32	85	61.8	0.9	0.02	0.07	0	1.58	**8.557**	0.704	0.027
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.07	0	1.57	**8.345**	0.677	0.026
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.07	0	1.36	4.548	0.274	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.07	0	1.44	**5.853**	0.398	0.013
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.07	0	1.7	**11.293**	1.078	0.049
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.07	0	1.34	4.381	0.26	0.007
149-G1	1	0	32	49	36.6	0.9	0.02	0.07	0	1.36	4.604	0.279	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.07	0	1.39	**5.121**	0.326	0.01
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.07	0	1.51	**7.126**	0.534	0.019
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.07	0	1.27	3.378	0.178	0.005
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.07	0	1.33	4.139	0.239	0.007
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.07	0	1.29	3.655	0.199	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.07	0	1.67	**10.735**	0.997	0.044

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
152-G1	1	0	32	114	82.1	0.9	0.02	0.07	0	1.75	**12.588**	1.278	0.061
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.07	0	2.06	**21.107**	2.941	0.193
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.07	0	1.7	**11.361**	1.088	0.049
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.07	0	2.73	**42.1**	**9.919**	1.112
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.07	0	2.39	**31.384**	**5.799**	0.506
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.07	0	3.24	**56.518**	**17.807**	2.726
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.07	0	2.38	**31.008**	**5.677**	0.49
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.07	0	2.86	**45.916**	**11.714**	1.428
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.07	0	1.68	**10.83**	1.01	0.045
153-O7	1	0	32	361	255	0.9	0.02	0.07	0	3.18	**54.839**	**16.721**	2.469
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.07	0	2.72	**41.728**	**9.754**	1.085
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.07	0	1.19	2.467	0.113	0.003
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.07	0	1.19	2.493	0.115	0.003
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.07	0	1.9	**16.646**	1.994	0.113
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.07	0	1.62	**9.431**	0.816	0.034
155-H1	1	0	32	52.4	39	0.9	0.02	0.07	0	1.38	4.927	0.308	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.07	0	2.07	**21.551**	3.044	0.202
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.07	0	2.67	**40.12**	**9.059**	0.972
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.07	0	1.56	**8.145**	0.653	0.025
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.07	0	1.94	**17.676**	2.197	0.129
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.07	0	1.31	3.96	0.224	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.07	0	1.62	**9.543**	0.831	0.034
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.07	0	1.44	**6.004**	0.413	0.014
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.07	0	1.47	**6.438**	0.458	0.016
158-H1	1	0	32	33.8	26	0.9	0.02	0.07	0	1.27	3.333	0.175	0.004
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.07	0	1.37	4.808	0.297	0.009
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.07	0	1.49	**6.798**	0.497	0.017
159-H1	1	0	32	59.6	44	0.9	0.02	0.07	0	1.42	**5.64**	0.376	0.012
159-H2	1	0	32	101	73	0.9	0.02	0.07	0	1.67	**10.696**	0.991	0.043
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.07	0	1.33	4.183	0.243	0.007
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.07	0	1.37	4.816	0.298	0.009
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.07	0	1.85	**15.138**	1.711	0.091
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.07	0	1.55	**7.969**	0.632	0.024
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.07	0	1.52	**7.343**	0.558	0.02
161-H1	1	0	32	129.6	93	0.9	0.02	0.07	0	1.84	**15.003**	1.687	0.089
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.07	0	1.67	**10.656**	0.985	0.043
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.07	0	1.55	**8.029**	0.639	0.024
163-G1	1	0	32	53	39.4	0.9	0.02	0.07	0	1.38	4.983	0.313	0.009
163-O1	1	0	32	71	52	0.9	0.02	0.07	0	1.49	**6.875**	0.506	0.018
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.07	0	1.85	**15.094**	1.703	0.091
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.07	0	1.14	1.986	0.083	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.07	0	1.44	**5.955**	0.408	0.013
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.07	0	2.57	**37.141**	**7.854**	0.787
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.07	0	1.66	**10.461**	0.958	0.042
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.07	0	1.99	**19.155**	2.505	0.154
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.07	0	2.4	**31.62**	**5.877**	0.516
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.07	0	2.12	**22.908**	3.372	0.234
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.07	0	2.4	**31.696**	**5.902**	0.519
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.07	0	2.53	**35.757**	**7.328**	0.711

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.07	0	3.38	**59.945**	**20.188**	3.326
167-O8	1	0	32	205.3	146	0.9	0.02	0.07	0	2.29	**28.232**	4.818	0.387
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.07	0	2.24	**26.696**	4.374	0.338
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.07	0	1.29	3.622	0.197	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.07	0	1.29	3.663	0.2	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.07	0	1.24	2.963	0.147	0.004
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.07	0	1.26	3.251	0.168	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.07	0	1.35	4.535	0.273	0.008
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.07	0	1.28	3.542	0.191	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.07	0	1.39	**5.155**	0.329	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.07	0	1.38	4.911	0.307	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.07	0	1.31	3.946	0.223	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.07	0	1.35	4.451	0.266	0.008
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.07	0	1.77	**13.034**	1.35	0.066
170-H1	1	0	32	77	56.2	0.9	0.02	0.07	0	1.53	**7.579**	0.585	0.022
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.07	0	2	**19.348**	2.547	0.158
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.07	0	2.49	**34.69**	**6.936**	0.656
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.07	0	2.45	**33.392**	**6.477**	0.594
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.07	0	1.36	4.627	0.281	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.07	0	1.16	2.2	0.096	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.07	0	1.59	**8.773**	0.731	0.029
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.07	0	1.79	**13.551**	1.435	0.072
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.07	0	1.22	2.776	0.134	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.07	0	1.88	**16.138**	1.896	0.105
173-P1	1	0	32	175	124.8	0.9	0.02	0.07	0	2.11	**22.747**	3.332	0.23
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.07	0	1.5	**6.98**	0.517	0.018
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.07	0	1.54	**7.806**	0.612	0.023
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.07	0	2.14	**23.55**	3.533	0.249
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.07	0	1.53	**7.602**	0.588	0.022
175-G2	1	0	32	26.8	21	0.9	0.02	0.07	0	1.22	2.824	0.138	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.07	0	1.52	**7.393**	0.564	0.02
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.07	0	1.3	3.765	0.208	0.006
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.07	0	1.37	4.729	0.29	0.009
176-H2	1	0	32	29	22.6	0.9	0.02	0.07	0	1.24	2.981	0.149	0.004
176-P1	1	0	32	39	29.6	0.9	0.02	0.07	0	1.3	3.744	0.207	0.005
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.07	0	1.24	2.987	0.149	0.004
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.07	0	1.56	**8.3**	0.672	0.026
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.07	0	3.51	**63.149**	**22.631**	3.997
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.07	0	3.83	**69.848**	**28.542**	**5.858**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.07	0	1.7	**11.423**	1.098	0.05
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.07	0	1.36	4.577	0.277	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.07	0	1.74	**12.334**	1.237	0.059
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.07	0	1.79	**13.719**	1.463	0.074
181-H2	1	0	32	115	82.8	0.9	0.02	0.07	0	1.76	**12.742**	1.302	0.063
181-N1	1	0	32	126.7	91	0.9	0.02	0.07	0	1.83	**14.553**	1.607	0.084
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.07	0	1.9	**16.446**	1.955	0.11
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.07	0	1.41	**5.405**	0.353	0.011
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.07	0	2.25	**27.155**	4.504	0.352

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.07	0	2.14	**23.607**	3.547	0.251
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.07	0	1.9	**16.465**	1.959	0.11
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.07	0	1.87	**15.682**	1.811	0.099
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.07	0	1.73	**12.027**	1.19	0.056
182-O2	1	0	32	186	132.5	0.9	0.02	0.07	0	2.18	**24.718**	3.834	0.28
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.07	0	2.13	**23.399**	3.494	0.246
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.07	0	2.19	**25.238**	3.973	0.294
185-A1	1	0	32	33.8	26	0.9	0.02	0.07	0	1.27	3.335	0.175	0.004
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.07	0	1.26	3.238	0.167	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.07	0	3.11	**53.183**	**15.697**	2.238
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.07	0	1.71	**11.63**	1.129	0.052
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.07	0	1.54	**7.724**	0.602	0.022
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.07	0	1.77	**13.034**	1.35	0.066
188-G2	1	0	32	122	87.7	0.9	0.02	0.07	0	1.8	**13.81**	1.479	0.075
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.07	0	1.44	**5.853**	0.398	0.013
188-H1	1	0	32	39	29.6	0.9	0.02	0.07	0	1.3	3.744	0.207	0.005
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.07	0	1.41	**5.337**	0.347	0.011
189-G1	1	0	32	44	33.1	0.9	0.02	0.07	0	1.33	4.161	0.241	0.007
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.07	0	1.52	**7.492**	0.575	0.021
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.07	0	1.69	**11.052**	1.043	0.047
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.07	0	1.79	**13.473**	1.422	0.071
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.07	0	1.17	2.275	0.101	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.07	0	1.31	3.943	0.223	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.07	0	1.22	2.834	0.138	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.07	0	1.21	2.663	0.127	0.003
190-N3	1	0	32	21	17	0.9	0.02	0.07	0	1.19	2.44	0.112	0.002
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.07	0	1.44	**5.968**	0.409	0.013
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.07	0	2.32	**29.31**	**5.142**	0.425
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.07	0	1.29	3.615	0.196	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.07	0	1.23	2.939	0.146	0.003
192-H1	1	0	32	34	26.1	0.9	0.02	0.07	0	1.27	3.344	0.175	0.004
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.07	0	1.17	2.295	0.102	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.07	0	1.19	2.469	0.114	0.003
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.07	0	1.23	2.87	0.141	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.07	0	1.27	3.359	0.177	0.004
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.07	0	1.53	**7.673**	0.596	0.022
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.07	0	1.99	**19.203**	2.516	0.155
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.07	0	2.23	**26.442**	4.302	0.33
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.07	0	1.41	**5.421**	0.355	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.07	0	1.48	**6.609**	0.477	0.016
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.07	0	1.35	4.489	0.269	0.008
196-O1	1	0	32	69	50.6	0.9	0.02	0.07	0	1.48	**6.643**	0.48	0.017
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.07	0	1.91	**16.855**	2.034	0.116
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.07	0	1.54	**7.736**	0.604	0.022
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.07	0	2.07	**21.551**	3.044	0.202
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.07	0	1.15	2.069	0.088	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.07	0	1.22	2.802	0.136	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.07	0	1.24	3.041	0.153	0.004
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.07	0	1.24	2.987	0.149	0.004

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.07	0	1.23	2.886	0.142	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.07	0	2.97	**49.238**	**13.437**	1.76
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.07	0	2.1	**22.447**	3.259	0.223
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.07	0	1.41	**5.464**	0.359	0.011
202-O1	1	0	32	137	98.2	0.9	0.02	0.07	0	1.89	**16.207**	1.909	0.106
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.07	0	3.83	**69.775**	**28.47**	**5.833**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.07	0	3.98	**72.592**	**31.336**	**6.859**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.07	0	1.76	**12.907**	1.329	0.065
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.07	0	1.37	4.737	0.291	0.009
206-H1	1	0	32	18	14.9	0.9	0.02	0.07	0	1.17	2.258	0.1	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.07	0	2.75	**42.576**	**10.133**	1.148
206-O1	1	0	32	252.4	179	0.9	0.02	0.07	0	2.56	**36.821**	**7.73**	0.769
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.07	0	1.73	**12.117**	1.204	0.057
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.07	0	2.63	**38.915**	**8.559**	0.893
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.07	0	2.48	**34.336**	**6.809**	0.638
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.07	0	3.35	**59.239**	**19.679**	3.193
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.07	0	4.03	**73.563**	**32.386**	**7.257**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.07	0	1.75	**12.524**	1.267	0.061
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.07	0	1.83	**14.736**	1.639	0.086
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.07	0	1.5	**6.971**	0.516	0.018
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.07	0	1.3	3.71	0.204	0.005
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.07	0	1.33	4.22	0.246	0.007
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.07	0	1.49	**6.836**	0.501	0.018
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.07	0	1.83	**14.646**	1.624	0.085
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.07	0	2.19	**25.17**	3.954	0.293
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.07	0	1.96	**18.237**	2.312	0.138
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.07	0	1.28	3.459	0.184	0.005
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.07	0	1.57	**8.478**	0.694	0.027
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.07	0	1.41	**5.426**	0.355	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.07	0	1.24	2.973	0.148	0.004
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.07	0	1.15	2.082	0.089	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.07	0	1.25	3.132	0.16	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.07	0	1.97	**18.436**	2.353	0.141
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.07	0	3.65	**66.145**	**25.129**	4.742
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.07	0	2.92	**47.588**	**12.562**	1.588
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.07	0	2.46	**33.619**	**6.555**	0.604
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.07	0	1.68	**10.854**	1.014	0.045
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.07	0	2.57	**37.123**	**7.847**	0.786
805-O1	1	0	32	38.2	29	0.9	0.02	0.07	0	1.29	3.676	0.201	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.07	0	1.34	4.291	0.252	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.07	0	1.23	2.933	0.145	0.003
806-O2	1	0	32	29.6	23	0.9	0.02	0.07	0	1.24	3.022	0.152	0.004
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.07	0	1.37	4.76	0.293	0.009
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.07	0	1.29	3.575	0.193	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.07	0	1.29	3.608	0.196	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.07	0	1.24	2.983	0.149	0.004
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.07	0	1.27	3.327	0.174	0.004

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.07	0	1.28	3.489	0.186	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.07	0	1.18	2.395	0.109	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Sturgeon
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES STU_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.02	0	1.61	**9.337**	0.804	0.033
14	1	0	32	77.1	56.3	0.9	0.02	0.02	0	1.52	**7.414**	0.566	0.021
15	1	0	32	93.6	67.8	0.9	0.02	0.02	0	1.62	**9.487**	0.824	0.034
16	1	0	32	356	251.5	0.9	0.02	0.02	0	3.14	**53.867**	**16.114**	2.331
17	1	0	32	150.5	107.7	0.9	0.02	0.02	0	1.96	**18.222**	2.309	0.138
9	1	0	32	91.8	66.5	0.9	0.02	0.02	0	1.61	**9.247**	0.792	0.032
40	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.02	0	1.34	4.35	0.257	0.007
1017	1	0	32	139.2	99.8	0.9	0.02	0.02	0	1.89	**16.339**	1.934	0.108
1018	1	0	32	51.9	38.6	0.9	0.02	0.02	0	1.37	4.738	0.291	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.02	0	2.42	**32.428**	**6.146**	0.55
44	1	0	32	99.7	72.1	0.9	0.02	0.02	0	1.66	**10.32**	0.938	0.04
46	1	0	32	188.7	134.4	0.9	0.02	0.02	0	2.18	**24.947**	3.895	0.286
47	1	0	32	222.3	157.9	0.9	0.02	0.02	0	2.38	**31.083**	**5.701**	0.493
49	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.02	0	1.41	**5.455**	0.358	0.011
61	1	0	32	137.2	98.3	0.9	0.02	0.02	0	1.88	**16.002**	1.871	0.103
22	1	0	32	118.9	85.5	0.9	0.02	0.02	0	1.77	**13.108**	1.362	0.067
25	1	0	32	54.5	40.4	0.9	0.02	0.02	0	1.38	4.984	0.314	0.009
27	1	0	32	135.3	97	0.9	0.02	0.02	0	1.87	**15.686**	1.812	0.099
28	1	0	32	49.2	36.8	0.9	0.02	0.02	0	1.35	4.497	0.27	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.02	0	1.31	3.927	0.221	0.006
30	1	0	32	51.6	38.4	0.9	0.02	0.02	0	1.37	4.712	0.289	0.008
31	1	0	32	255.8	181.3	0.9	0.02	0.02	0	2.57	**37.167**	**7.864**	0.788
33	1	0	32	206.4	146.8	0.9	0.02	0.02	0	2.29	**28.175**	4.801	0.386
35	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.02	0	3.36	**59.501**	**19.866**	3.242
55	1	0	32	67.1	49.2	0.9	0.02	0.02	0	1.46	**6.274**	0.441	0.015

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
56	1	0	32	185.9	132.4	0.9	0.02	0.02	0	2.17	**24.446**	3.763	0.273
58	1	0	32	73.3	53.6	0.9	0.02	0.02	0	1.5	**6.971**	0.516	0.018
59	1	0	32	206.6	146.9	0.9	0.02	0.02	0	2.29	**28.208**	4.81	0.387
59A	1	0	32	335.3	237	0.9	0.02	0.02	0	3.02	**50.674**	**14.232**	1.923
62	1	0	32	118.1	85	0.9	0.02	0.02	0	1.77	**12.988**	1.342	0.065
62G	1	0	32	70.6	51.7	0.9	0.02	0.02	0	1.48	**6.662**	0.482	0.017
66	1	0	32	141.1	101	0.9	0.02	0.02	0	1.9	**16.638**	1.992	0.112
67	1	0	32	174.5	124.4	0.9	0.02	0.02	0	2.1	**22.393**	3.246	0.221
70	1	0	32	202.6	144.1	0.9	0.02	0.02	0	2.26	**27.48**	4.597	0.362
71	1	0	32	127	91.2	0.9	0.02	0.02	0	1.82	**14.365**	1.574	0.081
72M	1	0	32	253.9	180.1	0.9	0.02	0.02	0	2.56	**36.839**	**7.737**	0.77
72U	1	0	32	109.7	79.1	0.9	0.02	0.02	0	1.72	**11.738**	1.145	0.053
75	1	0	32	381.8	269.6	0.9	0.02	0.02	0	3.28	**57.637**	**18.56**	2.91
82	1	0	32	54.8	40.6	0.9	0.02	0.02	0	1.39	**5.014**	0.316	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.02	0	1.4	**5.267**	0.34	0.011
86	1	0	32	115.3	83	0.9	0.02	0.02	0	1.75	**12.574**	1.275	0.061
87	1	0	32	99.5	72	0.9	0.02	0.02	0	1.66	**10.297**	0.934	0.04
94M	1	0	32	73.9	54	0.9	0.02	0.02	0	1.5	**7.041**	0.524	0.019
106	1	0	32	387.2	273.4	0.9	0.02	0.02	0	3.31	**58.397**	**19.084**	3.041
107	1	0	32	169.3	120.8	0.9	0.02	0.02	0	2.07	**21.483**	3.028	0.201
108	1	0	32	185.4	132.1	0.9	0.02	0.02	0	2.16	**24.356**	3.739	0.27
109	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.02	0	1.59	**8.827**	0.738	0.029
110G	1	0	32	41.5	31.4	0.9	0.02	0.02	0	1.31	3.83	0.213	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.02	0	1.48	**6.638**	0.48	0.017
112	1	0	32	471.3	332.2	0.9	0.02	0.02	0	3.78	**68.778**	**27.516**	**5.51**
112G	1	0	32	181.5	129.4	0.9	0.02	0.02	0	2.14	**23.659**	3.56	0.252
113low	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.468**	**8.378**	0.865
113up	1	0	32	398.8	281.5	0.9	0.02	0.02	0	3.38	**59.983**	**20.216**	3.333
115SP	1	0	32	493.1	347.5	0.9	0.02	0.02	0	3.89	**71.056**	**29.742**	**6.278**
21	1	0	32	104.1	75.2	0.9	0.02	0.02	0	1.68	**10.93**	1.025	0.045
21G	1	0	32	337.4	238.5	0.9	0.02	0.02	0	3.04	**51.014**	**14.424**	1.963
116M	1	0	32	347.4	245.4	0.9	0.02	0.02	0	3.09	**52.558**	**15.322**	2.155
122	1	0	32	69	50.6	0.9	0.02	0.02	0	1.47	**6.491**	0.464	0.016
121	1	0	32	148.3	106.1	0.9	0.02	0.02	0	1.95	**17.846**	2.232	0.131
123	1	0	32	336.5	237.9	0.9	0.02	0.02	0	3.03	**50.879**	**14.348**	1.947
135	1	0	32	130.2	93.5	0.9	0.02	0.02	0	1.84	**14.879**	1.665	0.088
146	1	0	32	81.4	59.3	0.9	0.02	0.02	0	1.55	**7.935**	0.627	0.024
146G	1	0	32	43.2	32.6	0.9	0.02	0.02	0	1.32	3.973	0.225	0.006
147	1	0	32	50.9	37.9	0.9	0.02	0.02	0	1.36	4.649	0.283	0.008
151	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.02	0	2.15	**23.999**	3.647	0.261
160	1	0	32	153.4	109.7	0.9	0.02	0.02	0	1.98	**18.706**	2.41	0.146
163	1	0	32	158.1	113	0.9	0.02	0.02	0	2	**19.522**	2.585	0.161
163G	1	0	32	222.8	158.3	0.9	0.02	0.02	0	2.38	**31.179**	**5.733**	0.497
164	1	0	32	118	84.9	0.9	0.02	0.02	0	1.77	**12.97**	1.339	0.065
167	1	0	32	71.4	52.3	0.9	0.02	0.02	0	1.49	**6.758**	0.493	0.017

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
168	1	0	32	365.9	258.4	0.9	0.02	0.02	0	3.2	**55.344**	**17.042**	2.544
169	1	0	32	262	185.7	0.9	0.02	0.02	0	2.61	**38.277**	**8.302**	0.854
169A	1	0	32	238.9	169.5	0.9	0.02	0.02	0	2.47	**34.112**	**6.729**	0.628
320new	1	0	32	555.7	391.3	0.9	0.02	0.02	0	4.23	**76.755**	**36.09**	**8.754**
216	1	0	32	310.2	219.4	0.9	0.02	0.02	0	2.88	**46.615**	**12.064**	1.493
1030	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.02	0	2.79	**43.889**	**10.737**	1.252
174M	1	0	32	23.7	18.9	0.9	0.02	0.02	0	1.2	2.524	0.117	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.02	0	2.08	**21.829**	3.11	0.209
238G	1	0	32	47.1	35.3	0.9	0.02	0.02	0	1.34	4.309	0.253	0.007
238M	1	0	32	34.9	26.8	0.9	0.02	0.02	0	1.26	3.308	0.173	0.004
176G	1	0	32	140.1	100.4	0.9	0.02	0.02	0	1.9	**16.489**	1.963	0.11
176M	1	0	32	215.9	153.4	0.9	0.02	0.02	0	2.34	**29.908**	**5.328**	0.448
177	1	0	32	172.8	123.2	0.9	0.02	0.02	0	2.09	**22.093**	3.173	0.215
206	1	0	32	142.4	101.9	0.9	0.02	0.02	0	1.91	**16.853**	2.034	0.116
208	1	0	32	161.9	115.6	0.9	0.02	0.02	0	2.03	**20.176**	2.729	0.174
208AA	1	0	32	173.4	123.6	0.9	0.02	0.02	0	2.09	**22.195**	3.198	0.217
208BM	1	0	32	112.5	81.1	0.9	0.02	0.02	0	1.73	**12.155**	1.209	0.057
208G	1	0	32	92.1	66.7	0.9	0.02	0.02	0	1.61	**9.285**	0.797	0.032
209A	1	0	32	115.7	83.3	0.9	0.02	0.02	0	1.75	**12.628**	1.284	0.062
213	1	0	32	440.1	310.4	0.9	0.02	0.02	0	3.61	**65.225**	**24.338**	4.499
185	1	0	32	196.7	140	0.9	0.02	0.02	0	2.23	**26.394**	4.289	0.328
185G	1	0	32	71	52	0.9	0.02	0.02	0	1.48	**6.713**	0.488	0.017
186	1	0	32	242.3	171.9	0.9	0.02	0.02	0	2.49	**34.735**	**6.952**	0.658
1035	1	0	32	114.9	82.8	0.9	0.02	0.02	0	1.75	**12.515**	1.266	0.061
1036	1	0	32	76.8	56	0.9	0.02	0.02	0	1.52	**7.377**	0.562	0.02
1037	1	0	32	98.4	71.2	0.9	0.02	0.02	0	1.65	**10.145**	0.913	0.039
189	1	0	32	154.4	110.4	0.9	0.02	0.02	0	1.98	**18.891**	2.449	0.15
1060	1	0	32	127.8	91.8	0.9	0.02	0.02	0	1.82	**14.492**	1.596	0.083
192	1	0	32	262.5	186	0.9	0.02	0.02	0	2.61	**38.362**	**8.336**	0.859
1020	1	0	32	96.5	69.9	0.9	0.02	0.02	0	1.64	**9.883**	0.877	0.037
1021	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.02	0	1.9	**16.5**	1.965	0.11
194	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.02	0	3.64	**66.052**	**25.048**	4.717
201G	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.02	0	1.35	4.44	0.265	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.02	0	1.54	**7.771**	0.608	0.023
196	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.02	0	1.81	**14.127**	1.533	0.078
231Lower	1	0	32	138	98.9	0.9	0.02	0.02	0	1.88	**16.13**	1.895	0.105
7	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.02	0	1.46	**6.197**	0.433	0.014
246	1	0	32	29.2	22.8	0.9	0.02	0.02	0	1.23	2.892	0.142	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
18	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.02	0	1.57	**8.497**	0.696	0.027
250	1	0	32	92.2	66.8	0.9	0.02	0.02	0	1.61	**9.3**	0.799	0.033
253	1	0	32	110	79.3	0.9	0.02	0.02	0	1.72	**11.779**	1.151	0.053
258	1	0	32	767.7	539.7	0.9	0.02	0.02	0	5.33	**88.92**	**55.387**	**19.364**
259	1	0	32	240.7	170.8	0.9	0.02	0.02	0	2.49	**34.437**	**6.845**	0.643
284M	1	0	32	152.7	109.2	0.9	0.02	0.02	0	1.97	**18.594**	2.386	0.144
285M	1	0	32	157.6	112.7	0.9	0.02	0.02	0	2	**19.443**	2.567	0.16
287	1	0	32	150.2	107.4	0.9	0.02	0.02	0	1.96	**18.17**	2.298	0.137
288	1	0	32	68.2	50	0.9	0.02	0.02	0	1.47	**6.394**	0.454	0.015
288G1	1	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.72**	0.602	0.022
288G2	1	0	32	59.8	44.2	0.9	0.02	0.02	0	1.42	**5.516**	0.364	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.318**	0.555	0.02
291	1	0	32	77.6	56.6	0.9	0.02	0.02	0	1.52	**7.468**	0.573	0.021
306	1	0	32	86.1	62.6	0.9	0.02	0.02	0	1.57	**8.519**	0.699	0.027
315	1	0	32	37.7	28.7	0.9	0.02	0.02	0	1.28	3.521	0.189	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.02	0	1.69	**11.084**	1.047	0.047
317	1	0	32	227.9	161.8	0.9	0.02	0.02	0	2.41	**32.107**	**6.038**	0.536
317M	1	0	32	494.8	348.7	0.9	0.02	0.02	0	3.9	**71.231**	**29.92**	**6.342**
318	1	0	32	452.2	318.9	0.9	0.02	0.02	0	3.67	**66.647**	**25.569**	4.879
319	1	0	32	505.5	356.2	0.9	0.02	0.02	0	3.96	**72.288**	**31.014**	**6.74**
319M	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.02	0	4.03	**73.428**	**32.238**	**7.2**
421	1	0	32	318.8	225.4	0.9	0.02	0.02	0	2.93	**48.025**	**12.79**	1.632
410	1	0	32	394	278.1	0.9	0.02	0.02	0	3.35	**59.332**	**19.745**	3.21
412	1	0	32	12.8	11.3	0.9	0.02	0.02	0	1.13	1.883	0.077	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.02	0	4.16	**75.707**	**34.829**	**8.227**
325	1	0	32	37.8	28.8	0.9	0.02	0.02	0	1.28	3.532	0.19	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.02	0	1.49	**6.761**	0.493	0.017
327	1	0	32	50	37.3	0.9	0.02	0.02	0	1.36	4.571	0.276	0.008
999G1	1	0	32	85.9	62.4	0.9	0.02	0.02	0	1.57	**8.491**	0.695	0.027
999M1	1	0	32	79.9	58.2	0.9	0.02	0.02	0	1.54	**7.746**	0.605	0.022
999M2	1	0	32	56.1	41.6	0.9	0.02	0.02	0	1.39	**5.145**	0.329	0.01
999M3	1	0	32	83.8	61	0.9	0.02	0.02	0	1.56	**8.228**	0.663	0.025
72	1	0	32	230.4	163.6	0.9	0.02	0.02	0	2.43	**32.564**	**6.192**	0.556
1001	1	0	32	408.4	288.1	0.9	0.02	0.02	0	3.43	**61.249**	**21.155**	3.585
401	1	0	32	1101.5	773.4	0.9	0.02	0.02	0	6.95	**96.314**	**75.852**	**38.267**
402	1	0	32	577.5	406.6	0.9	0.02	0.02	0	4.35	**78.478**	**38.269**	**9.707**
403	1	0	32	419.6	296	0.9	0.02	0.02	0	3.49	**62.697**	**22.272**	3.895
440	1	0	32	145.2	103.9	0.9	0.02	0.02	0	1.93	**17.325**	2.127	0.123
441	1	0	32	737.9	518.8	0.9	0.02	0.02	0	5.18	**87.722**	**52.963**	**17.731**
442	1	0	32	258.8	183.4	0.9	0.02	0.02	0	2.59	**37.707**	**8.075**	0.82
1005	1	0	32	112.1	80.8	0.9	0.02	0.02	0	1.73	**12.094**	1.2	0.056
1006	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.234**	0.79	0.032
1007	1	0	32	51.9	38.6	0.9	0.02	0.02	0	1.37	4.742	0.291	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.02	0	1.61	**9.21**	0.787	0.032

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1010	1	0	32	110.8	79.8	0.9	0.02	0.02	0	1.72	**11.894**	1.169	0.054
1011	1	0	32	146.2	104.7	0.9	0.02	0.02	0	1.93	**17.5**	2.162	0.126
345	1	0	32	103.9	75	0.9	0.02	0.02	0	1.68	**10.908**	1.022	0.045
346	1	0	32	130.4	93.6	0.9	0.02	0.02	0	1.84	**14.909**	1.67	0.088
347	1	0	32	312.7	221.2	0.9	0.02	0.02	0	2.9	**47.027**	**12.273**	1.533
430	1	0	32	262	185.7	0.9	0.02	0.02	0	2.61	**38.277**	**8.302**	0.854
431	1	0	32	110.3	79.5	0.9	0.02	0.02	0	1.72	**11.821**	1.158	0.054
432	1	0	32	307.5	217.5	0.9	0.02	0.02	0	2.87	**46.158**	**11.834**	1.451
801	1	0	32	239.9	170.3	0.9	0.02	0.02	0	2.48	**34.304**	**6.798**	0.637
3000	1	0	32	26.6	20.9	0.9	0.02	0.02	0	1.21	2.715	0.13	0.003
3001	1	0	32	371	262	0.9	0.02	0.02	0	3.22	**56.09**	**17.526**	2.658
3003	1	0	32	294.5	208.5	0.9	0.02	0.02	0	2.79	**43.97**	**10.775**	1.259
3004	1	0	32	81.9	59.6	0.9	0.02	0.02	0	1.55	**7.992**	0.634	0.024
280	1	0	32	367.4	259.5	0.9	0.02	0.02	0	3.2	**55.562**	**17.183**	2.577
280yard	1	0	32	302.9	214.3	0.9	0.02	0.02	0	2.84	**45.389**	**11.455**	1.381
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.02	0	1.48	**6.607**	0.476	0.016
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.02	0	1.55	**7.974**	0.632	0.024
075-O1	1	0	32	265	187.8	0.9	0.02	0.02	0	2.63	**38.82**	**8.521**	0.887
076-G1	1	0	32	85	61.8	0.9	0.02	0.02	0	1.57	**8.374**	0.681	0.026
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.02	0	1.63	**9.688**	0.851	0.035
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.02	0	1.62	**9.463**	0.821	0.034
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.02	0	1.61	**9.203**	0.786	0.032
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.02	0	2	**19.389**	2.556	0.159
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.02	0	1.25	3.107	0.158	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.02	0	1.24	3.04	0.153	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.415	0.181	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.02	0	1.28	3.481	0.186	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.02	0	1.26	3.294	0.172	0.004
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.02	0	1.28	3.54	0.19	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.02	0	1.2	2.581	0.121	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.02	0	1.22	2.729	0.131	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.02	0	1.25	3.094	0.157	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.02	0	1.48	**6.579**	0.473	0.016
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.02	0	1.79	**13.543**	1.434	0.072
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.02	0	1.2	2.521	0.117	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.409	0.18	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.02	0	1.81	**14.242**	1.553	0.08
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.02	0	1.19	2.466	0.113	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.02	0	1.3	3.791	0.21	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.02	0	1.31	3.849	0.215	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.02	0	1.27	3.345	0.175	0.004
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.02	0	1.31	3.945	0.223	0.006
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.02	0	1.27	3.345	0.175	0.004
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.02	0	1.24	2.991	0.149	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.02	0	1.32	4.071	0.233	0.006

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.02	0	1.28	3.507	0.188	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.02	0	1.42	**5.536**	0.366	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.721**	0.602	0.022
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.02	0	2	**19.37**	2.552	0.158
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.02	0	1.49	**6.837**	0.501	0.018
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.02	0	1.42	**5.616**	0.374	0.012
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.02	0	1.37	4.717	0.289	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.02	0	2.16	**24.146**	3.685	0.265
088-H2	1	0	32	159	113.6	0.9	0.02	0.02	0	2.01	**19.68**	2.619	0.164
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.02	0	1.87	**15.857**	1.843	0.101
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.02	0	1.54	**7.813**	0.613	0.023
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.02	0	1.63	**9.688**	0.851	0.035
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.02	0	1.42	**5.565**	0.369	0.012
090-H1	1	0	32	95.3	69	0.9	0.02	0.02	0	1.63	**9.725**	0.856	0.036
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.02	0	2	**19.389**	2.556	0.159
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.02	0	1.55	**7.916**	0.625	0.023
091-H1	1	0	32	56	41.5	0.9	0.02	0.02	0	1.39	**5.133**	0.327	0.01
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.02	0	2.13	**23.441**	3.505	0.247
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.02	0	1.67	**10.611**	0.979	0.043
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.02	0	1.46	**6.362**	0.45	0.015
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.02	0	1.54	**7.779**	0.609	0.023
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.02	0	1.52	**7.416**	0.567	0.021
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.02	0	2.1	**22.339**	3.233	0.22
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.02	0	1.77	**13.071**	1.356	0.066
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.02	0	1.95	**17.99**	2.261	0.134
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.02	0	2.12	**22.938**	3.379	0.234
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.02	0	2.13	**23.239**	3.454	0.242
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.02	0	2.9	**47.138**	**12.33**	1.544
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.02	0	1.91	**16.825**	2.028	0.115
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.02	0	1.76	**12.942**	1.335	0.065
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.02	0	1.27	3.415	0.181	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.02	0	1.26	3.269	0.17	0.004
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.02	0	1.19	2.461	0.113	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.02	0	1.4	**5.178**	0.332	0.01
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.02	0	1.44	**5.878**	0.4	0.013
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.02	0	1.92	**17.198**	2.102	0.121
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.02	0	2.08	**21.723**	3.085	0.206
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.02	0	1.33	4.219	0.246	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.02	0	1.9	**16.558**	1.976	0.111
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.02	0	1.59	**8.809**	0.735	0.029
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.02	0	1.5	**7.004**	0.52	0.018
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.02	0	1.89	**16.208**	1.909	0.106
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.02	0	1.36	4.633	0.282	0.008
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.02	0	1.85	**15.087**	1.702	0.091
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.02	0	2.3	**28.728**	4.966	0.405

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.02	0	1.4	**5.178**	0.332	0.01
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.02	0	1.23	2.942	0.146	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.02	0	1.77	**12.969**	1.339	0.065
103-O1	1	0	32	99	71.6	0.9	0.02	0.02	0	1.65	**10.222**	0.924	0.04
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.02	0	2.14	**23.759**	3.586	0.255
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.02	0	2.04	**20.734**	2.855	0.185
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.02	0	1.95	**18.102**	2.284	0.136
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.02	0	1.69	**11.169**	1.06	0.048
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.02	0	2.35	**30.157**	**5.406**	0.457
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.02	0	1.23	2.844	0.139	0.003
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.02	0	1.17	2.209	0.097	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.02	0	1.2	2.601	0.122	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.02	0	2.45	**33.201**	**6.41**	0.585
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.02	0	1.49	**6.911**	0.509	0.018
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.02	0	1.77	**13.199**	1.377	0.068
108-O2	1	0	32	53.9	40	0.9	0.02	0.02	0	1.38	4.931	0.309	0.009
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.24**	0.791	0.032
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.02	0	1.46	**6.347**	0.449	0.015
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.02	0	1.24	3.003	0.15	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.02	0	1.41	**5.412**	0.354	0.011
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.02	0	1.33	4.216	0.245	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.02	0	1.54	**7.844**	0.617	0.023
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.02	0	1.31	3.862	0.216	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.02	0	1.64	**9.993**	0.892	0.038
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.02	0	1.57	**8.43**	0.688	0.027
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.02	0	2.81	**44.376**	**10.967**	1.293
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.02	0	2.08	**21.891**	3.125	0.21
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.02	0	2.19	**25.211**	3.965	0.294
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.321**	0.556	0.02
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.02	0	1.79	**13.716**	1.463	0.074
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.02	0	2.78	**43.672**	**10.636**	1.235
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.02	0	2.98	**49.402**	**13.527**	1.778
114-O1	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.459**	**8.375**	0.865
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.02	0	3.36	**59.428**	**19.814**	3.228
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.02	0	1.87	**15.765**	1.826	0.1
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.02	0	1.15	2.05	0.087	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.02	0	1.21	2.695	0.129	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.02	0	1.18	2.406	0.11	0.002
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.02	0	1.19	2.407	0.11	0.002
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.02	0	1.34	4.307	0.253	0.007
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.02	0	1.52	**7.311**	0.554	0.02
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.02	0	2.69	**40.73**	**9.319**	1.013
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.02	0	1.4	**5.271**	0.34	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.02	0	1.39	**5.042**	0.319	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.02	0	1.41	**5.366**	0.35	0.011

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.02	0	1.62	**9.45**	0.819	0.034
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.02	0	1.24	3.027	0.152	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.02	0	1.32	4.046	0.231	0.006
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.02	0	1.18	2.392	0.109	0.002
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.02	0	1.29	3.634	0.198	0.005
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.02	0	1.45	**6.092**	0.422	0.014
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.02	0	1.41	**5.403**	0.353	0.011
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.02	0	1.74	**12.436**	1.253	0.06
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.02	0	1.46	**6.209**	0.434	0.014
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.02	0	2.06	**21.148**	2.95	0.194
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.02	0	2.51	**35.191**	**7.118**	0.681
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.02	0	2.94	**48.374**	**12.974**	1.668
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.02	0	1.54	**7.865**	0.619	0.023
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.02	0	1.62	**9.425**	0.816	0.033
123-H1	1	0	32	72.4	53	0.9	0.02	0.02	0	1.49	**6.873**	0.505	0.018
123-O1	1	0	32	101	73	0.9	0.02	0.02	0	1.66	**10.493**	0.962	0.042
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.02	0	2.37	**30.74**	**5.591**	0.48
124-G1	1	0	32	28	21.9	0.9	0.02	0.02	0	1.22	2.809	0.137	0.003
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.02	0	1.52	**7.357**	0.56	0.02
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.02	0	1.27	3.319	0.174	0.004
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.02	0	1.22	2.781	0.135	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.02	0	1.1	1.664	0.065	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.02	0	1.52	**7.35**	0.559	0.02
125-O1	1	0	32	70	51.3	0.9	0.02	0.02	0	1.48	**6.601**	0.476	0.016
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.02	0	1.45	**6.029**	0.416	0.014
126-G1	1	0	32	49	36.6	0.9	0.02	0.02	0	1.35	4.48	0.268	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.02	0	1.31	3.881	0.218	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.02	0	1.19	2.418	0.11	0.002
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.02	0	1.35	4.458	0.266	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.02	0	1.21	2.634	0.125	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.02	0	1.36	4.564	0.276	0.008
126-P1	1	0	32	28.1	22	0.9	0.02	0.02	0	1.22	2.817	0.137	0.003
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.02	0	1.76	**12.942**	1.335	0.065
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.02	0	1.44	**5.86**	0.398	0.013
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.02	0	1.45	**6.038**	0.416	0.014
127-H1	1	0	32	96.8	70	0.9	0.02	0.02	0	1.64	**9.915**	0.882	0.037
127-H2	1	0	32	42.5	32	0.9	0.02	0.02	0	1.31	3.909	0.22	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.02	0	1.77	**13.028**	1.349	0.066
128-G1	1	0	32	37	28.2	0.9	0.02	0.02	0	1.28	3.463	0.184	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.02	0	1.47	**6.437**	0.458	0.016
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.02	0	1.3	3.699	0.203	0.005
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.02	0	1.78	**13.332**	1.399	0.069
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.02	0	1.47	**6.511**	0.466	0.016
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.02	0	2.81	**44.413**	**10.984**	1.296
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.02	0	3.03	**50.762**	**14.282**	1.933
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.02	0	1.28	3.49	0.187	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.02	0	1.16	2.16	0.094	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.02	0	1.38	4.854	0.302	0.009
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.02	0	1.87	**15.72**	1.818	0.099
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.02	0	1.16	2.199	0.096	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.02	0	1.1	1.615	0.062	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.02	0	1.23	2.848	0.139	0.003
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.02	0	1.25	3.18	0.163	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.02	0	1.99	**19.254**	2.527	0.156
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.02	0	1.71	**11.48**	1.106	0.05
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.02	0	4.36	**78.692**	**38.549**	**9.834**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.02	0	1.75	**12.692**	1.294	0.062
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.02	0	2.07	**21.483**	3.028	0.201
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.02	0	1.74	**12.366**	1.242	0.059
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.02	0	1.22	2.758	0.133	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.02	0	1.2	2.606	0.123	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.02	0	1.26	3.264	0.169	0.004
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.02	0	2.28	**27.837**	4.701	0.374
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.02	0	2.14	**23.49**	3.517	0.248
137-O2	1	0	32	122	87.7	0.9	0.02	0.02	0	1.79	**13.586**	1.441	0.072
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.02	0	1.27	3.351	0.176	0.004
138-G2	1	0	32	48.1	36	0.9	0.02	0.02	0	1.35	4.397	0.261	0.007
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.02	0	1.23	2.844	0.139	0.003
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.02	0	1.2	2.568	0.12	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.02	0	1.34	4.27	0.25	0.007
139-G2	1	0	32	39.6	30	0.9	0.02	0.02	0	1.29	3.675	0.201	0.005
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.02	0	1.31	3.926	0.221	0.006
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.02	0	1.33	4.167	0.241	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.02	0	2.61	**38.468**	**8.378**	0.865
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.02	0	3.9	**71.159**	**29.847**	**6.316**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.621	0.197	0.005
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.02	0	1.47	**6.445**	0.459	0.016
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.02	0	1.54	**7.813**	0.613	0.023
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.02	0	1.45	**6.065**	0.419	0.014
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.02	0	1.23	2.908	0.144	0.003
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.02	0	1.31	3.846	0.215	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.02	0	1.13	1.866	0.076	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.02	0	1.29	3.573	0.193	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.02	0	1.32	4.03	0.23	0.006
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.02	0	1.64	**10.029**	0.897	0.038
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.02	0	1.47	**6.504**	0.465	0.016
143-A1	1	0	32	52	38.7	0.9	0.02	0.02	0	1.37	4.751	0.292	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.02	0	1.45	**6.152**	0.428	0.014
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.02	0	1.34	4.285	0.251	0.007
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.02	0	1.48	**6.663**	0.482	0.017
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.02	0	1.65	**10.163**	0.916	0.039

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.02	0	1.9	**16.546**	1.974	0.111
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.02	0	1.43	**5.674**	0.38	0.012
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.02	0	2.01	**19.826**	2.651	0.167
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.02	0	10.01	**99.481**	**93.005**	**68.301**
147-G1	1	0	32	59.7	44	0.9	0.02	0.02	0	1.42	**5.496**	0.362	0.011
147-G2	1	0	32	85	61.8	0.9	0.02	0.02	0	1.57	**8.374**	0.681	0.026
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.02	0	1.56	**8.164**	0.655	0.025
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.02	0	1.35	4.417	0.263	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.02	0	1.43	**5.703**	0.383	0.012
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.02	0	1.69	**11.086**	1.048	0.047
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.02	0	1.34	4.253	0.249	0.007
149-G1	1	0	32	49	36.6	0.9	0.02	0.02	0	1.35	4.472	0.268	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.02	0	1.38	4.981	0.313	0.009
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.02	0	1.5	**6.959**	0.515	0.018
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.02	0	1.26	3.269	0.17	0.004
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.02	0	1.32	4.015	0.229	0.006
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.02	0	1.28	3.54	0.19	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.02	0	1.67	**10.533**	0.968	0.042
152-G1	1	0	32	114	82.1	0.9	0.02	0.02	0	1.74	**12.372**	1.243	0.059
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.02	0	2.05	**20.853**	2.882	0.188
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.02	0	1.69	**11.154**	1.058	0.047
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.02	0	2.72	**41.848**	**9.807**	1.093
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.02	0	2.38	**31.119**	**5.713**	0.495
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.02	0	3.23	**56.309**	**17.669**	2.693
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.02	0	2.37	**30.742**	**5.591**	0.48
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.02	0	2.85	**45.673**	**11.594**	1.406
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.02	0	1.67	**10.626**	0.981	0.043
153-O7	1	0	32	361	255	0.9	0.02	0.02	0	3.17	**54.624**	**16.585**	2.438
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.02	0	2.71	**41.476**	**9.643**	1.066
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.02	0	1.18	2.376	0.108	0.002
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.02	0	1.18	2.402	0.109	0.002
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.02	0	1.89	**16.407**	1.948	0.109
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.02	0	1.61	**9.24**	0.791	0.032
155-H1	1	0	32	52.4	39	0.9	0.02	0.02	0	1.37	4.79	0.296	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.02	0	2.06	**21.295**	2.984	0.197
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.02	0	2.66	**39.864**	**8.952**	0.955
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.02	0	1.55	**7.967**	0.631	0.024
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.02	0	1.93	**17.433**	2.148	0.125
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.02	0	1.31	3.839	0.214	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.02	0	1.61	**9.351**	0.806	0.033
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.02	0	1.44	**5.851**	0.397	0.013
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.02	0	1.46	**6.28**	0.441	0.015
158-H1	1	0	32	33.8	26	0.9	0.02	0.02	0	1.26	3.224	0.166	0.004
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.02	0	1.36	4.672	0.285	0.008
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.02	0	1.48	**6.634**	0.479	0.017
159-H1	1	0	32	59.6	44	0.9	0.02	0.02	0	1.42	**5.493**	0.362	0.011
159-H2	1	0	32	101	73	0.9	0.02	0.02	0	1.66	**10.493**	0.962	0.042

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.02	0	1.32	4.058	0.232	0.006
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.02	0	1.36	4.681	0.286	0.008
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.02	0	1.84	**14.906**	1.67	0.088
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.02	0	1.54	**7.793**	0.611	0.023
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.02	0	1.51	**7.173**	0.539	0.019
161-H1	1	0	32	129.6	93	0.9	0.02	0.02	0	1.83	**14.772**	1.646	0.086
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.02	0	1.66	**10.454**	0.957	0.041
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.02	0	1.54	**7.851**	0.617	0.023
163-G1	1	0	32	53	39.4	0.9	0.02	0.02	0	1.37	4.845	0.301	0.009
163-O1	1	0	32	71	52	0.9	0.02	0.02	0	1.48	**6.711**	0.488	0.017
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.02	0	1.84	**14.862**	1.662	0.088
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.02	0	1.13	1.908	0.079	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.02	0	1.43	**5.803**	0.393	0.013
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.02	0	2.56	**36.88**	**7.753**	0.772
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.02	0	1.65	**10.26**	0.929	0.04
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.02	0	1.98	**18.907**	2.452	0.15
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.02	0	2.39	**31.355**	**5.79**	0.505
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.02	0	2.11	**22.65**	3.308	0.227
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.02	0	2.39	**31.43**	**5.814**	0.508
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.02	0	2.52	**35.495**	**7.23**	0.697
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.02	0	3.37	**59.749**	**20.045**	3.288
167-O8	1	0	32	205.3	146	0.9	0.02	0.02	0	2.28	**27.967**	4.739	0.379
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.02	0	2.23	**26.433**	4.3	0.329
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.02	0	1.28	3.507	0.188	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.02	0	1.28	3.547	0.191	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.02	0	1.23	2.861	0.14	0.003
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.02	0	1.25	3.144	0.16	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.02	0	1.35	4.405	0.262	0.007
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.02	0	1.27	3.429	0.182	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.02	0	1.39	**5.014**	0.316	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.02	0	1.37	4.774	0.294	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.02	0	1.3	3.825	0.213	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.02	0	1.34	4.322	0.254	0.007
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.02	0	1.76	**12.815**	1.314	0.064
170-H1	1	0	32	77	56.2	0.9	0.02	0.02	0	1.52	**7.407**	0.565	0.021
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.02	0	1.99	**19.098**	2.493	0.153
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.02	0	2.48	**34.427**	**6.842**	0.643
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.02	0	2.44	**33.128**	**6.385**	0.581
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.02	0	1.35	4.495	0.27	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.02	0	1.16	2.116	0.091	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.02	0	1.58	**8.588**	0.707	0.028
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.02	0	1.78	**13.328**	1.398	0.069
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.02	0	1.21	2.679	0.128	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.02	0	1.88	**15.902**	1.852	0.102
173-P1	1	0	32	175	124.8	0.9	0.02	0.02	0	2.1	**22.488**	3.269	0.224
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.02	0	1.49	**6.815**	0.499	0.017
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.02	0	1.53	**7.631**	0.591	0.022

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.02	0	2.13	**23.29**	3.467	0.243
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.02	0	1.52	**7.429**	0.568	0.021
175-G2	1	0	32	26.8	21	0.9	0.02	0.02	0	1.22	2.725	0.131	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.02	0	1.51	**7.222**	0.544	0.02
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.02	0	1.29	3.647	0.199	0.005
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.02	0	1.36	4.595	0.278	0.008
176-H2	1	0	32	29	22.6	0.9	0.02	0.02	0	1.23	2.879	0.141	0.003
176-P1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.628	0.197	0.005
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.02	0	1.23	2.885	0.142	0.003
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.02	0	1.56	**8.12**	0.65	0.025
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.02	0	3.5	**62.966**	**22.485**	3.955
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.02	0	3.82	**69.696**	**28.394**	**5.807**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.02	0	1.69	**11.215**	1.067	0.048
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.02	0	1.35	4.446	0.265	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.02	0	1.73	**12.119**	1.204	0.057
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.02	0	1.79	**13.495**	1.426	0.071
181-H2	1	0	32	115	82.8	0.9	0.02	0.02	0	1.75	**12.525**	1.268	0.061
181-N1	1	0	32	126.7	91	0.9	0.02	0.02	0	1.82	**14.325**	1.567	0.081
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.02	0	1.89	**16.208**	1.909	0.106
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.02	0	1.4	**5.26**	0.34	0.01
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.02	0	2.25	**26.891**	4.429	0.344
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.02	0	2.13	**23.347**	3.481	0.244
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.02	0	1.89	**16.227**	1.913	0.106
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.02	0	1.86	**15.447**	1.768	0.095
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.02	0	1.72	**11.814**	1.157	0.054
182-O2	1	0	32	186	132.5	0.9	0.02	0.02	0	2.17	**24.456**	3.766	0.273
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.02	0	2.12	**23.139**	3.429	0.239
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.02	0	2.18	**24.976**	3.903	0.287
185-A1	1	0	32	33.8	26	0.9	0.02	0.02	0	1.26	3.226	0.167	0.004
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.02	0	1.25	3.131	0.16	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.02	0	3.11	**52.962**	**15.564**	2.208
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.02	0	1.7	**11.421**	1.097	0.05
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.02	0	1.53	**7.55**	0.582	0.021
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.02	0	1.76	**12.815**	1.314	0.064
188-G2	1	0	32	122	87.7	0.9	0.02	0.02	0	1.79	**13.586**	1.441	0.072
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.02	0	1.43	**5.703**	0.383	0.012
188-H1	1	0	32	39	29.6	0.9	0.02	0.02	0	1.29	3.628	0.197	0.005
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.02	0	1.4	**5.194**	0.333	0.01
189-G1	1	0	32	44	33.1	0.9	0.02	0.02	0	1.32	4.037	0.23	0.006
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.02	0	1.52	**7.321**	0.556	0.02
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.02	0	1.68	**10.847**	1.013	0.045
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.02	0	1.78	**13.251**	1.385	0.068
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.02	0	1.16	2.189	0.096	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.02	0	1.3	3.823	0.213	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.02	0	1.22	2.735	0.131	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.02	0	1.2	2.568	0.12	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
190-N3	1	0	32	21	17	0.9	0.02	0.02	0	1.18	2.35	0.106	0.002
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.02	0	1.43	**5.816**	0.394	0.013
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.02	0	2.31	**29.044**	**5.061**	0.416
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.02	0	1.28	3.501	0.187	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.02	0	1.23	2.838	0.139	0.003
192-H1	1	0	32	34	26.1	0.9	0.02	0.02	0	1.26	3.235	0.167	0.004
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.02	0	1.17	2.209	0.097	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.02	0	1.18	2.378	0.108	0.002
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.02	0	1.22	2.771	0.134	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.02	0	1.26	3.25	0.168	0.004
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.02	0	1.53	**7.5**	0.576	0.021
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.02	0	1.98	**18.954**	2.462	0.151
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.02	0	2.22	**26.178**	4.229	0.322
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.02	0	1.4	**5.277**	0.341	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.02	0	1.47	**6.448**	0.459	0.016
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.02	0	1.34	4.359	0.258	0.007
196-O1	1	0	32	69	50.6	0.9	0.02	0.02	0	1.47	**6.482**	0.463	0.016
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.02	0	1.9	**16.615**	1.987	0.112
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.02	0	1.53	**7.562**	0.583	0.021
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.02	0	2.06	**21.295**	2.984	0.197
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.02	0	1.14	1.988	0.084	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.02	0	1.21	2.705	0.129	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.02	0	1.23	2.938	0.146	0.003
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.02	0	1.23	2.885	0.142	0.003
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.02	0	1.22	2.786	0.135	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.02	0	2.97	**49.005**	**13.311**	1.735
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.02	0	2.09	**22.189**	3.196	0.217
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.02	0	1.4	**5.319**	0.345	0.011
202-O1	1	0	32	137	98.2	0.9	0.02	0.02	0	1.88	**15.97**	1.865	0.103
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.02	0	3.82	**69.622**	**28.322**	**5.782**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.02	0	3.97	**72.452**	**31.188**	**6.804**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.02	0	1.75	**12.688**	1.294	0.062
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.02	0	1.36	4.603	0.279	0.008
206-H1	1	0	32	18	14.9	0.9	0.02	0.02	0	1.16	2.173	0.095	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.02	0	2.74	**42.325**	**10.02**	1.129
206-O1	1	0	32	252.4	179	0.9	0.02	0.02	0	2.55	**36.56**	**7.63**	0.754
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.02	0	1.72	**11.904**	1.171	0.054
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.02	0	2.62	**38.657**	**8.455**	0.877
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.02	0	2.47	**34.073**	**6.715**	0.626
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.02	0	3.34	**59.04**	**19.537**	3.157
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.02	0	4.03	**73.428**	**32.238**	**7.2**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.02	0	1.74	**12.308**	1.233	0.058
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.02	0	1.82	**14.507**	1.599	0.083
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.02	0	1.49	**6.805**	0.498	0.017
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.02	0	1.29	3.594	0.195	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.02	0	1.32	4.094	0.235	0.006
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.02	0	1.48	**6.673**	0.483	0.017
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.02	0	1.82	**14.417**	1.583	0.082
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.02	0	2.18	**24.908**	3.885	0.285
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.02	0	1.95	**17.991**	2.261	0.134
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.02	0	1.27	3.348	0.176	0.004
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.02	0	1.56	**8.296**	0.671	0.026
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.02	0	1.4	**5.281**	0.341	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.02	0	1.23	2.871	0.141	0.003
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.02	0	1.14	2.001	0.084	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.02	0	1.24	3.027	0.152	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.02	0	1.96	**18.189**	2.302	0.137
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.02	0	3.64	**65.975**	**24.982**	4.696
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.02	0	2.91	**47.35**	**12.439**	1.565
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.02	0	2.45	**33.355**	**6.463**	0.592
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.02	0	1.67	**10.65**	0.985	0.043
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.02	0	2.56	**36.862**	**7.746**	0.771
805-O1	1	0	32	38.2	29	0.9	0.02	0.02	0	1.28	3.561	0.192	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.02	0	1.33	4.165	0.241	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.02	0	1.22	2.832	0.138	0.003
806-O2	1	0	32	29.6	23	0.9	0.02	0.02	0	1.23	2.92	0.144	0.003
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.02	0	1.36	4.626	0.281	0.008
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.02	0	1.28	3.461	0.184	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.02	0	1.28	3.494	0.187	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.02	0	1.23	2.881	0.142	0.003
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.02	0	1.26	3.218	0.166	0.004
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.02	0	1.27	3.377	0.178	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.02	0	1.18	2.307	0.103	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Sucker
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES SUC_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.57	0	1.71	**11.547**	1.116	0.051
14	1	0	32	77.1	56.3	0.9	0.02	0.57	0	1.62	**9.415**	0.814	0.033
15	1	0	32	93.6	67.8	0.9	0.02	0.57	0	1.72	**11.711**	1.141	0.053
16	1	0	32	356	251.5	0.9	0.02	0.57	0	3.23	**56.22**	**17.611**	2.679
17	1	0	32	150.5	107.7	0.9	0.02	0.57	0	2.05	**20.976**	2.911	0.19
9	1	0	32	91.8	66.5	0.9	0.02	0.57	0	1.7	**11.448**	1.101	0.05
40	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
1015	1	0	32	47.6	35.6	0.9	0.02	0.57	0	1.44	**5.896**	0.402	0.013
1017	1	0	32	139.2	99.8	0.9	0.02	0.57	0	1.99	**19.018**	2.476	0.152
1018	1	0	32	51.9	38.6	0.9	0.02	0.57	0	1.46	**6.353**	0.449	0.015
42	1	0	32	229.6	163.1	0.9	0.02	0.57	0	2.51	**35.33**	**7.169**	0.688
44	1	0	32	99.7	72.1	0.9	0.02	0.57	0	1.75	**12.619**	1.283	0.062
46	1	0	32	188.7	134.4	0.9	0.02	0.57	0	2.28	**27.846**	4.704	0.374
47	1	0	32	222.3	157.9	0.9	0.02	0.57	0	2.47	**33.994**	**6.687**	0.622
49	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
60	1	0	32	59.3	43.8	0.9	0.02	0.57	0	1.51	**7.188**	0.54	0.019
61	1	0	32	137.2	98.3	0.9	0.02	0.57	0	1.97	**18.666**	2.401	0.145
22	1	0	32	118.9	85.5	0.9	0.02	0.57	0	1.87	**15.614**	1.798	0.098
25	1	0	32	54.5	40.4	0.9	0.02	0.57	0	1.48	**6.64**	0.48	0.017
27	1	0	32	135.3	97	0.9	0.02	0.57	0	1.96	**18.336**	2.332	0.14
28	1	0	32	49.2	36.8	0.9	0.02	0.57	0	1.45	**6.07**	0.42	0.014
29	1	0	32	42.7	32.2	0.9	0.02	0.57	0	1.41	**5.393**	0.352	0.011
30	1	0	32	51.6	38.4	0.9	0.02	0.57	0	1.46	**6.322**	0.446	0.015
31	1	0	32	255.8	181.3	0.9	0.02	0.57	0	2.66	**40.007**	**9.012**	0.964
33	1	0	32	206.4	146.8	0.9	0.02	0.57	0	2.38	**31.092**	**5.704**	0.494
35	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
35PA	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
39	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
226C	1	0	32	395.3	279	0.9	0.02	0.57	0	3.45	**61.622**	**21.439**	3.662
55	1	0	32	67.1	49.2	0.9	0.02	0.57	0	1.56	**8.127**	0.651	0.025

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
56	1	0	32	185.9	132.4	0.9	0.02	0.57	0	2.26	**27.34**	4.557	0.358
58	1	0	32	73.3	53.6	0.9	0.02	0.57	0	1.59	**8.917**	0.749	0.03
59	1	0	32	206.6	146.9	0.9	0.02	0.57	0	2.38	**31.126**	**5.715**	0.495
59A	1	0	32	335.3	237	0.9	0.02	0.57	0	3.11	**53.146**	**15.675**	2.233
62	1	0	32	118.1	85	0.9	0.02	0.57	0	1.86	**15.487**	1.775	0.096
62G	1	0	32	70.6	51.7	0.9	0.02	0.57	0	1.58	**8.567**	0.705	0.028
66	1	0	32	141.1	101	0.9	0.02	0.57	0	2	**19.331**	2.543	0.158
67	1	0	32	174.5	124.4	0.9	0.02	0.57	0	2.19	**25.256**	3.978	0.295
70	1	0	32	202.6	144.1	0.9	0.02	0.57	0	2.36	**30.397**	**5.481**	0.466
71	1	0	32	127	91.2	0.9	0.02	0.57	0	1.91	**16.946**	2.052	0.117
72M	1	0	32	253.9	180.1	0.9	0.02	0.57	0	2.65	**39.684**	**8.877**	0.943
72U	1	0	32	109.7	79.1	0.9	0.02	0.57	0	1.81	**14.15**	1.537	0.079
75	1	0	32	381.8	269.6	0.9	0.02	0.57	0	3.37	**59.838**	**20.11**	3.305
82	1	0	32	54.8	40.6	0.9	0.02	0.57	0	1.48	**6.676**	0.484	0.017
85	1	0	32	57.4	42.5	0.9	0.02	0.57	0	1.5	**6.97**	0.516	0.018
86	1	0	32	115.3	83	0.9	0.02	0.57	0	1.84	**15.046**	1.695	0.09
87	1	0	32	99.5	72	0.9	0.02	0.57	0	1.75	**12.594**	1.279	0.061
94M	1	0	32	73.9	54	0.9	0.02	0.57	0	1.6	**8.996**	0.759	0.03
106	1	0	32	387.2	273.4	0.9	0.02	0.57	0	3.4	**60.566**	**20.644**	3.447
107	1	0	32	169.3	120.8	0.9	0.02	0.57	0	2.16	**24.328**	3.732	0.27
108	1	0	32	185.4	132.1	0.9	0.02	0.57	0	2.26	**27.249**	4.531	0.355
109	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
110	1	0	32	88.5	64.3	0.9	0.02	0.57	0	1.69	**10.985**	1.033	0.046
110G	1	0	32	41.5	31.4	0.9	0.02	0.57	0	1.4	**5.276**	0.341	0.011
111	1	0	32	70.4	51.5	0.9	0.02	0.57	0	1.58	**8.541**	0.702	0.027
112	1	0	32	471.3	332.2	0.9	0.02	0.57	0	3.86	**70.462**	**29.146**	**6.068**
112G	1	0	32	181.5	129.4	0.9	0.02	0.57	0	2.23	**26.543**	4.331	0.333
113low	1	0	32	263	186.4	0.9	0.02	0.57	0	2.7	**41.284**	**9.559**	1.052
113up	1	0	32	398.8	281.5	0.9	0.02	0.57	0	3.47	**62.083**	**21.793**	3.76
115SP	1	0	32	493.1	347.5	0.9	0.02	0.57	0	3.98	**72.625**	**31.372**	**6.873**
21	1	0	32	104.1	75.2	0.9	0.02	0.57	0	1.78	**13.28**	1.39	0.069
21G	1	0	32	337.4	238.5	0.9	0.02	0.57	0	3.13	**53.474**	**15.874**	2.277
116M	1	0	32	347.4	245.4	0.9	0.02	0.57	0	3.18	**54.961**	**16.798**	2.487
122	1	0	32	69	50.6	0.9	0.02	0.57	0	1.57	**8.374**	0.681	0.026
121	1	0	32	148.3	106.1	0.9	0.02	0.57	0	2.04	**20.586**	2.821	0.182
123	1	0	32	336.5	237.9	0.9	0.02	0.57	0	3.12	**53.344**	**15.795**	2.259
135	1	0	32	130.2	93.5	0.9	0.02	0.57	0	1.93	**17.488**	2.159	0.126
146	1	0	32	81.4	59.3	0.9	0.02	0.57	0	1.64	**9.997**	0.893	0.038
146G	1	0	32	43.2	32.6	0.9	0.02	0.57	0	1.41	**5.447**	0.357	0.011
147	1	0	32	50.9	37.9	0.9	0.02	0.57	0	1.46	**6.249**	0.438	0.015
151	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
152	1	0	32	183.4	130.7	0.9	0.02	0.57	0	2.25	**26.887**	4.428	0.343
160	1	0	32	153.4	109.7	0.9	0.02	0.57	0	2.07	**21.476**	3.027	0.201
163	1	0	32	158.1	113	0.9	0.02	0.57	0	2.1	**22.317**	3.227	0.22
163G	1	0	32	222.8	158.3	0.9	0.02	0.57	0	2.47	**34.09**	**6.722**	0.626
164	1	0	32	118	84.9	0.9	0.02	0.57	0	1.86	**15.468**	1.771	0.096

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
167	1	0	32	71.4	52.3	0.9	0.02	0.57	0	1.58	**8.676**	0.719	0.028
168	1	0	32	365.9	258.4	0.9	0.02	0.57	0	3.28	**57.64**	**18.562**	2.91
169	1	0	32	262	185.7	0.9	0.02	0.57	0	2.7	**41.097**	**9.478**	1.039
169A	1	0	32	238.9	169.5	0.9	0.02	0.57	0	2.57	**36.997**	**7.798**	0.779
320new	1	0	32	555.7	391.3	0.9	0.02	0.57	0	4.31	**78.023**	**37.681**	**9.444**
216	1	0	32	310.2	219.4	0.9	0.02	0.57	0	2.97	**49.223**	**13.429**	1.759
1030	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
170	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
172U	1	0	32	294	208.1	0.9	0.02	0.57	0	2.88	**46.577**	**12.044**	1.49
174M	1	0	32	23.7	18.9	0.9	0.02	0.57	0	1.29	3.675	0.201	0.005
175	1	0	32	171.3	122.2	0.9	0.02	0.57	0	2.17	**24.682**	3.825	0.279
238G	1	0	32	47.1	35.3	0.9	0.02	0.57	0	1.44	**5.848**	0.397	0.013
238M	1	0	32	34.9	26.8	0.9	0.02	0.57	0	1.36	4.645	0.283	0.008
176G	1	0	32	140.1	100.4	0.9	0.02	0.57	0	1.99	**19.175**	2.51	0.155
176M	1	0	32	215.9	153.4	0.9	0.02	0.57	0	2.43	**32.824**	**6.281**	0.568
177	1	0	32	172.8	123.2	0.9	0.02	0.57	0	2.18	**24.951**	3.896	0.286
206	1	0	32	142.4	101.9	0.9	0.02	0.57	0	2	**19.554**	2.592	0.162
208	1	0	32	161.9	115.6	0.9	0.02	0.57	0	2.12	**22.99**	3.392	0.236
208AA	1	0	32	173.4	123.6	0.9	0.02	0.57	0	2.19	**25.055**	3.924	0.289
208BM	1	0	32	112.5	81.1	0.9	0.02	0.57	0	1.83	**14.598**	1.615	0.084
208G	1	0	32	92.1	66.7	0.9	0.02	0.57	0	1.71	**11.489**	1.108	0.05
209A	1	0	32	115.7	83.3	0.9	0.02	0.57	0	1.85	**15.103**	1.705	0.091
213	1	0	32	440.1	310.4	0.9	0.02	0.57	0	3.69	**67.083**	**25.958**	**5.002**
185	1	0	32	196.7	140	0.9	0.02	0.57	0	2.32	**29.305**	**5.141**	0.425
185G	1	0	32	71	52	0.9	0.02	0.57	0	1.58	**8.626**	0.712	0.028
186	1	0	32	242.3	171.9	0.9	0.02	0.57	0	2.59	**37.612**	**8.038**	0.814
1035	1	0	32	114.9	82.8	0.9	0.02	0.57	0	1.84	**14.983**	1.683	0.089
1036	1	0	32	76.8	56	0.9	0.02	0.57	0	1.61	**9.373**	0.809	0.033
1037	1	0	32	98.4	71.2	0.9	0.02	0.57	0	1.74	**12.428**	1.252	0.06
189	1	0	32	154.4	110.4	0.9	0.02	0.57	0	2.08	**21.667**	3.072	0.205
1060	1	0	32	127.8	91.8	0.9	0.02	0.57	0	1.92	**17.08**	2.078	0.119
192	1	0	32	262.5	186	0.9	0.02	0.57	0	2.7	**41.18**	**9.514**	1.045
1020	1	0	32	96.5	69.9	0.9	0.02	0.57	0	1.73	**12.143**	1.208	0.057
1021	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
193	1	0	32	140.2	100.4	0.9	0.02	0.57	0	1.99	**19.186**	2.512	0.155
194	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
218	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
201	1	0	32	447.1	315.3	0.9	0.02	0.57	0	3.73	**67.87**	**26.672**	**5.232**
201G	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
203	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
229	1	0	32	48.6	36.3	0.9	0.02	0.57	0	1.44	**6.002**	0.413	0.014
230G	1	0	32	80.1	58.4	0.9	0.02	0.57	0	1.63	**9.815**	0.868	0.036
196	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
231	1	0	32	125.5	90.1	0.9	0.02	0.57	0	1.9	**16.695**	2.003	0.113
231Lower	1	0	32	138	98.9	0.9	0.02	0.57	0	1.98	**18.801**	2.43	0.148
7	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
154	1	0	32	66.3	48.7	0.9	0.02	0.57	0	1.55	**8.039**	0.64	0.024
246	1	0	32	29.2	22.8	0.9	0.02	0.57	0	1.33	4.135	0.239	0.007
18	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
20	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
249	1	0	32	85.9	62.5	0.9	0.02	0.57	0	1.67	**10.621**	0.98	0.043
250	1	0	32	92.2	66.8	0.9	0.02	0.57	0	1.71	**11.506**	1.11	0.051
253	1	0	32	110	79.3	0.9	0.02	0.57	0	1.81	**14.195**	1.545	0.079
258	1	0	32	767.7	539.7	0.9	0.02	0.57	0	5.41	**89.512**	**56.645**	**20.252**
259	1	0	32	240.7	170.8	0.9	0.02	0.57	0	2.58	**37.317**	**7.922**	0.797
284M	1	0	32	152.7	109.2	0.9	0.02	0.57	0	2.07	**21.36**	3	0.198
285M	1	0	32	157.6	112.7	0.9	0.02	0.57	0	2.09	**22.236**	3.208	0.218
287	1	0	32	150.2	107.4	0.9	0.02	0.57	0	2.05	**20.921**	2.898	0.189
288	1	0	32	68.2	50	0.9	0.02	0.57	0	1.56	**8.264**	0.667	0.026
288G1	1	0	32	79.7	58.1	0.9	0.02	0.57	0	1.63	**9.757**	0.86	0.036
288G2	1	0	32	59.8	44.2	0.9	0.02	0.57	0	1.51	**7.258**	0.548	0.02
289G3	1	0	32	76.3	55.7	0.9	0.02	0.57	0	1.61	**9.307**	0.8	0.033
291	1	0	32	77.6	56.6	0.9	0.02	0.57	0	1.62	**9.476**	0.822	0.034
306	1	0	32	86.1	62.6	0.9	0.02	0.57	0	1.67	**10.645**	0.984	0.043
315	1	0	32	37.7	28.7	0.9	0.02	0.57	0	1.38	4.905	0.306	0.009
316	1	0	32	105.2	75.9	0.9	0.02	0.57	0	1.78	**13.446**	1.418	0.071
317	1	0	32	227.9	161.8	0.9	0.02	0.57	0	2.5	**35.012**	**7.053**	0.672
317M	1	0	32	494.8	348.7	0.9	0.02	0.57	0	3.99	**72.791**	**31.549**	**6.939**
318	1	0	32	452.2	318.9	0.9	0.02	0.57	0	3.76	**68.436**	**27.195**	**5.404**
319	1	0	32	505.5	356.2	0.9	0.02	0.57	0	4.05	**73.793**	**32.64**	**7.355**
319M	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
420	1	0	32	517.5	364.6	0.9	0.02	0.57	0	4.11	**74.873**	**33.858**	**7.834**
421	1	0	32	318.8	225.4	0.9	0.02	0.57	0	3.02	**50.588**	**14.184**	1.913
410	1	0	32	394	278.1	0.9	0.02	0.57	0	3.44	**61.46**	**21.315**	3.629
412	1	0	32	12.8	11.3	0.9	0.02	0.57	0	1.23	2.857	0.14	0.003
413	1	0	32	543.1	382.5	0.9	0.02	0.57	0	4.25	**77.032**	**36.431**	**8.9**
325	1	0	32	37.8	28.8	0.9	0.02	0.57	0	1.38	4.918	0.307	0.009
326	1	0	32	71.5	52.3	0.9	0.02	0.57	0	1.58	**8.681**	0.719	0.028
327	1	0	32	50	37.3	0.9	0.02	0.57	0	1.45	**6.157**	0.429	0.014
999G1	1	0	32	85.9	62.4	0.9	0.02	0.57	0	1.67	**10.615**	0.979	0.043
999M1	1	0	32	79.9	58.2	0.9	0.02	0.57	0	1.63	**9.786**	0.864	0.036
999M2	1	0	32	56.1	41.6	0.9	0.02	0.57	0	1.49	**6.829**	0.5	0.017
999M3	1	0	32	83.8	61	0.9	0.02	0.57	0	1.66	**10.323**	0.938	0.04
72	1	0	32	230.4	163.6	0.9	0.02	0.57	0	2.52	**35.465**	**7.219**	0.695
1001	1	0	32	408.4	288.1	0.9	0.02	0.57	0	3.52	**63.292**	**22.745**	4.03
401	1	0	32	1101.5	773.4	0.9	0.02	0.57	0	7.03	**96.494**	**76.555**	**39.138**
402	1	0	32	577.5	406.6	0.9	0.02	0.57	0	4.43	**79.653**	**39.837**	**10.427**
403	1	0	32	419.6	296	0.9	0.02	0.57	0	3.58	**64.674**	**23.875**	4.36
440	1	0	32	145.2	103.9	0.9	0.02	0.57	0	2.02	**20.046**	2.7	0.171
441	1	0	32	737.9	518.8	0.9	0.02	0.57	0	5.26	**88.381**	**54.276**	**18.603**
442	1	0	32	258.8	183.4	0.9	0.02	0.57	0	2.68	**40.537**	**9.237**	1
1005	1	0	32	112.1	80.8	0.9	0.02	0.57	0	1.83	**14.533**	1.604	0.083

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1006	1	0	32	91.7	66.5	0.9	0.02	0.57	0	1.7	**11.433**	1.099	0.05
1007	1	0	32	51.9	38.6	0.9	0.02	0.57	0	1.46	**6.358**	0.45	0.015
1008	1	0	32	91.5	66.3	0.9	0.02	0.57	0	1.7	**11.407**	1.095	0.05
1010	1	0	32	110.8	79.8	0.9	0.02	0.57	0	1.82	**14.318**	1.566	0.081
1011	1	0	32	146.2	104.7	0.9	0.02	0.57	0	2.03	**20.227**	2.74	0.175
345	1	0	32	103.9	75	0.9	0.02	0.57	0	1.78	**13.256**	1.386	0.068
346	1	0	32	130.4	93.6	0.9	0.02	0.57	0	1.93	**17.52**	2.166	0.126
347	1	0	32	312.7	221.2	0.9	0.02	0.57	0	2.99	**49.622**	**13.647**	1.803
430	1	0	32	262	185.7	0.9	0.02	0.57	0	2.7	**41.097**	**9.478**	1.039
431	1	0	32	110.3	79.5	0.9	0.02	0.57	0	1.81	**14.24**	1.552	0.08
432	1	0	32	307.5	217.5	0.9	0.02	0.57	0	2.96	**48.78**	**13.19**	1.711
801	1	0	32	239.9	170.3	0.9	0.02	0.57	0	2.57	**37.186**	**7.871**	0.789
3000	1	0	32	26.6	20.9	0.9	0.02	0.57	0	1.31	3.915	0.22	0.006
3001	1	0	32	371	262	0.9	0.02	0.57	0	3.31	**58.356**	**19.055**	3.034
3003	1	0	32	294.5	208.5	0.9	0.02	0.57	0	2.88	**46.656**	**12.084**	1.497
3004	1	0	32	81.9	59.6	0.9	0.02	0.57	0	1.65	**10.061**	0.902	0.038
280	1	0	32	367.4	259.5	0.9	0.02	0.57	0	3.29	**57.849**	**18.705**	2.946
280yard	1	0	32	302.9	214.3	0.9	0.02	0.57	0	2.93	**48.034**	**12.795**	1.633
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.57	0	1.57	**8.506**	0.697	0.027
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.57	0	1.64	**10.041**	0.899	0.038
075-O1	1	0	32	265	187.8	0.9	0.02	0.57	0	2.72	**41.629**	**9.71**	1.077
076-G1	1	0	32	85	61.8	0.9	0.02	0.57	0	1.66	**10.485**	0.961	0.042
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.57	0	1.72	**11.93**	1.175	0.055
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.57	0	1.71	**11.684**	1.137	0.052
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.57	0	1.7	**11.399**	1.094	0.05
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.57	0	2.09	**22.181**	3.194	0.217
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.57	0	1.35	4.399	0.261	0.007
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.57	0	1.34	4.317	0.254	0.007
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.57	0	1.32	4.068	0.233	0.006
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.57	0	1.37	4.776	0.295	0.009
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.57	0	1.38	4.856	0.302	0.009
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.57	0	1.36	4.628	0.281	0.008
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.57	0	1.38	4.928	0.308	0.009
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.57	0	1.3	3.747	0.207	0.005
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.57	0	1.31	3.933	0.222	0.006
078-O1	1	0	32	32	24.7	0.9	0.02	0.57	0	1.34	4.384	0.26	0.007
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.57	0	1.57	**8.474**	0.693	0.027
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.57	0	1.88	**16.077**	1.885	0.104
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.57	0	1.29	3.672	0.201	0.005
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.57	0	1.37	4.769	0.294	0.009
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.57	0	1.43	**5.676**	0.38	0.012
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.57	0	1.91	**16.816**	2.026	0.115
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.57	0	1.29	3.602	0.195	0.005
082-G2	1	0	32	41.1	31	0.9	0.02	0.57	0	1.4	**5.23**	0.337	0.01
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.57	0	1.4	**5.299**	0.343	0.011
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.57	0	1.36	4.69	0.287	0.008

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.57	0	1.41	**5.414**	0.354	0.011
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.57	0	1.36	4.69	0.287	0.008
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.57	0	1.34	4.257	0.249	0.007
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.57	0	1.42	**5.564**	0.369	0.012
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.57	0	1.38	4.888	0.305	0.009
085-H1	1	0	32	60	44.3	0.9	0.02	0.57	0	1.51	**7.281**	0.551	0.02
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.57	0	1.63	**9.759**	0.86	0.036
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.57	0	2.09	**22.161**	3.19	0.216
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.57	0	1.59	**8.766**	0.73	0.029
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.57	0	1.52	**7.374**	0.562	0.02
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.57	0	1.71	**11.561**	1.118	0.051
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.57	0	1.46	**6.328**	0.447	0.015
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.57	0	1.71	**11.561**	1.118	0.051
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.57	0	2.25	**27.036**	4.47	0.348
088-H2	1	0	32	159	113.6	0.9	0.02	0.57	0	2.1	**22.48**	3.267	0.223
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.57	0	1.97	**18.514**	2.37	0.143
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.57	0	1.64	**9.862**	0.874	0.037
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.57	0	1.72	**11.93**	1.175	0.055
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.57	0	1.52	**7.314**	0.555	0.02
090-H1	1	0	32	95.3	69	0.9	0.02	0.57	0	1.73	**11.971**	1.181	0.055
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.57	0	2.09	**22.181**	3.194	0.217
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.57	0	1.64	**9.976**	0.89	0.038
091-H1	1	0	32	56	41.5	0.9	0.02	0.57	0	1.49	**6.815**	0.499	0.017
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.57	0	2.23	**26.321**	4.269	0.326
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.57	0	1.76	**12.934**	1.333	0.065
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.57	0	1.56	**8.228**	0.663	0.025
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.57	0	1.63	**9.823**	0.869	0.036
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.57	0	1.62	**9.418**	0.815	0.033
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.57	0	2.19	**25.201**	3.963	0.293
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.57	0	1.86	**15.575**	1.791	0.097
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.57	0	2.04	**20.736**	2.855	0.185
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.57	0	2.21	**25.811**	4.128	0.311
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.57	0	2.22	**26.117**	4.212	0.32
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.57	0	2.99	**49.73**	**13.706**	1.815
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.57	0	2	**19.525**	2.585	0.161
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.57	0	1.86	**15.438**	1.766	0.095
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.57	0	1.37	4.776	0.295	0.009
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.57	0	1.36	4.597	0.279	0.008
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.57	0	1.29	3.596	0.195	0.005
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.57	0	1.49	**6.866**	0.505	0.018
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.57	0	1.53	**7.675**	0.597	0.022
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.57	0	2.02	**19.914**	2.671	0.169
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.57	0	2.17	**24.573**	3.796	0.276
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.57	0	1.43	**5.741**	0.386	0.012
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.57	0	1.99	**19.247**	2.525	0.156
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.57	0	1.68	**10.965**	1.03	0.046

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.57	0	1.6	**8.955**	0.754	0.03
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.57	0	1.98	**18.881**	2.447	0.149
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.57	0	1.46	**6.23**	0.436	0.015
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.57	0	1.94	**17.707**	2.203	0.129
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.57	0	2.4	**31.646**	**5.885**	0.517
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.57	0	1.49	**6.866**	0.505	0.018
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.57	0	1.33	4.196	0.244	0.007
103-H1	1	0	32	118	84.9	0.9	0.02	0.57	0	1.86	**15.467**	1.771	0.096
103-O1	1	0	32	99	71.6	0.9	0.02	0.57	0	1.75	**12.513**	1.266	0.06
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.57	0	2.24	**26.645**	4.359	0.336
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.57	0	2.14	**23.562**	3.536	0.25
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.57	0	2.05	**20.851**	2.882	0.188
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.57	0	1.79	**13.538**	1.433	0.072
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.57	0	2.44	**33.073**	**6.366**	0.579
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.57	0	1.32	4.068	0.233	0.006
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.57	0	1.32	4.075	0.234	0.006
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.57	0	1.26	3.277	0.17	0.004
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.57	0	1.3	3.772	0.209	0.006
107-H1	1	0	32	233.9	166	0.9	0.02	0.57	0	2.54	**36.096**	**7.454**	0.729
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.57	0	1.59	**8.849**	0.741	0.029
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.57	0	1.87	**15.712**	1.816	0.099
108-O2	1	0	32	53.9	40	0.9	0.02	0.57	0	1.48	**6.579**	0.473	0.016
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.57	0	1.7	**11.439**	1.1	0.05
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.57	0	1.56	**8.21**	0.661	0.025
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.57	0	1.34	4.272	0.25	0.007
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.57	0	1.51	**7.137**	0.535	0.019
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.57	0	1.43	**5.737**	0.386	0.012
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.57	0	1.64	**9.896**	0.879	0.037
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.57	0	1.4	**5.316**	0.345	0.011
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.57	0	1.74	**12.264**	1.226	0.058
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.57	0	1.67	**10.547**	0.97	0.042
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.57	0	2.9	**47.05**	**12.285**	1.535
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.57	0	2.18	**24.744**	3.841	0.281
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.57	0	2.28	**28.113**	4.782	0.383
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.57	0	1.61	**9.311**	0.8	0.033
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.57	0	1.89	**16.26**	1.919	0.107
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.57	0	2.87	**46.366**	**11.938**	1.47
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.57	0	3.07	**51.919**	**14.947**	2.074
114-O1	1	0	32	263	186.4	0.9	0.02	0.57	0	2.7	**41.275**	**9.555**	1.052
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.57	0	3.44	**61.552**	**21.385**	3.648
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.57	0	1.97	**18.418**	2.349	0.141
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.57	0	1.25	3.073	0.155	0.004
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.57	0	1.31	3.89	0.218	0.006
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.57	0	1.28	3.527	0.189	0.005
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.57	0	1.28	3.529	0.19	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.57	0	1.44	**5.845**	0.397	0.013
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.57	0	1.61	**9.299**	0.799	0.033
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.57	0	2.78	**43.498**	**10.555**	1.221
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.57	0	1.5	**6.974**	0.517	0.018
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.57	0	1.48	**6.708**	0.487	0.017
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.57	0	1.5	**7.085**	0.529	0.019
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.57	0	1.71	**11.67**	1.135	0.052
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.57	0	1.34	4.302	0.253	0.007
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.57	0	1.42	**5.536**	0.366	0.012
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.57	0	1.28	3.509	0.188	0.005
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.57	0	1.39	**5.041**	0.319	0.01
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.57	0	1.55	**7.919**	0.626	0.023
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.57	0	1.51	**7.127**	0.534	0.019
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.57	0	1.84	**14.898**	1.668	0.088
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.57	0	1.55	**8.053**	0.642	0.024
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.57	0	2.15	**23.986**	3.644	0.261
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.57	0	2.6	**38.061**	**8.215**	0.841
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.57	0	3.03	**50.926**	**14.375**	1.953
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.57	0	1.64	**9.919**	0.882	0.037
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.57	0	1.71	**11.643**	1.131	0.052
123-H1	1	0	32	72.4	53	0.9	0.02	0.57	0	1.59	**8.807**	0.735	0.029
123-O1	1	0	32	101	73	0.9	0.02	0.57	0	1.76	**12.807**	1.313	0.064
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.57	0	2.46	**33.653**	**6.567**	0.606
124-G1	1	0	32	28	21.9	0.9	0.02	0.57	0	1.32	4.032	0.23	0.006
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.57	0	1.61	**9.351**	0.806	0.033
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.57	0	1.36	4.659	0.284	0.008
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.57	0	1.32	3.997	0.227	0.006
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.57	0	1.2	2.57	0.12	0.003
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.57	0	1.61	**9.344**	0.805	0.033
125-O1	1	0	32	70	51.3	0.9	0.02	0.57	0	1.57	**8.499**	0.696	0.027
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.57	0	1.54	**7.848**	0.617	0.023
126-G1	1	0	32	49	36.6	0.9	0.02	0.57	0	1.45	**6.05**	0.418	0.014
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.57	0	1.41	**5.338**	0.347	0.011
126-H1	1	0	32	22	17.7	0.9	0.02	0.57	0	1.28	3.542	0.191	0.005
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.57	0	1.45	**6.023**	0.415	0.014
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.57	0	1.3	3.814	0.212	0.006
126-O3	1	0	32	50	37.3	0.9	0.02	0.57	0	1.45	**6.148**	0.428	0.014
126-P1	1	0	32	28.1	22	0.9	0.02	0.57	0	1.32	4.042	0.231	0.006
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.57	0	1.86	**15.438**	1.766	0.095
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.57	0	1.53	**7.654**	0.594	0.022
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.57	0	1.54	**7.858**	0.618	0.023
127-H1	1	0	32	96.8	70	0.9	0.02	0.57	0	1.73	**12.178**	1.213	0.057
127-H2	1	0	32	42.5	32	0.9	0.02	0.57	0	1.41	**5.372**	0.35	0.011
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.57	0	1.86	**15.529**	1.783	0.096
128-G1	1	0	32	37	28.2	0.9	0.02	0.57	0	1.37	4.834	0.3	0.009
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.57	0	1.57	**8.312**	0.673	0.026

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.57	0	1.39	**5.119**	0.326	0.01
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.57	0	1.87	**15.853**	1.843	0.101
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.57	0	1.57	**8.396**	0.684	0.026
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.57	0	2.9	**47.086**	**12.303**	1.539
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.57	0	3.12	**53.231**	**15.726**	2.244
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.57	0	1.38	4.867	0.303	0.009
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.57	0	1.26	3.214	0.166	0.004
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.57	0	1.47	**6.488**	0.464	0.016
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.57	0	1.96	**18.371**	2.34	0.14
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.57	0	1.26	3.264	0.169	0.004
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.57	0	1.19	2.505	0.116	0.003
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.57	0	1.32	4.08	0.234	0.006
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.57	0	1.35	4.49	0.269	0.008
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.57	0	2.09	**22.042**	3.161	0.213
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.57	0	1.8	**13.873**	1.489	0.075
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.57	0	4.44	**79.855**	**40.114**	**10.558**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.57	0	1.85	**15.171**	1.717	0.092
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.57	0	2.16	**24.328**	3.732	0.27
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.57	0	1.84	**14.823**	1.655	0.087
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.57	0	1.32	3.968	0.225	0.006
136-G1	1	0	32	25	19.8	0.9	0.02	0.57	0	1.3	3.779	0.209	0.006
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.57	0	1.36	4.592	0.278	0.008
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.57	0	2.37	**30.754**	**5.595**	0.48
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.57	0	2.23	**26.372**	4.283	0.328
137-O2	1	0	32	122	87.7	0.9	0.02	0.57	0	1.88	**16.122**	1.893	0.105
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.57	0	1.37	4.698	0.287	0.008
138-G2	1	0	32	48.1	36	0.9	0.02	0.57	0	1.44	**5.952**	0.408	0.013
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.57	0	1.32	4.075	0.234	0.006
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.57	0	1.3	3.731	0.205	0.005
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.57	0	1.43	**5.676**	0.38	0.012
139-G1	1	0	32	46.7	35	0.9	0.02	0.57	0	1.43	**5.801**	0.392	0.013
139-G2	1	0	32	39.6	30	0.9	0.02	0.57	0	1.39	**5.09**	0.323	0.01
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.57	0	1.41	**5.391**	0.352	0.011
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.57	0	1.43	**5.679**	0.38	0.012
140-G1	1	0	32	263	186.4	0.9	0.02	0.57	0	2.7	**41.284**	**9.559**	1.052
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.57	0	3.99	**72.723**	**31.476**	**6.912**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
141-A1	1	0	32	39	29.6	0.9	0.02	0.57	0	1.39	**5.025**	0.317	0.01
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.57	0	1.57	**8.322**	0.674	0.026
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.57	0	1.64	**9.862**	0.874	0.037
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.57	0	1.54	**7.888**	0.622	0.023
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.57	0	1.33	4.155	0.24	0.007
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.57	0	1.4	**5.296**	0.343	0.011
141-N3	1	0	32	12.4	11	0.9	0.02	0.57	0	1.22	2.834	0.138	0.003
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.57	0	1.38	4.968	0.312	0.009

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
141-O1	1	0	32	43.9	33	0.9	0.02	0.57	0	1.42	**5.516**	0.364	0.012
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.57	0	1.74	**12.302**	1.232	0.058
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.57	0	1.57	**8.389**	0.683	0.026
143-A1	1	0	32	52	38.7	0.9	0.02	0.57	0	1.47	**6.368**	0.451	0.015
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.57	0	1.55	**7.988**	0.634	0.024
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.57	0	1.43	**5.819**	0.394	0.013
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.57	0	1.58	**8.57**	0.705	0.028
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.57	0	1.75	**12.448**	1.255	0.06
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.57	0	1.99	**19.235**	2.522	0.156
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.57	0	1.52	**7.44**	0.569	0.021
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.57	0	2.11	**22.63**	3.303	0.227
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.57	0	10.07	**99.501**	**93.187**	**68.789**
147-G1	1	0	32	59.7	44	0.9	0.02	0.57	0	1.51	**7.235**	0.546	0.02
147-G2	1	0	32	85	61.8	0.9	0.02	0.57	0	1.66	**10.485**	0.961	0.042
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.57	0	1.65	**10.252**	0.928	0.04
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.57	0	1.44	**5.975**	0.41	0.013
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.57	0	1.52	**7.473**	0.573	0.021
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.57	0	1.78	**13.448**	1.418	0.071
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.57	0	1.43	**5.781**	0.39	0.013
149-G1	1	0	32	49	36.6	0.9	0.02	0.57	0	1.45	**6.041**	0.417	0.014
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.57	0	1.48	**6.638**	0.48	0.017
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.57	0	1.59	**8.904**	0.748	0.03
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.57	0	1.36	4.597	0.279	0.008
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.57	0	1.42	**5.498**	0.362	0.011
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.57	0	1.38	4.928	0.308	0.009
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.57	0	1.76	**12.85**	1.32	0.064
152-G1	1	0	32	114	82.1	0.9	0.02	0.57	0	1.84	**14.83**	1.656	0.087
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.57	0	2.14	**23.683**	3.566	0.253
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.57	0	1.79	**13.522**	1.43	0.071
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.57	0	2.81	**44.589**	**11.068**	1.311
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.57	0	2.47	**34.03**	**6.7**	0.624
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.57	0	3.32	**58.566**	**19.202**	3.071
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.57	0	2.46	**33.655**	**6.568**	0.606
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.57	0	2.94	**48.309**	**12.94**	1.662
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.57	0	1.76	**12.951**	1.336	0.065
153-O7	1	0	32	361	255	0.9	0.02	0.57	0	3.26	**56.948**	**18.093**	2.795
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.57	0	2.8	**44.226**	**10.896**	1.28
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.57	0	1.28	3.49	0.187	0.005
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.57	0	1.28	3.522	0.189	0.005
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.57	0	1.99	**19.09**	2.491	0.153
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.57	0	1.7	**11.439**	1.1	0.05
155-H1	1	0	32	52.4	39	0.9	0.02	0.57	0	1.47	**6.414**	0.456	0.015
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.57	0	2.16	**24.136**	3.682	0.265
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.57	0	2.75	**42.651**	**10.166**	1.154
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.57	0	1.64	**10.033**	0.898	0.038
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.57	0	2.03	**20.157**	2.725	0.173

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.57	0	1.4	**5.288**	0.342	0.011
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.57	0	1.71	**11.561**	1.118	0.051
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.57	0	1.53	**7.644**	0.593	0.022
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.57	0	1.56	**8.134**	0.651	0.025
158-H1	1	0	32	33.8	26	0.9	0.02	0.57	0	1.36	4.543	0.274	0.008
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.57	0	1.46	**6.276**	0.441	0.015
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.57	0	1.58	**8.537**	0.701	0.027
159-H1	1	0	32	59.6	44	0.9	0.02	0.57	0	1.51	**7.231**	0.545	0.02
159-H2	1	0	32	101	73	0.9	0.02	0.57	0	1.76	**12.807**	1.313	0.064
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.57	0	1.42	**5.55**	0.367	0.012
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.57	0	1.46	**6.286**	0.442	0.015
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.57	0	1.93	**17.517**	2.165	0.126
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.57	0	1.64	**9.839**	0.871	0.037
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.57	0	1.6	**9.145**	0.779	0.031
161-H1	1	0	32	129.6	93	0.9	0.02	0.57	0	1.93	**17.376**	2.137	0.124
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.57	0	1.76	**12.764**	1.306	0.063
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.57	0	1.64	**9.904**	0.88	0.037
163-G1	1	0	32	53	39.4	0.9	0.02	0.57	0	1.47	**6.479**	0.463	0.016
163-O1	1	0	32	71	52	0.9	0.02	0.57	0	1.58	**8.624**	0.712	0.028
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.57	0	1.93	**17.471**	2.156	0.125
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.57	0	1.23	2.889	0.142	0.003
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.57	0	1.53	**7.589**	0.587	0.022
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.57	0	2.65	**39.725**	**8.894**	0.945
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.57	0	1.75	**12.554**	1.272	0.061
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.57	0	2.08	**21.683**	3.076	0.205
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.57	0	2.48	**34.265**	**6.784**	0.635
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.57	0	2.2	**25.518**	4.048	0.302
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.57	0	2.48	**34.34**	**6.81**	0.639
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.57	0	2.61	**38.362**	**8.336**	0.859
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.57	0	3.46	**61.859**	**21.62**	3.712
167-O8	1	0	32	205.3	146	0.9	0.02	0.57	0	2.37	**30.885**	**5.637**	0.486
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.57	0	2.32	**29.344**	**5.153**	0.427
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.57	0	1.38	4.888	0.305	0.009
168-G2	1	0	32	38	28.9	0.9	0.02	0.57	0	1.38	4.936	0.309	0.009
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.57	0	1.32	4.097	0.235	0.007
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.57	0	1.35	4.445	0.265	0.008
168-O1	1	0	32	48.2	36	0.9	0.02	0.57	0	1.44	**5.961**	0.409	0.013
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.57	0	1.37	4.792	0.296	0.009
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.57	0	1.48	**6.676**	0.484	0.017
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.57	0	1.47	**6.396**	0.454	0.015
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.57	0	1.4	**5.271**	0.341	0.011
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.57	0	1.44	**5.863**	0.399	0.013
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.57	0	1.85	**15.303**	1.741	0.093
170-H1	1	0	32	77	56.2	0.9	0.02	0.57	0	1.62	**9.408**	0.813	0.033
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.57	0	2.08	**21.881**	3.123	0.21
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.57	0	2.58	**37.308**	**7.919**	0.796

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.57	0	2.54	**36.023**	**7.427**	0.725
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.57	0	1.45	**6.068**	0.419	0.014
173-G2	1	0	32	17	14.2	0.9	0.02	0.57	0	1.25	3.158	0.162	0.004
173-G3	1	0	32	86.7	63	0.9	0.02	0.57	0	1.67	**10.721**	0.995	0.044
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.57	0	1.87	**15.848**	1.842	0.101
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.57	0	1.31	3.869	0.217	0.006
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.57	0	1.97	**18.561**	2.379	0.144
173-P1	1	0	32	175	124.8	0.9	0.02	0.57	0	2.2	**25.353**	4.004	0.298
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.57	0	1.59	**8.741**	0.727	0.029
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.57	0	1.63	**9.658**	0.847	0.035
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.57	0	2.22	**26.168**	4.226	0.321
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.57	0	1.62	**9.432**	0.817	0.034
175-G2	1	0	32	26.8	21	0.9	0.02	0.57	0	1.31	3.928	0.221	0.006
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.57	0	1.61	**9.2**	0.786	0.032
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.57	0	1.39	**5.057**	0.32	0.01
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.57	0	1.46	**6.185**	0.432	0.014
176-H2	1	0	32	29	22.6	0.9	0.02	0.57	0	1.33	4.119	0.237	0.007
176-P1	1	0	32	39	29.6	0.9	0.02	0.57	0	1.39	**5.033**	0.318	0.01
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.57	0	1.33	4.126	0.238	0.007
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.57	0	1.65	**10.203**	0.921	0.039
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.57	0	3.59	**64.931**	**24.09**	4.425
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.57	0	3.91	**71.334**	**30.025**	**6.379**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.57	0	1.79	**13.588**	1.441	0.072
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.57	0	1.45	**6.009**	0.414	0.014
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.57	0	1.83	**14.559**	1.608	0.084
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.57	0	1.88	**16.026**	1.875	0.103
181-H2	1	0	32	115	82.8	0.9	0.02	0.57	0	1.84	**14.993**	1.685	0.089
181-N1	1	0	32	126.7	91	0.9	0.02	0.57	0	1.91	**16.904**	2.044	0.116
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.57	0	1.98	**18.881**	2.447	0.149
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.57	0	1.5	**6.962**	0.515	0.018
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.57	0	2.34	**29.805**	**5.295**	0.444
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.57	0	2.22	**26.226**	4.242	0.323
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.57	0	1.98	**18.901**	2.451	0.15
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.57	0	1.95	**18.085**	2.281	0.135
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.57	0	1.81	**14.233**	1.551	0.08
182-O2	1	0	32	186	132.5	0.9	0.02	0.57	0	2.26	**27.351**	4.56	0.358
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.57	0	2.22	**26.015**	4.184	0.317
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.57	0	2.28	**27.876**	4.713	0.375
185-A1	1	0	32	33.8	26	0.9	0.02	0.57	0	1.36	4.546	0.274	0.008
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.57	0	1.35	4.429	0.264	0.008
186-O1	1	0	32	350	247.3	0.9	0.02	0.57	0	3.2	**55.351**	**17.046**	2.545
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.57	0	1.8	**13.809**	1.479	0.075
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.57	0	1.62	**9.567**	0.835	0.035
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.57	0	1.85	**15.303**	1.741	0.093
188-G2	1	0	32	122	87.7	0.9	0.02	0.57	0	1.88	**16.122**	1.893	0.105

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.57	0	1.52	**7.473**	0.573	0.021
188-H1	1	0	32	39	29.6	0.9	0.02	0.57	0	1.39	**5.033**	0.318	0.01
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.57	0	1.49	**6.885**	0.507	0.018
189-G1	1	0	32	44	33.1	0.9	0.02	0.57	0	1.42	**5.524**	0.365	0.012
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.57	0	1.61	**9.311**	0.8	0.033
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.57	0	1.77	**13.19**	1.375	0.068
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.57	0	1.87	**15.767**	1.827	0.1
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.57	0	1.26	3.252	0.168	0.004
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.57	0	1.4	**5.268**	0.34	0.011
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.57	0	1.31	3.94	0.222	0.006
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.57	0	1.3	3.731	0.205	0.005
190-N3	1	0	32	21	17	0.9	0.02	0.57	0	1.28	3.457	0.184	0.005
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.57	0	1.53	**7.603**	0.588	0.022
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.57	0	2.41	**31.962**	**5.99**	0.53
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.57	0	1.38	4.88	0.304	0.009
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.57	0	1.32	4.068	0.233	0.006
192-H1	1	0	32	34	26.1	0.9	0.02	0.57	0	1.36	4.556	0.275	0.008
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.57	0	1.26	3.277	0.17	0.004
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.57	0	1.28	3.492	0.187	0.005
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.57	0	1.32	3.984	0.226	0.006
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.57	0	1.36	4.574	0.276	0.008
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.57	0	1.62	**9.512**	0.827	0.034
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.57	0	2.08	**21.732**	3.087	0.206
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.57	0	2.32	**29.088**	**5.074**	0.417
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.57	0	1.5	**6.981**	0.517	0.018
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.57	0	1.57	**8.326**	0.675	0.026
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.57	0	1.44	**5.907**	0.403	0.013
196-O1	1	0	32	69	50.6	0.9	0.02	0.57	0	1.57	**8.364**	0.68	0.026
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.57	0	2	**19.306**	2.538	0.157
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.57	0	1.62	**9.581**	0.836	0.035
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.57	0	2.16	**24.136**	3.682	0.265
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.57	0	1.24	2.993	0.15	0.004
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.57	0	1.31	3.902	0.219	0.006
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.57	0	1.33	4.192	0.243	0.007
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.57	0	1.33	4.126	0.238	0.007
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.57	0	1.32	4.004	0.228	0.006
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.57	0	3.05	**51.535**	**14.724**	2.026
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.57	0	2.19	**25.049**	3.922	0.289
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.57	0	1.5	**7.03**	0.523	0.019
202-O1	1	0	32	137	98.2	0.9	0.02	0.57	0	1.97	**18.633**	2.394	0.145
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.57	0	3.91	**71.264**	**29.953**	**6.354**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.57	0	4.06	**73.949**	**32.813**	**7.422**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.57	0	1.85	**15.168**	1.717	0.092
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.57	0	1.46	**6.194**	0.433	0.014

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
206-H1	1	0	32	18	14.9	0.9	0.02	0.57	0	1.26	3.23	0.167	0.004
206-H2	1	0	32	285	201.8	0.9	0.02	0.57	0	2.83	**45.054**	**11.292**	1.351
206-O1	1	0	32	252.4	179	0.9	0.02	0.57	0	2.64	**39.41**	**8.763**	0.925
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.57	0	1.82	**14.329**	1.568	0.081
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.57	0	2.71	**41.469**	**9.64**	1.066
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.57	0	2.57	**36.958**	**7.783**	0.776
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.57	0	3.43	**61.181**	**21.104**	3.571
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.57	0	4.11	**74.874**	**33.858**	**7.834**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.57	0	1.83	**14.762**	1.644	0.086
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.57	0	1.92	**17.096**	2.081	0.119
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.57	0	1.58	**8.73**	0.725	0.029
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.57	0	1.38	4.992	0.314	0.009
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.57	0	1.42	**5.593**	0.372	0.012
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.57	0	1.58	**8.58**	0.707	0.028
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.57	0	1.92	**17.002**	2.063	0.118
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.57	0	2.27	**27.807**	4.692	0.373
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.57	0	2.04	**20.737**	2.856	0.185
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.57	0	1.37	4.694	0.287	0.008
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.57	0	1.66	**10.398**	0.949	0.041
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.57	0	1.5	**6.986**	0.518	0.018
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.57	0	1.33	4.109	0.236	0.007
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.57	0	1.24	3.009	0.151	0.004
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.57	0	1.34	4.302	0.253	0.007
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.57	0	2.05	**20.942**	2.903	0.189
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.57	0	3.73	**67.798**	**26.605**	**5.21**
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.57	0	3	**49.935**	**13.819**	1.838
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.57	0	2.54	**36.248**	**7.512**	0.737
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.57	0	1.77	**12.977**	1.34	0.065
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.57	0	2.65	**39.707**	**8.886**	0.944
805-O1	1	0	32	38.2	29	0.9	0.02	0.57	0	1.38	4.952	0.311	0.009
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.57	0	1.43	**5.676**	0.38	0.012
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.57	0	1.32	4.061	0.232	0.006
806-O2	1	0	32	29.6	23	0.9	0.02	0.57	0	1.33	4.169	0.241	0.007
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.57	0	1.46	**6.221**	0.435	0.015
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.57	0	1.37	4.832	0.3	0.009
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.57	0	1.38	4.872	0.303	0.009
807-O1	1	0	32	29	22.6	0.9	0.02	0.57	0	1.33	4.121	0.237	0.007
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.57	0	1.35	4.536	0.273	0.008
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.57	0	1.37	4.73	0.29	0.009
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.57	0	1.27	3.401	0.18	0.005

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Walleye
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES WAL_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.11	0	1.63	**9.685**	0.85	0.035
14	1	0	32	77.1	56.3	0.9	0.02	0.11	0	1.54	**7.726**	0.603	0.022
15	1	0	32	93.6	67.8	0.9	0.02	0.11	0	1.64	**9.837**	0.871	0.037
16	1	0	32	356	251.5	0.9	0.02	0.11	0	3.15	**54.258**	**16.356**	2.386
17	1	0	32	150.5	107.7	0.9	0.02	0.11	0	1.97	**18.666**	2.401	0.145
9	1	0	32	91.8	66.5	0.9	0.02	0.11	0	1.62	**9.593**	0.838	0.035
40	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.11	0	1.36	4.585	0.277	0.008
1017	1	0	32	139.2	99.8	0.9	0.02	0.11	0	1.91	**16.769**	2.017	0.114
1018	1	0	32	51.9	38.6	0.9	0.02	0.11	0	1.38	4.985	0.314	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.11	0	2.44	**32.904**	**6.308**	0.571
44	1	0	32	99.7	72.1	0.9	0.02	0.11	0	1.67	**10.683**	0.989	0.043
46	1	0	32	188.7	134.4	0.9	0.02	0.11	0	2.2	**25.419**	4.021	0.3
47	1	0	32	222.3	157.9	0.9	0.02	0.11	0	2.39	**31.56**	**5.857**	0.513
49	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.11	0	1.43	**5.722**	0.384	0.012
61	1	0	32	137.2	98.3	0.9	0.02	0.11	0	1.9	**16.429**	1.952	0.109
22	1	0	32	118.9	85.5	0.9	0.02	0.11	0	1.79	**13.507**	1.428	0.071
25	1	0	32	54.5	40.4	0.9	0.02	0.11	0	1.4	**5.237**	0.337	0.01
27	1	0	32	135.3	97	0.9	0.02	0.11	0	1.88	**16.111**	1.891	0.105
28	1	0	32	49.2	36.8	0.9	0.02	0.11	0	1.37	4.736	0.291	0.009
29	1	0	32	42.7	32.2	0.9	0.02	0.11	0	1.33	4.149	0.24	0.007
30	1	0	32	51.6	38.4	0.9	0.02	0.11	0	1.38	4.958	0.311	0.009
31	1	0	32	255.8	181.3	0.9	0.02	0.11	0	2.59	**37.635**	**8.047**	0.815
33	1	0	32	206.4	146.8	0.9	0.02	0.11	0	2.3	**28.652**	4.943	0.402
35	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.11	0	3.37	**59.854**	**20.122**	3.308
55	1	0	32	67.1	49.2	0.9	0.02	0.11	0	1.48	**6.56**	0.471	0.016

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
56	1	0	32	185.9	132.4	0.9	0.02	0.11	0	2.18	**24.917**	3.887	0.286
58	1	0	32	73.3	53.6	0.9	0.02	0.11	0	1.51	**7.273**	0.55	0.02
59	1	0	32	206.6	146.9	0.9	0.02	0.11	0	2.3	**28.685**	4.953	0.403
59A	1	0	32	335.3	237	0.9	0.02	0.11	0	3.04	**51.084**	**14.465**	1.972
62	1	0	32	118.1	85	0.9	0.02	0.11	0	1.78	**13.386**	1.407	0.07
62G	1	0	32	70.6	51.7	0.9	0.02	0.11	0	1.5	**6.957**	0.515	0.018
66	1	0	32	141.1	101	0.9	0.02	0.11	0	1.92	**17.071**	2.076	0.119
67	1	0	32	174.5	124.4	0.9	0.02	0.11	0	2.12	**22.858**	3.36	0.232
70	1	0	32	202.6	144.1	0.9	0.02	0.11	0	2.28	**27.957**	4.736	0.378
71	1	0	32	127	91.2	0.9	0.02	0.11	0	1.83	**14.777**	1.647	0.087
72M	1	0	32	253.9	180.1	0.9	0.02	0.11	0	2.58	**37.308**	**7.919**	0.796
72U	1	0	32	109.7	79.1	0.9	0.02	0.11	0	1.73	**12.121**	1.204	0.057
75	1	0	32	381.8	269.6	0.9	0.02	0.11	0	3.3	**58.004**	**18.811**	2.972
82	1	0	32	54.8	40.6	0.9	0.02	0.11	0	1.4	**5.269**	0.34	0.011
85	1	0	32	57.4	42.5	0.9	0.02	0.11	0	1.42	**5.529**	0.365	0.012
86	1	0	32	115.3	83	0.9	0.02	0.11	0	1.77	**12.967**	1.339	0.065
87	1	0	32	99.5	72	0.9	0.02	0.11	0	1.67	**10.659**	0.986	0.043
94M	1	0	32	73.9	54	0.9	0.02	0.11	0	1.52	**7.345**	0.558	0.02
106	1	0	32	387.2	273.4	0.9	0.02	0.11	0	3.33	**58.758**	**19.338**	3.105
107	1	0	32	169.3	120.8	0.9	0.02	0.11	0	2.09	**21.944**	3.138	0.211
108	1	0	32	185.4	132.1	0.9	0.02	0.11	0	2.18	**24.827**	3.863	0.283
109	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.11	0	1.61	**9.166**	0.781	0.032
110G	1	0	32	41.5	31.4	0.9	0.02	0.11	0	1.32	4.048	0.231	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.11	0	1.5	**6.933**	0.512	0.018
112	1	0	32	471.3	332.2	0.9	0.02	0.11	0	3.79	**69.06**	**27.782**	**5.599**
112G	1	0	32	181.5	129.4	0.9	0.02	0.11	0	2.16	**24.128**	3.68	0.264
113low	1	0	32	263	186.4	0.9	0.02	0.11	0	2.63	**38.933**	**8.567**	0.894
113up	1	0	32	398.8	281.5	0.9	0.02	0.11	0	3.39	**60.333**	**20.472**	3.401
115SP	1	0	32	493.1	347.5	0.9	0.02	0.11	0	3.91	**71.319**	**30.009**	**6.374**
21	1	0	32	104.1	75.2	0.9	0.02	0.11	0	1.7	**11.302**	1.08	0.049
21G	1	0	32	337.4	238.5	0.9	0.02	0.11	0	3.05	**51.422**	**14.659**	2.012
116M	1	0	32	347.4	245.4	0.9	0.02	0.11	0	3.11	**52.957**	**15.561**	2.208
122	1	0	32	69	50.6	0.9	0.02	0.11	0	1.49	**6.783**	0.495	0.017
121	1	0	32	148.3	106.1	0.9	0.02	0.11	0	1.96	**18.288**	2.322	0.139
123	1	0	32	336.5	237.9	0.9	0.02	0.11	0	3.05	**51.288**	**14.581**	1.996
135	1	0	32	130.2	93.5	0.9	0.02	0.11	0	1.85	**15.297**	1.74	0.093
146	1	0	32	81.4	59.3	0.9	0.02	0.11	0	1.56	**8.257**	0.667	0.026
146G	1	0	32	43.2	32.6	0.9	0.02	0.11	0	1.33	4.196	0.244	0.007
147	1	0	32	50.9	37.9	0.9	0.02	0.11	0	1.38	4.893	0.305	0.009
151	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.11	0	2.17	**24.468**	3.769	0.273
160	1	0	32	153.4	109.7	0.9	0.02	0.11	0	1.99	**19.153**	2.505	0.154
163	1	0	32	158.1	113	0.9	0.02	0.11	0	2.02	**19.974**	2.684	0.17
163G	1	0	32	222.8	158.3	0.9	0.02	0.11	0	2.4	**31.657**	**5.889**	0.517
164	1	0	32	118	84.9	0.9	0.02	0.11	0	1.78	**13.368**	1.404	0.07
167	1	0	32	71.4	52.3	0.9	0.02	0.11	0	1.5	**7.055**	0.526	0.019

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
168	1	0	32	365.9	258.4	0.9	0.02	0.11	0	3.21	**55.726**	**17.289**	2.602
169	1	0	32	262	185.7	0.9	0.02	0.11	0	2.62	**38.742**	**8.489**	0.882
169A	1	0	32	238.9	169.5	0.9	0.02	0.11	0	2.49	**34.586**	**6.899**	0.651
320new	1	0	32	555.7	391.3	0.9	0.02	0.11	0	4.24	**76.967**	**36.351**	**8.866**
216	1	0	32	310.2	219.4	0.9	0.02	0.11	0	2.9	**47.047**	**12.283**	1.535
1030	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
170	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
172U	1	0	32	294	208.1	0.9	0.02	0.11	0	2.81	**44.334**	**10.947**	1.289
174M	1	0	32	23.7	18.9	0.9	0.02	0.11	0	1.21	2.694	0.129	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.11	0	2.1	**22.292**	3.221	0.219
238G	1	0	32	47.1	35.3	0.9	0.02	0.11	0	1.36	4.543	0.274	0.008
238M	1	0	32	34.9	26.8	0.9	0.02	0.11	0	1.28	3.508	0.188	0.005
176G	1	0	32	140.1	100.4	0.9	0.02	0.11	0	1.91	**16.92**	2.047	0.117
176M	1	0	32	215.9	153.4	0.9	0.02	0.11	0	2.36	**30.386**	**5.478**	0.466
177	1	0	32	172.8	123.2	0.9	0.02	0.11	0	2.11	**22.557**	3.286	0.225
206	1	0	32	142.4	101.9	0.9	0.02	0.11	0	1.93	**17.287**	2.119	0.122
208	1	0	32	161.9	115.6	0.9	0.02	0.11	0	2.04	**20.631**	2.832	0.183
208AA	1	0	32	173.4	123.6	0.9	0.02	0.11	0	2.11	**22.659**	3.311	0.228
208BM	1	0	32	112.5	81.1	0.9	0.02	0.11	0	1.75	**12.543**	1.271	0.061
208G	1	0	32	92.1	66.7	0.9	0.02	0.11	0	1.63	**9.632**	0.843	0.035
209A	1	0	32	115.7	83.3	0.9	0.02	0.11	0	1.77	**13.022**	1.348	0.066
213	1	0	32	440.1	310.4	0.9	0.02	0.11	0	3.62	**65.535**	**24.603**	4.58
185	1	0	32	196.7	140	0.9	0.02	0.11	0	2.25	**26.869**	4.422	0.343
185G	1	0	32	71	52	0.9	0.02	0.11	0	1.5	**7.01**	0.52	0.018
186	1	0	32	242.3	171.9	0.9	0.02	0.11	0	2.51	**35.208**	**7.125**	0.682
1035	1	0	32	114.9	82.8	0.9	0.02	0.11	0	1.76	**12.908**	1.329	0.065
1036	1	0	32	76.8	56	0.9	0.02	0.11	0	1.53	**7.687**	0.598	0.022
1037	1	0	32	98.4	71.2	0.9	0.02	0.11	0	1.66	**10.505**	0.964	0.042
189	1	0	32	154.4	110.4	0.9	0.02	0.11	0	2	**19.34**	2.545	0.158
1060	1	0	32	127.8	91.8	0.9	0.02	0.11	0	1.84	**14.906**	1.67	0.088
192	1	0	32	262.5	186	0.9	0.02	0.11	0	2.63	**38.827**	**8.524**	0.888
1020	1	0	32	96.5	69.9	0.9	0.02	0.11	0	1.65	**10.239**	0.926	0.04
1021	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.11	0	1.91	**16.931**	2.049	0.117
194	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
218	1	0	32	12.8	11.3	9999	0.02	0.11	0	1.15	2.025	0.086	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.11	0	3.66	**66.356**	**25.313**	4.799
201G	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.11	0	1.36	4.677	0.286	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.11	0	1.55	**8.09**	0.646	0.025
196	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.11	0	1.83	**14.537**	1.604	0.084
231Lower	1	0	32	138	98.9	0.9	0.02	0.11	0	1.9	**16.559**	1.977	0.111
7	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.11	0	1.47	**6.481**	0.463	0.016
246	1	0	32	29.2	22.8	0.9	0.02	0.11	0	1.25	3.077	0.156	0.004

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
18	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
20	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.11	0	1.59	**8.829**	0.738	0.029
250	1	0	32	92.2	66.8	0.9	0.02	0.11	0	1.63	**9.647**	0.845	0.035
253	1	0	32	110	79.3	0.9	0.02	0.11	0	1.73	**12.162**	1.211	0.057
258	1	0	32	767.7	539.7	0.9	0.02	0.11	0	5.34	**89.019**	**55.595**	**19.509**
259	1	0	32	240.7	170.8	0.9	0.02	0.11	0	2.5	**34.91**	**7.016**	0.667
284M	1	0	32	152.7	109.2	0.9	0.02	0.11	0	1.99	**19.04**	2.481	0.152
285M	1	0	32	157.6	112.7	0.9	0.02	0.11	0	2.02	**19.894**	2.666	0.168
287	1	0	32	150.2	107.4	0.9	0.02	0.11	0	1.97	**18.613**	2.39	0.145
288	1	0	32	68.2	50	0.9	0.02	0.11	0	1.48	**6.683**	0.485	0.017
288G1	1	0	32	79.7	58.1	0.9	0.02	0.11	0	1.55	**8.038**	0.64	0.024
288G2	1	0	32	59.8	44.2	0.9	0.02	0.11	0	1.43	**5.784**	0.391	0.013
289G3	1	0	32	76.3	55.7	0.9	0.02	0.11	0	1.53	**7.627**	0.591	0.022
291	1	0	32	77.6	56.6	0.9	0.02	0.11	0	1.54	**7.781**	0.609	0.023
306	1	0	32	86.1	62.6	0.9	0.02	0.11	0	1.59	**8.852**	0.741	0.029
315	1	0	32	37.7	28.7	0.9	0.02	0.11	0	1.3	3.73	0.205	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.11	0	1.7	**11.458**	1.103	0.05
317	1	0	32	227.9	161.8	0.9	0.02	0.11	0	2.43	**32.584**	**6.199**	0.557
317M	1	0	32	494.8	348.7	0.9	0.02	0.11	0	3.92	**71.492**	**30.187**	**6.438**
318	1	0	32	452.2	318.9	0.9	0.02	0.11	0	3.69	**66.946**	**25.835**	4.963
319	1	0	32	505.5	356.2	0.9	0.02	0.11	0	3.98	**72.539**	**31.281**	**6.839**
319M	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.11	0	4.04	**73.669**	**32.503**	**7.302**
421	1	0	32	318.8	225.4	0.9	0.02	0.11	0	2.95	**48.45**	**13.014**	1.676
410	1	0	32	394	278.1	0.9	0.02	0.11	0	3.37	**59.687**	**20**	3.277
412	1	0	32	12.8	11.3	0.9	0.02	0.11	0	1.15	2.025	0.086	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.11	0	4.18	**75.929**	**35.092**	**8.336**
325	1	0	32	37.8	28.8	0.9	0.02	0.11	0	1.3	3.741	0.206	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.11	0	1.5	**7.059**	0.526	0.019
327	1	0	32	50	37.3	0.9	0.02	0.11	0	1.37	4.813	0.298	0.009
999G1	1	0	32	85.9	62.4	0.9	0.02	0.11	0	1.59	**8.824**	0.737	0.029
999M1	1	0	32	79.9	58.2	0.9	0.02	0.11	0	1.55	**8.064**	0.643	0.024
999M2	1	0	32	56.1	41.6	0.9	0.02	0.11	0	1.41	**5.403**	0.353	0.011
999M3	1	0	32	83.8	61	0.9	0.02	0.11	0	1.58	**8.556**	0.703	0.027
72	1	0	32	230.4	163.6	0.9	0.02	0.11	0	2.44	**33.041**	**6.355**	0.577
1001	1	0	32	408.4	288.1	0.9	0.02	0.11	0	3.45	**61.589**	**21.414**	3.656
401	1	0	32	1102	773.4	0.9	0.02	0.11	0	6.97	**96.344**	**75.968**	**38.41**
402	1	0	32	577.5	406.6	0.9	0.02	0.11	0	4.36	**78.675**	**38.527**	**9.823**
403	1	0	32	419.6	296	0.9	0.02	0.11	0	3.51	**63.027**	**22.534**	3.969
440	1	0	32	145.2	103.9	0.9	0.02	0.11	0	1.94	**17.763**	2.215	0.13
441	1	0	32	737.9	518.8	0.9	0.02	0.11	0	5.19	**87.832**	**53.18**	**17.873**
442	1	0	32	258.8	183.4	0.9	0.02	0.11	0	2.6	**38.174**	**8.26**	0.848
1005	1	0	32	112.1	80.8	0.9	0.02	0.11	0	1.75	**12.482**	1.261	0.06
1006	1	0	32	91.7	66.5	0.9	0.02	0.11	0	1.62	**9.58**	0.836	0.035
1007	1	0	32	51.9	38.6	0.9	0.02	0.11	0	1.38	4.989	0.314	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.11	0	1.62	**9.555**	0.833	0.034

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1010	1	0	32	110.8	79.8	0.9	0.02	0.11	0	1.74	**12.278**	1.229	0.058
1011	1	0	32	146.2	104.7	0.9	0.02	0.11	0	1.95	**17.939**	2.251	0.133
345	1	0	32	103.9	75	0.9	0.02	0.11	0	1.7	**11.279**	1.076	0.049
346	1	0	32	130.4	93.6	0.9	0.02	0.11	0	1.86	**15.327**	1.746	0.094
347	1	0	32	312.7	221.2	0.9	0.02	0.11	0	2.91	**47.458**	**12.494**	1.575
430	1	0	32	262	185.7	0.9	0.02	0.11	0	2.62	**38.742**	**8.489**	0.882
431	1	0	32	110.3	79.5	0.9	0.02	0.11	0	1.74	**12.205**	1.217	0.057
432	1	0	32	307.5	217.5	0.9	0.02	0.11	0	2.88	**46.593**	**12.053**	1.491
801	1	0	32	239.9	170.3	0.9	0.02	0.11	0	2.5	**34.778**	**6.968**	0.66
3000	1	0	32	26.6	20.9	0.9	0.02	0.11	0	1.23	2.893	0.142	0.003
3001	1	0	32	371	262	0.9	0.02	0.11	0	3.24	**56.468**	**17.774**	2.718
3003	1	0	32	294.5	208.5	0.9	0.02	0.11	0	2.81	**44.415**	**10.985**	1.296
3004	1	0	32	81.9	59.6	0.9	0.02	0.11	0	1.57	**8.316**	0.674	0.026
280	1	0	32	367.4	259.5	0.9	0.02	0.11	0	3.22	**55.943**	**17.43**	2.635
280yard	1	0	32	302.9	214.3	0.9	0.02	0.11	0	2.86	**45.827**	**11.67**	1.42
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.11	0	1.49	**6.901**	0.508	0.018
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.11	0	1.56	**8.297**	0.671	0.026
075-O1	1	0	32	265	187.8	0.9	0.02	0.11	0	2.64	**39.284**	**8.711**	0.917
076-G1	1	0	32	85	61.8	0.9	0.02	0.11	0	1.58	**8.705**	0.722	0.028
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.11	0	1.64	**10.041**	0.899	0.038
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.11	0	1.63	**9.812**	0.868	0.036
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.11	0	1.62	**9.549**	0.832	0.034
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.11	0	2.01	**19.84**	2.654	0.167
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.11	0	1.26	3.3	0.172	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.11	0	1.26	3.231	0.167	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.11	0	1.24	3.022	0.152	0.004
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.11	0	1.29	3.62	0.197	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.11	0	1.29	3.688	0.202	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.11	0	1.28	3.494	0.187	0.005
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.11	0	1.3	3.749	0.207	0.006
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.11	0	1.22	2.754	0.133	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.11	0	1.23	2.908	0.144	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.11	0	1.26	3.287	0.171	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.11	0	1.49	**6.872**	0.505	0.018
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.11	0	1.8	**13.947**	1.502	0.076
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.11	0	1.21	2.692	0.128	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.11	0	1.29	3.613	0.196	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.11	0	1.35	4.394	0.261	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.11	0	1.83	**14.653**	1.625	0.085
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.11	0	1.21	2.634	0.125	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.11	0	1.32	4.008	0.228	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.11	0	1.32	4.068	0.233	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.11	0	1.28	3.547	0.191	0.005
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.11	0	1.33	4.167	0.241	0.007
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.11	0	1.28	3.547	0.191	0.005
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.11	0	1.25	3.18	0.163	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.11	0	1.34	4.297	0.252	0.007

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.11	0	1.3	3.715	0.204	0.005
085-H1	1	0	32	60	44.3	0.9	0.02	0.11	0	1.43	**5.804**	0.393	0.013
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.11	0	1.55	**8.039**	0.64	0.024
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.11	0	2.01	**19.821**	2.65	0.167
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.11	0	1.51	**7.137**	0.535	0.019
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.11	0	1.44	**5.887**	0.401	0.013
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.11	0	1.63	**9.698**	0.852	0.035
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.11	0	1.38	4.963	0.312	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.11	0	1.63	**9.698**	0.852	0.035
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.11	0	2.17	**24.616**	3.807	0.277
088-H2	1	0	32	159	113.6	0.9	0.02	0.11	0	2.02	**20.132**	2.719	0.173
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.11	0	1.89	**16.283**	1.924	0.107
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.11	0	1.56	**8.133**	0.651	0.025
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.11	0	1.64	**10.041**	0.899	0.038
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.11	0	1.44	**5.834**	0.396	0.013
090-H1	1	0	32	95.3	69	0.9	0.02	0.11	0	1.65	**10.079**	0.904	0.038
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.11	0	2.01	**19.84**	2.654	0.167
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.11	0	1.56	**8.238**	0.664	0.025
091-H1	1	0	32	56	41.5	0.9	0.02	0.11	0	1.41	**5.391**	0.352	0.011
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.11	0	2.15	**23.909**	3.624	0.259
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.11	0	1.68	**10.978**	1.032	0.046
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.11	0	1.48	**6.651**	0.481	0.017
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.11	0	1.55	**8.098**	0.647	0.025
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.11	0	1.54	**7.728**	0.603	0.022
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.11	0	2.11	**22.803**	3.346	0.231
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.11	0	1.79	**13.47**	1.421	0.071
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.11	0	1.97	**18.433**	2.352	0.141
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.11	0	2.13	**23.405**	3.496	0.246
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.11	0	2.14	**23.707**	3.572	0.253
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.11	0	2.92	**47.568**	**12.551**	1.586
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.11	0	1.93	**17.259**	2.114	0.122
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.11	0	1.78	**13.34**	1.4	0.069
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.11	0	1.29	3.62	0.197	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.11	0	1.28	3.468	0.185	0.005
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.11	0	1.21	2.628	0.124	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.11	0	1.41	**5.436**	0.356	0.011
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.11	0	1.45	**6.155**	0.429	0.014
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.11	0	1.94	**17.635**	2.189	0.128
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.11	0	2.09	**22.185**	3.196	0.217
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.11	0	1.35	4.45	0.266	0.008
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.11	0	1.92	**16.99**	2.06	0.118
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.11	0	1.6	**9.147**	0.779	0.031
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.11	0	1.52	**7.307**	0.554	0.02
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.11	0	1.9	**16.637**	1.992	0.112
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.11	0	1.38	4.877	0.304	0.009
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.11	0	1.86	**15.507**	1.779	0.096
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.11	0	2.32	**29.205**	**5.11**	0.422

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.11	0	1.41	**5.436**	0.356	0.011
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.11	0	1.25	3.129	0.159	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.11	0	1.78	**13.367**	1.404	0.07
103-O1	1	0	32	99	71.6	0.9	0.02	0.11	0	1.67	**10.584**	0.975	0.043
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.11	0	2.16	**24.229**	3.706	0.267
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.11	0	2.06	**21.192**	2.96	0.195
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.11	0	1.97	**18.545**	2.376	0.143
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.11	0	1.71	**11.544**	1.116	0.051
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.11	0	2.36	**30.635**	**5.557**	0.476
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.11	0	1.24	3.022	0.152	0.004
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.11	0	1.24	3.027	0.152	0.004
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.11	0	1.18	2.366	0.107	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.11	0	1.22	2.774	0.134	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.11	0	2.46	**33.677**	**6.576**	0.607
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.11	0	1.51	**7.212**	0.543	0.019
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.11	0	1.79	**13.6**	1.443	0.072
108-O2	1	0	32	53.9	40	0.9	0.02	0.11	0	1.4	**5.183**	0.332	0.01
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.11	0	1.62	**9.585**	0.837	0.035
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.11	0	1.48	**6.635**	0.479	0.017
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.11	0	1.26	3.193	0.164	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.11	0	1.43	**5.677**	0.38	0.012
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.11	0	1.35	4.447	0.265	0.008
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.11	0	1.56	**8.164**	0.655	0.025
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.11	0	1.32	4.082	0.234	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.11	0	1.66	**10.351**	0.942	0.041
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.11	0	1.59	**8.761**	0.729	0.029
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.11	0	2.82	**44.819**	**11.179**	1.331
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.11	0	2.1	**22.354**	3.236	0.221
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.11	0	2.21	**25.683**	4.093	0.307
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.11	0	1.53	**7.631**	0.591	0.022
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.11	0	1.81	**14.122**	1.532	0.078
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.11	0	2.8	**44.118**	**10.845**	1.271
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.11	0	2.99	**49.82**	**13.756**	1.825
114-O1	1	0	32	263	186.4	0.9	0.02	0.11	0	2.63	**38.923**	**8.563**	0.894
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.11	0	3.37	**59.782**	**20.069**	3.295
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.11	0	1.89	**16.19**	1.906	0.106
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.11	0	1.16	2.2	0.096	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.11	0	1.23	2.873	0.141	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.11	0	1.2	2.572	0.12	0.003
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.11	0	1.2	2.573	0.12	0.003
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.11	0	1.35	4.541	0.274	0.008
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.11	0	1.53	**7.62**	0.59	0.022
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.11	0	2.7	**41.187**	**9.517**	1.046
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.11	0	1.42	**5.532**	0.366	0.012
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.11	0	1.4	**5.297**	0.343	0.011
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.11	0	1.42	**5.63**	0.375	0.012

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.11	0	1.63	**9.799**	0.866	0.036
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.11	0	1.26	3.218	0.166	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.11	0	1.34	4.272	0.25	0.007
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.11	0	1.2	2.557	0.119	0.003
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.11	0	1.31	3.846	0.215	0.006
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.11	0	1.47	**6.374**	0.451	0.015
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.11	0	1.43	**5.668**	0.379	0.012
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.11	0	1.76	**12.827**	1.316	0.064
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.11	0	1.47	**6.494**	0.464	0.016
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.11	0	2.07	**21.608**	3.058	0.204
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.11	0	2.52	**35.663**	**7.293**	0.706
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.11	0	2.96	**48.798**	**13.2**	1.713
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.11	0	1.56	**8.186**	0.658	0.025
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.11	0	1.63	**9.774**	0.862	0.036
123-H1	1	0	32	72.4	53	0.9	0.02	0.11	0	1.51	**7.173**	0.539	0.019
123-O1	1	0	32	101	73	0.9	0.02	0.11	0	1.68	**10.859**	1.015	0.045
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.11	0	2.38	**31.218**	**5.745**	0.499
124-G1	1	0	32	28	21.9	0.9	0.02	0.11	0	1.24	2.991	0.149	0.004
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.11	0	1.53	**7.668**	0.596	0.022
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.11	0	1.28	3.52	0.189	0.005
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.11	0	1.24	2.962	0.147	0.004
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.11	0	1.12	1.795	0.072	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.11	0	1.53	**7.661**	0.595	0.022
125-O1	1	0	32	70	51.3	0.9	0.02	0.11	0	1.49	**6.895**	0.508	0.018
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.11	0	1.46	**6.31**	0.445	0.015
126-G1	1	0	32	49	36.6	0.9	0.02	0.11	0	1.37	4.719	0.289	0.009
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.11	0	1.32	4.102	0.236	0.007
126-H1	1	0	32	22	17.7	0.9	0.02	0.11	0	1.2	2.584	0.121	0.003
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.11	0	1.37	4.696	0.287	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.11	0	1.22	2.809	0.137	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.11	0	1.37	4.805	0.297	0.009
126-P1	1	0	32	28.1	22	0.9	0.02	0.11	0	1.24	2.999	0.15	0.004
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.11	0	1.78	**13.34**	1.4	0.069
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.11	0	1.45	**6.137**	0.427	0.014
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.11	0	1.46	**6.319**	0.446	0.015
127-H1	1	0	32	96.8	70	0.9	0.02	0.11	0	1.65	**10.272**	0.931	0.04
127-H2	1	0	32	42.5	32	0.9	0.02	0.11	0	1.33	4.131	0.238	0.007
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.11	0	1.78	**13.426**	1.414	0.07
128-G1	1	0	32	37	28.2	0.9	0.02	0.11	0	1.29	3.669	0.201	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.11	0	1.48	**6.727**	0.489	0.017
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.11	0	1.31	3.913	0.22	0.006
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.11	0	1.8	**13.734**	1.466	0.074
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.11	0	1.49	**6.803**	0.498	0.017
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.11	0	2.82	**44.856**	**11.196**	1.334
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.11	0	3.04	**51.172**	**14.515**	1.982
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.11	0	1.3	3.697	0.203	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.11	0	1.18	2.315	0.104	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.11	0	1.39	**5.103**	0.325	0.01
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.11	0	1.89	**16.145**	1.898	0.105
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.11	0	1.18	2.355	0.106	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.11	0	1.11	1.744	0.07	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.11	0	1.24	3.031	0.152	0.004
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.11	0	1.27	3.377	0.178	0.005
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.11	0	2.01	**19.704**	2.625	0.165
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.11	0	1.72	**11.859**	1.164	0.054
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.11	0	4.37	**78.887**	**38.807**	**9.951**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.11	0	1.77	**13.086**	1.358	0.067
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.11	0	2.09	**21.944**	3.138	0.211
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.11	0	1.76	**12.756**	1.305	0.063
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.11	0	1.23	2.938	0.146	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.11	0	1.22	2.78	0.135	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.11	0	1.28	3.463	0.184	0.005
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.11	0	2.29	**28.314**	4.842	0.39
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.11	0	2.15	**23.959**	3.637	0.26
137-O2	1	0	32	122	87.7	0.9	0.02	0.11	0	1.81	**13.99**	1.509	0.077
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.11	0	1.28	3.553	0.191	0.005
138-G2	1	0	32	48.1	36	0.9	0.02	0.11	0	1.36	4.633	0.282	0.008
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.11	0	1.24	3.027	0.152	0.004
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.11	0	1.22	2.74	0.132	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.11	0	1.35	4.394	0.261	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.11	0	1.35	4.503	0.27	0.008
139-G2	1	0	32	39.6	30	0.9	0.02	0.11	0	1.31	3.888	0.218	0.006
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.11	0	1.33	4.147	0.24	0.007
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.11	0	1.35	4.397	0.261	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.11	0	2.63	**38.933**	**8.567**	0.894
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.11	0	3.91	**71.421**	**30.114**	**6.411**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
141-A1	1	0	32	39	29.6	0.9	0.02	0.11	0	1.31	3.832	0.214	0.006
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.11	0	1.49	**6.736**	0.49	0.017
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.11	0	1.56	**8.133**	0.651	0.025
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.11	0	1.46	**6.346**	0.449	0.015
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.11	0	1.25	3.094	0.157	0.004
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.11	0	1.32	4.066	0.233	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.11	0	1.14	2.007	0.085	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.11	0	1.3	3.783	0.21	0.006
141-O1	1	0	32	43.9	33	0.9	0.02	0.11	0	1.34	4.255	0.249	0.007
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.11	0	1.66	**10.387**	0.947	0.041
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.11	0	1.49	**6.796**	0.497	0.017
143-A1	1	0	32	52	38.7	0.9	0.02	0.11	0	1.38	4.998	0.315	0.01
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.11	0	1.47	**6.435**	0.458	0.016
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.11	0	1.35	4.518	0.271	0.008
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.11	0	1.5	**6.959**	0.515	0.018
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.11	0	1.67	**10.524**	0.966	0.042

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.11	0	1.92	**16.978**	2.058	0.118
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.11	0	1.44	**5.945**	0.407	0.013
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.11	0	2.03	**20.279**	2.752	0.176
146-H1	1	0	32	1802	1264	0.9	0.02	0.11	0	10.02	**99.484**	**93.035**	**68.382**
147-G1	1	0	32	59.7	44	0.9	0.02	0.11	0	1.43	**5.763**	0.389	0.013
147-G2	1	0	32	85	61.8	0.9	0.02	0.11	0	1.58	**8.705**	0.722	0.028
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.11	0	1.57	**8.491**	0.695	0.027
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.11	0	1.36	4.654	0.284	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.11	0	1.44	**5.975**	0.41	0.013
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.11	0	1.7	**11.46**	1.103	0.05
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.11	0	1.35	4.485	0.269	0.008
149-G1	1	0	32	49	36.6	0.9	0.02	0.11	0	1.37	4.711	0.289	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.11	0	1.4	**5.235**	0.337	0.01
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.11	0	1.51	**7.261**	0.549	0.02
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.11	0	1.28	3.468	0.185	0.005
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.11	0	1.33	4.24	0.247	0.007
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.11	0	1.3	3.749	0.207	0.006
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.11	0	1.68	**10.899**	1.02	0.045
152-G1	1	0	32	114	82.1	0.9	0.02	0.11	0	1.76	**12.763**	1.306	0.063
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.11	0	2.06	**21.311**	2.988	0.197
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.11	0	1.71	**11.529**	1.113	0.051
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.11	0	2.74	**42.301**	**10.009**	1.127
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.11	0	2.4	**31.597**	**5.869**	0.515
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.11	0	3.25	**56.685**	**17.918**	2.752
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.11	0	2.38	**31.22**	**5.746**	0.499
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.11	0	2.87	**46.11**	**11.81**	1.446
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.11	0	1.69	**10.994**	1.034	0.046
153-O7	1	0	32	361	255	0.9	0.02	0.11	0	3.18	**55.01**	**16.829**	2.494
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.11	0	2.73	**41.93**	**9.843**	1.1
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.11	0	1.2	2.541	0.118	0.003
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.11	0	1.2	2.568	0.12	0.003
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.11	0	1.91	**16.838**	2.031	0.115
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.11	0	1.62	**9.585**	0.837	0.035
155-H1	1	0	32	52.4	39	0.9	0.02	0.11	0	1.39	**5.038**	0.319	0.01
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.11	0	2.08	**21.756**	3.093	0.207
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.11	0	2.67	**40.324**	**9.146**	0.985
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.11	0	1.56	**8.29**	0.67	0.026
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.11	0	1.95	**17.871**	2.237	0.132
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.11	0	1.32	4.058	0.232	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.11	0	1.63	**9.698**	0.852	0.035
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.11	0	1.45	**6.128**	0.426	0.014
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.11	0	1.48	**6.566**	0.472	0.016
158-H1	1	0	32	33.8	26	0.9	0.02	0.11	0	1.27	3.422	0.181	0.005
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.11	0	1.38	4.917	0.307	0.009
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.11	0	1.5	**6.929**	0.512	0.018
159-H1	1	0	32	59.6	44	0.9	0.02	0.11	0	1.43	**5.76**	0.388	0.013
159-H2	1	0	32	101	73	0.9	0.02	0.11	0	1.68	**10.859**	1.015	0.045

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.11	0	1.34	4.285	0.251	0.007
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.11	0	1.38	4.926	0.308	0.009
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.11	0	1.86	**15.324**	1.745	0.094
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.11	0	1.56	**8.112**	0.649	0.025
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.11	0	1.52	**7.48**	0.574	0.021
161-H1	1	0	32	129.6	93	0.9	0.02	0.11	0	1.85	**15.189**	1.721	0.092
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.11	0	1.68	**10.819**	1.009	0.045
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.11	0	1.56	**8.172**	0.656	0.025
163-G1	1	0	32	53	39.4	0.9	0.02	0.11	0	1.39	**5.095**	0.324	0.01
163-O1	1	0	32	71	52	0.9	0.02	0.11	0	1.5	**7.008**	0.52	0.018
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.11	0	1.85	**15.28**	1.737	0.093
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.11	0	1.15	2.051	0.087	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.11	0	1.45	**6.079**	0.421	0.014
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.11	0	2.58	**37.349**	**7.935**	0.799
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.11	0	1.67	**10.622**	0.981	0.043
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.11	0	2	**19.355**	2.548	0.158
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.11	0	2.4	**31.832**	**5.947**	0.524
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.11	0	2.12	**23.115**	3.423	0.239
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.11	0	2.41	**31.908**	**5.972**	0.528
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.11	0	2.53	**35.967**	**7.406**	0.722
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.11	0	3.38	**60.101**	**20.302**	3.356
167-O8	1	0	32	205.3	146	0.9	0.02	0.11	0	2.3	**28.444**	4.881	0.395
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.11	0	2.25	**26.908**	4.433	0.344
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.11	0	1.3	3.715	0.204	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.11	0	1.3	3.756	0.207	0.006
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.11	0	1.24	3.045	0.153	0.004
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.11	0	1.27	3.338	0.175	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.11	0	1.36	4.642	0.282	0.008
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.11	0	1.29	3.634	0.198	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.11	0	1.4	**5.269**	0.34	0.011
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.11	0	1.39	**5.022**	0.317	0.01
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.11	0	1.32	4.044	0.231	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.11	0	1.36	4.556	0.275	0.008
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.11	0	1.78	**13.211**	1.379	0.068
170-H1	1	0	32	77	56.2	0.9	0.02	0.11	0	1.54	**7.719**	0.602	0.022
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.11	0	2	**19.548**	2.59	0.162
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.11	0	2.5	**34.901**	**7.012**	0.666
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.11	0	2.46	**33.604**	**6.55**	0.603
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.11	0	1.37	4.735	0.291	0.009
173-G2	1	0	32	17	14.2	0.9	0.02	0.11	0	1.17	2.269	0.101	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.11	0	1.59	**8.922**	0.75	0.03
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.11	0	1.8	**13.73**	1.465	0.074
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.11	0	1.23	2.855	0.14	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.11	0	1.89	**16.328**	1.932	0.108
173-P1	1	0	32	175	124.8	0.9	0.02	0.11	0	2.12	**22.954**	3.383	0.235
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.11	0	1.51	**7.114**	0.532	0.019
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.11	0	1.55	**7.947**	0.629	0.024

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.11	0	2.14	**23.758**	3.585	0.255
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.11	0	1.54	**7.741**	0.604	0.022
175-G2	1	0	32	26.8	21	0.9	0.02	0.11	0	1.23	2.904	0.143	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.11	0	1.53	**7.53**	0.58	0.021
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.11	0	1.31	3.86	0.216	0.006
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.11	0	1.37	4.837	0.3	0.009
176-H2	1	0	32	29	22.6	0.9	0.02	0.11	0	1.24	3.064	0.155	0.004
176-P1	1	0	32	39	29.6	0.9	0.02	0.11	0	1.31	3.84	0.214	0.006
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.11	0	1.25	3.07	0.155	0.004
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.11	0	1.57	**8.446**	0.69	0.027
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.11	0	3.52	**63.294**	**22.747**	4.03
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.11	0	3.84	**69.97**	**28.661**	**5.899**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.11	0	1.71	**11.591**	1.123	0.051
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.11	0	1.36	4.684	0.286	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.11	0	1.75	**12.507**	1.265	0.06
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.11	0	1.8	**13.899**	1.494	0.076
181-H2	1	0	32	115	82.8	0.9	0.02	0.11	0	1.76	**12.917**	1.331	0.065
181-N1	1	0	32	126.7	91	0.9	0.02	0.11	0	1.83	**14.737**	1.64	0.086
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.11	0	1.9	**16.637**	1.992	0.112
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.11	0	1.42	**5.521**	0.365	0.012
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.11	0	2.26	**27.367**	4.565	0.359
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.11	0	2.15	**23.815**	3.6	0.256
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.11	0	1.9	**16.656**	1.995	0.113
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.11	0	1.88	**15.87**	1.846	0.101
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.11	0	1.73	**12.198**	1.216	0.057
182-O2	1	0	32	186	132.5	0.9	0.02	0.11	0	2.18	**24.928**	3.89	0.286
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.11	0	2.14	**23.607**	3.547	0.251
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.11	0	2.2	**25.448**	4.029	0.3
185-A1	1	0	32	33.8	26	0.9	0.02	0.11	0	1.27	3.424	0.181	0.005
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.11	0	1.27	3.325	0.174	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.11	0	3.12	**53.359**	**15.804**	2.261
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.11	0	1.72	**11.799**	1.154	0.053
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.11	0	1.54	**7.864**	0.619	0.023
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.11	0	1.78	**13.211**	1.379	0.068
188-G2	1	0	32	122	87.7	0.9	0.02	0.11	0	1.81	**13.99**	1.509	0.077
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.11	0	1.44	**5.975**	0.41	0.013
188-H1	1	0	32	39	29.6	0.9	0.02	0.11	0	1.31	3.84	0.214	0.006
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.11	0	1.41	**5.453**	0.358	0.011
189-G1	1	0	32	44	33.1	0.9	0.02	0.11	0	1.34	4.262	0.249	0.007
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.11	0	1.53	**7.631**	0.591	0.022
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.11	0	1.69	**11.218**	1.067	0.048
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.11	0	1.79	**13.652**	1.452	0.073
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.11	0	1.18	2.345	0.106	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.11	0	1.32	4.041	0.231	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.11	0	1.23	2.914	0.144	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.11	0	1.22	2.74	0.132	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
190-N3	1	0	32	21	17	0.9	0.02	0.11	0	1.2	2.514	0.117	0.003
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.11	0	1.45	**6.091**	0.422	0.014
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.11	0	2.33	**29.522**	**5.208**	0.433
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.11	0	1.3	3.709	0.204	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.11	0	1.24	3.022	0.152	0.004
192-H1	1	0	32	34	26.1	0.9	0.02	0.11	0	1.27	3.433	0.182	0.005
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.11	0	1.18	2.366	0.107	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.11	0	1.2	2.543	0.118	0.003
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.11	0	1.24	2.951	0.147	0.004
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.11	0	1.28	3.448	0.183	0.005
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.11	0	1.54	**7.813**	0.613	0.023
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.11	0	2	**19.403**	2.559	0.159
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.11	0	2.24	**26.653**	4.361	0.336
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.11	0	1.42	**5.538**	0.366	0.012
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.11	0	1.49	**6.739**	0.491	0.017
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.11	0	1.36	4.594	0.278	0.008
196-O1	1	0	32	69	50.6	0.9	0.02	0.11	0	1.49	**6.773**	0.494	0.017
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.11	0	1.92	**17.048**	2.072	0.119
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.11	0	1.54	**7.877**	0.621	0.023
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.11	0	2.08	**21.756**	3.093	0.207
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.11	0	1.16	2.135	0.092	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.11	0	1.23	2.882	0.142	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.11	0	1.25	3.125	0.159	0.004
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.11	0	1.25	3.07	0.155	0.004
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.11	0	1.24	2.968	0.148	0.004
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.11	0	2.98	**49.425**	**13.539**	1.781
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.11	0	2.11	**22.653**	3.309	0.228
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.11	0	1.42	**5.581**	0.371	0.012
202-O1	1	0	32	137	98.2	0.9	0.02	0.11	0	1.89	**16.397**	1.946	0.109
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.11	0	3.83	**69.896**	**28.589**	**5.874**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.11	0	3.98	**72.703**	**31.455**	**6.904**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.11	0	1.77	**13.083**	1.358	0.067
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.11	0	1.37	4.845	0.301	0.009
206-H1	1	0	32	18	14.9	0.9	0.02	0.11	0	1.18	2.328	0.105	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.11	0	2.75	**42.777**	**10.223**	1.164
206-O1	1	0	32	252.4	179	0.9	0.02	0.11	0	2.57	**37.03**	**7.811**	0.78
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.11	0	1.74	**12.289**	1.23	0.058
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.11	0	2.63	**39.121**	**8.644**	0.906
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.11	0	2.49	**34.547**	**6.885**	0.649
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.11	0	3.35	**59.397**	**19.792**	3.222
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.11	0	4.04	**73.67**	**32.504**	**7.302**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.11	0	1.75	**12.698**	1.295	0.062
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.11	0	1.84	**14.921**	1.672	0.088
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.11	0	1.5	**7.104**	0.531	0.019
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.11	0	1.3	3.805	0.211	0.006

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.11	0	1.34	4.321	0.254	0.007
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.11	0	1.5	**6.968**	0.516	0.018
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.11	0	1.84	**14.831**	1.656	0.087
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.11	0	2.2	**25.38**	4.011	0.299
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.11	0	1.97	**18.434**	2.353	0.141
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.11	0	1.28	3.55	0.191	0.005
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.11	0	1.58	**8.624**	0.712	0.028
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.11	0	1.42	**5.543**	0.367	0.012
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.11	0	1.24	3.055	0.154	0.004
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.11	0	1.16	2.148	0.093	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.11	0	1.26	3.218	0.166	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.11	0	1.97	**18.633**	2.394	0.145
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.11	0	3.65	**66.28**	**25.247**	4.778
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.11	0	2.92	**47.778**	**12.661**	1.607
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.11	0	2.47	**33.83**	**6.63**	0.614
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.11	0	1.69	**11.018**	1.038	0.046
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.11	0	2.58	**37.331**	**7.928**	0.798
805-O1	1	0	32	38.2	29	0.9	0.02	0.11	0	1.3	3.77	0.209	0.006
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.11	0	1.35	4.394	0.261	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.11	0	1.24	3.015	0.151	0.004
806-O2	1	0	32	29.6	23	0.9	0.02	0.11	0	1.25	3.106	0.158	0.004
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.11	0	1.38	4.869	0.303	0.009
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.11	0	1.29	3.667	0.2	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.11	0	1.3	3.701	0.203	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.11	0	1.24	3.066	0.155	0.004
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.11	0	1.27	3.416	0.181	0.005
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.11	0	1.29	3.58	0.194	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.11	0	1.19	2.468	0.114	0.003

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/20/2020
Site Name: UCR
Operable Unit: Current Resident, Whitefish
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: RES WHI_02`20`20.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	0	32	92.4	67	0.9	0.02	0.04	0	1.62	**9.414**	0.814	0.033
14	1	0	32	77.1	56.3	0.9	0.02	0.04	0	1.52	**7.483**	0.574	0.021
15	1	0	32	93.6	67.8	0.9	0.02	0.04	0	1.62	**9.564**	0.834	0.034
16	1	0	32	356	251.5	0.9	0.02	0.04	0	3.14	**53.954**	**16.168**	2.343
17	1	0	32	150.5	107.7	0.9	0.02	0.04	0	1.96	**18.321**	2.329	0.139
9	1	0	32	91.8	66.5	0.9	0.02	0.04	0	1.61	**9.324**	0.802	0.033
40	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
1015	1	0	32	47.6	35.6	0.9	0.02	0.04	0	1.35	4.402	0.261	0.007
1017	1	0	32	139.2	99.8	0.9	0.02	0.04	0	1.9	**16.434**	1.953	0.109
1018	1	0	32	51.9	38.6	0.9	0.02	0.04	0	1.37	4.792	0.296	0.009
42	1	0	32	229.6	163.1	0.9	0.02	0.04	0	2.42	**32.534**	**6.182**	0.555
44	1	0	32	99.7	72.1	0.9	0.02	0.04	0	1.66	**10.401**	0.949	0.041
46	1	0	32	188.7	134.4	0.9	0.02	0.04	0	2.19	**25.051**	3.923	0.289
47	1	0	32	222.3	157.9	0.9	0.02	0.04	0	2.38	**31.189**	**5.736**	0.498
49	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
60	1	0	32	59.3	43.8	0.9	0.02	0.04	0	1.42	**5.514**	0.364	0.011
61	1	0	32	137.2	98.3	0.9	0.02	0.04	0	1.88	**16.096**	1.888	0.104
22	1	0	32	118.9	85.5	0.9	0.02	0.04	0	1.77	**13.196**	1.376	0.068
25	1	0	32	54.5	40.4	0.9	0.02	0.04	0	1.39	**5.039**	0.319	0.01
27	1	0	32	135.3	97	0.9	0.02	0.04	0	1.87	**15.78**	1.829	0.1
28	1	0	32	49.2	36.8	0.9	0.02	0.04	0	1.36	4.549	0.274	0.008
29	1	0	32	42.7	32.2	0.9	0.02	0.04	0	1.32	3.976	0.225	0.006
30	1	0	32	51.6	38.4	0.9	0.02	0.04	0	1.37	4.766	0.294	0.009
31	1	0	32	255.8	181.3	0.9	0.02	0.04	0	2.58	**37.271**	**7.904**	0.794
33	1	0	32	206.4	146.8	0.9	0.02	0.04	0	2.29	**28.281**	4.832	0.389
35	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
35PA	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
39	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
226C	1	0	32	395.3	279	0.9	0.02	0.04	0	3.36	**59.58**	**19.923**	3.256
55	1	0	32	67.1	49.2	0.9	0.02	0.04	0	1.46	**6.337**	0.448	0.015
56	1	0	32	185.9	132.4	0.9	0.02	0.04	0	2.17	**24.55**	3.79	0.276

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
58	1	0	32	73.3	53.6	0.9	0.02	0.04	0	1.5	**7.038**	0.524	0.019
59	1	0	32	206.6	146.9	0.9	0.02	0.04	0	2.29	**28.314**	4.842	0.39
59A	1	0	32	335.3	237	0.9	0.02	0.04	0	3.03	**50.765**	**14.283**	1.934
62	1	0	32	118.1	85	0.9	0.02	0.04	0	1.77	**13.076**	1.356	0.066
62G	1	0	32	70.6	51.7	0.9	0.02	0.04	0	1.48	**6.727**	0.489	0.017
66	1	0	32	141.1	101	0.9	0.02	0.04	0	1.91	**16.734**	2.011	0.114
67	1	0	32	174.5	124.4	0.9	0.02	0.04	0	2.1	**22.496**	3.271	0.224
70	1	0	32	202.6	144.1	0.9	0.02	0.04	0	2.27	**27.586**	4.628	0.366
71	1	0	32	127	91.2	0.9	0.02	0.04	0	1.82	**14.456**	1.59	0.083
72M	1	0	32	253.9	180.1	0.9	0.02	0.04	0	2.56	**36.943**	**7.777**	0.776
72U	1	0	32	109.7	79.1	0.9	0.02	0.04	0	1.72	**11.823**	1.158	0.054
75	1	0	32	381.8	269.6	0.9	0.02	0.04	0	3.29	**57.719**	**18.615**	2.924
82	1	0	32	54.8	40.6	0.9	0.02	0.04	0	1.39	**5.07**	0.322	0.01
85	1	0	32	57.4	42.5	0.9	0.02	0.04	0	1.4	**5.325**	0.346	0.011
86	1	0	32	115.3	83	0.9	0.02	0.04	0	1.75	**12.661**	1.289	0.062
87	1	0	32	99.5	72	0.9	0.02	0.04	0	1.66	**10.377**	0.946	0.041
94M	1	0	32	73.9	54	0.9	0.02	0.04	0	1.5	**7.108**	0.531	0.019
106	1	0	32	387.2	273.4	0.9	0.02	0.04	0	3.32	**58.477**	**19.14**	3.055
107	1	0	32	169.3	120.8	0.9	0.02	0.04	0	2.07	**21.585**	3.053	0.203
108	1	0	32	185.4	132.1	0.9	0.02	0.04	0	2.17	**24.46**	3.767	0.273
109	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
110	1	0	32	88.5	64.3	0.9	0.02	0.04	0	1.59	**8.902**	0.747	0.03
110G	1	0	32	41.5	31.4	0.9	0.02	0.04	0	1.31	3.878	0.217	0.006
111	1	0	32	70.4	51.5	0.9	0.02	0.04	0	1.48	**6.703**	0.487	0.017
112	1	0	32	471.3	332.2	0.9	0.02	0.04	0	3.78	**68.841**	**27.575**	**5.53**
112G	1	0	32	181.5	129.4	0.9	0.02	0.04	0	2.14	**23.763**	3.587	0.255
113low	1	0	32	263	186.4	0.9	0.02	0.04	0	2.62	**38.572**	**8.42**	0.872
113up	1	0	32	398.8	281.5	0.9	0.02	0.04	0	3.38	**60.061**	**20.273**	3.348
115SP	1	0	32	493.1	347.5	0.9	0.02	0.04	0	3.9	**71.115**	**29.802**	**6.299**
21	1	0	32	104.1	75.2	0.9	0.02	0.04	0	1.69	**11.012**	1.037	0.046
21G	1	0	32	337.4	238.5	0.9	0.02	0.04	0	3.04	**51.105**	**14.476**	1.974
116M	1	0	32	347.4	245.4	0.9	0.02	0.04	0	3.1	**52.647**	**15.375**	2.167
122	1	0	32	69	50.6	0.9	0.02	0.04	0	1.48	**6.555**	0.471	0.016
121	1	0	32	148.3	106.1	0.9	0.02	0.04	0	1.95	**17.944**	2.252	0.133
123	1	0	32	336.5	237.9	0.9	0.02	0.04	0	3.03	**50.97**	**14.4**	1.958
135	1	0	32	130.2	93.5	0.9	0.02	0.04	0	1.84	**14.972**	1.681	0.089
146	1	0	32	81.4	59.3	0.9	0.02	0.04	0	1.55	**8.006**	0.636	0.024
146G	1	0	32	43.2	32.6	0.9	0.02	0.04	0	1.32	4.022	0.229	0.006
147	1	0	32	50.9	37.9	0.9	0.02	0.04	0	1.37	4.703	0.288	0.008
151	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
152	1	0	32	183.4	130.7	0.9	0.02	0.04	0	2.16	**24.103**	3.674	0.264
160	1	0	32	153.4	109.7	0.9	0.02	0.04	0	1.98	**18.806**	2.431	0.148
163	1	0	32	158.1	113	0.9	0.02	0.04	0	2.01	**19.622**	2.607	0.163
163G	1	0	32	222.8	158.3	0.9	0.02	0.04	0	2.39	**31.286**	**5.767**	0.502
164	1	0	32	118	84.9	0.9	0.02	0.04	0	1.77	**13.058**	1.353	0.066
167	1	0	32	71.4	52.3	0.9	0.02	0.04	0	1.49	**6.823**	0.5	0.017
168	1	0	32	365.9	258.4	0.9	0.02	0.04	0	3.2	**55.429**	**17.097**	2.557

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
169	1	0	32	262	185.7	0.9	0.02	0.04	0	2.61	**38.381**	**8.343**	0.86
169A	1	0	32	238.9	169.5	0.9	0.02	0.04	0	2.48	**34.218**	**6.767**	0.633
320new	1	0	32	555.7	391.3	0.9	0.02	0.04	0	4.23	**76.802**	**36.148**	**8.779**
216	1	0	32	310.2	219.4	0.9	0.02	0.04	0	2.89	**46.711**	**12.112**	1.503
1030	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
170	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
172U	1	0	32	294	208.1	0.9	0.02	0.04	0	2.79	**43.988**	**10.783**	1.261
174M	1	0	32	23.7	18.9	0.9	0.02	0.04	0	1.2	2.561	0.12	0.003
175	1	0	32	171.3	122.2	0.9	0.02	0.04	0	2.08	**21.932**	3.135	0.211
238G	1	0	32	47.1	35.3	0.9	0.02	0.04	0	1.34	4.361	0.258	0.007
238M	1	0	32	34.9	26.8	0.9	0.02	0.04	0	1.27	3.352	0.176	0.004
176G	1	0	32	140.1	100.4	0.9	0.02	0.04	0	1.9	**16.585**	1.982	0.112
176M	1	0	32	215.9	153.4	0.9	0.02	0.04	0	2.35	**30.014**	**5.361**	0.452
177	1	0	32	172.8	123.2	0.9	0.02	0.04	0	2.09	**22.196**	3.198	0.217
206	1	0	32	142.4	101.9	0.9	0.02	0.04	0	1.91	**16.949**	2.052	0.117
208	1	0	32	161.9	115.6	0.9	0.02	0.04	0	2.03	**20.277**	2.752	0.176
208AA	1	0	32	173.4	123.6	0.9	0.02	0.04	0	2.1	**22.298**	3.223	0.219
208BM	1	0	32	112.5	81.1	0.9	0.02	0.04	0	1.74	**12.241**	1.223	0.058
208G	1	0	32	92.1	66.7	0.9	0.02	0.04	0	1.61	**9.362**	0.807	0.033
209A	1	0	32	115.7	83.3	0.9	0.02	0.04	0	1.76	**12.715**	1.298	0.063
213	1	0	32	440.1	310.4	0.9	0.02	0.04	0	3.61	**65.294**	**24.397**	4.517
185	1	0	32	196.7	140	0.9	0.02	0.04	0	2.23	**26.5**	4.318	0.332
185G	1	0	32	71	52	0.9	0.02	0.04	0	1.49	**6.778**	0.495	0.017
186	1	0	32	242.3	171.9	0.9	0.02	0.04	0	2.5	**34.84**	**6.99**	0.663
1035	1	0	32	114.9	82.8	0.9	0.02	0.04	0	1.75	**12.602**	1.28	0.061
1036	1	0	32	76.8	56	0.9	0.02	0.04	0	1.52	**7.445**	0.57	0.021
1037	1	0	32	98.4	71.2	0.9	0.02	0.04	0	1.65	**10.224**	0.924	0.04
189	1	0	32	154.4	110.4	0.9	0.02	0.04	0	1.99	**18.991**	2.47	0.151
1060	1	0	32	127.8	91.8	0.9	0.02	0.04	0	1.83	**14.583**	1.612	0.084
192	1	0	32	262.5	186	0.9	0.02	0.04	0	2.61	**38.466**	**8.377**	0.865
1020	1	0	32	96.5	69.9	0.9	0.02	0.04	0	1.64	**9.962**	0.888	0.038
1021	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
193	1	0	32	140.2	100.4	0.9	0.02	0.04	0	1.9	**16.595**	1.984	0.112
194	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
218	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
201	1	0	32	447.1	315.3	0.9	0.02	0.04	0	3.65	**66.12**	**25.107**	4.735
201G	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
203	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
229	1	0	32	48.6	36.3	0.9	0.02	0.04	0	1.35	4.492	0.269	0.008
230G	1	0	32	80.1	58.4	0.9	0.02	0.04	0	1.54	**7.842**	0.616	0.023
196	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
231	1	0	32	125.5	90.1	0.9	0.02	0.04	0	1.81	**14.218**	1.549	0.08
231Lower	1	0	32	138	98.9	0.9	0.02	0.04	0	1.89	**16.225**	1.913	0.106
7	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
154	1	0	32	66.3	48.7	0.9	0.02	0.04	0	1.46	**6.259**	0.439	0.015
246	1	0	32	29.2	22.8	0.9	0.02	0.04	0	1.23	2.932	0.145	0.003
18	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
20	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
249	1	0	32	85.9	62.5	0.9	0.02	0.04	0	1.58	**8.57**	0.705	0.028
250	1	0	32	92.2	66.8	0.9	0.02	0.04	0	1.61	**9.377**	0.809	0.033
253	1	0	32	110	79.3	0.9	0.02	0.04	0	1.72	**11.864**	1.164	0.054
258	1	0	32	767.7	539.7	0.9	0.02	0.04	0	5.33	**88.942**	**55.433**	**19.396**
259	1	0	32	240.7	170.8	0.9	0.02	0.04	0	2.49	**34.542**	**6.883**	0.649
284M	1	0	32	152.7	109.2	0.9	0.02	0.04	0	1.98	**18.693**	2.407	0.146
285M	1	0	32	157.6	112.7	0.9	0.02	0.04	0	2	**19.543**	2.589	0.162
287	1	0	32	150.2	107.4	0.9	0.02	0.04	0	1.96	**18.268**	2.318	0.139
288	1	0	32	68.2	50	0.9	0.02	0.04	0	1.47	**6.458**	0.46	0.016
288G1	1	0	32	79.7	58.1	0.9	0.02	0.04	0	1.54	**7.79**	0.61	0.023
288G2	1	0	32	59.8	44.2	0.9	0.02	0.04	0	1.42	**5.575**	0.37	0.012
289G3	1	0	32	76.3	55.7	0.9	0.02	0.04	0	1.52	**7.386**	0.563	0.02
291	1	0	32	77.6	56.6	0.9	0.02	0.04	0	1.53	**7.537**	0.581	0.021
306	1	0	32	86.1	62.6	0.9	0.02	0.04	0	1.58	**8.593**	0.708	0.028
315	1	0	32	37.7	28.7	0.9	0.02	0.04	0	1.29	3.567	0.193	0.005
316	1	0	32	105.2	75.9	0.9	0.02	0.04	0	1.69	**11.167**	1.06	0.048
317	1	0	32	227.9	161.8	0.9	0.02	0.04	0	2.41	**32.213**	**6.074**	0.541
317M	1	0	32	494.8	348.7	0.9	0.02	0.04	0	3.91	**71.289**	**29.979**	**6.363**
318	1	0	32	452.2	318.9	0.9	0.02	0.04	0	3.68	**66.713**	**25.628**	4.898
319	1	0	32	505.5	356.2	0.9	0.02	0.04	0	3.96	**72.344**	**31.073**	**6.762**
319M	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
420	1	0	32	517.5	364.6	0.9	0.02	0.04	0	4.03	**73.481**	**32.297**	**7.223**
421	1	0	32	318.8	225.4	0.9	0.02	0.04	0	2.93	**48.12**	**12.84**	1.642
410	1	0	32	394	278.1	0.9	0.02	0.04	0	3.36	**59.411**	**19.802**	3.225
412	1	0	32	12.8	11.3	0.9	0.02	0.04	0	1.13	1.914	0.079	0.002
413	1	0	32	543.1	382.5	0.9	0.02	0.04	0	4.17	**75.757**	**34.888**	**8.251**
325	1	0	32	37.8	28.8	0.9	0.02	0.04	0	1.29	3.578	0.193	0.005
326	1	0	32	71.5	52.3	0.9	0.02	0.04	0	1.49	**6.827**	0.5	0.017
327	1	0	32	50	37.3	0.9	0.02	0.04	0	1.36	4.624	0.281	0.008
999G1	1	0	32	85.9	62.4	0.9	0.02	0.04	0	1.58	**8.565**	0.705	0.028
999M1	1	0	32	79.9	58.2	0.9	0.02	0.04	0	1.54	**7.816**	0.613	0.023
999M2	1	0	32	56.1	41.6	0.9	0.02	0.04	0	1.4	**5.202**	0.334	0.01
999M3	1	0	32	83.8	61	0.9	0.02	0.04	0	1.56	**8.3**	0.672	0.026
72	1	0	32	230.4	163.6	0.9	0.02	0.04	0	2.43	**32.67**	**6.228**	0.561
1001	1	0	32	408.4	288.1	0.9	0.02	0.04	0	3.43	**61.325**	**21.213**	3.6
401	1	0	32	1101.5	773.4	0.9	0.02	0.04	0	6.96	**96.321**	**75.877**	**38.299**
402	1	0	32	577.5	406.6	0.9	0.02	0.04	0	4.35	**78.522**	**38.326**	**9.733**
403	1	0	32	419.6	296	0.9	0.02	0.04	0	3.5	**62.77**	**22.33**	3.911
440	1	0	32	145.2	103.9	0.9	0.02	0.04	0	1.93	**17.422**	2.146	0.125
441	1	0	32	737.9	518.8	0.9	0.02	0.04	0	5.18	**87.746**	**53.011**	**17.762**
442	1	0	32	258.8	183.4	0.9	0.02	0.04	0	2.59	**37.811**	**8.116**	0.826
1005	1	0	32	112.1	80.8	0.9	0.02	0.04	0	1.73	**12.18**	1.213	0.057
1006	1	0	32	91.7	66.5	0.9	0.02	0.04	0	1.61	**9.311**	0.8	0.033
1007	1	0	32	51.9	38.6	0.9	0.02	0.04	0	1.37	4.796	0.296	0.009
1008	1	0	32	91.5	66.3	0.9	0.02	0.04	0	1.61	**9.286**	0.797	0.032
1010	1	0	32	110.8	79.8	0.9	0.02	0.04	0	1.73	**11.979**	1.182	0.055

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
1011	1	0	32	146.2	104.7	0.9	0.02	0.04	0	1.94	**17.597**	2.181	0.127
345	1	0	32	103.9	75	0.9	0.02	0.04	0	1.69	**10.99**	1.034	0.046
346	1	0	32	130.4	93.6	0.9	0.02	0.04	0	1.84	**15.002**	1.687	0.089
347	1	0	32	312.7	221.2	0.9	0.02	0.04	0	2.9	**47.123**	**12.322**	1.542
430	1	0	32	262	185.7	0.9	0.02	0.04	0	2.61	**38.381**	**8.343**	0.86
431	1	0	32	110.3	79.5	0.9	0.02	0.04	0	1.72	**11.906**	1.171	0.054
432	1	0	32	307.5	217.5	0.9	0.02	0.04	0	2.87	**46.255**	**11.883**	1.46
801	1	0	32	239.9	170.3	0.9	0.02	0.04	0	2.48	**34.409**	**6.835**	0.642
3000	1	0	32	26.6	20.9	0.9	0.02	0.04	0	1.22	2.754	0.133	0.003
3001	1	0	32	371	262	0.9	0.02	0.04	0	3.23	**56.174**	**17.581**	2.671
3003	1	0	32	294.5	208.5	0.9	0.02	0.04	0	2.8	**44.069**	**10.822**	1.267
3004	1	0	32	81.9	59.6	0.9	0.02	0.04	0	1.55	**8.064**	0.643	0.024
280	1	0	32	367.4	259.5	0.9	0.02	0.04	0	3.21	**55.647**	**17.237**	2.59
280yard	1	0	32	302.9	214.3	0.9	0.02	0.04	0	2.84	**45.486**	**11.502**	1.39
075-A1	1	0	32	70.1	51.4	0.9	0.02	0.04	0	1.48	**6.672**	0.483	0.017
075-H1	1	0	32	81.8	59.5	0.9	0.02	0.04	0	1.55	**8.045**	0.641	0.024
075-O1	1	0	32	265	187.8	0.9	0.02	0.04	0	2.63	**38.923**	**8.563**	0.894
076-G1	1	0	32	85	61.8	0.9	0.02	0.04	0	1.57	**8.447**	0.69	0.027
076-G2	1	0	32	95.1	68.8	0.9	0.02	0.04	0	1.63	**9.766**	0.861	0.036
076-H1	1	0	32	93.4	67.7	0.9	0.02	0.04	0	1.62	**9.54**	0.831	0.034
076-H2	1	0	32	91.4	66.3	0.9	0.02	0.04	0	1.61	**9.28**	0.796	0.032
076-N1	1	0	32	157.3	112.4	0.9	0.02	0.04	0	2	**19.489**	2.578	0.161
077-A1	1	0	32	32.2	24.9	0.9	0.02	0.04	0	1.25	3.149	0.161	0.004
077-A2	1	0	32	31.3	24.2	0.9	0.02	0.04	0	1.25	3.082	0.156	0.004
077-G1	1	0	32	28.4	22.2	0.9	0.02	0.04	0	1.23	2.878	0.141	0.003
077-H1	1	0	32	36.3	27.7	0.9	0.02	0.04	0	1.28	3.46	0.184	0.005
077-H2	1	0	32	37.2	28.3	0.9	0.02	0.04	0	1.28	3.527	0.189	0.005
077-N1	1	0	32	34.8	26.6	0.9	0.02	0.04	0	1.27	3.338	0.175	0.004
078-G1	1	0	32	37.9	28.9	0.9	0.02	0.04	0	1.29	3.586	0.194	0.005
078-H1	1	0	32	24.6	19.5	0.9	0.02	0.04	0	1.21	2.619	0.124	0.003
078-N1	1	0	32	26.8	21.1	0.9	0.02	0.04	0	1.22	2.769	0.134	0.003
078-O1	1	0	32	32	24.7	0.9	0.02	0.04	0	1.25	3.136	0.16	0.004
079-H1	1	0	32	69.8	51.2	0.9	0.02	0.04	0	1.48	**6.643**	0.48	0.017
079-H2	1	0	32	121.7	87.5	0.9	0.02	0.04	0	1.79	**13.633**	1.449	0.073
080-H1	1	0	32	23.7	18.9	0.9	0.02	0.04	0	1.2	2.558	0.12	0.003
081-A1	1	0	32	36.3	27.7	0.9	0.02	0.04	0	1.28	3.454	0.184	0.005
081-H1	1	0	32	45.5	34.1	0.9	0.02	0.04	0	1.33	4.215	0.245	0.007
081-O1	1	0	32	126.2	90.6	0.9	0.02	0.04	0	1.82	**14.333**	1.568	0.081
082-G1	1	0	32	22.8	18.3	0.9	0.02	0.04	0	1.19	2.502	0.116	0.003
082-G2	1	0	32	41.1	31	0.9	0.02	0.04	0	1.31	3.839	0.214	0.006
082-H1	1	0	32	41.8	31.5	0.9	0.02	0.04	0	1.31	3.897	0.219	0.006
082-N1	1	0	32	35.4	27.1	0.9	0.02	0.04	0	1.27	3.389	0.179	0.005
082-N2	1	0	32	42.9	32.3	0.9	0.02	0.04	0	1.32	3.994	0.227	0.006
083-G1	1	0	32	35.4	27.1	0.9	0.02	0.04	0	1.27	3.389	0.179	0.005
083-G2	1	0	32	30.6	23.7	0.9	0.02	0.04	0	1.24	3.033	0.152	0.004
083-H1	1	0	32	44.4	33.4	0.9	0.02	0.04	0	1.33	4.12	0.237	0.007
084-H1	1	0	32	37.5	28.6	0.9	0.02	0.04	0	1.28	3.553	0.191	0.005

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
085-H1	1	0	32	60	44.3	0.9	0.02	0.04	0	1.42	**5.595**	0.372	0.012
085-O1	1	0	32	79.7	58.1	0.9	0.02	0.04	0	1.54	**7.792**	0.61	0.023
085-P1	1	0	32	157.2	112.3	0.9	0.02	0.04	0	2	**19.47**	2.573	0.16
086-G1	1	0	32	72.1	52.8	0.9	0.02	0.04	0	1.49	**6.903**	0.509	0.018
086-H1	1	0	32	60.8	44.9	0.9	0.02	0.04	0	1.43	**5.676**	0.38	0.012
086-H2	1	0	32	92.5	67.1	0.9	0.02	0.04	0	1.62	**9.427**	0.816	0.033
087-H1	1	0	32	51.6	38.4	0.9	0.02	0.04	0	1.37	4.771	0.294	0.009
087-O1	1	0	32	92.5	67.1	0.9	0.02	0.04	0	1.62	**9.427**	0.816	0.033
088-H1	1	0	32	184.3	131.3	0.9	0.02	0.04	0	2.16	**24.25**	3.712	0.268
088-H2	1	0	32	159	113.6	0.9	0.02	0.04	0	2.01	**19.78**	2.641	0.166
088-O1	1	0	32	136.3	97.7	0.9	0.02	0.04	0	1.88	**15.951**	1.861	0.102
089-A1	1	0	32	80.4	58.6	0.9	0.02	0.04	0	1.54	**7.884**	0.621	0.023
089-H1	1	0	32	95.1	68.8	0.9	0.02	0.04	0	1.63	**9.766**	0.861	0.036
089-O1	1	0	32	60.3	44.5	0.9	0.02	0.04	0	1.42	**5.624**	0.375	0.012
090-H1	1	0	32	95.3	69	0.9	0.02	0.04	0	1.63	**9.803**	0.866	0.036
090-O2	1	0	32	157.3	112.4	0.9	0.02	0.04	0	2	**19.489**	2.578	0.161
091-G1	1	0	32	81.3	59.2	0.9	0.02	0.04	0	1.55	**7.987**	0.634	0.024
091-H1	1	0	32	56	41.5	0.9	0.02	0.04	0	1.4	**5.19**	0.333	0.01
092-O1	1	0	32	180.3	128.5	0.9	0.02	0.04	0	2.14	**23.545**	3.531	0.249
092-O2	1	0	32	101.8	73.6	0.9	0.02	0.04	0	1.67	**10.692**	0.99	0.043
093-H1	1	0	32	67.9	49.8	0.9	0.02	0.04	0	1.47	**6.426**	0.457	0.016
094-H1	1	0	32	80.2	58.4	0.9	0.02	0.04	0	1.54	**7.849**	0.617	0.023
094-P1	1	0	32	77.1	56.3	0.9	0.02	0.04	0	1.52	**7.485**	0.574	0.021
095-A1	1	0	32	174.1	124.2	0.9	0.02	0.04	0	2.1	**22.442**	3.258	0.223
095-H1	1	0	32	118.6	85.3	0.9	0.02	0.04	0	1.77	**13.159**	1.37	0.067
095-O1	1	0	32	149.1	106.7	0.9	0.02	0.04	0	1.95	**18.088**	2.281	0.136
095-O2	1	0	32	177.5	126.6	0.9	0.02	0.04	0	2.12	**23.042**	3.405	0.237
096-H1	1	0	32	179.2	127.7	0.9	0.02	0.04	0	2.13	**23.343**	3.48	0.244
096-O1	1	0	32	313.4	221.7	0.9	0.02	0.04	0	2.9	**47.234**	**12.379**	1.553
097-H1	1	0	32	142.2	101.8	0.9	0.02	0.04	0	1.91	**16.921**	2.047	0.117
097-H2	1	0	32	117.8	84.8	0.9	0.02	0.04	0	1.77	**13.03**	1.349	0.066
098-G1	1	0	32	36.3	27.7	0.9	0.02	0.04	0	1.28	3.46	0.184	0.005
098-H1	1	0	32	34.4	26.4	0.9	0.02	0.04	0	1.27	3.312	0.173	0.004
098-O1	1	0	32	22.7	18.2	0.9	0.02	0.04	0	1.19	2.497	0.115	0.003
099-A1	1	0	32	56.5	41.8	0.9	0.02	0.04	0	1.4	**5.234**	0.337	0.01
099-G2	1	0	32	63.3	46.7	0.9	0.02	0.04	0	1.44	**5.939**	0.406	0.013
099-H1	1	0	32	144.4	103.4	0.9	0.02	0.04	0	1.93	**17.295**	2.121	0.123
099-O1	1	0	32	170.7	121.8	0.9	0.02	0.04	0	2.08	**21.826**	3.109	0.209
100-G1	1	0	32	46.1	34.6	0.9	0.02	0.04	0	1.34	4.27	0.25	0.007
100-H1	1	0	32	140.6	100.7	0.9	0.02	0.04	0	1.9	**16.654**	1.995	0.113
100-N1	1	0	32	88.4	64.2	0.9	0.02	0.04	0	1.59	**8.884**	0.745	0.03
100-N2	1	0	32	73.6	53.8	0.9	0.02	0.04	0	1.5	**7.071**	0.527	0.019
100-O1	1	0	32	138.4	99.2	0.9	0.02	0.04	0	1.89	**16.303**	1.928	0.107
101-G1	1	0	32	50.7	37.8	0.9	0.02	0.04	0	1.36	4.687	0.286	0.008
101-H1	1	0	32	131.5	94.4	0.9	0.02	0.04	0	1.85	**15.18**	1.719	0.092
101-O1	1	0	32	209.4	148.9	0.9	0.02	0.04	0	2.31	**28.834**	4.998	0.408
102-G1	1	0	32	56.5	41.8	0.9	0.02	0.04	0	1.4	**5.234**	0.337	0.01

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
102-H1	1	0	32	29.9	23.3	0.9	0.02	0.04	0	1.24	2.983	0.149	0.004
103-H1	1	0	32	118	84.9	0.9	0.02	0.04	0	1.77	**13.057**	1.353	0.066
103-O1	1	0	32	99	71.6	0.9	0.02	0.04	0	1.66	**10.302**	0.935	0.04
104-H1	1	0	32	182.1	129.8	0.9	0.02	0.04	0	2.15	**23.864**	3.612	0.257
104-H2	1	0	32	165.1	117.8	0.9	0.02	0.04	0	2.05	**20.836**	2.878	0.187
104-N1	1	0	32	149.8	107.2	0.9	0.02	0.04	0	1.96	**18.2**	2.304	0.137
105-H1	1	0	32	105.8	76.3	0.9	0.02	0.04	0	1.7	**11.252**	1.072	0.048
105-P1	1	0	32	217.3	154.4	0.9	0.02	0.04	0	2.35	**30.263**	**5.439**	0.461
106-G1	1	0	32	28.4	22.2	0.9	0.02	0.04	0	1.23	2.878	0.141	0.003
106-G2	1	0	32	28.5	22.3	0.9	0.02	0.04	0	1.23	2.884	0.142	0.003
106-H1	1	0	32	18.6	15.3	0.9	0.02	0.04	0	1.17	2.243	0.099	0.002
106-O1	1	0	32	24.9	19.7	0.9	0.02	0.04	0	1.21	2.639	0.125	0.003
107-H1	1	0	32	233.9	166	0.9	0.02	0.04	0	2.45	**33.307**	**6.447**	0.59
108-H1	1	0	32	72.8	53.2	0.9	0.02	0.04	0	1.5	**6.977**	0.517	0.018
108-O1	1	0	32	119.5	85.9	0.9	0.02	0.04	0	1.78	**13.288**	1.391	0.069
108-O2	1	0	32	53.9	40	0.9	0.02	0.04	0	1.38	4.986	0.314	0.009
109-H1	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
110-A1	1	0	32	91.7	66.5	0.9	0.02	0.04	0	1.61	**9.316**	0.801	0.033
110-G1	1	0	32	67.7	49.7	0.9	0.02	0.04	0	1.47	**6.41**	0.455	0.015
110-G2	1	0	32	30.8	23.9	0.9	0.02	0.04	0	1.24	3.045	0.153	0.004
110-H1	1	0	32	58.8	43.5	0.9	0.02	0.04	0	1.41	**5.47**	0.36	0.011
110-O1	1	0	32	46.1	34.5	0.9	0.02	0.04	0	1.34	4.267	0.25	0.007
110-O2	1	0	32	80.7	58.8	0.9	0.02	0.04	0	1.55	**7.915**	0.625	0.023
111-H1	1	0	32	41.9	31.6	0.9	0.02	0.04	0	1.31	3.911	0.22	0.006
112-G1	1	0	32	97.3	70.4	0.9	0.02	0.04	0	1.65	**10.073**	0.903	0.038
112-H1	1	0	32	85.4	62.1	0.9	0.02	0.04	0	1.57	**8.503**	0.697	0.027
112-O1	1	0	32	296.9	210.1	0.9	0.02	0.04	0	2.81	**44.475**	**11.014**	1.301
113-G1	1	0	32	171.6	122.4	0.9	0.02	0.04	0	2.09	**21.993**	3.149	0.212
113-G2	1	0	32	190.1	135.4	0.9	0.02	0.04	0	2.2	**25.316**	3.993	0.297
113-G3	1	0	32	76.3	55.7	0.9	0.02	0.04	0	1.52	**7.389**	0.563	0.02
113-O1	1	0	32	122.8	88.3	0.9	0.02	0.04	0	1.8	**13.806**	1.478	0.075
114-G1	1	0	32	292.8	207.2	0.9	0.02	0.04	0	2.79	**43.772**	**10.682**	1.243
114-H1	1	0	32	327.3	231.4	0.9	0.02	0.04	0	2.98	**49.495**	**13.577**	1.789
114-O1	1	0	32	263	186.4	0.9	0.02	0.04	0	2.62	**38.562**	**8.416**	0.871
115-O1	1	0	32	394.7	278.6	0.9	0.02	0.04	0	3.36	**59.507**	**19.871**	3.243
116-O1	1	0	32	135.7	97.3	0.9	0.02	0.04	0	1.87	**15.859**	1.844	0.101
117-O1	1	0	32	15.8	13.4	0.9	0.02	0.04	0	1.15	2.083	0.089	0.002
118-G1	1	0	32	26.3	20.7	0.9	0.02	0.04	0	1.22	2.734	0.131	0.003
118-G2	1	0	32	21.9	17.6	0.9	0.02	0.04	0	1.19	2.442	0.112	0.002
118-H1	1	0	32	21.9	17.6	0.9	0.02	0.04	0	1.19	2.444	0.112	0.002
118-N1	1	0	32	47.1	35.3	0.9	0.02	0.04	0	1.34	4.358	0.258	0.007
118-N2	1	0	32	76.2	55.7	0.9	0.02	0.04	0	1.52	**7.379**	0.562	0.02
119-P1	1	0	32	275.8	195.4	0.9	0.02	0.04	0	2.69	**40.832**	**9.363**	1.02
120-A1	1	0	32	57.4	42.5	0.9	0.02	0.04	0	1.41	**5.328**	0.346	0.011
120-G1	1	0	32	55.1	40.8	0.9	0.02	0.04	0	1.39	**5.098**	0.324	0.01
120-H1	1	0	32	58.4	43.2	0.9	0.02	0.04	0	1.41	**5.424**	0.355	0.011
120-O1	1	0	32	93.3	67.6	0.9	0.02	0.04	0	1.62	**9.527**	0.829	0.034

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
121-G1	1	0	32	31.1	24.1	0.9	0.02	0.04	0	1.25	3.069	0.155	0.004
121-H1	1	0	32	44.1	33.2	0.9	0.02	0.04	0	1.32	4.096	0.235	0.007
121-N1	1	0	32	21.6	17.4	0.9	0.02	0.04	0	1.19	2.428	0.111	0.002
121-N2	1	0	32	39.1	29.7	0.9	0.02	0.04	0	1.29	3.68	0.201	0.005
122-G1	1	0	32	65.4	48.1	0.9	0.02	0.04	0	1.45	**6.154**	0.428	0.014
122-G2	1	0	32	58.7	43.4	0.9	0.02	0.04	0	1.41	**5.461**	0.359	0.011
122-H1	1	0	32	114.4	82.4	0.9	0.02	0.04	0	1.75	**12.523**	1.267	0.061
122-H2	1	0	32	66.5	48.8	0.9	0.02	0.04	0	1.46	**6.272**	0.441	0.015
122-O1	1	0	32	167.4	119.5	0.9	0.02	0.04	0	2.06	**21.25**	2.974	0.196
122-O2	1	0	32	244.8	173.7	0.9	0.02	0.04	0	2.51	**35.296**	**7.157**	0.687
122-P1	1	0	32	320.9	226.9	0.9	0.02	0.04	0	2.95	**48.469**	**13.024**	1.678
123-G1	1	0	32	80.8	58.9	0.9	0.02	0.04	0	1.55	**7.936**	0.628	0.024
123-G2	1	0	32	93.1	67.5	0.9	0.02	0.04	0	1.62	**9.502**	0.826	0.034
123-H1	1	0	32	72.4	53	0.9	0.02	0.04	0	1.5	**6.939**	0.513	0.018
123-O1	1	0	32	101	73	0.9	0.02	0.04	0	1.67	**10.574**	0.974	0.042
123-O2	1	0	32	220.4	156.6	0.9	0.02	0.04	0	2.37	**30.846**	**5.625**	0.484
124-G1	1	0	32	28	21.9	0.9	0.02	0.04	0	1.23	2.849	0.139	0.003
124-G2	1	0	32	76.6	55.9	0.9	0.02	0.04	0	1.52	**7.426**	0.568	0.021
124-H1	1	0	32	35.1	26.9	0.9	0.02	0.04	0	1.27	3.363	0.177	0.004
124-N1	1	0	32	27.6	21.6	0.9	0.02	0.04	0	1.22	2.82	0.137	0.003
124-N2	1	0	32	8.5	8.3	0.9	0.02	0.04	0	1.11	1.693	0.067	0.001
124-O1	1	0	32	76.6	55.9	0.9	0.02	0.04	0	1.52	**7.419**	0.567	0.021
125-O1	1	0	32	70	51.3	0.9	0.02	0.04	0	1.48	**6.666**	0.483	0.017
126-A1	1	0	32	64.8	47.7	0.9	0.02	0.04	0	1.45	**6.091**	0.422	0.014
126-G1	1	0	32	49	36.6	0.9	0.02	0.04	0	1.35	4.532	0.273	0.008
126-G2	1	0	32	42.2	31.8	0.9	0.02	0.04	0	1.31	3.93	0.222	0.006
126-H1	1	0	32	22	17.7	0.9	0.02	0.04	0	1.19	2.454	0.113	0.003
126-O1	1	0	32	48.8	36.5	0.9	0.02	0.04	0	1.35	4.51	0.271	0.008
126-O2	1	0	32	25.4	20.1	0.9	0.02	0.04	0	1.21	2.673	0.127	0.003
126-O3	1	0	32	50	37.3	0.9	0.02	0.04	0	1.36	4.617	0.28	0.008
126-P1	1	0	32	28.1	22	0.9	0.02	0.04	0	1.23	2.857	0.14	0.003
127-A1	1	0	32	117.8	84.8	0.9	0.02	0.04	0	1.77	**13.03**	1.349	0.066
127-G1	1	0	32	63.2	46.5	0.9	0.02	0.04	0	1.44	**5.921**	0.404	0.013
127-G2	1	0	32	64.9	47.7	0.9	0.02	0.04	0	1.45	**6.1**	0.423	0.014
127-H1	1	0	32	96.8	70	0.9	0.02	0.04	0	1.64	**9.994**	0.892	0.038
127-H2	1	0	32	42.5	32	0.9	0.02	0.04	0	1.31	3.958	0.224	0.006
127-N1	1	0	32	118.3	85.1	0.9	0.02	0.04	0	1.77	**13.116**	1.363	0.067
128-G1	1	0	32	37	28.2	0.9	0.02	0.04	0	1.28	3.508	0.188	0.005
128-G2	1	0	32	68.6	50.3	0.9	0.02	0.04	0	1.47	**6.501**	0.465	0.016
128-G3	1	0	32	39.9	30.3	0.9	0.02	0.04	0	1.3	3.746	0.207	0.005
128-N1	1	0	32	120.3	86.5	0.9	0.02	0.04	0	1.78	**13.421**	1.413	0.07
128-O1	1	0	32	69.2	50.8	0.9	0.02	0.04	0	1.48	**6.575**	0.473	0.016
129-H1	1	0	32	297.1	210.3	0.9	0.02	0.04	0	2.81	**44.512**	**11.031**	1.305
129-H2	1	0	32	335.8	237.4	0.9	0.02	0.04	0	3.03	**50.853**	**14.333**	1.944
130-G1	1	0	32	37.3	28.4	0.9	0.02	0.04	0	1.28	3.535	0.19	0.005
130-H1	1	0	32	17.8	14.7	0.9	0.02	0.04	0	1.16	2.194	0.096	0.002
130-H2	1	0	32	53.1	39.5	0.9	0.02	0.04	0	1.38	4.908	0.307	0.009

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
131-H1	1	0	32	135.4	97.1	0.9	0.02	0.04	0	1.87	**15.814**	1.835	0.1
132-G1	1	0	32	18.4	15.2	0.9	0.02	0.04	0	1.17	2.233	0.099	0.002
132-G2	1	0	32	7.5	7.5	0.9	0.02	0.04	0	1.1	1.643	0.064	0.001
132-H1	1	0	32	28.6	22.3	0.9	0.02	0.04	0	1.23	2.888	0.142	0.003
132-O1	1	0	32	33.2	25.6	0.9	0.02	0.04	0	1.26	3.223	0.166	0.004
133-G1	1	0	32	156.6	111.9	0.9	0.02	0.04	0	2	**19.354**	2.548	0.158
133-H1	1	0	32	107.9	77.8	0.9	0.02	0.04	0	1.71	**11.564**	1.119	0.051
134-O1	1	0	32	580.4	408.6	0.9	0.02	0.04	0	4.36	**78.735**	**38.607**	**9.86**
135-G1	1	0	32	116.1	83.6	0.9	0.02	0.04	0	1.76	**12.779**	1.308	0.063
135-H1	1	0	32	169.3	120.8	0.9	0.02	0.04	0	2.07	**21.585**	3.053	0.203
135-O1	1	0	32	113.9	82.1	0.9	0.02	0.04	0	1.75	**12.452**	1.256	0.06
136-A1	1	0	32	27.3	21.4	0.9	0.02	0.04	0	1.22	2.797	0.136	0.003
136-G1	1	0	32	25	19.8	0.9	0.02	0.04	0	1.21	2.644	0.125	0.003
136-H1	1	0	32	34.3	26.4	0.9	0.02	0.04	0	1.26	3.308	0.173	0.004
136-O1	1	0	32	204.6	145.5	0.9	0.02	0.04	0	2.28	**27.943**	4.732	0.378
137-O1	1	0	32	180.6	128.7	0.9	0.02	0.04	0	2.14	**23.594**	3.544	0.251
137-O2	1	0	32	122	87.7	0.9	0.02	0.04	0	1.79	**13.675**	1.456	0.073
138-G1	1	0	32	35.5	27.1	0.9	0.02	0.04	0	1.27	3.395	0.179	0.005
138-G2	1	0	32	48.1	36	0.9	0.02	0.04	0	1.35	4.449	0.265	0.008
138-H1	1	0	32	28.5	22.3	0.9	0.02	0.04	0	1.23	2.884	0.142	0.003
138-O1	1	0	32	24.4	19.4	0.9	0.02	0.04	0	1.2	2.606	0.123	0.003
138-O2	1	0	32	45.5	34.1	0.9	0.02	0.04	0	1.33	4.215	0.245	0.007
139-G1	1	0	32	46.7	35	0.9	0.02	0.04	0	1.34	4.321	0.254	0.007
139-G2	1	0	32	39.6	30	0.9	0.02	0.04	0	1.3	3.722	0.205	0.005
139-H1	1	0	32	42.7	32.2	0.9	0.02	0.04	0	1.32	3.974	0.225	0.006
139-N1	1	0	32	45.5	34.2	0.9	0.02	0.04	0	1.33	4.218	0.246	0.007
140-G1	1	0	32	263	186.4	0.9	0.02	0.04	0	2.62	**38.572**	**8.42**	0.872
140-H1	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
140-O1	1	0	32	494.1	348.2	0.9	0.02	0.04	0	3.9	**71.218**	**29.906**	**6.337**
140-O2	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
141-A1	1	0	32	39	29.6	0.9	0.02	0.04	0	1.29	3.667	0.2	0.005
141-H1	1	0	32	68.6	50.3	0.9	0.02	0.04	0	1.47	**6.509**	0.466	0.016
141-H2	1	0	32	80.4	58.6	0.9	0.02	0.04	0	1.54	**7.884**	0.621	0.023
141-H3	1	0	32	65.1	47.9	0.9	0.02	0.04	0	1.45	**6.127**	0.426	0.014
141-N1	1	0	32	29.5	22.9	0.9	0.02	0.04	0	1.24	2.949	0.146	0.004
141-N2	1	0	32	41.7	31.5	0.9	0.02	0.04	0	1.31	3.894	0.219	0.006
141-N3	1	0	32	12.4	11	0.9	0.02	0.04	0	1.13	1.896	0.078	0.002
141-N4	1	0	32	38.4	29.1	0.9	0.02	0.04	0	1.29	3.619	0.197	0.005
141-O1	1	0	32	43.9	33	0.9	0.02	0.04	0	1.32	4.079	0.234	0.006
142-H1	1	0	32	97.6	70.6	0.9	0.02	0.04	0	1.65	**10.108**	0.908	0.039
142-O1	1	0	32	69.2	50.7	0.9	0.02	0.04	0	1.48	**6.569**	0.472	0.016
143-A1	1	0	32	52	38.7	0.9	0.02	0.04	0	1.37	4.805	0.297	0.009
143-G1	1	0	32	65.9	48.5	0.9	0.02	0.04	0	1.46	**6.214**	0.435	0.015
143-G2	1	0	32	46.9	35.1	0.9	0.02	0.04	0	1.34	4.336	0.256	0.007
143-H1	1	0	32	70.6	51.7	0.9	0.02	0.04	0	1.48	**6.729**	0.489	0.017
144-G1	1	0	32	98.6	71.3	0.9	0.02	0.04	0	1.65	**10.243**	0.927	0.04
144-H1	1	0	32	140.5	100.7	0.9	0.02	0.04	0	1.9	**16.642**	1.993	0.112

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
145-A1	1	0	32	61.4	45.3	0.9	0.02	0.04	0	1.43	**5.733**	0.386	0.012
145-H1	1	0	32	159.9	114.2	0.9	0.02	0.04	0	2.02	**19.926**	2.673	0.169
146-H1	1	0	32	1802.4	1264	0.9	0.02	0.04	0	10.01	**99.482**	**93.011**	**68.319**
147-G1	1	0	32	59.7	44	0.9	0.02	0.04	0	1.42	**5.555**	0.368	0.012
147-G2	1	0	32	85	61.8	0.9	0.02	0.04	0	1.57	**8.447**	0.69	0.027
147-H1	1	0	32	83.3	60.6	0.9	0.02	0.04	0	1.56	**8.236**	0.664	0.025
148-H1	1	0	32	48.3	36.1	0.9	0.02	0.04	0	1.35	4.469	0.267	0.008
148-O1	1	0	32	61.7	45.5	0.9	0.02	0.04	0	1.43	**5.763**	0.389	0.013
148-O3	1	0	32	105.2	75.9	0.9	0.02	0.04	0	1.69	**11.168**	1.06	0.048
149-A1	1	0	32	46.5	34.8	0.9	0.02	0.04	0	1.34	4.304	0.253	0.007
149-G1	1	0	32	49	36.6	0.9	0.02	0.04	0	1.35	4.525	0.272	0.008
149-G2	1	0	32	54.4	40.4	0.9	0.02	0.04	0	1.39	**5.037**	0.318	0.01
149-H1	1	0	32	73.2	53.5	0.9	0.02	0.04	0	1.5	**7.026**	0.522	0.018
149-N1	1	0	32	34.4	26.4	0.9	0.02	0.04	0	1.27	3.312	0.173	0.004
150-G1	1	0	32	43.8	32.9	0.9	0.02	0.04	0	1.32	4.065	0.233	0.006
150-H1	1	0	32	37.9	28.9	0.9	0.02	0.04	0	1.29	3.586	0.194	0.005
151-H1	1	0	32	101.2	73.2	0.9	0.02	0.04	0	1.67	**10.614**	0.979	0.043
152-G1	1	0	32	114	82.1	0.9	0.02	0.04	0	1.75	**12.458**	1.257	0.06
152-H1	1	0	32	165.7	118.3	0.9	0.02	0.04	0	2.05	**20.954**	2.906	0.19
153-G1	1	0	32	105.6	76.3	0.9	0.02	0.04	0	1.7	**11.237**	1.07	0.048
153-H1	1	0	32	282.2	199.9	0.9	0.02	0.04	0	2.73	**41.949**	**9.852**	1.101
153-O1	1	0	32	222.5	158.1	0.9	0.02	0.04	0	2.38	**31.225**	**5.748**	0.499
153-O2	1	0	32	372.5	263.1	0.9	0.02	0.04	0	3.24	**56.393**	**17.725**	2.706
153-O3	1	0	32	220.4	156.6	0.9	0.02	0.04	0	2.37	**30.848**	**5.626**	0.484
153-O5	1	0	32	304.6	215.5	0.9	0.02	0.04	0	2.85	**45.77**	**11.642**	1.415
153-O6	1	0	32	101.9	73.6	0.9	0.02	0.04	0	1.67	**10.708**	0.993	0.044
153-O7	1	0	32	361	255	0.9	0.02	0.04	0	3.17	**54.71**	**16.639**	2.45
153-P1	1	0	32	280.1	198.4	0.9	0.02	0.04	0	2.71	**41.577**	**9.687**	1.074
154-G1	1	0	32	21.4	17.3	0.9	0.02	0.04	0	1.19	2.412	0.11	0.002
154-H1	1	0	32	21.8	17.5	0.9	0.02	0.04	0	1.19	2.438	0.112	0.002
155-G1	1	0	32	139.7	100.1	0.9	0.02	0.04	0	1.9	**16.503**	1.966	0.11
155-G2	1	0	32	91.7	66.5	0.9	0.02	0.04	0	1.61	**9.316**	0.801	0.033
155-H1	1	0	32	52.4	39	0.9	0.02	0.04	0	1.37	4.844	0.301	0.009
155-H2	1	0	32	168.3	120.1	0.9	0.02	0.04	0	2.07	**21.397**	3.008	0.199
155-O2	1	0	32	270.9	191.9	0.9	0.02	0.04	0	2.66	**39.966**	**8.995**	0.961
156-H1	1	0	32	81.7	59.5	0.9	0.02	0.04	0	1.55	**8.038**	0.64	0.024
156-O1	1	0	32	145.8	104.4	0.9	0.02	0.04	0	1.93	**17.53**	2.168	0.126
157-G1	1	0	32	41.7	31.5	0.9	0.02	0.04	0	1.31	3.887	0.218	0.006
157-H1	1	0	32	92.5	67.1	0.9	0.02	0.04	0	1.62	**9.427**	0.816	0.033
157-H2	1	0	32	63.1	46.5	0.9	0.02	0.04	0	1.44	**5.912**	0.404	0.013
157-O1	1	0	32	67.1	49.3	0.9	0.02	0.04	0	1.46	**6.343**	0.448	0.015
158-H1	1	0	32	33.8	26	0.9	0.02	0.04	0	1.26	3.267	0.17	0.004
158-O1	1	0	32	51.2	38.1	0.9	0.02	0.04	0	1.37	4.726	0.29	0.009
159-G1	1	0	32	70.3	51.5	0.9	0.02	0.04	0	1.48	**6.699**	0.486	0.017
159-H1	1	0	32	59.6	44	0.9	0.02	0.04	0	1.42	**5.552**	0.368	0.012
159-H2	1	0	32	101	73	0.9	0.02	0.04	0	1.67	**10.574**	0.974	0.042
159-O1	1	0	32	44.3	33.3	0.9	0.02	0.04	0	1.33	4.108	0.236	0.007

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
159-O2	1	0	32	51.2	38.2	0.9	0.02	0.04	0	1.37	4.734	0.291	0.009
160-G1	1	0	32	130.4	93.6	0.9	0.02	0.04	0	1.84	**14.999**	1.686	0.089
160-H1	1	0	32	80.3	58.5	0.9	0.02	0.04	0	1.54	**7.863**	0.619	0.023
160-H2	1	0	32	75.1	54.8	0.9	0.02	0.04	0	1.51	**7.241**	0.546	0.02
161-H1	1	0	32	129.6	93	0.9	0.02	0.04	0	1.84	**14.865**	1.662	0.088
161-N1	1	0	32	100.7	72.8	0.9	0.02	0.04	0	1.67	**10.535**	0.968	0.042
162-H1	1	0	32	80.7	58.8	0.9	0.02	0.04	0	1.55	**7.922**	0.626	0.024
163-G1	1	0	32	53	39.4	0.9	0.02	0.04	0	1.38	4.9	0.306	0.009
163-O1	1	0	32	71	52	0.9	0.02	0.04	0	1.49	**6.776**	0.495	0.017
164-H1	1	0	32	130.1	93.4	0.9	0.02	0.04	0	1.84	**14.955**	1.678	0.089
165-H1	1	0	32	13.2	11.6	0.9	0.02	0.04	0	1.14	1.939	0.081	0.002
165-O1	1	0	32	62.6	46.2	0.9	0.02	0.04	0	1.44	**5.864**	0.399	0.013
166-O1	1	0	32	254.2	180.2	0.9	0.02	0.04	0	2.57	**36.984**	**7.793**	0.778
167-O1	1	0	32	99.3	71.8	0.9	0.02	0.04	0	1.66	**10.34**	0.941	0.041
167-O2	1	0	32	154.5	110.5	0.9	0.02	0.04	0	1.99	**19.006**	2.473	0.152
167-O3	1	0	32	223.8	158.9	0.9	0.02	0.04	0	2.39	**31.461**	**5.825**	0.509
167-O4	1	0	32	175.9	125.4	0.9	0.02	0.04	0	2.11	**22.753**	3.334	0.23
167-O5	1	0	32	224.2	159.2	0.9	0.02	0.04	0	2.39	**31.536**	**5.849**	0.512
167-O6	1	0	32	246.5	174.9	0.9	0.02	0.04	0	2.52	**35.6**	**7.269**	0.702
167-O7	1	0	32	397.1	280.3	0.9	0.02	0.04	0	3.37	**59.827**	**20.102**	3.303
167-O8	1	0	32	205.3	146	0.9	0.02	0.04	0	2.28	**28.073**	4.771	0.382
167-O9	1	0	32	196.9	140.1	0.9	0.02	0.04	0	2.23	**26.538**	4.329	0.333
168-G1	1	0	32	37.5	28.6	0.9	0.02	0.04	0	1.28	3.553	0.191	0.005
168-G2	1	0	32	38	28.9	0.9	0.02	0.04	0	1.29	3.593	0.195	0.005
168-H1	1	0	32	28.8	22.4	0.9	0.02	0.04	0	1.23	2.901	0.143	0.003
168-N1	1	0	32	32.7	25.2	0.9	0.02	0.04	0	1.26	3.186	0.164	0.004
168-O1	1	0	32	48.2	36	0.9	0.02	0.04	0	1.35	4.457	0.266	0.008
169-G2	1	0	32	36.5	27.9	0.9	0.02	0.04	0	1.28	3.474	0.185	0.005
169-G3	1	0	32	54.8	40.6	0.9	0.02	0.04	0	1.39	**5.07**	0.322	0.01
169-G4	1	0	32	52.3	38.9	0.9	0.02	0.04	0	1.37	4.829	0.299	0.009
169-H1	1	0	32	41.5	31.3	0.9	0.02	0.04	0	1.31	3.873	0.217	0.006
170-G1	1	0	32	47.3	35.4	0.9	0.02	0.04	0	1.34	4.373	0.259	0.007
170-G2	1	0	32	116.9	84.2	0.9	0.02	0.04	0	1.76	**12.903**	1.328	0.065
170-H1	1	0	32	77	56.2	0.9	0.02	0.04	0	1.52	**7.476**	0.573	0.021
171-A1	1	0	32	155.6	111.3	0.9	0.02	0.04	0	1.99	**19.198**	2.515	0.155
171-G1	1	0	32	240.6	170.7	0.9	0.02	0.04	0	2.49	**34.532**	**6.879**	0.648
171-H1	1	0	32	233.5	165.7	0.9	0.02	0.04	0	2.45	**33.234**	**6.422**	0.586
173-G1	1	0	32	49.2	36.8	0.9	0.02	0.04	0	1.36	4.548	0.274	0.008
173-G2	1	0	32	17	14.2	0.9	0.02	0.04	0	1.16	2.149	0.093	0.002
173-G3	1	0	32	86.7	63	0.9	0.02	0.04	0	1.58	**8.661**	0.717	0.028
173-G4	1	0	32	120.3	86.5	0.9	0.02	0.04	0	1.78	**13.417**	1.413	0.07
173-G5	1	0	32	26.1	20.6	0.9	0.02	0.04	0	1.21	2.717	0.13	0.003
173-H1	1	0	32	136.6	97.9	0.9	0.02	0.04	0	1.88	**15.996**	1.87	0.103
173-P1	1	0	32	175	124.8	0.9	0.02	0.04	0	2.11	**22.592**	3.294	0.226
174-A1	1	0	32	71.9	52.7	0.9	0.02	0.04	0	1.49	**6.881**	0.506	0.018
174-G1	1	0	32	78.9	57.5	0.9	0.02	0.04	0	1.54	**7.7**	0.6	0.022
174-H1	1	0	32	179.5	127.9	0.9	0.02	0.04	0	2.13	**23.394**	3.493	0.246

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
175-G1	1	0	32	77.2	56.4	0.9	0.02	0.04	0	1.52	**7.498**	0.576	0.021
175-G2	1	0	32	26.8	21	0.9	0.02	0.04	0	1.22	2.765	0.133	0.003
175-H1	1	0	32	75.5	55.1	0.9	0.02	0.04	0	1.51	**7.29**	0.552	0.02
176-A1	1	0	32	39.3	29.8	0.9	0.02	0.04	0	1.3	3.694	0.203	0.005
176-H1	1	0	32	50.3	37.5	0.9	0.02	0.04	0	1.36	4.648	0.283	0.008
176-H2	1	0	32	29	22.6	0.9	0.02	0.04	0	1.23	2.92	0.144	0.003
176-P1	1	0	32	39	29.6	0.9	0.02	0.04	0	1.29	3.674	0.201	0.005
178-H1	1	0	32	29.1	22.7	0.9	0.02	0.04	0	1.23	2.925	0.145	0.003
179-H1	1	0	32	82.9	60.3	0.9	0.02	0.04	0	1.56	**8.192**	0.658	0.025
180-H1	1	0	32	421.7	297.5	0.9	0.02	0.04	0	3.51	**63.039**	**22.544**	3.972
180-H2	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
180-O1	1	0	32	479.9	338.2	0.9	0.02	0.04	0	3.83	**69.757**	**28.453**	**5.827**
181-A1	1	0	32	106.1	76.6	0.9	0.02	0.04	0	1.7	**11.298**	1.079	0.049
181-G1	1	0	32	48.7	36.4	0.9	0.02	0.04	0	1.35	4.498	0.27	0.008
181-G2	1	0	32	112.3	80.9	0.9	0.02	0.04	0	1.74	**12.205**	1.217	0.057
181-H1	1	0	32	121.4	87.3	0.9	0.02	0.04	0	1.79	**13.584**	1.441	0.072
181-H2	1	0	32	115	82.8	0.9	0.02	0.04	0	1.75	**12.612**	1.281	0.062
181-N1	1	0	32	126.7	91	0.9	0.02	0.04	0	1.82	**14.416**	1.583	0.082
181-N2	1	0	32	138.4	99.2	0.9	0.02	0.04	0	1.89	**16.303**	1.928	0.107
181-O1	1	0	32	57.3	42.4	0.9	0.02	0.04	0	1.4	**5.318**	0.345	0.011
182-G1	1	0	32	199.4	141.9	0.9	0.02	0.04	0	2.25	**26.997**	4.459	0.347
182-G2	1	0	32	179.8	128.2	0.9	0.02	0.04	0	2.13	**23.451**	3.507	0.247
182-H1	1	0	32	138.6	99.3	0.9	0.02	0.04	0	1.89	**16.322**	1.931	0.108
182-H2	1	0	32	133.8	95.9	0.9	0.02	0.04	0	1.86	**15.541**	1.785	0.097
182-O1	1	0	32	110.2	79.4	0.9	0.02	0.04	0	1.72	**11.899**	1.17	0.054
182-O2	1	0	32	186	132.5	0.9	0.02	0.04	0	2.17	**24.561**	3.793	0.276
182-O3	1	0	32	178.6	127.3	0.9	0.02	0.04	0	2.13	**23.243**	3.455	0.242
184-H1	1	0	32	188.9	134.5	0.9	0.02	0.04	0	2.19	**25.081**	3.931	0.29
185-A1	1	0	32	33.8	26	0.9	0.02	0.04	0	1.26	3.27	0.17	0.004
185-H1	1	0	32	32.6	25.1	0.9	0.02	0.04	0	1.25	3.174	0.163	0.004
186-O1	1	0	32	350	247.3	0.9	0.02	0.04	0	3.11	**53.051**	**15.617**	2.22
187-H1	1	0	32	107.5	77.6	0.9	0.02	0.04	0	1.71	**11.504**	1.11	0.051
188-A1	1	0	32	78.2	57.1	0.9	0.02	0.04	0	1.53	**7.619**	0.59	0.022
188-G1	1	0	32	116.9	84.2	0.9	0.02	0.04	0	1.76	**12.903**	1.328	0.065
188-G2	1	0	32	122	87.7	0.9	0.02	0.04	0	1.79	**13.675**	1.456	0.073
188-G3	1	0	32	61.7	45.5	0.9	0.02	0.04	0	1.43	**5.763**	0.389	0.013
188-H1	1	0	32	39	29.6	0.9	0.02	0.04	0	1.29	3.674	0.201	0.005
188-P1	1	0	32	56.6	41.9	0.9	0.02	0.04	0	1.4	**5.251**	0.339	0.01
189-G1	1	0	32	44	33.1	0.9	0.02	0.04	0	1.32	4.086	0.234	0.006
189-H1	1	0	32	76.3	55.7	0.9	0.02	0.04	0	1.52	**7.389**	0.563	0.02
189-H2	1	0	32	103.5	74.7	0.9	0.02	0.04	0	1.68	**10.929**	1.025	0.045
189-O1	1	0	32	119.8	86.2	0.9	0.02	0.04	0	1.78	**13.34**	1.4	0.069
190-G1	1	0	32	18.3	15.1	0.9	0.02	0.04	0	1.17	2.223	0.098	0.002
190-H1	1	0	32	41.5	31.3	0.9	0.02	0.04	0	1.31	3.871	0.217	0.006
190-N1	1	0	32	26.9	21.1	0.9	0.02	0.04	0	1.22	2.774	0.134	0.003
190-N2	1	0	32	24.4	19.4	0.9	0.02	0.04	0	1.2	2.606	0.123	0.003
190-N3	1	0	32	21	17	0.9	0.02	0.04	0	1.18	2.386	0.108	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
190-O1	1	0	32	62.8	46.2	0.9	0.02	0.04	0	1.44	**5.876**	0.4	0.013
191-H1	1	0	32	211.2	150.1	0.9	0.02	0.04	0	2.32	**29.151**	**5.094**	0.42
192-A1	1	0	32	37.4	28.5	0.9	0.02	0.04	0	1.28	3.546	0.191	0.005
192-G1	1	0	32	28.4	22.2	0.9	0.02	0.04	0	1.23	2.878	0.141	0.003
192-H1	1	0	32	34	26.1	0.9	0.02	0.04	0	1.26	3.278	0.17	0.004
193-G1	1	0	32	18.6	15.3	0.9	0.02	0.04	0	1.17	2.243	0.099	0.002
193-H1	1	0	32	21.4	17.3	0.9	0.02	0.04	0	1.19	2.414	0.11	0.002
194-H1	1	0	32	27.5	21.5	0.9	0.02	0.04	0	1.22	2.81	0.137	0.003
194-N1	1	0	32	34.2	26.2	0.9	0.02	0.04	0	1.26	3.293	0.172	0.004
195-G1	1	0	32	77.8	56.8	0.9	0.02	0.04	0	1.53	**7.569**	0.584	0.021
195-G2	1	0	32	154.8	110.7	0.9	0.02	0.04	0	1.99	**19.054**	2.484	0.152
195-O1	1	0	32	195.5	139.1	0.9	0.02	0.04	0	2.23	**26.283**	4.258	0.325
196-A1	1	0	32	57.5	42.5	0.9	0.02	0.04	0	1.41	**5.334**	0.347	0.011
196-A2	1	0	32	68.7	50.4	0.9	0.02	0.04	0	1.47	**6.512**	0.466	0.016
196-G1	1	0	32	47.7	35.7	0.9	0.02	0.04	0	1.35	4.411	0.262	0.007
196-O1	1	0	32	69	50.6	0.9	0.02	0.04	0	1.48	**6.546**	0.47	0.016
197-H1	1	0	32	140.9	100.9	0.9	0.02	0.04	0	1.91	**16.711**	2.006	0.113
198-G1	1	0	32	78.3	57.1	0.9	0.02	0.04	0	1.53	**7.632**	0.592	0.022
198-H1	1	0	32	168.3	120.1	0.9	0.02	0.04	0	2.07	**21.397**	3.008	0.199
199-G1	1	0	32	14.7	12.6	0.9	0.02	0.04	0	1.14	2.02	0.086	0.002
199-O1	1	0	32	26.5	20.8	0.9	0.02	0.04	0	1.22	2.743	0.132	0.003
200-G1	1	0	32	29.9	23.2	0.9	0.02	0.04	0	1.24	2.979	0.149	0.004
200-H1	1	0	32	29.1	22.7	0.9	0.02	0.04	0	1.23	2.925	0.145	0.003
200-O1	1	0	32	27.7	21.7	0.9	0.02	0.04	0	1.22	2.826	0.138	0.003
201-O1	1	0	32	324.8	229.7	0.9	0.02	0.04	0	2.97	**49.098**	**13.362**	1.745
202-H1	1	0	32	173.3	123.6	0.9	0.02	0.04	0	2.1	**22.292**	3.221	0.219
202-N1	1	0	32	57.9	42.8	0.9	0.02	0.04	0	1.41	**5.376**	0.351	0.011
202-O1	1	0	32	137	98.2	0.9	0.02	0.04	0	1.88	**16.064**	1.882	0.104
203-H1	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
203-O1	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
203-O2	1	0	32	479.2	337.8	0.9	0.02	0.04	0	3.82	**69.683**	**28.381**	**5.803**
205-O1	1	0	32	507.3	357.4	0.9	0.02	0.04	0	3.97	**72.508**	**31.247**	**6.826**
206-A1	1	0	32	116.1	83.6	0.9	0.02	0.04	0	1.76	**12.775**	1.308	0.063
206-G1	1	0	32	50.4	37.6	0.9	0.02	0.04	0	1.36	4.656	0.284	0.008
206-H1	1	0	32	18	14.9	0.9	0.02	0.04	0	1.16	2.207	0.097	0.002
206-H2	1	0	32	285	201.8	0.9	0.02	0.04	0	2.74	**42.426**	**10.065**	1.137
206-O1	1	0	32	252.4	179	0.9	0.02	0.04	0	2.56	**36.665**	**7.67**	0.76
207-O1	1	0	32	110.8	79.9	0.9	0.02	0.04	0	1.73	**11.989**	1.184	0.055
208-H1	1	0	32	264.1	187.2	0.9	0.02	0.04	0	2.62	**38.76**	**8.497**	0.884
209-G1	1	0	32	238.7	169.4	0.9	0.02	0.04	0	2.48	**34.178**	**6.753**	0.631
209-H1	1	0	32	391.9	276.6	0.9	0.02	0.04	0	3.34	**59.12**	**19.594**	3.171
209-P1	1	0	32	517.6	364.6	0.9	0.02	0.04	0	4.03	**73.482**	**32.297**	**7.223**
210-H1	1	0	32	113.6	81.8	0.9	0.02	0.04	0	1.74	**12.394**	1.247	0.059
210-O1	1	0	32	127.9	91.8	0.9	0.02	0.04	0	1.83	**14.598**	1.615	0.084
211-A1	1	0	32	71.8	52.6	0.9	0.02	0.04	0	1.49	**6.871**	0.505	0.018
211-G1	1	0	32	38.6	29.3	0.9	0.02	0.04	0	1.29	3.64	0.198	0.005
211-G2	1	0	32	44.7	33.6	0.9	0.02	0.04	0	1.33	4.144	0.239	0.007

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
211-H1	1	0	32	70.7	51.8	0.9	0.02	0.04	0	1.49	**6.738**	0.491	0.017
211-O1	1	0	32	127.3	91.4	0.9	0.02	0.04	0	1.82	**14.509**	1.599	0.083
212-H1	1	0	32	188.5	134.2	0.9	0.02	0.04	0	2.19	**25.013**	3.912	0.288
212-H2	1	0	32	149.1	106.7	0.9	0.02	0.04	0	1.95	**18.089**	2.281	0.136
213-O1	1	0	32	35.5	27.1	0.9	0.02	0.04	0	1.27	3.392	0.179	0.005
213-O2	1	0	32	84.3	61.3	0.9	0.02	0.04	0	1.57	**8.368**	0.68	0.026
213-O3	1	0	32	57.5	42.5	0.9	0.02	0.04	0	1.41	**5.339**	0.347	0.011
801-O1	1	0	32	28.9	22.5	0.9	0.02	0.04	0	1.23	2.911	0.144	0.003
801-O2	1	0	32	14.9	12.8	0.9	0.02	0.04	0	1.15	2.033	0.086	0.002
801-O3	1	0	32	31.1	24.1	0.9	0.02	0.04	0	1.25	3.069	0.155	0.004
802-O1	1	0	32	150.3	107.5	0.9	0.02	0.04	0	1.96	**18.288**	2.322	0.139
803-O1	1	0	32	446.5	314.8	0.9	0.02	0.04	0	3.64	**66.043**	**25.041**	4.714
803-O2	1	0	32	314.6	222.6	0.9	0.02	0.04	0	2.91	**47.445**	**12.488**	1.574
803-O3	1	0	32	234.7	166.6	0.9	0.02	0.04	0	2.45	**33.46**	**6.5**	0.597
804-O1	1	0	32	102.1	73.8	0.9	0.02	0.04	0	1.67	**10.732**	0.996	0.044
804-O2	1	0	32	254.1	180.1	0.9	0.02	0.04	0	2.57	**36.966**	**7.786**	0.777
805-O1	1	0	32	38.2	29	0.9	0.02	0.04	0	1.29	3.607	0.196	0.005
805-O2	1	0	32	45.5	34.1	0.9	0.02	0.04	0	1.33	4.215	0.245	0.007
806-O1	1	0	32	28.4	22.1	0.9	0.02	0.04	0	1.23	2.872	0.141	0.003
806-O2	1	0	32	29.6	23	0.9	0.02	0.04	0	1.24	2.961	0.147	0.004
806-O3	1	0	32	50.7	37.8	0.9	0.02	0.04	0	1.36	4.679	0.286	0.008
806-O4	1	0	32	36.9	28.1	0.9	0.02	0.04	0	1.28	3.506	0.188	0.005
806-O5	1	0	32	37.3	28.5	0.9	0.02	0.04	0	1.28	3.54	0.19	0.005
807-O1	1	0	32	29	22.6	0.9	0.02	0.04	0	1.23	2.921	0.144	0.003
808-O1	1	0	32	33.7	25.9	0.9	0.02	0.04	0	1.26	3.262	0.169	0.004
808-O2	1	0	32	35.8	27.4	0.9	0.02	0.04	0	1.27	3.422	0.181	0.005
203-O3	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002
203-O4	1	0	32	20.2	16.5	0.9	0.02	0.04	0	1.18	2.342	0.105	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/22/2020
Site Name: UCR
Operable Unit: Current Resident, No Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5 or 8 µg/dL

Input File: 02222020_Res no bch no fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m^3)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	1	1	32	92.4	67	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.261**	0.794	0.032
14	1	1	32	77.1	56.3	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.346**	0.558	0.02
15	1	1	32	93.6	67.8	0.9	0.02	0	30.000*	30.000*	0	1.62	**9.41**	0.814	0.033
16	1	1	32	356	251.5	0.9	0.02	0	30.000*	30.000*	0	3.14	**53.779**	**16.06**	2.319
17	1	1	32	150.5	107.7	0.9	0.02	0	30.000*	30.000*	0	1.96	**18.124**	2.289	0.136
9	1	1	32	91.8	66.5	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.171**	0.782	0.032
40	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
1015	1	1	32	47.6	35.6	0.9	0.02	0	30.000*	30.000*	0	1.34	4.299	0.252	0.007
1017	1	1	32	139.2	99.8	0.9	0.02	0	30.000*	30.000*	0	1.89	**16.244**	1.916	0.107
1018	1	1	32	51.9	38.6	0.9	0.02	0	30.000*	30.000*	0	1.36	4.684	0.286	0.008
42	1	1	32	229.6	163.1	0.9	0.02	0	30.000*	30.000*	0	2.42	**32.322**	**6.11**	0.545
44	1	1	32	99.7	72.1	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.24**	0.927	0.04
46	1	1	32	188.7	134.4	0.9	0.02	0	30.000*	30.000*	0	2.18	**24.842**	3.867	0.283
47	1	1	32	222.3	157.9	0.9	0.02	0	30.000*	30.000*	0	2.38	**30.976**	**5.667**	0.489
49	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
60	1	1	32	59.3	43.8	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.397**	0.353	0.011
61	1	1	32	137.2	98.3	0.9	0.02	0	30.000*	30.000*	0	1.88	**15.907**	1.853	0.102
22	1	1	32	118.9	85.5	0.9	0.02	0	30.000*	30.000*	0	1.77	**13.019**	1.347	0.066
25	1	1	32	54.5	40.4	0.9	0.02	0	30.000*	30.000*	0	1.38	4.928	0.308	0.009
27	1	1	32	135.3	97	0.9	0.02	0	30.000*	30.000*	0	1.87	**15.592**	1.794	0.097
28	1	1	32	49.2	36.8	0.9	0.02	0	30.000*	30.000*	0	1.35	4.445	0.265	0.008
29	1	1	32	42.7	32.2	0.9	0.02	0	30.000*	30.000*	0	1.31	3.879	0.217	0.006
30	1	1	32	51.6	38.4	0.9	0.02	0	30.000*	30.000*	0	1.36	4.658	0.284	0.008
31	1	1	32	255.8	181.3	0.9	0.02	0	30.000*	30.000*	0	2.57	**37.063**	**7.823**	0.782
33	1	1	32	206.4	146.8	0.9	0.02	0	30.000*	30.000*	0	2.28	**28.069**	4.769	0.382
35	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
35PA	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
39	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
226C	1	1	32	395.3	279	0.9	0.02	0	30.000*	30.000*	0	3.36	**59.422**	**19.81**	3.227
55	1	1	32	67.1	49.2	0.9	0.02	0	30.000*	30.000*	0	1.46	**6.211**	0.434	0.014
56	1	1	32	185.9	132.4	0.9	0.02	0	30.000*	30.000*	0	2.16	**24.341**	3.736	0.27
58	1	1	32	73.3	53.6	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.905**	0.509	0.018
59	1	1	32	206.6	146.9	0.9	0.02	0	30.000*	30.000*	0	2.28	**28.102**	4.779	0.383
59A	1	1	32	335.3	237	0.9	0.02	0	30.000*	30.000*	0	3.02	**50.582**	**14.18**	1.912
62	1	1	32	118.1	85	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.9**	1.328	0.065
62G	1	1	32	70.6	51.7	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.597**	0.475	0.016
66	1	1	32	141.1	101	0.9	0.02	0	30.000*	30.000*	0	1.9	**16.543**	1.974	0.111
67	1	1	32	174.5	124.4	0.9	0.02	0	30.000*	30.000*	0	2.1	**22.29**	3.221	0.219
70	1	1	32	202.6	144.1	0.9	0.02	0	30.000*	30.000*	0	2.26	**27.375**	4.567	0.359

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
71	1	1	32	127	91.2	0.9	0.02	0	30.000*	30.000*	0	1.82	**14.274**	1.558	0.08
72M	1	1	32	253.9	180.1	0.9	0.02	0	30.000*	30.000*	0	2.56	**36.734**	**7.697**	0.764
72U	1	1	32	109.7	79.1	0.9	0.02	0	30.000*	30.000*	0	1.71	**11.654**	1.132	0.052
75	1	1	32	381.8	269.6	0.9	0.02	0	30.000*	30.000*	0	3.28	**57.555**	**18.504**	2.896
82	1	1	32	54.8	40.6	0.9	0.02	0	30.000*	30.000*	0	1.38	4.958	0.311	0.009
85	1	1	32	57.4	42.5	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.21**	0.335	0.01
86	1	1	32	115.3	83	0.9	0.02	0	30.000*	30.000*	0	1.75	**12.487**	1.262	0.06
87	1	1	32	99.5	72	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.217**	0.923	0.04
94M	1	1	32	73.9	54	0.9	0.02	0	30.000*	30.000*	0	1.5	**6.974**	0.517	0.018
106	1	1	32	387.2	273.4	0.9	0.02	0	30.000*	30.000*	0	3.31	**58.316**	**19.028**	3.027
107	1	1	32	169.3	120.8	0.9	0.02	0	30.000*	30.000*	0	2.07	**21.381**	3.004	0.199
108	1	1	32	185.4	132.1	0.9	0.02	0	30.000*	30.000*	0	2.16	**24.251**	3.712	0.268
109	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
110	1	1	32	88.5	64.3	0.9	0.02	0	30.000*	30.000*	0	1.59	**8.753**	0.728	0.029
110G	1	1	32	41.5	31.4	0.9	0.02	0	30.000*	30.000*	0	1.3	3.782	0.21	0.006
111	1	1	32	70.4	51.5	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.573**	0.473	0.016
112	1	1	32	471.3	332.2	0.9	0.02	0	30.000*	30.000*	0	3.77	**68.715**	**27.457**	**5.49**
112G	1	1	32	181.5	129.4	0.9	0.02	0	30.000*	30.000*	0	2.14	**23.555**	3.534	0.25
113low	1	1	32	263	186.4	0.9	0.02	0	30.000*	30.000*	0	2.61	**38.365**	**8.337**	0.859
113up	1	1	32	398.8	281.5	0.9	0.02	0	30.000*	30.000*	0	3.38	**59.905**	**20.159**	3.318
115SP	1	1	32	493.1	347.5	0.9	0.02	0	30.000*	30.000*	0	3.89	**70.998**	**29.683**	**6.257**
21	1	1	32	104.1	75.2	0.9	0.02	0	30.000*	30.000*	0	1.68	**10.848**	1.013	0.045
21G	1	1	32	337.4	238.5	0.9	0.02	0	30.000*	30.000*	0	3.03	**50.923**	**14.373**	1.952
116M	1	1	32	347.4	245.4	0.9	0.02	0	30.000*	30.000*	0	3.09	**52.468**	**15.27**	2.144
122	1	1	32	69	50.6	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.427**	0.457	0.016
121	1	1	32	148.3	106.1	0.9	0.02	0	30.000*	30.000*	0	1.94	**17.749**	2.212	0.13
123	1	1	32	336.5	237.9	0.9	0.02	0	30.000*	30.000*	0	3.03	**50.787**	**14.296**	1.936
135	1	1	32	130.2	93.5	0.9	0.02	0	30.000*	30.000*	0	1.84	**14.787**	1.648	0.087
146	1	1	32	81.4	59.3	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.864**	0.619	0.023
146G	1	1	32	43.2	32.6	0.9	0.02	0	30.000*	30.000*	0	1.31	3.924	0.221	0.006
147	1	1	32	50.9	37.9	0.9	0.02	0	30.000*	30.000*	0	1.36	4.596	0.278	0.008
151	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
152	1	1	32	183.4	130.7	0.9	0.02	0	30.000*	30.000*	0	2.15	**23.894**	3.62	0.258
160	1	1	32	153.4	109.7	0.9	0.02	0	30.000*	30.000*	0	1.97	**18.608**	2.389	0.144
163	1	1	32	158.1	113	0.9	0.02	0	30.000*	30.000*	0	2	**19.422**	2.563	0.159
163G	1	1	32	222.8	158.3	0.9	0.02	0	30.000*	30.000*	0	2.38	**31.073**	**5.698**	0.493
164	1	1	32	118	84.9	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.882**	1.325	0.064
167	1	1	32	71.4	52.3	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.692**	0.486	0.017
168	1	1	32	365.9	258.4	0.9	0.02	0	30.000*	30.000*	0	3.19	**55.259**	**16.988**	2.531
169	1	1	32	262	185.7	0.9	0.02	0	30.000*	30.000*	0	2.6	**38.174**	**8.26**	0.848
169A	1	1	32	238.9	169.5	0.9	0.02	0	30.000*	30.000*	0	2.47	**34.007**	**6.692**	0.622
320new	1	1	32	555.7	391.3	0.9	0.02	0	30.000*	30.000*	0	4.23	**76.707**	**36.032**	**8.729**
216	1	1	32	310.2	219.4	0.9	0.02	0	30.000*	30.000*	0	2.88	**46.518**	**12.015**	1.484
1030	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
170	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
172U	1	1	32	294	208.1	0.9	0.02	0	30.000*	30.000*	0	2.79	**43.79**	**10.69**	1.244
174M	1	1	32	23.7	18.9	0.9	0.02	0	30.000*	30.000*	0	1.19	2.487	0.115	0.003
175	1	1	32	171.3	122.2	0.9	0.02	0	30.000*	30.000*	0	2.08	**21.727**	3.086	0.206
238G	1	1	32	47.1	35.3	0.9	0.02	0	30.000*	30.000*	0	1.34	4.258	0.249	0.007
238M	1	1	32	34.9	26.8	0.9	0.02	0	30.000*	30.000*	0	1.26	3.264	0.169	0.004
176G	1	1	32	140.1	100.4	0.9	0.02	0	30.000*	30.000*	0	1.89	**16.394**	1.945	0.109
176M	1	1	32	215.9	153.4	0.9	0.02	0	30.000*	30.000*	0	2.34	**29.802**	**5.294**	0.444
177	1	1	32	172.8	123.2	0.9	0.02	0	30.000*	30.000*	0	2.09	**21.99**	3.149	0.212
206	1	1	32	142.4	101.9	0.9	0.02	0	30.000*	30.000*	0	1.91	**16.757**	2.015	0.114
208	1	1	32	161.9	115.6	0.9	0.02	0	30.000*	30.000*	0	2.02	**20.075**	2.707	0.172
208AA	1	1	32	173.4	123.6	0.9	0.02	0	30.000*	30.000*	0	2.09	**22.092**	3.173	0.215

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
208BM	1	1	32	112.5	81.1	0.9	0.02	0	30.000*	30.000*	0	1.73	**12.07**	1.196	0.056
208G	1	1	32	92.1	66.7	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.209**	0.787	0.032
209A	1	1	32	115.7	83.3	0.9	0.02	0	30.000*	30.000*	0	1.75	**12.541**	1.27	0.061
213	1	1	32	440.1	310.4	0.9	0.02	0	30.000*	30.000*	0	3.6	**65.156**	**24.28**	4.482
185	1	1	32	196.7	140	0.9	0.02	0	30.000*	30.000*	0	2.23	**26.289**	4.26	0.325
185G	1	1	32	71	52	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.648**	0.481	0.017
186	1	1	32	242.3	171.9	0.9	0.02	0	30.000*	30.000*	0	2.49	**34.629**	**6.914**	0.653
1035	1	1	32	114.9	82.8	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.428**	1.252	0.06
1036	1	1	32	76.8	56	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.308**	0.554	0.02
1037	1	1	32	98.4	71.2	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.065**	0.902	0.038
189	1	1	32	154.4	110.4	0.9	0.02	0	30.000*	30.000*	0	1.98	**18.792**	2.428	0.148
1060	1	1	32	127.8	91.8	0.9	0.02	0	30.000*	30.000*	0	1.82	**14.4**	1.58	0.082
192	1	1	32	262.5	186	0.9	0.02	0	30.000*	30.000*	0	2.61	**38.259**	**8.294**	0.853
1020	1	1	32	96.5	69.9	0.9	0.02	0	30.000*	30.000*	0	1.63	**9.805**	0.867	0.036
1021	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
193	1	1	32	140.2	100.4	0.9	0.02	0	30.000*	30.000*	0	1.89	**16.404**	1.947	0.109
194	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
218	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
201	1	1	32	447.1	315.3	0.9	0.02	0	30.000*	30.000*	0	3.64	**65.984**	**24.989**	4.698
201G	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
203	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
229	1	1	32	48.6	36.3	0.9	0.02	0	30.000*	30.000*	0	1.34	4.388	0.26	0.007
230G	1	1	32	80.1	58.4	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.701**	0.6	0.022
196	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
231	1	1	32	125.5	90.1	0.9	0.02	0	30.000*	30.000*	0	1.81	**14.037**	1.517	0.077
231Lower	1	1	32	138	98.9	0.9	0.02	0	30.000*	30.000*	0	1.88	**16.036**	1.877	0.104
7	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
154	1	1	32	66.3	48.7	0.9	0.02	0	30.000*	30.000*	0	1.45	**6.134**	0.426	0.014
246	1	1	32	29.2	22.8	0.9	0.02	0	30.000*	30.000*	0	1.23	2.852	0.14	0.003
18	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
20	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
249	1	1	32	85.9	62.5	0.9	0.02	0	30.000*	30.000*	0	1.57	**8.424**	0.687	0.027
250	1	1	32	92.2	66.8	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.224**	0.789	0.032
253	1	1	32	110	79.3	0.9	0.02	0	30.000*	30.000*	0	1.71	**11.695**	1.139	0.052
258	1	1	32	767.7	539.7	0.9	0.02	0	30.000*	30.000*	0	5.33	**88.898**	**55.341**	**19.332**
259	1	1	32	240.7	170.8	0.9	0.02	0	30.000*	30.000*	0	2.48	**34.331**	**6.807**	0.638
284M	1	1	32	152.7	109.2	0.9	0.02	0	30.000*	30.000*	0	1.97	**18.495**	2.366	0.142
285M	1	1	32	157.6	112.7	0.9	0.02	0	30.000*	30.000*	0	2	**19.343**	2.546	0.158
287	1	1	32	150.2	107.4	0.9	0.02	0	30.000*	30.000*	0	1.95	**18.071**	2.278	0.135
288	1	1	32	68.2	50	0.9	0.02	0	30.000*	30.000*	0	1.46	**6.331**	0.447	0.015
288G1	1	1	32	79.7	58.1	0.9	0.02	0	30.000*	30.000*	0	1.53	**7.65**	0.594	0.022
288G2	1	1	32	59.8	44.2	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.457**	0.358	0.011
289G3	1	1	32	76.3	55.7	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.25**	0.547	0.02
291	1	1	32	77.6	56.6	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.4**	0.565	0.021
306	1	1	32	86.1	62.6	0.9	0.02	0	30.000*	30.000*	0	1.57	**8.446**	0.69	0.027
315	1	1	32	37.7	28.7	0.9	0.02	0	30.000*	30.000*	0	1.28	3.476	0.185	0.005
316	1	1	32	105.2	75.9	0.9	0.02	0	30.000*	30.000*	0	1.69	**11.002**	1.035	0.046
317	1	1	32	227.9	161.8	0.9	0.02	0	30.000*	30.000*	0	2.41	**32.001**	**6.003**	0.532
317M	1	1	32	494.8	348.7	0.9	0.02	0	30.000*	30.000*	0	3.9	**71.173**	**29.861**	**6.32**
318	1	1	32	452.2	318.9	0.9	0.02	0	30.000*	30.000*	0	3.67	**66.58**	**25.51**	4.861
319	1	1	32	505.5	356.2	0.9	0.02	0	30.000*	30.000*	0	3.96	**72.231**	**30.955**	**6.718**
319M	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002
420	1	1	32	517.5	364.6	0.9	0.02	0	30.000*	30.000*	0	4.02	**73.373**	**32.179**	**7.177**
421	1	1	32	318.8	225.4	0.9	0.02	0	30.000*	30.000*	0	2.93	**47.93**	**12.74**	1.623
410	1	1	32	394	278.1	0.9	0.02	0	30.000*	30.000*	0	3.35	**59.253**	**19.688**	3.195
412	1	1	32	12.8	11.3	0.9	0.02	0	30.000*	30.000*	0	1.13	1.853	0.076	0.002

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
413	1	1	32	543.1	382.5	0.9	0.02	0	30.000*	30.000*	0	4.16	**75.658**	**34.771**	**8.203**
325	1	1	32	37.8	28.8	0.9	0.02	0	30.000*	30.000*	0	1.28	3.487	0.186	0.005
326	1	1	32	71.5	52.3	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.696**	0.486	0.017
327	1	1	32	50	37.3	0.9	0.02	0	30.000*	30.000*	0	1.35	4.519	0.272	0.008
999G1	1	1	32	85.9	62.4	0.9	0.02	0	30.000*	30.000*	0	1.57	**8.418**	0.686	0.027
999M1	1	1	32	79.9	58.2	0.9	0.02	0	30.000*	30.000*	0	1.53	**7.676**	0.597	0.022
999M2	1	1	32	56.1	41.6	0.9	0.02	0	30.000*	30.000*	0	1.39	**5.089**	0.323	0.01
999M3	1	1	32	83.8	61	0.9	0.02	0	30.000*	30.000*	0	1.56	**8.156**	0.654	0.025
72	1	1	32	230.4	163.6	0.9	0.02	0	30.000*	30.000*	0	2.42	**32.458**	**6.156**	0.551
1001	1	1	32	408.4	288.1	0.9	0.02	0	30.000*	30.000*	0	3.43	**61.173**	**21.098**	3.569
401	1	1	32	1101.5	773.4	0.9	0.02	0	30.000*	30.000*	0	4.35	**78.522**	**38.327**	**9.733**
402	1	1	32	577.5	406.6	0.9	0.02	0	30.000*	30.000*	0	4.34	**78.434**	**38.212**	**9.681**
403	1	1	32	419.6	296	0.9	0.02	0	30.000*	30.000*	0	3.49	**62.623**	**22.214**	3.878
440	1	1	32	145.2	103.9	0.9	0.02	0	30.000*	30.000*	0	1.92	**17.228**	2.108	0.121
441	1	1	32	737.9	518.8	0.9	0.02	0	30.000*	30.000*	0	5.17	**87.697**	**52.914**	**17.699**
442	1	1	32	258.8	183.4	0.9	0.02	0	30.000*	30.000*	0	2.59	**37.603**	**8.034**	0.814
1005	1	1	32	112.1	80.8	0.9	0.02	0	30.000*	30.000*	0	1.73	**12.009**	1.187	0.055
1006	1	1	32	91.7	66.5	0.9	0.02	0	30.000*	30.000*	0	1.6	**9.158**	0.78	0.032
1007	1	1	32	51.9	38.6	0.9	0.02	0	30.000*	30.000*	0	1.36	4.688	0.287	0.008
1008	1	1	32	91.5	66.3	0.9	0.02	0	30.000*	30.000*	0	1.6	**9.134**	0.777	0.031
1010	1	1	32	110.8	79.8	0.9	0.02	0	30.000*	30.000*	0	1.72	**11.809**	1.156	0.054
1011	1	1	32	146.2	104.7	0.9	0.02	0	30.000*	30.000*	0	1.93	**17.403**	2.142	0.124
345	1	1	32	103.9	75	0.9	0.02	0	30.000*	30.000*	0	1.68	**10.826**	1.01	0.045
346	1	1	32	130.4	93.6	0.9	0.02	0	30.000*	30.000*	0	1.84	**14.817**	1.654	0.087
347	1	1	32	312.7	221.2	0.9	0.02	0	30.000*	30.000*	0	2.89	**46.931**	**12.224**	1.524
430	1	1	32	262	185.7	0.9	0.02	0	30.000*	30.000*	0	2.6	**38.174**	**8.26**	0.848
431	1	1	32	110.3	79.5	0.9	0.02	0	30.000*	30.000*	0	1.72	**11.737**	1.145	0.053
432	1	1	32	307.5	217.5	0.9	0.02	0	30.000*	30.000*	0	2.86	**46.061**	**11.786**	1.442
801	1	1	32	239.9	170.3	0.9	0.02	0	30.000*	30.000*	0	2.48	**34.198**	**6.76**	0.632
3000	1	1	32	26.6	20.9	0.9	0.02	0	30.000*	30.000*	0	1.21	2.676	0.127	0.003
3001	1	1	32	371	262	0.9	0.02	0	30.000*	30.000*	0	3.22	**56.006**	**17.471**	2.645
3003	1	1	32	294.5	208.5	0.9	0.02	0	30.000*	30.000*	0	2.79	**43.871**	**10.729**	1.251
3004	1	1	32	81.9	59.6	0.9	0.02	0	30.000*	30.000*	0	1.55	**7.921**	0.626	0.024
280	1	1	32	367.4	259.5	0.9	0.02	0	30.000*	30.000*	0	3.2	**55.478**	**17.128**	2.564
280yard	1	1	32	302.9	214.3	0.9	0.02	0	30.000*	30.000*	0	2.84	**45.291**	**11.407**	1.372
075-A1	1	1	32	70.1	51.4	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.542**	0.469	0.016
075-H1	1	1	32	81.8	59.5	0.9	0.02	0	30.000*	30.000*	0	1.55	**7.903**	0.624	0.023
075-O1	1	1	32	265	187.8	0.9	0.02	0	30.000*	30.000*	0	2.62	**38.717**	**8.479**	0.881
076-G1	1	1	32	85	61.8	0.9	0.02	0	30.000*	30.000*	0	1.56	**8.302**	0.672	0.026
076-G2	1	1	32	95.1	68.8	0.9	0.02	0	30.000*	30.000*	0	1.63	**9.61**	0.84	0.035
076-H1	1	1	32	93.4	67.7	0.9	0.02	0	30.000*	30.000*	0	1.62	**9.386**	0.81	0.033
076-H2	1	1	32	91.4	66.3	0.9	0.02	0	30.000*	30.000*	0	1.6	**9.127**	0.776	0.031
076-N1	1	1	32	157.3	112.4	0.9	0.02	0	30.000*	30.000*	0	2	**19.289**	2.534	0.157
077-A1	1	1	32	32.2	24.9	0.9	0.02	0	30.000*	30.000*	0	1.24	3.065	0.155	0.004
077-A2	1	1	32	31.3	24.2	0.9	0.02	0	30.000*	30.000*	0	1.24	2.998	0.15	0.004
077-G1	1	1	32	28.4	22.2	0.9	0.02	0	30.000*	30.000*	0	1.22	2.799	0.136	0.003
077-H1	1	1	32	36.3	27.7	0.9	0.02	0	30.000*	30.000*	0	1.27	3.371	0.177	0.005
077-H2	1	1	32	37.2	28.3	0.9	0.02	0	30.000*	30.000*	0	1.28	3.436	0.182	0.005
077-N1	1	1	32	34.8	26.6	0.9	0.02	0	30.000*	30.000*	0	1.26	3.25	0.168	0.004
078-G1	1	1	32	37.9	28.9	0.9	0.02	0	30.000*	30.000*	0	1.28	3.495	0.187	0.005
078-H1	1	1	32	24.6	19.5	0.9	0.02	0	30.000*	30.000*	0	1.2	2.543	0.119	0.003
078-N1	1	1	32	26.8	21.1	0.9	0.02	0	30.000*	30.000*	0	1.21	2.691	0.128	0.003
078-O1	1	1	32	32	24.7	0.9	0.02	0	30.000*	30.000*	0	1.24	3.052	0.154	0.004
079-H1	1	1	32	69.8	51.2	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.514**	0.466	0.016
079-H2	1	1	32	121.7	87.5	0.9	0.02	0	30.000*	30.000*	0	1.78	**13.454**	1.419	0.071
080-H1	1	1	32	23.7	18.9	0.9	0.02	0	30.000*	30.000*	0	1.19	2.484	0.115	0.003

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
081-A1	1	1	32	36.3	27.7	0.9	0.02	0	30.000*	30.000*	0	1.27	3.365	0.177	0.004
081-H1	1	1	32	45.5	34.1	0.9	0.02	0	30.000*	30.000*	0	1.33	4.115	0.237	0.007
081-O1	1	1	32	126.2	90.6	0.9	0.02	0	30.000*	30.000*	0	1.81	**14.151**	1.537	0.079
082-G1	1	1	32	22.8	18.3	0.9	0.02	0	30.000*	30.000*	0	1.19	2.429	0.111	0.002
082-G2	1	1	32	41.1	31	0.9	0.02	0	30.000*	30.000*	0	1.3	3.744	0.206	0.005
082-H1	1	1	32	41.8	31.5	0.9	0.02	0	30.000*	30.000*	0	1.3	3.801	0.211	0.006
082-N1	1	1	32	35.4	27.1	0.9	0.02	0	30.000*	30.000*	0	1.26	3.301	0.172	0.004
082-N2	1	1	32	42.9	32.3	0.9	0.02	0	30.000*	30.000*	0	1.31	3.896	0.219	0.006
083-G1	1	1	32	35.4	27.1	0.9	0.02	0	30.000*	30.000*	0	1.26	3.301	0.172	0.004
083-G2	1	1	32	30.6	23.7	0.9	0.02	0	30.000*	30.000*	0	1.24	2.95	0.146	0.004
083-H1	1	1	32	44.4	33.4	0.9	0.02	0	30.000*	30.000*	0	1.32	4.021	0.229	0.006
084-H1	1	1	32	37.5	28.6	0.9	0.02	0	30.000*	30.000*	0	1.28	3.462	0.184	0.005
085-H1	1	1	32	60	44.3	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.477**	0.36	0.011
085-O1	1	1	32	79.7	58.1	0.9	0.02	0	30.000*	30.000*	0	1.53	**7.652**	0.594	0.022
085-P1	1	1	32	157.2	112.3	0.9	0.02	0	30.000*	30.000*	0	2	**19.27**	2.53	0.156
086-G1	1	1	32	72.1	52.8	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.772**	0.494	0.017
086-H1	1	1	32	60.8	44.9	0.9	0.02	0	30.000*	30.000*	0	1.42	**5.557**	0.368	0.012
086-H2	1	1	32	92.5	67.1	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.274**	0.796	0.032
087-H1	1	1	32	51.6	38.4	0.9	0.02	0	30.000*	30.000*	0	1.36	4.663	0.284	0.008
087-O1	1	1	32	92.5	67.1	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.274**	0.796	0.032
088-H1	1	1	32	184.3	131.3	0.9	0.02	0	30.000*	30.000*	0	2.15	**24.041**	3.658	0.262
088-H2	1	1	32	159	113.6	0.9	0.02	0	30.000*	30.000*	0	2.01	**19.58**	2.597	0.162
088-O1	1	1	32	136.3	97.7	0.9	0.02	0	30.000*	30.000*	0	1.87	**15.762**	1.826	0.1
089-A1	1	1	32	80.4	58.6	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.743**	0.605	0.022
089-H1	1	1	32	95.1	68.8	0.9	0.02	0	30.000*	30.000*	0	1.63	**9.61**	0.84	0.035
089-O1	1	1	32	60.3	44.5	0.9	0.02	0	30.000*	30.000*	0	1.42	**5.506**	0.363	0.011
090-H1	1	1	32	95.3	69	0.9	0.02	0	30.000*	30.000*	0	1.63	**9.647**	0.845	0.035
090-O2	1	1	32	157.3	112.4	0.9	0.02	0	30.000*	30.000*	0	2	**19.289**	2.534	0.157
091-G1	1	1	32	81.3	59.2	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.845**	0.617	0.023
091-H1	1	1	32	56	41.5	0.9	0.02	0	30.000*	30.000*	0	1.39	**5.077**	0.322	0.01
092-O1	1	1	32	180.3	128.5	0.9	0.02	0	30.000*	30.000*	0	2.13	**23.337**	3.479	0.244
092-O2	1	1	32	101.8	73.6	0.9	0.02	0	30.000*	30.000*	0	1.67	**10.53**	0.967	0.042
093-H1	1	1	32	67.9	49.8	0.9	0.02	0	30.000*	30.000*	0	1.46	**6.299**	0.444	0.015
094-H1	1	1	32	80.2	58.4	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.709**	0.601	0.022
094-P1	1	1	32	77.1	56.3	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.348**	0.559	0.02
095-A1	1	1	32	174.1	124.2	0.9	0.02	0	30.000*	30.000*	0	2.09	**22.236**	3.208	0.218
095-H1	1	1	32	118.6	85.3	0.9	0.02	0	30.000*	30.000*	0	1.77	**12.983**	1.341	0.065
095-O1	1	1	32	149.1	106.7	0.9	0.02	0	30.000*	30.000*	0	1.95	**17.892**	2.241	0.132
095-O2	1	1	32	177.5	126.6	0.9	0.02	0	30.000*	30.000*	0	2.11	**22.835**	3.354	0.232
096-H1	1	1	32	179.2	127.7	0.9	0.02	0	30.000*	30.000*	0	2.12	**23.136**	3.428	0.239
096-O1	1	1	32	313.4	221.7	0.9	0.02	0	30.000*	30.000*	0	2.9	**47.042**	**12.281**	1.535
097-H1	1	1	32	142.2	101.8	0.9	0.02	0	30.000*	30.000*	0	1.91	**16.729**	2.009	0.114
097-H2	1	1	32	117.8	84.8	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.855**	1.32	0.064
098-G1	1	1	32	36.3	27.7	0.9	0.02	0	30.000*	30.000*	0	1.27	3.371	0.177	0.005
098-H1	1	1	32	34.4	26.4	0.9	0.02	0	30.000*	30.000*	0	1.26	3.225	0.166	0.004
098-O1	1	1	32	22.7	18.2	0.9	0.02	0	30.000*	30.000*	0	1.19	2.424	0.111	0.002
099-A1	1	1	32	56.5	41.8	0.9	0.02	0	30.000*	30.000*	0	1.39	**5.121**	0.326	0.01
099-G2	1	1	32	63.3	46.7	0.9	0.02	0	30.000*	30.000*	0	1.43	**5.817**	0.394	0.013
099-H1	1	1	32	144.4	103.4	0.9	0.02	0	30.000*	30.000*	0	1.92	**17.102**	2.082	0.119
099-O1	1	1	32	170.7	121.8	0.9	0.02	0	30.000*	30.000*	0	2.07	**21.621**	3.061	0.204
100-G1	1	1	32	46.1	34.6	0.9	0.02	0	30.000*	30.000*	0	1.33	4.169	0.241	0.007
100-H1	1	1	32	140.6	100.7	0.9	0.02	0	30.000*	30.000*	0	1.9	**16.462**	1.958	0.11
100-N1	1	1	32	88.4	64.2	0.9	0.02	0	30.000*	30.000*	0	1.59	**8.734**	0.726	0.029
100-N2	1	1	32	73.6	53.8	0.9	0.02	0	30.000*	30.000*	0	1.5	**6.938**	0.512	0.018
100-O1	1	1	32	138.4	99.2	0.9	0.02	0	30.000*	30.000*	0	1.88	**16.113**	1.891	0.105
101-G1	1	1	32	50.7	37.8	0.9	0.02	0	30.000*	30.000*	0	1.36	4.58	0.277	0.008

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
101-H1	1	1	32	131.5	94.4	0.9	0.02	0	30.000*	30.000*	0	1.84	**14.994**	1.685	0.089
101-O1	1	1	32	209.4	148.9	0.9	0.02	0	30.000*	30.000*	0	2.3	**28.622**	4.934	0.401
102-G1	1	1	32	56.5	41.8	0.9	0.02	0	30.000*	30.000*	0	1.39	**5.121**	0.326	0.01
102-H1	1	1	32	29.9	23.3	0.9	0.02	0	30.000*	30.000*	0	1.23	2.901	0.143	0.003
103-H1	1	1	32	118	84.9	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.881**	1.325	0.064
103-O1	1	1	32	99	71.6	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.143**	0.913	0.039
104-H1	1	1	32	182.1	129.8	0.9	0.02	0	30.000*	30.000*	0	2.14	**23.655**	3.559	0.252
104-H2	1	1	32	165.1	117.8	0.9	0.02	0	30.000*	30.000*	0	2.04	**20.633**	2.832	0.183
104-N1	1	1	32	149.8	107.2	0.9	0.02	0	30.000*	30.000*	0	1.95	**18.004**	2.264	0.134
105-H1	1	1	32	105.8	76.3	0.9	0.02	0	30.000*	30.000*	0	1.69	**11.086**	1.048	0.047
105-P1	1	1	32	217.3	154.4	0.9	0.02	0	30.000*	30.000*	0	2.35	**30.051**	**5.372**	0.453
106-G1	1	1	32	28.4	22.2	0.9	0.02	0	30.000*	30.000*	0	1.22	2.799	0.136	0.003
106-G2	1	1	32	28.5	22.3	0.9	0.02	0	30.000*	30.000*	0	1.22	2.804	0.136	0.003
106-H1	1	1	32	18.6	15.3	0.9	0.02	0	30.000*	30.000*	0	1.16	2.175	0.095	0.002
106-O1	1	1	32	24.9	19.7	0.9	0.02	0	30.000*	30.000*	0	1.2	2.563	0.12	0.003
107-H1	1	1	32	233.9	166	0.9	0.02	0	30.000*	30.000*	0	2.44	**33.095**	**6.374**	0.58
108-H1	1	1	32	72.8	53.2	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.844**	0.502	0.018
108-O1	1	1	32	119.5	85.9	0.9	0.02	0	30.000*	30.000*	0	1.77	**13.111**	1.362	0.067
108-O2	1	1	32	53.9	40	0.9	0.02	0	30.000*	30.000*	0	1.38	4.876	0.304	0.009
109-H1	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
110-A1	1	1	32	91.7	66.5	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.164**	0.781	0.032
110-G1	1	1	32	67.7	49.7	0.9	0.02	0	30.000*	30.000*	0	1.46	**6.284**	0.442	0.015
110-G2	1	1	32	30.8	23.9	0.9	0.02	0	30.000*	30.000*	0	1.24	2.962	0.147	0.004
110-H1	1	1	32	58.8	43.5	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.354**	0.348	0.011
110-O1	1	1	32	46.1	34.5	0.9	0.02	0	30.000*	30.000*	0	1.33	4.165	0.241	0.007
110-O2	1	1	32	80.7	58.8	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.774**	0.608	0.023
111-H1	1	1	32	41.9	31.6	0.9	0.02	0	30.000*	30.000*	0	1.3	3.815	0.212	0.006
112-G1	1	1	32	97.3	70.4	0.9	0.02	0	30.000*	30.000*	0	1.64	**9.915**	0.882	0.037
112-H1	1	1	32	85.4	62.1	0.9	0.02	0	30.000*	30.000*	0	1.57	**8.357**	0.679	0.026
112-O1	1	1	32	296.9	210.1	0.9	0.02	0	30.000*	30.000*	0	2.8	**44.278**	**10.92**	1.285
113-G1	1	1	32	171.6	122.4	0.9	0.02	0	30.000*	30.000*	0	2.08	**21.788**	3.1	0.208
113-G2	1	1	32	190.1	135.4	0.9	0.02	0	30.000*	30.000*	0	2.19	**25.106**	3.937	0.291
113-G3	1	1	32	76.3	55.7	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.253**	0.548	0.02
113-O1	1	1	32	122.8	88.3	0.9	0.02	0	30.000*	30.000*	0	1.79	**13.626**	1.448	0.073
114-G1	1	1	32	292.8	207.2	0.9	0.02	0	30.000*	30.000*	0	2.78	**43.573**	**10.59**	1.227
114-H1	1	1	32	327.3	231.4	0.9	0.02	0	30.000*	30.000*	0	2.98	**49.309**	**13.476**	1.768
114-O1	1	1	32	263	186.4	0.9	0.02	0	30.000*	30.000*	0	2.61	**38.355**	**8.333**	0.859
115-O1	1	1	32	394.7	278.6	0.9	0.02	0	30.000*	30.000*	0	3.35	**59.349**	**19.757**	3.213
116-O1	1	1	32	135.7	97.3	0.9	0.02	0	30.000*	30.000*	0	1.87	**15.671**	1.809	0.098
117-O1	1	1	32	15.8	13.4	0.9	0.02	0	30.000*	30.000*	0	1.14	2.018	0.085	0.002
118-G1	1	1	32	26.3	20.7	0.9	0.02	0	30.000*	30.000*	0	1.21	2.657	0.126	0.003
118-G2	1	1	32	21.9	17.6	0.9	0.02	0	30.000*	30.000*	0	1.18	2.37	0.107	0.002
118-H1	1	1	32	21.9	17.6	0.9	0.02	0	30.000*	30.000*	0	1.18	2.372	0.107	0.002
118-N1	1	1	32	47.1	35.3	0.9	0.02	0	30.000*	30.000*	0	1.34	4.256	0.249	0.007
118-N2	1	1	32	76.2	55.7	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.243**	0.547	0.02
119-P1	1	1	32	275.8	195.4	0.9	0.02	0	30.000*	30.000*	0	2.68	**40.628**	**9.276**	1.006
120-A1	1	1	32	57.4	42.5	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.214**	0.335	0.01
120-G1	1	1	32	55.1	40.8	0.9	0.02	0	30.000*	30.000*	0	1.38	4.986	0.314	0.009
120-H1	1	1	32	58.4	43.2	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.308**	0.344	0.011
120-O1	1	1	32	93.3	67.6	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.373**	0.809	0.033
121-G1	1	1	32	31.1	24.1	0.9	0.02	0	30.000*	30.000*	0	1.24	2.986	0.149	0.004
121-H1	1	1	32	44.1	33.2	0.9	0.02	0	30.000*	30.000*	0	1.32	3.997	0.227	0.006
121-N1	1	1	32	21.6	17.4	0.9	0.02	0	30.000*	30.000*	0	1.18	2.356	0.106	0.002
121-N2	1	1	32	39.1	29.7	0.9	0.02	0	30.000*	30.000*	0	1.29	3.587	0.194	0.005
122-G1	1	1	32	65.4	48.1	0.9	0.02	0	30.000*	30.000*	0	1.45	**6.03**	0.416	0.014
122-G2	1	1	32	58.7	43.4	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.345**	0.348	0.011

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
122-H1	1	1	32	114.4	82.4	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.35**	1.24	0.059
122-H2	1	1	32	66.5	48.8	0.9	0.02	0	30.000*	30.000*	0	1.45	**6.146**	0.428	0.014
122-O1	1	1	32	167.4	119.5	0.9	0.02	0	30.000*	30.000*	0	2.06	**21.046**	2.927	0.192
122-O2	1	1	32	244.8	173.7	0.9	0.02	0	30.000*	30.000*	0	2.51	**35.085**	**7.08**	0.676
122-P1	1	1	32	320.9	226.9	0.9	0.02	0	30.000*	30.000*	0	2.94	**48.28**	**12.924**	1.659
123-G1	1	1	32	80.8	58.9	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.794**	0.611	0.023
123-G2	1	1	32	93.1	67.5	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.349**	0.805	0.033
123-H1	1	1	32	72.4	53	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.807**	0.498	0.017
123-O1	1	1	32	101	73	0.9	0.02	0	30.000*	30.000*	0	1.66	**10.413**	0.951	0.041
123-O2	1	1	32	220.4	156.6	0.9	0.02	0	30.000*	30.000*	0	2.36	**30.634**	**5.557**	0.476
124-G1	1	1	32	28	21.9	0.9	0.02	0	30.000*	30.000*	0	1.22	2.77	0.134	0.003
124-G2	1	1	32	76.6	55.9	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.289**	0.552	0.02
124-H1	1	1	32	35.1	26.9	0.9	0.02	0	30.000*	30.000*	0	1.26	3.275	0.17	0.004
124-N1	1	1	32	27.6	21.6	0.9	0.02	0	30.000*	30.000*	0	1.22	2.741	0.132	0.003
124-N2	1	1	32	8.5	8.3	0.9	0.02	0	30.000*	30.000*	0	1.1	1.636	0.064	0.001
124-O1	1	1	32	76.6	55.9	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.282**	0.551	0.02
125-O1	1	1	32	70	51.3	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.537**	0.469	0.016
126-A1	1	1	32	64.8	47.7	0.9	0.02	0	30.000*	30.000*	0	1.44	**5.968**	0.409	0.013
126-G1	1	1	32	49	36.6	0.9	0.02	0	30.000*	30.000*	0	1.35	4.428	0.264	0.008
126-G2	1	1	32	42.2	31.8	0.9	0.02	0	30.000*	30.000*	0	1.31	3.833	0.214	0.006
126-H1	1	1	32	22	17.7	0.9	0.02	0	30.000*	30.000*	0	1.18	2.382	0.108	0.002
126-O1	1	1	32	48.8	36.5	0.9	0.02	0	30.000*	30.000*	0	1.35	4.405	0.262	0.007
126-O2	1	1	32	25.4	20.1	0.9	0.02	0	30.000*	30.000*	0	1.2	2.596	0.122	0.003
126-O3	1	1	32	50	37.3	0.9	0.02	0	30.000*	30.000*	0	1.35	4.511	0.271	0.008
126-P1	1	1	32	28.1	22	0.9	0.02	0	30.000*	30.000*	0	1.22	2.777	0.134	0.003
127-A1	1	1	32	117.8	84.8	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.855**	1.32	0.064
127-G1	1	1	32	63.2	46.5	0.9	0.02	0	30.000*	30.000*	0	1.43	**5.799**	0.392	0.013
127-G2	1	1	32	64.9	47.7	0.9	0.02	0	30.000*	30.000*	0	1.44	**5.977**	0.41	0.013
127-H1	1	1	32	96.8	70	0.9	0.02	0	30.000*	30.000*	0	1.64	**9.837**	0.871	0.037
127-H2	1	1	32	42.5	32	0.9	0.02	0	30.000*	30.000*	0	1.31	3.861	0.216	0.006
127-N1	1	1	32	118.3	85.1	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.94**	1.334	0.065
128-G1	1	1	32	37	28.2	0.9	0.02	0	30.000*	30.000*	0	1.27	3.418	0.181	0.005
128-G2	1	1	32	68.6	50.3	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.373**	0.451	0.015
128-G3	1	1	32	39.9	30.3	0.9	0.02	0	30.000*	30.000*	0	1.29	3.652	0.199	0.005
128-N1	1	1	32	120.3	86.5	0.9	0.02	0	30.000*	30.000*	0	1.78	**13.244**	1.384	0.068
128-O1	1	1	32	69.2	50.8	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.447**	0.459	0.016
129-H1	1	1	32	297.1	210.3	0.9	0.02	0	30.000*	30.000*	0	2.81	**44.315**	**10.938**	1.288
129-H2	1	1	32	335.8	237.4	0.9	0.02	0	30.000*	30.000*	0	3.02	**50.67**	**14.23**	1.922
130-G1	1	1	32	37.3	28.4	0.9	0.02	0	30.000*	30.000*	0	1.28	3.445	0.183	0.005
130-H1	1	1	32	17.8	14.7	0.9	0.02	0	30.000*	30.000*	0	1.16	2.126	0.092	0.002
130-H2	1	1	32	53.1	39.5	0.9	0.02	0	30.000*	30.000*	0	1.37	4.799	0.297	0.009
131-H1	1	1	32	135.4	97.1	0.9	0.02	0	30.000*	30.000*	0	1.87	**15.626**	1.801	0.098
132-G1	1	1	32	18.4	15.2	0.9	0.02	0	30.000*	30.000*	0	1.16	2.165	0.094	0.002
132-G2	1	1	32	7.5	7.5	0.9	0.02	0	30.000*	30.000*	0	1.09	1.587	0.061	0.001
132-H1	1	1	32	28.6	22.3	0.9	0.02	0	30.000*	30.000*	0	1.22	2.808	0.136	0.003
132-O1	1	1	32	33.2	25.6	0.9	0.02	0	30.000*	30.000*	0	1.25	3.138	0.16	0.004
133-G1	1	1	32	156.6	111.9	0.9	0.02	0	30.000*	30.000*	0	1.99	**19.155**	2.505	0.154
133-H1	1	1	32	107.9	77.8	0.9	0.02	0	30.000*	30.000*	0	1.7	**11.396**	1.094	0.05
134-O1	1	1	32	580.4	408.6	0.9	0.02	0	30.000*	30.000*	0	4.36	**78.648**	**38.492**	**9.808**
135-G1	1	1	32	116.1	83.6	0.9	0.02	0	30.000*	30.000*	0	1.75	**12.605**	1.28	0.061
135-H1	1	1	32	169.3	120.8	0.9	0.02	0	30.000*	30.000*	0	2.07	**21.381**	3.004	0.199
135-O1	1	1	32	113.9	82.1	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.28**	1.229	0.058
136-A1	1	1	32	27.3	21.4	0.9	0.02	0	30.000*	30.000*	0	1.21	2.718	0.13	0.003
136-G1	1	1	32	25	19.8	0.9	0.02	0	30.000*	30.000*	0	1.2	2.569	0.12	0.003
136-H1	1	1	32	34.3	26.4	0.9	0.02	0	30.000*	30.000*	0	1.26	3.221	0.166	0.004
136-O1	1	1	32	204.6	145.5	0.9	0.02	0	30.000*	30.000*	0	2.27	**27.731**	4.67	0.371

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
137-O1	1	1	32	180.6	128.7	0.9	0.02	0	30.000*	30.000*	0	2.13	**23.386**	3.491	0.245
137-O2	1	1	32	122	87.7	0.9	0.02	0	30.000*	30.000*	0	1.79	**13.496**	1.426	0.071
138-G1	1	1	32	35.5	27.1	0.9	0.02	0	30.000*	30.000*	0	1.26	3.307	0.173	0.004
138-G2	1	1	32	48.1	36	0.9	0.02	0	30.000*	30.000*	0	1.34	4.345	0.256	0.007
138-H1	1	1	32	28.5	22.3	0.9	0.02	0	30.000*	30.000*	0	1.22	2.804	0.136	0.003
138-O1	1	1	32	24.4	19.4	0.9	0.02	0	30.000*	30.000*	0	1.2	2.531	0.118	0.003
138-O2	1	1	32	45.5	34.1	0.9	0.02	0	30.000*	30.000*	0	1.33	4.115	0.237	0.007
139-G1	1	1	32	46.7	35	0.9	0.02	0	30.000*	30.000*	0	1.33	4.219	0.246	0.007
139-G2	1	1	32	39.6	30	0.9	0.02	0	30.000*	30.000*	0	1.29	3.628	0.197	0.005
139-H1	1	1	32	42.7	32.2	0.9	0.02	0	30.000*	30.000*	0	1.31	3.877	0.217	0.006
139-N1	1	1	32	45.5	34.2	0.9	0.02	0	30.000*	30.000*	0	1.33	4.117	0.237	0.007
140-G1	1	1	32	263	186.4	0.9	0.02	0	30.000*	30.000*	0	2.61	**38.365**	**8.337**	0.859
140-H1	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
140-O1	1	1	32	494.1	348.2	0.9	0.02	0	30.000*	30.000*	0	3.9	**71.101**	**29.788**	**6.294**
140-O2	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
141-A1	1	1	32	39	29.6	0.9	0.02	0	30.000*	30.000*	0	1.29	3.574	0.193	0.005
141-H1	1	1	32	68.6	50.3	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.381**	0.452	0.015
141-H2	1	1	32	80.4	58.6	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.743**	0.605	0.022
141-H3	1	1	32	65.1	47.9	0.9	0.02	0	30.000*	30.000*	0	1.44	**6.003**	0.413	0.014
141-N1	1	1	32	29.5	22.9	0.9	0.02	0	30.000*	30.000*	0	1.23	2.868	0.141	0.003
141-N2	1	1	32	41.7	31.5	0.9	0.02	0	30.000*	30.000*	0	1.3	3.798	0.211	0.006
141-N3	1	1	32	12.4	11	0.9	0.02	0	30.000*	30.000*	0	1.12	1.835	0.075	0.001
141-N4	1	1	32	38.4	29.1	0.9	0.02	0	30.000*	30.000*	0	1.28	3.527	0.189	0.005
141-O1	1	1	32	43.9	33	0.9	0.02	0	30.000*	30.000*	0	1.32	3.981	0.226	0.006
142-H1	1	1	32	97.6	70.6	0.9	0.02	0	30.000*	30.000*	0	1.64	**9.95**	0.886	0.037
142-O1	1	1	32	69.2	50.7	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.44**	0.458	0.016
143-A1	1	1	32	52	38.7	0.9	0.02	0	30.000*	30.000*	0	1.37	4.697	0.287	0.008
143-G1	1	1	32	65.9	48.5	0.9	0.02	0	30.000*	30.000*	0	1.45	**6.09**	0.422	0.014
143-G2	1	1	32	46.9	35.1	0.9	0.02	0	30.000*	30.000*	0	1.33	4.234	0.247	0.007
143-H1	1	1	32	70.6	51.7	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.599**	0.475	0.016
144-G1	1	1	32	98.6	71.3	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.084**	0.905	0.038
144-H1	1	1	32	140.5	100.7	0.9	0.02	0	30.000*	30.000*	0	1.9	**16.451**	1.956	0.11
145-A1	1	1	32	61.4	45.3	0.9	0.02	0	30.000*	30.000*	0	1.42	**5.614**	0.374	0.012
145-H1	1	1	32	159.9	114.2	0.9	0.02	0	30.000*	30.000*	0	2.01	**19.725**	2.629	0.165
146-H1	1	1	32	1802.4	1264	0.9	0.02	0	30.000*	30.000*	0	9.95	**99.461**	**92.829**	**67.838**
147-G1	1	1	32	59.7	44	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.437**	0.356	0.011
147-G2	1	1	32	85	61.8	0.9	0.02	0	30.000*	30.000*	0	1.56	**8.302**	0.672	0.026
147-H1	1	1	32	83.3	60.6	0.9	0.02	0	30.000*	30.000*	0	1.55	**8.093**	0.646	0.025
148-H1	1	1	32	48.3	36.1	0.9	0.02	0	30.000*	30.000*	0	1.34	4.365	0.258	0.007
148-O1	1	1	32	61.7	45.5	0.9	0.02	0	30.000*	30.000*	0	1.42	**5.643**	0.377	0.012
148-O3	1	1	32	105.2	75.9	0.9	0.02	0	30.000*	30.000*	0	1.69	**11.003**	1.036	0.046
149-A1	1	1	32	46.5	34.8	0.9	0.02	0	30.000*	30.000*	0	1.33	4.202	0.244	0.007
149-G1	1	1	32	49	36.6	0.9	0.02	0	30.000*	30.000*	0	1.35	4.42	0.263	0.008
149-G2	1	1	32	54.4	40.4	0.9	0.02	0	30.000*	30.000*	0	1.38	4.926	0.308	0.009
149-H1	1	1	32	73.2	53.5	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.893**	0.508	0.018
149-N1	1	1	32	34.4	26.4	0.9	0.02	0	30.000*	30.000*	0	1.26	3.225	0.166	0.004
150-G1	1	1	32	43.8	32.9	0.9	0.02	0	30.000*	30.000*	0	1.32	3.966	0.225	0.006
150-H1	1	1	32	37.9	28.9	0.9	0.02	0	30.000*	30.000*	0	1.28	3.495	0.187	0.005
151-H1	1	1	32	101.2	73.2	0.9	0.02	0	30.000*	30.000*	0	1.66	**10.452**	0.956	0.041
152-G1	1	1	32	114	82.1	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.286**	1.23	0.058
152-H1	1	1	32	165.7	118.3	0.9	0.02	0	30.000*	30.000*	0	2.05	**20.751**	2.859	0.185
153-G1	1	1	32	105.6	76.3	0.9	0.02	0	30.000*	30.000*	0	1.69	**11.071**	1.045	0.047
153-H1	1	1	32	282.2	199.9	0.9	0.02	0	30.000*	30.000*	0	2.72	**41.747**	**9.762**	1.086
153-O1	1	1	32	222.5	158.1	0.9	0.02	0	30.000*	30.000*	0	2.38	**31.013**	**5.679**	0.491
153-O2	1	1	32	372.5	263.1	0.9	0.02	0	30.000*	30.000*	0	3.23	**56.226**	**17.614**	2.679
153-O3	1	1	32	220.4	156.6	0.9	0.02	0	30.000*	30.000*	0	2.36	**30.636**	**5.557**	0.476

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
153-O5	1	1	32	304.6	215.5	0.9	0.02	0	30.000*	30.000*	0	2.85	**45.575**	**11.546**	1.397
153-O6	1	1	32	101.9	73.6	0.9	0.02	0	30.000*	30.000*	0	1.67	**10.545**	0.97	0.042
153-O7	1	1	32	361	255	0.9	0.02	0	30.000*	30.000*	0	3.17	**54.537**	**16.531**	2.425
153-P1	1	1	32	280.1	198.4	0.9	0.02	0	30.000*	30.000*	0	2.71	**41.374**	**9.598**	1.059
154-G1	1	1	32	21.4	17.3	0.9	0.02	0	30.000*	30.000*	0	1.18	2.341	0.105	0.002
154-H1	1	1	32	21.8	17.5	0.9	0.02	0	30.000*	30.000*	0	1.18	2.366	0.107	0.002
155-G1	1	1	32	139.7	100.1	0.9	0.02	0	30.000*	30.000*	0	1.89	**16.312**	1.929	0.108
155-G2	1	1	32	91.7	66.5	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.164**	0.781	0.032
155-H1	1	1	32	52.4	39	0.9	0.02	0	30.000*	30.000*	0	1.37	4.736	0.291	0.009
155-H2	1	1	32	168.3	120.1	0.9	0.02	0	30.000*	30.000*	0	2.06	**21.193**	2.961	0.195
155-O2	1	1	32	270.9	191.9	0.9	0.02	0	30.000*	30.000*	0	2.66	**39.761**	**8.909**	0.948
156-H1	1	1	32	81.7	59.5	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.896**	0.623	0.023
156-O1	1	1	32	145.8	104.4	0.9	0.02	0	30.000*	30.000*	0	1.93	**17.336**	2.129	0.123
157-G1	1	1	32	41.7	31.5	0.9	0.02	0	30.000*	30.000*	0	1.3	3.792	0.21	0.006
157-H1	1	1	32	92.5	67.1	0.9	0.02	0	30.000*	30.000*	0	1.61	**9.274**	0.796	0.032
157-H2	1	1	32	63.1	46.5	0.9	0.02	0	30.000*	30.000*	0	1.43	**5.791**	0.391	0.013
157-O1	1	1	32	67.1	49.3	0.9	0.02	0	30.000*	30.000*	0	1.46	**6.217**	0.435	0.015
158-H1	1	1	32	33.8	26	0.9	0.02	0	30.000*	30.000*	0	1.25	3.181	0.163	0.004
158-O1	1	1	32	51.2	38.1	0.9	0.02	0	30.000*	30.000*	0	1.36	4.619	0.28	0.008
159-G1	1	1	32	70.3	51.5	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.57**	0.472	0.016
159-H1	1	1	32	59.6	44	0.9	0.02	0	30.000*	30.000*	0	1.41	**5.434**	0.356	0.011
159-H2	1	1	32	101	73	0.9	0.02	0	30.000*	30.000*	0	1.66	**10.413**	0.951	0.041
159-O1	1	1	32	44.3	33.3	0.9	0.02	0	30.000*	30.000*	0	1.32	4.009	0.228	0.006
159-O2	1	1	32	51.2	38.2	0.9	0.02	0	30.000*	30.000*	0	1.36	4.627	0.281	0.008
160-G1	1	1	32	130.4	93.6	0.9	0.02	0	30.000*	30.000*	0	1.84	**14.814**	1.653	0.087
160-H1	1	1	32	80.3	58.5	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.722**	0.602	0.022
160-H2	1	1	32	75.1	54.8	0.9	0.02	0	30.000*	30.000*	0	1.5	**7.106**	0.531	0.019
161-H1	1	1	32	129.6	93	0.9	0.02	0	30.000*	30.000*	0	1.83	**14.68**	1.63	0.085
161-N1	1	1	32	100.7	72.8	0.9	0.02	0	30.000*	30.000*	0	1.66	**10.374**	0.945	0.041
162-H1	1	1	32	80.7	58.8	0.9	0.02	0	30.000*	30.000*	0	1.54	**7.781**	0.609	0.023
163-G1	1	1	32	53	39.4	0.9	0.02	0	30.000*	30.000*	0	1.37	4.791	0.296	0.009
163-O1	1	1	32	71	52	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.646**	0.481	0.017
164-H1	1	1	32	130.1	93.4	0.9	0.02	0	30.000*	30.000*	0	1.83	**14.77**	1.645	0.086
165-H1	1	1	32	13.2	11.6	0.9	0.02	0	30.000*	30.000*	0	1.13	1.877	0.077	0.002
165-O1	1	1	32	62.6	46.2	0.9	0.02	0	30.000*	30.000*	0	1.43	**5.743**	0.387	0.012
166-O1	1	1	32	254.2	180.2	0.9	0.02	0	30.000*	30.000*	0	2.56	**36.776**	**7.713**	0.766
167-O1	1	1	32	99.3	71.8	0.9	0.02	0	30.000*	30.000*	0	1.65	**10.181**	0.918	0.039
167-O2	1	1	32	154.5	110.5	0.9	0.02	0	30.000*	30.000*	0	1.98	**18.808**	2.431	0.148
167-O3	1	1	32	223.8	158.9	0.9	0.02	0	30.000*	30.000*	0	2.38	**31.249**	**5.755**	0.5
167-O4	1	1	32	175.9	125.4	0.9	0.02	0	30.000*	30.000*	0	2.1	**22.546**	3.283	0.225
167-O5	1	1	32	224.2	159.2	0.9	0.02	0	30.000*	30.000*	0	2.39	**31.324**	**5.78**	0.503
167-O6	1	1	32	246.5	174.9	0.9	0.02	0	30.000*	30.000*	0	2.52	**35.39**	**7.192**	0.691
167-O7	1	1	32	397.1	280.3	0.9	0.02	0	30.000*	30.000*	0	3.37	**59.671**	**19.989**	3.274
167-O8	1	1	32	205.3	146	0.9	0.02	0	30.000*	30.000*	0	2.28	**27.861**	4.708	0.375
167-O9	1	1	32	196.9	140.1	0.9	0.02	0	30.000*	30.000*	0	2.23	**26.327**	4.27	0.326
168-G1	1	1	32	37.5	28.6	0.9	0.02	0	30.000*	30.000*	0	1.28	3.462	0.184	0.005
168-G2	1	1	32	38	28.9	0.9	0.02	0	30.000*	30.000*	0	1.28	3.502	0.187	0.005
168-H1	1	1	32	28.8	22.4	0.9	0.02	0	30.000*	30.000*	0	1.22	2.821	0.137	0.003
168-N1	1	1	32	32.7	25.2	0.9	0.02	0	30.000*	30.000*	0	1.25	3.101	0.157	0.004
168-O1	1	1	32	48.2	36	0.9	0.02	0	30.000*	30.000*	0	1.34	4.353	0.257	0.007
169-G2	1	1	32	36.5	27.9	0.9	0.02	0	30.000*	30.000*	0	1.27	3.384	0.178	0.005
169-G3	1	1	32	54.8	40.6	0.9	0.02	0	30.000*	30.000*	0	1.38	4.958	0.311	0.009
169-G4	1	1	32	52.3	38.9	0.9	0.02	0	30.000*	30.000*	0	1.37	4.72	0.289	0.009
169-H1	1	1	32	41.5	31.3	0.9	0.02	0	30.000*	30.000*	0	1.3	3.778	0.209	0.006
170-G1	1	1	32	47.3	35.4	0.9	0.02	0	30.000*	30.000*	0	1.34	4.271	0.25	0.007
170-G2	1	1	32	116.9	84.2	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.728**	1.3	0.063

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
170-H1	1	1	32	77	56.2	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.339**	0.558	0.02
171-A1	1	1	32	155.6	111.3	0.9	0.02	0	30.000*	30.000*	0	1.99	**18.999**	2.472	0.151
171-G1	1	1	32	240.6	170.7	0.9	0.02	0	30.000*	30.000*	0	2.48	**34.321**	**6.804**	0.638
171-H1	1	1	32	233.5	165.7	0.9	0.02	0	30.000*	30.000*	0	2.44	**33.022**	**6.349**	0.577
173-G1	1	1	32	49.2	36.8	0.9	0.02	0	30.000*	30.000*	0	1.35	4.443	0.265	0.008
173-G2	1	1	32	17	14.2	0.9	0.02	0	30.000*	30.000*	0	1.15	2.083	0.089	0.002
173-G3	1	1	32	86.7	63	0.9	0.02	0	30.000*	30.000*	0	1.57	**8.514**	0.698	0.027
173-G4	1	1	32	120.3	86.5	0.9	0.02	0	30.000*	30.000*	0	1.78	**13.239**	1.383	0.068
173-G5	1	1	32	26.1	20.6	0.9	0.02	0	30.000*	30.000*	0	1.21	2.64	0.125	0.003
173-H1	1	1	32	136.6	97.9	0.9	0.02	0	30.000*	30.000*	0	1.87	**15.807**	1.834	0.1
173-P1	1	1	32	175	124.8	0.9	0.02	0	30.000*	30.000*	0	2.1	**22.385**	3.244	0.221
174-A1	1	1	32	71.9	52.7	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.749**	0.492	0.017
174-G1	1	1	32	78.9	57.5	0.9	0.02	0	30.000*	30.000*	0	1.53	**7.561**	0.583	0.021
174-H1	1	1	32	179.5	127.9	0.9	0.02	0	30.000*	30.000*	0	2.13	**23.186**	3.441	0.24
175-G1	1	1	32	77.2	56.4	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.361**	0.56	0.02
175-G2	1	1	32	26.8	21	0.9	0.02	0	30.000*	30.000*	0	1.21	2.687	0.128	0.003
175-H1	1	1	32	75.5	55.1	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.155**	0.537	0.019
176-A1	1	1	32	39.3	29.8	0.9	0.02	0	30.000*	30.000*	0	1.29	3.601	0.195	0.005
176-H1	1	1	32	50.3	37.5	0.9	0.02	0	30.000*	30.000*	0	1.36	4.542	0.274	0.008
176-H2	1	1	32	29	22.6	0.9	0.02	0	30.000*	30.000*	0	1.23	2.839	0.139	0.003
176-P1	1	1	32	39	29.6	0.9	0.02	0	30.000*	30.000*	0	1.29	3.581	0.194	0.005
178-H1	1	1	32	29.1	22.7	0.9	0.02	0	30.000*	30.000*	0	1.23	2.845	0.139	0.003
179-H1	1	1	32	82.9	60.3	0.9	0.02	0	30.000*	30.000*	0	1.55	**8.048**	0.641	0.024
180-H1	1	1	32	421.7	297.5	0.9	0.02	0	30.000*	30.000*	0	3.5	**62.893**	**22.427**	3.939
180-H2	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
180-O1	1	1	32	479.9	338.2	0.9	0.02	0	30.000*	30.000*	0	3.82	**69.635**	**28.334**	**5.787**
181-A1	1	1	32	106.1	76.6	0.9	0.02	0	30.000*	30.000*	0	1.69	**11.132**	1.054	0.047
181-G1	1	1	32	48.7	36.4	0.9	0.02	0	30.000*	30.000*	0	1.35	4.394	0.261	0.007
181-G2	1	1	32	112.3	80.9	0.9	0.02	0	30.000*	30.000*	0	1.73	**12.033**	1.191	0.056
181-H1	1	1	32	121.4	87.3	0.9	0.02	0	30.000*	30.000*	0	1.78	**13.406**	1.411	0.07
181-H2	1	1	32	115	82.8	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.438**	1.254	0.06
181-N1	1	1	32	126.7	91	0.9	0.02	0	30.000*	30.000*	0	1.81	**14.234**	1.551	0.08
181-N2	1	1	32	138.4	99.2	0.9	0.02	0	30.000*	30.000*	0	1.88	**16.113**	1.891	0.105
181-O1	1	1	32	57.3	42.4	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.203**	0.334	0.01
182-G1	1	1	32	199.4	141.9	0.9	0.02	0	30.000*	30.000*	0	2.24	**26.786**	4.399	0.34
182-G2	1	1	32	179.8	128.2	0.9	0.02	0	30.000*	30.000*	0	2.13	**23.243**	3.455	0.242
182-H1	1	1	32	138.6	99.3	0.9	0.02	0	30.000*	30.000*	0	1.88	**16.132**	1.895	0.105
182-H2	1	1	32	133.8	95.9	0.9	0.02	0	30.000*	30.000*	0	1.86	**15.354**	1.751	0.094
182-O1	1	1	32	110.2	79.4	0.9	0.02	0	30.000*	30.000*	0	1.72	**11.73**	1.144	0.053
182-O2	1	1	32	186	132.5	0.9	0.02	0	30.000*	30.000*	0	2.16	**24.352**	3.738	0.27
182-O3	1	1	32	178.6	127.3	0.9	0.02	0	30.000*	30.000*	0	2.12	**23.036**	3.404	0.237
184-H1	1	1	32	188.9	134.5	0.9	0.02	0	30.000*	30.000*	0	2.18	**24.871**	3.875	0.284
185-A1	1	1	32	33.8	26	0.9	0.02	0	30.000*	30.000*	0	1.25	3.183	0.163	0.004
185-H1	1	1	32	32.6	25.1	0.9	0.02	0	30.000*	30.000*	0	1.25	3.089	0.156	0.004
186-O1	1	1	32	350	247.3	0.9	0.02	0	30.000*	30.000*	0	3.1	**52.874**	**15.511**	2.196
187-H1	1	1	32	107.5	77.6	0.9	0.02	0	30.000*	30.000*	0	1.7	**11.337**	1.085	0.049
188-A1	1	1	32	78.2	57.1	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.481**	0.574	0.021
188-G1	1	1	32	116.9	84.2	0.9	0.02	0	30.000*	30.000*	0	1.76	**12.728**	1.3	0.063
188-G2	1	1	32	122	87.7	0.9	0.02	0	30.000*	30.000*	0	1.79	**13.496**	1.426	0.071
188-G3	1	1	32	61.7	45.5	0.9	0.02	0	30.000*	30.000*	0	1.42	**5.643**	0.377	0.012
188-H1	1	1	32	39	29.6	0.9	0.02	0	30.000*	30.000*	0	1.29	3.581	0.194	0.005
188-P1	1	1	32	56.6	41.9	0.9	0.02	0	30.000*	30.000*	0	1.39	**5.137**	0.328	0.01
189-G1	1	1	32	44	33.1	0.9	0.02	0	30.000*	30.000*	0	1.32	3.988	0.226	0.006
189-H1	1	1	32	76.3	55.7	0.9	0.02	0	30.000*	30.000*	0	1.51	**7.253**	0.548	0.02
189-H2	1	1	32	103.5	74.7	0.9	0.02	0	30.000*	30.000*	0	1.68	**10.765**	1.001	0.044
189-O1	1	1	32	119.8	86.2	0.9	0.02	0	30.000*	30.000*	0	1.77	**13.163**	1.371	0.067

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
190-G1	1	1	32	18.3	15.1	0.9	0.02	0	30.000*	30.000*	0	1.16	2.155	0.094	0.002
190-H1	1	1	32	41.5	31.3	0.9	0.02	0	30.000*	30.000*	0	1.3	3.775	0.209	0.006
190-N1	1	1	32	26.9	21.1	0.9	0.02	0	30.000*	30.000*	0	1.21	2.696	0.129	0.003
190-N2	1	1	32	24.4	19.4	0.9	0.02	0	30.000*	30.000*	0	1.2	2.531	0.118	0.003
190-N3	1	1	32	21	17	0.9	0.02	0	30.000*	30.000*	0	1.18	2.315	0.104	0.002
190-O1	1	1	32	62.8	46.2	0.9	0.02	0	30.000*	30.000*	0	1.43	**5.755**	0.388	0.012
191-H1	1	1	32	211.2	150.1	0.9	0.02	0	30.000*	30.000*	0	2.31	**28.938**	**5.029**	0.412
192-A1	1	1	32	37.4	28.5	0.9	0.02	0	30.000*	30.000*	0	1.28	3.456	0.184	0.005
192-G1	1	1	32	28.4	22.2	0.9	0.02	0	30.000*	30.000*	0	1.22	2.799	0.136	0.003
192-H1	1	1	32	34	26.1	0.9	0.02	0	30.000*	30.000*	0	1.26	3.192	0.164	0.004
193-G1	1	1	32	18.6	15.3	0.9	0.02	0	30.000*	30.000*	0	1.16	2.175	0.095	0.002
193-H1	1	1	32	21.4	17.3	0.9	0.02	0	30.000*	30.000*	0	1.18	2.343	0.105	0.002
194-H1	1	1	32	27.5	21.5	0.9	0.02	0	30.000*	30.000*	0	1.22	2.732	0.131	0.003
194-N1	1	1	32	34.2	26.2	0.9	0.02	0	30.000*	30.000*	0	1.26	3.206	0.165	0.004
195-G1	1	1	32	77.8	56.8	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.431**	0.568	0.021
195-G2	1	1	32	154.8	110.7	0.9	0.02	0	30.000*	30.000*	0	1.98	**18.855**	2.441	0.149
195-O1	1	1	32	195.5	139.1	0.9	0.02	0	30.000*	30.000*	0	2.22	**26.073**	4.2	0.319
196-A1	1	1	32	57.5	42.5	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.219**	0.336	0.01
196-A2	1	1	32	68.7	50.4	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.385**	0.453	0.015
196-G1	1	1	32	47.7	35.7	0.9	0.02	0	30.000*	30.000*	0	1.34	4.308	0.253	0.007
196-O1	1	1	32	69	50.6	0.9	0.02	0	30.000*	30.000*	0	1.47	**6.418**	0.456	0.015
197-H1	1	1	32	140.9	100.9	0.9	0.02	0	30.000*	30.000*	0	1.9	**16.519**	1.969	0.111
198-G1	1	1	32	78.3	57.1	0.9	0.02	0	30.000*	30.000*	0	1.52	**7.493**	0.575	0.021
198-H1	1	1	32	168.3	120.1	0.9	0.02	0	30.000*	30.000*	0	2.06	**21.193**	2.961	0.195
199-G1	1	1	32	14.7	12.6	0.9	0.02	0	30.000*	30.000*	0	1.14	1.957	0.082	0.002
199-O1	1	1	32	26.5	20.8	0.9	0.02	0	30.000*	30.000*	0	1.21	2.666	0.127	0.003
200-G1	1	1	32	29.9	23.2	0.9	0.02	0	30.000*	30.000*	0	1.23	2.897	0.143	0.003
200-H1	1	1	32	29.1	22.7	0.9	0.02	0	30.000*	30.000*	0	1.23	2.845	0.139	0.003
200-O1	1	1	32	27.7	21.7	0.9	0.02	0	30.000*	30.000*	0	1.22	2.747	0.132	0.003
201-O1	1	1	32	324.8	229.7	0.9	0.02	0	30.000*	30.000*	0	2.96	**48.911**	**13.261**	1.725
202-H1	1	1	32	173.3	123.6	0.9	0.02	0	30.000*	30.000*	0	2.09	**22.086**	3.172	0.214
202-N1	1	1	32	57.9	42.8	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.261**	0.34	0.01
202-O1	1	1	32	137	98.2	0.9	0.02	0	30.000*	30.000*	0	1.88	**15.875**	1.847	0.101
203-H1	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
203-O1	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
203-O2	1	1	32	479.2	337.8	0.9	0.02	0	30.000*	30.000*	0	3.82	**69.561**	**28.263**	**5.762**
205-O1	1	1	32	507.3	357.4	0.9	0.02	0	30.000*	30.000*	0	3.97	**72.396**	**31.129**	**6.782**
206-A1	1	1	32	116.1	83.6	0.9	0.02	0	30.000*	30.000*	0	1.75	**12.601**	1.28	0.061
206-G1	1	1	32	50.4	37.6	0.9	0.02	0	30.000*	30.000*	0	1.36	4.55	0.274	0.008
206-H1	1	1	32	18	14.9	0.9	0.02	0	30.000*	30.000*	0	1.16	2.139	0.093	0.002
206-H2	1	1	32	285	201.8	0.9	0.02	0	30.000*	30.000*	0	2.74	**42.225**	**9.975**	1.122
206-O1	1	1	32	252.4	179	0.9	0.02	0	30.000*	30.000*	0	2.55	**36.456**	**7.591**	0.748
207-O1	1	1	32	110.8	79.9	0.9	0.02	0	30.000*	30.000*	0	1.72	**11.819**	1.158	0.054
208-H1	1	1	32	264.1	187.2	0.9	0.02	0	30.000*	30.000*	0	2.62	**38.554**	**8.413**	0.871
209-G1	1	1	32	238.7	169.4	0.9	0.02	0	30.000*	30.000*	0	2.47	**33.967**	**6.678**	0.621
209-H1	1	1	32	391.9	276.6	0.9	0.02	0	30.000*	30.000*	0	3.34	**58.961**	**19.481**	3.142
209-P1	1	1	32	517.6	364.6	0.9	0.02	0	30.000*	30.000*	0	4.02	**73.374**	**32.179**	**7.178**
210-H1	1	1	32	113.6	81.8	0.9	0.02	0	30.000*	30.000*	0	1.74	**12.222**	1.22	0.058
210-O1	1	1	32	127.9	91.8	0.9	0.02	0	30.000*	30.000*	0	1.82	**14.415**	1.583	0.082
211-A1	1	1	32	71.8	52.6	0.9	0.02	0	30.000*	30.000*	0	1.49	**6.74**	0.491	0.017
211-G1	1	1	32	38.6	29.3	0.9	0.02	0	30.000*	30.000*	0	1.28	3.548	0.191	0.005
211-G2	1	1	32	44.7	33.6	0.9	0.02	0	30.000*	30.000*	0	1.32	4.045	0.231	0.006
211-H1	1	1	32	70.7	51.8	0.9	0.02	0	30.000*	30.000*	0	1.48	**6.608**	0.476	0.016
211-O1	1	1	32	127.3	91.4	0.9	0.02	0	30.000*	30.000*	0	1.82	**14.326**	1.567	0.081
212-H1	1	1	32	188.5	134.2	0.9	0.02	0	30.000*	30.000*	0	2.18	**24.803**	3.857	0.282
212-H2	1	1	32	149.1	106.7	0.9	0.02	0	30.000*	30.000*	0	1.95	**17.893**	2.241	0.132

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	ABSSoil (%)	ABSDust (%)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
213-O1	1	1	32	35.5	27.1	0.9	0.02	0	30.000*	30.000*	0	1.26	3.304	0.172	0.004
213-O2	1	1	32	84.3	61.3	0.9	0.02	0	30.000*	30.000*	0	1.56	**8.223**	0.662	0.025
213-O3	1	1	32	57.5	42.5	0.9	0.02	0	30.000*	30.000*	0	1.4	**5.224**	0.336	0.01
801-O1	1	1	32	28.9	22.5	0.9	0.02	0	30.000*	30.000*	0	1.22	2.831	0.138	0.003
801-O2	1	1	32	14.9	12.8	0.9	0.02	0	30.000*	30.000*	0	1.14	1.969	0.082	0.002
801-O3	1	1	32	31.1	24.1	0.9	0.02	0	30.000*	30.000*	0	1.24	2.986	0.149	0.004
802-O1	1	1	32	150.3	107.5	0.9	0.02	0	30.000*	30.000*	0	1.95	**18.091**	2.282	0.136
803-O1	1	1	32	446.5	314.8	0.9	0.02	0	30.000*	30.000*	0	3.64	**65.907**	**24.923**	4.678
803-O2	1	1	32	314.6	222.6	0.9	0.02	0	30.000*	30.000*	0	2.9	**47.254**	**12.389**	1.555
803-O3	1	1	32	234.7	166.6	0.9	0.02	0	30.000*	30.000*	0	2.45	**33.249**	**6.427**	0.587
804-O1	1	1	32	102.1	73.8	0.9	0.02	0	30.000*	30.000*	0	1.67	**10.569**	0.973	0.042
804-O2	1	1	32	254.1	180.1	0.9	0.02	0	30.000*	30.000*	0	2.56	**36.758**	**7.706**	0.765
805-O1	1	1	32	38.2	29	0.9	0.02	0	30.000*	30.000*	0	1.28	3.515	0.188	0.005
805-O2	1	1	32	45.5	34.1	0.9	0.02	0	30.000*	30.000*	0	1.33	4.115	0.237	0.007
806-O1	1	1	32	28.4	22.1	0.9	0.02	0	30.000*	30.000*	0	1.22	2.793	0.135	0.003
806-O2	1	1	32	29.6	23	0.9	0.02	0	30.000*	30.000*	0	1.23	2.879	0.141	0.003
806-O3	1	1	32	50.7	37.8	0.9	0.02	0	30.000*	30.000*	0	1.36	4.573	0.276	0.008
806-O4	1	1	32	36.9	28.1	0.9	0.02	0	30.000*	30.000*	0	1.27	3.416	0.181	0.005
806-O5	1	1	32	37.3	28.5	0.9	0.02	0	30.000*	30.000*	0	1.28	3.449	0.183	0.005
807-O1	1	1	32	29	22.6	0.9	0.02	0	30.000*	30.000*	0	1.23	2.841	0.139	0.003
808-O1	1	1	32	33.7	25.9	0.9	0.02	0	30.000*	30.000*	0	1.25	3.175	0.163	0.004
808-O2	1	1	32	35.8	27.4	0.9	0.02	0	30.000*	30.000*	0	1.27	3.333	0.175	0.004
203-O3	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002
203-O4	1	1	32	20.2	16.5	0.9	0.02	0	30.000*	30.000*	0	1.17	2.272	0.101	0.002

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Burbot
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 BUR.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.09	0	3.14	**53.887**	**16.127**	2.334
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.09	0	1.43	**5.777**	0.39	0.013
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.09	0	2.04	**20.453**	2.791	0.179
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.09	0	1.58	**8.596**	0.708	0.028
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.09	0	2.81	**44.362**	**10.96**	1.292
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.09	0	3.1	**52.881**	**15.516**	2.197
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.09	0	4.08	**74.423**	**33.345**	**7.63**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.09	0	2.12	**22.935**	3.379	0.234
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.09	0	2.6	**38.041**	**8.207**	0.84
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.09	0	2.78	**43.563**	**10.585**	1.226
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.09	0	4.08	**74.423**	**33.345**	**7.63**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.09	0	1.76	**12.738**	1.302	0.063
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.09	0	1.7	**11.236**	1.07	0.048
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.09	0	1.71	**11.613**	1.126	0.052
ADA-023	0	0	32	177	126.2	0.9	0.02	0.09	0	2.13	**23.214**	3.448	0.241
ADA-024	0	0	32	510	359.3	0.9	0.02	0.09	0	4	**72.911**	**31.678**	**6.988**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.09	0	2.51	**35.285**	**7.153**	0.686
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.09	0	1.58	**8.537**	0.701	0.027
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.09	0	2.51	**35.073**	**7.075**	0.675
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.09	0	1.6	**9.108**	0.774	0.031
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.09	0	1.53	**7.585**	0.586	0.022
ADA-035	0	0	32	215.3	153	0.9	0.02	0.09	0	2.35	**30.177**	**5.412**	0.458
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.09	0	1.32	3.969	0.225	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.09	0	1.64	**9.983**	0.891	0.038
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.09	0	2.15	**23.773**	3.589	0.255
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.09	0	2.06	**21.068**	2.932	0.192
ADA-045	0	0	32	379	267.6	0.9	0.02	0.09	0	3.28	**57.529**	**18.486**	2.891
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.09	0	2.32	**29.305**	**5.141**	0.425
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.09	0	2.98	**49.457**	**13.557**	1.784
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.09	0	1.93	**17.39**	2.14	0.124
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.09	0	1.39	**5.106**	0.325	0.01

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.09	0	3.56	**64.164**	**23.453**	4.235
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.09	0	1.81	**14.031**	1.516	0.077
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.09	0	3.47	**62.107**	**21.812**	3.766
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.09	0	1.69	**11.025**	1.039	0.046
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.09	0	3.95	**72.125**	**30.843**	**6.677**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.09	0	2.32	**29.162**	**5.097**	0.42
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.09	0	1.58	**8.581**	0.707	0.028
ADA-057	0	0	32	132.4	95	0.9	0.02	0.09	0	1.86	**15.551**	1.787	0.097
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.09	0	1.63	**9.745**	0.858	0.036
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.09	0	1.93	**17.349**	2.131	0.123
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.09	0	3.8	**69.342**	**28.052**	**5.691**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.09	0	1.81	**14.202**	1.546	0.079
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.09	0	3.1	**52.702**	**15.408**	2.174
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.09	0	1.94	**17.644**	2.191	0.128
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.09	0	2.06	**21.274**	2.98	0.196
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.09	0	3.3	**58.023**	**18.825**	2.976
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.09	0	2.07	**21.481**	3.028	0.201
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.09	0	1.71	**11.613**	1.126	0.052
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.09	0	2.51	**35.285**	**7.153**	0.686
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.09	0	2.69	**40.925**	**9.403**	1.027
ADA-073	0	0	32	310	219.3	0.9	0.02	0.09	0	2.89	**46.916**	**12.217**	1.522
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.09	0	2.75	**42.805**	**10.237**	1.166
ADA-078	0	0	32	255	180.8	0.9	0.02	0.09	0	2.58	**37.396**	**7.953**	0.801
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.09	0	1.97	**18.434**	2.353	0.141
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.09	0	2.18	**24.978**	3.903	0.287
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.09	0	2.25	**26.953**	4.446	0.346
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.09	0	2.17	**24.617**	3.808	0.277
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.09	0	1.95	**17.841**	2.231	0.131
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.09	0	2.98	**49.397**	**13.523**	1.778
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.09	0	3	**49.958**	**13.832**	1.84
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.09	0	2.57	**36.975**	**7.79**	0.777
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.09	0	2.73	**41.947**	**9.851**	1.101
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.09	0	2.4	**31.661**	**5.89**	0.517
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.09	0	2.15	**23.983**	3.643	0.261
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.09	0	1.67	**10.596**	0.977	0.043
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.09	0	2.05	**20.863**	2.884	0.188
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.09	0	3.2	**55.39**	**17.072**	2.551
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.09	0	4.12	**75.045**	**34.056**	**7.913**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.09	0	2.59	**37.815**	**8.118**	0.826
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.09	0	2.4	**31.875**	**5.961**	0.526
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.09	0	1.83	**14.584**	1.612	0.084
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.09	0	2.1	**22.517**	3.276	0.224
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.09	0	1.55	**7.939**	0.628	0.024
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.09	0	2.42	**32.303**	**6.104**	0.545
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.967**	0.631	0.024
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.09	0	1.95	**18.039**	2.271	0.135
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.09	0	2.42	**32.232**	**6.08**	0.542
ADA-109	0	0	32	379	267.6	0.9	0.02	0.09	0	3.28	**57.529**	**18.486**	2.891

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.09	0	2.64	**39.275**	**8.707**	0.916
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.09	0	1.79	**13.487**	1.424	0.071
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.09	0	1.69	**11.008**	1.036	0.046
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.09	0	2.04	**20.657**	2.838	0.184
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.09	0	1.76	**12.703**	1.296	0.062
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.09	0	1.92	**17.251**	2.112	0.122
ADA-116	0	0	32	112.4	81	0.9	0.02	0.09	0	1.74	**12.44**	1.254	0.06
ADA-117	0	0	32	193	137.4	0.9	0.02	0.09	0	2.22	**26.101**	4.207	0.319
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.09	0	2.21	**25.675**	4.091	0.307
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.09	0	2.3	**28.449**	4.882	0.395
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.09	0	2.49	**34.436**	**6.845**	0.643
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.09	0	1.41	**5.442**	0.357	0.011
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.09	0	2.12	**23.075**	3.413	0.238
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.09	0	1.97	**18.629**	2.394	0.145
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.09	0	3.55	**63.933**	**23.264**	4.18
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.09	0	2.34	**29.733**	**5.273**	0.441
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.09	0	3.19	**55.165**	**16.928**	2.517
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.09	0	2.09	**22.101**	3.175	0.215
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.09	0	3.05	**51.435**	**14.666**	2.014
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.09	0	1.91	**16.861**	2.035	0.116
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.09	0	2.38	**31.232**	**5.75**	0.5
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.09	0	4.25	**77.015**	**36.41**	**8.891**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.09	0	2.21	**25.675**	4.091	0.307
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.09	0	4.47	**80.17**	**40.55**	**10.765**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.09	0	2.71	**41.335**	**9.581**	1.056
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.09	0	5.23	**88.182**	**53.875**	**18.334**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.09	0	3.25	**56.641**	**17.889**	2.745
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.09	0	3.35	**59.316**	**19.733**	3.207
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.09	0	5.34	**88.988**	**55.528**	**19.462**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.09	0	3.23	**56.359**	**17.702**	2.7
ADA-150	0	0	32	626.7	441	0.9	0.02	0.09	0	4.61	**82.023**	**43.226**	**12.088**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.09	0	3.6	**65.156**	**24.28**	4.482
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.09	0	2.84	**45.215**	**11.37**	1.365
ADA-153	0	0	32	448	315.9	0.9	0.02	0.09	0	3.66	**66.395**	**25.347**	4.81
ADA-154	0	0	32	397	280.2	0.9	0.02	0.09	0	3.38	**60.003**	**20.23**	3.337
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.09	0	2.95	**48.452**	**13.015**	1.677
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.09	0	3.26	**57.03**	**18.149**	2.809
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.09	0	3.33	**58.834**	**19.391**	3.119
ADA-159	0	0	32	516.7	364	0.9	0.02	0.09	0	4.03	**73.533**	**32.353**	**7.244**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.09	0	3.11	**53.019**	**15.598**	2.216
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.09	0	5.99	**92.933**	**64.949**	**26.893**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.09	0	3.92	**71.549**	**30.246**	**6.459**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.09	0	4.28	**77.575**	**37.11**	**9.193**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.09	0	2.91	**47.495**	**12.513**	1.579
ADA-169	0	0	32	68.2	50	0.9	0.02	0.09	0	1.48	**6.623**	0.478	0.016

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.09	0	1.72	**11.869**	1.165	0.054
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.09	0	1.64	**9.935**	0.884	0.037
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.09	0	1.48	**6.728**	0.489	0.017
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.09	0	1.61	**9.195**	0.785	0.032
ADA-174	0	0	32	76.7	56	0.9	0.02	0.09	0	1.53	**7.613**	0.589	0.022
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.09	0	1.57	**8.359**	0.679	0.026
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.09	0	1.54	**7.839**	0.616	0.023
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.09	0	1.5	**6.968**	0.516	0.018
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.09	0	1.4	**5.278**	0.341	0.011
ADA-179	0	0	32	67	49.2	0.9	0.02	0.09	0	1.47	**6.493**	0.464	0.016
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.09	0	1.84	**14.955**	1.678	0.089
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.09	0	1.67	**10.727**	0.995	0.044
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.09	0	1.31	3.93	0.222	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.09	0	1.42	**5.537**	0.366	0.012
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.09	0	1.58	**8.551**	0.703	0.027

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Kokanee
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 KOK.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.02	0	3.13	**53.581**	**15.939**	2.291
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.02	0	1.42	**5.568**	0.369	0.012
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.02	0	2.02	**20.099**	2.712	0.172
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.02	0	1.57	**8.34**	0.677	0.026
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.02	0	2.8	**44.016**	**10.797**	1.263
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.02	0	3.09	**52.57**	**15.33**	2.157
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.02	0	4.07	**74.24**	**33.138**	**7.549**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.02	0	2.11	**22.573**	3.29	0.226
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.02	0	2.59	**37.678**	**8.063**	0.818
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.02	0	2.77	**43.215**	**10.424**	1.198
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.02	0	4.07	**74.24**	**33.138**	**7.549**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.02	0	1.74	**12.434**	1.253	0.06
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.02	0	1.68	**10.947**	1.027	0.046
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.02	0	1.7	**11.32**	1.082	0.049
ADA-023	0	0	32	177	126.2	0.9	0.02	0.02	0	2.11	**22.851**	3.358	0.232
ADA-024	0	0	32	510	359.3	0.9	0.02	0.02	0	3.99	**72.718**	**31.471**	**6.91**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.02	0	2.5	**34.917**	**7.019**	0.667
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.02	0	1.56	**8.281**	0.669	0.026
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.02	0	2.49	**34.705**	**6.942**	0.657
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.02	0	1.59	**8.845**	0.74	0.029
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.02	0	1.52	**7.344**	0.558	0.02
ADA-035	0	0	32	215.3	153	0.9	0.02	0.02	0	2.34	**29.806**	**5.296**	0.444
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.02	0	1.3	3.801	0.211	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.02	0	1.63	**9.708**	0.853	0.036
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.02	0	2.13	**23.409**	3.497	0.246
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.02	0	2.04	**20.712**	2.85	0.185
ADA-045	0	0	32	379	267.6	0.9	0.02	0.02	0	3.27	**57.241**	**18.291**	2.843
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.02	0	2.31	**28.934**	**5.028**	0.412
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.02	0	2.97	**49.131**	**13.379**	1.749
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.02	0	1.92	**17.051**	2.073	0.119

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.02	0	1.38	4.911	0.307	0.009
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.02	0	3.55	**63.915**	**23.249**	4.176
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.02	0	1.79	**13.716**	1.463	0.074
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.02	0	3.46	**61.845**	**21.61**	3.71
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.02	0	1.67	**10.739**	0.997	0.044
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.02	0	3.94	**71.926**	**30.636**	**6.601**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.02	0	2.31	**28.79**	4.984	0.407
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.02	0	1.57	**8.325**	0.675	0.026
ADA-057	0	0	32	132.4	95	0.9	0.02	0.02	0	1.85	**15.224**	1.727	0.092
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.02	0	1.62	**9.474**	0.822	0.034
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.02	0	1.92	**17.01**	2.064	0.118
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.02	0	3.79	**69.125**	**27.845**	**5.62**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.02	0	1.8	**13.885**	1.491	0.076
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.02	0	3.09	**52.39**	**15.223**	2.134
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.02	0	1.93	**17.304**	2.122	0.123
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.02	0	2.05	**20.918**	2.897	0.189
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.02	0	3.29	**57.738**	**18.629**	2.927
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.02	0	2.06	**21.123**	2.945	0.193
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.02	0	1.7	**11.32**	1.082	0.049
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.02	0	2.5	**34.917**	**7.019**	0.667
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.02	0	2.68	**40.569**	**9.25**	1.002
ADA-073	0	0	32	310	219.3	0.9	0.02	0.02	0	2.88	**46.58**	**12.046**	1.49
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.02	0	2.74	**42.455**	**10.078**	1.139
ADA-078	0	0	32	255	180.8	0.9	0.02	0.02	0	2.57	**37.031**	**7.811**	0.781
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.02	0	1.95	**18.09**	2.281	0.136
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.02	0	2.17	**24.612**	3.806	0.277
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.02	0	2.24	**26.584**	4.342	0.334
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.02	0	2.16	**24.251**	3.712	0.268
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.02	0	1.93	**17.5**	2.162	0.126
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.02	0	2.97	**49.07**	**13.346**	1.742
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.02	0	2.99	**49.634**	**13.653**	1.804
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.02	0	2.55	**36.61**	**7.649**	0.757
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.02	0	2.72	**41.594**	**9.695**	1.075
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.02	0	2.39	**31.289**	**5.768**	0.502
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.02	0	2.14	**23.619**	3.55	0.251
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.02	0	1.66	**10.315**	0.937	0.04
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.02	0	2.04	**20.508**	2.804	0.18
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.02	0	3.19	**55.091**	**16.881**	2.506
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.02	0	4.11	**74.867**	**33.85**	**7.831**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.02	0	2.58	**37.452**	**7.975**	0.805
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.02	0	2.39	**31.504**	**5.838**	0.511
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.02	0	1.82	**14.264**	1.557	0.08
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.02	0	2.09	**22.157**	3.189	0.216
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.02	0	1.53	**7.692**	0.599	0.022
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.02	0	2.41	**31.932**	**5.98**	0.529
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.72**	0.602	0.022
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.02	0	1.94	**17.696**	2.201	0.129

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.02	0	2.4	**31.861**	**5.956**	0.526
ADA-109	0	0	32	379	267.6	0.9	0.02	0.02	0	3.27	**57.241**	**18.291**	2.843
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.02	0	2.63	**38.915**	**8.559**	0.893
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.02	0	1.77	**13.176**	1.373	0.068
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.02	0	1.67	**10.721**	0.995	0.044
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.02	0	2.03	**20.303**	2.757	0.176
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.02	0	1.74	**12.399**	1.248	0.059
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.02	0	1.91	**16.913**	2.045	0.117
ADA-116	0	0	32	112.4	81	0.9	0.02	0.02	0	1.73	**12.139**	1.207	0.057
ADA-117	0	0	32	193	137.4	0.9	0.02	0.02	0	2.21	**25.732**	4.106	0.309
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.02	0	2.19	**25.307**	3.991	0.296
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.02	0	2.28	**28.078**	4.772	0.382
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.02	0	2.47	**34.067**	**6.713**	0.625
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.02	0	1.4	**5.24**	0.338	0.01
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.02	0	2.11	**22.713**	3.324	0.229
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.02	0	1.96	**18.283**	2.321	0.139
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.02	0	3.54	**63.682**	**23.06**	4.12
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.02	0	2.32	**29.361**	**5.158**	0.427
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.02	0	3.18	**54.865**	**16.737**	2.473
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.02	0	2.08	**21.742**	3.089	0.207
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.02	0	3.04	**51.117**	**14.483**	1.975
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.02	0	1.9	**16.526**	1.97	0.111
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.02	0	2.37	**30.861**	**5.63**	0.485
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.02	0	4.24	**76.85**	**36.207**	**8.804**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.02	0	2.19	**25.307**	3.991	0.296
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.02	0	4.46	**80.028**	**40.353**	**10.671**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.02	0	2.7	**40.98**	**9.427**	1.031
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.02	0	5.22	**88.099**	**53.709**	**18.223**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.02	0	3.23	**56.349**	**17.696**	2.699
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.02	0	3.34	**59.038**	**19.535**	3.156
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.02	0	5.33	**88.91**	**55.366**	**19.35**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.02	0	3.22	**56.066**	**17.51**	2.654
ADA-150	0	0	32	626.7	441	0.9	0.02	0.02	0	4.6	**81.894**	**43.034**	**11.989**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.02	0	3.59	**64.912**	**24.075**	4.42
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.02	0	2.82	**44.873**	**11.204**	1.335
ADA-153	0	0	32	448	315.9	0.9	0.02	0.02	0	3.65	**66.159**	**25.141**	4.745
ADA-154	0	0	32	397	280.2	0.9	0.02	0.02	0	3.37	**59.729**	**20.031**	3.285
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.02	0	2.93	**48.121**	**12.84**	1.642
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.02	0	3.25	**56.74**	**17.955**	2.761
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.02	0	3.32	**58.554**	**19.194**	3.069
ADA-159	0	0	32	516.7	364	0.9	0.02	0.02	0	4.02	**73.344**	**32.147**	**7.165**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.02	0	3.1	**52.708**	**15.412**	2.175
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.02	0	5.98	**92.885**	**64.818**	**26.777**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.02	0	3.91	**71.347**	**30.038**	**6.384**

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-165	0	0	32	563.8	397	0.9	0.02	0.02	0	4.27	**77.414**	**36.908**	**9.105**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.02	0	2.9	**47.16**	**12.341**	1.546
ADA-169	0	0	32	68.2	50	0.9	0.02	0.02	0	1.47	**6.398**	0.454	0.015
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.02	0	1.71	**11.574**	1.12	0.051
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.02	0	1.63	**9.661**	0.847	0.035
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.02	0	1.47	**6.502**	0.465	0.016
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.02	0	1.59	**8.93**	0.751	0.03
ADA-174	0	0	32	76.7	56	0.9	0.02	0.02	0	1.52	**7.372**	0.561	0.02
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.02	0	1.56	**8.107**	0.648	0.025
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.02	0	1.53	**7.594**	0.587	0.022
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.02	0	1.49	**6.737**	0.49	0.017
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.02	0	1.39	**5.079**	0.322	0.01
ADA-179	0	0	32	67	49.2	0.9	0.02	0.02	0	1.46	**6.271**	0.441	0.015
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.02	0	1.83	**14.632**	1.621	0.085
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.02	0	1.66	**10.443**	0.955	0.041
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.02	0	1.3	3.763	0.208	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.02	0	1.41	**5.333**	0.346	0.011
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.02	0	1.56	**8.296**	0.671	0.026

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Northern Pike
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 NOR.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.01	0	3.13	**53.537**	**15.912**	2.285
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.01	0	1.42	**5.539**	0.366	0.012
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.01	0	2.02	**20.049**	2.701	0.171
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.01	0	1.56	**8.303**	0.672	0.026
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.01	0	2.79	**43.967**	**10.774**	1.259
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.01	0	3.09	**52.526**	**15.304**	2.151
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.01	0	4.07	**74.214**	**33.109**	**7.537**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.01	0	2.1	**22.522**	3.277	0.224
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.01	0	2.59	**37.626**	**8.043**	0.815
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.01	0	2.77	**43.165**	**10.401**	1.194
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.01	0	4.07	**74.214**	**33.109**	**7.537**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.01	0	1.74	**12.391**	1.246	0.059
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.01	0	1.68	**10.906**	1.021	0.045
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.01	0	1.7	**11.278**	1.076	0.049
ADA-023	0	0	32	177	126.2	0.9	0.02	0.01	0	2.11	**22.799**	3.345	0.231
ADA-024	0	0	32	510	359.3	0.9	0.02	0.01	0	3.98	**72.69**	**31.441**	**6.899**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.01	0	2.5	**34.865**	**6.999**	0.665
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.01	0	1.56	**8.245**	0.665	0.025
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.01	0	2.49	**34.652**	**6.923**	0.654
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.01	0	1.59	**8.808**	0.735	0.029
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.01	0	1.52	**7.31**	0.554	0.02
ADA-035	0	0	32	215.3	153	0.9	0.02	0.01	0	2.34	**29.753**	**5.279**	0.442
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.01	0	1.3	3.777	0.209	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.01	0	1.63	**9.67**	0.848	0.035
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.01	0	2.13	**23.357**	3.484	0.245
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.01	0	2.04	**20.662**	2.839	0.184
ADA-045	0	0	32	379	267.6	0.9	0.02	0.01	0	3.27	**57.2**	**18.263**	2.837
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.01	0	2.31	**28.881**	**5.012**	0.41
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.01	0	2.97	**49.084**	**13.354**	1.744
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.01	0	1.92	**17.003**	2.063	0.118
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.01	0	1.38	4.884	0.304	0.009

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.01	0	3.55	**63.879**	**23.22**	4.167
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.01	0	1.79	**13.671**	1.455	0.073
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.01	0	3.45	**61.808**	**21.581**	3.702
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.01	0	1.67	**10.698**	0.991	0.043
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.01	0	3.94	**71.898**	**30.606**	**6.59**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.01	0	2.3	**28.737**	4.968	0.405
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.01	0	1.56	**8.289**	0.67	0.026
ADA-057	0	0	32	132.4	95	0.9	0.02	0.01	0	1.85	**15.177**	1.718	0.092
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.01	0	1.62	**9.435**	0.817	0.034
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.01	0	1.91	**16.962**	2.055	0.117
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.01	0	3.79	**69.094**	**27.815**	**5.61**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.01	0	1.8	**13.84**	1.484	0.075
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.01	0	3.08	**52.346**	**15.197**	2.128
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.01	0	1.92	**17.255**	2.113	0.122
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.01	0	2.05	**20.867**	2.885	0.188
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.01	0	3.29	**57.697**	**18.601**	2.92
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.01	0	2.06	**21.072**	2.933	0.192
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.01	0	1.7	**11.278**	1.076	0.049
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.01	0	2.5	**34.865**	**6.999**	0.665
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.01	0	2.68	**40.518**	**9.228**	0.999
ADA-073	0	0	32	310	219.3	0.9	0.02	0.01	0	2.88	**46.531**	**12.022**	1.486
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.01	0	2.74	**42.404**	**10.055**	1.135
ADA-078	0	0	32	255	180.8	0.9	0.02	0.01	0	2.57	**36.979**	**7.791**	0.778
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.01	0	1.95	**18.041**	2.271	0.135
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.01	0	2.17	**24.559**	3.793	0.276
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.01	0	2.23	**26.531**	4.327	0.332
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.01	0	2.16	**24.198**	3.699	0.266
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.01	0	1.93	**17.451**	2.152	0.125
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.01	0	2.97	**49.023**	**13.321**	1.737
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.01	0	2.99	**49.587**	**13.628**	1.799
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.01	0	2.55	**36.558**	**7.629**	0.754
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.01	0	2.71	**41.543**	**9.672**	1.071
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.01	0	2.38	**31.236**	**5.751**	0.5
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.01	0	2.14	**23.567**	3.537	0.25
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.01	0	1.65	**10.275**	0.931	0.04
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.01	0	2.04	**20.457**	2.792	0.179
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.01	0	3.18	**55.049**	**16.854**	2.5
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.01	0	4.11	**74.841**	**33.821**	**7.819**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.01	0	2.58	**37.4**	**7.955**	0.802
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.01	0	2.39	**31.451**	**5.821**	0.509
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.01	0	1.81	**14.218**	1.549	0.08
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.01	0	2.09	**22.105**	3.176	0.215
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.01	0	1.53	**7.657**	0.595	0.022
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.01	0	2.4	**31.879**	**5.962**	0.526
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.01	0	1.53	**7.685**	0.598	0.022
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.01	0	1.94	**17.648**	2.191	0.128
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.01	0	2.4	**31.808**	**5.939**	0.523

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-109	0	0	32	379	267.6	0.9	0.02	0.01	0	3.27	**57.2**	**18.263**	2.837
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.01	0	2.63	**38.863**	**8.538**	0.89
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.01	0	1.77	**13.132**	1.366	0.067
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.01	0	1.67	**10.68**	0.989	0.043
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.01	0	2.03	**20.253**	2.746	0.175
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.01	0	1.74	**12.356**	1.241	0.059
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.01	0	1.91	**16.865**	2.036	0.116
ADA-116	0	0	32	112.4	81	0.9	0.02	0.01	0	1.73	**12.096**	1.2	0.056
ADA-117	0	0	32	193	137.4	0.9	0.02	0.01	0	2.21	**25.68**	4.092	0.307
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.01	0	2.19	**25.255**	3.977	0.295
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.01	0	2.28	**28.025**	4.756	0.38
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.01	0	2.47	**34.015**	**6.695**	0.623
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.01	0	1.4	**5.211**	0.335	0.01
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.01	0	2.11	**22.661**	3.311	0.228
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.01	0	1.96	**18.234**	2.311	0.138
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.01	0	3.53	**63.646**	**23.03**	4.112
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.01	0	2.32	**29.308**	**5.142**	0.425
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.01	0	3.18	**54.822**	**16.71**	2.467
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.01	0	3.3	**58.025**	**18.826**	2.976
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.01	0	2.08	**21.69**	3.077	0.206
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.01	0	3.04	**51.072**	**14.457**	1.97
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.01	0	1.9	**16.478**	1.961	0.11
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.01	0	3.3	**58.025**	**18.826**	2.976
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.01	0	2.37	**30.808**	**5.612**	0.482
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.01	0	4.23	**76.827**	**36.178**	**8.792**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.01	0	2.19	**25.255**	3.977	0.295
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.01	0	4.46	**80.008**	**40.325**	**10.657**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.01	0	2.69	**40.929**	**9.405**	1.027
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.01	0	5.22	**88.087**	**53.685**	**18.207**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.01	0	3.23	**56.307**	**17.668**	2.692
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.01	0	3.34	**58.998**	**19.507**	3.149
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.01	0	5.33	**88.899**	**55.343**	**19.334**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.01	0	3.22	**56.024**	**17.482**	2.648
ADA-150	0	0	32	626.7	441	0.9	0.02	0.01	0	4.6	**81.876**	**43.006**	**11.975**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.01	0	3.59	**64.877**	**24.046**	4.411
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.01	0	2.82	**44.823**	**11.181**	1.331
ADA-153	0	0	32	448	315.9	0.9	0.02	0.01	0	3.65	**66.125**	**25.112**	4.736
ADA-154	0	0	32	397	280.2	0.9	0.02	0.01	0	3.37	**59.69**	**20.003**	3.277
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.01	0	2.93	**48.074**	**12.816**	1.637
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.01	0	3.25	**56.699**	**17.927**	2.755
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.01	0	3.32	**58.513**	**19.166**	3.062
ADA-159	0	0	32	516.7	364	0.9	0.02	0.01	0	4.02	**73.317**	**32.117**	**7.154**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.01	0	3.1	**52.664**	**15.386**	2.169
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.01	0	3.3	**58.025**	**18.826**	2.976
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.01	0	5.98	**92.878**	**64.799**	**26.76**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.01	0	3.91	**71.318**	**30.009**	**6.374**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.01	0	4.27	**77.391**	**36.879**	**9.093**

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.01	0	2.9	**47.112**	**12.317**	1.541
ADA-169	0	0	32	68.2	50	0.9	0.02	0.01	0	1.47	**6.367**	0.451	0.015
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.01	0	1.71	**11.532**	1.114	0.051
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.01	0	1.63	**9.622**	0.842	0.035
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.01	0	1.47	**6.47**	0.462	0.016
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.01	0	1.59	**8.893**	0.746	0.03
ADA-174	0	0	32	76.7	56	0.9	0.02	0.01	0	1.52	**7.338**	0.558	0.02
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.01	0	1.55	**8.071**	0.644	0.024
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.01	0	1.53	**7.559**	0.583	0.021
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.01	0	1.48	**6.704**	0.487	0.017
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.01	0	1.39	**5.051**	0.32	0.01
ADA-179	0	0	32	67	49.2	0.9	0.02	0.01	0	1.46	**6.239**	0.437	0.015
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.01	0	1.83	**14.586**	1.613	0.084
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.01	0	1.66	**10.403**	0.949	0.041
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.01	0	1.3	3.739	0.206	0.005
ADA-183	0	0	32	58	42.9	0.9	0.02	0.01	0	1.4	**5.304**	0.344	0.011
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.01	0	1.56	**8.259**	0.667	0.026

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Rainbow Trout
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 RAI.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.09	0	3.14	**53.887**	**16.127**	2.334
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.09	0	1.43	**5.777**	0.39	0.013
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.09	0	2.04	**20.453**	2.791	0.179
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.09	0	1.58	**8.596**	0.708	0.028
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.09	0	2.81	**44.362**	**10.96**	1.292
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.09	0	3.1	**52.881**	**15.516**	2.197
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.09	0	4.08	**74.423**	**33.345**	**7.63**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.09	0	2.12	**22.935**	3.379	0.234
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.09	0	2.6	**38.041**	**8.207**	0.84
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.09	0	2.78	**43.563**	**10.585**	1.226
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.09	0	4.08	**74.423**	**33.345**	**7.63**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.09	0	1.76	**12.738**	1.302	0.063
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.09	0	1.7	**11.236**	1.07	0.048
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.09	0	1.71	**11.613**	1.126	0.052
ADA-023	0	0	32	177	126.2	0.9	0.02	0.09	0	2.13	**23.214**	3.448	0.241
ADA-024	0	0	32	510	359.3	0.9	0.02	0.09	0	4	**72.911**	**31.678**	**6.988**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.09	0	2.51	**35.285**	**7.153**	0.686
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.09	0	1.58	**8.537**	0.701	0.027
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.09	0	2.51	**35.073**	**7.075**	0.675
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.09	0	1.6	**9.108**	0.774	0.031
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.09	0	1.53	**7.585**	0.586	0.022
ADA-035	0	0	32	215.3	153	0.9	0.02	0.09	0	2.35	**30.177**	**5.412**	0.458
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.09	0	1.32	3.969	0.225	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.09	0	1.64	**9.983**	0.891	0.038
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.09	0	2.15	**23.773**	3.589	0.255
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.09	0	2.06	**21.068**	2.932	0.192
ADA-045	0	0	32	379	267.6	0.9	0.02	0.09	0	3.28	**57.529**	**18.486**	2.891
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.09	0	2.32	**29.305**	**5.141**	0.425
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.09	0	2.98	**49.457**	**13.557**	1.784
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.09	0	1.93	**17.39**	2.14	0.124

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.09	0	1.39	**5.106**	0.325	0.01
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.09	0	3.56	**64.164**	**23.453**	4.235
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.09	0	1.81	**14.031**	1.516	0.077
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.09	0	3.47	**62.107**	**21.812**	3.766
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.09	0	1.69	**11.025**	1.039	0.046
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.09	0	3.95	**72.125**	**30.843**	**6.677**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.09	0	2.32	**29.162**	**5.097**	0.42
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.09	0	1.58	**8.581**	0.707	0.028
ADA-057	0	0	32	132.4	95	0.9	0.02	0.09	0	1.86	**15.551**	1.787	0.097
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.09	0	1.63	**9.745**	0.858	0.036
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.09	0	1.93	**17.349**	2.131	0.123
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.09	0	3.8	**69.342**	**28.052**	**5.691**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.09	0	1.81	**14.202**	1.546	0.079
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.09	0	3.1	**52.702**	**15.408**	2.174
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.09	0	1.94	**17.644**	2.191	0.128
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.09	0	2.06	**21.274**	2.98	0.196
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.09	0	3.3	**58.023**	**18.825**	2.976
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.09	0	2.07	**21.481**	3.028	0.201
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.09	0	1.71	**11.613**	1.126	0.052
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.09	0	2.51	**35.285**	**7.153**	0.686
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.09	0	2.69	**40.925**	**9.403**	1.027
ADA-073	0	0	32	310	219.3	0.9	0.02	0.09	0	2.89	**46.916**	**12.217**	1.522
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.09	0	2.75	**42.805**	**10.237**	1.166
ADA-078	0	0	32	255	180.8	0.9	0.02	0.09	0	2.58	**37.396**	**7.953**	0.801
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.09	0	1.97	**18.434**	2.353	0.141
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.09	0	2.18	**24.978**	3.903	0.287
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.09	0	2.25	**26.953**	4.446	0.346
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.09	0	2.17	**24.617**	3.808	0.277
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.09	0	1.95	**17.841**	2.231	0.131
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.09	0	2.98	**49.397**	**13.523**	1.778
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.09	0	3	**49.958**	**13.832**	1.84
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.09	0	2.57	**36.975**	**7.79**	0.777
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.09	0	2.73	**41.947**	**9.851**	1.101
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.09	0	2.4	**31.661**	**5.89**	0.517
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.09	0	2.15	**23.983**	3.643	0.261
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.09	0	1.67	**10.596**	0.977	0.043
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.09	0	2.05	**20.863**	2.884	0.188
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.09	0	3.2	**55.39**	**17.072**	2.551
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.09	0	4.12	**75.045**	**34.056**	**7.913**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.09	0	2.59	**37.815**	**8.118**	0.826
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.09	0	2.4	**31.875**	**5.961**	0.526
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.09	0	1.83	**14.584**	1.612	0.084
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.09	0	2.1	**22.517**	3.276	0.224
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.09	0	1.55	**7.939**	0.628	0.024
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.09	0	2.42	**32.303**	**6.104**	0.545
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.09	0	1.55	**7.967**	0.631	0.024
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.09	0	1.95	**18.039**	2.271	0.135

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.09	0	2.42	**32.232**	**6.08**	0.542
ADA-109	0	0	32	379	267.6	0.9	0.02	0.09	0	3.28	**57.529**	**18.486**	2.891
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.09	0	2.64	**39.275**	**8.707**	0.916
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.09	0	1.79	**13.487**	1.424	0.071
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.09	0	1.69	**11.008**	1.036	0.046
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.09	0	2.04	**20.657**	2.838	0.184
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.09	0	1.76	**12.703**	1.296	0.062
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.09	0	1.92	**17.251**	2.112	0.122
ADA-116	0	0	32	112.4	81	0.9	0.02	0.09	0	1.74	**12.44**	1.254	0.06
ADA-117	0	0	32	193	137.4	0.9	0.02	0.09	0	2.22	**26.101**	4.207	0.319
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.09	0	2.21	**25.675**	4.091	0.307
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.09	0	2.3	**28.449**	4.882	0.395
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.09	0	2.49	**34.436**	**6.845**	0.643
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.09	0	1.41	**5.442**	0.357	0.011
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.09	0	2.12	**23.075**	3.413	0.238
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.09	0	1.97	**18.629**	2.394	0.145
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.09	0	3.55	**63.933**	**23.264**	4.18
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.09	0	2.34	**29.733**	**5.273**	0.441
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.09	0	3.19	**55.165**	**16.928**	2.517
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.09	0	2.09	**22.101**	3.175	0.215
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.09	0	3.05	**51.435**	**14.666**	2.014
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.09	0	1.91	**16.861**	2.035	0.116
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.09	0	2.38	**31.232**	**5.75**	0.5
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.09	0	4.25	**77.015**	**36.41**	**8.891**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.09	0	2.21	**25.675**	4.091	0.307
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.09	0	4.47	**80.17**	**40.55**	**10.765**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.09	0	2.71	**41.335**	**9.581**	1.056
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.09	0	5.23	**88.182**	**53.875**	**18.334**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.09	0	3.25	**56.641**	**17.889**	2.745
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.09	0	3.35	**59.316**	**19.733**	3.207
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.09	0	5.34	**88.988**	**55.528**	**19.462**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.09	0	3.23	**56.359**	**17.702**	2.7
ADA-150	0	0	32	626.7	441	0.9	0.02	0.09	0	4.61	**82.023**	**43.226**	**12.088**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.09	0	3.6	**65.156**	**24.28**	4.482
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.09	0	2.84	**45.215**	**11.37**	1.365
ADA-153	0	0	32	448	315.9	0.9	0.02	0.09	0	3.66	**66.395**	**25.347**	4.81
ADA-154	0	0	32	397	280.2	0.9	0.02	0.09	0	3.38	**60.003**	**20.23**	3.337
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.09	0	2.95	**48.452**	**13.015**	1.677
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.09	0	3.26	**57.03**	**18.149**	2.809
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.09	0	3.33	**58.834**	**19.391**	3.119
ADA-159	0	0	32	516.7	364	0.9	0.02	0.09	0	4.03	**73.533**	**32.353**	**7.244**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.09	0	3.11	**53.019**	**15.598**	2.216
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.09	0	3.31	**58.349**	**19.051**	3.033
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.09	0	5.99	**92.933**	**64.949**	**26.893**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.09	0	3.92	**71.549**	**30.246**	**6.459**

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-165	0	0	32	563.8	397	0.9	0.02	0.09	0	4.28	**77.575**	**37.11**	**9.193**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.09	0	2.91	**47.495**	**12.513**	1.579
ADA-169	0	0	32	68.2	50	0.9	0.02	0.09	0	1.48	**6.623**	0.478	0.016
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.09	0	1.72	**11.869**	1.165	0.054
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.09	0	1.64	**9.935**	0.884	0.037
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.09	0	1.48	**6.728**	0.489	0.017
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.09	0	1.61	**9.195**	0.785	0.032
ADA-174	0	0	32	76.7	56	0.9	0.02	0.09	0	1.53	**7.613**	0.589	0.022
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.09	0	1.57	**8.359**	0.679	0.026
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.09	0	1.54	**7.839**	0.616	0.023
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.09	0	1.5	**6.968**	0.516	0.018
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.09	0	1.4	**5.278**	0.341	0.011
ADA-179	0	0	32	67	49.2	0.9	0.02	0.09	0	1.47	**6.493**	0.464	0.016
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.09	0	1.84	**14.955**	1.678	0.089
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.09	0	1.67	**10.727**	0.995	0.044
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.09	0	1.31	3.93	0.222	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.09	0	1.42	**5.537**	0.366	0.012
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.09	0	1.58	**8.551**	0.703	0.027

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Smallmouth Bass
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 SMB.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.07	0	3.14	**53.8**	**16.073**	2.321
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.07	0	1.43	**5.717**	0.384	0.012
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.07	0	2.03	**20.352**	2.768	0.177
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.07	0	1.58	**8.522**	0.699	0.027
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.07	0	2.8	**44.264**	**10.913**	1.284
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.07	0	3.1	**52.793**	**15.462**	2.186
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.07	0	4.08	**74.371**	**33.286**	**7.607**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.07	0	2.11	**22.832**	3.353	0.232
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.07	0	2.6	**37.937**	**8.166**	0.833
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.07	0	2.78	**43.464**	**10.539**	1.218
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.07	0	4.08	**74.371**	**33.286**	**7.607**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.07	0	1.75	**12.651**	1.288	0.062
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.07	0	1.69	**11.153**	1.058	0.047
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.07	0	1.71	**11.529**	1.113	0.051
ADA-023	0	0	32	177	126.2	0.9	0.02	0.07	0	2.12	**23.11**	3.422	0.239
ADA-024	0	0	32	510	359.3	0.9	0.02	0.07	0	3.99	**72.856**	**31.619**	**6.965**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.07	0	2.51	**35.18**	**7.114**	0.681
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.07	0	1.57	**8.463**	0.692	0.027
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.07	0	2.5	**34.968**	**7.037**	0.67
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.07	0	1.6	**9.033**	0.764	0.031
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.07	0	1.53	**7.515**	0.578	0.021
ADA-035	0	0	32	215.3	153	0.9	0.02	0.07	0	2.35	**30.071**	**5.379**	0.454
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.07	0	1.31	3.921	0.221	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.07	0	1.64	**9.904**	0.88	0.037
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.07	0	2.14	**23.669**	3.563	0.252
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.07	0	2.05	**20.966**	2.908	0.19
ADA-045	0	0	32	379	267.6	0.9	0.02	0.07	0	3.28	**57.447**	**18.43**	2.878
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.07	0	2.32	**29.199**	**5.108**	0.421
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.07	0	2.98	**49.364**	**13.506**	1.774
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.07	0	1.93	**17.293**	2.12	0.122
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.07	0	1.39	**5.05**	0.32	0.01
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.07	0	3.55	**64.093**	**23.395**	4.218
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.07	0	1.8	**13.941**	1.501	0.076
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.07	0	3.46	**62.033**	**21.754**	3.75
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.07	0	1.68	**10.943**	1.027	0.046
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.07	0	3.95	**72.068**	**30.784**	**6.655**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.07	0	2.31	**29.056**	**5.065**	0.416
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.07	0	1.57	**8.507**	0.697	0.027
ADA-057	0	0	32	132.4	95	0.9	0.02	0.07	0	1.86	**15.457**	1.769	0.096
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.07	0	1.63	**9.667**	0.848	0.035

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.07	0	1.92	**17.252**	2.112	0.122
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.07	0	3.8	**69.28**	**27.993**	**5.67**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.07	0	1.81	**14.111**	1.53	0.078
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.07	0	3.09	**52.613**	**15.355**	2.162
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.07	0	1.94	**17.546**	2.171	0.127
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.07	0	2.06	**21.172**	2.956	0.194
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.07	0	3.3	**57.942**	**18.769**	2.962
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.07	0	2.07	**21.378**	3.004	0.199
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.07	0	1.71	**11.529**	1.113	0.051
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.07	0	2.51	**35.18**	**7.114**	0.681
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.07	0	2.69	**40.823**	**9.359**	1.02
ADA-073	0	0	32	310	219.3	0.9	0.02	0.07	0	2.89	**46.82**	**12.168**	1.513
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.07	0	2.75	**42.705**	**10.191**	1.158
ADA-078	0	0	32	255	180.8	0.9	0.02	0.07	0	2.58	**37.292**	**7.912**	0.795
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.07	0	1.96	**18.336**	2.332	0.14
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.07	0	2.18	**24.873**	3.875	0.284
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.07	0	2.24	**26.848**	4.416	0.342
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.07	0	2.17	**24.512**	3.78	0.275
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.07	0	1.94	**17.743**	2.211	0.13
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.07	0	2.98	**49.303**	**13.473**	1.768
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.07	0	3	**49.865**	**13.781**	1.83
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.07	0	2.56	**36.871**	**7.749**	0.771
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.07	0	2.72	**41.846**	**9.806**	1.093
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.07	0	2.39	**31.554**	**5.855**	0.513
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.07	0	2.15	**23.879**	3.616	0.258
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.07	0	1.67	**10.516**	0.965	0.042
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.07	0	2.05	**20.761**	2.861	0.186
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.07	0	3.19	**55.305**	**17.017**	2.538
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.07	0	4.12	**74.994**	**33.997**	**7.889**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.07	0	2.59	**37.712**	**8.077**	0.82
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.07	0	2.4	**31.769**	**5.926**	0.522
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.07	0	1.82	**14.492**	1.596	0.083
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.07	0	2.1	**22.414**	3.251	0.222
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.07	0	1.54	**7.868**	0.619	0.023
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.07	0	2.41	**32.197**	**6.068**	0.54
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.07	0	1.54	**7.896**	0.623	0.023
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.07	0	1.95	**17.941**	2.251	0.133
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.07	0	2.41	**32.126**	**6.045**	0.537
ADA-109	0	0	32	379	267.6	0.9	0.02	0.07	0	3.28	**57.447**	**18.43**	2.878
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.07	0	2.64	**39.172**	**8.665**	0.91
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.07	0	1.78	**13.397**	1.409	0.07
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.07	0	1.68	**10.925**	1.024	0.045
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.07	0	2.04	**20.556**	2.815	0.181
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.07	0	1.75	**12.616**	1.282	0.062
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.07	0	1.92	**17.154**	2.093	0.12
ADA-116	0	0	32	112.4	81	0.9	0.02	0.07	0	1.74	**12.354**	1.241	0.059
ADA-117	0	0	32	193	137.4	0.9	0.02	0.07	0	2.22	**25.995**	4.178	0.316
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.07	0	2.2	**25.57**	4.062	0.304
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.07	0	2.29	**28.343**	4.85	0.391
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.07	0	2.48	**34.331**	**6.807**	0.638
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.07	0	1.41	**5.384**	0.351	0.011
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.07	0	2.12	**22.971**	3.388	0.235
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.07	0	1.97	**18.53**	2.373	0.143
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.07	0	3.54	**63.861**	**23.205**	4.163
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.07	0	2.33	**29.626**	**5.24**	0.437
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.07	0	3.19	**55.08**	**16.873**	2.505
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.07	0	3.31	**58.268**	**18.995**	3.018

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.07	0	2.09	**21.998**	3.151	0.212
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.07	0	3.05	**51.344**	**14.614**	2.003
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.07	0	1.91	**16.765**	2.017	0.114
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.07	0	3.31	**58.268**	**18.995**	3.018
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.07	0	2.38	**31.126**	**5.715**	0.495
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.07	0	4.24	**76.968**	**36.352**	**8.866**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.07	0	2.2	**25.57**	4.062	0.304
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.07	0	4.47	**80.13**	**40.494**	**10.738**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.07	0	2.7	**41.234**	**9.537**	1.049
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.07	0	5.23	**88.159**	**53.828**	**18.302**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.07	0	3.24	**56.558**	**17.834**	2.732
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.07	0	3.35	**59.237**	**19.677**	3.193
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.07	0	5.33	**88.966**	**55.482**	**19.43**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.07	0	3.23	**56.276**	**17.647**	2.687
ADA-150	0	0	32	626.7	441	0.9	0.02	0.07	0	4.61	**81.986**	**43.171**	**12.059**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.07	0	3.6	**65.086**	**24.221**	4.464
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.07	0	2.83	**45.117**	**11.323**	1.357
ADA-153	0	0	32	448	315.9	0.9	0.02	0.07	0	3.66	**66.327**	**25.289**	4.791
ADA-154	0	0	32	397	280.2	0.9	0.02	0.07	0	3.38	**59.925**	**20.173**	3.322
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.07	0	2.94	**48.357**	**12.965**	1.667
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.07	0	3.26	**56.948**	**18.093**	2.795
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.07	0	3.33	**58.754**	**19.335**	3.105
ADA-159	0	0	32	516.7	364	0.9	0.02	0.07	0	4.03	**73.479**	**32.294**	**7.222**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.07	0	3.11	**52.93**	**15.545**	2.204
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.07	0	3.31	**58.268**	**18.995**	3.018
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.07	0	5.99	**92.919**	**64.912**	**26.86**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.07	0	3.92	**71.492**	**30.186**	**6.438**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.07	0	4.28	**77.529**	**37.053**	**9.168**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.07	0	2.91	**47.399**	**12.464**	1.569
ADA-169	0	0	32	68.2	50	0.9	0.02	0.07	0	1.48	**6.559**	0.471	0.016
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.07	0	1.72	**11.784**	1.152	0.053
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.07	0	1.64	**9.856**	0.874	0.037
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.07	0	1.48	**6.663**	0.482	0.017
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.07	0	1.6	**9.119**	0.775	0.031
ADA-174	0	0	32	76.7	56	0.9	0.02	0.07	0	1.53	**7.544**	0.581	0.021
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.07	0	1.56	**8.287**	0.67	0.026
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.07	0	1.54	**7.768**	0.608	0.023
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.07	0	1.49	**6.901**	0.508	0.018
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.07	0	1.4	**5.221**	0.336	0.01
ADA-179	0	0	32	67	49.2	0.9	0.02	0.07	0	1.47	**6.429**	0.457	0.016
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.07	0	1.84	**14.862**	1.662	0.088
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.07	0	1.67	**10.645**	0.984	0.043
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.07	0	1.31	3.882	0.218	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.07	0	1.41	**5.478**	0.36	0.011
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.07	0	1.57	**8.478**	0.694	0.027

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Sturgeon
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 STU.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.02	0	3.13	**53.581**	**15.939**	2.291
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.02	0	1.42	**5.568**	0.369	0.012
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.02	0	2.02	**20.099**	2.712	0.172
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.02	0	1.57	**8.34**	0.677	0.026
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.02	0	2.8	**44.016**	**10.797**	1.263
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.02	0	3.09	**52.57**	**15.33**	2.157
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.02	0	4.07	**74.24**	**33.138**	**7.549**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.02	0	2.11	**22.573**	3.29	0.226
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.02	0	2.59	**37.678**	**8.063**	0.818
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.02	0	2.77	**43.215**	**10.424**	1.198
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.02	0	4.07	**74.24**	**33.138**	**7.549**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.02	0	1.74	**12.434**	1.253	0.06
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.02	0	1.68	**10.947**	1.027	0.046
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.02	0	1.7	**11.32**	1.082	0.049
ADA-023	0	0	32	177	126.2	0.9	0.02	0.02	0	2.11	**22.851**	3.358	0.232
ADA-024	0	0	32	510	359.3	0.9	0.02	0.02	0	3.99	**72.718**	**31.471**	**6.91**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.02	0	2.5	**34.917**	**7.019**	0.667
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.02	0	1.56	**8.281**	0.669	0.026
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.02	0	2.49	**34.705**	**6.942**	0.657
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.02	0	1.59	**8.845**	0.74	0.029
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.02	0	1.52	**7.344**	0.558	0.02
ADA-035	0	0	32	215.3	153	0.9	0.02	0.02	0	2.34	**29.806**	**5.296**	0.444
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.02	0	1.3	3.801	0.211	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.02	0	1.63	**9.708**	0.853	0.036
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.02	0	2.13	**23.409**	3.497	0.246
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.02	0	2.04	**20.712**	2.85	0.185
ADA-045	0	0	32	379	267.6	0.9	0.02	0.02	0	3.27	**57.241**	**18.291**	2.843
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.02	0	2.31	**28.934**	**5.028**	0.412
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.02	0	2.97	**49.131**	**13.379**	1.749
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.02	0	1.92	**17.051**	2.073	0.119
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.02	0	1.38	4.911	0.307	0.009

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.02	0	3.55	**63.915**	**23.249**	4.176
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.02	0	1.79	**13.716**	1.463	0.074
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.02	0	3.46	**61.845**	**21.61**	3.71
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.02	0	1.67	**10.739**	0.997	0.044
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.02	0	3.94	**71.926**	**30.636**	**6.601**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.02	0	2.31	**28.79**	4.984	0.407
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.02	0	1.57	**8.325**	0.675	0.026
ADA-057	0	0	32	132.4	95	0.9	0.02	0.02	0	1.85	**15.224**	1.727	0.092
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.02	0	1.62	**9.474**	0.822	0.034
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.02	0	1.92	**17.01**	2.064	0.118
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.02	0	3.79	**69.125**	**27.845**	**5.62**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.02	0	1.8	**13.885**	1.491	0.076
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.02	0	3.09	**52.39**	**15.223**	2.134
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.02	0	1.93	**17.304**	2.122	0.123
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.02	0	2.05	**20.918**	2.897	0.189
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.02	0	3.29	**57.738**	**18.629**	2.927
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.02	0	2.06	**21.123**	2.945	0.193
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.02	0	1.7	**11.32**	1.082	0.049
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.02	0	2.5	**34.917**	**7.019**	0.667
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.02	0	2.68	**40.569**	**9.25**	1.002
ADA-073	0	0	32	310	219.3	0.9	0.02	0.02	0	2.88	**46.58**	**12.046**	1.49
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.02	0	2.74	**42.455**	**10.078**	1.139
ADA-078	0	0	32	255	180.8	0.9	0.02	0.02	0	2.57	**37.031**	**7.811**	0.781
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.02	0	1.95	**18.09**	2.281	0.136
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.02	0	2.17	**24.612**	3.806	0.277
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.02	0	2.24	**26.584**	4.342	0.334
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.02	0	2.16	**24.251**	3.712	0.268
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.02	0	1.93	**17.5**	2.162	0.126
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.02	0	2.97	**49.07**	**13.346**	1.742
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.02	0	2.99	**49.634**	**13.653**	1.804
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.02	0	2.55	**36.61**	**7.649**	0.757
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.02	0	2.72	**41.594**	**9.695**	1.075
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.02	0	2.39	**31.289**	**5.768**	0.502
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.02	0	2.14	**23.619**	3.55	0.251
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.02	0	1.66	**10.315**	0.937	0.04
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.02	0	2.04	**20.508**	2.804	0.18
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.02	0	3.19	**55.091**	**16.881**	2.506
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.02	0	4.11	**74.867**	**33.85**	**7.831**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.02	0	2.58	**37.452**	**7.975**	0.805
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.02	0	2.39	**31.504**	**5.838**	0.511
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.02	0	1.82	**14.264**	1.557	0.08
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.02	0	2.09	**22.157**	3.189	0.216
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.02	0	1.53	**7.692**	0.599	0.022
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.02	0	2.41	**31.932**	**5.98**	0.529
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.02	0	1.54	**7.72**	0.602	0.022
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.02	0	1.94	**17.696**	2.201	0.129
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.02	0	2.4	**31.861**	**5.956**	0.526
ADA-109	0	0	32	379	267.6	0.9	0.02	0.02	0	3.27	**57.241**	**18.291**	2.843

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.02	0	2.63	**38.915**	**8.559**	0.893
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.02	0	1.77	**13.176**	1.373	0.068
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.02	0	1.67	**10.721**	0.995	0.044
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.02	0	2.03	**20.303**	2.757	0.176
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.02	0	1.74	**12.399**	1.248	0.059
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.02	0	1.91	**16.913**	2.045	0.117
ADA-116	0	0	32	112.4	81	0.9	0.02	0.02	0	1.73	**12.139**	1.207	0.057
ADA-117	0	0	32	193	137.4	0.9	0.02	0.02	0	2.21	**25.732**	4.106	0.309
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.02	0	2.19	**25.307**	3.991	0.296
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.02	0	2.28	**28.078**	4.772	0.382
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.02	0	2.47	**34.067**	**6.713**	0.625
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.02	0	1.4	**5.24**	0.338	0.01
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.02	0	2.11	**22.713**	3.324	0.229
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.02	0	1.96	**18.283**	2.321	0.139
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.02	0	3.54	**63.682**	**23.06**	4.12
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.02	0	2.32	**29.361**	**5.158**	0.427
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.02	0	3.18	**54.865**	**16.737**	2.473
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.02	0	2.08	**21.742**	3.089	0.207
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.02	0	3.04	**51.117**	**14.483**	1.975
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.02	0	1.9	**16.526**	1.97	0.111
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.02	0	2.37	**30.861**	**5.63**	0.485
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.02	0	4.24	**76.85**	**36.207**	**8.804**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.02	0	2.19	**25.307**	3.991	0.296
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.02	0	4.46	**80.028**	**40.353**	**10.671**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.02	0	2.7	**40.98**	**9.427**	1.031
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.02	0	5.22	**88.099**	**53.709**	**18.223**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.02	0	3.23	**56.349**	**17.696**	2.699
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.02	0	3.34	**59.038**	**19.535**	3.156
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.02	0	5.33	**88.91**	**55.366**	**19.35**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.02	0	3.22	**56.066**	**17.51**	2.654
ADA-150	0	0	32	626.7	441	0.9	0.02	0.02	0	4.6	**81.894**	**43.034**	**11.989**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.02	0	3.59	**64.912**	**24.075**	4.42
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.02	0	2.82	**44.873**	**11.204**	1.335
ADA-153	0	0	32	448	315.9	0.9	0.02	0.02	0	3.65	**66.159**	**25.141**	4.745
ADA-154	0	0	32	397	280.2	0.9	0.02	0.02	0	3.37	**59.729**	**20.031**	3.285
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.02	0	2.93	**48.121**	**12.84**	1.642
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.02	0	3.25	**56.74**	**17.955**	2.761
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.02	0	3.32	**58.554**	**19.194**	3.069
ADA-159	0	0	32	516.7	364	0.9	0.02	0.02	0	4.02	**73.344**	**32.147**	**7.165**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.02	0	3.1	**52.708**	**15.412**	2.175
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.02	0	3.3	**58.066**	**18.854**	2.983
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.02	0	5.98	**92.885**	**64.818**	**26.777**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.02	0	3.91	**71.347**	**30.038**	**6.384**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.02	0	4.27	**77.414**	**36.908**	**9.105**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.02	0	2.9	**47.16**	**12.341**	1.546
ADA-169	0	0	32	68.2	50	0.9	0.02	0.02	0	1.47	**6.398**	0.454	0.015

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.02	0	1.71	**11.574**	1.12	0.051
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.02	0	1.63	**9.661**	0.847	0.035
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.02	0	1.47	**6.502**	0.465	0.016
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.02	0	1.59	**8.93**	0.751	0.03
ADA-174	0	0	32	76.7	56	0.9	0.02	0.02	0	1.52	**7.372**	0.561	0.02
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.02	0	1.56	**8.107**	0.648	0.025
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.02	0	1.53	**7.594**	0.587	0.022
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.02	0	1.49	**6.737**	0.49	0.017
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.02	0	1.39	**5.079**	0.322	0.01
ADA-179	0	0	32	67	49.2	0.9	0.02	0.02	0	1.46	**6.271**	0.441	0.015
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.02	0	1.83	**14.632**	1.621	0.085
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.02	0	1.66	**10.443**	0.955	0.041
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.02	0	1.3	3.763	0.208	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.02	0	1.41	**5.333**	0.346	0.011
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.02	0	1.56	**8.296**	0.671	0.026

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Sucker
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 SUC.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.57	0	3.22	**55.946**	**17.431**	2.636
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.57	0	1.52	**7.318**	0.555	0.02
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.57	0	2.12	**22.911**	3.373	0.234
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.57	0	1.66	**10.447**	0.956	0.041
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.57	0	2.89	**46.701**	**12.107**	1.502
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.57	0	3.18	**54.974**	**16.806**	2.489
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.57	0	4.16	**75.643**	**34.753**	**8.196**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.57	0	2.2	**25.44**	4.027	0.3
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.57	0	2.68	**40.508**	**9.224**	0.998
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.57	0	2.86	**45.921**	**11.717**	1.429
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.57	0	4.16	**75.643**	**34.753**	**8.196**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.57	0	1.84	**14.896**	1.668	0.088
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.57	0	1.78	**13.298**	1.393	0.069
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.57	0	1.79	**13.701**	1.46	0.073
ADA-023	0	0	32	177	126.2	0.9	0.02	0.57	0	2.21	**25.722**	4.104	0.308
ADA-024	0	0	32	510	359.3	0.9	0.02	0.57	0	4.07	**74.201**	**33.095**	**7.532**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.57	0	2.59	**37.792**	**8.109**	0.825
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.57	0	1.66	**10.382**	0.946	0.041
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.57	0	2.59	**37.582**	**8.026**	0.812
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.57	0	1.69	**11.005**	1.036	0.046
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.57	0	1.61	**9.337**	0.804	0.033
ADA-035	0	0	32	215.3	153	0.9	0.02	0.57	0	2.43	**32.722**	**6.246**	0.563
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.57	0	1.4	**5.241**	0.338	0.01
ADA-042	0	0	32	95.2	69	0.9	0.02	0.57	0	1.73	**11.953**	1.178	0.055
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.57	0	2.23	**26.289**	4.26	0.325
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.57	0	2.14	**23.54**	3.53	0.249
ADA-045	0	0	32	379	267.6	0.9	0.02	0.57	0	3.36	**59.459**	**19.836**	3.234
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.57	0	2.4	**31.852**	**5.953**	0.525
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.57	0	3.06	**51.657**	**14.794**	2.041
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.57	0	2.01	**19.761**	2.637	0.166
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.57	0	1.48	**6.556**	0.471	0.016
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.57	0	3.63	**65.835**	**24.861**	4.659

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.57	0	1.89	**16.26**	1.919	0.107
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.57	0	3.54	**63.862**	**23.206**	4.163
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.57	0	1.77	**13.073**	1.356	0.066
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.57	0	4.03	**73.45**	**32.263**	**7.209**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.57	0	2.4	**31.708**	**5.906**	0.519
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.57	0	1.66	**10.43**	0.953	0.041
ADA-057	0	0	32	132.4	95	0.9	0.02	0.57	0	1.95	**17.851**	2.233	0.132
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.57	0	1.71	**11.696**	1.139	0.052
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.57	0	2.01	**19.718**	2.628	0.165
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.57	0	3.88	**70.792**	**29.475**	**6.184**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.57	0	1.9	**16.439**	1.954	0.109
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.57	0	3.17	**54.8**	**16.696**	2.464
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.57	0	2.02	**20.023**	2.695	0.171
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.57	0	2.14	**23.75**	3.583	0.255
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.57	0	3.38	**59.935**	**20.18**	3.324
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.57	0	2.15	**23.96**	3.637	0.26
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.57	0	1.79	**13.701**	1.46	0.073
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.57	0	2.59	**37.792**	**8.109**	0.825
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.57	0	2.77	**43.34**	**10.482**	1.208
ADA-073	0	0	32	310	219.3	0.9	0.02	0.57	0	2.97	**49.189**	**13.41**	1.755
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.57	0	2.83	**45.18**	**11.353**	1.362
ADA-078	0	0	32	255	180.8	0.9	0.02	0.57	0	2.66	**39.874**	**8.956**	0.955
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.57	0	2.05	**20.839**	2.879	0.187
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.57	0	2.27	**27.507**	4.605	0.363
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.57	0	2.33	**29.496**	**5.199**	0.432
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.57	0	2.25	**27.142**	4.5	0.352
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.57	0	2.03	**20.227**	2.74	0.175
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.57	0	3.06	**51.598**	**14.76**	2.034
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.57	0	3.08	**52.143**	**15.077**	2.102
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.57	0	2.65	**39.459**	**8.783**	0.928
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.57	0	2.81	**44.341**	**10.95**	1.29
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.57	0	2.48	**34.199**	**6.76**	0.632
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.57	0	2.23	**26.502**	4.319	0.332
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.57	0	1.75	**12.613**	1.282	0.062
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.57	0	2.13	**23.33**	3.477	0.244
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.57	0	3.27	**57.397**	**18.396**	2.869
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.57	0	4.2	**76.236**	**35.46**	**8.489**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.57	0	2.67	**40.287**	**9.13**	0.983
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.57	0	2.48	**34.412**	**6.836**	0.642
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.57	0	1.91	**16.84**	2.031	0.115
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.57	0	2.19	**25.015**	3.913	0.288
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.57	0	1.63	**9.727**	0.856	0.036
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.57	0	2.5	**34.838**	**6.99**	0.663
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.57	0	1.63	**9.757**	0.86	0.036
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.57	0	2.03	**20.431**	2.786	0.179
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.57	0	2.5	**34.767**	**6.964**	0.66
ADA-109	0	0	32	379	267.6	0.9	0.02	0.57	0	3.36	**59.459**	**19.836**	3.234
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.57	0	2.72	**41.722**	**9.751**	1.084
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.57	0	1.87	**15.687**	1.812	0.099

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.57	0	1.77	**13.054**	1.353	0.066
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.57	0	2.12	**23.12**	3.425	0.239
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.57	0	1.84	**14.859**	1.661	0.088
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.57	0	2.01	**19.617**	2.605	0.163
ADA-116	0	0	32	112.4	81	0.9	0.02	0.57	0	1.83	**14.58**	1.612	0.084
ADA-117	0	0	32	193	137.4	0.9	0.02	0.57	0	2.3	**28.639**	4.939	0.401
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.57	0	2.29	**28.21**	4.811	0.387
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.57	0	2.38	**30.996**	**5.673**	0.49
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.57	0	2.57	**36.953**	**7.781**	0.776
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.57	0	1.5	**6.939**	0.513	0.018
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.57	0	2.2	**25.582**	4.065	0.304
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.57	0	2.05	**21.039**	2.925	0.191
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.57	0	3.62	**65.613**	**24.67**	4.6
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.57	0	2.42	**32.279**	**6.096**	0.544
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.57	0	3.27	**57.18**	**18.249**	2.833
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.57	0	3.39	**60.248**	**20.41**	3.384
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.57	0	2.17	**24.592**	3.801	0.277
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.57	0	3.13	**53.574**	**15.935**	2.29
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.57	0	1.99	**19.213**	2.518	0.155
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.57	0	3.39	**60.248**	**20.41**	3.384
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.57	0	2.46	**33.773**	**6.61**	0.611
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.57	0	4.32	**78.114**	**37.797**	**9.496**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.57	0	2.29	**28.21**	4.811	0.387
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.57	0	4.54	**81.118**	**41.894**	**11.418**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.57	0	2.79	**43.742**	**10.668**	1.24
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.57	0	5.3	**88.737**	**55.006**	**19.101**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.57	0	3.32	**58.604**	**19.229**	3.078
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.57	0	3.43	**61.179**	**21.103**	3.57
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.57	0	5.41	**89.502**	**56.625**	**20.238**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.57	0	3.31	**58.332**	**19.039**	3.03
ADA-150	0	0	32	626.7	441	0.9	0.02	0.57	0	4.69	**82.881**	**44.536**	**12.769**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.57	0	3.68	**66.786**	**25.693**	4.918
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.57	0	2.91	**47.533**	**12.533**	1.583
ADA-153	0	0	32	448	315.9	0.9	0.02	0.57	0	3.74	**67.972**	**26.765**	**5.262**
ADA-154	0	0	32	397	280.2	0.9	0.02	0.57	0	3.46	**61.84**	**21.606**	3.708
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.57	0	3.02	**50.681**	**14.236**	1.924
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.57	0	3.34	**58.979**	**19.493**	3.145
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.57	0	3.41	**60.716**	**20.755**	3.477
ADA-159	0	0	32	516.7	364	0.9	0.02	0.57	0	4.11	**74.794**	**33.767**	**7.797**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.57	0	3.19	**55.106**	**16.89**	2.509
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.57	0	3.39	**60.248**	**20.41**	3.384
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.57	0	6.06	**93.253**	**65.838**	**27.694**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.57	0	4	**72.901**	**31.667**	**6.983**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.57	0	4.36	**78.647**	**38.491**	**9.807**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.57	0	2.99	**49.751**	**13.718**	1.817
ADA-169	0	0	32	68.2	50	0.9	0.02	0.57	0	1.56	**8.269**	0.668	0.026
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.57	0	1.8	**13.974**	1.507	0.077
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.57	0	1.72	**11.901**	1.17	0.054
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.57	0	1.57	**8.386**	0.682	0.026

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.57	0	1.69	**11.099**	1.05	0.047
ADA-174	0	0	32	76.7	56	0.9	0.02	0.57	0	1.61	**9.368**	0.808	0.033
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.57	0	1.65	**10.188**	0.919	0.039
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.57	0	1.63	**9.617**	0.841	0.035
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.57	0	1.58	**8.653**	0.716	0.028
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.57	0	1.49	**6.752**	0.492	0.017
ADA-179	0	0	32	67	49.2	0.9	0.02	0.57	0	1.56	**8.123**	0.65	0.025
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.57	0	1.92	**17.228**	2.108	0.121
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.57	0	1.76	**12.753**	1.304	0.063
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.57	0	1.4	**5.196**	0.333	0.01
ADA-183	0	0	32	58	42.9	0.9	0.02	0.57	0	1.5	**7.046**	0.525	0.019
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.57	0	1.66	**10.398**	0.949	0.041

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Walleye
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 WAL.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.11	0	3.14	**53.974**	**16.18**	2.346
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.11	0	1.44	**5.837**	0.396	0.013
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.11	0	2.04	**20.554**	2.814	0.181
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.11	0	1.58	**8.67**	0.718	0.028
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.11	0	2.81	**44.461**	**11.007**	1.3
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.11	0	3.11	**52.97**	**15.569**	2.209
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.11	0	4.09	**74.475**	**33.403**	**7.653**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.11	0	2.12	**23.039**	3.404	0.237
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.11	0	2.6	**38.144**	**8.248**	0.846
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.11	0	2.78	**43.663**	**10.631**	1.234
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.11	0	4.09	**74.475**	**33.403**	**7.653**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.11	0	1.76	**12.826**	1.316	0.064
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.11	0	1.7	**11.319**	1.082	0.049
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.11	0	1.71	**11.697**	1.139	0.052
ADA-023	0	0	32	177	126.2	0.9	0.02	0.11	0	2.13	**23.318**	3.474	0.244
ADA-024	0	0	32	510	359.3	0.9	0.02	0.11	0	4	**72.966**	**31.737**	**7.01**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.11	0	2.52	**35.39**	**7.192**	0.691
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.11	0	1.58	**8.61**	0.71	0.028
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.11	0	2.51	**35.178**	**7.114**	0.681
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.11	0	1.61	**9.184**	0.784	0.032
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.11	0	1.53	**7.654**	0.594	0.022
ADA-035	0	0	32	215.3	153	0.9	0.02	0.11	0	2.35	**30.284**	**5.445**	0.462
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.11	0	1.32	4.018	0.229	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.11	0	1.65	**10.062**	0.902	0.038
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.11	0	2.15	**23.877**	3.616	0.258
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.11	0	2.06	**21.17**	2.955	0.194
ADA-045	0	0	32	379	267.6	0.9	0.02	0.11	0	3.28	**57.611**	**18.542**	2.905
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.11	0	2.33	**29.411**	**5.173**	0.429
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.11	0	2.98	**49.55**	**13.607**	1.795
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.11	0	1.93	**17.487**	2.159	0.126
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.11	0	1.39	**5.163**	0.33	0.01

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.11	0	3.56	**64.235**	**23.512**	4.253
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.11	0	1.81	**14.122**	1.532	0.078
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.11	0	3.47	**62.182**	**21.87**	3.782
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.11	0	1.69	**11.108**	1.051	0.047
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.11	0	3.96	**72.181**	**30.902**	**6.699**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.11	0	2.32	**29.268**	**5.129**	0.424
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.11	0	1.58	**8.654**	0.716	0.028
ADA-057	0	0	32	132.4	95	0.9	0.02	0.11	0	1.87	**15.645**	1.804	0.098
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.11	0	1.63	**9.824**	0.869	0.036
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.11	0	1.93	**17.446**	2.151	0.125
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.11	0	3.81	**69.403**	**28.111**	**5.711**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.11	0	1.82	**14.293**	1.562	0.08
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.11	0	3.1	**52.791**	**15.461**	2.186
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.11	0	1.94	**17.741**	2.21	0.13
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.11	0	2.07	**21.376**	3.003	0.199
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.11	0	3.3	**58.104**	**18.881**	2.99
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.11	0	2.07	**21.583**	3.052	0.203
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.11	0	1.71	**11.697**	1.139	0.052
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.11	0	2.52	**35.39**	**7.192**	0.691
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.11	0	2.7	**41.027**	**9.447**	1.034
ADA-073	0	0	32	310	219.3	0.9	0.02	0.11	0	2.9	**47.012**	**12.265**	1.532
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.11	0	2.76	**42.905**	**10.282**	1.174
ADA-078	0	0	32	255	180.8	0.9	0.02	0.11	0	2.58	**37.5**	**7.994**	0.808
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.11	0	1.97	**18.533**	2.373	0.143
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.11	0	2.19	**25.083**	3.931	0.29
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.11	0	2.25	**27.059**	4.476	0.349
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.11	0	2.18	**24.721**	3.835	0.28
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.11	0	1.95	**17.939**	2.251	0.133
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.11	0	2.98	**49.49**	**13.574**	1.788
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.11	0	3	**50.05**	**13.883**	1.851
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.11	0	2.57	**37.079**	**7.83**	0.783
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.11	0	2.73	**42.048**	**9.896**	1.108
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.11	0	2.4	**31.767**	**5.925**	0.522
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.11	0	2.16	**24.088**	3.67	0.263
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.11	0	1.67	**10.678**	0.988	0.043
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.11	0	2.05	**20.964**	2.908	0.19
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.11	0	3.2	**55.475**	**17.126**	2.564
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.11	0	4.12	**75.096**	**34.114**	**7.937**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.11	0	2.6	**37.919**	**8.159**	0.832
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.11	0	2.41	**31.981**	**5.996**	0.531
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.11	0	1.83	**14.675**	1.629	0.085
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.11	0	2.11	**22.621**	3.301	0.227
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.11	0	1.55	**8.01**	0.636	0.024
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.11	0	2.42	**32.409**	**6.14**	0.549
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.11	0	1.55	**8.038**	0.64	0.024
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.11	0	1.96	**18.137**	2.291	0.136
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.11	0	2.42	**32.338**	**6.116**	0.546
ADA-109	0	0	32	379	267.6	0.9	0.02	0.11	0	3.28	**57.611**	**18.542**	2.905

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.11	0	2.64	**39.378**	**8.75**	0.923
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.11	0	1.79	**13.576**	1.439	0.072
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.11	0	1.69	**11.09**	1.048	0.047
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.11	0	2.05	**20.759**	2.861	0.186
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.11	0	1.76	**12.79**	1.31	0.063
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.11	0	1.93	**17.348**	2.131	0.123
ADA-116	0	0	32	112.4	81	0.9	0.02	0.11	0	1.75	**12.527**	1.268	0.061
ADA-117	0	0	32	193	137.4	0.9	0.02	0.11	0	2.22	**26.206**	4.237	0.323
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.11	0	2.21	**25.78**	4.12	0.31
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.11	0	2.3	**28.555**	4.914	0.399
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.11	0	2.49	**34.542**	**6.883**	0.649
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.11	0	1.42	**5.501**	0.363	0.011
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.11	0	2.13	**23.179**	3.439	0.24
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.11	0	1.98	**18.728**	2.414	0.147
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.11	0	3.55	**64.004**	**23.322**	4.197
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.11	0	2.34	**29.839**	**5.306**	0.445
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.11	0	3.19	**55.25**	**16.982**	2.53
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.11	0	3.32	**58.429**	**19.107**	3.047
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.11	0	2.09	**22.204**	3.2	0.217
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.11	0	3.05	**51.525**	**14.718**	2.025
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.11	0	1.91	**16.958**	2.054	0.117
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.11	0	3.32	**58.429**	**19.107**	3.047
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.11	0	2.39	**31.338**	**5.784**	0.504
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.11	0	4.25	**77.062**	**36.468**	**8.916**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.11	0	2.21	**25.78**	4.12	0.31
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.11	0	4.47	**80.211**	**40.607**	**10.792**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.11	0	2.71	**41.436**	**9.625**	1.063
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.11	0	5.24	**88.206**	**53.923**	**18.366**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.11	0	3.25	**56.725**	**17.944**	2.759
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.11	0	3.35	**59.395**	**19.79**	3.222
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.11	0	5.34	**89.01**	**55.574**	**19.494**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.11	0	3.24	**56.443**	**17.758**	2.714
ADA-150	0	0	32	626.7	441	0.9	0.02	0.11	0	4.62	**82.059**	**43.281**	**12.116**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.11	0	3.61	**65.225**	**24.339**	4.5
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.11	0	2.84	**45.313**	**11.418**	1.374
ADA-153	0	0	32	448	315.9	0.9	0.02	0.11	0	3.66	**66.462**	**25.406**	4.828
ADA-154	0	0	32	397	280.2	0.9	0.02	0.11	0	3.38	**60.081**	**20.287**	3.352
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.11	0	2.95	**48.546**	**13.065**	1.686
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.11	0	3.26	**57.113**	**18.204**	2.822
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.11	0	3.34	**58.914**	**19.448**	3.134
ADA-159	0	0	32	516.7	364	0.9	0.02	0.11	0	4.04	**73.587**	**32.412**	**7.267**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.11	0	3.11	**53.107**	**15.651**	2.227
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.11	0	3.32	**58.429**	**19.107**	3.047
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.11	0	5.99	**92.947**	**64.987**	**26.927**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.11	0	3.92	**71.607**	**30.305**	**6.48**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.11	0	4.29	**77.621**	**37.168**	**9.219**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.11	0	2.92	**47.59**	**12.563**	1.588
ADA-169	0	0	32	68.2	50	0.9	0.02	0.11	0	1.48	**6.688**	0.485	0.017

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.11	0	1.73	**11.954**	1.178	0.055
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.11	0	1.64	**10.014**	0.895	0.038
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.11	0	1.49	**6.793**	0.497	0.017
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.11	0	1.61	**9.271**	0.795	0.032
ADA-174	0	0	32	76.7	56	0.9	0.02	0.11	0	1.53	**7.682**	0.598	0.022
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.11	0	1.57	**8.432**	0.688	0.027
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.11	0	1.55	**7.909**	0.624	0.023
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.11	0	1.5	**7.034**	0.523	0.019
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.11	0	1.41	**5.336**	0.347	0.011
ADA-179	0	0	32	67	49.2	0.9	0.02	0.11	0	1.48	**6.557**	0.471	0.016
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.11	0	1.84	**15.048**	1.695	0.09
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.11	0	1.68	**10.808**	1.007	0.044
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.11	0	1.32	3.979	0.226	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.11	0	1.42	**5.596**	0.372	0.012
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.11	0	1.58	**8.624**	0.712	0.028

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Future Resident, Whitefish
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 03`06`2020 WHI.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	0	32	354.1	250.1	0.9	0.02	0.04	0	3.13	**53.668**	**15.992**	2.303
ADA-002	0	0	32	60.4	44.5	0.9	0.02	0.04	0	1.42	**5.627**	0.375	0.012
ADA-004	0	0	32	161.4	115.3	0.9	0.02	0.04	0	2.03	**20.2**	2.734	0.174
ADA-005	0	0	32	84.7	61.6	0.9	0.02	0.04	0	1.57	**8.412**	0.686	0.027
ADA-006	0	0	32	294.8	208.6	0.9	0.02	0.04	0	2.8	**44.115**	**10.843**	1.271
ADA-008	0	0	32	347.4	245.5	0.9	0.02	0.04	0	3.1	**52.659**	**15.383**	2.168
ADA-010	0	0	32	526.4	370.8	0.9	0.02	0.04	0	4.08	**74.292**	**33.197**	**7.572**
ADA-015	0	0	32	175.5	125.1	0.9	0.02	0.04	0	2.11	**22.676**	3.315	0.228
ADA-016	0	0	32	258.6	183.3	0.9	0.02	0.04	0	2.59	**37.781**	**8.104**	0.824
ADA-017	0	0	32	290.1	205.4	0.9	0.02	0.04	0	2.77	**43.315**	**10.47**	1.206
ADA-018	0	0	32	526.4	370.8	0.9	0.02	0.04	0	4.08	**74.292**	**33.197**	**7.572**
ADA-019	0	0	32	114.4	82.4	0.9	0.02	0.04	0	1.75	**12.521**	1.267	0.061
ADA-020	0	0	32	104.2	75.2	0.9	0.02	0.04	0	1.69	**11.029**	1.039	0.046
ADA-021	0	0	32	106.8	77.1	0.9	0.02	0.04	0	1.7	**11.403**	1.095	0.05
ADA-023	0	0	32	177	126.2	0.9	0.02	0.04	0	2.12	**22.955**	3.384	0.235
ADA-024	0	0	32	510	359.3	0.9	0.02	0.04	0	3.99	**72.773**	**31.53**	**6.932**
ADA-025	0	0	32	243.3	172.6	0.9	0.02	0.04	0	2.5	**35.022**	**7.057**	0.673
ADA-026	0	0	32	84.2	61.3	0.9	0.02	0.04	0	1.57	**8.354**	0.678	0.026
ADA-028	0	0	32	242.1	171.8	0.9	0.02	0.04	0	2.5	**34.81**	**6.98**	0.662
ADA-033	0	0	32	88.7	64.4	0.9	0.02	0.04	0	1.59	**8.92**	0.75	0.03
ADA-034	0	0	32	76.5	55.8	0.9	0.02	0.04	0	1.52	**7.412**	0.566	0.021
ADA-035	0	0	32	215.3	153	0.9	0.02	0.04	0	2.34	**29.912**	**5.329**	0.448
ADA-039	0	0	32	41.2	31.1	0.9	0.02	0.04	0	1.31	3.848	0.215	0.006
ADA-042	0	0	32	95.2	69	0.9	0.02	0.04	0	1.63	**9.786**	0.864	0.036
ADA-043	0	0	32	180.1	128.4	0.9	0.02	0.04	0	2.14	**23.513**	3.523	0.249
ADA-044	0	0	32	164.9	117.8	0.9	0.02	0.04	0	2.05	**20.814**	2.873	0.187
ADA-045	0	0	32	379	267.6	0.9	0.02	0.04	0	3.27	**57.324**	**18.347**	2.857
ADA-046	0	0	32	210.6	149.7	0.9	0.02	0.04	0	2.31	**29.04**	**5.06**	0.416
ADA-047	0	0	32	325.6	230.2	0.9	0.02	0.04	0	2.97	**49.224**	**13.43**	1.759
ADA-048	0	0	32	143.6	102.8	0.9	0.02	0.04	0	1.92	**17.148**	2.092	0.12
ADA-049	0	0	32	53.7	39.9	0.9	0.02	0.04	0	1.38	4.966	0.312	0.009
ADA-050	0	0	32	429.3	302.8	0.9	0.02	0.04	0	3.55	**63.986**	**23.307**	4.193

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-051	0	0	32	122.8	88.3	0.9	0.02	0.04	0	1.8	**13.806**	1.478	0.075
ADA-052	0	0	32	412.9	291.4	0.9	0.02	0.04	0	3.46	**61.921**	**21.668**	3.726
ADA-053	0	0	32	102.7	74.2	0.9	0.02	0.04	0	1.68	**10.82**	1.009	0.045
ADA-054	0	0	32	501.9	353.6	0.9	0.02	0.04	0	3.94	**71.983**	**30.695**	**6.622**
ADA-055	0	0	32	209.8	149.1	0.9	0.02	0.04	0	2.31	**28.896**	**5.016**	0.411
ADA-056	0	0	32	84.6	61.5	0.9	0.02	0.04	0	1.57	**8.398**	0.684	0.026
ADA-057	0	0	32	132.4	95	0.9	0.02	0.04	0	1.85	**15.317**	1.744	0.094
ADA-058	0	0	32	93.5	67.7	0.9	0.02	0.04	0	1.62	**9.551**	0.832	0.034
ADA-059	0	0	32	143.3	102.6	0.9	0.02	0.04	0	1.92	**17.107**	2.083	0.12
ADA-060	0	0	32	474.5	334.5	0.9	0.02	0.04	0	3.8	**69.187**	**27.904**	**5.64**
ADA-061	0	0	32	123.9	89	0.9	0.02	0.04	0	1.8	**13.975**	1.507	0.077
ADA-062	0	0	32	346.3	244.7	0.9	0.02	0.04	0	3.09	**52.479**	**15.276**	2.145
ADA-063	0	0	32	145.1	103.8	0.9	0.02	0.04	0	1.93	**17.401**	2.142	0.124
ADA-064	0	0	32	166.1	118.6	0.9	0.02	0.04	0	2.05	**21.019**	2.921	0.191
ADA-065	0	0	32	382.5	270.1	0.9	0.02	0.04	0	3.29	**57.819**	**18.685**	2.941
ADA-066	0	0	32	167.3	119.4	0.9	0.02	0.04	0	2.06	**21.225**	2.968	0.195
ADA-067	0	0	32	106.8	77.1	0.9	0.02	0.04	0	1.7	**11.403**	1.095	0.05
ADA-070	0	0	32	243.3	172.6	0.9	0.02	0.04	0	2.5	**35.022**	**7.057**	0.673
ADA-071	0	0	32	274.9	194.7	0.9	0.02	0.04	0	2.68	**40.671**	**9.294**	1.009
ADA-073	0	0	32	310	219.3	0.9	0.02	0.04	0	2.88	**46.676**	**12.095**	1.499
ADA-076	0	0	32	285.7	202.3	0.9	0.02	0.04	0	2.75	**42.555**	**10.123**	1.147
ADA-078	0	0	32	255	180.8	0.9	0.02	0.04	0	2.57	**37.136**	**7.852**	0.786
ADA-079	0	0	32	149.7	107.1	0.9	0.02	0.04	0	1.96	**18.188**	2.302	0.137
ADA-081	0	0	32	186.8	133.1	0.9	0.02	0.04	0	2.18	**24.716**	3.834	0.28
ADA-082	0	0	32	197.7	140.7	0.9	0.02	0.04	0	2.24	**26.689**	4.372	0.337
ADA-084	0	0	32	184.8	131.7	0.9	0.02	0.04	0	2.16	**24.355**	3.739	0.27
ADA-085	0	0	32	146.2	104.7	0.9	0.02	0.04	0	1.94	**17.597**	2.181	0.127
ADA-088	0	0	32	325.2	229.9	0.9	0.02	0.04	0	2.97	**49.163**	**13.397**	1.752
ADA-089	0	0	32	328.7	232.4	0.9	0.02	0.04	0	2.99	**49.726**	**13.704**	1.814
ADA-090	0	0	32	252.7	179.2	0.9	0.02	0.04	0	2.56	**36.714**	**7.689**	0.763
ADA-091	0	0	32	280.8	198.8	0.9	0.02	0.04	0	2.72	**41.695**	**9.739**	1.082
ADA-092	0	0	32	223.4	158.7	0.9	0.02	0.04	0	2.39	**31.395**	**5.803**	0.506
ADA-093	0	0	32	181.3	129.2	0.9	0.02	0.04	0	2.14	**23.723**	3.577	0.254
ADA-094	0	0	32	99.7	72.1	0.9	0.02	0.04	0	1.66	**10.395**	0.948	0.041
ADA-095	0	0	32	163.8	116.9	0.9	0.02	0.04	0	2.04	**20.609**	2.827	0.183
ADA-096	0	0	32	364.2	257.2	0.9	0.02	0.04	0	3.19	**55.177**	**16.935**	2.519
ADA-097	0	0	32	533.4	375.7	0.9	0.02	0.04	0	4.11	**74.918**	**33.909**	**7.854**
ADA-099	0	0	32	257.4	182.4	0.9	0.02	0.04	0	2.58	**37.556**	**8.016**	0.811
ADA-101	0	0	32	224.6	159.5	0.9	0.02	0.04	0	2.4	**31.61**	**5.873**	0.515
ADA-102	0	0	32	126.3	90.7	0.9	0.02	0.04	0	1.82	**14.355**	1.572	0.081
ADA-103	0	0	32	173.1	123.5	0.9	0.02	0.04	0	2.1	**22.26**	3.213	0.218
ADA-104	0	0	32	79.4	57.9	0.9	0.02	0.04	0	1.54	**7.762**	0.607	0.023
ADA-105	0	0	32	226.9	161.2	0.9	0.02	0.04	0	2.41	**32.038**	**6.015**	0.533
ADA-106	0	0	32	79.7	58.1	0.9	0.02	0.04	0	1.54	**7.79**	0.61	0.023
ADA-107	0	0	32	147.4	105.5	0.9	0.02	0.04	0	1.94	**17.794**	2.221	0.131
ADA-108	0	0	32	226.6	160.9	0.9	0.02	0.04	0	2.41	**31.967**	**5.992**	0.53
ADA-109	0	0	32	379	267.6	0.9	0.02	0.04	0	3.27	**57.324**	**18.347**	2.857
ADA-110	0	0	32	265.5	188.2	0.9	0.02	0.04	0	2.63	**39.018**	**8.601**	0.9
ADA-111	0	0	32	119.3	85.8	0.9	0.02	0.04	0	1.78	**13.264**	1.387	0.069

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-112	0	0	32	102.6	74.1	0.9	0.02	0.04	0	1.68	**10.803**	1.006	0.044
ADA-113	0	0	32	162.6	116.1	0.9	0.02	0.04	0	2.03	**20.404**	2.78	0.178
ADA-114	0	0	32	114.2	82.2	0.9	0.02	0.04	0	1.75	**12.486**	1.261	0.06
ADA-115	0	0	32	142.7	102.2	0.9	0.02	0.04	0	1.92	**17.01**	2.064	0.118
ADA-116	0	0	32	112.4	81	0.9	0.02	0.04	0	1.74	**12.225**	1.22	0.058
ADA-117	0	0	32	193	137.4	0.9	0.02	0.04	0	2.21	**25.837**	4.135	0.312
ADA-118	0	0	32	190.7	135.8	0.9	0.02	0.04	0	2.2	**25.412**	4.02	0.299
ADA-119	0	0	32	205.9	146.4	0.9	0.02	0.04	0	2.29	**28.184**	4.803	0.386
ADA-121	0	0	32	238.6	169.4	0.9	0.02	0.04	0	2.48	**34.173**	**6.751**	0.63
ADA-122	0	0	32	57.1	42.3	0.9	0.02	0.04	0	1.4	**5.297**	0.343	0.011
ADA-124	0	0	32	176.3	125.7	0.9	0.02	0.04	0	2.11	**22.816**	3.349	0.231
ADA-125	0	0	32	150.9	107.9	0.9	0.02	0.04	0	1.96	**18.382**	2.342	0.141
ADA-126	0	0	32	427.4	301.5	0.9	0.02	0.04	0	3.54	**63.754**	**23.118**	4.137
ADA-127	0	0	32	212.9	151.3	0.9	0.02	0.04	0	2.33	**29.467**	**5.191**	0.431
ADA-128	0	0	32	362.6	256.1	0.9	0.02	0.04	0	3.18	**54.951**	**16.792**	2.486
ADA-131	0	0	32	384.9	271.7	0.9	0.02	0.04	0	3.3	**58.147**	**18.91**	2.997
ADA-132	0	0	32	170.8	121.8	0.9	0.02	0.04	0	2.08	**21.844**	3.114	0.209
ADA-133	0	0	32	338.1	238.9	0.9	0.02	0.04	0	3.04	**51.208**	**14.535**	1.986
ADA-135	0	0	32	140.4	100.6	0.9	0.02	0.04	0	1.9	**16.621**	1.989	0.112
ADA-136	0	0	32	384.9	271.7	0.9	0.02	0.04	0	3.3	**58.147**	**18.91**	2.997
ADA-139	0	0	32	221.1	157.1	0.9	0.02	0.04	0	2.38	**30.967**	**5.664**	0.489
ADA-140	0	0	32	556.8	392.1	0.9	0.02	0.04	0	4.24	**76.898**	**36.265**	**8.829**
ADA-141	0	0	32	190.7	135.8	0.9	0.02	0.04	0	2.2	**25.412**	4.02	0.299
ADA-142	0	0	32	598.8	421.5	0.9	0.02	0.04	0	4.46	**80.069**	**40.409**	**10.698**
ADA-143	0	0	32	277.2	196.4	0.9	0.02	0.04	0	2.7	**41.081**	**9.471**	1.038
ADA-144	0	0	32	746.9	525.2	0.9	0.02	0.04	0	5.23	**88.123**	**53.757**	**18.255**
ADA-145	0	0	32	372.8	263.3	0.9	0.02	0.04	0	3.24	**56.433**	**17.751**	2.712
ADA-146	0	0	32	391.9	276.6	0.9	0.02	0.04	0	3.34	**59.118**	**19.592**	3.171
ADA-147	0	0	32	767.4	539.5	0.9	0.02	0.04	0	5.33	**88.932**	**55.413**	**19.382**
ADA-148	0	0	32	370.8	261.9	0.9	0.02	0.04	0	3.23	**56.15**	**17.565**	2.667
ADA-150	0	0	32	626.7	441	0.9	0.02	0.04	0	4.61	**81.931**	**43.089**	**12.017**
ADA-151	0	0	32	437.5	308.5	0.9	0.02	0.04	0	3.59	**64.982**	**24.133**	4.438
ADA-152	0	0	32	299.8	212.2	0.9	0.02	0.04	0	2.83	**44.971**	**11.252**	1.344
ADA-153	0	0	32	448	315.9	0.9	0.02	0.04	0	3.65	**66.226**	**25.2**	4.764
ADA-154	0	0	32	397	280.2	0.9	0.02	0.04	0	3.37	**59.808**	**20.088**	3.3
ADA-155	0	0	32	319.4	225.9	0.9	0.02	0.04	0	2.94	**48.216**	**12.89**	1.652
ADA-156	0	0	32	375.5	265.1	0.9	0.02	0.04	0	3.25	**56.823**	**18.01**	2.775
ADA-158	0	0	32	388.4	274.2	0.9	0.02	0.04	0	3.32	**58.634**	**19.25**	3.083
ADA-159	0	0	32	516.7	364	0.9	0.02	0.04	0	4.02	**73.398**	**32.206**	**7.188**
ADA-160	0	0	32	348.3	246.1	0.9	0.02	0.04	0	3.1	**52.797**	**15.465**	2.186
ADA-161	0	0	32	384.9	271.7	0.9	0.02	0.04	0	3.3	**58.147**	**18.91**	2.997
ADA-162	0	0	32	898.3	631.1	0.9	0.02	0.04	0	5.98	**92.899**	**64.856**	**26.81**
ADA-164	0	0	32	496	349.5	0.9	0.02	0.04	0	3.91	**71.405**	**30.098**	**6.405**
ADA-165	0	0	32	563.8	397	0.9	0.02	0.04	0	4.28	**77.46**	**36.966**	**9.131**
ADA-168	0	0	32	313.5	221.8	0.9	0.02	0.04	0	2.9	**47.256**	**12.39**	1.555
ADA-169	0	0	32	68.2	50	0.9	0.02	0.04	0	1.47	**6.462**	0.461	0.016
ADA-170	0	0	32	108.6	78.3	0.9	0.02	0.04	0	1.71	**11.658**	1.133	0.052
ADA-171	0	0	32	94.9	68.7	0.9	0.02	0.04	0	1.63	**9.739**	0.858	0.036
ADA-172	0	0	32	69.1	50.7	0.9	0.02	0.04	0	1.48	**6.566**	0.472	0.016

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-173	0	0	32	89.3	64.8	0.9	0.02	0.04	0	1.6	**9.005**	0.761	0.03
ADA-174	0	0	32	76.7	56	0.9	0.02	0.04	0	1.52	**7.44**	0.569	0.021
ADA-175	0	0	32	82.8	60.3	0.9	0.02	0.04	0	1.56	**8.179**	0.657	0.025
ADA-176	0	0	32	78.6	57.3	0.9	0.02	0.04	0	1.53	**7.664**	0.595	0.022
ADA-177	0	0	32	71.2	52.2	0.9	0.02	0.04	0	1.49	**6.802**	0.498	0.017
ADA-178	0	0	32	55.5	41.1	0.9	0.02	0.04	0	1.39	**5.136**	0.328	0.01
ADA-179	0	0	32	67	49.2	0.9	0.02	0.04	0	1.46	**6.334**	0.447	0.015
ADA-180	0	0	32	128.7	92.4	0.9	0.02	0.04	0	1.83	**14.724**	1.637	0.086
ADA-181	0	0	32	100.6	72.7	0.9	0.02	0.04	0	1.67	**10.524**	0.967	0.042
ADA-182	0	0	32	40.7	30.8	0.9	0.02	0.04	0	1.3	3.81	0.212	0.006
ADA-183	0	0	32	58	42.9	0.9	0.02	0.04	0	1.41	**5.391**	0.352	0.011
ADA-184	0	0	32	84.3	61.3	0.9	0.02	0.04	0	1.57	**8.368**	0.68	0.026

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/28/2020
Site Name: UCR
Operable Unit: Future Resident, No Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5 or 8 µg/dL

Input File: ADA 02`28`2020 NO Fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-001	0	1	32	354.1	250.1	0.9	0.02	0	0	3.13	**53.493**	**15.885**	2.279
ADA-002	0	1	32	60.4	44.5	0.9	0.02	0	0	1.42	**5.509**	0.363	0.011
ADA-004	0	1	32	161.4	115.3	0.9	0.02	0	0	2.02	**19.999**	2.689	0.17
ADA-005	0	1	32	84.7	61.6	0.9	0.02	0	0	1.56	**8.267**	0.668	0.026
ADA-006	0	1	32	294.8	208.6	0.9	0.02	0	0	2.79	**43.917**	**10.75**	1.255
ADA-008	0	1	32	347.4	245.5	0.9	0.02	0	0	3.09	**52.481**	**15.277**	2.145
ADA-010	0	1	32	526.4	370.8	0.9	0.02	0	0	4.07	**74.188**	**33.08**	**7.526**
ADA-015	0	1	32	175.5	125.1	0.9	0.02	0	0	2.1	**22.47**	3.264	0.223
ADA-016	0	1	32	258.6	183.3	0.9	0.02	0	0	2.59	**37.574**	**8.023**	0.812
ADA-017	0	1	32	290.1	205.4	0.9	0.02	0	0	2.77	**43.115**	**10.378**	1.19
ADA-018	0	1	32	526.4	370.8	0.9	0.02	0	0	4.07	**74.188**	**33.08**	**7.526**
ADA-019	0	1	32	114.4	82.4	0.9	0.02	0	0	1.74	**12.348**	1.24	0.059
ADA-020	0	1	32	104.2	75.2	0.9	0.02	0	0	1.68	**10.865**	1.015	0.045
ADA-021	0	1	32	106.8	77.1	0.9	0.02	0	0	1.7	**11.237**	1.07	0.048
ADA-023	0	1	32	177	126.2	0.9	0.02	0	0	2.11	**22.748**	3.332	0.23
ADA-024	0	1	32	510	359.3	0.9	0.02	0	0	3.98	**72.663**	**31.412**	**6.888**
ADA-025	0	1	32	243.3	172.6	0.9	0.02	0	0	2.5	**34.812**	**6.98**	0.662
ADA-026	0	1	32	84.2	61.3	0.9	0.02	0	0	1.56	**8.209**	0.661	0.025
ADA-028	0	1	32	242.1	171.8	0.9	0.02	0	0	2.49	**34.599**	**6.904**	0.651
ADA-033	0	1	32	88.7	64.4	0.9	0.02	0	0	1.59	**8.771**	0.731	0.029
ADA-034	0	1	32	76.5	55.8	0.9	0.02	0	0	1.51	**7.276**	0.55	0.02
ADA-035	0	1	32	215.3	153	0.9	0.02	0	0	2.34	**29.7**	**5.263**	0.44
ADA-039	0	1	32	41.2	31.1	0.9	0.02	0	0	1.3	3.753	0.207	0.006
ADA-042	0	1	32	95.2	69	0.9	0.02	0	0	1.63	**9.631**	0.843	0.035
ADA-043	0	1	32	180.1	128.4	0.9	0.02	0	0	2.13	**23.305**	3.471	0.243
ADA-044	0	1	32	164.9	117.8	0.9	0.02	0	0	2.04	**20.611**	2.827	0.183
ADA-045	0	1	32	379	267.6	0.9	0.02	0	0	3.27	**57.159**	**18.235**	2.83
ADA-046	0	1	32	210.6	149.7	0.9	0.02	0	0	2.31	**28.828**	4.996	0.408
ADA-047	0	1	32	325.6	230.2	0.9	0.02	0	0	2.97	**49.037**	**13.329**	1.739
ADA-048	0	1	32	143.6	102.8	0.9	0.02	0	0	1.91	**16.955**	2.054	0.117
ADA-049	0	1	32	53.7	39.9	0.9	0.02	0	0	1.38	4.856	0.302	0.009
ADA-050	0	1	32	429.3	302.8	0.9	0.02	0	0	3.54	**63.843**	**23.191**	4.158
ADA-051	0	1	32	122.8	88.3	0.9	0.02	0	0	1.79	**13.626**	1.448	0.073
ADA-052	0	1	32	412.9	291.4	0.9	0.02	0	0	3.45	**61.77**	**21.552**	3.694

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-053	0	1	32	102.7	74.2	0.9	0.02	0	0	1.67	**10.657**	0.986	0.043
ADA-054	0	1	32	501.9	353.6	0.9	0.02	0	0	3.94	**71.869**	**30.576**	**6.579**
ADA-055	0	1	32	209.8	149.1	0.9	0.02	0	0	2.3	**28.684**	4.952	0.403
ADA-056	0	1	32	84.6	61.5	0.9	0.02	0	0	1.56	**8.252**	0.666	0.026
ADA-057	0	1	32	132.4	95	0.9	0.02	0	0	1.85	**15.131**	1.71	0.091
ADA-058	0	1	32	93.5	67.7	0.9	0.02	0	0	1.62	**9.397**	0.812	0.033
ADA-059	0	1	32	143.3	102.6	0.9	0.02	0	0	1.91	**16.914**	2.046	0.117
ADA-060	0	1	32	474.5	334.5	0.9	0.02	0	0	3.79	**69.063**	**27.785**	**5.6**
ADA-061	0	1	32	123.9	89	0.9	0.02	0	0	1.8	**13.795**	1.476	0.075
ADA-062	0	1	32	346.3	244.7	0.9	0.02	0	0	3.08	**52.301**	**15.17**	2.122
ADA-063	0	1	32	145.1	103.8	0.9	0.02	0	0	1.92	**17.207**	2.103	0.121
ADA-064	0	1	32	166.1	118.6	0.9	0.02	0	0	2.05	**20.816**	2.874	0.187
ADA-065	0	1	32	382.5	270.1	0.9	0.02	0	0	3.29	**57.656**	**18.573**	2.913
ADA-066	0	1	32	167.3	119.4	0.9	0.02	0	0	2.05	**21.021**	2.921	0.191
ADA-067	0	1	32	106.8	77.1	0.9	0.02	0	0	1.7	**11.237**	1.07	0.048
ADA-070	0	1	32	243.3	172.6	0.9	0.02	0	0	2.5	**34.812**	**6.98**	0.662
ADA-071	0	1	32	274.9	194.7	0.9	0.02	0	0	2.68	**40.467**	**9.207**	0.995
ADA-073	0	1	32	310	219.3	0.9	0.02	0	0	2.88	**46.483**	**11.997**	1.481
ADA-076	0	1	32	285.7	202.3	0.9	0.02	0	0	2.74	**42.354**	**10.033**	1.131
ADA-078	0	1	32	255	180.8	0.9	0.02	0	0	2.56	**36.927**	**7.771**	0.775
ADA-079	0	1	32	149.7	107.1	0.9	0.02	0	0	1.95	**17.992**	2.261	0.134
ADA-081	0	1	32	186.8	133.1	0.9	0.02	0	0	2.17	**24.507**	3.779	0.274
ADA-082	0	1	32	197.7	140.7	0.9	0.02	0	0	2.23	**26.478**	4.312	0.331
ADA-084	0	1	32	184.8	131.7	0.9	0.02	0	0	2.16	**24.146**	3.685	0.265
ADA-085	0	1	32	146.2	104.7	0.9	0.02	0	0	1.93	**17.403**	2.142	0.124
ADA-088	0	1	32	325.2	229.9	0.9	0.02	0	0	2.96	**48.976**	**13.296**	1.732
ADA-089	0	1	32	328.7	232.4	0.9	0.02	0	0	2.98	**49.541**	**13.602**	1.794
ADA-090	0	1	32	252.7	179.2	0.9	0.02	0	0	2.55	**36.505**	**7.61**	0.751
ADA-091	0	1	32	280.8	198.8	0.9	0.02	0	0	2.71	**41.493**	**9.65**	1.067
ADA-092	0	1	32	223.4	158.7	0.9	0.02	0	0	2.38	**31.183**	**5.734**	0.498
ADA-093	0	1	32	181.3	129.2	0.9	0.02	0	0	2.14	**23.515**	3.524	0.249
ADA-094	0	1	32	99.7	72.1	0.9	0.02	0	0	1.65	**10.235**	0.926	0.04
ADA-095	0	1	32	163.8	116.9	0.9	0.02	0	0	2.03	**20.406**	2.781	0.178
ADA-096	0	1	32	364.2	257.2	0.9	0.02	0	0	3.18	**55.006**	**16.826**	2.494
ADA-097	0	1	32	533.4	375.7	0.9	0.02	0	0	4.11	**74.815**	**33.791**	**7.807**
ADA-099	0	1	32	257.4	182.4	0.9	0.02	0	0	2.58	**37.348**	**7.934**	0.799
ADA-101	0	1	32	224.6	159.5	0.9	0.02	0	0	2.39	**31.398**	**5.804**	0.506
ADA-102	0	1	32	126.3	90.7	0.9	0.02	0	0	1.81	**14.173**	1.541	0.079
ADA-103	0	1	32	173.1	123.5	0.9	0.02	0	0	2.09	**22.054**	3.164	0.214
ADA-104	0	1	32	79.4	57.9	0.9	0.02	0	0	1.53	**7.623**	0.59	0.022
ADA-105	0	1	32	226.9	161.2	0.9	0.02	0	0	2.4	**31.826**	**5.945**	0.524
ADA-106	0	1	32	79.7	58.1	0.9	0.02	0	0	1.53	**7.65**	0.594	0.022
ADA-107	0	1	32	147.4	105.5	0.9	0.02	0	0	1.94	**17.599**	2.182	0.127
ADA-108	0	1	32	226.6	160.9	0.9	0.02	0	0	2.4	**31.755**	**5.921**	0.521
ADA-109	0	1	32	379	267.6	0.9	0.02	0	0	3.27	**57.159**	**18.235**	2.83
ADA-110	0	1	32	265.5	188.2	0.9	0.02	0	0	2.62	**38.811**	**8.517**	0.887
ADA-111	0	1	32	119.3	85.8	0.9	0.02	0	0	1.77	**13.087**	1.358	0.067
ADA-112	0	1	32	102.6	74.1	0.9	0.02	0	0	1.67	**10.64**	0.983	0.043
ADA-113	0	1	32	162.6	116.1	0.9	0.02	0	0	2.03	**20.202**	2.735	0.174
ADA-114	0	1	32	114.2	82.2	0.9	0.02	0	0	1.74	**12.313**	1.234	0.058
ADA-115	0	1	32	142.7	102.2	0.9	0.02	0	0	1.91	**16.817**	2.027	0.115

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-116	0	1	32	112.4	81	0.9	0.02	0	0	1.73	**12.053**	1.194	0.056
ADA-117	0	1	32	193	137.4	0.9	0.02	0	0	2.21	**25.627**	4.078	0.306
ADA-118	0	1	32	190.7	135.8	0.9	0.02	0	0	2.19	**25.202**	3.963	0.293
ADA-119	0	1	32	205.9	146.4	0.9	0.02	0	0	2.28	**27.972**	4.741	0.379
ADA-121	0	1	32	238.6	169.4	0.9	0.02	0	0	2.47	**33.962**	**6.676**	0.62
ADA-122	0	1	32	57.1	42.3	0.9	0.02	0	0	1.4	**5.183**	0.332	0.01
ADA-124	0	1	32	176.3	125.7	0.9	0.02	0	0	2.11	**22.609**	3.298	0.227
ADA-125	0	1	32	150.9	107.9	0.9	0.02	0	0	1.96	**18.185**	2.301	0.137
ADA-126	0	1	32	427.4	301.5	0.9	0.02	0	0	3.53	**63.61**	**23.001**	4.103
ADA-127	0	1	32	212.9	151.3	0.9	0.02	0	0	2.32	**29.255**	**5.126**	0.423
ADA-128	0	1	32	362.6	256.1	0.9	0.02	0	0	3.17	**54.779**	**16.683**	2.461
ADA-131	0	1	32	384.9	271.7	0.9	0.02	0	0	3.3	**57.985**	**18.798**	2.969
ADA-132	0	1	32	170.8	121.8	0.9	0.02	0	0	2.07	**21.639**	3.065	0.204
ADA-133	0	1	32	338.1	238.9	0.9	0.02	0	0	3.04	**51.026**	**14.432**	1.965
ADA-135	0	1	32	140.4	100.6	0.9	0.02	0	0	1.9	**16.43**	1.952	0.109
ADA-136	0	1	32	384.9	271.7	0.9	0.02	0	0	3.3	**57.985**	**18.798**	2.969
ADA-139	0	1	32	221.1	157.1	0.9	0.02	0	0	2.37	**30.755**	**5.595**	0.48
ADA-140	0	1	32	556.8	392.1	0.9	0.02	0	0	4.23	**76.803**	**36.149**	**8.779**
ADA-141	0	1	32	190.7	135.8	0.9	0.02	0	0	2.19	**25.202**	3.963	0.293
ADA-142	0	1	32	598.8	421.5	0.9	0.02	0	0	4.45	**79.987**	**40.296**	**10.644**
ADA-143	0	1	32	277.2	196.4	0.9	0.02	0	0	2.69	**40.878**	**9.383**	1.024
ADA-144	0	1	32	746.9	525.2	0.9	0.02	0	0	5.22	**88.075**	**53.661**	**18.191**
ADA-145	0	1	32	372.8	263.3	0.9	0.02	0	0	3.23	**56.265**	**17.64**	2.686
ADA-146	0	1	32	391.9	276.6	0.9	0.02	0	0	3.34	**58.958**	**19.479**	3.142
ADA-147	0	1	32	767.4	539.5	0.9	0.02	0	0	5.32	**88.888**	**55.32**	**19.318**
ADA-148	0	1	32	370.8	261.9	0.9	0.02	0	0	3.22	**55.982**	**17.455**	2.641
ADA-150	0	1	32	626.7	441	0.9	0.02	0	0	4.6	**81.857**	**42.978**	**11.961**
ADA-151	0	1	32	437.5	308.5	0.9	0.02	0	0	3.59	**64.843**	**24.016**	4.402
ADA-152	0	1	32	299.8	212.2	0.9	0.02	0	0	2.82	**44.774**	**11.157**	1.327
ADA-153	0	1	32	448	315.9	0.9	0.02	0	0	3.65	**66.091**	**25.082**	4.727
ADA-154	0	1	32	397	280.2	0.9	0.02	0	0	3.37	**59.651**	**19.974**	3.27
ADA-155	0	1	32	319.4	225.9	0.9	0.02	0	0	2.93	**48.027**	**12.791**	1.633
ADA-156	0	1	32	375.5	265.1	0.9	0.02	0	0	3.25	**56.657**	**17.899**	2.748
ADA-158	0	1	32	388.4	274.2	0.9	0.02	0	0	3.32	**58.473**	**19.138**	3.055
ADA-159	0	1	32	516.7	364	0.9	0.02	0	0	4.02	**73.29**	**32.088**	**7.143**
ADA-160	0	1	32	348.3	246.1	0.9	0.02	0	0	3.09	**52.619**	**15.359**	2.163
ADA-161	0	1	32	384.9	271.7	0.9	0.02	0	0	3.3	**57.985**	**18.798**	2.969
ADA-162	0	1	32	898.3	631.1	0.9	0.02	0	0	5.98	**92.871**	**64.781**	**26.743**
ADA-164	0	1	32	496	349.5	0.9	0.02	0	0	3.91	**71.289**	**29.979**	**6.363**
ADA-165	0	1	32	563.8	397	0.9	0.02	0	0	4.27	**77.368**	**36.85**	**9.08**
ADA-168	0	1	32	313.5	221.8	0.9	0.02	0	0	2.9	**47.065**	**12.292**	1.537
ADA-169	0	1	32	68.2	50	0.9	0.02	0	0	1.46	**6.335**	0.447	0.015
ADA-170	0	1	32	108.6	78.3	0.9	0.02	0	0	1.71	**11.49**	1.108	0.051
ADA-171	0	1	32	94.9	68.7	0.9	0.02	0	0	1.62	**9.583**	0.837	0.035
ADA-172	0	1	32	69.1	50.7	0.9	0.02	0	0	1.47	**6.438**	0.458	0.016
ADA-173	0	1	32	89.3	64.8	0.9	0.02	0	0	1.59	**8.855**	0.741	0.029
ADA-174	0	1	32	76.7	56	0.9	0.02	0	0	1.52	**7.303**	0.554	0.02
ADA-175	0	1	32	82.8	60.3	0.9	0.02	0	0	1.55	**8.035**	0.64	0.024
ADA-176	0	1	32	78.6	57.3	0.9	0.02	0	0	1.53	**7.525**	0.579	0.021
ADA-177	0	1	32	71.2	52.2	0.9	0.02	0	0	1.48	**6.672**	0.483	0.017
ADA-178	0	1	32	55.5	41.1	0.9	0.02	0	0	1.39	**5.023**	0.317	0.01

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
ADA-179	0	1	32	67	49.2	0.9	0.02	0	0	1.46	**6.208**	0.434	0.014
ADA-180	0	1	32	128.7	92.4	0.9	0.02	0	0	1.83	**14.54**	1.605	0.084
ADA-181	0	1	32	100.6	72.7	0.9	0.02	0	0	1.66	**10.363**	0.944	0.041
ADA-182	0	1	32	40.7	30.8	0.9	0.02	0	0	1.3	3.715	0.204	0.005
ADA-183	0	1	32	58	42.9	0.9	0.02	0	0	1.4	**5.275**	0.341	0.011
ADA-184	0	1	32	84.3	61.3	0.9	0.02	0	0	1.56	**8.223**	0.662	0.025

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Burbot
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 BUR Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.22	0	2.75	**42.666**	**10.173**	1.155
800B	0	0	32	226	160.5	0.9	0.02	0.22	0	2.43	**32.817**	**6.278**	0.567
204	0	0	32	43	32.4	0.9	0.02	0.22	0	1.35	4.459	0.266	0.008
251B	0	0	32	149	106.6	0.9	0.02	0.22	0	1.98	**18.946**	2.461	0.15
255	0	0	32	168.1	120	0.9	0.02	0.22	0	2.1	**22.296**	3.222	0.219
195	0	0	32	88.3	64.1	0.9	0.02	0.22	0	1.62	**9.561**	0.834	0.034
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.22	0	1.98	**18.755**	2.42	0.147
197	0	0	32	103.3	74.6	0.9	0.02	0.22	0	1.71	**11.654**	1.132	0.052
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.22	0	1.56	**8.123**	0.65	0.025
224	0	0	32	165.2	117.9	0.9	0.02	0.22	0	2.08	**21.771**	3.096	0.207
324	0	0	32	80.5	58.7	0.9	0.02	0.22	0	1.58	**8.543**	0.702	0.027
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.22	0	2.22	**26.193**	4.233	0.322
226	0	0	32	194.5	138.4	0.9	0.02	0.22	0	2.25	**27.049**	4.474	0.349
226A	0	0	32	363.9	257	0.9	0.02	0.22	0	3.22	**55.895**	**17.398**	2.628
303	0	0	32	99.6	72	0.9	0.02	0.22	0	1.69	**11.112**	1.051	0.047
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.22	0	1.61	**9.331**	0.803	0.033
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.22	0	1.7	**11.284**	1.077	0.049
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.22	0	1.71	**11.643**	1.131	0.052
098-B1	0	0	32	46	34.5	0.9	0.02	0.22	0	1.37	4.733	0.291	0.009
173	0	0	32	287.4	203.5	0.9	0.02	0.22	0	2.79	**43.744**	**10.669**	1.241
1000	0	0	32	213.8	152	0.9	0.02	0.22	0	2.36	**30.593**	**5.544**	0.474

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Kokanee
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 KOK Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.15	0	2.66	**39.858**	**8.949**	0.954
800B	0	0	32	226	160.5	0.9	0.02	0.15	0	2.42	**32.446**	**6.152**	0.551
204	0	0	32	43	32.4	0.9	0.02	0.15	0	1.34	4.279	0.251	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.15	0	1.97	**18.599**	2.387	0.144
255	0	0	32	168.1	120	0.9	0.02	0.15	0	2.08	**21.936**	3.136	0.211
195	0	0	32	88.3	64.1	0.9	0.02	0.15	0	1.61	**9.292**	0.798	0.033
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.15	0	1.97	**18.409**	2.347	0.141
197	0	0	32	103.3	74.6	0.9	0.02	0.15	0	1.7	**11.36**	1.088	0.049
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.15	0	1.54	**7.873**	0.62	0.023
224	0	0	32	165.2	117.9	0.9	0.02	0.15	0	2.07	**21.413**	3.012	0.199
324	0	0	32	80.5	58.7	0.9	0.02	0.15	0	1.56	**8.287**	0.67	0.026
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.15	0	2.21	**25.824**	4.132	0.311
226	0	0	32	194.5	138.4	0.9	0.02	0.15	0	2.24	**26.679**	4.369	0.337
226A	0	0	32	363.9	257	0.9	0.02	0.15	0	3.21	**55.599**	**17.206**	2.582
303	0	0	32	99.6	72	0.9	0.02	0.15	0	1.68	**10.824**	1.009	0.045
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.15	0	1.6	**9.065**	0.768	0.031
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.15	0	1.69	**10.995**	1.034	0.046
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.15	0	1.7	**11.349**	1.087	0.049
098-B1	0	0	32	46	34.5	0.9	0.02	0.15	0	1.36	4.547	0.274	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.15	0	2.77	**43.397**	**10.508**	1.213
1000	0	0	32	213.8	152	0.9	0.02	0.15	0	2.35	**30.221**	**5.426**	0.46

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Northern Pike
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 NOR Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.14	0	2.66	**39.807**	**8.928**	0.951
800B	0	0	32	226	160.5	0.9	0.02	0.14	0	2.42	**32.393**	**6.134**	0.549
204	0	0	32	43	32.4	0.9	0.02	0.14	0	1.34	4.253	0.249	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.14	0	1.97	**18.55**	2.377	0.143
255	0	0	32	168.1	120	0.9	0.02	0.14	0	2.08	**21.884**	3.123	0.21
195	0	0	32	88.3	64.1	0.9	0.02	0.14	0	1.61	**9.253**	0.793	0.032
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.14	0	1.96	**18.359**	2.337	0.14
197	0	0	32	103.3	74.6	0.9	0.02	0.14	0	1.7	**11.319**	1.082	0.049
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.14	0	1.54	**7.838**	0.616	0.023
224	0	0	32	165.2	117.9	0.9	0.02	0.14	0	2.07	**21.362**	3	0.198
324	0	0	32	80.5	58.7	0.9	0.02	0.14	0	1.56	**8.251**	0.666	0.026
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.14	0	2.21	**25.772**	4.117	0.31
226	0	0	32	194.5	138.4	0.9	0.02	0.14	0	2.24	**26.627**	4.354	0.335
226A	0	0	32	363.9	257	0.9	0.02	0.14	0	3.2	**55.557**	**17.179**	2.576
303	0	0	32	99.6	72	0.9	0.02	0.14	0	1.68	**10.783**	1.004	0.044
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.14	0	1.6	**9.027**	0.763	0.031
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.14	0	1.68	**10.953**	1.028	0.046
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.14	0	1.7	**11.308**	1.08	0.049
098-B1	0	0	32	46	34.5	0.9	0.02	0.14	0	1.35	4.52	0.272	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.14	0	2.77	**43.347**	**10.485**	1.209
1000	0	0	32	213.8	152	0.9	0.02	0.14	0	2.35	**30.168**	**5.409**	0.457

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Rainbow Trout
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 RAI Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.22	0	2.67	**40.216**	**9.1**	0.978
800B	0	0	32	226	160.5	0.9	0.02	0.22	0	2.43	**32.817**	**6.278**	0.567
204	0	0	32	43	32.4	0.9	0.02	0.22	0	1.35	4.459	0.266	0.008
251B	0	0	32	149	106.6	0.9	0.02	0.22	0	1.98	**18.946**	2.461	0.15
255	0	0	32	168.1	120	0.9	0.02	0.22	0	2.1	**22.296**	3.222	0.219
195	0	0	32	88.3	64.1	0.9	0.02	0.22	0	1.62	**9.561**	0.834	0.034
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.22	0	1.98	**18.755**	2.42	0.147
197	0	0	32	103.3	74.6	0.9	0.02	0.22	0	1.71	**11.654**	1.132	0.052
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.22	0	1.56	**8.123**	0.65	0.025
224	0	0	32	165.2	117.9	0.9	0.02	0.22	0	2.08	**21.771**	3.096	0.207
324	0	0	32	80.5	58.7	0.9	0.02	0.22	0	1.58	**8.543**	0.702	0.027
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.22	0	2.22	**26.193**	4.233	0.322
226	0	0	32	194.5	138.4	0.9	0.02	0.22	0	2.25	**27.049**	4.474	0.349
226A	0	0	32	363.9	257	0.9	0.02	0.22	0	3.22	**55.895**	**17.398**	2.628
303	0	0	32	99.6	72	0.9	0.02	0.22	0	1.69	**11.112**	1.051	0.047
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.22	0	1.61	**9.331**	0.803	0.033
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.22	0	1.7	**11.284**	1.077	0.049
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.22	0	1.71	**11.643**	1.131	0.052
098-B1	0	0	32	46	34.5	0.9	0.02	0.22	0	1.37	4.733	0.291	0.009
173	0	0	32	287.4	203.5	0.9	0.02	0.22	0	2.79	**43.744**	**10.669**	1.241
1000	0	0	32	213.8	152	0.9	0.02	0.22	0	2.36	**30.593**	**5.544**	0.474

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Smallmouth Bass
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 SMB Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.2	0	2.67	**40.114**	**9.057**	0.971
800B	0	0	32	226	160.5	0.9	0.02	0.2	0	2.43	**32.711**	**6.242**	0.563
204	0	0	32	43	32.4	0.9	0.02	0.2	0	1.35	4.407	0.262	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.2	0	1.98	**18.847**	2.44	0.149
255	0	0	32	168.1	120	0.9	0.02	0.2	0	2.09	**22.193**	3.197	0.217
195	0	0	32	88.3	64.1	0.9	0.02	0.2	0	1.62	**9.483**	0.823	0.034
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.2	0	1.97	**18.656**	2.399	0.145
197	0	0	32	103.3	74.6	0.9	0.02	0.2	0	1.71	**11.57**	1.12	0.051
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.2	0	1.55	**8.051**	0.641	0.024
224	0	0	32	165.2	117.9	0.9	0.02	0.2	0	2.08	**21.668**	3.072	0.205
324	0	0	32	80.5	58.7	0.9	0.02	0.2	0	1.57	**8.469**	0.693	0.027
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.2	0	2.22	**26.088**	4.204	0.319
226	0	0	32	194.5	138.4	0.9	0.02	0.2	0	2.25	**26.943**	4.444	0.345
226A	0	0	32	363.9	257	0.9	0.02	0.2	0	3.21	**55.811**	**17.343**	2.615
303	0	0	32	99.6	72	0.9	0.02	0.2	0	1.69	**11.029**	1.039	0.046
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.2	0	1.61	**9.255**	0.793	0.032
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.2	0	1.69	**11.201**	1.065	0.048
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.2	0	1.71	**11.559**	1.118	0.051
098-B1	0	0	32	46	34.5	0.9	0.02	0.2	0	1.36	4.68	0.286	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.2	0	2.78	**43.645**	**10.623**	1.233
1000	0	0	32	213.8	152	0.9	0.02	0.2	0	2.36	**30.487**	**5.51**	0.47

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Sturgeon
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 STU Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.15	0	2.66	**39.858**	**8.949**	0.954
800B	0	0	32	226	160.5	0.9	0.02	0.15	0	2.42	**32.446**	**6.152**	0.551
204	0	0	32	43	32.4	0.9	0.02	0.15	0	1.34	4.279	0.251	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.15	0	1.97	**18.599**	2.387	0.144
255	0	0	32	168.1	120	0.9	0.02	0.15	0	2.08	**21.936**	3.136	0.211
195	0	0	32	88.3	64.1	0.9	0.02	0.15	0	1.61	**9.292**	0.798	0.033
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.15	0	1.97	**18.409**	2.347	0.141
197	0	0	32	103.3	74.6	0.9	0.02	0.15	0	1.7	**11.36**	1.088	0.049
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.15	0	1.54	**7.873**	0.62	0.023
224	0	0	32	165.2	117.9	0.9	0.02	0.15	0	2.07	**21.413**	3.012	0.199
324	0	0	32	80.5	58.7	0.9	0.02	0.15	0	1.56	**8.287**	0.67	0.026
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.15	0	2.21	**25.824**	4.132	0.311
226	0	0	32	194.5	138.4	0.9	0.02	0.15	0	2.24	**26.679**	4.369	0.337
226A	0	0	32	363.9	257	0.9	0.02	0.15	0	3.21	**55.599**	**17.206**	2.582
303	0	0	32	99.6	72	0.9	0.02	0.15	0	1.68	**10.824**	1.009	0.045
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.15	0	1.6	**9.065**	0.768	0.031
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.15	0	1.69	**10.995**	1.034	0.046
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.15	0	1.7	**11.349**	1.087	0.049
098-B1	0	0	32	46	34.5	0.9	0.02	0.15	0	1.36	4.547	0.274	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.15	0	2.77	**43.397**	**10.508**	1.213
1000	0	0	32	213.8	152	0.9	0.02	0.15	0	2.35	**30.221**	**5.426**	0.46

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Sucker
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 SUC Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.7	0	2.75	**42.645**	**10.164**	1.154
800B	0	0	32	226	160.5	0.9	0.02	0.7	0	2.51	**35.348**	**7.176**	0.689
204	0	0	32	43	32.4	0.9	0.02	0.7	0	1.43	**5.812**	0.393	0.013
251B	0	0	32	149	106.6	0.9	0.02	0.7	0	2.07	**21.366**	3.001	0.198
255	0	0	32	168.1	120	0.9	0.02	0.7	0	2.18	**24.79**	3.853	0.282
195	0	0	32	88.3	64.1	0.9	0.02	0.7	0	1.71	**11.496**	1.109	0.051
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.7	0	2.06	**21.169**	2.955	0.194
197	0	0	32	103.3	74.6	0.9	0.02	0.7	0	1.8	**13.744**	1.468	0.074
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.7	0	1.64	**9.929**	0.883	0.037
224	0	0	32	165.2	117.9	0.9	0.02	0.7	0	2.16	**24.256**	3.714	0.268
324	0	0	32	80.5	58.7	0.9	0.02	0.7	0	1.66	**10.389**	0.947	0.041
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.7	0	2.3	**28.732**	4.967	0.405
226	0	0	32	194.5	138.4	0.9	0.02	0.7	0	2.33	**29.592**	**5.229**	0.436
226A	0	0	32	363.9	257	0.9	0.02	0.7	0	3.29	**57.884**	**18.729**	2.952
303	0	0	32	99.6	72	0.9	0.02	0.7	0	1.77	**13.165**	1.371	0.067
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.7	0	1.7	**11.247**	1.071	0.048
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.7	0	1.78	**13.35**	1.402	0.069
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.7	0	1.8	**13.733**	1.466	0.074
098-B1	0	0	32	46	34.5	0.9	0.02	0.7	0	1.45	**6.128**	0.426	0.014
173	0	0	32	287.4	203.5	0.9	0.02	0.7	0	2.86	**46.098**	**11.804**	1.445
1000	0	0	32	213.8	152	0.9	0.02	0.7	0	2.44	**33.136**	**6.388**	0.582

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Walleye
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 WAL Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	210.6	0.9	0.02	0.7	0	2.83	**45.044**	**11.287**	1.35
800B	0	0	32	226	160.5	0.9	0.02	0.7	0	2.51	**35.348**	**7.176**	0.689
204	0	0	32	43	32.4	0.9	0.02	0.7	0	1.43	**5.812**	0.393	0.013
251B	0	0	32	149	106.6	0.9	0.02	0.7	0	2.07	**21.366**	3.001	0.198
255	0	0	32	168.1	120	0.9	0.02	0.7	0	2.18	**24.79**	3.853	0.282
195	0	0	32	88.3	64.1	0.9	0.02	0.7	0	1.71	**11.496**	1.109	0.051
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.7	0	2.06	**21.169**	2.955	0.194
197	0	0	32	103.3	74.6	0.9	0.02	0.7	0	1.8	**13.744**	1.468	0.074
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.7	0	1.64	**9.929**	0.883	0.037
224	0	0	32	165.2	117.9	0.9	0.02	0.7	0	2.16	**24.256**	3.714	0.268
324	0	0	32	80.5	58.7	0.9	0.02	0.7	0	1.66	**10.389**	0.947	0.041
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.7	0	2.3	**28.732**	4.967	0.405
226	0	0	32	194.5	138.4	0.9	0.02	0.7	0	2.33	**29.592**	**5.229**	0.436
226A	0	0	32	363.9	257	0.9	0.02	0.7	0	3.29	**57.884**	**18.729**	2.952
303	0	0	32	99.6	72	0.9	0.02	0.7	0	1.77	**13.165**	1.371	0.067
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.7	0	1.7	**11.247**	1.071	0.048
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.7	0	1.78	**13.35**	1.402	0.069
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.7	0	1.8	**13.733**	1.466	0.074
098-B1	0	0	32	46	34.5	0.9	0.02	0.7	0	1.45	**6.128**	0.426	0.014
173	0	0	32	287.4	203.5	0.9	0.02	0.7	0	2.86	**46.098**	**11.804**	1.445
1000	0	0	32	213.8	152	0.9	0.02	0.7	0	2.44	**33.136**	**6.388**	0.582

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Current Resident with a Beach, Whitefish
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, or 8 µg/dL

Input File: 030620 WHI Res bch fish.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.17	0	2.66	**39.96**	**8.992**	0.961
800B	0	0	32	226	160.5	0.9	0.02	0.17	0	2.43	**32.552**	**6.188**	0.556
204	0	0	32	43	32.4	0.9	0.02	0.17	0	1.34	4.33	0.255	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.17	0	1.98	**18.698**	2.408	0.146
255	0	0	32	168.1	120	0.9	0.02	0.17	0	2.09	**22.038**	3.16	0.213
195	0	0	32	88.3	64.1	0.9	0.02	0.17	0	1.61	**9.368**	0.808	0.033
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.17	0	1.97	**18.507**	2.368	0.143
197	0	0	32	103.3	74.6	0.9	0.02	0.17	0	1.7	**11.444**	1.101	0.05
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.17	0	1.55	**7.944**	0.629	0.024
224	0	0	32	165.2	117.9	0.9	0.02	0.17	0	2.07	**21.515**	3.036	0.202
324	0	0	32	80.5	58.7	0.9	0.02	0.17	0	1.57	**8.36**	0.679	0.026
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.17	0	2.21	**25.93**	4.16	0.314
226	0	0	32	194.5	138.4	0.9	0.02	0.17	0	2.24	**26.785**	4.399	0.34
226A	0	0	32	363.9	257	0.9	0.02	0.17	0	3.21	**55.684**	**17.261**	2.595
303	0	0	32	99.6	72	0.9	0.02	0.17	0	1.68	**10.906**	1.021	0.045
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.17	0	1.6	**9.141**	0.778	0.031
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.17	0	1.69	**11.077**	1.046	0.047
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.17	0	1.7	**11.433**	1.099	0.05
098-B1	0	0	32	46	34.5	0.9	0.02	0.17	0	1.36	4.599	0.279	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.17	0	2.78	**43.496**	**10.554**	1.22
1000	0	0	32	213.8	152	0.9	0.02	0.17	0	2.36	**30.327**	**5.459**	0.464

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 3/6/2020
Site Name: UCR
Operable Unit: Resident with a Beach, no fish consumption
Run Mode:Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3, 5, 8 µg/dL

Input File: Res bch 03062020 NO FISH.dat

ID	FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
202	0	0	32	267.1	189.3	0.9	0.02	0.13	0	2.66	**39.755**	**8.906**	0.947
800B	0	0	32	226	160.5	0.9	0.02	0.13	0	2.42	**32.34**	**6.117**	0.546
204	0	0	32	43	32.4	0.9	0.02	0.13	0	1.33	4.228	0.246	0.007
251B	0	0	32	149	106.6	0.9	0.02	0.13	0	1.97	**18.5**	2.367	0.143
255	0	0	32	168.1	120	0.9	0.02	0.13	0	2.08	**21.833**	3.111	0.209
195	0	0	32	88.3	64.1	0.9	0.02	0.13	0	1.61	**9.215**	0.788	0.032
131-B1	0	0	32	147.8	105.8	0.9	0.02	0.13	0	1.96	**18.31**	2.327	0.139
197	0	0	32	103.3	74.6	0.9	0.02	0.13	0	1.7	**11.277**	1.076	0.049
124-B1	0	0	32	77.2	56.3	0.9	0.02	0.13	0	1.54	**7.803**	0.612	0.023
224	0	0	32	165.2	117.9	0.9	0.02	0.13	0	2.06	**21.31**	2.988	0.197
324	0	0	32	80.5	58.7	0.9	0.02	0.13	0	1.56	**8.215**	0.661	0.025
171-B1	0	0	32	189.8	135.1	0.9	0.02	0.13	0	2.21	**25.719**	4.103	0.308
226	0	0	32	194.5	138.4	0.9	0.02	0.13	0	2.24	**26.574**	4.339	0.334
226A	0	0	32	363.9	257	0.9	0.02	0.13	0	3.2	**55.514**	**17.152**	2.57
303	0	0	32	99.6	72	0.9	0.02	0.13	0	1.67	**10.742**	0.998	0.044
075-B1	0	0	32	86.6	62.9	0.9	0.02	0.13	0	1.6	**8.99**	0.759	0.03
157-B1	0	0	32	100.8	72.8	0.9	0.02	0.13	0	1.68	**10.912**	1.022	0.045
157-B2	0	0	32	103.2	74.6	0.9	0.02	0.13	0	1.7	**11.266**	1.074	0.048
098-B1	0	0	32	46	34.5	0.9	0.02	0.13	0	1.35	4.494	0.269	0.008
173	0	0	32	287.4	203.5	0.9	0.02	0.13	0	2.77	**43.297**	**10.462**	1.205
1000	0	0	32	213.8	152	0.9	0.02	0.13	0	2.35	**30.115**	**5.392**	0.455

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
AA Campground	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
AA Campground	Kokanee	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
AA Campground	N. Pike	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
AA Campground	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
AA Campground	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
AA Campground	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
AA Campground	Sucker	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
AA Campground	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
AA Campground	Whitefish	**13.8**	1.5	0.1	**13.8**	1.5	0.1	**14.3**	1.6	0.1
Barnaby Island Campground	Burbot	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Barnaby Island Campground	Kokanee	**13.9**	1.5	0.1	**13.9**	1.5	0.1	**14.4**	1.6	0.1
Barnaby Island Campground	N. Pike	**13.9**	1.5	0.1	**13.9**	1.5	0.1	**14.4**	1.6	0.1
Barnaby Island Campground	Rainbow Trout	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Barnaby Island Campground	SM Bass	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Barnaby Island Campground	Sturgeon	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Barnaby Island Campground	Sucker	**15.9**	1.8	0.1	**15.8**	1.8	0.1	**16.4**	1.9	0.1
Barnaby Island Campground	Walleye	**14.3**	1.6	0.1	**14.2**	1.5	0.1	**14.8**	1.6	0.1
Barnaby Island Campground	Whitefish	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Black Sand Beach	Burbot	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.8**	2.2	0.1
Black Sand Beach	Kokanee	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
Black Sand Beach	N. Pike	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
Black Sand Beach	Rainbow Trout	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.8**	2.2	0.1
Black Sand Beach	SM Bass	**17.2**	2.1	0.1	**17.1**	2.1	0.1	**17.7**	2.2	0.1
Black Sand Beach	Sturgeon	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.6**	2.2	0.1
Black Sand Beach	Sucker	**19.0**	2.5	0.2	**18.9**	2.5	0.2	**19.6**	2.6	0.2
Black Sand Beach	Walleye	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.9**	2.2	0.1
Black Sand Beach	Whitefish	**17.1**	2.1	0.1	**17.0**	2.1	0.1	**17.6**	2.2	0.1
Bossburg Flat-2011	Burbot	**34.9**	**7.0**	0.7	**34.8**	**7.0**	0.7	**35.5**	**7.2**	0.7
Bossburg Flat-2011	Kokanee	**34.6**	**6.9**	0.7	**34.5**	**6.9**	0.6	**35.2**	**7.1**	0.7
Bossburg Flat-2011	N. Pike	**34.6**	**6.9**	0.7	**34.5**	**6.9**	0.6	**35.2**	**7.1**	0.7
Bossburg Flat-2011	Rainbow Trout	**34.9**	**7.0**	0.7	**34.8**	**7.0**	0.7	**35.5**	**7.2**	0.7
Bossburg Flat-2011	SM Bass	**34.8**	**7.0**	0.7	**34.7**	**7.0**	0.7	**35.4**	**7.2**	0.7
Bossburg Flat-2011	Sturgeon	**34.7**	**6.9**	0.7	**34.6**	**6.9**	0.7	**35.3**	**7.1**	0.7
Bossburg Flat-2011	Sucker	**36.8**	**7.7**	0.8	**36.7**	**7.7**	0.8	**37.4**	**8.0**	0.8
Bossburg Flat-2011	Walleye	**35.0**	**7.0**	0.7	**34.9**	**7.0**	0.7	**35.6**	**7.3**	0.7
Bossburg Flat-2011	Whitefish	**34.7**	**7.0**	0.7	**34.6**	**6.9**	0.7	**35.3**	**7.2**	0.7
Bossburg Flat-2015-SDU-01	Burbot	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-01	Kokanee	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-01	N. Pike	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-01	Rainbow Trout	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-01	SM Bass	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.5**	2.4	0.1
Bossburg Flat-2015-SDU-01	Sturgeon	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-01	Sucker	**19.8**	2.6	0.2	**19.7**	2.6	0.2	**20.4**	2.8	0.2

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Bossburg Flat-2015-SDU-01	Walleye	**18.1**	2.3	0.1	**18.0**	2.3	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-01	Whitefish	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.4**	2.3	0.1
Bossburg Flat-2015-SDU-02	Burbot	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-02	Kokanee	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-02	N. Pike	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-02	Rainbow Trout	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-02	SM Bass	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.5**	2.4	0.1
Bossburg Flat-2015-SDU-02	Sturgeon	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-02	Sucker	**19.8**	2.6	0.2	**19.7**	2.6	0.2	**20.4**	2.8	0.2
Bossburg Flat-2015-SDU-02	Walleye	**18.1**	2.3	0.1	**18.0**	2.3	0.1	**18.6**	2.4	0.1
Bossburg Flat-2015-SDU-02	Whitefish	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.4**	2.3	0.1
Bossburg Flat-2015-SDU-03	Burbot	**14.9**	1.7	0.1	**14.8**	1.7	0.1	**15.4**	1.8	0.1
Bossburg Flat-2015-SDU-03	Kokanee	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bossburg Flat-2015-SDU-03	N. Pike	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bossburg Flat-2015-SDU-03	Rainbow Trout	**14.9**	1.7	0.1	**14.8**	1.7	0.1	**15.4**	1.8	0.1
Bossburg Flat-2015-SDU-03	SM Bass	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bossburg Flat-2015-SDU-03	Sturgeon	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bossburg Flat-2015-SDU-03	Sucker	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.2**	2.1	0.1
Bossburg Flat-2015-SDU-03	Walleye	**15.0**	1.7	0.1	**14.9**	1.7	0.1	**15.5**	1.8	0.1
Bossburg Flat-2015-SDU-03	Whitefish	**14.7**	1.6	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bossburg Flat-2015-SDU-04	Burbot	**14.3**	1.6	0.1	**14.2**	1.6	0.1	**14.8**	1.7	0.1
Bossburg Flat-2015-SDU-04	Kokanee	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Bossburg Flat-2015-SDU-04	N. Pike	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Bossburg Flat-2015-SDU-04	Rainbow Trout	**14.3**	1.6	0.1	**14.2**	1.6	0.1	**14.8**	1.7	0.1
Bossburg Flat-2015-SDU-04	SM Bass	**14.2**	1.6	0.1	**14.2**	1.5	0.1	**14.7**	1.6	0.1
Bossburg Flat-2015-SDU-04	Sturgeon	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Bossburg Flat-2015-SDU-04	Sucker	**16.0**	1.9	0.1	**15.9**	1.9	0.1	**16.5**	2.0	0.1
Bossburg Flat-2015-SDU-04	Walleye	**14.4**	1.6	0.1	**14.3**	1.6	0.1	**14.9**	1.7	0.1
Bossburg Flat-2015-SDU-04	Whitefish	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Bossburg Flat-2015-SDU-08	Burbot	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-08	Kokanee	**17.5**	2.2	0.1	**17.4**	2.1	0.1	**18.1**	2.3	0.1
Bossburg Flat-2015-SDU-08	N. Pike	**17.5**	2.2	0.1	**17.4**	2.1	0.1	**18.1**	2.3	0.1
Bossburg Flat-2015-SDU-08	Rainbow Trout	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.3**	2.3	0.1
Bossburg Flat-2015-SDU-08	SM Bass	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.2**	2.3	0.1
Bossburg Flat-2015-SDU-08	Sturgeon	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.1**	2.3	0.1
Bossburg Flat-2015-SDU-08	Sucker	**19.6**	2.6	0.2	**19.5**	2.6	0.2	**20.1**	2.7	0.2
Bossburg Flat-2015-SDU-08	Walleye	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.4**	2.3	0.1
Bossburg Flat-2015-SDU-08	Whitefish	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.1**	2.3	0.1
Bossburg Flat-2015-SDU-09	Burbot	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bossburg Flat-2015-SDU-09	Kokanee	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Bossburg Flat-2015-SDU-09	N. Pike	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Bossburg Flat-2015-SDU-09	Rainbow Trout	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bossburg Flat-2015-SDU-09	SM Bass	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Bossburg Flat-2015-SDU-09	Sturgeon	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Bossburg Flat-2015-SDU-09	Sucker	**16.4**	2.0	0.1	**16.3**	1.9	0.1	**16.9**	2.1	0.1
Bossburg Flat-2015-SDU-09	Walleye	**14.8**	1.6	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bossburg Flat-2015-SDU-09	Whitefish	**14.5**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Bossburg Flat-2015-SDU-10	Burbot	**14.9**	1.7	0.1	**14.8**	1.6	0.1	**15.4**	1.8	0.1
Bossburg Flat-2015-SDU-10	Kokanee	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Bossburg Flat-2015-SDU-10	N. Pike	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Bossburg Flat-2015-SDU-10	Rainbow Trout	**14.9**	1.7	0.1	**14.8**	1.6	0.1	**15.4**	1.8	0.1
Bossburg Flat-2015-SDU-10	SM Bass	**14.8**	1.6	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bossburg Flat-2015-SDU-10	Sturgeon	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Bossburg Flat-2015-SDU-10	Sucker	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Bossburg Flat-2015-SDU-10	Walleye	**14.9**	1.7	0.1	**14.8**	1.7	0.1	**15.4**	1.8	0.1
Bossburg Flat-2015-SDU-10	Whitefish	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bradbury	Burbot	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bradbury	Kokanee	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Bradbury	N. Pike	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Bradbury	Rainbow Trout	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Bradbury	SM Bass	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Bradbury	Sturgeon	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Bradbury	Sucker	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Bradbury	Walleye	**14.9**	1.7	0.1	**14.8**	1.6	0.1	**15.4**	1.8	0.1
Bradbury	Whitefish	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
China Bend	Burbot	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.2**	2.3	0.1
China Bend	Kokanee	**17.3**	2.1	0.1	**17.3**	2.1	0.1	**17.9**	2.2	0.1
China Bend	N. Pike	**17.3**	2.1	0.1	**17.3**	2.1	0.1	**17.9**	2.2	0.1
China Bend	Rainbow Trout	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.2**	2.3	0.1
China Bend	SM Bass	**17.5**	2.2	0.1	**17.4**	2.2	0.1	**18.1**	2.3	0.1
China Bend	Sturgeon	**17.4**	2.1	0.1	**17.3**	2.1	0.1	**17.9**	2.2	0.1
China Bend	Sucker	**19.4**	2.6	0.2	**19.3**	2.5	0.2	**20.0**	2.7	0.2
China Bend	Walleye	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.2**	2.3	0.1
China Bend	Whitefish	**17.4**	2.2	0.1	**17.3**	2.1	0.1	**18.0**	2.3	0.1
Colville Flats	Burbot	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.8**	2.0	0.1
Colville Flats	Kokanee	**16.0**	1.9	0.1	**15.9**	1.9	0.1	**16.5**	2.0	0.1
Colville Flats	N. Pike	**16.0**	1.9	0.1	**15.9**	1.9	0.1	**16.5**	2.0	0.1
Colville Flats	Rainbow Trout	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.8**	2.0	0.1
Colville Flats	SM Bass	**16.2**	1.9	0.1	**16.1**	1.9	0.1	**16.7**	2.0	0.1
Colville Flats	Sturgeon	**16.0**	1.9	0.1	**16.0**	1.9	0.1	**16.6**	2.0	0.1
Colville Flats	Sucker	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.6**	2.4	0.1
Colville Flats	Walleye	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.9**	2.0	0.1
Colville Flats	Whitefish	**16.1**	1.9	0.1	**16.0**	1.9	0.1	**16.6**	2.0	0.1
Colville River	Burbot	**14.0**	1.5	0.1	**14.0**	1.5	0.1	**14.5**	1.6	0.1
Colville River	Kokanee	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Colville River	N. Pike	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Colville River	Rainbow Trout	**14.0**	1.5	0.1	**14.0**	1.5	0.1	**14.5**	1.6	0.1
Colville River	SM Bass	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Colville River	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Colville River	Sucker	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Colville River	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Colville River	Whitefish	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Crescent Bay	Burbot	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Crescent Bay	Kokanee	**13.6**	1.5	0.1	**13.6**	1.4	0.1	**14.1**	1.5	0.1
Crescent Bay	N. Pike	**13.6**	1.5	0.1	**13.6**	1.4	0.1	**14.1**	1.5	0.1
Crescent Bay	Rainbow Trout	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Crescent Bay	SM Bass	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Crescent Bay	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Crescent Bay	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Crescent Bay	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Crescent Bay	Whitefish	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Dallas Orchard	Burbot	**18.6**	2.4	0.1	**18.5**	2.4	0.1	**19.1**	2.5	0.2
Dallas Orchard	Kokanee	**18.3**	2.3	0.1	**18.2**	2.3	0.1	**18.8**	2.4	0.1
Dallas Orchard	N. Pike	**18.3**	2.3	0.1	**18.2**	2.3	0.1	**18.8**	2.4	0.1
Dallas Orchard	Rainbow Trout	**18.6**	2.4	0.1	**18.5**	2.4	0.1	**19.1**	2.5	0.2
Dallas Orchard	SM Bass	**18.5**	2.4	0.1	**18.4**	2.3	0.1	**19.0**	2.5	0.2
Dallas Orchard	Sturgeon	**18.3**	2.3	0.1	**18.2**	2.3	0.1	**18.9**	2.4	0.1
Dallas Orchard	Sucker	**20.4**	2.8	0.2	**20.3**	2.8	0.2	**20.9**	2.9	0.2
Dallas Orchard	Walleye	**18.6**	2.4	0.1	**18.5**	2.4	0.1	**19.2**	2.5	0.2
Dallas Orchard	Whitefish	**18.4**	2.3	0.1	**18.3**	2.3	0.1	**18.9**	2.5	0.2
Enterprise	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Enterprise	Kokanee	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.2**	1.6	0.1
Enterprise	N. Pike	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.2**	1.6	0.1
Enterprise	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Enterprise	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Enterprise	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Enterprise	Sucker	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Enterprise	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Enterprise	Whitefish	**13.8**	1.5	0.1	**13.8**	1.5	0.1	**14.3**	1.6	0.1
Evans Campground-2011	Burbot	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.8**	2.2	0.1
Evans Campground-2011	Kokanee	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
Evans Campground-2011	N. Pike	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
Evans Campground-2011	Rainbow Trout	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.8**	2.2	0.1
Evans Campground-2011	SM Bass	**17.2**	2.1	0.1	**17.1**	2.1	0.1	**17.7**	2.2	0.1
Evans Campground-2011	Sturgeon	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.6**	2.2	0.1
Evans Campground-2011	Sucker	**19.0**	2.5	0.2	**18.9**	2.5	0.2	**19.6**	2.6	0.2
Evans Campground-2011	Walleye	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.9**	2.2	0.1
Evans Campground-2011	Whitefish	**17.1**	2.1	0.1	**17.0**	2.1	0.1	**17.6**	2.2	0.1
Evans Campground-2015-SDU-05	Burbot	**16.7**	2.0	0.1	**16.7**	2.0	0.1	**17.3**	2.1	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Evans Campground-2015-SDU-05	Kokanee	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Evans Campground-2015-SDU-05	N. Pike	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Evans Campground-2015-SDU-05	Rainbow Trout	**16.7**	2.0	0.1	**16.7**	2.0	0.1	**17.3**	2.1	0.1
Evans Campground-2015-SDU-05	SM Bass	**16.7**	2.0	0.1	**16.6**	2.0	0.1	**17.2**	2.1	0.1
Evans Campground-2015-SDU-05	Sturgeon	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Evans Campground-2015-SDU-05	Sucker	**18.5**	2.4	0.1	**18.4**	2.3	0.1	**19.0**	2.5	0.2
Evans Campground-2015-SDU-05	Walleye	**16.8**	2.0	0.1	**16.7**	2.0	0.1	**17.3**	2.1	0.1
Evans Campground-2015-SDU-05	Whitefish	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Evans Campground-2015-SDU-06	Burbot	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Evans Campground-2015-SDU-06	Kokanee	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Evans Campground-2015-SDU-06	N. Pike	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Evans Campground-2015-SDU-06	Rainbow Trout	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Evans Campground-2015-SDU-06	SM Bass	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Evans Campground-2015-SDU-06	Sturgeon	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Evans Campground-2015-SDU-06	Sucker	**15.8**	1.8	0.1	**15.7**	1.8	0.1	**16.3**	1.9	0.1
Evans Campground-2015-SDU-06	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Evans Campground-2015-SDU-06	Whitefish	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Evans Campground-2015-SDU-07	Burbot	**16.9**	2.0	0.1	**16.8**	2.0	0.1	**17.4**	2.1	0.1
Evans Campground-2015-SDU-07	Kokanee	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Evans Campground-2015-SDU-07	N. Pike	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Evans Campground-2015-SDU-07	Rainbow Trout	**16.9**	2.0	0.1	**16.8**	2.0	0.1	**17.4**	2.1	0.1
Evans Campground-2015-SDU-07	SM Bass	**16.8**	2.0	0.1	**16.7**	2.0	0.1	**17.3**	2.1	0.1
Evans Campground-2015-SDU-07	Sturgeon	**16.7**	2.0	0.1	**16.6**	2.0	0.1	**17.2**	2.1	0.1
Evans Campground-2015-SDU-07	Sucker	**18.7**	2.4	0.1	**18.6**	2.4	0.1	**19.2**	2.5	0.2
Evans Campground-2015-SDU-07	Walleye	**16.9**	2.1	0.1	**16.8**	2.0	0.1	**17.5**	2.2	0.1
Evans Campground-2015-SDU-07	Whitefish	**16.7**	2.0	0.1	**16.6**	2.0	0.1	**17.2**	2.1	0.1
Flat Creek	Burbot	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Flat Creek	Kokanee	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.8**	2.0	0.1
Flat Creek	N. Pike	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.8**	2.0	0.1
Flat Creek	Rainbow Trout	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Flat Creek	SM Bass	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Flat Creek	Sturgeon	**16.3**	1.9	0.1	**16.2**	1.9	0.1	**16.8**	2.0	0.1
Flat Creek	Sucker	**18.3**	2.3	0.1	**18.2**	2.3	0.1	**18.9**	2.4	0.1
Flat Creek	Walleye	**16.6**	2.0	0.1	**16.5**	2.0	0.1	**17.1**	2.1	0.1
Flat Creek	Whitefish	**16.4**	1.9	0.1	**16.3**	1.9	0.1	**16.9**	2.0	0.1
Hawk Creek	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Hawk Creek	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Hawk Creek	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Hawk Creek	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Hawk Creek	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Hawk Creek	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Hawk Creek	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Hawk Creek	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Hawk Creek	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Hunters	Burbot	**14.0**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Hunters	Kokanee	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Hunters	N. Pike	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Hunters	Rainbow Trout	**14.0**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Hunters	SM Bass	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Hunters	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Hunters	Sucker	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Hunters	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Hunters	Whitefish	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Jones Bay	Burbot	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Jones Bay	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Jones Bay	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Jones Bay	Rainbow Trout	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Jones Bay	SM Bass	**13.8**	1.5	0.1	**13.8**	1.5	0.1	**14.3**	1.6	0.1
Jones Bay	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Jones Bay	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Jones Bay	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Jones Bay	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Kamloops Island	Burbot	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Kamloops Island	Kokanee	**13.8**	1.5	0.1	**13.8**	1.5	0.1	**14.3**	1.6	0.1
Kamloops Island	N. Pike	**13.8**	1.5	0.1	**13.8**	1.5	0.1	**14.3**	1.6	0.1
Kamloops Island	Rainbow Trout	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Kamloops Island	SM Bass	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Kamloops Island	Sturgeon	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Kamloops Island	Sucker	**15.8**	1.8	0.1	**15.7**	1.8	0.1	**16.3**	1.9	0.1
Kamloops Island	Walleye	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Kamloops Island	Whitefish	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Kettle Falls	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Kettle Falls	Kokanee	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Kettle Falls	N. Pike	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Kettle Falls	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Kettle Falls	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Kettle Falls	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Kettle Falls	Sucker	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Kettle Falls	Walleye	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Kettle Falls	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Lyons Island	Burbot	**15.1**	1.7	0.1	**15.0**	1.7	0.1	**15.6**	1.8	0.1
Lyons Island	Kokanee	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Lyons Island	N. Pike	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Lyons Island	Rainbow Trout	**15.1**	1.7	0.1	**15.0**	1.7	0.1	**15.6**	1.8	0.1
Lyons Island	SM Bass	**15.0**	1.7	0.1	**14.9**	1.7	0.1	**15.5**	1.8	0.1
Lyons Island	Sturgeon	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.4**	1.8	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Lyons Island	Sucker	**16.8**	2.0	0.1	**16.7**	2.0	0.1	**17.3**	2.1	0.1
Lyons Island	Walleye	**15.1**	1.7	0.1	**15.0**	1.7	0.1	**15.6**	1.8	0.1
Lyons Island	Whitefish	**14.9**	1.7	0.1	**14.8**	1.7	0.1	**15.4**	1.8	0.1
McGuires	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
McGuires	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
McGuires	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
McGuires	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
McGuires	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
McGuires	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
McGuires	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
McGuires	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
McGuires	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Mitchell Point	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Mitchell Point	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Mitchell Point	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Mitchell Point	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Mitchell Point	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Mitchell Point	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Mitchell Point	Sucker	**15.6**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Mitchell Point	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Mitchell Point	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Naborlee	Burbot	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Naborlee	Kokanee	**13.9**	1.5	0.1	**13.9**	1.5	0.1	**14.4**	1.6	0.1
Naborlee	N. Pike	**13.9**	1.5	0.1	**13.9**	1.5	0.1	**14.4**	1.6	0.1
Naborlee	Rainbow Trout	**14.2**	1.5	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Naborlee	SM Bass	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1
Naborlee	Sturgeon	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Naborlee	Sucker	**15.9**	1.8	0.1	**15.8**	1.8	0.1	**16.4**	1.9	0.1
Naborlee	Walleye	**14.3**	1.6	0.1	**14.2**	1.5	0.1	**14.8**	1.6	0.1
Naborlee	Whitefish	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Nez Perce	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Nez Perce	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Nez Perce	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Nez Perce	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Nez Perce	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Nez Perce	Sturgeon	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Nez Perce	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.2**	1.9	0.1
Nez Perce	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Nez Perce	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Northport Beach	Burbot	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.5**	2.4	0.1
Northport Beach	Kokanee	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.2**	2.3	0.1
Northport Beach	N. Pike	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.2**	2.3	0.1
Northport Beach	Rainbow Trout	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.5**	2.4	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Northport Beach	SM Bass	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.4**	2.3	0.1
Northport Beach	Sturgeon	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.2**	2.3	0.1
Northport Beach	Sucker	**19.7**	2.6	0.2	**19.6**	2.6	0.2	**20.2**	2.7	0.2
Northport Beach	Walleye	**18.0**	2.3	0.1	**17.9**	2.2	0.1	**18.5**	2.4	0.1
Northport Beach	Whitefish	**17.7**	2.2	0.1	**17.6**	2.2	0.1	**18.3**	2.3	0.1
R.V. Park	Burbot	**17.2**	2.1	0.1	**17.1**	2.1	0.1	**17.7**	2.2	0.1
R.V. Park	Kokanee	**16.9**	2.0	0.1	**16.8**	2.0	0.1	**17.4**	2.2	0.1
R.V. Park	N. Pike	**16.9**	2.0	0.1	**16.8**	2.0	0.1	**17.4**	2.2	0.1
R.V. Park	Rainbow Trout	**17.2**	2.1	0.1	**17.1**	2.1	0.1	**17.7**	2.2	0.1
R.V. Park	SM Bass	**17.1**	2.1	0.1	**17.0**	2.1	0.1	**17.6**	2.2	0.1
R.V. Park	Sturgeon	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
R.V. Park	Sucker	**19.0**	2.5	0.2	**18.9**	2.4	0.1	**19.5**	2.6	0.2
R.V. Park	Walleye	**17.3**	2.1	0.1	**17.2**	2.1	0.1	**17.8**	2.2	0.1
R.V. Park	Whitefish	**17.0**	2.1	0.1	**16.9**	2.0	0.1	**17.5**	2.2	0.1
Seven Bays	Burbot	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Seven Bays	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Seven Bays	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Seven Bays	Rainbow Trout	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Seven Bays	SM Bass	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Seven Bays	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Seven Bays	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Seven Bays	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Seven Bays	Whitefish	**13.7**	1.5	0.1	**13.7**	1.5	0.1	**14.2**	1.6	0.1
Spring Canyon	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Spring Canyon	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Spring Canyon	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Spring Canyon	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Spring Canyon	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Spring Canyon	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Spring Canyon	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Spring Canyon	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Spring Canyon	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Summer Island	Burbot	**18.1**	2.3	0.1	**18.0**	2.3	0.1	**18.7**	2.4	0.1
Summer Island	Kokanee	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.4**	2.3	0.1
Summer Island	N. Pike	**17.8**	2.2	0.1	**17.7**	2.2	0.1	**18.4**	2.3	0.1
Summer Island	Rainbow Trout	**18.1**	2.3	0.1	**18.0**	2.3	0.1	**18.7**	2.4	0.1
Summer Island	SM Bass	**18.0**	2.3	0.1	**17.9**	2.3	0.1	**18.6**	2.4	0.1
Summer Island	Sturgeon	**17.9**	2.2	0.1	**17.8**	2.2	0.1	**18.4**	2.4	0.1
Summer Island	Sucker	**19.9**	2.7	0.2	**19.8**	2.7	0.2	**20.5**	2.8	0.2
Summer Island	Walleye	**18.2**	2.3	0.1	**18.1**	2.3	0.1	**18.7**	2.4	0.1
Summer Island	Whitefish	**17.9**	2.3	0.1	**17.8**	2.2	0.1	**18.5**	2.4	0.1
Swawilla Basin	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Swawilla Basin	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1

Lead Risk Calculations for Child Recreational Visitors at Public Beaches, with Fish Consumption

DU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
Swawilla Basin	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Swawilla Basin	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Swawilla Basin	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Swawilla Basin	Sturgeon	**13.7**	1.5	0.1	**13.6**	1.5	0.1	**14.2**	1.6	0.1
Swawilla Basin	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Swawilla Basin	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Swawilla Basin	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Swimming Hole	Burbot	**15.9**	1.9	0.1	**15.8**	1.8	0.1	**16.4**	2.0	0.1
Swimming Hole	Kokanee	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Swimming Hole	N. Pike	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Swimming Hole	Rainbow Trout	**15.9**	1.9	0.1	**15.8**	1.8	0.1	**16.4**	2.0	0.1
Swimming Hole	SM Bass	**15.8**	1.8	0.1	**15.7**	1.8	0.1	**16.3**	1.9	0.1
Swimming Hole	Sturgeon	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Swimming Hole	Sucker	**17.6**	2.2	0.1	**17.5**	2.2	0.1	**18.2**	2.3	0.1
Swimming Hole	Walleye	**16.0**	1.9	0.1	**15.9**	1.8	0.1	**16.5**	2.0	0.1
Swimming Hole	Whitefish	**15.7**	1.8	0.1	**15.6**	1.8	0.1	**16.2**	1.9	0.1
Welty Bay	Burbot	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Welty Bay	Kokanee	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Welty Bay	N. Pike	**14.5**	1.6	0.1	**14.4**	1.6	0.1	**15.0**	1.7	0.1
Welty Bay	Rainbow Trout	**14.8**	1.7	0.1	**14.7**	1.6	0.1	**15.3**	1.7	0.1
Welty Bay	SM Bass	**14.7**	1.6	0.1	**14.6**	1.6	0.1	**15.2**	1.7	0.1
Welty Bay	Sturgeon	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Welty Bay	Sucker	**16.5**	2.0	0.1	**16.4**	1.9	0.1	**17.0**	2.1	0.1
Welty Bay	Walleye	**14.8**	1.7	0.1	**14.8**	1.6	0.1	**15.4**	1.8	0.1
Welty Bay	Whitefish	**14.6**	1.6	0.1	**14.5**	1.6	0.1	**15.1**	1.7	0.1
Whitestone Campground	Burbot	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Whitestone Campground	Kokanee	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Whitestone Campground	N. Pike	**13.7**	1.5	0.1	**13.6**	1.4	0.1	**14.2**	1.5	0.1
Whitestone Campground	Rainbow Trout	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Whitestone Campground	SM Bass	**13.9**	1.5	0.1	**13.8**	1.5	0.1	**14.4**	1.6	0.1
Whitestone Campground	Sturgeon	**13.7**	1.5	0.1	**13.7**	1.5	0.1	**14.2**	1.6	0.1
Whitestone Campground	Sucker	**15.6**	1.8	0.1	**15.5**	1.8	0.1	**16.1**	1.9	0.1
Whitestone Campground	Walleye	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Whitestone Campground	Whitefish	**13.8**	1.5	0.1	**13.7**	1.5	0.1	**14.3**	1.6	0.1
Wilmont Creek	Burbot	**14.2**	1.6	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Wilmont Creek	Kokanee	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Wilmont Creek	N. Pike	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Wilmont Creek	Rainbow Trout	**14.2**	1.6	0.1	**14.1**	1.5	0.1	**14.7**	1.6	0.1
Wilmont Creek	SM Bass	**14.1**	1.5	0.1	**14.1**	1.5	0.1	**14.6**	1.6	0.1
Wilmont Creek	Sturgeon	**14.0**	1.5	0.1	**13.9**	1.5	0.1	**14.5**	1.6	0.1
Wilmont Creek	Sucker	**15.9**	1.9	0.1	**15.8**	1.8	0.1	**16.4**	2.0	0.1
Wilmont Creek	Walleye	**14.3**	1.6	0.1	**14.2**	1.5	0.1	**14.8**	1.6	0.1
Wilmont Creek	Whitefish	**14.1**	1.5	0.1	**14.0**	1.5	0.1	**14.6**	1.6	0.1

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 8/29/2019
Site Name: UCR
Operable Unit: Recreational Visitor, Beach Trips to Public Beaches, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, or 8 µg/dL

Input File: 08272019 Public Beach Sediment SW While Swim Beach Fish.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Bossburg Flat-2015-SDU-01														
1	no fish	0	0	32	157.6	92.6	0.9	0.02	0.12	0	1.94	**17.681**	2.198	0.129
1a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.19	0	1.95	**18.024**	2.268	0.134
1b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.73**	2.208	0.13
1c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.73**	2.208	0.13
1d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.19	0	1.95	**18.024**	2.268	0.134
1e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.926**	2.248	0.133
1f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.14	0	1.94	**17.779**	2.218	0.13
1g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.55	0	2.01	**19.811**	2.648	0.167
1h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.2	0	1.95	**18.073**	2.278	0.135
1i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.15	0	1.95	**17.828**	2.228	0.131
Bossburg Flat-2015-SDU-02														
2	no fish	0	0	32	157.6	92.6	0.9	0.02	0.12	0	1.94	**17.678**	2.197	0.129
2a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.19	0	1.95	**18.02**	2.267	0.134
2b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.726**	2.207	0.129
2c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.726**	2.207	0.129
2d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.19	0	1.95	**18.02**	2.267	0.134
2e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.922**	2.247	0.133
2f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.14	0	1.94	**17.775**	2.217	0.13
2g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.55	0	2.01	**19.807**	2.647	0.167
2h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.2	0	1.95	**18.069**	2.277	0.135
2i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.15	0	1.94	**17.824**	2.227	0.131
Bossburg Flat-2015-SDU-03														
3	no fish	0	0	32	122.7	92.6	0.9	0.02	0.12	0	1.83	**14.607**	1.617	0.084
3a	burbot	0	0	32	122.7	92.6	0.9	0.02	0.19	0	1.84	**14.93**	1.674	0.089
3b	kokanee	0	0	32	122.7	92.6	0.9	0.02	0.13	0	1.83	**14.653**	1.625	0.085
3c	northern pike	0	0	32	122.7	92.6	0.9	0.02	0.13	0	1.83	**14.653**	1.625	0.085
3d	rainbow trout	0	0	32	122.7	92.6	0.9	0.02	0.19	0	1.84	**14.93**	1.674	0.089
3e	smallmouth bass	0	0	32	122.7	92.6	0.9	0.02	0.17	0	1.84	**14.837**	1.657	0.087
3f	sturgeon	0	0	32	122.7	92.6	0.9	0.02	0.14	0	1.83	**14.699**	1.633	0.086
3g	sucker	0	0	32	122.7	92.6	0.9	0.02	0.55	0	1.9	**16.624**	1.989	0.112
3h	walleye	0	0	32	122.7	92.6	0.9	0.02	0.2	0	1.84	**14.976**	1.682	0.089
3i	whitefish	0	0	32	122.7	92.6	0.9	0.02	0.15	0	1.83	**14.745**	1.641	0.086

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Bossburg Flat-2015-SDU-04														
4	no fish	0	0	32	115.8	92.6	0.9	0.02	0.12	0	1.81	**14.017**	1.514	0.077
4a	burbot	0	0	32	115.8	92.6	0.9	0.02	0.19	0	1.82	**14.335**	1.569	0.081
4b	kokanee	0	0	32	115.8	92.6	0.9	0.02	0.13	0	1.81	**14.062**	1.522	0.078
4c	northern pike	0	0	32	115.8	92.6	0.9	0.02	0.13	0	1.81	**14.062**	1.522	0.078
4d	rainbow trout	0	0	32	115.8	92.6	0.9	0.02	0.19	0	1.82	**14.335**	1.569	0.081
4e	smallmouth bass	0	0	32	115.8	92.6	0.9	0.02	0.17	0	1.81	**14.244**	1.553	0.08
4f	sturgeon	0	0	32	115.8	92.6	0.9	0.02	0.14	0	1.81	**14.108**	1.53	0.078
4g	sucker	0	0	32	115.8	92.6	0.9	0.02	0.55	0	1.88	**16.008**	1.872	0.103
4h	walleye	0	0	32	115.8	92.6	0.9	0.02	0.2	0	1.82	**14.381**	1.577	0.082
4i	whitefish	0	0	32	115.8	92.6	0.9	0.02	0.15	0	1.81	**14.153**	1.537	0.079
Bossburg Flat-2015-SDU-08														
5	no fish	0	0	32	155.2	92.6	0.9	0.02	0.12	0	1.93	**17.464**	2.154	0.125
5a	burbot	0	0	32	155.2	92.6	0.9	0.02	0.19	0	1.94	**17.805**	2.223	0.131
5b	kokanee	0	0	32	155.2	92.6	0.9	0.02	0.13	0	1.93	**17.513**	2.164	0.126
5c	northern pike	0	0	32	155.2	92.6	0.9	0.02	0.13	0	1.93	**17.513**	2.164	0.126
5d	rainbow trout	0	0	32	155.2	92.6	0.9	0.02	0.19	0	1.94	**17.805**	2.223	0.131
5e	smallmouth bass	0	0	32	155.2	92.6	0.9	0.02	0.17	0	1.94	**17.707**	2.203	0.129
5f	sturgeon	0	0	32	155.2	92.6	0.9	0.02	0.14	0	1.94	**17.561**	2.174	0.127
5g	sucker	0	0	32	155.2	92.6	0.9	0.02	0.55	0	2.01	**19.587**	2.599	0.162
5h	walleye	0	0	32	155.2	92.6	0.9	0.02	0.2	0	1.95	**17.854**	2.233	0.132
5i	whitefish	0	0	32	155.2	92.6	0.9	0.02	0.15	0	1.94	**17.61**	2.184	0.128
Bossburg Flat-2015-SDU-09														
6	no fish	0	0	32	120.4	92.6	0.9	0.02	0.12	0	1.82	**14.411**	1.582	0.082
6a	burbot	0	0	32	120.4	92.6	0.9	0.02	0.19	0	1.83	**14.732**	1.639	0.086
6b	kokanee	0	0	32	120.4	92.6	0.9	0.02	0.13	0	1.82	**14.457**	1.59	0.083
6c	northern pike	0	0	32	120.4	92.6	0.9	0.02	0.13	0	1.82	**14.457**	1.59	0.083
6d	rainbow trout	0	0	32	120.4	92.6	0.9	0.02	0.19	0	1.83	**14.732**	1.639	0.086
6e	smallmouth bass	0	0	32	120.4	92.6	0.9	0.02	0.17	0	1.83	**14.64**	1.622	0.085
6f	sturgeon	0	0	32	120.4	92.6	0.9	0.02	0.14	0	1.82	**14.503**	1.598	0.083
6g	sucker	0	0	32	120.4	92.6	0.9	0.02	0.55	0	1.9	**16.42**	1.95	0.109
6h	walleye	0	0	32	120.4	92.6	0.9	0.02	0.2	0	1.83	**14.778**	1.647	0.087
6i	whitefish	0	0	32	120.4	92.6	0.9	0.02	0.15	0	1.83	**14.548**	1.606	0.084
Bossburg Flat-2015-SDU-10														
7	no fish	0	0	32	122	92.6	0.9	0.02	0.12	0	1.83	**14.543**	1.605	0.084
7a	burbot	0	0	32	122	92.6	0.9	0.02	0.19	0	1.84	**14.865**	1.662	0.088
7b	kokanee	0	0	32	122	92.6	0.9	0.02	0.13	0	1.83	**14.589**	1.613	0.084
7c	northern pike	0	0	32	122	92.6	0.9	0.02	0.13	0	1.83	**14.589**	1.613	0.084
7d	rainbow trout	0	0	32	122	92.6	0.9	0.02	0.19	0	1.84	**14.865**	1.662	0.088
7e	smallmouth bass	0	0	32	122	92.6	0.9	0.02	0.17	0	1.83	**14.773**	1.646	0.086
7f	sturgeon	0	0	32	122	92.6	0.9	0.02	0.14	0	1.83	**14.635**	1.621	0.085
7g	sucker	0	0	32	122	92.6	0.9	0.02	0.55	0	1.9	**16.558**	1.976	0.111
7h	walleye	0	0	32	122	92.6	0.9	0.02	0.2	0	1.84	**14.911**	1.671	0.088
7i	whitefish	0	0	32	122	92.6	0.9	0.02	0.15	0	1.83	**14.681**	1.63	0.085
Evans Campground-2015-SDU-05														
8	no fish	0	0	32	143.4	92.6	0.9	0.02	0.12	0	1.89	**16.411**	1.948	0.109
8a	burbot	0	0	32	143.4	92.6	0.9	0.02	0.19	0	1.91	**16.746**	2.013	0.114
8b	kokanee	0	0	32	143.4	92.6	0.9	0.02	0.13	0	1.9	**16.458**	1.957	0.11
8c	northern pike	0	0	32	143.4	92.6	0.9	0.02	0.13	0	1.9	**16.458**	1.957	0.11
8d	rainbow trout	0	0	32	143.4	92.6	0.9	0.02	0.19	0	1.91	**16.746**	2.013	0.114

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
8e	smallmouth bass	0	0	32	143.4	92.6	0.9	0.02	0.17	0	1.9	**16.65**	1.994	0.113
8f	sturgeon	0	0	32	143.4	92.6	0.9	0.02	0.14	0	1.9	**16.506**	1.967	0.11
8g	sucker	0	0	32	143.4	92.6	0.9	0.02	0.55	0	1.97	**18.499**	2.366	0.143
8h	walleye	0	0	32	143.4	92.6	0.9	0.02	0.2	0	1.91	**16.794**	2.022	0.115
8i	whitefish	0	0	32	143.4	92.6	0.9	0.02	0.15	0	1.9	**16.554**	1.976	0.111
Evans Campground-2015-SDU-06														
9	no fish	0	0	32	112.8	92.6	0.9	0.02	0.12	0	1.8	**13.771**	1.472	0.074
9a	burbot	0	0	32	112.8	92.6	0.9	0.02	0.19	0	1.81	**14.087**	1.526	0.078
9b	kokanee	0	0	32	112.8	92.6	0.9	0.02	0.13	0	1.8	**13.816**	1.48	0.075
9c	northern pike	0	0	32	112.8	92.6	0.9	0.02	0.13	0	1.8	**13.816**	1.48	0.075
9d	rainbow trout	0	0	32	112.8	92.6	0.9	0.02	0.19	0	1.81	**14.087**	1.526	0.078
9e	smallmouth bass	0	0	32	112.8	92.6	0.9	0.02	0.17	0	1.81	**13.997**	1.511	0.077
9f	sturgeon	0	0	32	112.8	92.6	0.9	0.02	0.14	0	1.8	**13.861**	1.487	0.075
9g	sucker	0	0	32	112.8	92.6	0.9	0.02	0.55	0	1.87	**15.751**	1.824	0.1
9g	walleye	0	0	32	112.8	92.6	0.9	0.02	0.2	0	1.81	**14.133**	1.534	0.079
9i	whitefish	0	0	32	112.8	92.6	0.9	0.02	0.15	0	1.8	**13.906**	1.495	0.076
Evans Campground-2015-SDU-07														
10	no fish	0	0	32	145.1	92.6	0.9	0.02	0.12	0	1.9	**16.561**	1.977	0.111
10a	burbot	0	0	32	145.1	92.6	0.9	0.02	0.19	0	1.91	**16.897**	2.042	0.116
10b	kokanee	0	0	32	145.1	92.6	0.9	0.02	0.13	0	1.9	**16.609**	1.986	0.112
10c	northern pike	0	0	32	145.1	92.6	0.9	0.02	0.13	0	1.9	**16.609**	1.986	0.112
10d	rainbow trout	0	0	32	145.1	92.6	0.9	0.02	0.19	0	1.91	**16.897**	2.042	0.116
10e	smallmouth bass	0	0	32	145.1	92.6	0.9	0.02	0.17	0	1.91	**16.801**	2.023	0.115
10f	sturgeon	0	0	32	145.1	92.6	0.9	0.02	0.14	0	1.9	**16.657**	1.996	0.113
10g	sucker	0	0	32	145.1	92.6	0.9	0.02	0.55	0	1.97	**18.654**	2.399	0.145
10h	walleye	0	0	32	145.1	92.6	0.9	0.02	0.2	0	1.91	**16.945**	2.052	0.117
10i	whitefish	0	0	32	145.1	92.6	0.9	0.02	0.15	0	1.91	**16.705**	2.005	0.113
AA Campground														
11	no fish	0	0	32	112.2	92.6	0.9	0.02	0.12	0	1.79	**13.714**	1.462	0.074
11a	burbot	0	0	32	112.2	92.6	0.9	0.02	0.19	0	1.81	**14.029**	1.516	0.077
11b	kokanee	0	0	32	112.2	92.6	0.9	0.02	0.13	0	1.8	**13.759**	1.47	0.074
11c	northern pike	0	0	32	112.2	92.6	0.9	0.02	0.13	0	1.8	**13.759**	1.47	0.074
11d	rainbow trout	0	0	32	112.2	92.6	0.9	0.02	0.19	0	1.81	**14.029**	1.516	0.077
11e	smallmouth bass	0	0	32	112.2	92.6	0.9	0.02	0.17	0	1.8	**13.939**	1.501	0.076
11f	sturgeon	0	0	32	112.2	92.6	0.9	0.02	0.14	0	1.8	**13.804**	1.478	0.075
11g	sucker	0	0	32	112.2	92.6	0.9	0.02	0.55	0	1.87	**15.69**	1.812	0.099
11h	walleye	0	0	32	112.2	92.6	0.9	0.02	0.2	0	1.81	**14.074**	1.524	0.078
11i	whitefish	0	0	32	112.2	92.6	0.9	0.02	0.15	0	1.8	**13.849**	1.485	0.075
Barnaby Island Campgr														
12	no fish	0	0	32	114.4	92.6	0.9	0.02	0.12	0	1.8	**13.9**	1.494	0.076
12a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.19	0	1.81	**14.217**	1.548	0.08
12b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.945**	1.502	0.076
12c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.945**	1.502	0.076
12d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.19	0	1.81	**14.217**	1.548	0.08
12e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.126**	1.533	0.078
12f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.14	0	1.81	**13.991**	1.509	0.077
12g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.55	0	1.88	**15.886**	1.849	0.101
12h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.2	0	1.82	**14.263**	1.556	0.08
12i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.15	0	1.81	**14.036**	1.517	0.077
Black Sand														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13	no fish	0	0	32	149.3	92.6	0.9	0.02	0.12	0	1.91	**16.93**	2.049	0.117
13a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.19	0	1.93	**17.268**	2.115	0.122
13b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.978**	2.058	0.118
13c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.978**	2.058	0.118
13d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.19	0	1.93	**17.268**	2.115	0.122
13e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.171**	2.096	0.121
13f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.14	0	1.92	**17.026**	2.068	0.118
13g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.55	0	1.99	**19.035**	2.48	0.152
13h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.2	0	1.93	**17.316**	2.125	0.123
13i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.15	0	1.92	**17.074**	2.077	0.119
Bossburg Flat-2011														
14	no fish	0	0	32	332.2	92.6	0.9	0.02	0.12	0	2.49	**34.569**	**6.893**	0.65
14a	burbot	0	0	32	332.2	92.6	0.9	0.02	0.19	0	2.5	**34.938**	**7.026**	0.668
14b	kokanee	0	0	32	332.2	92.6	0.9	0.02	0.13	0	2.49	**34.622**	**6.912**	0.653
14c	northern pike	0	0	32	332.2	92.6	0.9	0.02	0.13	0	2.49	**34.622**	**6.912**	0.653
14d	rainbow trout	0	0	32	332.2	92.6	0.9	0.02	0.19	0	2.5	**34.938**	**7.026**	0.668
14e	smallmouth bass	0	0	32	332.2	92.6	0.9	0.02	0.17	0	2.5	**34.832**	**6.988**	0.663
14f	sturgeon	0	0	32	332.2	92.6	0.9	0.02	0.14	0	2.49	**34.675**	**6.931**	0.655
14g	sucker	0	0	32	332.2	92.6	0.9	0.02	0.55	0	2.56	**36.823**	**7.731**	0.769
14h	walleye	0	0	32	332.2	92.6	0.9	0.02	0.2	0	2.5	**34.99**	**7.045**	0.671
14i	whitefish	0	0	32	332.2	92.6	0.9	0.02	0.15	0	2.49	**34.727**	**6.95**	0.658
Bradbury														
15	no fish	0	0	32	121.3	92.6	0.9	0.02	0.12	0	1.82	**14.487**	1.595	0.083
15a	burbot	0	0	32	121.3	92.6	0.9	0.02	0.19	0	1.84	**14.808**	1.652	0.087
15b	kokanee	0	0	32	121.3	92.6	0.9	0.02	0.13	0	1.83	**14.533**	1.603	0.083
15c	northern pike	0	0	32	121.3	92.6	0.9	0.02	0.13	0	1.83	**14.533**	1.603	0.083
15d	rainbow trout	0	0	32	121.3	92.6	0.9	0.02	0.19	0	1.84	**14.808**	1.652	0.087
15e	smallmouth bass	0	0	32	121.3	92.6	0.9	0.02	0.17	0	1.83	**14.716**	1.636	0.086
15f	sturgeon	0	0	32	121.3	92.6	0.9	0.02	0.14	0	1.83	**14.579**	1.612	0.084
15g	sucker	0	0	32	121.3	92.6	0.9	0.02	0.55	0	1.9	**16.499**	1.965	0.11
15h	walleye	0	0	32	121.3	92.6	0.9	0.02	0.2	0	1.84	**14.855**	1.66	0.088
15i	whitefish	0	0	32	121.3	92.6	0.9	0.02	0.15	0	1.83	**14.624**	1.62	0.085
China Bend														
16	no fish	0	0	32	153.4	92.6	0.9	0.02	0.12	0	1.93	**17.3**	2.122	0.123
16a	burbot	0	0	32	153.4	92.6	0.9	0.02	0.19	0	1.94	**17.64**	2.19	0.128
16b	kokanee	0	0	32	153.4	92.6	0.9	0.02	0.13	0	1.93	**17.348**	2.131	0.123
16c	northern pike	0	0	32	153.4	92.6	0.9	0.02	0.13	0	1.93	**17.348**	2.131	0.123
16d	rainbow trout	0	0	32	153.4	92.6	0.9	0.02	0.19	0	1.94	**17.64**	2.19	0.128
16e	smallmouth bass	0	0	32	153.4	92.6	0.9	0.02	0.17	0	1.94	**17.543**	2.17	0.126
16f	sturgeon	0	0	32	153.4	92.6	0.9	0.02	0.14	0	1.93	**17.397**	2.141	0.124
16g	sucker	0	0	32	153.4	92.6	0.9	0.02	0.55	0	2	**19.417**	2.562	0.159
16h	walleye	0	0	32	153.4	92.6	0.9	0.02	0.2	0	1.94	**17.689**	2.2	0.129
16i	whitefish	0	0	32	153.4	92.6	0.9	0.02	0.15	0	1.93	**17.445**	2.151	0.125
Colville Flats														
17	no fish	0	0	32	138.3	92.6	0.9	0.02	0.12	0	1.88	**15.953**	1.861	0.102
17a	burbot	0	0	32	138.3	92.6	0.9	0.02	0.19	0	1.89	**16.285**	1.924	0.107
17b	kokanee	0	0	32	138.3	92.6	0.9	0.02	0.13	0	1.88	**16.001**	1.87	0.103
17c	northern pike	0	0	32	138.3	92.6	0.9	0.02	0.13	0	1.88	**16.001**	1.87	0.103
17d	rainbow trout	0	0	32	138.3	92.6	0.9	0.02	0.19	0	1.89	**16.285**	1.924	0.107
17e	smallmouth bass	0	0	32	138.3	92.6	0.9	0.02	0.17	0	1.89	**16.19**	1.906	0.106

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
17f	sturgeon	0	0	32	138.3	92.6	0.9	0.02	0.14	0	1.88	**16.048**	1.879	0.104
17g	sucker	0	0	32	138.3	92.6	0.9	0.02	0.55	0	1.95	**18.025**	2.268	0.134
17h	walleye	0	0	32	138.3	92.6	0.9	0.02	0.2	0	1.89	**16.333**	1.933	0.108
17i	whitefish	0	0	32	138.3	92.6	0.9	0.02	0.15	0	1.88	**16.095**	1.888	0.104
Colville River														
18	no fish	0	0	32	112.3	92.6	0.9	0.02	0.12	0	1.8	**13.726**	1.465	0.074
18a	burbot	0	0	32	112.3	92.6	0.9	0.02	0.19	0	1.81	**14.042**	1.518	0.077
18b	kokanee	0	0	32	112.3	92.6	0.9	0.02	0.13	0	1.8	**13.771**	1.472	0.074
18c	northern pike	0	0	32	112.3	92.6	0.9	0.02	0.13	0	1.8	**13.771**	1.472	0.074
18d	rainbow trout	0	0	32	112.3	92.6	0.9	0.02	0.19	0	1.81	**14.042**	1.518	0.077
18e	smallmouth bass	0	0	32	112.3	92.6	0.9	0.02	0.17	0	1.8	**13.951**	1.503	0.076
18f	sturgeon	0	0	32	112.3	92.6	0.9	0.02	0.14	0	1.8	**13.816**	1.48	0.075
18g	sucker	0	0	32	112.3	92.6	0.9	0.02	0.55	0	1.87	**15.704**	1.815	0.099
18h	walleye	0	0	32	112.3	92.6	0.9	0.02	0.2	0	1.81	**14.087**	1.526	0.078
18i	whitefish	0	0	32	112.3	92.6	0.9	0.02	0.15	0	1.8	**13.861**	1.487	0.075
Crescent Bay														
19	no fish	0	0	32	110.8	92.6	0.9	0.02	0.12	0	1.79	**13.603**	1.444	0.072
19a	burbot	0	0	32	110.8	92.6	0.9	0.02	0.19	0	1.8	**13.917**	1.497	0.076
19b	kokanee	0	0	32	110.8	92.6	0.9	0.02	0.13	0	1.79	**13.648**	1.451	0.073
19c	northern pike	0	0	32	110.8	92.6	0.9	0.02	0.13	0	1.79	**13.648**	1.451	0.073
19d	rainbow trout	0	0	32	110.8	92.6	0.9	0.02	0.19	0	1.8	**13.917**	1.497	0.076
19e	smallmouth bass	0	0	32	110.8	92.6	0.9	0.02	0.17	0	1.8	**13.827**	1.482	0.075
19f	sturgeon	0	0	32	110.8	92.6	0.9	0.02	0.14	0	1.79	**13.692**	1.459	0.073
19g	sucker	0	0	32	110.8	92.6	0.9	0.02	0.55	0	1.86	**15.574**	1.791	0.097
19h	walleye	0	0	32	110.8	92.6	0.9	0.02	0.2	0	1.8	**13.962**	1.505	0.077
19i	whitefish	0	0	32	110.8	92.6	0.9	0.02	0.15	0	1.8	**13.737**	1.466	0.074
Dallas Orchard														
20	no fish	0	0	32	163.7	92.6	0.9	0.02	0.12	0	1.96	**18.239**	2.312	0.138
20a	burbot	0	0	32	163.7	92.6	0.9	0.02	0.19	0	1.97	**18.584**	2.384	0.144
20b	kokanee	0	0	32	163.7	92.6	0.9	0.02	0.13	0	1.96	**18.288**	2.322	0.139
20c	northern pike	0	0	32	163.7	92.6	0.9	0.02	0.13	0	1.96	**18.288**	2.322	0.139
20d	rainbow trout	0	0	32	163.7	92.6	0.9	0.02	0.19	0	1.97	**18.584**	2.384	0.144
20e	smallmouth bass	0	0	32	163.7	92.6	0.9	0.02	0.17	0	1.97	**18.485**	2.363	0.142
20f	sturgeon	0	0	32	163.7	92.6	0.9	0.02	0.14	0	1.96	**18.337**	2.333	0.14
20g	sucker	0	0	32	163.7	92.6	0.9	0.02	0.55	0	2.03	**20.384**	2.776	0.178
20h	walleye	0	0	32	163.7	92.6	0.9	0.02	0.2	0	1.97	**18.633**	2.394	0.145
20i	whitefish	0	0	32	163.7	92.6	0.9	0.02	0.15	0	1.96	**18.387**	2.343	0.141
Enterprise														
21	no fish	0	0	32	112.1	92.6	0.9	0.02	0.12	0	1.79	**13.705**	1.461	0.074
21a	burbot	0	0	32	112.1	92.6	0.9	0.02	0.19	0	1.81	**14.021**	1.515	0.077
21b	kokanee	0	0	32	112.1	92.6	0.9	0.02	0.13	0	1.8	**13.75**	1.469	0.074
21c	northern pike	0	0	32	112.1	92.6	0.9	0.02	0.13	0	1.8	**13.75**	1.469	0.074
21d	rainbow trout	0	0	32	112.1	92.6	0.9	0.02	0.19	0	1.81	**14.021**	1.515	0.077
21e	smallmouth bass	0	0	32	112.1	92.6	0.9	0.02	0.17	0	1.8	**13.93**	1.499	0.076
21f	sturgeon	0	0	32	112.1	92.6	0.9	0.02	0.14	0	1.8	**13.795**	1.476	0.075
21g	sucker	0	0	32	112.1	92.6	0.9	0.02	0.55	0	1.87	**15.682**	1.811	0.099
21h	walleye	0	0	32	112.1	92.6	0.9	0.02	0.2	0	1.81	**14.066**	1.522	0.078
21i	whitefish	0	0	32	112.1	92.6	0.9	0.02	0.15	0	1.8	**13.84**	1.484	0.075
Evans Campground-2011														
22	no fish	0	0	32	149.3	92.6	0.9	0.02	0.12	0	1.91	**16.931**	2.049	0.117

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
22a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.19	0	1.93	**17.269**	2.116	0.122
22b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.98**	2.058	0.118
22c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.98**	2.058	0.118
22d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.19	0	1.93	**17.269**	2.116	0.122
22e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.173**	2.096	0.121
22f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.14	0	1.92	**17.028**	2.068	0.118
22g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.55	0	1.99	**19.037**	2.48	0.152
22h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.2	0	1.93	**17.318**	2.125	0.123
22i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.15	0	1.92	**17.076**	2.077	0.119
Flat Creek														
23	no fish	0	0	32	141.4	92.6	0.9	0.02	0.12	0	1.89	**16.227**	1.913	0.106
23a	burbot	0	0	32	141.4	92.6	0.9	0.02	0.19	0	1.9	**16.56**	1.977	0.111
23b	kokanee	0	0	32	141.4	92.6	0.9	0.02	0.13	0	1.89	**16.274**	1.922	0.107
23c	northern pike	0	0	32	141.4	92.6	0.9	0.02	0.13	0	1.89	**16.274**	1.922	0.107
23d	rainbow trout	0	0	32	141.4	92.6	0.9	0.02	0.19	0	1.9	**16.56**	1.977	0.111
23e	smallmouth bass	0	0	32	141.4	92.6	0.9	0.02	0.17	0	1.9	**16.465**	1.959	0.11
23f	sturgeon	0	0	32	141.4	92.6	0.9	0.02	0.14	0	1.89	**16.322**	1.931	0.108
23g	sucker	0	0	32	141.4	92.6	0.9	0.02	0.55	0	1.96	**18.308**	2.327	0.139
23h	walleye	0	0	32	141.4	92.6	0.9	0.02	0.2	0	1.9	**16.608**	1.986	0.112
23i	whitefish	0	0	32	141.4	92.6	0.9	0.02	0.15	0	1.89	**16.369**	1.94	0.108
Hawk Creek														
24	no fish	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.64**	1.45	0.073
24a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.955**	1.503	0.076
24b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.685**	1.458	0.073
24c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.685**	1.458	0.073
24d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.955**	1.503	0.076
24e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.865**	1.488	0.075
24f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.14	0	1.8	**13.73**	1.465	0.074
24g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.55	0	1.87	**15.614**	1.798	0.098
24h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.2	0	1.81	**14**	1.511	0.077
24i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.775**	1.473	0.074
Hunters														
25	no fish	0	0	32	112.4	92.6	0.9	0.02	0.12	0	1.8	**13.734**	1.466	0.074
25a	burbot	0	0	32	112.4	92.6	0.9	0.02	0.19	0	1.81	**14.049**	1.52	0.078
25b	kokanee	0	0	32	112.4	92.6	0.9	0.02	0.13	0	1.8	**13.779**	1.473	0.074
25c	northern pike	0	0	32	112.4	92.6	0.9	0.02	0.13	0	1.8	**13.779**	1.473	0.074
25d	rainbow trout	0	0	32	112.4	92.6	0.9	0.02	0.19	0	1.81	**14.049**	1.52	0.078
25e	smallmouth bass	0	0	32	112.4	92.6	0.9	0.02	0.17	0	1.8	**13.959**	1.504	0.076
25f	sturgeon	0	0	32	112.4	92.6	0.9	0.02	0.14	0	1.8	**13.824**	1.481	0.075
25g	sucker	0	0	32	112.4	92.6	0.9	0.02	0.55	0	1.87	**15.711**	1.816	0.099
25h	walleye	0	0	32	112.4	92.6	0.9	0.02	0.2	0	1.81	**14.095**	1.527	0.078
25i	whitefish	0	0	32	112.4	92.6	0.9	0.02	0.15	0	1.8	**13.869**	1.489	0.075
Jones Bay														
26	no fish	0	0	32	111	92.6	0.9	0.02	0.12	0	1.79	**13.621**	1.447	0.073
26a	burbot	0	0	32	111	92.6	0.9	0.02	0.19	0	1.8	**13.936**	1.5	0.076
26b	kokanee	0	0	32	111	92.6	0.9	0.02	0.13	0	1.79	**13.666**	1.454	0.073
26c	northern pike	0	0	32	111	92.6	0.9	0.02	0.13	0	1.79	**13.666**	1.454	0.073
26d	rainbow trout	0	0	32	111	92.6	0.9	0.02	0.19	0	1.8	**13.936**	1.5	0.076
26e	smallmouth bass	0	0	32	111	92.6	0.9	0.02	0.17	0	1.8	**13.846**	1.485	0.075
26f	sturgeon	0	0	32	111	92.6	0.9	0.02	0.14	0	1.79	**13.711**	1.462	0.074

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
26g	sucker	0	0	32	111	92.6	0.9	0.02	0.55	0	1.87	**15.593**	1.795	0.097
26h	walleye	0	0	32	111	92.6	0.9	0.02	0.2	0	1.8	**13.981**	1.508	0.077
26i	whitefish	0	0	32	111	92.6	0.9	0.02	0.15	0	1.8	**13.756**	1.469	0.074
Kamloops Island														
27	no fish	0	0	32	113.2	92.6	0.9	0.02	0.12	0	1.8	**13.802**	1.477	0.075
27a	burbot	0	0	32	113.2	92.6	0.9	0.02	0.19	0	1.81	**14.118**	1.531	0.078
27b	kokanee	0	0	32	113.2	92.6	0.9	0.02	0.13	0	1.8	**13.847**	1.485	0.075
27c	northern pike	0	0	32	113.2	92.6	0.9	0.02	0.13	0	1.8	**13.847**	1.485	0.075
27d	rainbow trout	0	0	32	113.2	92.6	0.9	0.02	0.19	0	1.81	**14.118**	1.531	0.078
27e	smallmouth bass	0	0	32	113.2	92.6	0.9	0.02	0.17	0	1.81	**14.028**	1.516	0.077
27f	sturgeon	0	0	32	113.2	92.6	0.9	0.02	0.14	0	1.8	**13.892**	1.493	0.076
27g	sucker	0	0	32	113.2	92.6	0.9	0.02	0.55	0	1.87	**15.783**	1.83	0.1
27h	walleye	0	0	32	113.2	92.6	0.9	0.02	0.2	0	1.81	**14.164**	1.539	0.079
27i	whitefish	0	0	32	113.2	92.6	0.9	0.02	0.15	0	1.8	**13.937**	1.5	0.076
Kettle Falls														
28	no fish	0	0	32	111.9	92.6	0.9	0.02	0.12	0	1.79	**13.692**	1.459	0.073
28a	burbot	0	0	32	111.9	92.6	0.9	0.02	0.19	0	1.81	**14.007**	1.512	0.077
28b	kokanee	0	0	32	111.9	92.6	0.9	0.02	0.13	0	1.8	**13.737**	1.466	0.074
28c	northern pike	0	0	32	111.9	92.6	0.9	0.02	0.13	0	1.8	**13.737**	1.466	0.074
28d	rainbow trout	0	0	32	111.9	92.6	0.9	0.02	0.19	0	1.81	**14.007**	1.512	0.077
28e	smallmouth bass	0	0	32	111.9	92.6	0.9	0.02	0.17	0	1.8	**13.917**	1.497	0.076
28f	sturgeon	0	0	32	111.9	92.6	0.9	0.02	0.14	0	1.8	**13.782**	1.474	0.074
28g	sucker	0	0	32	111.9	92.6	0.9	0.02	0.55	0	1.87	**15.668**	1.808	0.098
2h8	walleye	0	0	32	111.9	92.6	0.9	0.02	0.2	0	1.81	**14.052**	1.52	0.078
i28	whitefish	0	0	32	111.9	92.6	0.9	0.02	0.15	0	1.8	**13.827**	1.482	0.075
Lyons Island														
29	no fish	0	0	32	124.4	92.6	0.9	0.02	0.12	0	1.83	**14.747**	1.641	0.086
29a	burbot	0	0	32	124.4	92.6	0.9	0.02	0.19	0	1.85	**15.071**	1.699	0.09
29b	kokanee	0	0	32	124.4	92.6	0.9	0.02	0.13	0	1.84	**14.793**	1.65	0.087
29c	northern pike	0	0	32	124.4	92.6	0.9	0.02	0.13	0	1.84	**14.793**	1.65	0.087
29d	rainbow trout	0	0	32	124.4	92.6	0.9	0.02	0.19	0	1.85	**15.071**	1.699	0.09
29e	smallmouth bass	0	0	32	124.4	92.6	0.9	0.02	0.17	0	1.84	**14.978**	1.683	0.089
29f	sturgeon	0	0	32	124.4	92.6	0.9	0.02	0.14	0	1.84	**14.84**	1.658	0.087
29g	sucker	0	0	32	124.4	92.6	0.9	0.02	0.55	0	1.91	**16.771**	2.018	0.114
29h	walleye	0	0	32	124.4	92.6	0.9	0.02	0.2	0	1.85	**15.117**	1.708	0.091
29i	whitefish	0	0	32	124.4	92.6	0.9	0.02	0.15	0	1.84	**14.886**	1.666	0.088
McGuires														
30	no fish	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.646**	1.451	0.073
30a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.961**	1.504	0.077
30b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.691**	1.459	0.073
30c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.691**	1.459	0.073
30d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.961**	1.504	0.077
30e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.871**	1.489	0.075
30f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.14	0	1.8	**13.736**	1.466	0.074
30g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.55	0	1.87	**15.62**	1.799	0.098
30h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.2	0	1.81	**14.006**	1.512	0.077
30i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.781**	1.474	0.074
Mitchell Point														
31	no fish	0	0	32	111.6	92.6	0.9	0.02	0.12	0	1.79	**13.669**	1.455	0.073
31a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.19	0	1.8	**13.985**	1.508	0.077

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
31b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.714**	1.462	0.074
31c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.714**	1.462	0.074
31d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.19	0	1.8	**13.985**	1.508	0.077
31e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.894**	1.493	0.076
31f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.14	0	1.8	**13.759**	1.47	0.074
31g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.55	0	1.87	**15.644**	1.804	0.098
31h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.2	0	1.81	**14.03**	1.516	0.077
31i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.15	0	1.8	**13.804**	1.478	0.075
Naborlee														
32	no fish	0	0	32	114.4	92.6	0.9	0.02	0.12	0	1.8	**13.903**	1.494	0.076
32a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.19	0	1.81	**14.22**	1.549	0.08
32b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.948**	1.502	0.076
32c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.948**	1.502	0.076
32d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.19	0	1.81	**14.22**	1.549	0.08
32e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.129**	1.533	0.079
32f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.14	0	1.81	**13.993**	1.51	0.077
32g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.55	0	1.88	**15.888**	1.849	0.101
32h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.2	0	1.82	**14.265**	1.557	0.08
32i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.15	0	1.81	**14.038**	1.518	0.077
Nez Perce														
33	no fish	0	0	32	111.6	92.6	0.9	0.02	0.12	0	1.79	**13.664**	1.454	0.073
33a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.19	0	1.8	**13.979**	1.507	0.077
33b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.708**	1.462	0.074
33c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.708**	1.462	0.074
33d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.19	0	1.8	**13.979**	1.507	0.077
33e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.888**	1.492	0.076
33f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.14	0	1.8	**13.753**	1.469	0.074
33g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.55	0	1.87	**15.638**	1.803	0.098
33h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.2	0	1.81	**14.024**	1.515	0.077
33i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.15	0	1.8	**13.798**	1.477	0.075
Northport Beach														
34	no fish	0	0	32	156.4	92.6	0.9	0.02	0.12	0	1.94	**17.569**	2.176	0.127
34a	burbot	0	0	32	156.4	92.6	0.9	0.02	0.19	0	1.95	**17.911**	2.245	0.133
34b	kokanee	0	0	32	156.4	92.6	0.9	0.02	0.13	0	1.94	**17.618**	2.185	0.128
34c	northern pike	0	0	32	156.4	92.6	0.9	0.02	0.13	0	1.94	**17.618**	2.185	0.128
34d	rainbow trout	0	0	32	156.4	92.6	0.9	0.02	0.19	0	1.95	**17.911**	2.245	0.133
34e	smallmouth bass	0	0	32	156.4	92.6	0.9	0.02	0.17	0	1.94	**17.813**	2.225	0.131
34f	sturgeon	0	0	32	156.4	92.6	0.9	0.02	0.14	0	1.94	**17.666**	2.195	0.128
34g	sucker	0	0	32	156.4	92.6	0.9	0.02	0.55	0	2.01	**19.695**	2.622	0.164
34h	walleye	0	0	32	156.4	92.6	0.9	0.02	0.2	0	1.95	**17.96**	2.255	0.133
34i	whitefish	0	0	32	156.4	92.6	0.9	0.02	0.15	0	1.94	**17.715**	2.205	0.129
R.V. Park														
35	no fish	0	0	32	148.6	92.6	0.9	0.02	0.12	0	1.91	**16.866**	2.036	0.116
35a	burbot	0	0	32	148.6	92.6	0.9	0.02	0.19	0	1.92	**17.204**	2.103	0.121
35b	kokanee	0	0	32	148.6	92.6	0.9	0.02	0.13	0	1.91	**16.914**	2.046	0.117
35c	northern pike	0	0	32	148.6	92.6	0.9	0.02	0.13	0	1.91	**16.914**	2.046	0.117
35d	rainbow trout	0	0	32	148.6	92.6	0.9	0.02	0.19	0	1.92	**17.204**	2.103	0.121
35e	smallmouth bass	0	0	32	148.6	92.6	0.9	0.02	0.17	0	1.92	**17.107**	2.084	0.12
35f	sturgeon	0	0	32	148.6	92.6	0.9	0.02	0.14	0	1.91	**16.962**	2.055	0.117
35g	sucker	0	0	32	148.6	92.6	0.9	0.02	0.55	0	1.98	**18.969**	2.466	0.151

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
35h	walleye	0	0	32	148.6	92.6	0.9	0.02	0.2	0	1.92	**17.252**	2.112	0.122
35i	whitefish	0	0	32	148.6	92.6	0.9	0.02	0.15	0	1.92	**17.011**	2.065	0.118
Seven Bays														
36	no fish	0	0	32	110.9	92.6	0.9	0.02	0.12	0	1.79	**13.614**	1.446	0.072
36a	burbot	0	0	32	110.9	92.6	0.9	0.02	0.19	0	1.8	**13.928**	1.499	0.076
36b	kokanee	0	0	32	110.9	92.6	0.9	0.02	0.13	0	1.79	**13.658**	1.453	0.073
36c	northern pike	0	0	32	110.9	92.6	0.9	0.02	0.13	0	1.79	**13.658**	1.453	0.073
36d	rainbow trout	0	0	32	110.9	92.6	0.9	0.02	0.19	0	1.8	**13.928**	1.499	0.076
36e	smallmouth bass	0	0	32	110.9	92.6	0.9	0.02	0.17	0	1.8	**13.838**	1.483	0.075
36f	sturgeon	0	0	32	110.9	92.6	0.9	0.02	0.14	0	1.79	**13.703**	1.461	0.073
36g	sucker	0	0	32	110.9	92.6	0.9	0.02	0.55	0	1.86	**15.586**	1.793	0.097
36h	walleye	0	0	32	110.9	92.6	0.9	0.02	0.2	0	1.8	**13.973**	1.507	0.077
36i	whitefish	0	0	32	110.9	92.6	0.9	0.02	0.15	0	1.8	**13.748**	1.468	0.074
Spring Canyon														
37	no fish	0	0	32	111.2	92.6	0.9	0.02	0.12	0	1.79	**13.638**	1.45	0.073
37a	burbot	0	0	32	111.2	92.6	0.9	0.02	0.19	0	1.8	**13.953**	1.503	0.076
37b	kokanee	0	0	32	111.2	92.6	0.9	0.02	0.13	0	1.79	**13.683**	1.457	0.073
37c	northern pike	0	0	32	111.2	92.6	0.9	0.02	0.13	0	1.79	**13.683**	1.457	0.073
37d	rainbow trout	0	0	32	111.2	92.6	0.9	0.02	0.19	0	1.8	**13.953**	1.503	0.076
37e	smallmouth bass	0	0	32	111.2	92.6	0.9	0.02	0.17	0	1.8	**13.862**	1.488	0.075
37f	sturgeon	0	0	32	111.2	92.6	0.9	0.02	0.14	0	1.8	**13.727**	1.465	0.074
37g	sucker	0	0	32	111.2	92.6	0.9	0.02	0.55	0	1.87	**15.611**	1.798	0.098
37h	walleye	0	0	32	111.2	92.6	0.9	0.02	0.2	0	1.81	**13.998**	1.511	0.077
37i	whitefish	0	0	32	111.2	92.6	0.9	0.02	0.15	0	1.8	**13.772**	1.472	0.074
Summer Island														
38	no fish	0	0	32	158.9	92.6	0.9	0.02	0.12	0	1.94	**17.795**	2.221	0.131
38a	burbot	0	0	32	158.9	92.6	0.9	0.02	0.19	0	1.96	**18.138**	2.291	0.136
38b	kokanee	0	0	32	158.9	92.6	0.9	0.02	0.13	0	1.95	**17.844**	2.231	0.131
38c	northern pike	0	0	32	158.9	92.6	0.9	0.02	0.13	0	1.95	**17.844**	2.231	0.131
38d	rainbow trout	0	0	32	158.9	92.6	0.9	0.02	0.19	0	1.96	**18.138**	2.291	0.136
38e	smallmouth bass	0	0	32	158.9	92.6	0.9	0.02	0.17	0	1.95	**18.039**	2.271	0.135
38f	sturgeon	0	0	32	158.9	92.6	0.9	0.02	0.14	0	1.95	**17.893**	2.241	0.132
38g	sucker	0	0	32	158.9	92.6	0.9	0.02	0.55	0	2.02	**19.928**	2.674	0.169
38h	walleye	0	0	32	158.9	92.6	0.9	0.02	0.2	0	1.96	**18.187**	2.301	0.137
38i	whitefish	0	0	32	158.9	92.6	0.9	0.02	0.15	0	1.95	**17.941**	2.251	0.133
Swawilla Basin														
39	no fish	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.639**	1.45	0.073
39a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.954**	1.503	0.076
39b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.684**	1.457	0.073
39c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.684**	1.457	0.073
39d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.19	0	1.8	**13.954**	1.503	0.076
39e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.864**	1.488	0.075
39f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.14	0	1.8	**13.729**	1.465	0.074
39g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.55	0	1.87	**15.613**	1.798	0.098
39h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.2	0	1.81	**13.999**	1.511	0.077
39i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.774**	1.473	0.074
Swimming Hole														
40	no fish	0	0	32	134	92.6	0.9	0.02	0.12	0	1.86	**15.581**	1.792	0.097
40a	burbot	0	0	32	134	92.6	0.9	0.02	0.19	0	1.88	**15.91**	1.853	0.102
40b	kokanee	0	0	32	134	92.6	0.9	0.02	0.13	0	1.87	**15.628**	1.801	0.098

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
40c	northern pike	0	0	32	134	92.6	0.9	0.02	0.13	0	1.87	**15.628**	1.801	0.098
40d	rainbow trout	0	0	32	134	92.6	0.9	0.02	0.19	0	1.88	**15.91**	1.853	0.102
40e	smallmouth bass	0	0	32	134	92.6	0.9	0.02	0.17	0	1.87	**15.816**	1.836	0.1
40f	sturgeon	0	0	32	134	92.6	0.9	0.02	0.14	0	1.87	**15.675**	1.81	0.098
40g	sucker	0	0	32	134	92.6	0.9	0.02	0.55	0	1.94	**17.638**	2.189	0.128
40h	walleye	0	0	32	134	92.6	0.9	0.02	0.2	0	1.88	**15.958**	1.862	0.102
40i	whitefish	0	0	32	134	92.6	0.9	0.02	0.15	0	1.87	**15.722**	1.818	0.099
Welty Bay														
41	no fish	0	0	32	121.2	92.6	0.9	0.02	0.12	0	1.82	**14.475**	1.593	0.083
41a	burbot	0	0	32	121.2	92.6	0.9	0.02	0.19	0	1.84	**14.796**	1.65	0.087
41b	kokanee	0	0	32	121.2	92.6	0.9	0.02	0.13	0	1.83	**14.521**	1.601	0.083
41c	northern pike	0	0	32	121.2	92.6	0.9	0.02	0.13	0	1.83	**14.521**	1.601	0.083
41d	rainbow trout	0	0	32	121.2	92.6	0.9	0.02	0.19	0	1.84	**14.796**	1.65	0.087
41e	smallmouth bass	0	0	32	121.2	92.6	0.9	0.02	0.17	0	1.83	**14.704**	1.634	0.086
41f	sturgeon	0	0	32	121.2	92.6	0.9	0.02	0.14	0	1.83	**14.567**	1.609	0.084
41g	sucker	0	0	32	121.2	92.6	0.9	0.02	0.55	0	1.9	**16.487**	1.963	0.11
41h	walleye	0	0	32	121.2	92.6	0.9	0.02	0.2	0	1.84	**14.843**	1.658	0.087
41i	whitefish	0	0	32	121.2	92.6	0.9	0.02	0.15	0	1.83	**14.612**	1.618	0.084
Whitestone Campground														
42	no fish	0	0	32	111.4	92.6	0.9	0.02	0.12	0	1.79	**13.654**	1.452	0.073
42a	burbot	0	0	32	111.4	92.6	0.9	0.02	0.19	0	1.8	**13.969**	1.506	0.077
42b	kokanee	0	0	32	111.4	92.6	0.9	0.02	0.13	0	1.79	**13.698**	1.46	0.073
42c	northern pike	0	0	32	111.4	92.6	0.9	0.02	0.13	0	1.79	**13.698**	1.46	0.073
42d	rainbow trout	0	0	32	111.4	92.6	0.9	0.02	0.19	0	1.8	**13.969**	1.506	0.077
42e	smallmouth bass	0	0	32	111.4	92.6	0.9	0.02	0.17	0	1.8	**13.878**	1.49	0.076
42f	sturgeon	0	0	32	111.4	92.6	0.9	0.02	0.14	0	1.8	**13.743**	1.467	0.074
42g	sucker	0	0	32	111.4	92.6	0.9	0.02	0.55	0	1.87	**15.627**	1.801	0.098
42h	walleye	0	0	32	111.4	92.6	0.9	0.02	0.2	0	1.81	**14.014**	1.513	0.077
42i	whitefish	0	0	32	111.4	92.6	0.9	0.02	0.15	0	1.8	**13.788**	1.475	0.074
Wilmont Creek														
43	no fish	0	0	32	114.6	92.6	0.9	0.02	0.12	0	1.8	**13.92**	1.497	0.076
43a	burbot	0	0	32	114.6	92.6	0.9	0.02	0.19	0	1.81	**14.237**	1.552	0.08
43b	kokanee	0	0	32	114.6	92.6	0.9	0.02	0.13	0	1.8	**13.965**	1.505	0.077
43c	northern pike	0	0	32	114.6	92.6	0.9	0.02	0.13	0	1.8	**13.965**	1.505	0.077
43d	rainbow trout	0	0	32	114.6	92.6	0.9	0.02	0.19	0	1.81	**14.237**	1.552	0.08
43e	smallmouth bass	0	0	32	114.6	92.6	0.9	0.02	0.17	0	1.81	**14.146**	1.536	0.079
43f	sturgeon	0	0	32	114.6	92.6	0.9	0.02	0.14	0	1.81	**14.01**	1.513	0.077
43g	sucker	0	0	32	114.6	92.6	0.9	0.02	0.55	0	1.88	**15.906**	1.853	0.102
43h	walleye	0	0	32	114.6	92.6	0.9	0.02	0.2	0	1.82	**14.282**	1.56	0.08
43i	whitefish	0	0	32	114.6	92.6	0.9	0.02	0.15	0	1.81	**14.055**	1.521	0.078

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 8/28/2019
Site Name: UCR
Operable Unit: Recreational Visitor, Boat Trips to Public Beaches, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: Aug 28 2019 Pub Bch Sed SW Fish Boat.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Bossburg Flat-2015-SDU-01														
1	no fish	0	0	32	157.6	92.6	0.9	0.02	0.1	0	1.94	**17.584**	2.179	0.127
1a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.926**	2.248	0.133
1b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.11	0	1.94	**17.633**	2.188	0.128
1c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.11	0	1.94	**17.633**	2.188	0.128
1d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.926**	2.248	0.133
1e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.15	0	1.95	**17.828**	2.228	0.131
1f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.12	0	1.94	**17.681**	2.198	0.129
1g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.53	0	2.01	**19.71**	2.626	0.165
1h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.18	0	1.95	**17.975**	2.258	0.134
1i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.73**	2.208	0.13
Bossburg Flat-2015-SDU-02														
2	no fish	0	0	32	157.6	92.6	0.9	0.02	0.1	0	1.94	**17.58**	2.178	0.127
2a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.922**	2.247	0.133
2b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.11	0	1.94	**17.629**	2.188	0.128
2c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.11	0	1.94	**17.629**	2.188	0.128
2d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.17	0	1.95	**17.922**	2.247	0.133
2e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.15	0	1.94	**17.824**	2.227	0.131
2f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.12	0	1.94	**17.678**	2.197	0.129
2g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.53	0	2.01	**19.707**	2.625	0.165
2h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.18	0	1.95	**17.971**	2.257	0.134
2i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.13	0	1.94	**17.726**	2.207	0.129
Bossburg Flat-2015-SDU-03														
3	no fish	0	0	32	122.7	92.6	0.9	0.02	0.1	0	1.83	**14.515**	1.6	0.083
3a	burbot	0	0	32	122.7	92.6	0.9	0.02	0.17	0	1.84	**14.837**	1.657	0.087
3b	kokanee	0	0	32	122.7	92.6	0.9	0.02	0.11	0	1.83	**14.561**	1.608	0.084
3c	northern pike	0	0	32	122.7	92.6	0.9	0.02	0.11	0	1.83	**14.561**	1.608	0.084
3d	rainbow trout	0	0	32	122.7	92.6	0.9	0.02	0.17	0	1.84	**14.837**	1.657	0.087
3e	smallmouth bass	0	0	32	122.7	92.6	0.9	0.02	0.15	0	1.83	**14.745**	1.641	0.086
3f	sturgeon	0	0	32	122.7	92.6	0.9	0.02	0.12	0	1.83	**14.607**	1.617	0.084
3g	sucker	0	0	32	122.7	92.6	0.9	0.02	0.53	0	1.9	**16.529**	1.971	0.111
3h	walleye	0	0	32	122.7	92.6	0.9	0.02	0.18	0	1.84	**14.883**	1.666	0.088
3i	whitefish	0	0	32	122.7	92.6	0.9	0.02	0.13	0	1.83	**14.653**	1.625	0.085
Bossburg Flat-2015-SDU-04														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4	no fish	0	0	32	115.8	92.6	0.9	0.02	0.1	0	1.8	**13.927**	1.499	0.076
4a	burbot	0	0	32	115.8	92.6	0.9	0.02	0.17	0	1.81	**14.244**	1.553	0.08
4b	kokanee	0	0	32	115.8	92.6	0.9	0.02	0.11	0	1.8	**13.972**	1.506	0.077
4c	northern pike	0	0	32	115.8	92.6	0.9	0.02	0.11	0	1.8	**13.972**	1.506	0.077
4d	rainbow trout	0	0	32	115.8	92.6	0.9	0.02	0.17	0	1.81	**14.244**	1.553	0.08
4e	smallmouth bass	0	0	32	115.8	92.6	0.9	0.02	0.15	0	1.81	**14.153**	1.537	0.079
4f	sturgeon	0	0	32	115.8	92.6	0.9	0.02	0.12	0	1.81	**14.017**	1.514	0.077
4g	sucker	0	0	32	115.8	92.6	0.9	0.02	0.53	0	1.88	**15.914**	1.854	0.102
4h	walleye	0	0	32	115.8	92.6	0.9	0.02	0.18	0	1.82	**14.289**	1.561	0.08
4i	whitefish	0	0	32	115.8	92.6	0.9	0.02	0.13	0	1.81	**14.062**	1.522	0.078
Bossburg Flat-2015-SDU-08														
5	no fish	0	0	32	155.2	92.6	0.9	0.02	0.1	0	1.93	**17.367**	2.135	0.124
5a	burbot	0	0	32	155.2	92.6	0.9	0.02	0.17	0	1.94	**17.707**	2.203	0.129
5b	kokanee	0	0	32	155.2	92.6	0.9	0.02	0.11	0	1.93	**17.415**	2.145	0.124
5c	northern pike	0	0	32	155.2	92.6	0.9	0.02	0.11	0	1.93	**17.415**	2.145	0.124
5d	rainbow trout	0	0	32	155.2	92.6	0.9	0.02	0.17	0	1.94	**17.707**	2.203	0.129
5e	smallmouth bass	0	0	32	155.2	92.6	0.9	0.02	0.15	0	1.94	**17.61**	2.184	0.128
5f	sturgeon	0	0	32	155.2	92.6	0.9	0.02	0.12	0	1.93	**17.464**	2.154	0.125
5g	sucker	0	0	32	155.2	92.6	0.9	0.02	0.53	0	2	**19.487**	2.577	0.16
5h	walleye	0	0	32	155.2	92.6	0.9	0.02	0.18	0	1.94	**17.756**	2.213	0.13
5i	whitefish	0	0	32	155.2	92.6	0.9	0.02	0.13	0	1.93	**17.513**	2.164	0.126
Bossburg Flat-2015-SDU-09														
6	no fish	0	0	32	120.4	92.6	0.9	0.02	0.1	0	1.82	**14.32**	1.566	0.081
6a	burbot	0	0	32	120.4	92.6	0.9	0.02	0.17	0	1.83	**14.64**	1.622	0.085
6b	kokanee	0	0	32	120.4	92.6	0.9	0.02	0.11	0	1.82	**14.366**	1.574	0.081
6c	northern pike	0	0	32	120.4	92.6	0.9	0.02	0.11	0	1.82	**14.366**	1.574	0.081
6d	rainbow trout	0	0	32	120.4	92.6	0.9	0.02	0.17	0	1.83	**14.64**	1.622	0.085
6e	smallmouth bass	0	0	32	120.4	92.6	0.9	0.02	0.15	0	1.83	**14.548**	1.606	0.084
6f	sturgeon	0	0	32	120.4	92.6	0.9	0.02	0.12	0	1.82	**14.411**	1.582	0.082
6g	sucker	0	0	32	120.4	92.6	0.9	0.02	0.53	0	1.89	**16.325**	1.932	0.108
6h	walleye	0	0	32	120.4	92.6	0.9	0.02	0.18	0	1.83	**14.686**	1.631	0.085
6i	whitefish	0	0	32	120.4	92.6	0.9	0.02	0.13	0	1.82	**14.457**	1.59	0.083
Bossburg Flat-2015-SDU-10														
7	no fish	0	0	32	122	92.6	0.9	0.02	0.1	0	1.82	**14.452**	1.589	0.082
7a	burbot	0	0	32	122	92.6	0.9	0.02	0.17	0	1.83	**14.773**	1.646	0.086
7b	kokanee	0	0	32	122	92.6	0.9	0.02	0.11	0	1.82	**14.497**	1.597	0.083
7c	northern pike	0	0	32	122	92.6	0.9	0.02	0.11	0	1.82	**14.497**	1.597	0.083
7d	rainbow trout	0	0	32	122	92.6	0.9	0.02	0.17	0	1.83	**14.773**	1.646	0.086
7e	smallmouth bass	0	0	32	122	92.6	0.9	0.02	0.15	0	1.83	**14.681**	1.63	0.085
7f	sturgeon	0	0	32	122	92.6	0.9	0.02	0.12	0	1.83	**14.543**	1.605	0.084
7g	sucker	0	0	32	122	92.6	0.9	0.02	0.53	0	1.9	**16.462**	1.958	0.11
7h	walleye	0	0	32	122	92.6	0.9	0.02	0.18	0	1.84	**14.819**	1.654	0.087
7i	whitefish	0	0	32	122	92.6	0.9	0.02	0.13	0	1.83	**14.589**	1.613	0.084
Evans Campground-2015-SDU-05														
8	no fish	0	0	32	143.4	92.6	0.9	0.02	0.1	0	1.89	**16.315**	1.93	0.108
8a	burbot	0	0	32	143.4	92.6	0.9	0.02	0.17	0	1.9	**16.65**	1.994	0.113
8b	kokanee	0	0	32	143.4	92.6	0.9	0.02	0.11	0	1.89	**16.363**	1.939	0.108
8c	northern pike	0	0	32	143.4	92.6	0.9	0.02	0.11	0	1.89	**16.363**	1.939	0.108
8d	rainbow trout	0	0	32	143.4	92.6	0.9	0.02	0.17	0	1.9	**16.65**	1.994	0.113
8e	smallmouth bass	0	0	32	143.4	92.6	0.9	0.02	0.15	0	1.9	**16.554**	1.976	0.111
8f	sturgeon	0	0	32	143.4	92.6	0.9	0.02	0.12	0	1.89	**16.411**	1.948	0.109

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
8g	sucker	0	0	32	143.4	92.6	0.9	0.02	0.53	0	1.97	**18.4**	2.346	0.141
8h	walleye	0	0	32	143.4	92.6	0.9	0.02	0.18	0	1.91	**16.698**	2.003	0.113
8i	whitefish	0	0	32	143.4	92.6	0.9	0.02	0.13	0	1.9	**16.458**	1.957	0.11
Evans Campground-2015-SDU-06														
9	no fish	0	0	32	112.8	92.6	0.9	0.02	0.1	0	1.79	**13.682**	1.457	0.073
9a	burbot	0	0	32	112.8	92.6	0.9	0.02	0.17	0	1.81	**13.997**	1.511	0.077
9b	kokanee	0	0	32	112.8	92.6	0.9	0.02	0.11	0	1.8	**13.726**	1.465	0.074
9c	northern pike	0	0	32	112.8	92.6	0.9	0.02	0.11	0	1.8	**13.726**	1.465	0.074
9d	rainbow trout	0	0	32	112.8	92.6	0.9	0.02	0.17	0	1.81	**13.997**	1.511	0.077
9e	smallmouth bass	0	0	32	112.8	92.6	0.9	0.02	0.15	0	1.8	**13.906**	1.495	0.076
9f	sturgeon	0	0	32	112.8	92.6	0.9	0.02	0.12	0	1.8	**13.771**	1.472	0.074
9g	sucker	0	0	32	112.8	92.6	0.9	0.02	0.53	0	1.87	**15.657**	1.806	0.098
9g	walleye	0	0	32	112.8	92.6	0.9	0.02	0.18	0	1.81	**14.042**	1.518	0.077
9i	whitefish	0	0	32	112.8	92.6	0.9	0.02	0.13	0	1.8	**13.816**	1.48	0.075
Evans Campground-2015-SDU-07														
10	no fish	0	0	32	145.1	92.6	0.9	0.02	0.1	0	1.9	**16.465**	1.959	0.11
10a	burbot	0	0	32	145.1	92.6	0.9	0.02	0.17	0	1.91	**16.801**	2.023	0.115
10b	kokanee	0	0	32	145.1	92.6	0.9	0.02	0.11	0	1.9	**16.513**	1.968	0.111
10c	northern pike	0	0	32	145.1	92.6	0.9	0.02	0.11	0	1.9	**16.513**	1.968	0.111
10d	rainbow trout	0	0	32	145.1	92.6	0.9	0.02	0.17	0	1.91	**16.801**	2.023	0.115
10e	smallmouth bass	0	0	32	145.1	92.6	0.9	0.02	0.15	0	1.91	**16.705**	2.005	0.113
10f	sturgeon	0	0	32	145.1	92.6	0.9	0.02	0.12	0	1.9	**16.561**	1.977	0.111
10g	sucker	0	0	32	145.1	92.6	0.9	0.02	0.53	0	1.97	**18.555**	2.378	0.144
10h	walleye	0	0	32	145.1	92.6	0.9	0.02	0.18	0	1.91	**16.849**	2.033	0.116
10i	whitefish	0	0	32	145.1	92.6	0.9	0.02	0.13	0	1.9	**16.609**	1.986	0.112
AA Campground														
11	no fish	0	0	32	112.2	92.6	0.9	0.02	0.1	0	1.79	**13.624**	1.447	0.073
11a	burbot	0	0	32	112.2	92.6	0.9	0.02	0.17	0	1.8	**13.939**	1.501	0.076
11b	kokanee	0	0	32	112.2	92.6	0.9	0.02	0.11	0	1.79	**13.669**	1.455	0.073
11c	northern pike	0	0	32	112.2	92.6	0.9	0.02	0.11	0	1.79	**13.669**	1.455	0.073
11d	rainbow trout	0	0	32	112.2	92.6	0.9	0.02	0.17	0	1.8	**13.939**	1.501	0.076
11e	smallmouth bass	0	0	32	112.2	92.6	0.9	0.02	0.15	0	1.8	**13.849**	1.485	0.075
11f	sturgeon	0	0	32	112.2	92.6	0.9	0.02	0.12	0	1.79	**13.714**	1.462	0.074
11g	sucker	0	0	32	112.2	92.6	0.9	0.02	0.53	0	1.87	**15.597**	1.795	0.097
11h	walleye	0	0	32	112.2	92.6	0.9	0.02	0.18	0	1.8	**13.984**	1.508	0.077
11i	whitefish	0	0	32	112.2	92.6	0.9	0.02	0.13	0	1.8	**13.759**	1.47	0.074
Barnaby Island Campgr														
12	no fish	0	0	32	114.4	92.6	0.9	0.02	0.1	0	1.8	**13.81**	1.479	0.075
12a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.126**	1.533	0.078
12b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.11	0	1.8	**13.855**	1.486	0.075
12c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.11	0	1.8	**13.855**	1.486	0.075
12d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.126**	1.533	0.078
12e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.15	0	1.81	**14.036**	1.517	0.077
12f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.12	0	1.8	**13.9**	1.494	0.076
12g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.53	0	1.87	**15.792**	1.831	0.1
12h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.18	0	1.81	**14.172**	1.541	0.079
12i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.945**	1.502	0.076
Black Sand														
13	no fish	0	0	32	149.3	92.6	0.9	0.02	0.1	0	1.91	**16.833**	2.03	0.115
13a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.171**	2.096	0.121
13b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.11	0	1.91	**16.882**	2.039	0.116

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.11	0	1.91	**16.882**	2.039	0.116
13d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.171**	2.096	0.121
13e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.15	0	1.92	**17.074**	2.077	0.119
13f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.12	0	1.91	**16.93**	2.049	0.117
13g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.53	0	1.98	**18.936**	2.458	0.15
13h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.18	0	1.92	**17.219**	2.106	0.121
13i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.978**	2.058	0.118
Bossburg Flat-2011														
14	no fish	0	0	32	332.2	92.6	0.9	0.02	0.1	0	2.49	**34.464**	**6.855**	0.645
14a	burbot	0	0	32	332.2	92.6	0.9	0.02	0.17	0	2.5	**34.832**	**6.988**	0.663
14b	kokanee	0	0	32	332.2	92.6	0.9	0.02	0.11	0	2.49	**34.517**	**6.874**	0.647
14c	northern pike	0	0	32	332.2	92.6	0.9	0.02	0.11	0	2.49	**34.517**	**6.874**	0.647
14d	rainbow trout	0	0	32	332.2	92.6	0.9	0.02	0.17	0	2.5	**34.832**	**6.988**	0.663
14e	smallmouth bass	0	0	32	332.2	92.6	0.9	0.02	0.15	0	2.49	**34.727**	**6.95**	0.658
14f	sturgeon	0	0	32	332.2	92.6	0.9	0.02	0.12	0	2.49	**34.569**	**6.893**	0.65
14g	sucker	0	0	32	332.2	92.6	0.9	0.02	0.53	0	2.56	**36.719**	**7.691**	0.763
14h	walleye	0	0	32	332.2	92.6	0.9	0.02	0.18	0	2.5	**34.885**	**7.007**	0.666
14i	whitefish	0	0	32	332.2	92.6	0.9	0.02	0.13	0	2.49	**34.622**	**6.912**	0.653
Bradbury														
15	no fish	0	0	32	121.3	92.6	0.9	0.02	0.1	0	1.82	**14.395**	1.579	0.082
15a	burbot	0	0	32	121.3	92.6	0.9	0.02	0.17	0	1.83	**14.716**	1.636	0.086
15b	kokanee	0	0	32	121.3	92.6	0.9	0.02	0.11	0	1.82	**14.441**	1.587	0.082
15c	northern pike	0	0	32	121.3	92.6	0.9	0.02	0.11	0	1.82	**14.441**	1.587	0.082
15d	rainbow trout	0	0	32	121.3	92.6	0.9	0.02	0.17	0	1.83	**14.716**	1.636	0.086
15e	smallmouth bass	0	0	32	121.3	92.6	0.9	0.02	0.15	0	1.83	**14.624**	1.62	0.085
15f	sturgeon	0	0	32	121.3	92.6	0.9	0.02	0.12	0	1.82	**14.487**	1.595	0.083
15g	sucker	0	0	32	121.3	92.6	0.9	0.02	0.53	0	1.89	**16.403**	1.947	0.109
15h	walleye	0	0	32	121.3	92.6	0.9	0.02	0.18	0	1.83	**14.762**	1.644	0.086
15i	whitefish	0	0	32	121.3	92.6	0.9	0.02	0.13	0	1.83	**14.533**	1.603	0.083
China Bend														
16	no fish	0	0	32	153.4	92.6	0.9	0.02	0.1	0	1.92	**17.203**	2.102	0.121
16a	burbot	0	0	32	153.4	92.6	0.9	0.02	0.17	0	1.94	**17.543**	2.17	0.126
16b	kokanee	0	0	32	153.4	92.6	0.9	0.02	0.11	0	1.92	**17.251**	2.112	0.122
16c	northern pike	0	0	32	153.4	92.6	0.9	0.02	0.11	0	1.92	**17.251**	2.112	0.122
16d	rainbow trout	0	0	32	153.4	92.6	0.9	0.02	0.17	0	1.94	**17.543**	2.17	0.126
16e	smallmouth bass	0	0	32	153.4	92.6	0.9	0.02	0.15	0	1.93	**17.445**	2.151	0.125
16f	sturgeon	0	0	32	153.4	92.6	0.9	0.02	0.12	0	1.93	**17.3**	2.122	0.123
16g	sucker	0	0	32	153.4	92.6	0.9	0.02	0.53	0	2	**19.317**	2.54	0.157
16h	walleye	0	0	32	153.4	92.6	0.9	0.02	0.18	0	1.94	**17.591**	2.18	0.127
16i	whitefish	0	0	32	153.4	92.6	0.9	0.02	0.13	0	1.93	**17.348**	2.131	0.123
Colville Flats														
17	no fish	0	0	32	138.3	92.6	0.9	0.02	0.1	0	1.87	**15.859**	1.844	0.101
17a	burbot	0	0	32	138.3	92.6	0.9	0.02	0.17	0	1.89	**16.19**	1.906	0.106
17b	kokanee	0	0	32	138.3	92.6	0.9	0.02	0.11	0	1.88	**15.906**	1.853	0.102
17c	northern pike	0	0	32	138.3	92.6	0.9	0.02	0.11	0	1.88	**15.906**	1.853	0.102
17d	rainbow trout	0	0	32	138.3	92.6	0.9	0.02	0.17	0	1.89	**16.19**	1.906	0.106
17e	smallmouth bass	0	0	32	138.3	92.6	0.9	0.02	0.15	0	1.88	**16.095**	1.888	0.104
17f	sturgeon	0	0	32	138.3	92.6	0.9	0.02	0.12	0	1.88	**15.953**	1.861	0.102
17g	sucker	0	0	32	138.3	92.6	0.9	0.02	0.53	0	1.95	**17.927**	2.248	0.133
17h	walleye	0	0	32	138.3	92.6	0.9	0.02	0.18	0	1.89	**16.238**	1.915	0.106
17i	whitefish	0	0	32	138.3	92.6	0.9	0.02	0.13	0	1.88	**16.001**	1.87	0.103

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Colville River														
18	no fish	0	0	32	112.3	92.6	0.9	0.02	0.1	0	1.79	**13.637**	1.449	0.073
18a	burbot	0	0	32	112.3	92.6	0.9	0.02	0.17	0	1.8	**13.951**	1.503	0.076
18b	kokanee	0	0	32	112.3	92.6	0.9	0.02	0.11	0	1.79	**13.681**	1.457	0.073
18c	northern pike	0	0	32	112.3	92.6	0.9	0.02	0.11	0	1.79	**13.681**	1.457	0.073
18d	rainbow trout	0	0	32	112.3	92.6	0.9	0.02	0.17	0	1.8	**13.951**	1.503	0.076
18e	smallmouth bass	0	0	32	112.3	92.6	0.9	0.02	0.15	0	1.8	**13.861**	1.487	0.075
18f	sturgeon	0	0	32	112.3	92.6	0.9	0.02	0.12	0	1.8	**13.726**	1.465	0.074
18g	sucker	0	0	32	112.3	92.6	0.9	0.02	0.53	0	1.87	**15.61**	1.798	0.098
18h	walleye	0	0	32	112.3	92.6	0.9	0.02	0.18	0	1.81	**13.996**	1.51	0.077
18i	whitefish	0	0	32	112.3	92.6	0.9	0.02	0.13	0	1.8	**13.771**	1.472	0.074
Crescent Bay														
19	no fish	0	0	32	110.8	92.6	0.9	0.02	0.1	0	1.79	**13.513**	1.429	0.071
19a	burbot	0	0	32	110.8	92.6	0.9	0.02	0.17	0	1.8	**13.827**	1.482	0.075
19b	kokanee	0	0	32	110.8	92.6	0.9	0.02	0.11	0	1.79	**13.558**	1.436	0.072
19c	northern pike	0	0	32	110.8	92.6	0.9	0.02	0.11	0	1.79	**13.558**	1.436	0.072
19d	rainbow trout	0	0	32	110.8	92.6	0.9	0.02	0.17	0	1.8	**13.827**	1.482	0.075
19e	smallmouth bass	0	0	32	110.8	92.6	0.9	0.02	0.15	0	1.8	**13.737**	1.466	0.074
19f	sturgeon	0	0	32	110.8	92.6	0.9	0.02	0.12	0	1.79	**13.603**	1.444	0.072
19g	sucker	0	0	32	110.8	92.6	0.9	0.02	0.53	0	1.86	**15.48**	1.774	0.096
19h	walleye	0	0	32	110.8	92.6	0.9	0.02	0.18	0	1.8	**13.872**	1.489	0.075
19i	whitefish	0	0	32	110.8	92.6	0.9	0.02	0.13	0	1.79	**13.648**	1.451	0.073
Dallas Orchard														
20	no fish	0	0	32	163.7	92.6	0.9	0.02	0.1	0	1.96	**18.141**	2.292	0.136
20a	burbot	0	0	32	163.7	92.6	0.9	0.02	0.17	0	1.97	**18.485**	2.363	0.142
20b	kokanee	0	0	32	163.7	92.6	0.9	0.02	0.11	0	1.96	**18.19**	2.302	0.137
20c	northern pike	0	0	32	163.7	92.6	0.9	0.02	0.11	0	1.96	**18.19**	2.302	0.137
20d	rainbow trout	0	0	32	163.7	92.6	0.9	0.02	0.17	0	1.97	**18.485**	2.363	0.142
20e	smallmouth bass	0	0	32	163.7	92.6	0.9	0.02	0.15	0	1.96	**18.387**	2.343	0.141
20f	sturgeon	0	0	32	163.7	92.6	0.9	0.02	0.12	0	1.96	**18.239**	2.312	0.138
20g	sucker	0	0	32	163.7	92.6	0.9	0.02	0.53	0	2.03	**20.283**	2.753	0.176
20h	walleye	0	0	32	163.7	92.6	0.9	0.02	0.18	0	1.97	**18.535**	2.374	0.143
20i	whitefish	0	0	32	163.7	92.6	0.9	0.02	0.13	0	1.96	**18.288**	2.322	0.139
Enterprise														
21	no fish	0	0	32	112.1	92.6	0.9	0.02	0.1	0	1.79	**13.616**	1.446	0.072
21a	burbot	0	0	32	112.1	92.6	0.9	0.02	0.17	0	1.8	**13.93**	1.499	0.076
21b	kokanee	0	0	32	112.1	92.6	0.9	0.02	0.11	0	1.79	**13.66**	1.453	0.073
21c	northern pike	0	0	32	112.1	92.6	0.9	0.02	0.11	0	1.79	**13.66**	1.453	0.073
21d	rainbow trout	0	0	32	112.1	92.6	0.9	0.02	0.17	0	1.8	**13.93**	1.499	0.076
21e	smallmouth bass	0	0	32	112.1	92.6	0.9	0.02	0.15	0	1.8	**13.84**	1.484	0.075
21f	sturgeon	0	0	32	112.1	92.6	0.9	0.02	0.12	0	1.79	**13.705**	1.461	0.074
21g	sucker	0	0	32	112.1	92.6	0.9	0.02	0.53	0	1.86	**15.588**	1.793	0.097
21h	walleye	0	0	32	112.1	92.6	0.9	0.02	0.18	0	1.8	**13.975**	1.507	0.077
21i	whitefish	0	0	32	112.1	92.6	0.9	0.02	0.13	0	1.8	**13.75**	1.469	0.074
Evans Campground-2011														
22	no fish	0	0	32	149.3	92.6	0.9	0.02	0.1	0	1.91	**16.835**	2.03	0.115
22a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.173**	2.096	0.121
22b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.11	0	1.91	**16.883**	2.04	0.116
22c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.11	0	1.91	**16.883**	2.04	0.116
22d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.17	0	1.92	**17.173**	2.096	0.121
22e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.15	0	1.92	**17.076**	2.077	0.119

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
22f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.12	0	1.91	**16.931**	2.049	0.117
22g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.53	0	1.98	**18.938**	2.459	0.15
22h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.18	0	1.92	**17.221**	2.106	0.121
22i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.13	0	1.92	**16.98**	2.058	0.118
Flat Creek														
23	no fish	0	0	32	141.4	92.6	0.9	0.02	0.1	0	1.88	**16.132**	1.895	0.105
23a	burbot	0	0	32	141.4	92.6	0.9	0.02	0.17	0	1.9	**16.465**	1.959	0.11
23b	kokanee	0	0	32	141.4	92.6	0.9	0.02	0.11	0	1.89	**16.179**	1.904	0.106
23c	northern pike	0	0	32	141.4	92.6	0.9	0.02	0.11	0	1.89	**16.179**	1.904	0.106
23d	rainbow trout	0	0	32	141.4	92.6	0.9	0.02	0.17	0	1.9	**16.465**	1.959	0.11
23e	smallmouth bass	0	0	32	141.4	92.6	0.9	0.02	0.15	0	1.89	**16.369**	1.94	0.108
23f	sturgeon	0	0	32	141.4	92.6	0.9	0.02	0.12	0	1.89	**16.227**	1.913	0.106
23g	sucker	0	0	32	141.4	92.6	0.9	0.02	0.53	0	1.96	**18.209**	2.306	0.138
23h	walleye	0	0	32	141.4	92.6	0.9	0.02	0.18	0	1.9	**16.512**	1.968	0.111
23i	whitefish	0	0	32	141.4	92.6	0.9	0.02	0.13	0	1.89	**16.274**	1.922	0.107
Hawk Creek														
24	no fish	0	0	32	111.3	92.6	0.9	0.02	0.1	0	1.79	**13.551**	1.435	0.072
24a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.865**	1.488	0.075
24b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.596**	1.443	0.072
24c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.596**	1.443	0.072
24d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.865**	1.488	0.075
24e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.775**	1.473	0.074
24f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.64**	1.45	0.073
24g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.53	0	1.86	**15.52**	1.781	0.096
24h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.18	0	1.8	**13.91**	1.496	0.076
24i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.685**	1.458	0.073
Hunters														
25	no fish	0	0	32	112.4	92.6	0.9	0.02	0.1	0	1.79	**13.644**	1.451	0.073
25a	burbot	0	0	32	112.4	92.6	0.9	0.02	0.17	0	1.8	**13.959**	1.504	0.076
25b	kokanee	0	0	32	112.4	92.6	0.9	0.02	0.11	0	1.79	**13.689**	1.458	0.073
25c	northern pike	0	0	32	112.4	92.6	0.9	0.02	0.11	0	1.79	**13.689**	1.458	0.073
25d	rainbow trout	0	0	32	112.4	92.6	0.9	0.02	0.17	0	1.8	**13.959**	1.504	0.076
25e	smallmouth bass	0	0	32	112.4	92.6	0.9	0.02	0.15	0	1.8	**13.869**	1.489	0.075
25f	sturgeon	0	0	32	112.4	92.6	0.9	0.02	0.12	0	1.8	**13.734**	1.466	0.074
25g	sucker	0	0	32	112.4	92.6	0.9	0.02	0.53	0	1.87	**15.617**	1.799	0.098
25h	walleye	0	0	32	112.4	92.6	0.9	0.02	0.18	0	1.81	**14.004**	1.512	0.077
25i	whitefish	0	0	32	112.4	92.6	0.9	0.02	0.13	0	1.8	**13.779**	1.473	0.074
Jones Bay														
26	no fish	0	0	32	111	92.6	0.9	0.02	0.1	0	1.79	**13.532**	1.432	0.072
26a	burbot	0	0	32	111	92.6	0.9	0.02	0.17	0	1.8	**13.846**	1.485	0.075
26b	kokanee	0	0	32	111	92.6	0.9	0.02	0.11	0	1.79	**13.576**	1.439	0.072
26c	northern pike	0	0	32	111	92.6	0.9	0.02	0.11	0	1.79	**13.576**	1.439	0.072
26d	rainbow trout	0	0	32	111	92.6	0.9	0.02	0.17	0	1.8	**13.846**	1.485	0.075
26e	smallmouth bass	0	0	32	111	92.6	0.9	0.02	0.15	0	1.8	**13.756**	1.469	0.074
26f	sturgeon	0	0	32	111	92.6	0.9	0.02	0.12	0	1.79	**13.621**	1.447	0.073
26g	sucker	0	0	32	111	92.6	0.9	0.02	0.53	0	1.86	**15.5**	1.777	0.096
26h	walleye	0	0	32	111	92.6	0.9	0.02	0.18	0	1.8	**13.891**	1.492	0.076
26i	whitefish	0	0	32	111	92.6	0.9	0.02	0.13	0	1.79	**13.666**	1.454	0.073
Kamloops Island														
27	no fish	0	0	32	113.2	92.6	0.9	0.02	0.1	0	1.79	**13.712**	1.462	0.074
27a	burbot	0	0	32	113.2	92.6	0.9	0.02	0.17	0	1.81	**14.028**	1.516	0.077

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
27b	kokanee	0	0	32	113.2	92.6	0.9	0.02	0.11	0	1.8	**13.757**	1.47	0.074
27c	northern pike	0	0	32	113.2	92.6	0.9	0.02	0.11	0	1.8	**13.757**	1.47	0.074
27d	rainbow trout	0	0	32	113.2	92.6	0.9	0.02	0.17	0	1.81	**14.028**	1.516	0.077
27e	smallmouth bass	0	0	32	113.2	92.6	0.9	0.02	0.15	0	1.8	**13.937**	1.5	0.076
27f	sturgeon	0	0	32	113.2	92.6	0.9	0.02	0.12	0	1.8	**13.802**	1.477	0.075
27g	sucker	0	0	32	113.2	92.6	0.9	0.02	0.53	0	1.87	**15.689**	1.812	0.099
27h	walleye	0	0	32	113.2	92.6	0.9	0.02	0.18	0	1.81	**14.073**	1.524	0.078
27i	whitefish	0	0	32	113.2	92.6	0.9	0.02	0.13	0	1.8	**13.847**	1.485	0.075
Kettle Falls														
28	no fish	0	0	32	111.9	92.6	0.9	0.02	0.1	0	1.79	**13.602**	1.444	0.072
28a	burbot	0	0	32	111.9	92.6	0.9	0.02	0.17	0	1.8	**13.917**	1.497	0.076
28b	kokanee	0	0	32	111.9	92.6	0.9	0.02	0.11	0	1.79	**13.647**	1.451	0.073
28c	northern pike	0	0	32	111.9	92.6	0.9	0.02	0.11	0	1.79	**13.647**	1.451	0.073
28d	rainbow trout	0	0	32	111.9	92.6	0.9	0.02	0.17	0	1.8	**13.917**	1.497	0.076
28e	smallmouth bass	0	0	32	111.9	92.6	0.9	0.02	0.15	0	1.8	**13.827**	1.482	0.075
28f	sturgeon	0	0	32	111.9	92.6	0.9	0.02	0.12	0	1.79	**13.692**	1.459	0.073
28g	sucker	0	0	32	111.9	92.6	0.9	0.02	0.53	0	1.86	**15.574**	1.791	0.097
2h8	walleye	0	0	32	111.9	92.6	0.9	0.02	0.18	0	1.8	**13.962**	1.505	0.077
i28	whitefish	0	0	32	111.9	92.6	0.9	0.02	0.13	0	1.8	**13.737**	1.466	0.074
Lyons Island														
29	no fish	0	0	32	124.4	92.6	0.9	0.02	0.1	0	1.83	**14.655**	1.625	0.085
29a	burbot	0	0	32	124.4	92.6	0.9	0.02	0.17	0	1.84	**14.978**	1.683	0.089
29b	kokanee	0	0	32	124.4	92.6	0.9	0.02	0.11	0	1.83	**14.701**	1.633	0.086
29c	northern pike	0	0	32	124.4	92.6	0.9	0.02	0.11	0	1.83	**14.701**	1.633	0.086
29d	rainbow trout	0	0	32	124.4	92.6	0.9	0.02	0.17	0	1.84	**14.978**	1.683	0.089
29e	smallmouth bass	0	0	32	124.4	92.6	0.9	0.02	0.15	0	1.84	**14.886**	1.666	0.088
29f	sturgeon	0	0	32	124.4	92.6	0.9	0.02	0.12	0	1.83	**14.747**	1.641	0.086
29g	sucker	0	0	32	124.4	92.6	0.9	0.02	0.53	0	1.9	**16.675**	1.999	0.113
29h	walleye	0	0	32	124.4	92.6	0.9	0.02	0.18	0	1.84	**15.025**	1.691	0.09
29i	whitefish	0	0	32	124.4	92.6	0.9	0.02	0.13	0	1.84	**14.793**	1.65	0.087
McGuires														
30	no fish	0	0	32	111.3	92.6	0.9	0.02	0.1	0	1.79	**13.557**	1.436	0.072
30a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.871**	1.489	0.075
30b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.601**	1.443	0.072
30c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.601**	1.443	0.072
30d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.871**	1.489	0.075
30e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.781**	1.474	0.074
30f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.646**	1.451	0.073
30g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.53	0	1.86	**15.526**	1.782	0.096
30h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.18	0	1.8	**13.916**	1.497	0.076
30i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.691**	1.459	0.073
Mitchell Point														
31	no fish	0	0	32	111.6	92.6	0.9	0.02	0.1	0	1.79	**13.58**	1.44	0.072
31a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.894**	1.493	0.076
31b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.11	0	1.79	**13.625**	1.447	0.073
31c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.11	0	1.79	**13.625**	1.447	0.073
31d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.894**	1.493	0.076
31e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.15	0	1.8	**13.804**	1.478	0.075
31f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.12	0	1.79	**13.669**	1.455	0.073
31g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.53	0	1.86	**15.55**	1.787	0.097
31h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.18	0	1.8	**13.939**	1.501	0.076

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
31i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.714**	1.462	0.074
Naborlee														
32	no fish	0	0	32	114.4	92.6	0.9	0.02	0.1	0	1.8	**13.813**	1.479	0.075
32a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.129**	1.533	0.079
32b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.11	0	1.8	**13.858**	1.487	0.075
32c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.11	0	1.8	**13.858**	1.487	0.075
32d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.17	0	1.81	**14.129**	1.533	0.079
32e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.15	0	1.81	**14.038**	1.518	0.077
32f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.12	0	1.8	**13.903**	1.494	0.076
32g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.53	0	1.87	**15.794**	1.832	0.1
32h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.18	0	1.81	**14.174**	1.541	0.079
32i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.13	0	1.8	**13.948**	1.502	0.076
Nez Perce														
33	no fish	0	0	32	111.6	92.6	0.9	0.02	0.1	0	1.79	**13.574**	1.439	0.072
33a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.888**	1.492	0.076
33b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.11	0	1.79	**13.619**	1.446	0.073
33c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.11	0	1.79	**13.619**	1.446	0.073
33d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.17	0	1.8	**13.888**	1.492	0.076
33e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.15	0	1.8	**13.798**	1.477	0.075
33f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.12	0	1.79	**13.664**	1.454	0.073
33g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.53	0	1.86	**15.544**	1.785	0.097
33h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.18	0	1.8	**13.933**	1.5	0.076
33i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.13	0	1.79	**13.708**	1.462	0.074
Northport Beach														
34	no fish	0	0	32	156.4	92.6	0.9	0.02	0.1	0	1.93	**17.472**	2.156	0.125
34a	burbot	0	0	32	156.4	92.6	0.9	0.02	0.17	0	1.94	**17.813**	2.225	0.131
34b	kokanee	0	0	32	156.4	92.6	0.9	0.02	0.11	0	1.93	**17.52**	2.166	0.126
34c	northern pike	0	0	32	156.4	92.6	0.9	0.02	0.11	0	1.93	**17.52**	2.166	0.126
34d	rainbow trout	0	0	32	156.4	92.6	0.9	0.02	0.17	0	1.94	**17.813**	2.225	0.131
34e	smallmouth bass	0	0	32	156.4	92.6	0.9	0.02	0.15	0	1.94	**17.715**	2.205	0.129
34f	sturgeon	0	0	32	156.4	92.6	0.9	0.02	0.12	0	1.94	**17.569**	2.176	0.127
34g	sucker	0	0	32	156.4	92.6	0.9	0.02	0.53	0	2.01	**19.595**	2.601	0.163
34h	walleye	0	0	32	156.4	92.6	0.9	0.02	0.18	0	1.95	**17.862**	2.235	0.132
34i	whitefish	0	0	32	156.4	92.6	0.9	0.02	0.13	0	1.94	**17.618**	2.185	0.128
R.V. Park														
35	no fish	0	0	32	148.6	92.6	0.9	0.02	0.1	0	1.91	**16.77**	2.017	0.114
35a	burbot	0	0	32	148.6	92.6	0.9	0.02	0.17	0	1.92	**17.107**	2.084	0.12
35b	kokanee	0	0	32	148.6	92.6	0.9	0.02	0.11	0	1.91	**16.818**	2.027	0.115
35c	northern pike	0	0	32	148.6	92.6	0.9	0.02	0.11	0	1.91	**16.818**	2.027	0.115
35d	rainbow trout	0	0	32	148.6	92.6	0.9	0.02	0.17	0	1.92	**17.107**	2.084	0.12
35e	smallmouth bass	0	0	32	148.6	92.6	0.9	0.02	0.15	0	1.92	**17.011**	2.065	0.118
35f	sturgeon	0	0	32	148.6	92.6	0.9	0.02	0.12	0	1.91	**16.866**	2.036	0.116
35g	sucker	0	0	32	148.6	92.6	0.9	0.02	0.53	0	1.98	**18.87**	2.445	0.149
35h	walleye	0	0	32	148.6	92.6	0.9	0.02	0.18	0	1.92	**17.155**	2.093	0.12
35i	whitefish	0	0	32	148.6	92.6	0.9	0.02	0.13	0	1.91	**16.914**	2.046	0.117
Seven Bays														
36	no fish	0	0	32	110.9	92.6	0.9	0.02	0.1	0	1.79	**13.524**	1.431	0.071
36a	burbot	0	0	32	110.9	92.6	0.9	0.02	0.17	0	1.8	**13.838**	1.483	0.075
36b	kokanee	0	0	32	110.9	92.6	0.9	0.02	0.11	0	1.79	**13.569**	1.438	0.072
36c	northern pike	0	0	32	110.9	92.6	0.9	0.02	0.11	0	1.79	**13.569**	1.438	0.072
36d	rainbow trout	0	0	32	110.9	92.6	0.9	0.02	0.17	0	1.8	**13.838**	1.483	0.075

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
36e	smallmouth bass	0	0	32	110.9	92.6	0.9	0.02	0.15	0	1.8	**13.748**	1.468	0.074
36f	sturgeon	0	0	32	110.9	92.6	0.9	0.02	0.12	0	1.79	**13.614**	1.446	0.072
36g	sucker	0	0	32	110.9	92.6	0.9	0.02	0.53	0	1.86	**15.492**	1.776	0.096
36h	walleye	0	0	32	110.9	92.6	0.9	0.02	0.18	0	1.8	**13.883**	1.491	0.076
36i	whitefish	0	0	32	110.9	92.6	0.9	0.02	0.13	0	1.79	**13.658**	1.453	0.073
Spring Canyon														
37	no fish	0	0	32	111.2	92.6	0.9	0.02	0.1	0	1.79	**13.548**	1.435	0.072
37a	burbot	0	0	32	111.2	92.6	0.9	0.02	0.17	0	1.8	**13.862**	1.488	0.075
37b	kokanee	0	0	32	111.2	92.6	0.9	0.02	0.11	0	1.79	**13.593**	1.442	0.072
37c	northern pike	0	0	32	111.2	92.6	0.9	0.02	0.11	0	1.79	**13.593**	1.442	0.072
37d	rainbow trout	0	0	32	111.2	92.6	0.9	0.02	0.17	0	1.8	**13.862**	1.488	0.075
37e	smallmouth bass	0	0	32	111.2	92.6	0.9	0.02	0.15	0	1.8	**13.772**	1.472	0.074
37f	sturgeon	0	0	32	111.2	92.6	0.9	0.02	0.12	0	1.79	**13.638**	1.45	0.073
37g	sucker	0	0	32	111.2	92.6	0.9	0.02	0.53	0	1.86	**15.517**	1.78	0.096
37h	walleye	0	0	32	111.2	92.6	0.9	0.02	0.18	0	1.8	**13.907**	1.495	0.076
37i	whitefish	0	0	32	111.2	92.6	0.9	0.02	0.13	0	1.79	**13.683**	1.457	0.073
Summer Island														
38	no fish	0	0	32	158.9	92.6	0.9	0.02	0.1	0	1.94	**17.697**	2.201	0.129
38a	burbot	0	0	32	158.9	92.6	0.9	0.02	0.17	0	1.95	**18.039**	2.271	0.135
38b	kokanee	0	0	32	158.9	92.6	0.9	0.02	0.11	0	1.94	**17.746**	2.211	0.13
38c	northern pike	0	0	32	158.9	92.6	0.9	0.02	0.11	0	1.94	**17.746**	2.211	0.13
38d	rainbow trout	0	0	32	158.9	92.6	0.9	0.02	0.17	0	1.95	**18.039**	2.271	0.135
38e	smallmouth bass	0	0	32	158.9	92.6	0.9	0.02	0.15	0	1.95	**17.941**	2.251	0.133
38f	sturgeon	0	0	32	158.9	92.6	0.9	0.02	0.12	0	1.94	**17.795**	2.221	0.131
38g	sucker	0	0	32	158.9	92.6	0.9	0.02	0.53	0	2.01	**19.827**	2.652	0.167
38h	walleye	0	0	32	158.9	92.6	0.9	0.02	0.18	0	1.95	**18.089**	2.281	0.136
38i	whitefish	0	0	32	158.9	92.6	0.9	0.02	0.13	0	1.95	**17.844**	2.231	0.131
Swawilla Basin														
39	no fish	0	0	32	111.3	92.6	0.9	0.02	0.1	0	1.79	**13.55**	1.435	0.072
39a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.864**	1.488	0.075
39b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.595**	1.442	0.072
39c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.11	0	1.79	**13.595**	1.442	0.072
39d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.17	0	1.8	**13.864**	1.488	0.075
39e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.15	0	1.8	**13.774**	1.473	0.074
39f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.12	0	1.79	**13.639**	1.45	0.073
39g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.53	0	1.86	**15.519**	1.781	0.096
39h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.18	0	1.8	**13.909**	1.496	0.076
39i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.13	0	1.79	**13.684**	1.457	0.073
Swimming Hole														
40	no fish	0	0	32	134	92.6	0.9	0.02	0.1	0	1.86	**15.487**	1.775	0.096
40a	burbot	0	0	32	134	92.6	0.9	0.02	0.17	0	1.87	**15.816**	1.836	0.1
40b	kokanee	0	0	32	134	92.6	0.9	0.02	0.11	0	1.86	**15.534**	1.784	0.097
40c	northern pike	0	0	32	134	92.6	0.9	0.02	0.11	0	1.86	**15.534**	1.784	0.097
40d	rainbow trout	0	0	32	134	92.6	0.9	0.02	0.17	0	1.87	**15.816**	1.836	0.1
40e	smallmouth bass	0	0	32	134	92.6	0.9	0.02	0.15	0	1.87	**15.722**	1.818	0.099
40f	sturgeon	0	0	32	134	92.6	0.9	0.02	0.12	0	1.86	**15.581**	1.792	0.097
40g	sucker	0	0	32	134	92.6	0.9	0.02	0.53	0	1.93	**17.541**	2.17	0.126
40h	walleye	0	0	32	134	92.6	0.9	0.02	0.18	0	1.87	**15.863**	1.845	0.101
40i	whitefish	0	0	32	134	92.6	0.9	0.02	0.13	0	1.87	**15.628**	1.801	0.098
Welty Bay														
41	no fish	0	0	32	121.2	92.6	0.9	0.02	0.1	0	1.82	**14.384**	1.577	0.082

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
41a	burbot	0	0	32	121.2	92.6	0.9	0.02	0.17	0	1.83	**14.704**	1.634	0.086
41b	kokanee	0	0	32	121.2	92.6	0.9	0.02	0.11	0	1.82	**14.429**	1.585	0.082
41c	northern pike	0	0	32	121.2	92.6	0.9	0.02	0.11	0	1.82	**14.429**	1.585	0.082
41d	rainbow trout	0	0	32	121.2	92.6	0.9	0.02	0.17	0	1.83	**14.704**	1.634	0.086
41e	smallmouth bass	0	0	32	121.2	92.6	0.9	0.02	0.15	0	1.83	**14.612**	1.618	0.084
41f	sturgeon	0	0	32	121.2	92.6	0.9	0.02	0.12	0	1.82	**14.475**	1.593	0.083
41g	sucker	0	0	32	121.2	92.6	0.9	0.02	0.53	0	1.89	**16.391**	1.944	0.109
41h	walleye	0	0	32	121.2	92.6	0.9	0.02	0.18	0	1.83	**14.75**	1.642	0.086
41i	whitefish	0	0	32	121.2	92.6	0.9	0.02	0.13	0	1.83	**14.521**	1.601	0.083
Whitestone Campground														
42	no fish	0	0	32	111.4	92.6	0.9	0.02	0.1	0	1.79	**13.564**	1.437	0.072
42a	burbot	0	0	32	111.4	92.6	0.9	0.02	0.17	0	1.8	**13.878**	1.49	0.076
42b	kokanee	0	0	32	111.4	92.6	0.9	0.02	0.11	0	1.79	**13.609**	1.445	0.072
42c	northern pike	0	0	32	111.4	92.6	0.9	0.02	0.11	0	1.79	**13.609**	1.445	0.072
42d	rainbow trout	0	0	32	111.4	92.6	0.9	0.02	0.17	0	1.8	**13.878**	1.49	0.076
42e	smallmouth bass	0	0	32	111.4	92.6	0.9	0.02	0.15	0	1.8	**13.788**	1.475	0.074
42f	sturgeon	0	0	32	111.4	92.6	0.9	0.02	0.12	0	1.79	**13.654**	1.452	0.073
42g	sucker	0	0	32	111.4	92.6	0.9	0.02	0.53	0	1.86	**15.534**	1.784	0.097
42h	walleye	0	0	32	111.4	92.6	0.9	0.02	0.18	0	1.8	**13.923**	1.498	0.076
42i	whitefish	0	0	32	111.4	92.6	0.9	0.02	0.13	0	1.79	**13.698**	1.46	0.073
Wilmont Creek														
43	no fish	0	0	32	114.6	92.6	0.9	0.02	0.1	0	1.8	**13.829**	1.482	0.075
43a	burbot	0	0	32	114.6	92.6	0.9	0.02	0.17	0	1.81	**14.146**	1.536	0.079
43b	kokanee	0	0	32	114.6	92.6	0.9	0.02	0.11	0	1.8	**13.875**	1.49	0.075
43c	northern pike	0	0	32	114.6	92.6	0.9	0.02	0.11	0	1.8	**13.875**	1.49	0.075
43d	rainbow trout	0	0	32	114.6	92.6	0.9	0.02	0.17	0	1.81	**14.146**	1.536	0.079
43e	smallmouth bass	0	0	32	114.6	92.6	0.9	0.02	0.15	0	1.81	**14.055**	1.521	0.078
43f	sturgeon	0	0	32	114.6	92.6	0.9	0.02	0.12	0	1.8	**13.92**	1.497	0.076
43g	sucker	0	0	32	114.6	92.6	0.9	0.02	0.53	0	1.87	**15.812**	1.835	0.1
43h	walleye	0	0	32	114.6	92.6	0.9	0.02	0.18	0	1.81	**14.191**	1.544	0.079
43i	whitefish	0	0	32	114.6	92.6	0.9	0.02	0.13	0	1.8	**13.965**	1.505	0.077

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 8/28/2019
Site Name: UCR
Operable Unit: Recreational Visitor, Camping Trips to Public Beaches, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: 28 Aug 2019 Pub Bch Sed SW Fish Campers.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Bossburg Flat-2015-SDU-01														
1	no fish	0	0	32	157.6	92.6	0.9	0.02	0.23	0	1.96	**18.22**	2.308	0.138
1a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.3	0	1.97	**18.565**	2.38	0.144
1b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.24	0	1.96	**18.269**	2.318	0.139
1c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.24	0	1.96	**18.269**	2.318	0.139
1d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.3	0	1.97	**18.565**	2.38	0.144
1e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.28	0	1.97	**18.466**	2.359	0.142
1f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.25	0	1.96	**18.318**	2.329	0.139
1g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.66	0	2.03	**20.365**	2.771	0.178
1h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.31	0	1.97	**18.614**	2.391	0.145
1i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.26	0	1.96	**18.368**	2.339	0.14
Bossburg Flat-2015-SDU-02														
2	no fish	0	0	32	157.6	92.6	0.9	0.02	0.23	0	1.96	**18.216**	2.308	0.138
2a	burbot	0	0	32	157.6	92.6	0.9	0.02	0.3	0	1.97	**18.561**	2.379	0.144
2b	kokanee	0	0	32	157.6	92.6	0.9	0.02	0.24	0	1.96	**18.265**	2.318	0.139
2c	northern pike	0	0	32	157.6	92.6	0.9	0.02	0.24	0	1.96	**18.265**	2.318	0.139
2d	rainbow trout	0	0	32	157.6	92.6	0.9	0.02	0.3	0	1.97	**18.561**	2.379	0.144
2e	smallmouth bass	0	0	32	157.6	92.6	0.9	0.02	0.28	0	1.97	**18.462**	2.359	0.142
2f	sturgeon	0	0	32	157.6	92.6	0.9	0.02	0.25	0	1.96	**18.315**	2.328	0.139
2g	sucker	0	0	32	157.6	92.6	0.9	0.02	0.66	0	2.03	**20.361**	2.771	0.177
2h	walleye	0	0	32	157.6	92.6	0.9	0.02	0.31	0	1.97	**18.611**	2.39	0.145
2i	whitefish	0	0	32	157.6	92.6	0.9	0.02	0.26	0	1.96	**18.364**	2.338	0.14
Bossburg Flat-2015-SDU-03														
3	no fish	0	0	32	122.7	92.6	0.9	0.02	0.23	0	1.85	**15.115**	1.707	0.091
3a	burbot	0	0	32	122.7	92.6	0.9	0.02	0.3	0	1.86	**15.441**	1.767	0.095
3b	kokanee	0	0	32	122.7	92.6	0.9	0.02	0.24	0	1.85	**15.161**	1.716	0.092
3c	northern pike	0	0	32	122.7	92.6	0.9	0.02	0.24	0	1.85	**15.161**	1.716	0.092
3d	rainbow trout	0	0	32	122.7	92.6	0.9	0.02	0.3	0	1.86	**15.441**	1.767	0.095
3e	smallmouth bass	0	0	32	122.7	92.6	0.9	0.02	0.28	0	1.86	**15.348**	1.749	0.094
3f	sturgeon	0	0	32	122.7	92.6	0.9	0.02	0.25	0	1.85	**15.208**	1.724	0.092
3g	sucker	0	0	32	122.7	92.6	0.9	0.02	0.66	0	1.92	**17.154**	2.093	0.12
3h	walleye	0	0	32	122.7	92.6	0.9	0.02	0.31	0	1.86	**15.488**	1.775	0.096
3i	whitefish	0	0	32	122.7	92.6	0.9	0.02	0.26	0	1.85	**15.254**	1.732	0.093
Bossburg Flat-2015-SDU-04														
4	no fish	0	0	32	115.8	92.6	0.9	0.02	0.23	0	1.83	**14.518**	1.601	0.083
4a	burbot	0	0	32	115.8	92.6	0.9	0.02	0.3	0	1.84	**14.84**	1.658	0.087

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4b	kokanee	0	0	32	115.8	92.6	0.9	0.02	0.24	0	1.83	**14.564**	1.609	0.084
4c	northern pike	0	0	32	115.8	92.6	0.9	0.02	0.24	0	1.83	**14.564**	1.609	0.084
4d	rainbow trout	0	0	32	115.8	92.6	0.9	0.02	0.3	0	1.84	**14.84**	1.658	0.087
4e	smallmouth bass	0	0	32	115.8	92.6	0.9	0.02	0.28	0	1.83	**14.747**	1.641	0.086
4f	sturgeon	0	0	32	115.8	92.6	0.9	0.02	0.25	0	1.83	**14.609**	1.617	0.084
4g	sucker	0	0	32	115.8	92.6	0.9	0.02	0.66	0	1.9	**16.531**	1.971	0.111
4h	walleye	0	0	32	115.8	92.6	0.9	0.02	0.31	0	1.84	**14.886**	1.666	0.088
4i	whitefish	0	0	32	115.8	92.6	0.9	0.02	0.26	0	1.83	**14.655**	1.625	0.085
Bossburg Flat-2015-SDU-08														
5	no fish	0	0	32	155.2	92.6	0.9	0.02	0.23	0	1.95	**18.001**	2.263	0.134
5a	burbot	0	0	32	155.2	92.6	0.9	0.02	0.3	0	1.96	**18.345**	2.334	0.14
5b	kokanee	0	0	32	155.2	92.6	0.9	0.02	0.24	0	1.95	**18.05**	2.273	0.135
5c	northern pike	0	0	32	155.2	92.6	0.9	0.02	0.24	0	1.95	**18.05**	2.273	0.135
5d	rainbow trout	0	0	32	155.2	92.6	0.9	0.02	0.3	0	1.96	**18.345**	2.334	0.14
5e	smallmouth bass	0	0	32	155.2	92.6	0.9	0.02	0.28	0	1.96	**18.246**	2.314	0.138
5f	sturgeon	0	0	32	155.2	92.6	0.9	0.02	0.25	0	1.95	**18.099**	2.283	0.136
5g	sucker	0	0	32	155.2	92.6	0.9	0.02	0.66	0	2.02	**20.139**	2.721	0.173
5h	walleye	0	0	32	155.2	92.6	0.9	0.02	0.31	0	1.96	**18.394**	2.344	0.141
5i	whitefish	0	0	32	155.2	92.6	0.9	0.02	0.26	0	1.96	**18.148**	2.293	0.137
Bossburg Flat-2015-SDU-09														
6	no fish	0	0	32	120.4	92.6	0.9	0.02	0.23	0	1.84	**14.917**	1.672	0.088
6a	burbot	0	0	32	120.4	92.6	0.9	0.02	0.3	0	1.85	**15.241**	1.73	0.093
6b	kokanee	0	0	32	120.4	92.6	0.9	0.02	0.24	0	1.84	**14.963**	1.68	0.089
6c	northern pike	0	0	32	120.4	92.6	0.9	0.02	0.24	0	1.84	**14.963**	1.68	0.089
6d	rainbow trout	0	0	32	120.4	92.6	0.9	0.02	0.3	0	1.85	**15.241**	1.73	0.093
6e	smallmouth bass	0	0	32	120.4	92.6	0.9	0.02	0.28	0	1.85	**15.148**	1.713	0.091
6f	sturgeon	0	0	32	120.4	92.6	0.9	0.02	0.25	0	1.84	**15.009**	1.688	0.09
6g	sucker	0	0	32	120.4	92.6	0.9	0.02	0.66	0	1.91	**16.947**	2.052	0.117
6h	walleye	0	0	32	120.4	92.6	0.9	0.02	0.31	0	1.85	**15.288**	1.739	0.093
6i	whitefish	0	0	32	120.4	92.6	0.9	0.02	0.26	0	1.85	**15.056**	1.696	0.09
Bossburg Flat-2015-SDU-10														
7	no fish	0	0	32	122	92.6	0.9	0.02	0.23	0	1.85	**15.05**	1.696	0.09
7a	burbot	0	0	32	122	92.6	0.9	0.02	0.3	0	1.86	**15.376**	1.755	0.094
7b	kokanee	0	0	32	122	92.6	0.9	0.02	0.24	0	1.85	**15.097**	1.704	0.091
7c	northern pike	0	0	32	122	92.6	0.9	0.02	0.24	0	1.85	**15.097**	1.704	0.091
7d	rainbow trout	0	0	32	122	92.6	0.9	0.02	0.3	0	1.86	**15.376**	1.755	0.094
7e	smallmouth bass	0	0	32	122	92.6	0.9	0.02	0.28	0	1.85	**15.283**	1.738	0.093
7f	sturgeon	0	0	32	122	92.6	0.9	0.02	0.25	0	1.85	**15.143**	1.712	0.091
7g	sucker	0	0	32	122	92.6	0.9	0.02	0.66	0	1.92	**17.086**	2.079	0.119
7h	walleye	0	0	32	122	92.6	0.9	0.02	0.31	0	1.86	**15.423**	1.763	0.095
7i	whitefish	0	0	32	122	92.6	0.9	0.02	0.26	0	1.85	**15.19**	1.721	0.092
Evans Campground-2015-SDU-05														
8	no fish	0	0	32	143.4	92.6	0.9	0.02	0.23	0	1.91	**16.938**	2.05	0.117
8a	burbot	0	0	32	143.4	92.6	0.9	0.02	0.3	0	1.93	**17.276**	2.117	0.122
8b	kokanee	0	0	32	143.4	92.6	0.9	0.02	0.24	0	1.92	**16.986**	2.06	0.118
8c	northern pike	0	0	32	143.4	92.6	0.9	0.02	0.24	0	1.92	**16.986**	2.06	0.118
8d	rainbow trout	0	0	32	143.4	92.6	0.9	0.02	0.3	0	1.93	**17.276**	2.117	0.122
8e	smallmouth bass	0	0	32	143.4	92.6	0.9	0.02	0.28	0	1.92	**17.179**	2.098	0.121
8f	sturgeon	0	0	32	143.4	92.6	0.9	0.02	0.25	0	1.92	**17.034**	2.069	0.118
8g	sucker	0	0	32	143.4	92.6	0.9	0.02	0.66	0	1.99	**19.044**	2.481	0.152
8h	walleye	0	0	32	143.4	92.6	0.9	0.02	0.31	0	1.93	**17.324**	2.127	0.123
8i	whitefish	0	0	32	143.4	92.6	0.9	0.02	0.26	0	1.92	**17.083**	2.079	0.119
Evans Campground-2015-SDU-06														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
9	no fish	0	0	32	112.8	92.6	0.9	0.02	0.23	0	1.82	**14.269**	1.557	0.08
9a	burbot	0	0	32	112.8	92.6	0.9	0.02	0.3	0	1.83	**14.589**	1.613	0.084
9b	kokanee	0	0	32	112.8	92.6	0.9	0.02	0.24	0	1.82	**14.314**	1.565	0.081
9c	northern pike	0	0	32	112.8	92.6	0.9	0.02	0.24	0	1.82	**14.314**	1.565	0.081
9d	rainbow trout	0	0	32	112.8	92.6	0.9	0.02	0.3	0	1.83	**14.589**	1.613	0.084
9e	smallmouth bass	0	0	32	112.8	92.6	0.9	0.02	0.28	0	1.82	**14.497**	1.597	0.083
9f	sturgeon	0	0	32	112.8	92.6	0.9	0.02	0.25	0	1.82	**14.36**	1.573	0.081
9g	sucker	0	0	32	112.8	92.6	0.9	0.02	0.66	0	1.89	**16.271**	1.922	0.107
9g	walleye	0	0	32	112.8	92.6	0.9	0.02	0.31	0	1.83	**14.635**	1.621	0.085
9i	whitefish	0	0	32	112.8	92.6	0.9	0.02	0.26	0	1.82	**14.406**	1.581	0.082
Evans Campground-2015-SDU-07														
10	no fish	0	0	32	145.1	92.6	0.9	0.02	0.23	0	1.92	**17.089**	2.08	0.119
10a	burbot	0	0	32	145.1	92.6	0.9	0.02	0.3	0	1.93	**17.428**	2.147	0.125
10b	kokanee	0	0	32	145.1	92.6	0.9	0.02	0.24	0	1.92	**17.138**	2.09	0.12
10c	northern pike	0	0	32	145.1	92.6	0.9	0.02	0.24	0	1.92	**17.138**	2.09	0.12
10d	rainbow trout	0	0	32	145.1	92.6	0.9	0.02	0.3	0	1.93	**17.428**	2.147	0.125
10e	smallmouth bass	0	0	32	145.1	92.6	0.9	0.02	0.28	0	1.93	**17.331**	2.128	0.123
10f	sturgeon	0	0	32	145.1	92.6	0.9	0.02	0.25	0	1.92	**17.186**	2.099	0.121
10g	sucker	0	0	32	145.1	92.6	0.9	0.02	0.66	0	1.99	**19.2**	2.515	0.155
10h	walleye	0	0	32	145.1	92.6	0.9	0.02	0.31	0	1.93	**17.477**	2.157	0.125
10i	whitefish	0	0	32	145.1	92.6	0.9	0.02	0.26	0	1.92	**17.235**	2.109	0.122
AA Campground														
11	no fish	0	0	32	112.2	92.6	0.9	0.02	0.23	0	1.81	**14.21**	1.547	0.079
11a	burbot	0	0	32	112.2	92.6	0.9	0.02	0.3	0	1.83	**14.53**	1.603	0.083
11b	kokanee	0	0	32	112.2	92.6	0.9	0.02	0.24	0	1.82	**14.256**	1.555	0.08
11c	northern pike	0	0	32	112.2	92.6	0.9	0.02	0.24	0	1.82	**14.256**	1.555	0.08
11d	rainbow trout	0	0	32	112.2	92.6	0.9	0.02	0.3	0	1.83	**14.53**	1.603	0.083
11e	smallmouth bass	0	0	32	112.2	92.6	0.9	0.02	0.28	0	1.82	**14.438**	1.587	0.082
11f	sturgeon	0	0	32	112.2	92.6	0.9	0.02	0.25	0	1.82	**14.302**	1.563	0.081
11g	sucker	0	0	32	112.2	92.6	0.9	0.02	0.66	0	1.89	**16.21**	1.91	0.106
11h	walleye	0	0	32	112.2	92.6	0.9	0.02	0.31	0	1.83	**14.576**	1.611	0.084
11i	whitefish	0	0	32	112.2	92.6	0.9	0.02	0.26	0	1.82	**14.347**	1.571	0.081
Barnaby Island Campgr														
12	no fish	0	0	32	114.4	92.6	0.9	0.02	0.23	0	1.82	**14.4**	1.58	0.082
12a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.3	0	1.83	**14.72**	1.637	0.086
12b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.24	0	1.82	**14.445**	1.588	0.082
12c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.24	0	1.82	**14.445**	1.588	0.082
12d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.3	0	1.83	**14.72**	1.637	0.086
12e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.28	0	1.83	**14.628**	1.62	0.085
12f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.25	0	1.82	**14.491**	1.596	0.083
12g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.66	0	1.89	**16.408**	1.948	0.109
12h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.31	0	1.83	**14.766**	1.645	0.086
12i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.26	0	1.83	**14.537**	1.604	0.084
Black Sand														
13	no fish	0	0	32	149.3	92.6	0.9	0.02	0.23	0	1.93	**17.462**	2.154	0.125
13a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.3	0	1.94	**17.803**	2.223	0.131
13b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.24	0	1.93	**17.51**	2.164	0.126
13c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.24	0	1.93	**17.51**	2.164	0.126
13d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.3	0	1.94	**17.803**	2.223	0.131
13e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.28	0	1.94	**17.705**	2.203	0.129
13f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.25	0	1.94	**17.559**	2.173	0.127
13g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.66	0	2.01	**19.584**	2.598	0.162
13h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.31	0	1.95	**17.851**	2.233	0.132

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.26	0	1.94	**17.607**	2.183	0.128
Bossburg Flat-2011														
14	no fish	0	0	32	332.2	92.6	0.9	0.02	0.23	0	2.51	**35.148**	**7.103**	0.679
14a	burbot	0	0	32	332.2	92.6	0.9	0.02	0.3	0	2.52	**35.515**	**7.238**	0.698
14b	kokanee	0	0	32	332.2	92.6	0.9	0.02	0.24	0	2.51	**35.201**	**7.122**	0.682
14c	northern pike	0	0	32	332.2	92.6	0.9	0.02	0.24	0	2.51	**35.201**	**7.122**	0.682
14d	rainbow trout	0	0	32	332.2	92.6	0.9	0.02	0.3	0	2.52	**35.515**	**7.238**	0.698
14e	smallmouth bass	0	0	32	332.2	92.6	0.9	0.02	0.28	0	2.52	**35.411**	**7.199**	0.693
14f	sturgeon	0	0	32	332.2	92.6	0.9	0.02	0.25	0	2.51	**35.253**	**7.141**	0.684
14g	sucker	0	0	32	332.2	92.6	0.9	0.02	0.66	0	2.58	**37.396**	**7.953**	0.802
14h	walleye	0	0	32	332.2	92.6	0.9	0.02	0.31	0	2.52	**35.568**	**7.257**	0.701
14i	whitefish	0	0	32	332.2	92.6	0.9	0.02	0.26	0	2.51	**35.306**	**7.161**	0.687
Bradbury														
15	no fish	0	0	32	121.3	92.6	0.9	0.02	0.23	0	1.84	**14.993**	1.685	0.089
15a	burbot	0	0	32	121.3	92.6	0.9	0.02	0.3	0	1.85	**15.319**	1.744	0.094
15b	kokanee	0	0	32	121.3	92.6	0.9	0.02	0.24	0	1.84	**15.04**	1.694	0.09
15c	northern pike	0	0	32	121.3	92.6	0.9	0.02	0.24	0	1.84	**15.04**	1.694	0.09
15d	rainbow trout	0	0	32	121.3	92.6	0.9	0.02	0.3	0	1.85	**15.319**	1.744	0.094
15e	smallmouth bass	0	0	32	121.3	92.6	0.9	0.02	0.28	0	1.85	**15.225**	1.727	0.092
15f	sturgeon	0	0	32	121.3	92.6	0.9	0.02	0.25	0	1.85	**15.086**	1.702	0.091
15g	sucker	0	0	32	121.3	92.6	0.9	0.02	0.66	0	1.92	**17.027**	2.068	0.118
15h	walleye	0	0	32	121.3	92.6	0.9	0.02	0.31	0	1.86	**15.365**	1.753	0.094
15i	whitefish	0	0	32	121.3	92.6	0.9	0.02	0.26	0	1.85	**15.132**	1.71	0.091
China Bend														
16	no fish	0	0	32	153.4	92.6	0.9	0.02	0.23	0	1.95	**17.835**	2.229	0.131
16a	burbot	0	0	32	153.4	92.6	0.9	0.02	0.3	0	1.96	**18.178**	2.3	0.137
16b	kokanee	0	0	32	153.4	92.6	0.9	0.02	0.24	0	1.95	**17.884**	2.239	0.132
16c	northern pike	0	0	32	153.4	92.6	0.9	0.02	0.24	0	1.95	**17.884**	2.239	0.132
16d	rainbow trout	0	0	32	153.4	92.6	0.9	0.02	0.3	0	1.96	**18.178**	2.3	0.137
16e	smallmouth bass	0	0	32	153.4	92.6	0.9	0.02	0.28	0	1.95	**18.08**	2.279	0.135
16f	sturgeon	0	0	32	153.4	92.6	0.9	0.02	0.25	0	1.95	**17.933**	2.249	0.133
16g	sucker	0	0	32	153.4	92.6	0.9	0.02	0.66	0	2.02	**19.969**	2.683	0.17
16h	walleye	0	0	32	153.4	92.6	0.9	0.02	0.31	0	1.96	**18.227**	2.31	0.138
16i	whitefish	0	0	32	153.4	92.6	0.9	0.02	0.26	0	1.95	**17.982**	2.259	0.134
Colville Flats														
17	no fish	0	0	32	138.3	92.6	0.9	0.02	0.23	0	1.9	**16.476**	1.961	0.11
17a	burbot	0	0	32	138.3	92.6	0.9	0.02	0.3	0	1.91	**16.811**	2.025	0.115
17b	kokanee	0	0	32	138.3	92.6	0.9	0.02	0.24	0	1.9	**16.524**	1.97	0.111
17c	northern pike	0	0	32	138.3	92.6	0.9	0.02	0.24	0	1.9	**16.524**	1.97	0.111
17d	rainbow trout	0	0	32	138.3	92.6	0.9	0.02	0.3	0	1.91	**16.811**	2.025	0.115
17e	smallmouth bass	0	0	32	138.3	92.6	0.9	0.02	0.28	0	1.91	**16.715**	2.007	0.114
17f	sturgeon	0	0	32	138.3	92.6	0.9	0.02	0.25	0	1.9	**16.571**	1.979	0.111
17g	sucker	0	0	32	138.3	92.6	0.9	0.02	0.66	0	1.97	**18.566**	2.38	0.144
17h	walleye	0	0	32	138.3	92.6	0.9	0.02	0.31	0	1.91	**16.859**	2.035	0.116
17i	whitefish	0	0	32	138.3	92.6	0.9	0.02	0.26	0	1.9	**16.619**	1.988	0.112
Colville River														
18	no fish	0	0	32	112.3	92.6	0.9	0.02	0.23	0	1.81	**14.223**	1.549	0.08
18a	burbot	0	0	32	112.3	92.6	0.9	0.02	0.3	0	1.83	**14.543**	1.605	0.084
18b	kokanee	0	0	32	112.3	92.6	0.9	0.02	0.24	0	1.82	**14.269**	1.557	0.08
18c	northern pike	0	0	32	112.3	92.6	0.9	0.02	0.24	0	1.82	**14.269**	1.557	0.08
18d	rainbow trout	0	0	32	112.3	92.6	0.9	0.02	0.3	0	1.83	**14.543**	1.605	0.084
18e	smallmouth bass	0	0	32	112.3	92.6	0.9	0.02	0.28	0	1.82	**14.451**	1.589	0.082
18f	sturgeon	0	0	32	112.3	92.6	0.9	0.02	0.25	0	1.82	**14.314**	1.565	0.081

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
18g	sucker	0	0	32	112.3	92.6	0.9	0.02	0.66	0	1.89	**16.224**	1.912	0.106
18h	walleye	0	0	32	112.3	92.6	0.9	0.02	0.31	0	1.83	**14.589**	1.613	0.084
18i	whitefish	0	0	32	112.3	92.6	0.9	0.02	0.26	0	1.82	**14.36**	1.573	0.081
Crescent Bay														
19	no fish	0	0	32	110.8	92.6	0.9	0.02	0.23	0	1.81	**14.098**	1.528	0.078
19a	burbot	0	0	32	110.8	92.6	0.9	0.02	0.3	0	1.82	**14.417**	1.583	0.082
19b	kokanee	0	0	32	110.8	92.6	0.9	0.02	0.24	0	1.81	**14.144**	1.536	0.079
19c	northern pike	0	0	32	110.8	92.6	0.9	0.02	0.24	0	1.81	**14.144**	1.536	0.079
19d	rainbow trout	0	0	32	110.8	92.6	0.9	0.02	0.3	0	1.82	**14.417**	1.583	0.082
19e	smallmouth bass	0	0	32	110.8	92.6	0.9	0.02	0.28	0	1.82	**14.325**	1.567	0.081
19f	sturgeon	0	0	32	110.8	92.6	0.9	0.02	0.25	0	1.81	**14.189**	1.544	0.079
19g	sucker	0	0	32	110.8	92.6	0.9	0.02	0.66	0	1.88	**16.093**	1.888	0.104
19h	walleye	0	0	32	110.8	92.6	0.9	0.02	0.31	0	1.82	**14.462**	1.591	0.083
19i	whitefish	0	0	32	110.8	92.6	0.9	0.02	0.26	0	1.81	**14.234**	1.551	0.08
Dallas Orchard														
20	no fish	0	0	32	163.7	92.6	0.9	0.02	0.23	0	1.98	**18.782**	2.426	0.148
20a	burbot	0	0	32	163.7	92.6	0.9	0.02	0.3	0	1.99	**19.13**	2.5	0.154
20b	kokanee	0	0	32	163.7	92.6	0.9	0.02	0.24	0	1.98	**18.832**	2.436	0.148
20c	northern pike	0	0	32	163.7	92.6	0.9	0.02	0.24	0	1.98	**18.832**	2.436	0.148
20d	rainbow trout	0	0	32	163.7	92.6	0.9	0.02	0.3	0	1.99	**19.13**	2.5	0.154
20e	smallmouth bass	0	0	32	163.7	92.6	0.9	0.02	0.28	0	1.99	**19.03**	2.479	0.152
20f	sturgeon	0	0	32	163.7	92.6	0.9	0.02	0.25	0	1.98	**18.881**	2.447	0.149
20g	sucker	0	0	32	163.7	92.6	0.9	0.02	0.66	0	2.05	**20.942**	2.903	0.189
20h	walleye	0	0	32	163.7	92.6	0.9	0.02	0.31	0	1.99	**19.18**	2.511	0.155
20i	whitefish	0	0	32	163.7	92.6	0.9	0.02	0.26	0	1.98	**18.931**	2.457	0.15
Enterprise														
21	no fish	0	0	32	112.1	92.6	0.9	0.02	0.23	0	1.81	**14.202**	1.546	0.079
21a	burbot	0	0	32	112.1	92.6	0.9	0.02	0.3	0	1.83	**14.521**	1.601	0.083
21b	kokanee	0	0	32	112.1	92.6	0.9	0.02	0.24	0	1.81	**14.248**	1.554	0.08
21c	northern pike	0	0	32	112.1	92.6	0.9	0.02	0.24	0	1.81	**14.248**	1.554	0.08
21d	rainbow trout	0	0	32	112.1	92.6	0.9	0.02	0.3	0	1.83	**14.521**	1.601	0.083
21e	smallmouth bass	0	0	32	112.1	92.6	0.9	0.02	0.28	0	1.82	**14.43**	1.585	0.082
21f	sturgeon	0	0	32	112.1	92.6	0.9	0.02	0.25	0	1.82	**14.293**	1.562	0.081
21g	sucker	0	0	32	112.1	92.6	0.9	0.02	0.66	0	1.89	**16.201**	1.908	0.106
21h	walleye	0	0	32	112.1	92.6	0.9	0.02	0.31	0	1.83	**14.567**	1.61	0.084
21i	whitefish	0	0	32	112.1	92.6	0.9	0.02	0.26	0	1.82	**14.339**	1.57	0.081
Evans Campground-2011														
22	no fish	0	0	32	149.3	92.6	0.9	0.02	0.23	0	1.93	**17.463**	2.154	0.125
22a	burbot	0	0	32	149.3	92.6	0.9	0.02	0.3	0	1.94	**17.804**	2.223	0.131
22b	kokanee	0	0	32	149.3	92.6	0.9	0.02	0.24	0	1.93	**17.512**	2.164	0.126
22c	northern pike	0	0	32	149.3	92.6	0.9	0.02	0.24	0	1.93	**17.512**	2.164	0.126
22d	rainbow trout	0	0	32	149.3	92.6	0.9	0.02	0.3	0	1.94	**17.804**	2.223	0.131
22e	smallmouth bass	0	0	32	149.3	92.6	0.9	0.02	0.28	0	1.94	**17.707**	2.203	0.129
22f	sturgeon	0	0	32	149.3	92.6	0.9	0.02	0.25	0	1.94	**17.561**	2.174	0.127
22g	sucker	0	0	32	149.3	92.6	0.9	0.02	0.66	0	2.01	**19.586**	2.599	0.162
22h	walleye	0	0	32	149.3	92.6	0.9	0.02	0.31	0	1.95	**17.853**	2.233	0.132
22i	whitefish	0	0	32	149.3	92.6	0.9	0.02	0.26	0	1.94	**17.609**	2.184	0.128
Flat Creek														
23	no fish	0	0	32	141.4	92.6	0.9	0.02	0.23	0	1.91	**16.752**	2.014	0.114
23a	burbot	0	0	32	141.4	92.6	0.9	0.02	0.3	0	1.92	**17.089**	2.08	0.119
23b	kokanee	0	0	32	141.4	92.6	0.9	0.02	0.24	0	1.91	**16.8**	2.023	0.115
23c	northern pike	0	0	32	141.4	92.6	0.9	0.02	0.24	0	1.91	**16.8**	2.023	0.115
23d	rainbow trout	0	0	32	141.4	92.6	0.9	0.02	0.3	0	1.92	**17.089**	2.08	0.119

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
23e	smallmouth bass	0	0	32	141.4	92.6	0.9	0.02	0.28	0	1.92	**16.992**	2.061	0.118
23f	sturgeon	0	0	32	141.4	92.6	0.9	0.02	0.25	0	1.91	**16.848**	2.033	0.116
23g	sucker	0	0	32	141.4	92.6	0.9	0.02	0.66	0	1.98	**18.851**	2.441	0.149
23h	walleye	0	0	32	141.4	92.6	0.9	0.02	0.31	0	1.92	**17.137**	2.089	0.12
23i	whitefish	0	0	32	141.4	92.6	0.9	0.02	0.26	0	1.91	**16.896**	2.042	0.116
Hawk Creek														
24	no fish	0	0	32	111.3	92.6	0.9	0.02	0.23	0	1.81	**14.136**	1.534	0.079
24a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.455**	1.59	0.082
24b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.182**	1.542	0.079
24c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.182**	1.542	0.079
24d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.455**	1.59	0.082
24e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.28	0	1.82	**14.364**	1.574	0.081
24f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.25	0	1.81	**14.227**	1.55	0.08
24g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.66	0	1.88	**16.133**	1.895	0.105
24h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.31	0	1.82	**14.501**	1.598	0.083
24i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.26	0	1.82	**14.272**	1.558	0.08
Hunters														
25	no fish	0	0	32	112.4	92.6	0.9	0.02	0.23	0	1.81	**14.231**	1.551	0.08
25a	burbot	0	0	32	112.4	92.6	0.9	0.02	0.3	0	1.83	**14.55**	1.607	0.084
25b	kokanee	0	0	32	112.4	92.6	0.9	0.02	0.24	0	1.82	**14.276**	1.559	0.08
25c	northern pike	0	0	32	112.4	92.6	0.9	0.02	0.24	0	1.82	**14.276**	1.559	0.08
25d	rainbow trout	0	0	32	112.4	92.6	0.9	0.02	0.3	0	1.83	**14.55**	1.607	0.084
25e	smallmouth bass	0	0	32	112.4	92.6	0.9	0.02	0.28	0	1.82	**14.459**	1.591	0.083
25f	sturgeon	0	0	32	112.4	92.6	0.9	0.02	0.25	0	1.82	**14.322**	1.567	0.081
25g	sucker	0	0	32	112.4	92.6	0.9	0.02	0.66	0	1.89	**16.231**	1.914	0.106
25h	walleye	0	0	32	112.4	92.6	0.9	0.02	0.31	0	1.83	**14.596**	1.615	0.084
25i	whitefish	0	0	32	112.4	92.6	0.9	0.02	0.26	0	1.82	**14.367**	1.575	0.081
Jones Bay														
26	no fish	0	0	32	111	92.6	0.9	0.02	0.23	0	1.81	**14.117**	1.531	0.078
26a	burbot	0	0	32	111	92.6	0.9	0.02	0.3	0	1.82	**14.435**	1.586	0.082
26b	kokanee	0	0	32	111	92.6	0.9	0.02	0.24	0	1.81	**14.162**	1.539	0.079
26c	northern pike	0	0	32	111	92.6	0.9	0.02	0.24	0	1.81	**14.162**	1.539	0.079
26d	rainbow trout	0	0	32	111	92.6	0.9	0.02	0.3	0	1.82	**14.435**	1.586	0.082
26e	smallmouth bass	0	0	32	111	92.6	0.9	0.02	0.28	0	1.82	**14.344**	1.57	0.081
26f	sturgeon	0	0	32	111	92.6	0.9	0.02	0.25	0	1.81	**14.208**	1.547	0.079
26g	sucker	0	0	32	111	92.6	0.9	0.02	0.66	0	1.88	**16.112**	1.891	0.105
26h	walleye	0	0	32	111	92.6	0.9	0.02	0.31	0	1.82	**14.481**	1.594	0.083
26i	whitefish	0	0	32	111	92.6	0.9	0.02	0.26	0	1.82	**14.253**	1.555	0.08
Kamloops Island														
27	no fish	0	0	32	113.2	92.6	0.9	0.02	0.23	0	1.82	**14.3**	1.563	0.081
27a	burbot	0	0	32	113.2	92.6	0.9	0.02	0.3	0	1.83	**14.62**	1.619	0.085
27b	kokanee	0	0	32	113.2	92.6	0.9	0.02	0.24	0	1.82	**14.346**	1.571	0.081
27c	northern pike	0	0	32	113.2	92.6	0.9	0.02	0.24	0	1.82	**14.346**	1.571	0.081
27d	rainbow trout	0	0	32	113.2	92.6	0.9	0.02	0.3	0	1.83	**14.62**	1.619	0.085
27e	smallmouth bass	0	0	32	113.2	92.6	0.9	0.02	0.28	0	1.83	**14.529**	1.603	0.083
27f	sturgeon	0	0	32	113.2	92.6	0.9	0.02	0.25	0	1.82	**14.391**	1.579	0.082
27g	sucker	0	0	32	113.2	92.6	0.9	0.02	0.66	0	1.89	**16.304**	1.928	0.107
27h	walleye	0	0	32	113.2	92.6	0.9	0.02	0.31	0	1.83	**14.666**	1.627	0.085
27i	whitefish	0	0	32	113.2	92.6	0.9	0.02	0.26	0	1.82	**14.437**	1.587	0.082
Kettle Falls														
28	no fish	0	0	32	111.9	92.6	0.9	0.02	0.23	0	1.81	**14.188**	1.543	0.079
28a	burbot	0	0	32	111.9	92.6	0.9	0.02	0.3	0	1.82	**14.508**	1.599	0.083
28b	kokanee	0	0	32	111.9	92.6	0.9	0.02	0.24	0	1.81	**14.234**	1.551	0.08

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
28c	northern pike	0	0	32	111.9	92.6	0.9	0.02	0.24	0	1.81	**14.234**	1.551	0.08
28d	rainbow trout	0	0	32	111.9	92.6	0.9	0.02	0.3	0	1.82	**14.508**	1.599	0.083
28e	smallmouth bass	0	0	32	111.9	92.6	0.9	0.02	0.28	0	1.82	**14.416**	1.583	0.082
28f	sturgeon	0	0	32	111.9	92.6	0.9	0.02	0.25	0	1.82	**14.279**	1.559	0.08
28g	sucker	0	0	32	111.9	92.6	0.9	0.02	0.66	0	1.89	**16.187**	1.906	0.106
2h8	walleye	0	0	32	111.9	92.6	0.9	0.02	0.31	0	1.83	**14.554**	1.607	0.084
i28	whitefish	0	0	32	111.9	92.6	0.9	0.02	0.26	0	1.82	**14.325**	1.567	0.081
Lyons Island														
29	no fish	0	0	32	124.4	92.6	0.9	0.02	0.23	0	1.85	**15.257**	1.733	0.093
29a	burbot	0	0	32	124.4	92.6	0.9	0.02	0.3	0	1.86	**15.584**	1.793	0.097
29b	kokanee	0	0	32	124.4	92.6	0.9	0.02	0.24	0	1.85	**15.303**	1.741	0.093
29c	northern pike	0	0	32	124.4	92.6	0.9	0.02	0.24	0	1.85	**15.303**	1.741	0.093
29d	rainbow trout	0	0	32	124.4	92.6	0.9	0.02	0.3	0	1.86	**15.584**	1.793	0.097
29e	smallmouth bass	0	0	32	124.4	92.6	0.9	0.02	0.28	0	1.86	**15.49**	1.776	0.096
29f	sturgeon	0	0	32	124.4	92.6	0.9	0.02	0.25	0	1.86	**15.35**	1.75	0.094
29g	sucker	0	0	32	124.4	92.6	0.9	0.02	0.66	0	1.93	**17.301**	2.122	0.123
29h	walleye	0	0	32	124.4	92.6	0.9	0.02	0.31	0	1.87	**15.631**	1.801	0.098
29i	whitefish	0	0	32	124.4	92.6	0.9	0.02	0.26	0	1.86	**15.397**	1.758	0.095
McGuires														
30	no fish	0	0	32	111.3	92.6	0.9	0.02	0.23	0	1.81	**14.142**	1.535	0.079
30a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.461**	1.591	0.083
30b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.187**	1.543	0.079
30c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.187**	1.543	0.079
30d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.461**	1.591	0.083
30e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.28	0	1.82	**14.37**	1.575	0.081
30f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.25	0	1.81	**14.233**	1.551	0.08
30g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.66	0	1.88	**16.139**	1.896	0.105
30h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.31	0	1.82	**14.507**	1.599	0.083
30i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.26	0	1.82	**14.278**	1.559	0.08
Mitchell Point														
31	no fish	0	0	32	111.6	92.6	0.9	0.02	0.23	0	1.81	**14.166**	1.54	0.079
31a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.3	0	1.82	**14.485**	1.595	0.083
31b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.24	0	1.81	**14.211**	1.547	0.08
31c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.24	0	1.81	**14.211**	1.547	0.08
31d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.3	0	1.82	**14.485**	1.595	0.083
31e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.28	0	1.82	**14.393**	1.579	0.082
31f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.25	0	1.82	**14.257**	1.555	0.08
31g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.66	0	1.89	**16.163**	1.901	0.105
31h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.31	0	1.83	**14.531**	1.603	0.083
31i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.26	0	1.82	**14.302**	1.563	0.081
Naborlee														
32	no fish	0	0	32	114.4	92.6	0.9	0.02	0.23	0	1.82	**14.402**	1.581	0.082
32a	burbot	0	0	32	114.4	92.6	0.9	0.02	0.3	0	1.83	**14.723**	1.637	0.086
32b	kokanee	0	0	32	114.4	92.6	0.9	0.02	0.24	0	1.82	**14.448**	1.589	0.082
32c	northern pike	0	0	32	114.4	92.6	0.9	0.02	0.24	0	1.82	**14.448**	1.589	0.082
32d	rainbow trout	0	0	32	114.4	92.6	0.9	0.02	0.3	0	1.83	**14.723**	1.637	0.086
32e	smallmouth bass	0	0	32	114.4	92.6	0.9	0.02	0.28	0	1.83	**14.631**	1.621	0.085
32f	sturgeon	0	0	32	114.4	92.6	0.9	0.02	0.25	0	1.82	**14.493**	1.597	0.083
32g	sucker	0	0	32	114.4	92.6	0.9	0.02	0.66	0	1.89	**16.41**	1.948	0.109
32h	walleye	0	0	32	114.4	92.6	0.9	0.02	0.31	0	1.83	**14.769**	1.645	0.086
32i	whitefish	0	0	32	114.4	92.6	0.9	0.02	0.26	0	1.83	**14.539**	1.605	0.084
Nez Perce														
33	no fish	0	0	32	111.6	92.6	0.9	0.02	0.23	0	1.81	**14.16**	1.539	0.079

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
33a	burbot	0	0	32	111.6	92.6	0.9	0.02	0.3	0	1.82	**14.479**	1.594	0.083
33b	kokanee	0	0	32	111.6	92.6	0.9	0.02	0.24	0	1.81	**14.205**	1.546	0.079
33c	northern pike	0	0	32	111.6	92.6	0.9	0.02	0.24	0	1.81	**14.205**	1.546	0.079
33d	rainbow trout	0	0	32	111.6	92.6	0.9	0.02	0.3	0	1.82	**14.479**	1.594	0.083
33e	smallmouth bass	0	0	32	111.6	92.6	0.9	0.02	0.28	0	1.82	**14.387**	1.578	0.082
33f	sturgeon	0	0	32	111.6	92.6	0.9	0.02	0.25	0	1.82	**14.251**	1.554	0.08
33g	sucker	0	0	32	111.6	92.6	0.9	0.02	0.66	0	1.89	**16.157**	1.9	0.105
33h	walleye	0	0	32	111.6	92.6	0.9	0.02	0.31	0	1.83	**14.525**	1.602	0.083
33i	whitefish	0	0	32	111.6	92.6	0.9	0.02	0.26	0	1.82	**14.296**	1.562	0.081
Northport Beach														
34	no fish	0	0	32	156.4	92.6	0.9	0.02	0.23	0	1.95	**18.107**	2.285	0.136
34a	burbot	0	0	32	156.4	92.6	0.9	0.02	0.3	0	1.97	**18.451**	2.356	0.142
34b	kokanee	0	0	32	156.4	92.6	0.9	0.02	0.24	0	1.96	**18.156**	2.295	0.137
34c	northern pike	0	0	32	156.4	92.6	0.9	0.02	0.24	0	1.96	**18.156**	2.295	0.137
34d	rainbow trout	0	0	32	156.4	92.6	0.9	0.02	0.3	0	1.97	**18.451**	2.356	0.142
34e	smallmouth bass	0	0	32	156.4	92.6	0.9	0.02	0.28	0	1.96	**18.352**	2.336	0.14
34f	sturgeon	0	0	32	156.4	92.6	0.9	0.02	0.25	0	1.96	**18.205**	2.305	0.137
34g	sucker	0	0	32	156.4	92.6	0.9	0.02	0.66	0	2.03	**20.248**	2.745	0.175
34h	walleye	0	0	32	156.4	92.6	0.9	0.02	0.31	0	1.97	**18.5**	2.367	0.143
34i	whitefish	0	0	32	156.4	92.6	0.9	0.02	0.26	0	1.96	**18.254**	2.315	0.138
R.V. Park														
35	no fish	0	0	32	148.6	92.6	0.9	0.02	0.23	0	1.93	**17.398**	2.141	0.124
35a	burbot	0	0	32	148.6	92.6	0.9	0.02	0.3	0	1.94	**17.738**	2.21	0.13
35b	kokanee	0	0	32	148.6	92.6	0.9	0.02	0.24	0	1.93	**17.446**	2.151	0.125
35c	northern pike	0	0	32	148.6	92.6	0.9	0.02	0.24	0	1.93	**17.446**	2.151	0.125
35d	rainbow trout	0	0	32	148.6	92.6	0.9	0.02	0.3	0	1.94	**17.738**	2.21	0.13
35e	smallmouth bass	0	0	32	148.6	92.6	0.9	0.02	0.28	0	1.94	**17.641**	2.19	0.128
35f	sturgeon	0	0	32	148.6	92.6	0.9	0.02	0.25	0	1.93	**17.495**	2.161	0.126
35g	sucker	0	0	32	148.6	92.6	0.9	0.02	0.66	0	2	**19.518**	2.584	0.161
35h	walleye	0	0	32	148.6	92.6	0.9	0.02	0.31	0	1.94	**17.787**	2.22	0.13
35i	whitefish	0	0	32	148.6	92.6	0.9	0.02	0.26	0	1.94	**17.543**	2.17	0.126
Seven Bays														
36	no fish	0	0	32	110.9	92.6	0.9	0.02	0.23	0	1.81	**14.109**	1.53	0.078
36a	burbot	0	0	32	110.9	92.6	0.9	0.02	0.3	0	1.82	**14.428**	1.585	0.082
36b	kokanee	0	0	32	110.9	92.6	0.9	0.02	0.24	0	1.81	**14.155**	1.538	0.079
36c	northern pike	0	0	32	110.9	92.6	0.9	0.02	0.24	0	1.81	**14.155**	1.538	0.079
36d	rainbow trout	0	0	32	110.9	92.6	0.9	0.02	0.3	0	1.82	**14.428**	1.585	0.082
36e	smallmouth bass	0	0	32	110.9	92.6	0.9	0.02	0.28	0	1.82	**14.336**	1.569	0.081
36f	sturgeon	0	0	32	110.9	92.6	0.9	0.02	0.25	0	1.81	**14.2**	1.545	0.079
36g	sucker	0	0	32	110.9	92.6	0.9	0.02	0.66	0	1.88	**16.104**	1.89	0.105
36h	walleye	0	0	32	110.9	92.6	0.9	0.02	0.31	0	1.82	**14.473**	1.593	0.083
36i	whitefish	0	0	32	110.9	92.6	0.9	0.02	0.26	0	1.81	**14.245**	1.553	0.08
Spring Canyon														
37	no fish	0	0	32	111.2	92.6	0.9	0.02	0.23	0	1.81	**14.134**	1.534	0.079
37a	burbot	0	0	32	111.2	92.6	0.9	0.02	0.3	0	1.82	**14.452**	1.589	0.082
37b	kokanee	0	0	32	111.2	92.6	0.9	0.02	0.24	0	1.81	**14.179**	1.542	0.079
37c	northern pike	0	0	32	111.2	92.6	0.9	0.02	0.24	0	1.81	**14.179**	1.542	0.079
37d	rainbow trout	0	0	32	111.2	92.6	0.9	0.02	0.3	0	1.82	**14.452**	1.589	0.082
37e	smallmouth bass	0	0	32	111.2	92.6	0.9	0.02	0.28	0	1.82	**14.361**	1.573	0.081
37f	sturgeon	0	0	32	111.2	92.6	0.9	0.02	0.25	0	1.81	**14.224**	1.55	0.08
37g	sucker	0	0	32	111.2	92.6	0.9	0.02	0.66	0	1.88	**16.13**	1.895	0.105
37h	walleye	0	0	32	111.2	92.6	0.9	0.02	0.31	0	1.82	**14.498**	1.597	0.083
37i	whitefish	0	0	32	111.2	92.6	0.9	0.02	0.26	0	1.82	**14.27**	1.558	0.08

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
Summer Island														
38	no fish	0	0	32	158.9	92.6	0.9	0.02	0.23	0	1.96	**18.334**	2.332	0.14
38a	burbot	0	0	32	158.9	92.6	0.9	0.02	0.3	0	1.97	**18.68**	2.404	0.146
38b	kokanee	0	0	32	158.9	92.6	0.9	0.02	0.24	0	1.96	**18.384**	2.342	0.141
38c	northern pike	0	0	32	158.9	92.6	0.9	0.02	0.24	0	1.96	**18.384**	2.342	0.141
38d	rainbow trout	0	0	32	158.9	92.6	0.9	0.02	0.3	0	1.97	**18.68**	2.404	0.146
38e	smallmouth bass	0	0	32	158.9	92.6	0.9	0.02	0.28	0	1.97	**18.581**	2.383	0.144
38f	sturgeon	0	0	32	158.9	92.6	0.9	0.02	0.25	0	1.97	**18.433**	2.353	0.141
38g	sucker	0	0	32	158.9	92.6	0.9	0.02	0.66	0	2.04	**20.483**	2.798	0.18
38h	walleye	0	0	32	158.9	92.6	0.9	0.02	0.31	0	1.98	**18.729**	2.415	0.147
38i	whitefish	0	0	32	158.9	92.6	0.9	0.02	0.26	0	1.97	**18.482**	2.363	0.142
Swawilla Basin														
39	no fish	0	0	32	111.3	92.6	0.9	0.02	0.23	0	1.81	**14.135**	1.534	0.079
39a	burbot	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.454**	1.59	0.082
39b	kokanee	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.181**	1.542	0.079
39c	northern pike	0	0	32	111.3	92.6	0.9	0.02	0.24	0	1.81	**14.181**	1.542	0.079
39d	rainbow trout	0	0	32	111.3	92.6	0.9	0.02	0.3	0	1.82	**14.454**	1.59	0.082
39e	smallmouth bass	0	0	32	111.3	92.6	0.9	0.02	0.28	0	1.82	**14.363**	1.574	0.081
39f	sturgeon	0	0	32	111.3	92.6	0.9	0.02	0.25	0	1.81	**14.226**	1.55	0.08
39g	sucker	0	0	32	111.3	92.6	0.9	0.02	0.66	0	1.88	**16.132**	1.895	0.105
39h	walleye	0	0	32	111.3	92.6	0.9	0.02	0.31	0	1.82	**14.5**	1.598	0.083
39i	whitefish	0	0	32	111.3	92.6	0.9	0.02	0.26	0	1.82	**14.272**	1.558	0.08
Swimming Hole														
40	no fish	0	0	32	134	92.6	0.9	0.02	0.23	0	1.88	**16.1**	1.889	0.104
40a	burbot	0	0	32	134	92.6	0.9	0.02	0.3	0	1.9	**16.433**	1.952	0.109
40b	kokanee	0	0	32	134	92.6	0.9	0.02	0.24	0	1.89	**16.147**	1.898	0.105
40c	northern pike	0	0	32	134	92.6	0.9	0.02	0.24	0	1.89	**16.147**	1.898	0.105
40d	rainbow trout	0	0	32	134	92.6	0.9	0.02	0.3	0	1.9	**16.433**	1.952	0.109
40e	smallmouth bass	0	0	32	134	92.6	0.9	0.02	0.28	0	1.89	**16.337**	1.934	0.108
40f	sturgeon	0	0	32	134	92.6	0.9	0.02	0.25	0	1.89	**16.195**	1.907	0.106
40g	sucker	0	0	32	134	92.6	0.9	0.02	0.66	0	1.96	**18.176**	2.299	0.137
40h	walleye	0	0	32	134	92.6	0.9	0.02	0.31	0	1.9	**16.48**	1.962	0.11
40i	whitefish	0	0	32	134	92.6	0.9	0.02	0.26	0	1.89	**16.242**	1.916	0.107
Welty Bay														
41	no fish	0	0	32	121.2	92.6	0.9	0.02	0.23	0	1.84	**14.981**	1.683	0.089
41a	burbot	0	0	32	121.2	92.6	0.9	0.02	0.3	0	1.85	**15.307**	1.742	0.093
41b	kokanee	0	0	32	121.2	92.6	0.9	0.02	0.24	0	1.84	**15.028**	1.691	0.09
41c	northern pike	0	0	32	121.2	92.6	0.9	0.02	0.24	0	1.84	**15.028**	1.691	0.09
41d	rainbow trout	0	0	32	121.2	92.6	0.9	0.02	0.3	0	1.85	**15.307**	1.742	0.093
41e	smallmouth bass	0	0	32	121.2	92.6	0.9	0.02	0.28	0	1.85	**15.213**	1.725	0.092
41f	sturgeon	0	0	32	121.2	92.6	0.9	0.02	0.25	0	1.85	**15.074**	1.7	0.09
41g	sucker	0	0	32	121.2	92.6	0.9	0.02	0.66	0	1.92	**17.014**	2.065	0.118
41h	walleye	0	0	32	121.2	92.6	0.9	0.02	0.31	0	1.86	**15.353**	1.75	0.094
41i	whitefish	0	0	32	121.2	92.6	0.9	0.02	0.26	0	1.85	**15.12**	1.708	0.091
Whitestone Campground														
42	no fish	0	0	32	111.4	92.6	0.9	0.02	0.23	0	1.81	**14.15**	1.537	0.079
42a	burbot	0	0	32	111.4	92.6	0.9	0.02	0.3	0	1.82	**14.469**	1.592	0.083
42b	kokanee	0	0	32	111.4	92.6	0.9	0.02	0.24	0	1.81	**14.195**	1.545	0.079
42c	northern pike	0	0	32	111.4	92.6	0.9	0.02	0.24	0	1.81	**14.195**	1.545	0.079
42d	rainbow trout	0	0	32	111.4	92.6	0.9	0.02	0.3	0	1.82	**14.469**	1.592	0.083
42e	smallmouth bass	0	0	32	111.4	92.6	0.9	0.02	0.28	0	1.82	**14.377**	1.576	0.082
42f	sturgeon	0	0	32	111.4	92.6	0.9	0.02	0.25	0	1.81	**14.241**	1.553	0.08
42g	sucker	0	0	32	111.4	92.6	0.9	0.02	0.66	0	1.89	**16.147**	1.898	0.105

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
42h	walleye	0	0	32	111.4	92.6	0.9	0.02	0.31	0	1.83	**14.514**	1.6	0.083
42i	whitefish	0	0	32	111.4	92.6	0.9	0.02	0.26	0	1.82	**14.286**	1.56	0.08
Wilmont Creek														
43	no fish	0	0	32	114.6	92.6	0.9	0.02	0.23	0	1.82	**14.419**	1.584	0.082
43a	burbot	0	0	32	114.6	92.6	0.9	0.02	0.3	0	1.83	**14.74**	1.64	0.086
43b	kokanee	0	0	32	114.6	92.6	0.9	0.02	0.24	0	1.82	**14.465**	1.592	0.083
43c	northern pike	0	0	32	114.6	92.6	0.9	0.02	0.24	0	1.82	**14.465**	1.592	0.083
43d	rainbow trout	0	0	32	114.6	92.6	0.9	0.02	0.3	0	1.83	**14.74**	1.64	0.086
43e	smallmouth bass	0	0	32	114.6	92.6	0.9	0.02	0.28	0	1.83	**14.648**	1.624	0.085
43f	sturgeon	0	0	32	114.6	92.6	0.9	0.02	0.25	0	1.82	**14.511**	1.6	0.083
43g	sucker	0	0	32	114.6	92.6	0.9	0.02	0.66	0	1.9	**16.428**	1.952	0.109
43h	walleye	0	0	32	114.6	92.6	0.9	0.02	0.31	0	1.84	**14.786**	1.648	0.087
43i	whitefish	0	0	32	114.6	92.6	0.9	0.02	0.26	0	1.83	**14.556**	1.608	0.084

Lead Risk Calculations for Child Recreational Visitors at Bossburg Flat Beach UDUs, with Fish Consumption

UDU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
UDU-01-ICS	Burbot	**19.459**	2.571	0.16	**19.359**	2.549	0.158	**20.011**	2.692	0.171
UDU-01-ICS	Kokanee	**19.16**	2.506	0.154	**19.06**	2.485	0.153	**19.709**	2.626	0.165
UDU-01-ICS	N. Pike	**19.16**	2.506	0.154	**19.06**	2.485	0.153	**19.709**	2.626	0.165
UDU-01-ICS	Rainbow Trout	**19.459**	2.571	0.16	**19.359**	2.549	0.158	**20.011**	2.692	0.171
UDU-01-ICS	SM Bass	**19.359**	2.549	0.158	**19.259**	2.528	0.156	**19.91**	2.67	0.169
UDU-01-ICS	Sturgeon	**19.209**	2.517	0.155	**19.11**	2.496	0.153	**19.76**	2.637	0.166
UDU-01-ICS	Sucker	**21.278**	2.981	0.197	**21.176**	2.957	0.194	**21.841**	3.113	0.209
UDU-01-ICS	Walleye	**19.509**	2.582	0.161	**19.409**	2.56	0.159	**20.061**	2.703	0.172
UDU-01-ICS	Whitefish	**19.259**	2.528	0.156	**19.16**	2.506	0.154	**19.81**	2.648	0.167
UDU-02-ICS	Burbot	**21.828**	3.11	0.209	**21.726**	3.086	0.206	**22.394**	3.246	0.222
UDU-02-ICS	Kokanee	**21.521**	3.037	0.202	**21.419**	3.013	0.2	**22.085**	3.171	0.214
UDU-02-ICS	N. Pike	**21.521**	3.037	0.202	**21.419**	3.013	0.2	**22.085**	3.171	0.214
UDU-02-ICS	Rainbow Trout	**21.828**	3.11	0.209	**21.726**	3.086	0.206	**22.394**	3.246	0.222
UDU-02-ICS	SM Bass	**21.726**	3.086	0.206	**21.623**	3.062	0.204	**22.291**	3.221	0.219
UDU-02-ICS	Sturgeon	**21.572**	3.049	0.203	**21.47**	3.025	0.201	**22.137**	3.184	0.216
UDU-02-ICS	Sucker	**23.689**	3.568	0.253	**23.585**	3.541	0.25	**24.262**	3.715	0.268
UDU-02-ICS	Walleye	**21.88**	3.122	0.21	**21.777**	3.098	0.207	**22.446**	3.259	0.223
UDU-02-ICS	Whitefish	**21.623**	3.062	0.204	**21.521**	3.037	0.202	**22.188**	3.196	0.217
UDU-03-ICS	Burbot	**18.529**	2.373	0.143	**18.43**	2.352	0.141	**19.074**	2.488	0.153
UDU-03-ICS	Kokanee	**18.233**	2.311	0.138	**18.135**	2.291	0.136	**18.776**	2.425	0.147
UDU-03-ICS	N. Pike	**18.233**	2.311	0.138	**18.135**	2.291	0.136	**18.776**	2.425	0.147
UDU-03-ICS	Rainbow Trout	**18.529**	2.373	0.143	**18.43**	2.352	0.141	**19.074**	2.488	0.153
UDU-03-ICS	SM Bass	**18.43**	2.352	0.141	**18.332**	2.331	0.14	**18.975**	2.467	0.151
UDU-03-ICS	Sturgeon	**18.282**	2.321	0.139	**18.184**	2.301	0.137	**18.826**	2.435	0.148
UDU-03-ICS	Sucker	**20.328**	2.763	0.177	**20.227**	2.74	0.175	**20.885**	2.89	0.188
UDU-03-ICS	Walleye	**18.578**	2.383	0.144	**18.479**	2.362	0.142	**19.124**	2.499	0.154
UDU-03-ICS	Whitefish	**18.332**	2.331	0.14	**18.233**	2.311	0.138	**18.875**	2.446	0.149
UDU-04-ICS	Burbot	**70.812**	**29.496**	**6.191**	**70.753**	**29.437**	**6.17**	**71.135**	**29.822**	**6.307**
UDU-04-ICS	Kokanee	**70.635**	**29.318**	**6.128**	**70.575**	**29.259**	**6.107**	**70.959**	**29.644**	**6.243**
UDU-04-ICS	N. Pike	**70.635**	**29.318**	**6.128**	**70.575**	**29.259**	**6.107**	**70.959**	**29.644**	**6.243**
UDU-04-ICS	Rainbow Trout	**70.812**	**29.496**	**6.191**	**70.753**	**29.437**	**6.17**	**71.135**	**29.822**	**6.307**
UDU-04-ICS	SM Bass	**70.753**	**29.437**	**6.17**	**70.694**	**29.377**	**6.149**	**71.076**	**29.763**	**6.286**
UDU-04-ICS	Sturgeon	**70.664**	**29.348**	**6.138**	**70.605**	**29.288**	**6.118**	**70.989**	**29.674**	**6.254**
UDU-04-ICS	Sucker	**71.856**	**30.563**	**6.574**	**71.799**	**30.504**	**6.553**	**72.169**	**30.889**	**6.694**
UDU-04-ICS	Walleye	**70.842**	**29.526**	**6.201**	**70.783**	**29.466**	**6.18**	**71.164**	**29.852**	**6.317**
UDU-04-ICS	Whitefish	**70.694**	**29.377**	**6.149**	**70.635**	**29.318**	**6.128**	**71.018**	**29.704**	**6.264**
UDU-05-ICS	Burbot	**15.055**	1.696	0.09	**14.963**	1.68	0.089	**15.568**	1.79	0.097
UDU-05-ICS	Kokanee	**14.778**	1.647	0.087	**14.686**	1.63	0.085	**15.288**	1.739	0.093
UDU-05-ICS	N. Pike	**14.778**	1.647	0.087	**14.686**	1.63	0.085	**15.288**	1.739	0.093
UDU-05-ICS	Rainbow Trout	**15.055**	1.696	0.09	**14.963**	1.68	0.089	**15.568**	1.79	0.097
UDU-05-ICS	SM Bass	**14.963**	1.68	0.089	**14.87**	1.663	0.088	**15.475**	1.773	0.096
UDU-05-ICS	Sturgeon	**14.824**	1.655	0.087	**14.732**	1.639	0.086	**15.334**	1.747	0.094
UDU-05-ICS	Sucker	**16.755**	2.015	0.114	**16.659**	1.996	0.113	**17.285**	2.119	0.122

Lead Risk Calculations for Child Recreational Visitors at Bossburg Flat Beach UDUs, with Fish Consumption

UDU	Fish	Beach Trips			Boat Trips			Camping		
		P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
UDU-05-ICS	Walleye	**15.102**	1.705	0.091	**15.009**	1.688	0.09	**15.615**	1.799	0.098
UDU-05-ICS	Whitefish	**14.87**	1.663	0.088	**14.778**	1.647	0.087	**15.381**	1.756	0.094
UDU-06-ICS	Burbot	**14.407**	1.581	0.082	**14.316**	1.566	0.081	**14.913**	1.671	0.088
UDU-06-ICS	Kokanee	**14.134**	1.534	0.079	**14.043**	1.519	0.077	**14.636**	1.622	0.085
UDU-06-ICS	N. Pike	**14.134**	1.534	0.079	**14.043**	1.519	0.077	**14.636**	1.622	0.085
UDU-06-ICS	Rainbow Trout	**14.407**	1.581	0.082	**14.316**	1.566	0.081	**14.913**	1.671	0.088
UDU-06-ICS	SM Bass	**14.316**	1.566	0.081	**14.225**	1.55	0.08	**14.82**	1.654	0.087
UDU-06-ICS	Sturgeon	**14.179**	1.542	0.079	**14.089**	1.526	0.078	**14.682**	1.63	0.085
UDU-06-ICS	Sucker	**16.083**	1.886	0.104	**15.988**	1.868	0.103	**16.607**	1.986	0.112
UDU-06-ICS	Walleye	**14.453**	1.589	0.082	**14.362**	1.574	0.081	**14.959**	1.679	0.089
UDU-06-ICS	Whitefish	**14.225**	1.55	0.08	**14.134**	1.534	0.079	**14.728**	1.638	0.086

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/24/2020
Site Name: UCR
Operable Unit: Recreational Visitor, Beach Trips to Bossburg Flat Beach UDUs, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: UDU Beachgoers SED SWIM FISH MHF_08`28`2019.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
UDU-01-ICS														
1	None	0	0	32	173.2	92.6	0.9	0.02	0.12	0	1.99	**19.11**	2.496	0.153
1a	Burbot	0	0	32	173.2	92.6	0.9	0.02	0.19	0	2	**19.459**	2.571	0.16
1b	Kokanee	0	0	32	173.2	92.6	0.9	0.02	0.13	0	1.99	**19.16**	2.506	0.154
1c	N. Pike	0	0	32	173.2	92.6	0.9	0.02	0.13	0	1.99	**19.16**	2.506	0.154
1d	Rainbow Trout	0	0	32	173.2	92.6	0.9	0.02	0.19	0	2	**19.459**	2.571	0.16
1e	SM Bass	0	0	32	173.2	92.6	0.9	0.02	0.17	0	2	**19.359**	2.549	0.158
1f	Sturgeon	0	0	32	173.2	92.6	0.9	0.02	0.14	0	1.99	**19.209**	2.517	0.155
1g	Sucker	0	0	32	173.2	92.6	0.9	0.02	0.55	0	2.06	**21.278**	2.981	0.197
1h	Walleye	0	0	32	173.2	92.6	0.9	0.02	0.2	0	2	**19.509**	2.582	0.161
1i	Whitefish	0	0	32	173.2	92.6	0.9	0.02	0.15	0	1.99	**19.259**	2.528	0.156
UDU-02-ICS														
2	None	0	0	32	198.3	92.6	0.9	0.02	0.12	0	2.07	**21.5**	**3.025**	**0.201**
2a	Burbot	0	0	32	198.3	92.6	0.9	0.02	0.19	0	2.08	**21.828**	3.11	0.209
2b	Kokanee	0	0	32	198.3	92.6	0.9	0.02	0.13	0	2.07	**21.521**	3.037	0.202
2c	N. Pike	0	0	32	198.3	92.6	0.9	0.02	0.13	0	2.07	**21.521**	3.037	0.202
2d	Rainbow Trout	0	0	32	198.3	92.6	0.9	0.02	0.19	0	2.08	**21.828**	3.11	0.209
2e	SM Bass	0	0	32	198.3	92.6	0.9	0.02	0.17	0	2.08	**21.726**	3.086	0.206
2f	Sturgeon	0	0	32	198.3	92.6	0.9	0.02	0.14	0	2.07	**21.572**	3.049	0.203
2g	Sucker	0	0	32	198.3	92.6	0.9	0.02	0.55	0	2.14	**23.689**	3.568	0.253
2h	Walleye	0	0	32	198.3	92.6	0.9	0.02	0.2	0	2.08	**21.88**	3.122	0.21
2i	Whitefish	0	0	32	198.3	92.6	0.9	0.02	0.15	0	2.07	**21.623**	3.062	0.204
UDU-03-ICS														
3	None	0	0	32	163.1	92.6	0.9	0.02	0.12	0	1.96	**18.184**	2.301	0.137
3a	Burbot	0	0	32	163.1	92.6	0.9	0.02	0.19	0	1.97	**18.529**	2.373	0.143
3b	Kokanee	0	0	32	163.1	92.6	0.9	0.02	0.13	0	1.96	**18.233**	2.311	0.138
3c	N. Pike	0	0	32	163.1	92.6	0.9	0.02	0.13	0	1.96	**18.233**	2.311	0.138
3d	Rainbow Trout	0	0	32	163.1	92.6	0.9	0.02	0.19	0	1.97	**18.529**	2.373	0.143
3e	SM Bass	0	0	32	163.1	92.6	0.9	0.02	0.17	0	1.97	**18.43**	2.352	0.141
3f	Sturgeon	0	0	32	163.1	92.6	0.9	0.02	0.14	0	1.96	**18.282**	2.321	0.139
3g	Sucker	0	0	32	163.1	92.6	0.9	0.02	0.55	0	2.03	**20.328**	2.763	0.177
3h	Walleye	0	0	32	163.1	92.6	0.9	0.02	0.2	0	1.97	**18.578**	2.383	0.144
3i	Whitefish	0	0	32	163.1	92.6	0.9	0.02	0.15	0	1.96	**18.332**	2.331	0.14
UDU-04-ICS														
4	None	0	0	32	791	92.6	0.9	0.02	0.12	0	3.87	**70.605**	**29.288**	**6.118**

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4a	Burbot	0	0	32	791	92.6	0.9	0.02	0.19	0	3.88	**70.812**	**29.496**	**6.191**
4b	Kokanee	0	0	32	791	92.6	0.9	0.02	0.13	0	3.87	**70.635**	**29.318**	**6.128**
4c	N. Pike	0	0	32	791	92.6	0.9	0.02	0.13	0	3.87	**70.635**	**29.318**	**6.128**
4d	Rainbow Trout	0	0	32	791	92.6	0.9	0.02	0.19	0	3.88	**70.812**	**29.496**	**6.191**
4e	SM Bass	0	0	32	791	92.6	0.9	0.02	0.17	0	3.88	**70.753**	**29.437**	**6.17**
4f	Sturgeon	0	0	32	791	92.6	0.9	0.02	0.14	0	3.87	**70.664**	**29.348**	**6.138**
4g	Sucker	0	0	32	791	92.6	0.9	0.02	0.55	0	3.94	**71.856**	**30.563**	**6.574**
4h	Walleye	0	0	32	791	92.6	0.9	0.02	0.2	0	3.88	**70.842**	**29.526**	**6.201**
4i	Whitefish	0	0	32	791	92.6	0.9	0.02	0.15	0	3.87	**70.694**	**29.377**	**6.149**
UDU-05-ICS														
5	None	0	0	32	124.2	92.6	0.9	0.02	0.12	0	1.83	**14.732**	1.639	0.086
5a	Burbot	0	0	32	124.2	92.6	0.9	0.02	0.19	0	1.85	**15.055**	1.696	0.09
5b	Kokanee	0	0	32	124.2	92.6	0.9	0.02	0.13	0	1.83	**14.778**	1.647	0.087
5c	N. Pike	0	0	32	124.2	92.6	0.9	0.02	0.13	0	1.83	**14.778**	1.647	0.087
5d	Rainbow Trout	0	0	32	124.2	92.6	0.9	0.02	0.19	0	1.85	**15.055**	1.696	0.09
5e	SM Bass	0	0	32	124.2	92.6	0.9	0.02	0.17	0	1.84	**14.963**	1.68	0.089
5f	Sturgeon	0	0	32	124.2	92.6	0.9	0.02	0.14	0	1.84	**14.824**	1.655	0.087
5g	Sucker	0	0	32	124.2	92.6	0.9	0.02	0.55	0	1.91	**16.755**	2.015	0.114
5h	Walleye	0	0	32	124.2	92.6	0.9	0.02	0.2	0	1.85	**15.102**	1.705	0.091
5i	Whitefish	0	0	32	124.2	92.6	0.9	0.02	0.15	0	1.84	**14.87**	1.663	0.088
UDU-06-ICS														
6	None	0	0	32	116.6	92.6	0.9	0.02	0.12	0	1.81	**14.089**	1.526	0.078
6a	Burbot	0	0	32	116.6	92.6	0.9	0.02	0.19	0	1.82	**14.407**	1.581	0.082
6b	Kokanee	0	0	32	116.6	92.6	0.9	0.02	0.13	0	1.81	**14.134**	1.534	0.079
6c	N. Pike	0	0	32	116.6	92.6	0.9	0.02	0.13	0	1.81	**14.134**	1.534	0.079
6d	Rainbow Trout	0	0	32	116.6	92.6	0.9	0.02	0.19	0	1.82	**14.407**	1.581	0.082
6e	SM Bass	0	0	32	116.6	92.6	0.9	0.02	0.17	0	1.82	**14.316**	1.566	0.081
6f	Sturgeon	0	0	32	116.6	92.6	0.9	0.02	0.14	0	1.81	**14.179**	1.542	0.079
6g	Sucker	0	0	32	116.6	92.6	0.9	0.02	0.55	0	1.88	**16.083**	1.886	0.104
6h	Walleye	0	0	32	116.6	92.6	0.9	0.02	0.2	0	1.82	**14.453**	1.589	0.082
6i	Whitefish	0	0	32	116.6	92.6	0.9	0.02	0.15	0	1.81	**14.225**	1.55	0.08

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/24/2020
Site Name: UCR
Operable Unit: Recreational Visitor, Boat Trips to Bossburg Flat Beach UDUs, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: 08`29`2019 boat 2015BeachSoil_SummaryStats_UDU SED SW FISH.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
UDU-01-ICS														
1	None	0	0	32	173.2	92.6	0.9	0.02	0.1	0	1.99	**19.01**	2.474	0.152
1a	Burbot	0	0	32	173.2	92.6	0.9	0.02	0.17	0	2	**19.359**	2.549	0.158
1b	Kokanee	0	0	32	173.2	92.6	0.9	0.02	0.11	0	1.99	**19.06**	2.485	0.153
1c	N. Pike	0	0	32	173.2	92.6	0.9	0.02	0.11	0	1.99	**19.06**	2.485	0.153
1d	Rainbow Trout	0	0	32	173.2	92.6	0.9	0.02	0.17	0	2	**19.359**	2.549	0.158
1e	SM Bass	0	0	32	173.2	92.6	0.9	0.02	0.15	0	1.99	**19.259**	2.528	0.156
1f	Sturgeon	0	0	32	173.2	92.6	0.9	0.02	0.12	0	1.99	**19.11**	2.496	0.153
1g	Sucker	0	0	32	173.2	92.6	0.9	0.02	0.53	0	2.06	**21.176**	2.957	0.194
1h	Walleye	0	0	32	173.2	92.6	0.9	0.02	0.18	0	2	**19.409**	2.56	0.159
1i	Whitefish	0	0	32	173.2	92.6	0.9	0.02	0.13	0	1.99	**19.16**	2.506	0.154
UDU-02-ICS														
2	None	0	0	32	198.3	92.6	0.9	0.02	0.1	0	2.07	**21.368**	3.001	0.198
2a	Burbot	0	0	32	198.3	92.6	0.9	0.02	0.17	0	2.08	**21.726**	3.086	0.206
2b	Kokanee	0	0	32	198.3	92.6	0.9	0.02	0.11	0	2.07	**21.419**	3.013	0.2
2c	N. Pike	0	0	32	198.3	92.6	0.9	0.02	0.11	0	2.07	**21.419**	3.013	0.2
2d	Rainbow Trout	0	0	32	198.3	92.6	0.9	0.02	0.17	0	2.08	**21.726**	3.086	0.206
2e	SM Bass	0	0	32	198.3	92.6	0.9	0.02	0.15	0	2.07	**21.623**	3.062	0.204
2f	Sturgeon	0	0	32	198.3	92.6	0.9	0.02	0.12	0	2.07	**21.47**	3.025	0.201
2g	Sucker	0	0	32	198.3	92.6	0.9	0.02	0.53	0	2.14	**23.585**	3.541	0.25
2h	Walleye	0	0	32	198.3	92.6	0.9	0.02	0.18	0	2.08	**21.777**	3.098	0.207
2i	Whitefish	0	0	32	198.3	92.6	0.9	0.02	0.13	0	2.07	**21.521**	3.037	0.202
UDU-03-ICS														
3	None	0	0	32	163.1	92.6	0.9	0.02	0.1	0	1.95	**18.086**	2.281	0.135
3a	Burbot	0	0	32	163.1	92.6	0.9	0.02	0.17	0	1.97	**18.43**	2.352	0.141
3b	Kokanee	0	0	32	163.1	92.6	0.9	0.02	0.11	0	1.96	**18.135**	2.291	0.136
3c	N. Pike	0	0	32	163.1	92.6	0.9	0.02	0.11	0	1.96	**18.135**	2.291	0.136
3d	Rainbow Trout	0	0	32	163.1	92.6	0.9	0.02	0.17	0	1.97	**18.43**	2.352	0.141
3e	SM Bass	0	0	32	163.1	92.6	0.9	0.02	0.15	0	1.96	**18.332**	2.331	0.14
3f	Sturgeon	0	0	32	163.1	92.6	0.9	0.02	0.12	0	1.96	**18.184**	2.301	0.137
3g	Sucker	0	0	32	163.1	92.6	0.9	0.02	0.53	0	2.03	**20.227**	2.74	0.175
3h	Walleye	0	0	32	163.1	92.6	0.9	0.02	0.18	0	1.97	**18.479**	2.362	0.142
3i	Whitefish	0	0	32	163.1	92.6	0.9	0.02	0.13	0	1.96	**18.233**	2.311	0.138
UDU-04-ICS														
4	None	0	0	32	791	92.6	0.9	0.02	0.1	0	3.87	**70.545**	**29.229**	**6.097**
4a	Burbot	0	0	32	791	92.6	0.9	0.02	0.17	0	3.88	**70.753**	**29.437**	**6.17**

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4b	Kokanee	0	0	32	791	92.6	0.9	0.02	0.11	0	3.87	**70.575**	**29.259**	**6.107**
4c	N. Pike	0	0	32	791	92.6	0.9	0.02	0.11	0	3.87	**70.575**	**29.259**	**6.107**
4d	Rainbow Trout	0	0	32	791	92.6	0.9	0.02	0.17	0	3.88	**70.753**	**29.437**	**6.17**
4e	SM Bass	0	0	32	791	92.6	0.9	0.02	0.15	0	3.87	**70.694**	**29.377**	**6.149**
4f	Sturgeon	0	0	32	791	92.6	0.9	0.02	0.12	0	3.87	**70.605**	**29.288**	**6.118**
4g	Sucker	0	0	32	791	92.6	0.9	0.02	0.53	0	3.93	**71.799**	**30.504**	**6.553**
4h	Walleye	0	0	32	791	92.6	0.9	0.02	0.18	0	3.88	**70.783**	**29.466**	**6.18**
4i	Whitefish	0	0	32	791	92.6	0.9	0.02	0.13	0	3.87	**70.635**	**29.318**	**6.128**
UDU-05-ICS														
5	None	0	0	32	124.2	92.6	0.9	0.02	0.1	0	1.83	**14.64**	1.622	0.085
5a	Burbot	0	0	32	124.2	92.6	0.9	0.02	0.17	0	1.84	**14.963**	1.68	0.089
5b	Kokanee	0	0	32	124.2	92.6	0.9	0.02	0.11	0	1.83	**14.686**	1.63	0.085
5c	N. Pike	0	0	32	124.2	92.6	0.9	0.02	0.11	0	1.83	**14.686**	1.63	0.085
5d	Rainbow Trout	0	0	32	124.2	92.6	0.9	0.02	0.17	0	1.84	**14.963**	1.68	0.089
5e	SM Bass	0	0	32	124.2	92.6	0.9	0.02	0.15	0	1.84	**14.87**	1.663	0.088
5f	Sturgeon	0	0	32	124.2	92.6	0.9	0.02	0.12	0	1.83	**14.732**	1.639	0.086
5g	Sucker	0	0	32	124.2	92.6	0.9	0.02	0.53	0	1.9	**16.659**	1.996	0.113
5h	Walleye	0	0	32	124.2	92.6	0.9	0.02	0.18	0	1.84	**15.009**	1.688	0.09
5i	Whitefish	0	0	32	124.2	92.6	0.9	0.02	0.13	0	1.83	**14.778**	1.647	0.087
UDU-06-ICS														
6	None	0	0	32	116.6	92.6	0.9	0.02	0.1	0	1.81	**13.998**	1.511	0.077
6a	Burbot	0	0	32	116.6	92.6	0.9	0.02	0.17	0	1.82	**14.316**	1.566	0.081
6b	Kokanee	0	0	32	116.6	92.6	0.9	0.02	0.11	0	1.81	**14.043**	1.519	0.077
6c	N. Pike	0	0	32	116.6	92.6	0.9	0.02	0.11	0	1.81	**14.043**	1.519	0.077
6d	Rainbow Trout	0	0	32	116.6	92.6	0.9	0.02	0.17	0	1.82	**14.316**	1.566	0.081
6e	SM Bass	0	0	32	116.6	92.6	0.9	0.02	0.15	0	1.81	**14.225**	1.55	0.08
6f	Sturgeon	0	0	32	116.6	92.6	0.9	0.02	0.12	0	1.81	**14.089**	1.526	0.078
6g	Sucker	0	0	32	116.6	92.6	0.9	0.02	0.53	0	1.88	**15.988**	1.868	0.103
6h	Walleye	0	0	32	116.6	92.6	0.9	0.02	0.18	0	1.82	**14.362**	1.574	0.081
6i	Whitefish	0	0	32	116.6	92.6	0.9	0.02	0.13	0	1.81	**14.134**	1.534	0.079

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/24/2020
Site Name: UCR
Operable Unit: Recreational Visitor, Camping Trips to Bossburg Flat Beach UDUs, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: 08`29`2019 Campers UDU SED SW FISH.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
UDU-01-ICS														
1	None	0	0	32	173.2	92.6	0.9	0.02	0.23	0	2.01	**19.659**	2.615	0.164
1a	Burbot	0	0	32	173.2	92.6	0.9	0.02	0.3	0	2.02	**20.011**	2.692	0.171
1b	Kokanee	0	0	32	173.2	92.6	0.9	0.02	0.24	0	2.01	**19.709**	2.626	0.165
1c	N. Pike	0	0	32	173.2	92.6	0.9	0.02	0.24	0	2.01	**19.709**	2.626	0.165
1d	Rainbow Trout	0	0	32	173.2	92.6	0.9	0.02	0.3	0	2.02	**20.011**	2.692	0.171
1e	SM Bass	0	0	32	173.2	92.6	0.9	0.02	0.28	0	2.02	**19.91**	2.67	0.169
1f	Sturgeon	0	0	32	173.2	92.6	0.9	0.02	0.25	0	2.01	**19.76**	2.637	0.166
1g	Sucker	0	0	32	173.2	92.6	0.9	0.02	0.66	0	2.08	**21.841**	3.113	0.209
1h	Walleye	0	0	32	173.2	92.6	0.9	0.02	0.31	0	2.02	**20.061**	2.703	0.172
1i	Whitefish	0	0	32	173.2	92.6	0.9	0.02	0.26	0	2.01	**19.81**	2.648	0.167
UDU-02-ICS														
2	None	0	0	32	198.3	92.6	0.9	0.02	0.23	0	2.09	**22.034**	3.159	0.213
2a	Burbot	0	0	32	198.3	92.6	0.9	0.02	0.3	0	2.1	**22.394**	3.246	0.222
2b	Kokanee	0	0	32	198.3	92.6	0.9	0.02	0.24	0	2.09	**22.085**	3.171	0.214
2c	N. Pike	0	0	32	198.3	92.6	0.9	0.02	0.24	0	2.09	**22.085**	3.171	0.214
2d	Rainbow Trout	0	0	32	198.3	92.6	0.9	0.02	0.3	0	2.1	**22.394**	3.246	0.222
2e	SM Bass	0	0	32	198.3	92.6	0.9	0.02	0.28	0	2.1	**22.291**	3.221	0.219
2f	Sturgeon	0	0	32	198.3	92.6	0.9	0.02	0.25	0	2.09	**22.137**	3.184	0.216
2g	Sucker	0	0	32	198.3	92.6	0.9	0.02	0.66	0	2.16	**24.262**	3.715	0.268
2h	Walleye	0	0	32	198.3	92.6	0.9	0.02	0.31	0	2.1	**22.446**	3.259	0.223
2i	Whitefish	0	0	32	198.3	92.6	0.9	0.02	0.26	0	2.09	**22.188**	3.196	0.217
UDU-03-ICS														
3	None	0	0	32	163.1	92.6	0.9	0.02	0.23	0	1.98	**18.727**	2.414	0.147
3a	Burbot	0	0	32	163.1	92.6	0.9	0.02	0.3	0	1.99	**19.074**	2.488	0.153
3b	Kokanee	0	0	32	163.1	92.6	0.9	0.02	0.24	0	1.98	**18.776**	2.425	0.147
3c	N. Pike	0	0	32	163.1	92.6	0.9	0.02	0.24	0	1.98	**18.776**	2.425	0.147
3d	Rainbow Trout	0	0	32	163.1	92.6	0.9	0.02	0.3	0	1.99	**19.074**	2.488	0.153
3e	SM Bass	0	0	32	163.1	92.6	0.9	0.02	0.28	0	1.98	**18.975**	2.467	0.151
3f	Sturgeon	0	0	32	163.1	92.6	0.9	0.02	0.25	0	1.98	**18.826**	2.435	0.148
3g	Sucker	0	0	32	163.1	92.6	0.9	0.02	0.66	0	2.05	**20.885**	2.89	0.188
3h	Walleye	0	0	32	163.1	92.6	0.9	0.02	0.31	0	1.99	**19.124**	2.499	0.154
3i	Whitefish	0	0	32	163.1	92.6	0.9	0.02	0.26	0	1.98	**18.875**	2.446	0.149
UDU-04-ICS														
4	None	0	0	32	791	92.6	0.9	0.02	0.23	0	3.89	**70.93**	**29.615**	**6.233**
4a	Burbot	0	0	32	791	92.6	0.9	0.02	0.3	0	3.9	**71.135**	**29.822**	**6.307**

4b	Kokanee	0	0	32	791	92.6	0.9	0.02	0.24	0	3.89	**70.959**	**29.644**	**6.243**
4c	N. Pike	0	0	32	791	92.6	0.9	0.02	0.24	0	3.89	**70.959**	**29.644**	**6.243**
4d	Rainbow Trout	0	0	32	791	92.6	0.9	0.02	0.3	0	3.9	**71.135**	**29.822**	**6.307**
4e	SM Bass	0	0	32	791	92.6	0.9	0.02	0.28	0	3.9	**71.076**	**29.763**	**6.286**
4f	Sturgeon	0	0	32	791	92.6	0.9	0.02	0.25	0	3.89	**70.989**	**29.674**	**6.254**
4g	Sucker	0	0	32	791	92.6	0.9	0.02	0.66	0	3.95	**72.169**	**30.889**	**6.694**
4h	Walleye	0	0	32	791	92.6	0.9	0.02	0.31	0	3.9	**71.164**	**29.852**	**6.317**
4i	Whitefish	0	0	32	791	92.6	0.9	0.02	0.26	0	3.89	**71.018**	**29.704**	**6.264**
UDU-05-ICS														
5	None	0	0	32	124.2	92.6	0.9	0.02	0.23	0	1.85	**15.241**	1.73	0.093
5a	Burbot	0	0	32	124.2	92.6	0.9	0.02	0.3	0	1.86	**15.568**	1.79	0.097
5b	Kokanee	0	0	32	124.2	92.6	0.9	0.02	0.24	0	1.85	**15.288**	1.739	0.093
5c	N. Pike	0	0	32	124.2	92.6	0.9	0.02	0.24	0	1.85	**15.288**	1.739	0.093
5d	Rainbow Trout	0	0	32	124.2	92.6	0.9	0.02	0.3	0	1.86	**15.568**	1.79	0.097
5e	SM Bass	0	0	32	124.2	92.6	0.9	0.02	0.28	0	1.86	**15.475**	1.773	0.096
5f	Sturgeon	0	0	32	124.2	92.6	0.9	0.02	0.25	0	1.86	**15.334**	1.747	0.094
5g	Sucker	0	0	32	124.2	92.6	0.9	0.02	0.66	0	1.93	**17.285**	2.119	0.122
5h	Walleye	0	0	32	124.2	92.6	0.9	0.02	0.31	0	1.87	**15.615**	1.799	0.098
5i	Whitefish	0	0	32	124.2	92.6	0.9	0.02	0.26	0	1.86	**15.381**	1.756	0.094
UDU-06-ICS														
6	None	0	0	32	116.6	92.6	0.9	0.02	0.23	0	1.83	**14.59**	1.614	0.084
6a	Burbot	0	0	32	116.6	92.6	0.9	0.02	0.3	0	1.84	**14.913**	1.671	0.088
6b	Kokanee	0	0	32	116.6	92.6	0.9	0.02	0.24	0	1.83	**14.636**	1.622	0.085
6c	N. Pike	0	0	32	116.6	92.6	0.9	0.02	0.24	0	1.83	**14.636**	1.622	0.085
6d	Rainbow Trout	0	0	32	116.6	92.6	0.9	0.02	0.3	0	1.84	**14.913**	1.671	0.088
6e	SM Bass	0	0	32	116.6	92.6	0.9	0.02	0.28	0	1.84	**14.82**	1.654	0.087
6f	Sturgeon	0	0	32	116.6	92.6	0.9	0.02	0.25	0	1.83	**14.682**	1.63	0.085
6g	Sucker	0	0	32	116.6	92.6	0.9	0.02	0.66	0	1.9	**16.607**	1.986	0.112
6h	Walleye	0	0	32	116.6	92.6	0.9	0.02	0.31	0	1.84	**14.959**	1.679	0.089
6i	Whitefish	0	0	32	116.6	92.6	0.9	0.02	0.26	0	1.83	**14.728**	1.638	0.086

Lead Risk Calculations for Child Recreational Visitors at Relict Floodplains, with Fish Consumption

		Beach Trips			Boat Trips			Camping		
RFDA	Fish	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
RFA-001	Burbot	**19.11**	2.496	0.153	**19.036**	2.48	0.152	**19.686**	2.62	0.164
RFA-001	Kokanee	**18.812**	2.432	0.148	**18.739**	2.417	0.147	**19.385**	2.555	0.159
RFA-001	N. Pike	**18.812**	2.432	0.148	**18.739**	2.417	0.147	**19.385**	2.555	0.159
RFA-001	Rainbow Trout	**19.11**	2.496	0.153	**19.036**	2.48	0.152	**19.686**	2.62	0.164
RFA-001	SM Bass	**19.011**	2.474	0.152	**18.937**	2.459	0.15	**19.585**	2.599	0.162
RFA-001	Sturgeon	**18.862**	2.443	0.149	**18.788**	2.427	0.148	**19.435**	2.566	0.16
RFA-001	Sucker	**20.922**	2.898	0.189	**20.847**	2.881	0.187	**21.51**	3.035	0.202
RFA-001	Walleye	**19.16**	2.506	0.154	**19.086**	2.491	0.153	**19.736**	2.631	0.165
RFA-001	Whitefish	**18.911**	2.453	0.15	**18.838**	2.438	0.149	**19.485**	2.577	0.16
RFA-002	Burbot	**16.92**	2.047	0.117	**16.852**	2.033	0.116	**17.48**	2.158	0.125
RFA-002	Kokanee	**16.632**	1.991	0.112	**16.564**	1.978	0.111	**17.189**	2.1	0.121
RFA-002	N. Pike	**16.632**	1.991	0.112	**16.564**	1.978	0.111	**17.189**	2.1	0.121
RFA-002	Rainbow Trout	**16.92**	2.047	0.117	**16.852**	2.033	0.116	**17.48**	2.158	0.125
RFA-002	SM Bass	**16.824**	2.028	0.115	**16.755**	2.015	0.114	**17.383**	2.138	0.124
RFA-002	Sturgeon	**16.68**	2	0.113	**16.612**	1.987	0.112	**17.237**	2.109	0.122
RFA-002	Sucker	**18.678**	2.404	0.146	**18.608**	2.389	0.144	**19.253**	2.526	0.156
RFA-002	Walleye	**16.968**	2.056	0.117	**16.9**	2.043	0.116	**17.529**	2.167	0.126
RFA-002	Whitefish	**16.728**	2.009	0.114	**16.66**	1.996	0.113	**17.286**	2.119	0.122
RFA-003	Burbot	**18.768**	2.423	0.147	**18.695**	2.407	0.146	**19.341**	2.545	0.158
RFA-003	Kokanee	**18.472**	2.361	0.142	**18.398**	2.345	0.141	**19.042**	2.481	0.152
RFA-003	N. Pike	**18.472**	2.361	0.142	**18.398**	2.345	0.141	**19.042**	2.481	0.152
RFA-003	Rainbow Trout	**18.768**	2.423	0.147	**18.695**	2.407	0.146	**19.341**	2.545	0.158
RFA-003	SM Bass	**18.669**	2.402	0.146	**18.596**	2.387	0.144	**19.241**	2.524	0.156
RFA-003	Sturgeon	**18.521**	2.371	0.143	**18.448**	2.356	0.142	**19.092**	2.492	0.153
RFA-003	Sucker	**20.573**	2.818	0.182	**20.498**	2.801	0.18	**21.158**	2.953	0.194
RFA-003	Walleye	**18.818**	2.433	0.148	**18.744**	2.418	0.147	**19.391**	2.556	0.159
RFA-003	Whitefish	**18.57**	2.381	0.144	**18.497**	2.366	0.143	**19.142**	2.502	0.154
RFA-004	Burbot	**17.487**	2.159	0.126	**17.418**	2.145	0.124	**18.052**	2.274	0.135
RFA-004	Kokanee	**17.196**	2.101	0.121	**17.127**	2.087	0.12	**17.759**	2.214	0.13
RFA-004	N. Pike	**17.196**	2.101	0.121	**17.127**	2.087	0.12	**17.759**	2.214	0.13
RFA-004	Rainbow Trout	**17.487**	2.159	0.126	**17.418**	2.145	0.124	**18.052**	2.274	0.135
RFA-004	SM Bass	**17.39**	2.14	0.124	**17.321**	2.126	0.123	**17.954**	2.254	0.133
RFA-004	Sturgeon	**17.245**	2.111	0.122	**17.176**	2.097	0.121	**17.807**	2.224	0.131
RFA-004	Sucker	**19.26**	2.528	0.156	**19.189**	2.513	0.155	**19.84**	2.654	0.167
RFA-004	Walleye	**17.536**	2.169	0.126	**17.466**	2.155	0.125	**18.101**	2.284	0.136
RFA-004	Whitefish	**17.293**	2.12	0.122	**17.224**	2.107	0.121	**17.856**	2.234	0.132
RFA-005	Burbot	**17.723**	2.207	0.129	**17.653**	2.192	0.128	**18.29**	2.323	0.139
RFA-005	Kokanee	**17.431**	2.148	0.125	**17.361**	2.134	0.124	**17.995**	2.262	0.134
RFA-005	N. Pike	**17.431**	2.148	0.125	**17.361**	2.134	0.124	**17.995**	2.262	0.134
RFA-005	Rainbow Trout	**17.723**	2.207	0.129	**17.653**	2.192	0.128	**18.29**	2.323	0.139
RFA-005	SM Bass	**17.625**	2.187	0.128	**17.556**	2.173	0.127	**18.191**	2.302	0.137
RFA-005	Sturgeon	**17.479**	2.157	0.125	**17.41**	2.144	0.124	**18.044**	2.272	0.135
RFA-005	Sucker	**19.502**	2.58	0.161	**19.431**	2.565	0.159	**20.083**	2.708	0.172
RFA-005	Walleye	**17.771**	2.216	0.13	**17.702**	2.202	0.129	**18.339**	2.333	0.14
RFA-005	Whitefish	**17.528**	2.167	0.126	**17.458**	2.153	0.125	**18.093**	2.282	0.136

Lead Risk Calculations for Child Recreational Visitors at Relict Floodplains, with Fish Consumption

		Beach Trips			Boat Trips			Camping		
RFDA	Fish	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
RFB-002	Burbot	**15.824**	1.837	0.101	**15.754**	1.824	0.1	**16.37**	1.94	0.108
RFB-002	Kokanee	**15.542**	1.785	0.097	**15.472**	1.772	0.096	**16.085**	1.886	0.104
RFB-002	N. Pike	**15.542**	1.785	0.097	**15.472**	1.772	0.096	**16.085**	1.886	0.104
RFB-002	Rainbow Trout	**15.824**	1.837	0.101	**15.754**	1.824	0.1	**16.37**	1.94	0.108
RFB-002	SM Bass	**15.73**	1.82	0.099	**15.66**	1.807	0.098	**16.274**	1.922	0.107
RFB-002	Sturgeon	**15.589**	1.794	0.097	**15.519**	1.781	0.096	**16.132**	1.895	0.105
RFB-002	Sucker	**17.549**	2.171	0.127	**17.477**	2.157	0.125	**18.112**	2.286	0.136
RFB-002	Walleye	**15.871**	1.846	0.101	**15.801**	1.833	0.1	**16.417**	1.949	0.109
RFB-002	Whitefish	**15.636**	1.802	0.098	**15.564**	1.789	0.097	**16.178**	1.904	0.106
RFB-003	Burbot	**15.17**	1.717	0.092	**15.099**	1.704	0.091	**15.706**	1.815	0.099
RFB-003	Kokanee	**14.892**	1.667	0.088	**14.821**	1.655	0.087	**15.425**	1.764	0.095
RFB-003	N. Pike	**14.892**	1.667	0.088	**14.821**	1.655	0.087	**15.425**	1.764	0.095
RFB-003	Rainbow Trout	**15.17**	1.717	0.092	**15.099**	1.704	0.091	**15.706**	1.815	0.099
RFB-003	SM Bass	**15.077**	1.7	0.09	**15.006**	1.688	0.09	**15.612**	1.798	0.098
RFB-003	Sturgeon	**14.938**	1.675	0.089	**14.868**	1.663	0.088	**15.472**	1.772	0.096
RFB-003	Sucker	**16.873**	2.038	0.116	**16.8**	2.023	0.115	**17.428**	2.147	0.125
RFB-003	Walleye	**15.216**	1.725	0.092	**15.145**	1.713	0.091	**15.753**	1.824	0.1
RFB-003	Whitefish	**14.984**	1.684	0.089	**14.914**	1.671	0.088	**15.519**	1.781	0.096
RFB-008	Burbot	**14.597**	1.615	0.084	**14.528**	1.603	0.083	**15.127**	1.709	0.091
RFB-008	Kokanee	**14.323**	1.567	0.081	**14.254**	1.555	0.08	**14.849**	1.66	0.087
RFB-008	N. Pike	**14.323**	1.567	0.081	**14.254**	1.555	0.08	**14.849**	1.66	0.087
RFB-008	Rainbow Trout	**14.597**	1.615	0.084	**14.528**	1.603	0.083	**15.127**	1.709	0.091
RFB-008	SM Bass	**14.506**	1.599	0.083	**14.436**	1.587	0.082	**15.034**	1.693	0.09
RFB-008	Sturgeon	**14.369**	1.575	0.081	**14.299**	1.563	0.081	**14.896**	1.668	0.088
RFB-008	Sucker	**16.28**	1.923	0.107	**16.208**	1.91	0.106	**16.829**	2.029	0.115
RFB-008	Walleye	**14.643**	1.623	0.085	**14.573**	1.611	0.084	**15.174**	1.718	0.092
RFB-008	Whitefish	**14.414**	1.583	0.082	**14.345**	1.571	0.081	**14.942**	1.676	0.089
RFC-003	Burbot	**18.856**	2.441	0.149	**18.781**	2.426	0.148	**19.428**	2.564	0.159
RFC-003	Kokanee	**18.559**	2.379	0.144	**18.484**	2.363	0.142	**19.128**	2.5	0.154
RFC-003	N. Pike	**18.559**	2.379	0.144	**18.484**	2.363	0.142	**19.128**	2.5	0.154
RFC-003	Rainbow Trout	**18.856**	2.441	0.149	**18.781**	2.426	0.148	**19.428**	2.564	0.159
RFC-003	SM Bass	**18.757**	2.42	0.147	**18.681**	2.405	0.146	**19.328**	2.543	0.157
RFC-003	Sturgeon	**18.608**	2.389	0.144	**18.533**	2.373	0.143	**19.178**	2.51	0.155
RFC-003	Sucker	**20.662**	2.839	0.184	**20.585**	2.821	0.182	**21.246**	2.973	0.196
RFC-003	Walleye	**18.905**	2.452	0.15	**18.83**	2.436	0.148	**19.478**	2.575	0.16
RFC-003	Whitefish	**18.658**	2.4	0.145	**18.583**	2.384	0.144	**19.228**	2.521	0.156
RFC-004	Burbot	**16.327**	1.932	0.108	**16.255**	1.918	0.107	**16.876**	2.038	0.116
RFC-004	Kokanee	**16.042**	1.878	0.104	**15.97**	1.865	0.103	**16.589**	1.982	0.112
RFC-004	N. Pike	**16.042**	1.878	0.104	**15.97**	1.865	0.103	**16.589**	1.982	0.112
RFC-004	Rainbow Trout	**16.327**	1.932	0.108	**16.255**	1.918	0.107	**16.876**	2.038	0.116
RFC-004	SM Bass	**16.232**	1.914	0.106	**16.16**	1.9	0.105	**16.78**	2.019	0.115
RFC-004	Sturgeon	**16.089**	1.887	0.104	**16.018**	1.874	0.103	**16.636**	1.992	0.112
RFC-004	Sucker	**18.068**	2.277	0.135	**17.993**	2.262	0.134	**18.633**	2.394	0.145
RFC-004	Walleye	**16.375**	1.941	0.108	**16.302**	1.927	0.107	**16.924**	2.048	0.117
RFC-004	Whitefish	**16.137**	1.896	0.105	**16.065**	1.882	0.104	**16.684**	2.001	0.113

Lead Risk Calculations for Child Recreational Visitors at Relict Floodplains, with Fish Consumption

		Beach Trips			Boat Trips			Camping		
RFDA	Fish	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)	P3 (%)	P5 (%)	P8 (%)
RFC-005	Burbot	**19.857**	2.658	0.168	**19.781**	2.641	0.166	**20.436**	2.787	0.179
RFC-005	Kokanee	**19.556**	2.592	0.162	**19.48**	2.576	0.16	**20.133**	2.719	0.173
RFC-005	N. Pike	**19.556**	2.592	0.162	**19.48**	2.576	0.16	**20.133**	2.719	0.173
RFC-005	Rainbow Trout	**19.857**	2.658	0.168	**19.781**	2.641	0.166	**20.436**	2.787	0.179
RFC-005	SM Bass	**19.757**	2.636	0.166	**19.681**	2.619	0.164	**20.335**	2.765	0.177
RFC-005	Sturgeon	**19.606**	2.603	0.163	**19.53**	2.587	0.161	**20.184**	2.731	0.174
RFC-005	Sucker	**21.685**	3.076	0.205	**21.607**	3.058	0.204	**22.274**	3.217	0.219
RFC-005	Walleye	**19.908**	2.669	0.169	**19.831**	2.652	0.167	**20.487**	2.799	0.18
RFC-005	Whitefish	**19.657**	2.614	0.164	**19.58**	2.597	0.162	**20.234**	2.742	0.175
RFC-006	Burbot	**18.179**	2.3	0.137	**18.104**	2.284	0.136	**18.745**	2.418	0.147
RFC-006	Kokanee	**17.885**	2.24	0.132	**17.81**	2.224	0.131	**18.449**	2.356	0.142
RFC-006	N. Pike	**17.885**	2.24	0.132	**17.81**	2.224	0.131	**18.449**	2.356	0.142
RFC-006	Rainbow Trout	**18.179**	2.3	0.137	**18.104**	2.284	0.136	**18.745**	2.418	0.147
RFC-006	SM Bass	**18.081**	2.28	0.135	**18.006**	2.264	0.134	**18.646**	2.397	0.145
RFC-006	Sturgeon	**17.934**	2.249	0.133	**17.859**	2.234	0.132	**18.498**	2.366	0.143
RFC-006	Sucker	**19.97**	2.683	0.17	**19.893**	2.666	0.168	**20.549**	2.813	0.181
RFC-006	Walleye	**18.228**	2.31	0.138	**18.153**	2.295	0.137	**18.795**	2.429	0.148
RFC-006	Whitefish	**17.983**	2.259	0.134	**17.908**	2.244	0.132	**18.547**	2.376	0.143
RFC-007	Burbot	**18.429**	2.352	0.141	**18.354**	2.336	0.14	**18.997**	2.472	0.151
RFC-007	Kokanee	**18.134**	2.291	0.136	**18.059**	2.275	0.135	**18.7**	2.408	0.146
RFC-007	N. Pike	**18.134**	2.291	0.136	**18.059**	2.275	0.135	**18.7**	2.408	0.146
RFC-007	Rainbow Trout	**18.429**	2.352	0.141	**18.354**	2.336	0.14	**18.997**	2.472	0.151
RFC-007	SM Bass	**18.33**	2.331	0.14	**18.256**	2.316	0.138	**18.898**	2.45	0.15
RFC-007	Sturgeon	**18.183**	2.301	0.137	**18.108**	2.285	0.136	**18.749**	2.419	0.147
RFC-007	Sucker	**20.226**	2.74	0.175	**20.149**	2.723	0.173	**20.807**	2.872	0.187
RFC-007	Walleye	**18.478**	2.362	0.142	**18.403**	2.346	0.141	**19.047**	2.482	0.152
RFC-007	Whitefish	**18.232**	2.311	0.138	**18.157**	2.295	0.137	**18.799**	2.429	0.148
RFC-008	Burbot	**18.124**	2.289	0.136	**18.05**	2.273	0.135	**18.69**	2.406	0.146
RFC-008	Kokanee	**17.83**	2.228	0.131	**17.756**	2.213	0.13	**18.394**	2.344	0.141
RFC-008	N. Pike	**17.83**	2.228	0.131	**17.756**	2.213	0.13	**18.394**	2.344	0.141
RFC-008	Rainbow Trout	**18.124**	2.289	0.136	**18.05**	2.273	0.135	**18.69**	2.406	0.146
RFC-008	SM Bass	**18.026**	2.268	0.134	**17.952**	2.253	0.133	**18.591**	2.386	0.144
RFC-008	Sturgeon	**17.879**	2.238	0.132	**17.805**	2.223	0.131	**18.443**	2.355	0.142
RFC-008	Sucker	**19.914**	2.671	0.169	**19.837**	2.654	0.167	**20.493**	2.8	0.18
RFC-008	Walleye	**18.173**	2.299	0.137	**18.099**	2.283	0.136	**18.74**	2.417	0.147
RFC-008	Whitefish	**17.928**	2.248	0.133	**17.854**	2.233	0.132	**18.492**	2.365	0.142
RFD-002	Burbot	**17.807**	2.224	0.131	**17.733**	2.209	0.13	**18.37**	2.339	0.14
RFD-002	Kokanee	**17.515**	2.165	0.126	**17.441**	2.15	0.125	**18.075**	2.279	0.135
RFD-002	N. Pike	**17.515**	2.165	0.126	**17.441**	2.15	0.125	**18.075**	2.279	0.135
RFD-002	Rainbow Trout	**17.807**	2.224	0.131	**17.733**	2.209	0.13	**18.37**	2.339	0.14
RFD-002	SM Bass	**17.709**	2.204	0.129	**17.635**	2.189	0.128	**18.272**	2.319	0.139
RFD-002	Sturgeon	**17.563**	2.174	0.127	**17.489**	2.16	0.126	**18.124**	2.289	0.136
RFD-002	Sucker	**19.589**	2.599	0.162	**19.513**	2.583	0.161	**20.166**	2.727	0.174
RFD-002	Walleye	**17.856**	2.234	0.132	**17.782**	2.219	0.13	**18.42**	2.35	0.141
RFD-002	Whitefish	**17.612**	2.184	0.128	**17.538**	2.169	0.126	**18.173**	2.299	0.137

Lead Risk Calculations for Child Recreational Visitors at Relict Floodplains, with Fish Consumption

		Beach Trips			Boat Trips			Camping		
RFDA	**Fish**	**P3 (%)**	**P5 (%)**	**P8 (%)**	**P3 (%)**	**P5 (%)**	**P8 (%)**	**P3 (%)**	**P5 (%)**	**P8 (%)**
RFD-003	Burbot	**17.717**	2.205	0.129	**17.643**	2.19	0.128	**18.28**	2.321	0.139
RFD-003	Kokanee	**17.425**	2.147	0.125	**17.351**	2.132	0.123	**17.985**	2.26	0.134
RFD-003	N. Pike	**17.425**	2.147	0.125	**17.351**	2.132	0.123	**17.985**	2.26	0.134
RFD-003	Rainbow Trout	**17.717**	2.205	0.129	**17.643**	2.19	0.128	**18.28**	2.321	0.139
RFD-003	SM Bass	**17.62**	2.186	0.128	**17.546**	2.171	0.127	**18.181**	2.3	0.137
RFD-003	Sturgeon	**17.474**	2.156	0.125	**17.4**	2.142	0.124	**18.034**	2.27	0.135
RFD-003	Sucker	**19.496**	2.579	0.161	**19.421**	2.563	0.159	**20.073**	2.706	0.172
RFD-003	Walleye	**17.766**	2.215	0.13	**17.692**	2.2	0.129	**18.329**	2.331	0.14
RFD-003	Whitefish	**17.522**	2.166	0.126	**17.448**	2.151	0.125	**18.083**	2.28	0.135

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 8/29/2019
Site Name: UCR
Operable Unit: Recreational Visitor, Beach Visits to Relict Floodplains, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: RF Beach UPSOIL_SED SW FISH MHF_08`29`2019.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
RFA-001														
1	no fish	0	0	32	169.7	92.6	0.9	0.02	0.12	0	1.98	**18.762**	2.422	0.147
1a	burbot	0	0	32	169.7	92.6	0.9	0.02	0.19	0	1.99	**19.11**	2.496	0.153
1b	kokanee	0	0	32	169.7	92.6	0.9	0.02	0.13	0	1.98	**18.812**	2.432	0.148
1c	northern pike	0	0	32	169.7	92.6	0.9	0.02	0.13	0	1.98	**18.812**	2.432	0.148
1d	rainbow trout	0	0	32	169.7	92.6	0.9	0.02	0.19	0	1.99	**19.11**	2.496	0.153
1e	smallmouth bass	0	0	32	169.7	92.6	0.9	0.02	0.17	0	1.99	**19.011**	2.474	0.152
1f	sturgeon	0	0	32	169.7	92.6	0.9	0.02	0.14	0	1.98	**18.862**	2.443	0.149
1g	sucker	0	0	32	169.7	92.6	0.9	0.02	0.55	0	2.05	**20.922**	2.898	0.189
1h	walleye	0	0	32	169.7	92.6	0.9	0.02	0.2	0	1.99	**19.16**	2.506	0.154
1i	whitefish	0	0	32	169.7	92.6	0.9	0.02	0.15	0	1.98	**18.911**	2.453	0.15
RFA-002														
2	no fish	0	0	32	145.6	92.6	0.9	0.02	0.12	0	1.9	**16.584**	1.982	0.112
2a	burbot	0	0	32	145.6	92.6	0.9	0.02	0.19	0	1.91	**16.92**	2.047	0.117
2b	kokanee	0	0	32	145.6	92.6	0.9	0.02	0.13	0	1.9	**16.632**	1.991	0.112
2c	northern pike	0	0	32	145.6	92.6	0.9	0.02	0.13	0	1.9	**16.632**	1.991	0.112
2d	rainbow trout	0	0	32	145.6	92.6	0.9	0.02	0.19	0	1.91	**16.92**	2.047	0.117
2e	smallmouth bass	0	0	32	145.6	92.6	0.9	0.02	0.17	0	1.91	**16.824**	2.028	0.115
2f	sturgeon	0	0	32	145.6	92.6	0.9	0.02	0.14	0	1.9	**16.68**	2	0.113
2g	sucker	0	0	32	145.6	92.6	0.9	0.02	0.55	0	1.97	**18.678**	2.404	0.146
2h	walleye	0	0	32	145.6	92.6	0.9	0.02	0.2	0	1.91	**16.968**	2.056	0.117
2i	whitefish	0	0	32	145.6	92.6	0.9	0.02	0.15	0	1.91	**16.728**	2.009	0.114
RFA-003														
3	no fish	0	0	32	166	92.6	0.9	0.02	0.12	0	1.97	**18.422**	2.35	0.141
3a	burbot	0	0	32	166	92.6	0.9	0.02	0.19	0	1.98	**18.768**	2.423	0.147
3b	kokanee	0	0	32	166	92.6	0.9	0.02	0.13	0	1.97	**18.472**	2.361	0.142
3c	northern pike	0	0	32	166	92.6	0.9	0.02	0.13	0	1.97	**18.472**	2.361	0.142
3d	rainbow trout	0	0	32	166	92.6	0.9	0.02	0.19	0	1.98	**18.768**	2.423	0.147
3e	smallmouth bass	0	0	32	166	92.6	0.9	0.02	0.17	0	1.97	**18.669**	2.402	0.146
3f	sturgeon	0	0	32	166	92.6	0.9	0.02	0.14	0	1.97	**18.521**	2.371	0.143
3g	sucker	0	0	32	166	92.6	0.9	0.02	0.55	0	2.04	**20.573**	2.818	0.182
3h	walleye	0	0	32	166	92.6	0.9	0.02	0.2	0	1.98	**18.818**	2.433	0.148
3i	whitefish	0	0	32	166	92.6	0.9	0.02	0.15	0	1.97	**18.57**	2.381	0.144
RFA-004														
4	no fish	0	0	32	151.9	92.6	0.9	0.02	0.12	0	1.92	**17.148**	2.092	0.12
4a	burbot	0	0	32	151.9	92.6	0.9	0.02	0.19	0	1.93	**17.487**	2.159	0.126

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4b	kokanee	0	0	32	151.9	92.6	0.9	0.02	0.13	0	1.92	**17.196**	2.101	0.121
4c	northern pike	0	0	32	151.9	92.6	0.9	0.02	0.13	0	1.92	**17.196**	2.101	0.121
4d	rainbow trout	0	0	32	151.9	92.6	0.9	0.02	0.19	0	1.93	**17.487**	2.159	0.126
4e	smallmouth bass	0	0	32	151.9	92.6	0.9	0.02	0.17	0	1.93	**17.39**	2.14	0.124
4f	sturgeon	0	0	32	151.9	92.6	0.9	0.02	0.14	0	1.92	**17.245**	2.111	0.122
4g	sucker	0	0	32	151.9	92.6	0.9	0.02	0.55	0	1.99	**19.26**	2.528	0.156
4h	walleye	0	0	32	151.9	92.6	0.9	0.02	0.2	0	1.93	**17.536**	2.169	0.126
4i	whitefish	0	0	32	151.9	92.6	0.9	0.02	0.15	0	1.93	**17.293**	2.12	0.122
RFA-005														
5	no fish	0	0	32	154.6	92.6	0.9	0.02	0.12	0	1.93	**17.382**	2.138	0.124
5a	burbot	0	0	32	154.6	92.6	0.9	0.02	0.19	0	1.94	**17.723**	2.207	0.129
5b	kokanee	0	0	32	154.6	92.6	0.9	0.02	0.13	0	1.93	**17.431**	2.148	0.125
5c	northern pike	0	0	32	154.6	92.6	0.9	0.02	0.13	0	1.93	**17.431**	2.148	0.125
5d	rainbow trout	0	0	32	154.6	92.6	0.9	0.02	0.19	0	1.94	**17.723**	2.207	0.129
5e	smallmouth bass	0	0	32	154.6	92.6	0.9	0.02	0.17	0	1.94	**17.625**	2.187	0.128
5f	sturgeon	0	0	32	154.6	92.6	0.9	0.02	0.14	0	1.93	**17.479**	2.157	0.125
5g	sucker	0	0	32	154.6	92.6	0.9	0.02	0.55	0	2	**19.502**	2.58	0.161
5h	walleye	0	0	32	154.6	92.6	0.9	0.02	0.2	0	1.94	**17.771**	2.216	0.13
5i	whitefish	0	0	32	154.6	92.6	0.9	0.02	0.15	0	1.93	**17.528**	2.167	0.126
RFB-002														
6	no fish	0	0	32	133.3	92.6	0.9	0.02	0.12	0	1.86	**15.495**	1.776	0.096
6a	burbot	0	0	32	133.3	92.6	0.9	0.02	0.19	0	1.87	**15.824**	1.837	0.101
6b	kokanee	0	0	32	133.3	92.6	0.9	0.02	0.13	0	1.86	**15.542**	1.785	0.097
6c	northern pike	0	0	32	133.3	92.6	0.9	0.02	0.13	0	1.86	**15.542**	1.785	0.097
6d	rainbow trout	0	0	32	133.3	92.6	0.9	0.02	0.19	0	1.87	**15.824**	1.837	0.101
6e	smallmouth bass	0	0	32	133.3	92.6	0.9	0.02	0.17	0	1.87	**15.73**	1.82	0.099
6f	sturgeon	0	0	32	133.3	92.6	0.9	0.02	0.14	0	1.86	**15.589**	1.794	0.097
6g	sucker	0	0	32	133.3	92.6	0.9	0.02	0.55	0	1.94	**17.549**	2.171	0.127
6h	walleye	0	0	32	133.3	92.6	0.9	0.02	0.2	0	1.88	**15.871**	1.846	0.101
6i	whitefish	0	0	32	133.3	92.6	0.9	0.02	0.15	0	1.87	**15.636**	1.802	0.098
RFB-003														
7	no fish	0	0	32	125.8	92.6	0.9	0.02	0.12	0	1.84	**14.845**	1.659	0.087
7a	burbot	0	0	32	125.8	92.6	0.9	0.02	0.19	0	1.85	**15.17**	1.717	0.092
7b	kokanee	0	0	32	125.8	92.6	0.9	0.02	0.13	0	1.84	**14.892**	1.667	0.088
7c	northern pike	0	0	32	125.8	92.6	0.9	0.02	0.13	0	1.84	**14.892**	1.667	0.088
7d	rainbow trout	0	0	32	125.8	92.6	0.9	0.02	0.19	0	1.85	**15.17**	1.717	0.092
7e	smallmouth bass	0	0	32	125.8	92.6	0.9	0.02	0.17	0	1.85	**15.077**	1.7	0.09
7f	sturgeon	0	0	32	125.8	92.6	0.9	0.02	0.14	0	1.84	**14.938**	1.675	0.089
7g	sucker	0	0	32	125.8	92.6	0.9	0.02	0.55	0	1.91	**16.873**	2.038	0.116
7h	walleye	0	0	32	125.8	92.6	0.9	0.02	0.2	0	1.85	**15.216**	1.725	0.092
7i	whitefish	0	0	32	125.8	92.6	0.9	0.02	0.15	0	1.84	**14.984**	1.684	0.089
RFB-008														
8	no fish	0	0	32	119.1	92.6	0.9	0.02	0.12	0	1.82	**14.277**	1.559	0.08
8a	burbot	0	0	32	119.1	92.6	0.9	0.02	0.19	0	1.83	**14.597**	1.615	0.084
8b	kokanee	0	0	32	119.1	92.6	0.9	0.02	0.13	0	1.82	**14.323**	1.567	0.081
8c	northern pike	0	0	32	119.1	92.6	0.9	0.02	0.13	0	1.82	**14.323**	1.567	0.081
8d	rainbow trout	0	0	32	119.1	92.6	0.9	0.02	0.19	0	1.83	**14.597**	1.615	0.084
8e	smallmouth bass	0	0	32	119.1	92.6	0.9	0.02	0.17	0	1.82	**14.506**	1.599	0.083
8f	sturgeon	0	0	32	119.1	92.6	0.9	0.02	0.14	0	1.82	**14.369**	1.575	0.081
8g	sucker	0	0	32	119.1	92.6	0.9	0.02	0.55	0	1.89	**16.28**	1.923	0.107
8h	walleye	0	0	32	119.1	92.6	0.9	0.02	0.2	0	1.83	**14.643**	1.623	0.085
8i	whitefish	0	0	32	119.1	92.6	0.9	0.02	0.15	0	1.82	**14.414**	1.583	0.082
RFC-003														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
9	no fish	0	0	32	166.9	92.6	0.9	0.02	0.12	0	1.97	**18.509**	2.369	0.143
9a	burbot	0	0	32	166.9	92.6	0.9	0.02	0.19	0	1.98	**18.856**	2.441	0.149
9b	kokanee	0	0	32	166.9	92.6	0.9	0.02	0.13	0	1.97	**18.559**	2.379	0.144
9c	northern pike	0	0	32	166.9	92.6	0.9	0.02	0.13	0	1.97	**18.559**	2.379	0.144
9d	rainbow trout	0	0	32	166.9	92.6	0.9	0.02	0.19	0	1.98	**18.856**	2.441	0.149
9e	smallmouth bass	0	0	32	166.9	92.6	0.9	0.02	0.17	0	1.98	**18.757**	2.42	0.147
9f	sturgeon	0	0	32	166.9	92.6	0.9	0.02	0.14	0	1.97	**18.608**	2.389	0.144
9g	sucker	0	0	32	166.9	92.6	0.9	0.02	0.55	0	2.04	**20.662**	2.839	0.184
9g	walleye	0	0	32	166.9	92.6	0.9	0.02	0.2	0	1.98	**18.905**	2.452	0.15
9i	whitefish	0	0	32	166.9	92.6	0.9	0.02	0.15	0	1.97	**18.658**	2.4	0.145
RFC-004														
10	no fish	0	0	32	139	92.6	0.9	0.02	0.12	0	1.88	**15.995**	1.869	0.103
10a	burbot	0	0	32	139	92.6	0.9	0.02	0.19	0	1.89	**16.327**	1.932	0.108
10b	kokanee	0	0	32	139	92.6	0.9	0.02	0.13	0	1.88	**16.042**	1.878	0.104
10c	northern pike	0	0	32	139	92.6	0.9	0.02	0.13	0	1.88	**16.042**	1.878	0.104
10d	rainbow trout	0	0	32	139	92.6	0.9	0.02	0.19	0	1.89	**16.327**	1.932	0.108
10e	smallmouth bass	0	0	32	139	92.6	0.9	0.02	0.17	0	1.89	**16.232**	1.914	0.106
10f	sturgeon	0	0	32	139	92.6	0.9	0.02	0.14	0	1.88	**16.089**	1.887	0.104
10g	sucker	0	0	32	139	92.6	0.9	0.02	0.55	0	1.95	**18.068**	2.277	0.135
10h	walleye	0	0	32	139	92.6	0.9	0.02	0.2	0	1.89	**16.375**	1.941	0.108
10i	whitefish	0	0	32	139	92.6	0.9	0.02	0.15	0	1.88	**16.137**	1.896	0.105
RFC-005														
11	no fish	0	0	32	177.7	92.6	0.9	0.02	0.12	0	2	**19.506**	2.581	0.161
11a	burbot	0	0	32	177.7	92.6	0.9	0.02	0.19	0	2.02	**19.857**	2.658	0.168
11b	kokanee	0	0	32	177.7	92.6	0.9	0.02	0.13	0	2	**19.556**	2.592	0.162
11c	northern pike	0	0	32	177.7	92.6	0.9	0.02	0.13	0	2	**19.556**	2.592	0.162
11d	rainbow trout	0	0	32	177.7	92.6	0.9	0.02	0.19	0	2.02	**19.857**	2.658	0.168
11e	smallmouth bass	0	0	32	177.7	92.6	0.9	0.02	0.17	0	2.01	**19.757**	2.636	0.166
11f	sturgeon	0	0	32	177.7	92.6	0.9	0.02	0.14	0	2.01	**19.606**	2.603	0.163
11g	sucker	0	0	32	177.7	92.6	0.9	0.02	0.55	0	2.08	**21.685**	3.076	0.205
11h	walleye	0	0	32	177.7	92.6	0.9	0.02	0.2	0	2.02	**19.908**	2.669	0.169
11i	whitefish	0	0	32	177.7	92.6	0.9	0.02	0.15	0	2.01	**19.657**	2.614	0.164
RFC-006														
12	no fish	0	0	32	159.6	92.6	0.9	0.02	0.12	0	1.95	**17.836**	2.23	0.131
12a	burbot	0	0	32	159.6	92.6	0.9	0.02	0.19	0	1.96	**18.179**	2.3	0.137
12b	kokanee	0	0	32	159.6	92.6	0.9	0.02	0.13	0	1.95	**17.885**	2.24	0.132
12c	northern pike	0	0	32	159.6	92.6	0.9	0.02	0.13	0	1.95	**17.885**	2.24	0.132
12d	rainbow trout	0	0	32	159.6	92.6	0.9	0.02	0.19	0	1.96	**18.179**	2.3	0.137
12e	smallmouth bass	0	0	32	159.6	92.6	0.9	0.02	0.17	0	1.95	**18.081**	2.28	0.135
12f	sturgeon	0	0	32	159.6	92.6	0.9	0.02	0.14	0	1.95	**17.934**	2.249	0.133
12g	sucker	0	0	32	159.6	92.6	0.9	0.02	0.55	0	2.02	**19.97**	2.683	0.17
12h	walleye	0	0	32	159.6	92.6	0.9	0.02	0.2	0	1.96	**18.228**	2.31	0.138
12i	whitefish	0	0	32	159.6	92.6	0.9	0.02	0.15	0	1.95	**17.983**	2.259	0.134
RFC-007														
13	no fish	0	0	32	162.3	92.6	0.9	0.02	0.12	0	1.95	**18.085**	2.28	0.135
13a	burbot	0	0	32	162.3	92.6	0.9	0.02	0.19	0	1.97	**18.429**	2.352	0.141
13b	kokanee	0	0	32	162.3	92.6	0.9	0.02	0.13	0	1.96	**18.134**	2.291	0.136
13c	northern pike	0	0	32	162.3	92.6	0.9	0.02	0.13	0	1.96	**18.134**	2.291	0.136
13d	rainbow trout	0	0	32	162.3	92.6	0.9	0.02	0.19	0	1.97	**18.429**	2.352	0.141
13e	smallmouth bass	0	0	32	162.3	92.6	0.9	0.02	0.17	0	1.96	**18.33**	2.331	0.14
13f	sturgeon	0	0	32	162.3	92.6	0.9	0.02	0.14	0	1.96	**18.183**	2.301	0.137
13g	sucker	0	0	32	162.3	92.6	0.9	0.02	0.55	0	2.03	**20.226**	2.74	0.175
13h	walleye	0	0	32	162.3	92.6	0.9	0.02	0.2	0	1.97	**18.478**	2.362	0.142

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13i	whitefish	0	0	32	162.3	92.6	0.9	0.02	0.15	0	1.96	**18.232**	2.311	0.138
RFC-008														
14	no fish	0	0	32	159	92.6	0.9	0.02	0.12	0	1.94	**17.781**	2.218	0.13
14a	burbot	0	0	32	159	92.6	0.9	0.02	0.19	0	1.96	**18.124**	2.289	0.136
14b	kokanee	0	0	32	159	92.6	0.9	0.02	0.13	0	1.95	**17.83**	2.228	0.131
14c	northern pike	0	0	32	159	92.6	0.9	0.02	0.13	0	1.95	**17.83**	2.228	0.131
14d	rainbow trout	0	0	32	159	92.6	0.9	0.02	0.19	0	1.96	**18.124**	2.289	0.136
14e	smallmouth bass	0	0	32	159	92.6	0.9	0.02	0.17	0	1.95	**18.026**	2.268	0.134
14f	sturgeon	0	0	32	159	92.6	0.9	0.02	0.14	0	1.95	**17.879**	2.238	0.132
14g	sucker	0	0	32	159	92.6	0.9	0.02	0.55	0	2.02	**19.914**	2.671	0.169
14h	walleye	0	0	32	159	92.6	0.9	0.02	0.2	0	1.96	**18.173**	2.299	0.137
14i	whitefish	0	0	32	159	92.6	0.9	0.02	0.15	0	1.95	**17.928**	2.248	0.133
RFD-002														
15	no fish	0	0	32	155.5	92.6	0.9	0.02	0.12	0	1.93	**17.466**	2.155	0.125
15a	burbot	0	0	32	155.5	92.6	0.9	0.02	0.19	0	1.94	**17.807**	2.224	0.131
15b	kokanee	0	0	32	155.5	92.6	0.9	0.02	0.13	0	1.93	**17.515**	2.165	0.126
15c	northern pike	0	0	32	155.5	92.6	0.9	0.02	0.13	0	1.93	**17.515**	2.165	0.126
15d	rainbow trout	0	0	32	155.5	92.6	0.9	0.02	0.19	0	1.94	**17.807**	2.224	0.131
15e	smallmouth bass	0	0	32	155.5	92.6	0.9	0.02	0.17	0	1.94	**17.709**	2.204	0.129
15f	sturgeon	0	0	32	155.5	92.6	0.9	0.02	0.14	0	1.94	**17.563**	2.174	0.127
15g	sucker	0	0	32	155.5	92.6	0.9	0.02	0.55	0	2.01	**19.589**	2.599	0.162
15h	walleye	0	0	32	155.5	92.6	0.9	0.02	0.2	0	1.95	**17.856**	2.234	0.132
15i	whitefish	0	0	32	155.5	92.6	0.9	0.02	0.15	0	1.94	**17.612**	2.184	0.128
RFD-003														
16	no fish	0	0	32	154.5	92.6	0.9	0.02	0.12	0	1.93	**17.377**	2.137	0.124
16a	burbot	0	0	32	154.5	92.6	0.9	0.02	0.19	0	1.94	**17.717**	2.205	0.129
16b	kokanee	0	0	32	154.5	92.6	0.9	0.02	0.13	0	1.93	**17.425**	2.147	0.125
16c	northern pike	0	0	32	154.5	92.6	0.9	0.02	0.13	0	1.93	**17.425**	2.147	0.125
16d	rainbow trout	0	0	32	154.5	92.6	0.9	0.02	0.19	0	1.94	**17.717**	2.205	0.129
16e	smallmouth bass	0	0	32	154.5	92.6	0.9	0.02	0.17	0	1.94	**17.62**	2.186	0.128
16f	sturgeon	0	0	32	154.5	92.6	0.9	0.02	0.14	0	1.93	**17.474**	2.156	0.125
16g	sucker	0	0	32	154.5	92.6	0.9	0.02	0.55	0	2	**19.496**	2.579	0.161
16h	walleye	0	0	32	154.5	92.6	0.9	0.02	0.2	0	1.94	**17.766**	2.215	0.13
16i	whitefish	0	0	32	154.5	92.6	0.9	0.02	0.15	0	1.93	**17.522**	2.166	0.126

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 8/29/2019
Site Name: UCR
Operable Unit: Recreational Visitor, Boat Trips to Relict Floodplains, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: RF Boaters UPSOIL_RF149UM_EPCS SED SW FISH MHF_08`29`2019.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
RFA-001														
1	no fish	0	0	32	169.7	92.6	0.9	0.02	0.1	0	1.98	**18.689**	2.406	0.146
1a	burbot	0	0	32	169.7	92.6	0.9	0.02	0.17	0	1.99	**19.036**	2.48	0.152
1b	kokanee	0	0	32	169.7	92.6	0.9	0.02	0.11	0	1.98	**18.739**	2.417	0.147
1c	northern pike	0	0	32	169.7	92.6	0.9	0.02	0.11	0	1.98	**18.739**	2.417	0.147
1d	rainbow trout	0	0	32	169.7	92.6	0.9	0.02	0.17	0	1.99	**19.036**	2.48	0.152
1e	smallmouth bass	0	0	32	169.7	92.6	0.9	0.02	0.15	0	1.98	**18.937**	2.459	0.15
1f	sturgeon	0	0	32	169.7	92.6	0.9	0.02	0.12	0	1.98	**18.788**	2.427	0.148
1g	sucker	0	0	32	169.7	92.6	0.9	0.02	0.53	0	2.05	**20.847**	2.881	0.187
1h	walleye	0	0	32	169.7	92.6	0.9	0.02	0.18	0	1.99	**19.086**	2.491	0.153
1i	whitefish	0	0	32	169.7	92.6	0.9	0.02	0.13	0	1.98	**18.838**	2.438	0.149
RFA-002														
2	no fish	0	0	32	145.7	92.6	0.9	0.02	0.1	0	1.9	**16.516**	1.968	0.111
2a	burbot	0	0	32	145.7	92.6	0.9	0.02	0.17	0	1.91	**16.852**	2.033	0.116
2b	kokanee	0	0	32	145.7	92.6	0.9	0.02	0.11	0	1.9	**16.564**	1.978	0.111
2c	northern pike	0	0	32	145.7	92.6	0.9	0.02	0.11	0	1.9	**16.564**	1.978	0.111
2d	rainbow trout	0	0	32	145.7	92.6	0.9	0.02	0.17	0	1.91	**16.852**	2.033	0.116
2e	smallmouth bass	0	0	32	145.7	92.6	0.9	0.02	0.15	0	1.91	**16.755**	2.015	0.114
2f	sturgeon	0	0	32	145.7	92.6	0.9	0.02	0.12	0	1.9	**16.612**	1.987	0.112
2g	sucker	0	0	32	145.7	92.6	0.9	0.02	0.53	0	1.97	**18.608**	2.389	0.144
2h	walleye	0	0	32	145.7	92.6	0.9	0.02	0.18	0	1.91	**16.9**	2.043	0.116
2i	whitefish	0	0	32	145.7	92.6	0.9	0.02	0.13	0	1.9	**16.66**	1.996	0.113
RFA-003														
3	no fish	0	0	32	166	92.6	0.9	0.02	0.1	0	1.96	**18.349**	2.335	0.14
3a	burbot	0	0	32	166	92.6	0.9	0.02	0.17	0	1.98	**18.695**	2.407	0.146
3b	kokanee	0	0	32	166	92.6	0.9	0.02	0.11	0	1.96	**18.398**	2.345	0.141
3c	northern pike	0	0	32	166	92.6	0.9	0.02	0.11	0	1.96	**18.398**	2.345	0.141
3d	rainbow trout	0	0	32	166	92.6	0.9	0.02	0.17	0	1.98	**18.695**	2.407	0.146
3e	smallmouth bass	0	0	32	166	92.6	0.9	0.02	0.15	0	1.97	**18.596**	2.387	0.144
3f	sturgeon	0	0	32	166	92.6	0.9	0.02	0.12	0	1.97	**18.448**	2.356	0.142
3g	sucker	0	0	32	166	92.6	0.9	0.02	0.53	0	2.04	**20.498**	2.801	0.18
3h	walleye	0	0	32	166	92.6	0.9	0.02	0.18	0	1.98	**18.744**	2.418	0.147
3i	whitefish	0	0	32	166	92.6	0.9	0.02	0.13	0	1.97	**18.497**	2.366	0.143
RFA-004														
4	no fish	0	0	32	152	92.6	0.9	0.02	0.1	0	1.92	**17.079**	2.078	0.119
4a	burbot	0	0	32	152	92.6	0.9	0.02	0.17	0	1.93	**17.418**	2.145	0.124

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4b	kokanee	0	0	32	152	92.6	0.9	0.02	0.11	0	1.92	**17.127**	2.087	0.12
4c	northern pike	0	0	32	152	92.6	0.9	0.02	0.11	0	1.92	**17.127**	2.087	0.12
4d	rainbow trout	0	0	32	152	92.6	0.9	0.02	0.17	0	1.93	**17.418**	2.145	0.124
4e	smallmouth bass	0	0	32	152	92.6	0.9	0.02	0.15	0	1.93	**17.321**	2.126	0.123
4f	sturgeon	0	0	32	152	92.6	0.9	0.02	0.12	0	1.92	**17.176**	2.097	0.121
4g	sucker	0	0	32	152	92.6	0.9	0.02	0.53	0	1.99	**19.189**	2.513	0.155
4h	walleye	0	0	32	152	92.6	0.9	0.02	0.18	0	1.93	**17.466**	2.155	0.125
4i	whitefish	0	0	32	152	92.6	0.9	0.02	0.13	0	1.92	**17.224**	2.107	0.121
RFA-005														
5	no fish	0	0	32	154.6	92.6	0.9	0.02	0.1	0	1.93	**17.313**	2.124	0.123
5a	burbot	0	0	32	154.6	92.6	0.9	0.02	0.17	0	1.94	**17.653**	2.192	0.128
5b	kokanee	0	0	32	154.6	92.6	0.9	0.02	0.11	0	1.93	**17.361**	2.134	0.124
5c	northern pike	0	0	32	154.6	92.6	0.9	0.02	0.11	0	1.93	**17.361**	2.134	0.124
5d	rainbow trout	0	0	32	154.6	92.6	0.9	0.02	0.17	0	1.94	**17.653**	2.192	0.128
5e	smallmouth bass	0	0	32	154.6	92.6	0.9	0.02	0.15	0	1.94	**17.556**	2.173	0.127
5f	sturgeon	0	0	32	154.6	92.6	0.9	0.02	0.12	0	1.93	**17.41**	2.144	0.124
5g	sucker	0	0	32	154.6	92.6	0.9	0.02	0.53	0	2	**19.431**	2.565	0.159
5h	walleye	0	0	32	154.6	92.6	0.9	0.02	0.18	0	1.94	**17.702**	2.202	0.129
5i	whitefish	0	0	32	154.6	92.6	0.9	0.02	0.13	0	1.93	**17.458**	2.153	0.125
RFB-002														
6	no fish	0	0	32	133.3	92.6	0.9	0.02	0.1	0	1.86	**15.425**	1.764	0.095
6a	burbot	0	0	32	133.3	92.6	0.9	0.02	0.17	0	1.87	**15.754**	1.824	0.1
6b	kokanee	0	0	32	133.3	92.6	0.9	0.02	0.11	0	1.86	**15.472**	1.772	0.096
6c	northern pike	0	0	32	133.3	92.6	0.9	0.02	0.11	0	1.86	**15.472**	1.772	0.096
6d	rainbow trout	0	0	32	133.3	92.6	0.9	0.02	0.17	0	1.87	**15.754**	1.824	0.1
6e	smallmouth bass	0	0	32	133.3	92.6	0.9	0.02	0.15	0	1.87	**15.66**	1.807	0.098
6f	sturgeon	0	0	32	133.3	92.6	0.9	0.02	0.12	0	1.86	**15.519**	1.781	0.096
6g	sucker	0	0	32	133.3	92.6	0.9	0.02	0.53	0	1.93	**17.477**	2.157	0.125
6h	walleye	0	0	32	133.3	92.6	0.9	0.02	0.18	0	1.87	**15.801**	1.833	0.1
6i	whitefish	0	0	32	133.3	92.6	0.9	0.02	0.13	0	1.86	**15.564**	1.789	0.097
RFB-003														
7	no fish	0	0	32	125.8	92.6	0.9	0.02	0.1	0	1.83	**14.775**	1.646	0.087
7a	burbot	0	0	32	125.8	92.6	0.9	0.02	0.17	0	1.85	**15.099**	1.704	0.091
7b	kokanee	0	0	32	125.8	92.6	0.9	0.02	0.11	0	1.84	**14.821**	1.655	0.087
7c	northern pike	0	0	32	125.8	92.6	0.9	0.02	0.11	0	1.84	**14.821**	1.655	0.087
7d	rainbow trout	0	0	32	125.8	92.6	0.9	0.02	0.17	0	1.85	**15.099**	1.704	0.091
7e	smallmouth bass	0	0	32	125.8	92.6	0.9	0.02	0.15	0	1.84	**15.006**	1.688	0.09
7f	sturgeon	0	0	32	125.8	92.6	0.9	0.02	0.12	0	1.84	**14.868**	1.663	0.088
7g	sucker	0	0	32	125.8	92.6	0.9	0.02	0.53	0	1.91	**16.8**	2.023	0.115
7h	walleye	0	0	32	125.8	92.6	0.9	0.02	0.18	0	1.85	**15.145**	1.713	0.091
7i	whitefish	0	0	32	125.8	92.6	0.9	0.02	0.13	0	1.84	**14.914**	1.671	0.088
RFB-008														
8	no fish	0	0	32	119.1	92.6	0.9	0.02	0.1	0	1.81	**14.208**	1.547	0.079
8a	burbot	0	0	32	119.1	92.6	0.9	0.02	0.17	0	1.83	**14.528**	1.603	0.083
8b	kokanee	0	0	32	119.1	92.6	0.9	0.02	0.11	0	1.82	**14.254**	1.555	0.08
8c	northern pike	0	0	32	119.1	92.6	0.9	0.02	0.11	0	1.82	**14.254**	1.555	0.08
8d	rainbow trout	0	0	32	119.1	92.6	0.9	0.02	0.17	0	1.83	**14.528**	1.603	0.083
8e	smallmouth bass	0	0	32	119.1	92.6	0.9	0.02	0.15	0	1.82	**14.436**	1.587	0.082
8f	sturgeon	0	0	32	119.1	92.6	0.9	0.02	0.12	0	1.82	**14.299**	1.563	0.081
8g	sucker	0	0	32	119.1	92.6	0.9	0.02	0.53	0	1.89	**16.208**	1.91	0.106
8h	walleye	0	0	32	119.1	92.6	0.9	0.02	0.18	0	1.83	**14.573**	1.611	0.084
8i	whitefish	0	0	32	119.1	92.6	0.9	0.02	0.13	0	1.82	**14.345**	1.571	0.081
RFC-003														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
9	no fish	0	0	32	166.9	92.6	0.9	0.02	0.1	0	1.97	**18.434**	2.353	0.141
9a	burbot	0	0	32	166.9	92.6	0.9	0.02	0.17	0	1.98	**18.781**	2.426	0.148
9b	kokanee	0	0	32	166.9	92.6	0.9	0.02	0.11	0	1.97	**18.484**	2.363	0.142
9c	northern pike	0	0	32	166.9	92.6	0.9	0.02	0.11	0	1.97	**18.484**	2.363	0.142
9d	rainbow trout	0	0	32	166.9	92.6	0.9	0.02	0.17	0	1.98	**18.781**	2.426	0.148
9e	smallmouth bass	0	0	32	166.9	92.6	0.9	0.02	0.15	0	1.97	**18.681**	2.405	0.146
9f	sturgeon	0	0	32	166.9	92.6	0.9	0.02	0.12	0	1.97	**18.533**	2.373	0.143
9g	sucker	0	0	32	166.9	92.6	0.9	0.02	0.53	0	2.04	**20.585**	2.821	0.182
9g	walleye	0	0	32	166.9	92.6	0.9	0.02	0.18	0	1.98	**18.83**	2.436	0.148
9i	whitefish	0	0	32	166.9	92.6	0.9	0.02	0.13	0	1.97	**18.583**	2.384	0.144
RFC-004														
10	no fish	0	0	32	139	92.6	0.9	0.02	0.1	0	1.88	**15.923**	1.856	0.102
10a	burbot	0	0	32	139	92.6	0.9	0.02	0.17	0	1.89	**16.255**	1.918	0.107
10b	kokanee	0	0	32	139	92.6	0.9	0.02	0.11	0	1.88	**15.97**	1.865	0.103
10c	northern pike	0	0	32	139	92.6	0.9	0.02	0.11	0	1.88	**15.97**	1.865	0.103
10d	rainbow trout	0	0	32	139	92.6	0.9	0.02	0.17	0	1.89	**16.255**	1.918	0.107
10e	smallmouth bass	0	0	32	139	92.6	0.9	0.02	0.15	0	1.89	**16.16**	1.9	0.105
10f	sturgeon	0	0	32	139	92.6	0.9	0.02	0.12	0	1.88	**16.018**	1.874	0.103
10g	sucker	0	0	32	139	92.6	0.9	0.02	0.53	0	1.95	**17.993**	2.262	0.134
10h	walleye	0	0	32	139	92.6	0.9	0.02	0.18	0	1.89	**16.302**	1.927	0.107
10i	whitefish	0	0	32	139	92.6	0.9	0.02	0.13	0	1.88	**16.065**	1.882	0.104
RFC-005														
11	no fish	0	0	32	177.7	92.6	0.9	0.02	0.1	0	2	**19.43**	2.565	0.159
11a	burbot	0	0	32	177.7	92.6	0.9	0.02	0.17	0	2.01	**19.781**	2.641	0.166
11b	kokanee	0	0	32	177.7	92.6	0.9	0.02	0.11	0	2	**19.48**	2.576	0.16
11c	northern pike	0	0	32	177.7	92.6	0.9	0.02	0.11	0	2	**19.48**	2.576	0.16
11d	rainbow trout	0	0	32	177.7	92.6	0.9	0.02	0.17	0	2.01	**19.781**	2.641	0.166
11e	smallmouth bass	0	0	32	177.7	92.6	0.9	0.02	0.15	0	2.01	**19.681**	2.619	0.164
11f	sturgeon	0	0	32	177.7	92.6	0.9	0.02	0.12	0	2	**19.53**	2.587	0.161
11g	sucker	0	0	32	177.7	92.6	0.9	0.02	0.53	0	2.07	**21.607**	3.058	0.204
11h	walleye	0	0	32	177.7	92.6	0.9	0.02	0.18	0	2.01	**19.831**	2.652	0.167
11i	whitefish	0	0	32	177.7	92.6	0.9	0.02	0.13	0	2.01	**19.58**	2.597	0.162
RFC-006														
12	no fish	0	0	32	159.6	92.6	0.9	0.02	0.1	0	1.94	**17.762**	2.214	0.13
12a	burbot	0	0	32	159.6	92.6	0.9	0.02	0.17	0	1.95	**18.104**	2.284	0.136
12b	kokanee	0	0	32	159.6	92.6	0.9	0.02	0.11	0	1.94	**17.81**	2.224	0.131
12c	northern pike	0	0	32	159.6	92.6	0.9	0.02	0.11	0	1.94	**17.81**	2.224	0.131
12d	rainbow trout	0	0	32	159.6	92.6	0.9	0.02	0.17	0	1.95	**18.104**	2.284	0.136
12e	smallmouth bass	0	0	32	159.6	92.6	0.9	0.02	0.15	0	1.95	**18.006**	2.264	0.134
12f	sturgeon	0	0	32	159.6	92.6	0.9	0.02	0.12	0	1.95	**17.859**	2.234	0.132
12g	sucker	0	0	32	159.6	92.6	0.9	0.02	0.53	0	2.02	**19.893**	2.666	0.168
12h	walleye	0	0	32	159.6	92.6	0.9	0.02	0.18	0	1.96	**18.153**	2.295	0.137
12i	whitefish	0	0	32	159.6	92.6	0.9	0.02	0.13	0	1.95	**17.908**	2.244	0.132
RFC-007														
13	no fish	0	0	32	162.3	92.6	0.9	0.02	0.1	0	1.95	**18.01**	2.265	0.134
13a	burbot	0	0	32	162.3	92.6	0.9	0.02	0.17	0	1.96	**18.354**	2.336	0.14
13b	kokanee	0	0	32	162.3	92.6	0.9	0.02	0.11	0	1.95	**18.059**	2.275	0.135
13c	northern pike	0	0	32	162.3	92.6	0.9	0.02	0.11	0	1.95	**18.059**	2.275	0.135
13d	rainbow trout	0	0	32	162.3	92.6	0.9	0.02	0.17	0	1.96	**18.354**	2.336	0.14
13e	smallmouth bass	0	0	32	162.3	92.6	0.9	0.02	0.15	0	1.96	**18.256**	2.316	0.138
13f	sturgeon	0	0	32	162.3	92.6	0.9	0.02	0.12	0	1.95	**18.108**	2.285	0.136
13g	sucker	0	0	32	162.3	92.6	0.9	0.02	0.53	0	2.02	**20.149**	2.723	0.173
13h	walleye	0	0	32	162.3	92.6	0.9	0.02	0.18	0	1.97	**18.403**	2.346	0.141

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13i	whitefish	0	0	32	162.3	92.6	0.9	0.02	0.13	0	1.96	**18.157**	2.295	0.137
RFC-008														
14	no fish	0	0	32	159	92.6	0.9	0.02	0.1	0	1.94	**17.707**	2.203	0.129
14a	burbot	0	0	32	159	92.6	0.9	0.02	0.17	0	1.95	**18.05**	2.273	0.135
14b	kokanee	0	0	32	159	92.6	0.9	0.02	0.11	0	1.94	**17.756**	2.213	0.13
14c	northern pike	0	0	32	159	92.6	0.9	0.02	0.11	0	1.94	**17.756**	2.213	0.13
14d	rainbow trout	0	0	32	159	92.6	0.9	0.02	0.17	0	1.95	**18.05**	2.273	0.135
14e	smallmouth bass	0	0	32	159	92.6	0.9	0.02	0.15	0	1.95	**17.952**	2.253	0.133
14f	sturgeon	0	0	32	159	92.6	0.9	0.02	0.12	0	1.94	**17.805**	2.223	0.131
14g	sucker	0	0	32	159	92.6	0.9	0.02	0.53	0	2.01	**19.837**	2.654	0.167
14h	walleye	0	0	32	159	92.6	0.9	0.02	0.18	0	1.95	**18.099**	2.283	0.136
14i	whitefish	0	0	32	159	92.6	0.9	0.02	0.13	0	1.95	**17.854**	2.233	0.132
RFD-002														
15	no fish	0	0	32	155.5	92.6	0.9	0.02	0.1	0	1.93	**17.392**	2.14	0.124
15a	burbot	0	0	32	155.5	92.6	0.9	0.02	0.17	0	1.94	**17.733**	2.209	0.13
15b	kokanee	0	0	32	155.5	92.6	0.9	0.02	0.11	0	1.93	**17.441**	2.15	0.125
15c	northern pike	0	0	32	155.5	92.6	0.9	0.02	0.11	0	1.93	**17.441**	2.15	0.125
15d	rainbow trout	0	0	32	155.5	92.6	0.9	0.02	0.17	0	1.94	**17.733**	2.209	0.13
15e	smallmouth bass	0	0	32	155.5	92.6	0.9	0.02	0.15	0	1.94	**17.635**	2.189	0.128
15f	sturgeon	0	0	32	155.5	92.6	0.9	0.02	0.12	0	1.93	**17.489**	2.16	0.126
15g	sucker	0	0	32	155.5	92.6	0.9	0.02	0.53	0	2	**19.513**	2.583	0.161
15h	walleye	0	0	32	155.5	92.6	0.9	0.02	0.18	0	1.94	**17.782**	2.219	0.13
15i	whitefish	0	0	32	155.5	92.6	0.9	0.02	0.13	0	1.93	**17.538**	2.169	0.126
RFD-003														
16	no fish	0	0	32	154.5	92.6	0.9	0.02	0.1	0	1.93	**17.303**	2.122	0.123
16a	burbot	0	0	32	154.5	92.6	0.9	0.02	0.17	0	1.94	**17.643**	2.19	0.128
16b	kokanee	0	0	32	154.5	92.6	0.9	0.02	0.11	0	1.93	**17.351**	2.132	0.123
16c	northern pike	0	0	32	154.5	92.6	0.9	0.02	0.11	0	1.93	**17.351**	2.132	0.123
16d	rainbow trout	0	0	32	154.5	92.6	0.9	0.02	0.17	0	1.94	**17.643**	2.19	0.128
16e	smallmouth bass	0	0	32	154.5	92.6	0.9	0.02	0.15	0	1.94	**17.546**	2.171	0.127
16f	sturgeon	0	0	32	154.5	92.6	0.9	0.02	0.12	0	1.93	**17.4**	2.142	0.124
16g	sucker	0	0	32	154.5	92.6	0.9	0.02	0.53	0	2	**19.421**	2.563	0.159
16h	walleye	0	0	32	154.5	92.6	0.9	0.02	0.18	0	1.94	**17.692**	2.2	0.129
16i	whitefish	0	0	32	154.5	92.6	0.9	0.02	0.13	0	1.93	**17.448**	2.151	0.125

LEAD BATCH MODE OUTPUT FILE
Model Version: 1.1 Build11

User Name: SRC
Date: 2/25/2020
Site Name: UCR
Operable Unit: Recreational Visitor, Camping Trips to Relict Floodplains, With and Without Fish Consumption
Run Mode: Research

* : signify default values used in place of missing input data.
# : signify surrogate values entered (determined) by user.
---: signify missing input data.
PBB & PRED are the observed and predicted blood Pb levels in µg/dL.

Percent exceedance was calculated using values of GSD and PbB Cutoff as follows:
GSD = 1.6
PbB Cutoff (C) = 3 µg/dL, 5 µg/dL, 8 µg/dL

Input File: Campers UPSOIL_RF149UM_SED SW FISH.dat

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
RFA-001														
1	no fish	0	0	32	169.7	92.6	0.9	0.02	0.23	0	2	**19.335**	2.544	0.158
1a	burbot	0	0	32	169.7	92.6	0.9	0.02	0.3	0	2.01	**19.686**	2.62	0.164
1b	kokanee	0	0	32	169.7	92.6	0.9	0.02	0.24	0	2	**19.385**	2.555	0.159
1c	northern pike	0	0	32	169.7	92.6	0.9	0.02	0.24	0	2	**19.385**	2.555	0.159
1d	rainbow trout	0	0	32	169.7	92.6	0.9	0.02	0.3	0	2.01	**19.686**	2.62	0.164
1e	smallmouth bass	0	0	32	169.7	92.6	0.9	0.02	0.28	0	2.01	**19.585**	2.599	0.162
1f	sturgeon	0	0	32	169.7	92.6	0.9	0.02	0.25	0	2	**19.435**	2.566	0.16
1g	sucker	0	0	32	169.7	92.6	0.9	0.02	0.66	0	2.07	**21.51**	3.035	0.202
1h	walleye	0	0	32	169.7	92.6	0.9	0.02	0.31	0	2.01	**19.736**	2.631	0.165
1i	whitefish	0	0	32	169.7	92.6	0.9	0.02	0.26	0	2	**19.485**	2.577	0.16
RFA-002														
2	no fish	0	0	32	145.7	92.6	0.9	0.02	0.23	0	1.92	**17.141**	2.09	0.12
2a	burbot	0	0	32	145.7	92.6	0.9	0.02	0.3	0	1.93	**17.48**	2.158	0.125
2b	kokanee	0	0	32	145.7	92.6	0.9	0.02	0.24	0	1.92	**17.189**	2.1	0.121
2c	northern pike	0	0	32	145.7	92.6	0.9	0.02	0.24	0	1.92	**17.189**	2.1	0.121
2d	rainbow trout	0	0	32	145.7	92.6	0.9	0.02	0.3	0	1.93	**17.48**	2.158	0.125
2e	smallmouth bass	0	0	32	145.7	92.6	0.9	0.02	0.28	0	1.93	**17.383**	2.138	0.124
2f	sturgeon	0	0	32	145.7	92.6	0.9	0.02	0.25	0	1.92	**17.237**	2.109	0.122
2g	sucker	0	0	32	145.7	92.6	0.9	0.02	0.66	0	1.99	**19.253**	2.526	0.156
2h	walleye	0	0	32	145.7	92.6	0.9	0.02	0.31	0	1.93	**17.529**	2.167	0.126
2i	whitefish	0	0	32	145.7	92.6	0.9	0.02	0.26	0	1.93	**17.286**	2.119	0.122
RFA-003														
3	no fish	0	0	32	166	92.6	0.9	0.02	0.23	0	1.99	**18.992**	2.471	0.151
3a	burbot	0	0	32	166	92.6	0.9	0.02	0.3	0	2	**19.341**	2.545	0.158
3b	kokanee	0	0	32	166	92.6	0.9	0.02	0.24	0	1.99	**19.042**	2.481	0.152
3c	northern pike	0	0	32	166	92.6	0.9	0.02	0.24	0	1.99	**19.042**	2.481	0.152
3d	rainbow trout	0	0	32	166	92.6	0.9	0.02	0.3	0	2	**19.341**	2.545	0.158
3e	smallmouth bass	0	0	32	166	92.6	0.9	0.02	0.28	0	1.99	**19.241**	2.524	0.156
3f	sturgeon	0	0	32	166	92.6	0.9	0.02	0.25	0	1.99	**19.092**	2.492	0.153
3g	sucker	0	0	32	166	92.6	0.9	0.02	0.66	0	2.06	**21.158**	2.953	0.194
3h	walleye	0	0	32	166	92.6	0.9	0.02	0.31	0	2	**19.391**	2.556	0.159
3i	whitefish	0	0	32	166	92.6	0.9	0.02	0.26	0	1.99	**19.142**	2.502	0.154
RFA-004														
4	no fish	0	0	32	152	92.6	0.9	0.02	0.23	0	1.94	**17.71**	2.204	0.129
4a	burbot	0	0	32	152	92.6	0.9	0.02	0.3	0	1.95	**18.052**	2.274	0.135

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
4b	kokanee	0	0	32	152	92.6	0.9	0.02	0.24	0	1.94	**17.759**	2.214	0.13
4c	northern pike	0	0	32	152	92.6	0.9	0.02	0.24	0	1.94	**17.759**	2.214	0.13
4d	rainbow trout	0	0	32	152	92.6	0.9	0.02	0.3	0	1.95	**18.052**	2.274	0.135
4e	smallmouth bass	0	0	32	152	92.6	0.9	0.02	0.28	0	1.95	**17.954**	2.254	0.133
4f	sturgeon	0	0	32	152	92.6	0.9	0.02	0.25	0	1.94	**17.807**	2.224	0.131
4g	sucker	0	0	32	152	92.6	0.9	0.02	0.66	0	2.01	**19.84**	2.654	0.167
4h	walleye	0	0	32	152	92.6	0.9	0.02	0.31	0	1.95	**18.101**	2.284	0.136
4i	whitefish	0	0	32	152	92.6	0.9	0.02	0.26	0	1.95	**17.856**	2.234	0.132
RFA-005														
5	no fish	0	0	32	154.6	92.6	0.9	0.02	0.23	0	1.95	**17.946**	2.252	0.133
5a	burbot	0	0	32	154.6	92.6	0.9	0.02	0.3	0	1.96	**18.29**	2.323	0.139
5b	kokanee	0	0	32	154.6	92.6	0.9	0.02	0.24	0	1.95	**17.995**	2.262	0.134
5c	northern pike	0	0	32	154.6	92.6	0.9	0.02	0.24	0	1.95	**17.995**	2.262	0.134
5d	rainbow trout	0	0	32	154.6	92.6	0.9	0.02	0.3	0	1.96	**18.29**	2.323	0.139
5e	smallmouth bass	0	0	32	154.6	92.6	0.9	0.02	0.28	0	1.96	**18.191**	2.302	0.137
5f	sturgeon	0	0	32	154.6	92.6	0.9	0.02	0.25	0	1.95	**18.044**	2.272	0.135
5g	sucker	0	0	32	154.6	92.6	0.9	0.02	0.66	0	2.02	**20.083**	2.708	0.172
5h	walleye	0	0	32	154.6	92.6	0.9	0.02	0.31	0	1.96	**18.339**	2.333	0.14
5i	whitefish	0	0	32	154.6	92.6	0.9	0.02	0.26	0	1.95	**18.093**	2.282	0.136
RFB-002														
6	no fish	0	0	32	133.3	92.6	0.9	0.02	0.23	0	1.88	**16.037**	1.877	0.104
6a	burbot	0	0	32	133.3	92.6	0.9	0.02	0.3	0	1.89	**16.37**	1.94	0.108
6b	kokanee	0	0	32	133.3	92.6	0.9	0.02	0.24	0	1.88	**16.085**	1.886	0.104
6c	northern pike	0	0	32	133.3	92.6	0.9	0.02	0.24	0	1.88	**16.085**	1.886	0.104
6d	rainbow trout	0	0	32	133.3	92.6	0.9	0.02	0.3	0	1.89	**16.37**	1.94	0.108
6e	smallmouth bass	0	0	32	133.3	92.6	0.9	0.02	0.28	0	1.89	**16.274**	1.922	0.107
6f	sturgeon	0	0	32	133.3	92.6	0.9	0.02	0.25	0	1.88	**16.132**	1.895	0.105
6g	sucker	0	0	32	133.3	92.6	0.9	0.02	0.66	0	1.95	**18.112**	2.286	0.136
6h	walleye	0	0	32	133.3	92.6	0.9	0.02	0.31	0	1.89	**16.417**	1.949	0.109
6i	whitefish	0	0	32	133.3	92.6	0.9	0.02	0.26	0	1.89	**16.178**	1.904	0.106
RFB-003														
7	no fish	0	0	32	125.8	92.6	0.9	0.02	0.23	0	1.86	**15.378**	1.755	0.094
7a	burbot	0	0	32	125.8	92.6	0.9	0.02	0.3	0	1.87	**15.706**	1.815	0.099
7b	kokanee	0	0	32	125.8	92.6	0.9	0.02	0.24	0	1.86	**15.425**	1.764	0.095
7c	northern pike	0	0	32	125.8	92.6	0.9	0.02	0.24	0	1.86	**15.425**	1.764	0.095
7d	rainbow trout	0	0	32	125.8	92.6	0.9	0.02	0.3	0	1.87	**15.706**	1.815	0.099
7e	smallmouth bass	0	0	32	125.8	92.6	0.9	0.02	0.28	0	1.87	**15.612**	1.798	0.098
7f	sturgeon	0	0	32	125.8	92.6	0.9	0.02	0.25	0	1.86	**15.472**	1.772	0.096
7g	sucker	0	0	32	125.8	92.6	0.9	0.02	0.66	0	1.93	**17.428**	2.147	0.125
7h	walleye	0	0	32	125.8	92.6	0.9	0.02	0.31	0	1.87	**15.753**	1.824	0.1
7i	whitefish	0	0	32	125.8	92.6	0.9	0.02	0.26	0	1.86	**15.519**	1.781	0.096
RFB-008														
8	no fish	0	0	32	119.1	92.6	0.9	0.02	0.23	0	1.84	**14.803**	1.651	0.087
8a	burbot	0	0	32	119.1	92.6	0.9	0.02	0.3	0	1.85	**15.127**	1.709	0.091
8b	kokanee	0	0	32	119.1	92.6	0.9	0.02	0.24	0	1.84	**14.849**	1.66	0.087
8c	northern pike	0	0	32	119.1	92.6	0.9	0.02	0.24	0	1.84	**14.849**	1.66	0.087
8d	rainbow trout	0	0	32	119.1	92.6	0.9	0.02	0.3	0	1.85	**15.127**	1.709	0.091
8e	smallmouth bass	0	0	32	119.1	92.6	0.9	0.02	0.28	0	1.84	**15.034**	1.693	0.09
8f	sturgeon	0	0	32	119.1	92.6	0.9	0.02	0.25	0	1.84	**14.896**	1.668	0.088
8g	sucker	0	0	32	119.1	92.6	0.9	0.02	0.66	0	1.91	**16.829**	2.029	0.115
8h	walleye	0	0	32	119.1	92.6	0.9	0.02	0.31	0	1.85	**15.174**	1.718	0.092
8i	whitefish	0	0	32	119.1	92.6	0.9	0.02	0.26	0	1.84	**14.942**	1.676	0.089
RFC-003														

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
9	no fish	0	0	32	166.9	92.6	0.9	0.02	0.23	0	1.99	**19.079**	2.489	0.153
9a	burbot	0	0	32	166.9	92.6	0.9	0.02	0.3	0	2	**19.428**	2.564	0.159
9b	kokanee	0	0	32	166.9	92.6	0.9	0.02	0.24	0	1.99	**19.128**	2.5	0.154
9c	northern pike	0	0	32	166.9	92.6	0.9	0.02	0.24	0	1.99	**19.128**	2.5	0.154
9d	rainbow trout	0	0	32	166.9	92.6	0.9	0.02	0.3	0	2	**19.428**	2.564	0.159
9e	smallmouth bass	0	0	32	166.9	92.6	0.9	0.02	0.28	0	2	**19.328**	2.543	0.157
9f	sturgeon	0	0	32	166.9	92.6	0.9	0.02	0.25	0	1.99	**19.178**	2.51	0.155
9g	sucker	0	0	32	166.9	92.6	0.9	0.02	0.66	0	2.06	**21.246**	2.973	0.196
9g	walleye	0	0	32	166.9	92.6	0.9	0.02	0.31	0	2	**19.478**	2.575	0.16
9i	whitefish	0	0	32	166.9	92.6	0.9	0.02	0.26	0	1.99	**19.228**	2.521	0.156
RFC-004														
10	no fish	0	0	32	139	92.6	0.9	0.02	0.23	0	1.9	**16.541**	1.973	0.111
10a	burbot	0	0	32	139	92.6	0.9	0.02	0.3	0	1.91	**16.876**	2.038	0.116
10b	kokanee	0	0	32	139	92.6	0.9	0.02	0.24	0	1.9	**16.589**	1.982	0.112
10c	northern pike	0	0	32	139	92.6	0.9	0.02	0.24	0	1.9	**16.589**	1.982	0.112
10d	rainbow trout	0	0	32	139	92.6	0.9	0.02	0.3	0	1.91	**16.876**	2.038	0.116
10e	smallmouth bass	0	0	32	139	92.6	0.9	0.02	0.28	0	1.91	**16.78**	2.019	0.115
10f	sturgeon	0	0	32	139	92.6	0.9	0.02	0.25	0	1.9	**16.636**	1.992	0.112
10g	sucker	0	0	32	139	92.6	0.9	0.02	0.66	0	1.97	**18.633**	2.394	0.145
10h	walleye	0	0	32	139	92.6	0.9	0.02	0.31	0	1.91	**16.924**	2.048	0.117
10i	whitefish	0	0	32	139	92.6	0.9	0.02	0.26	0	1.9	**16.684**	2.001	0.113
RFC-005														
11	no fish	0	0	32	177.7	92.6	0.9	0.02	0.23	0	2.02	**20.083**	2.708	0.172
11a	burbot	0	0	32	177.7	92.6	0.9	0.02	0.3	0	2.03	**20.436**	2.787	0.179
11b	kokanee	0	0	32	177.7	92.6	0.9	0.02	0.24	0	2.02	**20.133**	2.719	0.173
11c	northern pike	0	0	32	177.7	92.6	0.9	0.02	0.24	0	2.02	**20.133**	2.719	0.173
11d	rainbow trout	0	0	32	177.7	92.6	0.9	0.02	0.3	0	2.03	**20.436**	2.787	0.179
11e	smallmouth bass	0	0	32	177.7	92.6	0.9	0.02	0.28	0	2.03	**20.335**	2.765	0.177
11f	sturgeon	0	0	32	177.7	92.6	0.9	0.02	0.25	0	2.03	**20.184**	2.731	0.174
11g	sucker	0	0	32	177.7	92.6	0.9	0.02	0.66	0	2.1	**22.274**	3.217	0.219
11h	walleye	0	0	32	177.7	92.6	0.9	0.02	0.31	0	2.04	**20.487**	2.799	0.18
11i	whitefish	0	0	32	177.7	92.6	0.9	0.02	0.26	0	2.03	**20.234**	2.742	0.175
RFC-006														
12	no fish	0	0	32	159.6	92.6	0.9	0.02	0.23	0	1.96	**18.399**	2.346	0.141
12a	burbot	0	0	32	159.6	92.6	0.9	0.02	0.3	0	1.98	**18.745**	2.418	0.147
12b	kokanee	0	0	32	159.6	92.6	0.9	0.02	0.24	0	1.97	**18.449**	2.356	0.142
12c	northern pike	0	0	32	159.6	92.6	0.9	0.02	0.24	0	1.97	**18.449**	2.356	0.142
12d	rainbow trout	0	0	32	159.6	92.6	0.9	0.02	0.3	0	1.98	**18.745**	2.418	0.147
12e	smallmouth bass	0	0	32	159.6	92.6	0.9	0.02	0.28	0	1.97	**18.646**	2.397	0.145
12f	sturgeon	0	0	32	159.6	92.6	0.9	0.02	0.25	0	1.97	**18.498**	2.366	0.143
12g	sucker	0	0	32	159.6	92.6	0.9	0.02	0.66	0	2.04	**20.549**	2.813	0.181
12h	walleye	0	0	32	159.6	92.6	0.9	0.02	0.31	0	1.98	**18.795**	2.429	0.148
12i	whitefish	0	0	32	159.6	92.6	0.9	0.02	0.26	0	1.97	**18.547**	2.376	0.143
RFC-007														
13	no fish	0	0	32	162.3	92.6	0.9	0.02	0.23	0	1.97	**18.65**	2.398	0.145
13a	burbot	0	0	32	162.3	92.6	0.9	0.02	0.3	0	1.99	**18.997**	2.472	0.151
13b	kokanee	0	0	32	162.3	92.6	0.9	0.02	0.24	0	1.98	**18.7**	2.408	0.146
13c	northern pike	0	0	32	162.3	92.6	0.9	0.02	0.24	0	1.98	**18.7**	2.408	0.146
13d	rainbow trout	0	0	32	162.3	92.6	0.9	0.02	0.3	0	1.99	**18.997**	2.472	0.151
13e	smallmouth bass	0	0	32	162.3	92.6	0.9	0.02	0.28	0	1.98	**18.898**	2.45	0.15
13f	sturgeon	0	0	32	162.3	92.6	0.9	0.02	0.25	0	1.98	**18.749**	2.419	0.147
13g	sucker	0	0	32	162.3	92.6	0.9	0.02	0.66	0	2.05	**20.807**	2.872	0.187
13h	walleye	0	0	32	162.3	92.6	0.9	0.02	0.31	0	1.99	**19.047**	2.482	0.152

ID		FAM	BLK	AGE (mon)	SOIL (µg/g)	DUST (µg/g)	WATER (µg/L)	AIR (µg/m³)	Other (µg/day)	PBB (µg/dL)	PRED (µg/dL)	P(PbB>3) (%)	P(PbB>5) (%)	P(PbB>8) (%)
13i	whitefish	0	0	32	162.3	92.6	0.9	0.02	0.26	0	1.98	**18.799**	2.429	0.148
RFC-008														
14	no fish	0	0	32	159	92.6	0.9	0.02	0.23	0	1.96	**18.344**	2.334	0.14
14a	burbot	0	0	32	159	92.6	0.9	0.02	0.3	0	1.98	**18.69**	2.406	0.146
14b	kokanee	0	0	32	159	92.6	0.9	0.02	0.24	0	1.96	**18.394**	2.344	0.141
14c	northern pike	0	0	32	159	92.6	0.9	0.02	0.24	0	1.96	**18.394**	2.344	0.141
14d	rainbow trout	0	0	32	159	92.6	0.9	0.02	0.3	0	1.98	**18.69**	2.406	0.146
14e	smallmouth bass	0	0	32	159	92.6	0.9	0.02	0.28	0	1.97	**18.591**	2.386	0.144
14f	sturgeon	0	0	32	159	92.6	0.9	0.02	0.25	0	1.97	**18.443**	2.355	0.142
14g	sucker	0	0	32	159	92.6	0.9	0.02	0.66	0	2.04	**20.493**	2.8	0.18
14h	walleye	0	0	32	159	92.6	0.9	0.02	0.31	0	1.98	**18.74**	2.417	0.147
14i	whitefish	0	0	32	159	92.6	0.9	0.02	0.26	0	1.97	**18.492**	2.365	0.142
RFD-002														
15	no fish	0	0	32	155.5	92.6	0.9	0.02	0.23	0	1.95	**18.026**	2.268	0.134
15a	burbot	0	0	32	155.5	92.6	0.9	0.02	0.3	0	1.96	**18.37**	2.339	0.14
15b	kokanee	0	0	32	155.5	92.6	0.9	0.02	0.24	0	1.95	**18.075**	2.279	0.135
15c	northern pike	0	0	32	155.5	92.6	0.9	0.02	0.24	0	1.95	**18.075**	2.279	0.135
15d	rainbow trout	0	0	32	155.5	92.6	0.9	0.02	0.3	0	1.96	**18.37**	2.339	0.14
15e	smallmouth bass	0	0	32	155.5	92.6	0.9	0.02	0.28	0	1.96	**18.272**	2.319	0.139
15f	sturgeon	0	0	32	155.5	92.6	0.9	0.02	0.25	0	1.96	**18.124**	2.289	0.136
15g	sucker	0	0	32	155.5	92.6	0.9	0.02	0.66	0	2.03	**20.166**	2.727	0.174
15h	walleye	0	0	32	155.5	92.6	0.9	0.02	0.31	0	1.97	**18.42**	2.35	0.141
15i	whitefish	0	0	32	155.5	92.6	0.9	0.02	0.26	0	1.96	**18.173**	2.299	0.137
RFD-003														
16	no fish	0	0	32	154.5	92.6	0.9	0.02	0.23	0	1.95	**17.936**	2.25	0.133
16a	burbot	0	0	32	154.5	92.6	0.9	0.02	0.3	0	1.96	**18.28**	2.321	0.139
16b	kokanee	0	0	32	154.5	92.6	0.9	0.02	0.24	0	1.95	**17.985**	2.26	0.134
16c	northern pike	0	0	32	154.5	92.6	0.9	0.02	0.24	0	1.95	**17.985**	2.26	0.134
16d	rainbow trout	0	0	32	154.5	92.6	0.9	0.02	0.3	0	1.96	**18.28**	2.321	0.139
16e	smallmouth bass	0	0	32	154.5	92.6	0.9	0.02	0.28	0	1.96	**18.181**	2.3	0.137
16f	sturgeon	0	0	32	154.5	92.6	0.9	0.02	0.25	0	1.95	**18.034**	2.27	0.135
16g	sucker	0	0	32	154.5	92.6	0.9	0.02	0.66	0	2.02	**20.073**	2.706	0.172
16h	walleye	0	0	32	154.5	92.6	0.9	0.02	0.31	0	1.96	**18.329**	2.331	0.14
16i	whitefish	0	0	32	154.5	92.6	0.9	0.02	0.26	0	1.95	**18.083**	2.28	0.135

Appendix 6:
EPA Action Memorandum for the Upper Columbia River Site Residential Properties Soil Removal near Northport, Stevens County, Washington

August 6, 2015

SUBJECT: Action Memorandum for the Upper Columbia River Site Residential Properties Soil Removal near Northport, Stevens County, Washington

FROM: Jeffrey Fowlow, Federal On-Scene Coordinator
Emergency Preparedness and Prevention Unit

THRU: Wally Moon, Unit Manager
Emergency Preparedness and Prevention Unit

TO: Chris D. Field, Manager
Emergency Management Program

I. PURPOSE

The purpose of this Action Memorandum is to document approval of the time-critical removal action ("TCRA") described herein for the Upper Columbia River Site Residential Properties Soil Removal near Northport, Stevens County, Washington (Site).

The Upper Columbia River Site is currently the subject of a remedial investigation / feasibility study (RI/FS) to investigate contamination along the Upper Columbia River from the Grand Coulee Dam to the United States (U.S.)-Canada border related to historical smelting operations. As a part of field sampling activities for the RI/FS, the U.S. Environmental Protection Agency ("EPA") identified several residential properties and tribal allotments[1] in the Columbia River valley north of the town of Northport, Washington, which contained lead and/or arsenic at elevated levels. The residential properties are the focus of the time-critical removal action described herein. Any future time-critical removal actions taken on the tribal allotments will be addressed as a separate action. The residential properties and tribal allotments are located on land that is historically and culturally significant to both the Confederated Tribes of the Colville Reservation (Colville Confederated Tribes) and the Spokane Tribe of Indians.

Teck Metals, Limited (TML), a potentially responsible party ("PRP") at the Site, is currently negotiating a Settlement Agreement and Order on Consent ("Settlement Agreement") with EPA in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") for the funding and performance of the removal action. Under that Settlement Agreement, Teck American

[1] For the purpose of this Action Memo, the term "allotment" refers to parcels of land outside the borders of an established Indian reservation that are owned by private tribal members.

Incorporated (TAI) would be the party performing the work, though both TAI and TML will be held jointly and severally responsible for the work, and herein referred to as "Teck".

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (formerly CERCLIS) ID Number for the Upper Columbia River Site is WASFN1002171 and the Site/Spill ID is 10NZ.

A. Site Description

1. Removal site evaluation

EPA is performing an RI/FS along the Upper Columbia River. The Upper Columbia River consists of the areal extent of hazardous substances contamination within the U.S. in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake ("Lake Roosevelt"), from the border between the U.S. and Canada downstream to the Grand Coulee Dam.

A smelter owned by Teck located in Trail, British Columbia, on the Columbia River approximately 10 miles north of the U.S./Canada border has discharged metals-laden slag and liquid wastes into the Columbia River, as well as discharges from the smelter to the properties and allotments that are the subject of this removal action. Under the RI/FS, which is being funded by Teck, sampling has been conducted to determine levels of contamination in fish, river sediment, beach sediment, river water, and soil to support human health and ecological risk assessments.

As part of the RI/FS, in 2014 EPA collected and analyzed soil samples from residential properties in the Columbia River valley north of Northport, WA to the U.S.-Canada border to investigate potential airborne metals contamination from the Trail smelter and the former LeRoi Smelter that had historically operated in Northport. A total of 74 properties along both sides of the river were sampled. At each property, EPA identified representative decision units that had high human contact with soil (i.e., yards, gardens, play areas, etc.). Once the sampling areas were identified, EPA used an incremental composite (IC) sampling approach to collect IC samples from each decision unit ("DU"). A DU is an identified area within a property that is distinguishable from other areas by factors such as location or use and include areas within a property with a high likelihood of exposure to humans from contaminated soil. Examples of decision units are play areas, gardens, or lawns. Most DUs had three IC samples collected. Each IC sample was collected from shallow surface soil (usually 0-1" deep), except gardens which went to tilling depth (usually 0-12" deep). A total of 237 DUs were sampled.

The action level (i.e., the level at which action is triggered) for lead ("Pb") is 700 milligrams per kilogram ("mg/kg"), and the removal action will result in achieving a cleanup level of 250 mg/kg or less, based on a project-specific determination by EPA

(Memorandum from Richard Albright to Mr. Pendowski et al *"Dispute Decision Regarding Upper Columbia River Action Levels for Time-Critical Removal Action Dispute, Upper Columbia River Superfund Site",* April 21, 2015). The cleanup level for arsenic (As) is 20 mg/kg, based on the Washington State Model Toxics Control Act Method A Unrestricted use concentration. The results of the RI/FS sampling effort identified 17 properties, including 14 residential properties and three tribal allotments, which contained lead at concentrations near or above the Site action level.

In May 2015, the EPA Region 10 Removal Program conducted a removal site evaluation. During this removal site evaluation, EPA prepared for the proposed removal action by documenting the condition and layout of each property designated for cleanup and coordinating with each of the property owners. At some of the properties, EPA either extended the size of some DUs, or added new DUs, based on additional observations of property use and interviews with the landowners that indicated areas of the property with a high likelihood of exposure to humans from contaminated soil. EPA also collected and analyzed soil samples from the original DUs to better delineate the horizontal and vertical extent of contamination and to assist in removal planning (i.e., measuring quantities and depths of contaminated soil for logistics, disposal, and cost estimating).

Sampling conducted in 2014 and 2015 also identified tribal allotments where lead and arsenic concentrations exceed action levels; however, this removal action does not include those tribal allotments because the benefits of alternative removal or remedial techniques are being further evaluated for potential future cleanup actions.

2. Physical location

The community of Northport (population 295) is located along the eastern shoreline of the Upper Columbia River, approximately six miles south of the border with Canada and 35 miles north of Colville, Washington. Surrounding land use is primarily forestry and agricultural, with a number of rural residential properties.

The area has a humid continental climate characterized by cold winters and hot summers. The average annual precipitation is 19.5 inches, and the average annual snowfall is 53.7 inches. Average maximum temperatures are as high as 88.4 degrees Fahrenheit (°F) in the summer (July) and average minimum temperatures are as cold as 19.8 °F in winter (January).

3. Site characteristics

The area within the Site in which the removal actions will be conducted consists of 14 residential properties within the Columbia River valley near Northport, Washington (Figure 1). Specific property details including property owner names and locations are included in the confidential enforcement addendum.

Each residential property has one or more DUs designated for removal activities. Each residential property DU is located in an area of the property likely to be used by the residents and/or visitors and so poses an increased exposure risk to the elevated arsenic and lead in the soil. Specifically, most of the DUs at the properties are areas of the residential yard where the residents or visitors are likely to perform recreational, gardening, and/or yard maintenance activities that would likely expose them to the contaminated soil.

4. Release or threatened release into the environment of a hazardous substance or pollutant or contaminant

The primary contaminants of concern (COCs) are lead and arsenic. These contaminants are hazardous substances or pollutants or contaminants as defined by sections 101(14) & (33) of CERCLA, 42 U.S.C. § 9601(14) and (33).

The primary source of the lead and arsenic contamination at each of these properties is believed to be emissions from the Teck smelter in nearby Trail, British Columbia.

Numerous studies have been performed at the Site since 2000 as part of the Upper Columbia River site assessment process and RI/FS. Sampling efforts relevant to the current residential soil removal action are discussed below.

2014 Residential Soil Sampling

In 2014, EPA sampled soil at multiple residential properties and tribal allotments in the Columbia River valley between Northport and the U.S./Canada border that may have elevated metals as a result of regional smelter operations. Property owners volunteered to have their property sampled, and the sampling was conducted between August and October 2014.

The results of this investigation indicated that 14 properties and three tribal allotments contained at least one area (i.e., a decision unit) with concentrations of lead over or near the TCRA action level of 700 mg/kg. The average lead concentration from the IC sampling approach for these properties was 985 mg/kg, which is approximately 4 times higher than the cleanup level of 250 mg/kg. The maximum IC sample lead concentration was 1,936 mg/kg, which is approximately 8 times higher than the cleanup level. The average and maximum IC sample concentrations for arsenic were 52.4 and 103 mg/kg, respectively, which are 2.5 and 5 times the cleanup level for arsenic of 20 mg/kg. Each IC sample was collected from shallow surface soil (usually 0-1” deep), except gardens samples from which were collected from tilling depth (usually 0-12” deep).

2015 Removal Sampling

During EPA's site visit in May 2015, EPA reviewed the DUs from the 2014 sampling event. At certain properties, EPA either extended the boundaries of the DUs, or added new DUs, to ensure that high-risk property areas (i.e., yards or gardens with an elevated risk of potential human contact) were included. From these DUs, EPA

collected and analyzed additional samples to further characterize the vertical and horizontal extent of contamination. At each DU sampled in 2014, EPA assumed that the soil at depths from 0 to 6 inches below ground surface (bgs) was contaminated, and new grab samples were collected at depths from 6 to 12 inches bgs. At new DUs, EPA collected grab samples at intervals of 0 to 6 inches and 6 to 12 inches bgs. The samples were analyzed in the field using field-portable X-ray fluorescence (XRF) instruments, with a subset of the samples analyzed at an off-site laboratory.

During the May 2015 sampling event, a total of approximately 480 grab samples were collected and analyzed in the field by XRF, and 100 of these samples were submitted to an off-site laboratory for metals analysis. The results indicated that 80 of the samples exceeded the site cleanup level for either lead or arsenic based on the laboratory data or XRF field screening data if laboratory data was not available. For the laboratory data, lead was detected as high as 1,590 mg/kg, which is 6 times the cleanup level of 250 mg/kg, and arsenic was detected as high as 89 mg/kg, which is 4.5 times the cleanup level of 20 mg/kg.

EPA also submitted five of the samples for toxicity characteristic leaching procedure (TCLP) lead and arsenic analyses at the off-site laboratory to determine if the contaminated site soil was a characteristic hazardous waste. The samples selected for TCLP analyses included those with the highest total lead and arsenic concentrations as determined by XRF. All of the samples were well below the applicable TCLP limits for lead and arsenic, indicating that the site soil can likely be disposed of as non-hazardous waste.

5. NPL Status

Although the Upper Columbia River Site is not currently on the National Priorities List (NPL), it is being investigated through an RI/FS conducted by TAI (formerly Teck Cominco American Incorporated) subject to EPA oversight.

6. Maps, pictures, and other graphic representations

Figure 1 indicates the location of the Site, including the general area on both sides of the Columbia River between Northport and the U.S./Canadian Border where the 14 residential properties and several tribal allotments are located. For specific details including maps of each individual property, please refer to the confidential enforcement addendum.

B. Other Actions to Date

1. Previous actions

In 2004, EPA performed a time-critical removal action at the LeRoi Smelter Site in the town of Northport. The site included a 20-acre smelter operations complex and a 10-acre adjacent lumber mill complex which was formerly part of the original smelter

complex. The smelter operated intermittently from 1896 to 1921 and processed copper, gold, silver, and lead ores from nearby mines in Washington State and British Columbia. The primary contaminants of concern for the removal action were lead and arsenic.

In addition to cleanup of the smelter site itself, the scope of the removal action included the removal of lead and arsenic contaminated soil from 29 residential and common-use properties within or near the town limits of Northport, followed by backfill with clean top soil and property restoration. The removal action was performed to address lead and arsenic contamination associated with nearby and distant smelting operations, mine-waste disposal practices, and construction practices using mine-waste contaminated materials.

2. Current actions

There are no government or known private cleanup activities that are currently being performed at the Site that have not been previously described.

C. State and Local Authorities' Roles

1. State and local actions to date

The Washington State Department of Ecology (Ecology) has been involved in the RI/FS at the Site. Teck American Incorporated entered into a voluntary agreement with Ecology to remove contaminated sediment from Black Sand Beach in the Fall of 2010. The beach is located about three miles south of the Canadian border near Northport, WA and is located within the Site.

2. Potential for continued State/local response

Ecology is expected to remain involved in the RI/FS and in any future remedial cleanup actions.

D. Tribal Government Coordination

Staff-to-staff level coordination has occurred between EPA and the Colville Confederated Tribes regarding the proposed TCRA. EPA offered formal government-to-government consultation to the Chairman of the Confederated Tribes of the Colville Indian Reservation and the Spokane Tribe of Indians on May 27, 2015. On July 7, 2015, the Colville Tribe Business Council ("Council") accepted the offer of consultation and a meeting between EPA and Council occurred on July 21, 2015, in Nespelem, Washington. Prominent topics discussed in the consultation include the Council's desire to be informed of and participate in any ongoing and future negotiations between EPA and Teck at this tribal site where tribal lands and resources are affected. Also discussed was the Council's desire for a long-term cleanup plan for the overall Upper Columbia River Site in general and long term plans for the tribal allotments beyond removal actions in 2015 to include multiple possible options available which have yet to be fully

explored and discussed. In addition, the Council emphasized the requirement of Tribal Cultural Resource Monitors where any soil disturbing actions are undertaken.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

The current conditions at this Site meet the following factors which indicate that the Site may pose an unacceptable risk to the public health or welfare or the environment and a removal action is appropriate under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

A. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants [300.415(b)(2)(i)]

The data from previous environmental investigations shows that surface soil at the properties is contaminated with elevated concentrations of lead and arsenic, and that the primary source of the elevated concentrations of metals is from releases from Teck's smelting operations in nearby Trail, British Columbia.

Potential human exposure routes include direct contact with and ingestion of contaminated soil and inhalation of windblown dust. Human receptors include residents, visitors, trespassers, and passers-by. The potential for exposure is increased by the fact that the majority of these properties are residential with full-time residents.

At each property, the portion of the property subject to investigation and subsequently designated for removal action (i.e., the DUs) were selected based on their proximity to the residences and likelihood that the decision units would be used frequently by residents or visitors. The DUs include lawn and garden areas used by residents for property access, recreation, lawn and house maintenance, and gardening, and therefore represent an increased risk of exposure to the elevated levels of lead and As in the soil.

The effects of exposure to the contaminants of concern on organ systems is influenced by several factors, including dose, duration of exposure, and route of exposure, as well as the age and health of the receptor exposed. Lead is known to be toxic to humans. Children are most susceptible to the effects of lead and even low levels of lead in the blood of children can result in behavior and learning problems, lower IQ and hyperactivity, slowed growth, hearing problems, anemia, and in rare cases, ingestion of lead can cause seizures, coma and even death. Pregnant women are also particularly vulnerable to the effects of lead contamination and exposure to lead can result in serious effects to the mother and her developing fetus, including reduced growth of the fetus and premature birth.

B. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate (40 C.F.R. § 300.415[b][2][iv])

Portions of the DUs on the properties are only partially vegetated. Lead and arsenic are present at elevated concentrations in shallow surface soil (i.e., 0-6 inches bgs), which create the likelihood of exposure from residential and recreational use, and the soils are susceptible to migration within and off of the properties because of water- and wind-borne and mechanical influences.

C. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released (40 C.F.R. § 300.415(b)(2)(v))

The climate in the region of the site includes cold, freezing winters with a large amount of snow and hot, often dry summers. These weather conditions can increase the likelihood that the contaminants in shallow surface soil are susceptible to dispersion (e.g., snow melt and rains in the spring may disperse contaminants in surface water runoff, and the dry and hot conditions in summer and early fall may cause contaminants to disperse by wind, especially in areas that are not protected by a vegetated cover).

D. The availability of other appropriate federal or state response mechanisms to respond to the release (40 C.F.R. § 300.415(b)(2)(vii))

The proposed TCRA is expected to be conducted by Teck in accordance with CERCLA and with oversight by EPA. There are no known other appropriate federal or state response mechanisms capable of providing the appropriate resources in the prompt manner needed to address the potential human health and ecological risks associated with the hazardous substances described herein.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site may present an imminent and substantial endangerment to the public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. <u>Proposed Actions</u>

The proposed action is intended to mitigate the potential human health threats posed by exposure to lead and arsenic, including direct contact, ingestion, and inhalation pathways.

1. Proposed action description

Soil in each DU above cleanup levels (250 mg/kg for lead and/or 20 mg/kg for arsenic) will be excavated to a maximum depth of 12 inches (24 inches for gardens) for off-Site disposal in an appropriate landfill (selected consistent with the off-site rule) followed by backfill and restoration. The Site consists of 14 residential properties. The general approach to be used at all locations is described below.

Property Preparation

Property-Specific Work Plans are being developed based on interviews with the affected property owner and EPA observations made during site reconnaissance activities. The pre-removal condition of the property (e.g., the house or any other structure, driveways, paved parking areas, fences, utilities, trees or other vegetated areas, gardens, etc.) will be documented. The presence (or evidence) of any children, pets, and/or livestock will also be noted. Items that cannot be temporarily relocated during removal activities will be identified and protected from damage. Removal activities will be conducted in a way that considers property features and uses. The removal activities will be coordinated with the property owner and performed in such a manner as to minimize impacts to the property and the residents.

If necessary, access roads and driveways to the property and DUs will be improved to allow access for equipment and vehicles. Work areas and roads for site traffic will be established in project work plans. Any residential items or personal belongings in the work zone (i.e., DU and support zones) will be temporarily relocated or marked and protected. The location of any underground or aboveground utilities will be identified and marked.

Excavation

In each DU where soil excavation occurs, the contaminated soil will be excavated to an initial depth of 6 inches bgs. In most areas, excavation will primarily be with mechanical equipment (e.g., excavators, skid steers, and loaders), while in some sensitive locations (i.e., near houses, buried utilities, or trees/vegetation), excavation will be performed by hand using shovels and other hand tools.

At the bottom of the initial 6-inch excavation, the soil will be screened using XRF to determine whether additional excavation is required. Screening samples will be located in a grid pattern at a frequency of at least one sample every 400 square feet. If analysis of samples from any location indicates that the soil at the bottom of the excavation contains either lead or arsenic above the cleanup levels, excavation will continue at that location to a maximum depth of 12 inches bgs. The lateral extent of any additional excavation will be determined by soil sampling and analysis to ensure all soil with concentrations exceeding the lead or arsenic cleanup levels is removed. At the bottom of any 12-inch excavation area, the soil will be screened by XRF to determine whether the soil is still above lead or arsenic cleanup levels. If soil at the 12-inch depth is below

both lead and arsenic cleanup levels, backfilling can proceed. If soil is above cleanup levels for lead or arsenic, a geotextile fabric or similar material will be laid down at the bottom of the excavation area before backfilling as a visual indicator between contaminated soil and clean backfill.

Around mature trees, excavation will be performed by hand and will only extend to approximately 2 inches bgs within the tree's root radius to avoid damage to the tree.

Field screening with the XRF will be supported by a site-specific sampling plan (SSSP) and quality assurance project plan (QAPP) and will include the collection of confirmation samples and analysis at an off-site laboratory to validate the precision and accuracy of the field XRF screening. The SSSP/QAPP will be reviewed and approved by EPA prior to removal activities.

Personnel and equipment exiting work areas will be decontaminated to avoid the spread of contaminants.

Waste Management and Disposal

Excavated soil should be managed within the confines of each DU and then will be loaded directly into haul trucks to minimize short-term cleanup impacts to the property. The haul trucks will then transport the contaminated soil to a centrally located stockpile area or, if necessary and/or feasible, directly to a disposal facility consistent with the off-site rule. If needed, the specific locations of any stockpile will be determined on a case-by-case basis. At the stockpile location, contaminated soil from each property will be loaded on to trucks for transport to an appropriate landfill consistent with the off-site rule.

Based on the results of EPA's sampling in May 2014, the soil may be able to be disposed of as non-hazardous waste in a Subtitle D landfill, although this is subject to verification and final waste profiling by the intended disposal facility.

Property Backfill and Restoration

Following the excavation of the contaminated soil at each DU, the excavated area will be backfilled to the original grade with pit run gravel and/or top soil, depending on the property. Additionally, as appropriate grass seed can be added to areas backfilled with clean top soil.

Sources of pit run gravel and top soil will be screened by XRF in accordance with the SSSP/QAPP to ensure that the backfill material does not contain lead or arsenic at concentrations greater than the site cleanup levels.

Following backfill, the property will be restored to a condition comparable to its pre-removal condition, based on pre-removal documentation. If the removal activities require the removal of fencing or shrubs/vegetation, they will be repaired or replaced.

Best Management Practices

Best Management Practices (BMPs) will be implemented during removal activities to protect workers, residents, the community, and the environment from short-term construction impacts such as erosion, sedimentation, fugitive dust, noise, and other similar potential impacts. Removal activities on residential properties will be closely coordinated with the property owners and residents to minimize disruption and impacts to the residents and property.

Greener Cleanup Best Management Practices

Appropriate and practicable greener cleanup BMPs will be implemented during cleanup activities, including, but not limited to, minimizing energy consumption (e.g., using new and well-maintained equipment), minimizing generation and transport of fugitive dust (e.g., implementation of construction BMPs), minimizing waste generation through reuse and recycling, minimizing impacts to water resources (e.g., implementation of construction storm water and surface water BMPs), minimizing areas requiring activity or use limitations (e.g., source removal), minimizing unnecessary soil and habitat disturbance, and minimizing lighting and noise disturbance (e.g., implementation of construction BMPs).

Post-Removal Site Controls

If soil contamination in excess of the cleanup level is detected below 12 inches, a geotextile fabric or other similar visual marker will be installed to act as a warning to current or future property owners regarding the contaminated soil below. Following the removal action, a report detailing the removal activities will be provided to each property owner that will document the location of known areas above lead and arsenic cleanup levels. EPA expects that any necessary additional post-removal site controls will be addressed through the anticipated future remedial action.

On properties where sod, grass seed, and/or plants have been installed, a maintenance plan will be provided to each property owner so that the new plantings establish roots and survive.

2. Contribution to remedial performance

The proposed removal action will not impede future actions based upon available information. The proposed removal action may be the first and only action or one of a series of actions depending on post-removal activities such as those necessary to maintain the protectiveness of the cleanup.

The proposed removal action has been and will continue to be closely coordinated with the Remedial Program to ensure that the action will contribute to the efficient

performance of any long-term remedial action with respect to the release or threatened release concerned.

3. Engineering Evaluation/Cost Analysis

An Engineering Evaluation/Cost Analysis is not required because this is a TCRA.

4. Applicable or relevant and appropriate requirements

The NCP requires that removal actions attain Applicable or Relevant and Appropriate Requirements (ARARs) under federal or state environment or facility siting laws, to the extent practicable. (40 C.F.R. § 300.415(j)) In determining whether compliance with ARARs is practicable, EPA may consider the scope of the removal action and the urgency of the situation. (40 C.F.R. § 415(j)) The scope of the removal action proposed in this Action Memorandum is limited.

Endangered Species Act [16 U.S.C. §§ 1531 – 1544; 50 C.F.R. Parts 17, 402]. The Endangered Species Act (ESA) protects species of fish, wildlife, and plants that are listed as threatened or endangered with extinction. It also protects designated critical habitat for listed species. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, including consultation with resource agencies. The requirements of the ESA are potentially applicable to the Site since listed threatened or endangered species habitat areas will or could be impacted by response action. Consistent with ESA Section 7, if any federally designated threatened or endangered species are identified in the vicinity of removal work and the action may affect such species and/or their habitat, EPA will consult with USFWS to ensure that response actions are conducted in a manner to avoid adverse habitat modification and jeopardy to the continued existence of such species.

National Historic Preservation Act [16 U.S.C. § 470f; 36 C.F.R. Parts 60, 63, 800]. Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties and seek ways to avoid, minimize or mitigate any adverse effects on those properties. This includes archaeological sites, historic sites and traditional cultural properties that are eligible to the National Register of Historic Places.

The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and the affected parties, commencing at the early stages of project planning. The EPA is the lead Agency responsible for ensuring that all work is conducted in compliance with Section 106 of the National Historic Preservation Act. EPA will consult with other parties that have an interest in the effects of the planned undertaking and provide them a reasonable opportunity to comment on such undertakings. These parties include, but

are not limited to, the State Historic Preservation Officer and the concerned Tribal Historic Preservation Officers (THPOs).

On June 16, 2015, EPA representatives met with the Colville Confederated Tribes THPO and staff archaeologist regarding the planned soil removal work and discussed the field protocol to be followed by the work crews in coordination with the cultural monitors. A detailed description of the agreed upon field coordination/communication protocol is contained in the Statement of Work (Appendix C to the Administrative Settlement Agreement and Order on Consent for the performance of a removal action by TAI). This protocol will also be included in the Cultural Resources Coordination Plan to be completed by TAI. All field personnel are expected to be familiar with the cultural resources coordination plan and the field coordination/communication protocol to be followed on all properties. As contained in the protocol, the cultural monitors will have stop work authority if a suspected archaeological object or archaeological resource is encountered. Additionally, EPA personnel on-site will have stop work authority if there is any deviation from the coordination/communication protocol without prior approval by EPA. EPA has provided a copy of the field protocol to the Washington State Department of Archaeology and Historic Preservation Office which serves as the State Historic Preservation Office (SHPO) and provides continued updates regarding the planned work and its coordination efforts with the Colville Confederated Tribes.

On July 20, 2015, representatives for EPA, TAI and the CCT History/Archaeology Program discussed TAI's preliminary start date for conducting soil removal work so that the CCT can arrange for the availability of cultural monitors.

The performance of the removal action are expected to achieve the standards set forth under Washington State's MTCA (Chapter 173-340 of the Washington Administrative Code [WAC]) to address potential threats to public health and welfare and the environment from a release or threat of release of hazardous substances. As discussed above, soil cleanup levels for the removal action are based on MTCA Method A cleanup levels and the Work will achieve these levels. The State of Washington's solid waste and dangerous management regulations, found at WAC 173-300 *et seq*., are potentially applicable to solid waste generation and management at the Site.

Clean Water Act. The removal action shall comply with substantive stormwater requirements for construction activities, including erosion and sediment controls. (90.48 RCW, 33 U.S.C. §1251 *et seq*.)

5. Project schedule

The removal action activities are expected to start in August 2015 and the residential properties are expected to be completed by October 2015. The project is expected to last approximately eight to twelve weeks. Excavation is expected to be completed before winter weather arrives (usually November) before snowfall covers the planned

excavation areas and because the access roads/driveways to some of the properties will become impassable.

B. Estimated Costs

Teck is expected to pay for past costs and the cost of the removal action, including EPA's oversight costs. If EPA were to undertake implementation of the work described in this Action Memorandum, an Amendment will be written.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay in action or no action at the Site would increase the actual or potential threats to the public health and/or the environment associated with exposure to Site contaminants and would allow Site contaminants to continue to migrate from surface soils.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT ADDENDUM

Refer to attached confidential enforcement addendum.

IX. RECOMMENDATION

This decision document sets forth the recommended removal action for the Site that has been developed in accordance with CERCLA, and is consistent with the NCP. The recommended removal action is based on the administrative record for the Site.

Conditions at the Site meet the NCP 40 C.F.R. § 300.415(b) criteria for a removal action, and I request your approval of the recommended removal action. The recommended removal action is expected to be funded and conducted by Teck with oversight provided by EPA. However, if Teck is unwilling or unable to fund or conduct the recommended removal action, and EPA must undertake all removal action work, the total project ceiling is currently estimated to be $5,291,850.

X. APPROVAL/DISAPPROVAL

By the approval which appears below, EPA selects the removal action for the Site as set forth in the recommendations contained in this Action Memorandum.

Approve: X

Chris D. Field, Manager
Emergency Management Program

Disapprove: _____

Chris D. Field, Manager
Emergency Management Program

Effective date of this Decision: _____

ATTACHMENTS:

- References
- Figure
- Enforcement Addendum

ATTACHMENT:

REFERENCE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
ENVIRONMENTAL
CLEANUP

April 21, 2015

Mr. Jim Pendowski, Program Manager
Toxics Cleanup Program
Washington Department of Ecology
P.O. Box 47600
Olympia, Washington 98504-7600

Mr. B.J. Kieffer, Director
Spokane Tribal Natural Resources
Spokane Tribe of Indians
P.O. Box 480
Wellpinit, Washington 99040

Mr. Gary Passmore, Director
Office of Environmental Trust
The Confederated Tribes of the Colville Reservation
P.O. Box 150
Nespelem, Washington 99155

Ms. Christine Lehnertz, Pacific West Regional Director
National Park Service, U.S. Department of the Interior
1111 Jackson Street, Suite 700
Oakland, California 94607

Re: Dispute Decision Regarding Upper Columbia River Action Levels for Time-Critical Removal Action Dispute, Upper Columbia River Superfund Site

Dear Mr. Pendowski, Mr. Kieffer, Mr. Passmore, and Ms. Lehnertz:

This letter sets forth my determination with respect to the Washington Department of Ecology's February 13, 2015, request for dispute resolution, the Spokane Tribe of Indians' February 19, 2015, notification of participation in the dispute resolution process and subsequent submittal, the Confederated Tribes of the Colville Reservation's February 20, 2015 request for dispute resolution and subsequent submittal, and the U.S. Department of the Interior's March 19, 2015 comments via telephone on the dispute, regarding EPA's proposal of a lead action level for a Time-Critical Removal Action for various residential properties within the Upper Columbia River Superfund Site ("Site"). In summary, I hereby determine:

1. The lead action level for the Time-Critical Removal Action at residential properties at the Site must be determined through CERCLA removal action procedures and tribal consultation policies and will be documented in an Action Memorandum and the associated administrative record;

2. EPA intends to select an action level for the Time-Critical Removal Action for lead of 700 parts per million which will result in a cleanup level of less than 250 parts per million; and
3. EPA will continue to follow all appropriate CERCLA remedial action procedures, including the Memorandum of Agreement, and tribal consultation policies, for determining final cleanup levels for lead for the Remedial Action at the Site.

I. Background

On June 2, 2006, EPA and Teck Cominco Metals, Ltd. and Teck Cominco American Incorporated (collectively "Teck Cominco") entered into a settlement agreement for the performance of a CERCLA Remedial Investigation and Feasibility Study ("RI/FS") at the Site. On May 18, 2007, five governmental parties ("Participating Parties") entered into the Intergovernmental Memorandum of Agreement for the Upper Columbia River Superfund Site ("MOA"). [1] The MOA provides a framework for coordination and cooperation among the Participating Parties to address the RI/FS process at the Site. While the governmental parties, except for EPA, are not parties to the settlement agreement with Teck Cominco, they have statutory and regulatory mandates applicable to the RI/FS and are active government oversight participants in Teck Cominco's performance of the RI/FS. The current dispute is raised under Section VII of the MOA.

In December 2014, EPA began the process of considering action levels for a potential Time-Critical Removal Action at the Site to address lead contamination in soils at residential properties, pursuant to Section 104(a) of CERCLA, 42 U.S.C. § 9604(a), and 40 C.F.R. § 300.415, that pose an immediate threat to human health. EPA initiated conversations with the Washington Department of Ecology on December 16, 2014, and with the Confederated Tribes of the Colville Reservation on December 18, 2014, regarding a potential Time-Critical Removal Action at residential properties with lead levels over 1,000 ppm, and for children's play areas with lead levels over 700 ppm. At that time, EPA expressed that complete data regarding lead levels in soils at the Site were not expected until January 29, 2015, and therefore the discussions regarding an action level range of 700 ppm to 1,000 ppm were preliminary and were not meant to convey a final agency decision on the action level. Throughout December 2014, January 2015, and February 2015, EPA conducted weekly telephone calls with the Participating Parties and was in regular communication with Teck Cominco. On March 11, 2015, following the official commencement of this dispute, EPA met with the parties to the dispute in Spokane, Washington. At that meeting, the concerns of the parties to the dispute were discussed, and EPA presented the perspective of its technical team regarding the proposed action level for the Time-Critical Removal Action. The conversations that occurred over the past few months were intended to provide for open communication among all parties regarding a Time-Critical Removal Action from residential properties at the Site, and were not intended to convey or determine an action level. To date, EPA has not made a determination of the action level for the Time-Critical Removal Action for residential properties at the Site.

II. The Issues

In its request for dispute resolution, the Washington Department of Ecology contends that applying the same action levels developed for the Bunker Hill Superfund Site is inappropriate because it is

[1] The signatories to the MOA, referred to as the Participating Parties, are the United States Environmental Protection Agency, the Washington Department of Ecology, the Confederated Tribes of the Colville Reservation, the Spokane Tribe of Indians, and the United States Department of the Interior.

inconsistent with EPA policy, with current scientific consensus on health risks associated with lead exposure, with more recent bioavailability studies, with Washington's policies, and with other EPA actions.

In its request for participation in the dispute resolution process, the Spokane Tribe of Indians did not initially raise any specific issues, but requested to participate in the process, as provided for in the MOA. In follow up written communication dated March 12, 2015, Dr. F. E. Kirschner of AESE, Inc., on behalf of the Spokane Tribe of Indians, contends that the proposed use of action levels at the Site that were developed for the Bunker Hill Superfund Site are inappropriate, and that the proposed action level would provide disproportionate protection of human health at the Site than is provided for under Washington State policy.

In its request for dispute resolution, the Confederated Tribes of the Colville Reservation contends that EPA did not coordinate with the Confederated Tribes of the Colville Reservation prior to communicating EPA's cleanup intent and proposed cleanup levels to Teck Cominco, and gave no meaningful consideration to Tribal cleanup standards. Additionally, the Confederated Tribes of the Colville Reservation contends that it shares the Washington Department of Ecology's concerns regarding application of cleanup levels from the Bunker Hill Superfund Site.

In its comments via telephone regarding the current dispute, the U.S. Department of the Interior expressed its support for EPA's proposed action level for the Time-Critical Removal Action and the technical basis used to reach the proposal.

A. Removal Action Authority and Procedures

In the present action level determination process, EPA must follow the procedures of its removal action authority, as laid out in CERCLA, 42 U.S.C. §§ 9601, *et seq.*, the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), 40 C.F.R. Part 300, and relevant EPA guidance documents. Section 104(a)(1) of CERCLA, 42 U.S.C. § 9604(a)(1), grants EPA the authority to act, consistent with the NCP, to remove a hazardous substance, pollutant, or contaminant, whenever there is a release or a threat of such a release into the environment. Additionally, pursuant to Section 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2), any removal action taken should, to the extent practicable, contribute to the efficient performance of any long term remedial action with respect to the release or threatened release concerned. Therefore decisions made regarding action levels or cleanup levels of a removal action do not constitute final remedial actions, but rather should contribute to final remedial actions. Conducting the Time-Critical Removal Action for residential properties at the Site is intended to address the immediate threat to human health from lead exposure, and will contribute to the long term cleanup of the Site through the remedial action process.

The removal program is in the final stages of the site evaluation and has determined that a Time-Critical Removal Action is appropriate to address immediate threats to human health due to lead contaminated soils. Factors EPA must consider when making this determination include, but are not limited to, actual or potential exposure to humans, actual or potential contamination of drinking water, and threat of fire or explosion.[2] Since EPA has not completed the required process for starting a Time-Critical Removal Action, EPA is now in the final stages of determining action levels, cleanup levels, and the scope of this

[2] 40 C.F.R. § 300.415(b)(2).

Time-Critical Removal Action for residential properties at the Site. Pursuant to 40 C.F.R § 300.415(j), when conducting a removal action, EPA shall, to the extent practicable considering the urgency of the situation and the scope of the removal, attain applicable or relevant and appropriate requirements under federal or state environmental laws ("ARARs"). EPA recognizes that many of the concerns raised in this dispute address ARARs and EPA will consider those issues, in addition to the urgency of the situation and the scope of the removal, as it determines whether the Time-Critical Removal Action will attain ARARs. As noted above on page 2, removal activities conducted by EPA with an action level of 700 ppm will result in a cleanup level of 250 ppm, which is consistent with the State of Washington's cleanup standard for lead.

When a final determination is made to implement a Time-Critical Removal Action, EPA prepares an Action Memorandum in accordance with EPA guidance which provides a concise written record of the removal decision.[3] The Action Memorandum authorizes the initiation of on-site activities, pursuant to Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). There is no opportunity for official public comment regarding selection of a Time-Critical Removal Action prior to initiation of on-site activities because of the time-critical element of such actions. Pursuant to 40 C.F.R. § 300.415(n)(2)(i), within 60 days of initiation of on-site removal activity, EPA will publish an administrative record providing supporting documentation of EPA's decision to conduct the Time-Critical Removal Action. Pursuant to 40 C.F.R. § 300.415(n)(2)(ii), EPA will then provide for a public comment period, as appropriate, for a period of not less than 30 days. That public comment period, which follows determination of removal action levels and initiation of on-site removal activity, is the mechanism for official public comment regarding Time-Critical Removal Actions. Tribal consultation regarding Time-Critical Removal Actions will be addressed in Section II.D, below.

EPA understands the importance of public participation in its decision-making process and recognizes the specific interests of the parties involved in the present dispute in determining final remedial cleanup levels. However the very nature of, and legal procedures for, Time-Critical Removal Actions require rapid decision-making to address immediate threats to human health.

B. Remedial Action Authority and Procedures – Including the RI/FS and MOA

While the removal action procedures described above authorize the determination of the action levels for a Time-Critical Removal Action, remedial action procedures, including the RI/FS process and the MOA, govern the determination of the long term remedial cleanup levels at the Site. Remedial action authority and the selection of cleanup standards are authorized under Sections 104 and 121 of CERCLA, 42 U.S.C. §§ 9604 and 9621. Following a preliminary assessment and site inspection, 40 C.F.R. § 300.430 authorizes the RI/FS. As mentioned in Section I above, EPA and Teck Cominco entered into a settlement agreement under which Teck Cominco agreed to conduct the RI/FS, consistent with EPA guidance and the NCP. The purpose of an RI/FS is to assess site conditions and evaluate alternatives to the extent necessary to select a remedy and includes project scoping, data collection, risk assessment, treatability studies, and analysis of alternatives.[4] The MOA, under which the current dispute was raised, is "intended to assist the Participating Parties in achieving enhanced communication, coordination and

[3] EPA *Superfund Removal Guidance for Preparing Action Memoranda, Final Guidance, September 2009*, available at http://www2.epa.gov/sites/production/files/2014-02/documents/superfund_removal_guide_for_preparing_action_memo.pdf.
[4] 40 C.F.R. § 300.430(a)(2).

efficiencies during the RI/FS process."[5] Therefore the MOA and its dispute resolution procedures apply only to the RI/FS process (not to determinations made by EPA pursuant to its removal authority). EPA is committed to adhering to the letter and spirit of the MOA and will take into account comments and critiques raised by the Participating Parties regarding the RI/FS process.

Following completion of the RI/FS process, EPA will follow legal requirements in CERCLA and the NCP, specifically 40 C.F.R. § 300.430(f), to select a remedial action. Remedial actions involve long-term actions designed to provide a permanent solution to threats posed by hazardous substances, pollutants, or contaminants. Cleanup levels and remediation goals for selected remedial actions must address ARARs, and the site-specific evaluation of ARARs is based on a number of factors in the NCP.[6] The comments and issues raised in the current dispute, such as using data from the Bunker Hill Site, using IEUBK modelling, not attaining cleanup standards from Washington state law and policies, not applying ATSDR and CDC standards, and not mirroring cleanup levels selected at other Superfund sites, are issues that will be relevant to the discussion surrounding ARARs and the applicability of ARARs to the remedy. Additionally, pursuant to 40 C.F.R. § 300.430(f)(3), EPA will provide for a public comment period on the proposed remedy prior to making a final decision. EPA encourages input and participation from state and tribal partners, as well as other members of the public, in selecting the appropriate remedy for the Site.

C. Removal Action Level for Lead

In December 2014, EPA proposed an action level for lead for a potential Time-Critical Removal Action for residential properties at the Site of 700-1,000 ppm. That action level was proposed based on EPA's concern that a number of residential soil samples had lead levels above 1,000 ppm. EPA proposed the lower action level of 700 ppm for children's play areas where children's risk for exposure to lead would be higher. That proposal, and subsequent conversations, led to the initiation of the current dispute in February 2015. That initial proposal was not a decision under the remedial program procedures. As described in Section II.A above, the decision to conduct a Time-Critical Removal Action and the proposal of certain action levels was made pursuant to removal action authorities and procedures, which falls outside the purview of the dispute resolution mechanism of the MOA. EPA does not have the legal authority to make a decision regarding a Time-Critical Removal Action in a response to a dispute raised under the MOA. However, the MOA dispute resolution process has provided a valuable mechanism for the exchange of information regarding lead action levels and EPA is taking the opportunity to use the MOA dispute resolution process to provide the Participating Parties with information on EPA's intended action level for the upcoming Time-Critical Removal Action for residential properties at the Site.

As mentioned above, EPA is currently in the process of determining the scope and action level of the Time-Critical Removal Action. While I am not in a position to make a final decision regarding action levels or cleanup levels for lead in this dispute resolution decision letter, EPA intends to select an action level for lead of 700 ppm for the Time-Critical Removal Action. Therefore, residential soils that are above 700 ppm of lead would undergo a removal action and would be cleaned up to less than 250 ppm of lead. The Time-Critical Removal Action will be focused on immediate threats to human health and there will be additional assessment, through the RI/FS process which provides for input from the Participating Parties under the MOA, and additional opportunity for public comment on the proposed

[5] MOA, page 1.
[6] 40 C.F.R. § 300.400(g).

remedy, to determine a final remedial cleanup level. During that remedial process, EPA will address possible changes in acceptable modelling methods, potential expansion of the sampling area, ARARs, and other relevant issues.

EPA's project team considered a number of factors in proposing the action level for the Time-Critical Removal Action for residential properties, including results of site-specific bioavailability data gathered through the RI/FS process, and other studies regarding bioavailability, lead ingestion rates, and blood lead levels. The project team also reviewed blood lead level and bioavailability data from the Bunker Hill Superfund Site, as well as studies conducted as recently as 2013 and 2014, to propose in December 2014 that removal of soils from residential properties with lead levels of 700 ppm to 1,000 ppm or higher would adequately address the immediate threat to human health.[7] Following bioavailability and blood lead level studies, and calculation of the lead ingestion rate for the Bunker Hill Superfund Site, the project team used that data to estimate the lead ingestion rate at the Upper Columbia River Superfund Site. The project team used this data in its risk evaluation for the Upper Columbia River Superfund Site for purposes of proposing the action level for the Time-Critical Removal Action because the bioavailability data at the two sites is comparable. Additionally, the data and studies from the Bunker Hill Superfund Site have been reviewed extensively by EPA and a distinguished panel from the National Academy of Sciences who published their supportive findings.[8] The current proposal of a blanket action level of 700 ppm (as opposed to an action level of 700 ppm for residential properties where children live and an action level of 1,000 ppm for residential properties where children do not live) was proposed because the demographics of residents can and does change over time, and a property without children present currently may have children present at the property in the future.

In the past EPA has approved different lead cleanup levels at other sites based on site-specific analyses. For example, at the Tar Creek Superfund Site, Ottawa County, Oklahoma, EPA conducted a Time-Critical Removal Action to address lead contaminated soil in 1995 and 1996. The removal in 1995 focused only on areas where children tend to congregate such as schools, playgrounds, and parks and set an action level of 500 milligrams per kilogram ("mg/kg").[9] The removal in 1996 focused on residential properties, and an action level of 500-1,500 mg/kg was selected. For residential properties where children less than 72 months of age resided who had blood lead levels higher than or equal to 10 µg/dL and soil lead concentrations were identified as a significant contributor to that level, the action level was 500 mg/kg. For residential properties that did not meet those criteria, the action level was 1,500 mg/kg. Additionally, the Action Memorandum, dated March 21, 1996, specifically states "the final remediation goal for lead and all other contaminants will be established in the Record of Decision for the Site."[10] Ultimately, the cleanup level selected through the remedial program in the Record of Decision was 500 mg/kg.

At the Jefferson County Mining Site, Jefferson County, Missouri, EPA initiated a Time-Critical Removal Action in 2007 to address lead contaminated soil. The action level ranged from 400-1,200

---

[7] Large scale reviews and integration of data from tracer, mechanistic, validation modeling/measurement, and empirical relations (biomonitoring/environmental concentration) studies have found that mean ingestion rates in children were less than 100 milligrams per day and may be as low as 40-80 milligrams per day. Estimating Children's Soil and Dust Ingestion Rates Using Blood Lead Biomonitoring at the Bunker Hill Superfund Site in the Silver Valley of Idaho.

[8] Superfund and Mining Megasites: Lessons from the Coeur d'Alene River Basin, available at http://www.nap.edu/catalog/11359/superfund-and-mining-megasites-lessons-from-the-coeur-dalene-river.

[9] 1 mg/kg = 1 ppm.

[10] Action Memorandum for Tar Creek Superfund Site, dated March 21, 1996, page 7.

mg/kg. For properties that were high-use areas for children 84 months of age or younger, or residential properties where children resided who had blood lead levels greater than 10 µg/dL, the action level was 400 mg/kg. For other properties that did not meet those criteria, the action level was 1,200 ppm. While EPA selected different cleanup levels for the removal actions at the Tar Creek Superfund Site and the Jefferson County Mining Site than it has proposed for the Time-Critical Removal Action at the Upper Columbia River Superfund Site, EPA has always applied a site-specific analysis. EPA has also been clear that cleanup levels selected for removal actions are not the final remedial action cleanup levels.

D. Meaningful Tribal Consultation

EPA's policy is to consult on a government-to-government basis with tribal governments when EPA actions and decisions may affect tribal interests.[11] EPA is committed to engaging in consultation with the Confederated Tribes of the Colville Reservation and the Spokane Tribe of Indians throughout the removal and remedial actions at the Site, pursuant to EPA policy and the MOA, as applicable. Specifically regarding Time-Critical Removal Actions in Region 10, "EPA should offer formal consultation directly to Tribal leadership prior to approval of the Action Memorandum, whenever time allows."[12]

I apologize for any miscommunications or misunderstandings regarding consultation that occurred as a result of communications between EPA, the Confederated Tribes of the Colville Reservation, and the Spokane Tribe of Indians in December 2014 through the present on the matter of EPA's proposed action level of 700-1,000 ppm for lead for a Time-Critical Removal Action at the Site. The communications between EPA and these parties were meant to serve as initial informal consultation to discuss the potential action level for the Time-Critical Removal Action. EPA should have been clearer in those early discussions that a decision had not yet been made, and should have ensured that proper procedures for meaningful formal tribal consultation were followed. EPA fully intends to consult with the Confederated Tribes of the Colville Reservation and the Spokane Tribe of Indians prior to approval of the Action Memorandum for the Time-Critical Removal Action at the Site. In the near future, EPA will initiate formal consultation regarding the Time-Critical Removal Action.

As EPA and the Confederated Tribes of the Colville Reservation and the Spokane Tribe of Indians proceed with formal consultation, EPA will take into consideration the issues raised regarding action levels during this dispute, and welcomes any additional input from the Tribes.

III. Decision

The dispute raised by the Washington Department of Ecology, the Spokane Tribe of Indians, and the Confederated Tribes of the Colville Reservation, is resolved as of the date of this letter. EPA's proposal to conduct a Time-Critical Removal Action for residential properties at the Site with an action level of 700 ppm for lead are governed by the authorities and requirements of CERCLA and the NCP regarding removal actions. The MOA and its dispute resolution procedures address the RI/FS process of the remedial action for the Site.

---

[11] EPA Region 10 Tribal Consultation and Coordination Procedures, page 1.
[12] EPA Region 10 Tribal Consultation and Coordination Procedures, Appendix A.

Accordingly:

1. The lead action level for the Time-Critical Removal Action at residential properties at the Site must be determined through CERCLA removal action procedures and tribal consultation policies and will be documented in an Action Memorandum and the associated administrative record;
2. EPA intends to select an action level for the Time-Critical Removal Action for lead of 700 parts per million which will result in a cleanup level of less than 250 parts per million; and
3. EPA will continue to follow all appropriate CERCLA remedial action procedures, including the Memorandum of Agreement, and tribal consultation policies, for determining final cleanup levels for lead for the Remedial Action at the Site.

IV. Administrative Record

An administrative record includes the documents that provide the basis for an EPA decision. The administrative record for the Time-Critical Removal Action for the Site will include documents that were used in reaching the decisions detailed in the Action Memorandum. Pursuant to 40 C.F.R. § 300.415(n)(2), EPA will publish the administrative record within 60 days of initiation of on-site removal activity.

EPA acknowledges the importance of the critical issues brought up through this dispute resolution process and will work with the Participating Parties to address those concerns through the proper procedures. EPA is committed to continuing dialog with the Participating Parties throughout the RI/FS process, in accordance with the MOA, and into the selection of the remedy to ensure a long-term solution to contamination at the Site.

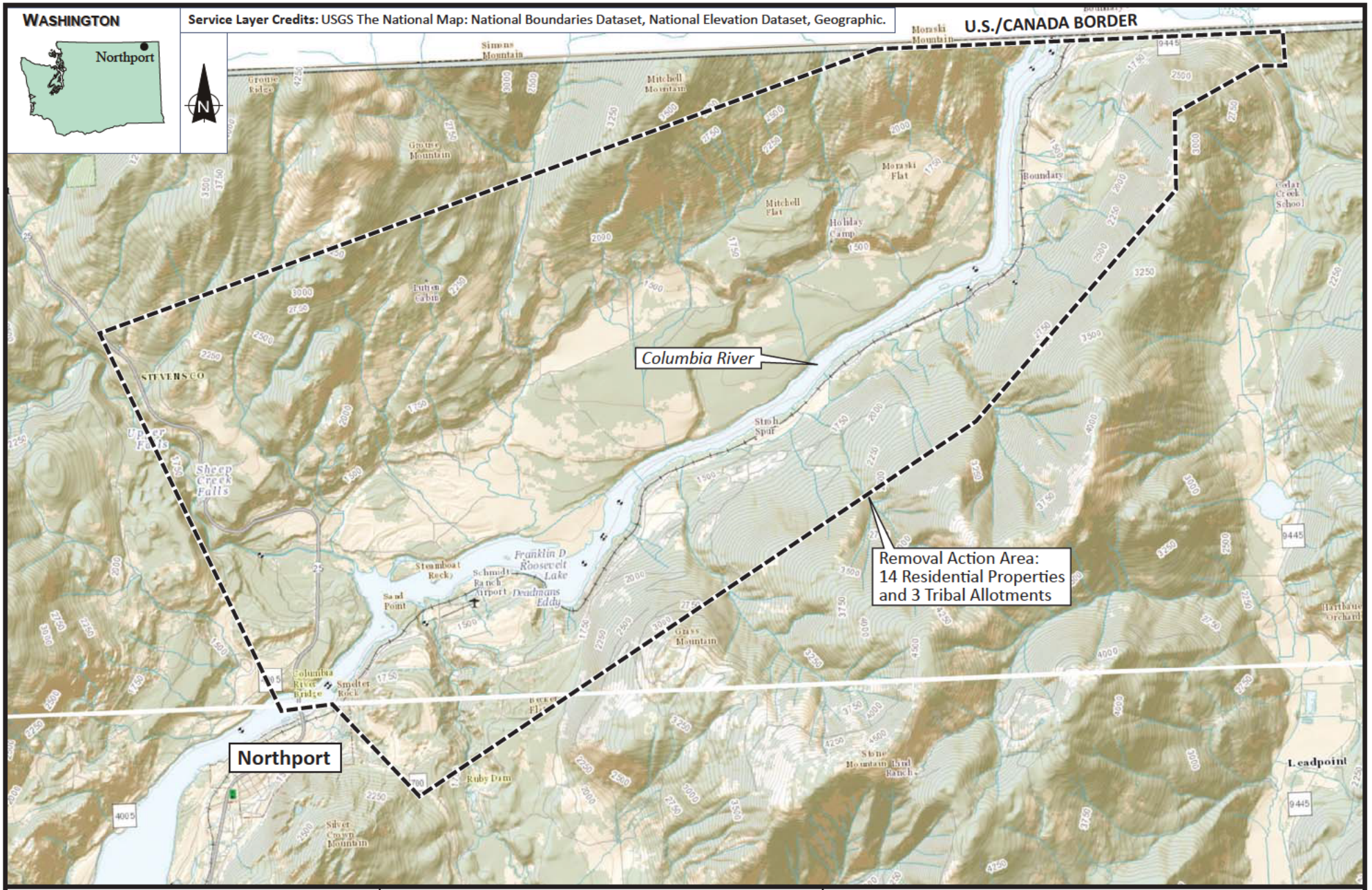
Sincerely,

Richard Albright, Director
Office of Environmental Cleanup

cc: Ms. Patty Bailey, Colville Tribe
Mr. Dan Audet, National Park Service
Mr. Mike Hibbler, Washington State Dept. of Ecology
Mr. John Rowland, Washington State Dept. of Ecology
Mr. Fred Kirschner, AESE, Inc.
Mr. Dennis Faulk, EPA
Ms. Laura Buelow, EPA

ATTACHMENT:

FIGURE 1



ecology and environment, inc.
Global Environmental Specialists
Seattle, Washington

UPPER COLUMBIA RIVER - RESIDENTIAL SOIL REMOVAL ACTION
Northport, Washington

0 1 2
Approximate Scale in Miles

Figure 1
SITE VICINITY MAP

Date:	Drawn by:	
7/15/15	AES	10:START IV\15040004\fig 1

Appendix 7:
EPA Letter to K. McCaig, Teck American Incorporated, dated June 14, 2017

June 14, 2017

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

Dear Ms. McCaig,

On February 17, 2017 Teck American, Inc. (TAI) initiated the dispute resolution process in the Settlement Agreement for Implementation of Remedial Investigation and Feasibility Study at the Upper Columbia River Site (Settlement Agreement). TAI raised two separate disputes through two separate letters initiating the disputes. In one letter, TAI disputed EPA's December 8, 2016 directive to TAI to fund EPA to conduct terrestrial plant sampling and tissue analysis. In a separate letter TAI disputed EPA's July 22, 2016 Level of Effort (LOE) for Assessment and Estimations of Upland Soils (background study). We have reached agreement on a resolution of the disputes.

EPA and TAI agree that a delineation study will be conducted within the RI/FS. The delineation study will consist of a combined analysis of empirical data (soil measurements), geospatial and geostatistical analyses, air modeling, and lead isotope ratio data.

TAI will agree to conduct the plant tissue sampling prior to the completion of a delineation study and agrees to:

a. Conduct the plant tissue sampling, rather than fund EPA to conduct the sampling.
b. Hold a technical meeting with EPA and CCT to refine data quality objectives and determine efficiencies that may be gained by limiting the quality assurance project plan to what can be done this fall (tentatively planned for June 22).
c. Draft the Quality Assurance Project Plan (QAPP) and submit to EPA for review and approval this summer. EPA and TAI will work toward a fall 2017 sampling program. It is likely sampling during two seasons will be necessary because the types of plants and plant parts that need to be gathered differ in different seasons.
d. Conduct a study that will primarily be focused on collection of plant tissue from the three Tribal allotments sampled in the 2014 Residential Soil Study that had concentrations of lead in soil above the TCRA action level (700 ppm) plus a reference area.

TAI agrees to prepare a technical assessment in response to EPA's LOE for Assessment and Estimations of Upland Soils (Background). This is to be completed independently of the delineation study. EPA agrees to consider new information resulting from the delineation study that may change the background soil numbers from the background assessment.

While not directly related to the dispute, as discussed during the informal dispute resolution, TAI has also voluntarily agreed to conduct removal actions at four upland residential properties, sampled in 2016, that have measured lead concentrations above 600 ppm.

Sincerely,



Laura C. Buelow
Project Manager

cc: Dan Audet, U.S. Department of Interior (electronic)
Patti Bailey, Confederated Tribes of the Colville Reservation (electronic)
Randy Connolly, Spokane Tribe of Indians (electronic)
John Roland, Washington Department of Ecology (electronic)

Appendix 8:
EPA Response to December 2017 Petition re: A Comprehensive Air Monitoring Program from Northport to the U.S. – Canada Border, April 18, 2018

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

April 18, 2018

Dear Petitioners:

Thank you for your petition of December 2017 to the U.S. Environmental Protection Agency requesting that EPA and the Washington Department of Ecology plan and institute a comprehensive air monitoring program from Northport to the U.S./Canada border. We have carefully considered your request. Based on our analysis of existing data we have decided we will not conduct additional air monitoring.

From our evaluation of data collected in 1999 – 2009, we believe that the risk to you from the outdoor air in Northport is low. Based on our analysis of Ecology's report[1] and operational improvements at the Trail facility, we expect current-day concentrations to be even lower.

Below is a technical description of our analysis of the existing data which we have used to make this decision:

EPA evaluated air data measured at a monitoring station near Northport (at Sheep Creek) for the period January 1999 to February 2009. Concentrations today are likely to be lower than those at the Sheep Creek station during that period, because of operational improvements at the Teck facility. EPA has analyzed numerous studies that compared air lead concentration to blood lead concentrations in children[2]. The analysis indicates that the air-associated exposure from inhalation or ingestion of lead in house dust and surface soil can lead to a blood lead level that is 5 to 10 times the value in air. Based on air results at the Sheep Creek monitoring station during the 1999-2009 monitoring period, we see 0.0242 $\mu g/m^3$ in air. This could lead to a 0.12 to 0.24 $\mu g/dL$ level of lead in blood, which is low risk.

In summary:

- For lead, the air concentration from the Sheep Creek monitoring is 0.0242 $\mu g/m^3$, which is well below the levels expected to pose significant human health risks based on current understanding of relationships between air lead concentrations and blood lead concentrations resulting from direct and indirect exposures to air lead.

[1] *Upper Columbia River Valley: Preliminary Review and Evaluation of Available Air Quality Monitoring Data and Consideration of Potential Present-Day Health Risks* (https://fortress.wa.gov/ecy/publications/SummaryPages/1702003.html); Ecology, March 2017

[2] Integrated Science Assessment (ISA) for Lead (https://www.epa.gov/isa/integrated-science-assessment-isa-lead); April 2017.

- For arsenic, the air concentration from the Sheep Creek monitoring is 0.00421 $\mu g/m^3$. This level corresponds to a cancer risk of $2x10^{-5}$ (an increased risk of cancer of two in one hundred thousand for a lifetime exposure). For comparison, this is same level of risk from naturally occurring arsenic in soil.

- For cadmium, the air concentration from the Sheep Creek monitoring is 0.00136 $\mu g/m^3$. This level corresponds to a cancer risk of $2x10^{-6}$ (an increased risk of cancer of 2 in one million for a lifetime exposure).

- For zinc, the air concentration from the Sheep Creek monitoring is 0.0514 $\mu g/m^3$. This level is well below all risk based screening levels.

The existing air data is sufficient to conduct the human health risk assessment for the Upper Columbia River Site and, therefore, EPA will not be collecting additional air monitoring data as part of the remedial investigation and feasibility study for the Site. EPA believes that our evaluation of the potential risk to people from outdoor air, using existing air data, is technically sound.

Again, we appreciate your concern for local air quality and share your commitment to protecting public health in the Northport area. If you have any further questions, please contact me at (206) 553-8696, or Monica Tonel of my staff at (206) 553-0323.

Sincerely,

Cami Grandinetti

Cami Grandinetti, Program Manager
Remedial Cleanup Program

cc: Matt Schanz, Northeast Tri County Health District
John Roland, Washington State Department of Ecology

Appendix 9:
Beach-by-Beach Comparison of the Concentration of COPCs in 0 to 15 cm (Surface Sediment) Versus 0 to 45 cm (Subsurface Sediment) Core Samples for the Less than 2 mm Particle Size Fraction

Appendix 9. Beach-by-Beach Comparison of the Concentration of COPCs in 0 to 15 cm (Surface Sediment) Versus 0 to 45 cm (Subsurface Sediment) Core Samples for the Less than 2 mm Particle Size Fraction

The table below shows the mean concentration of COPCs in the surface (0-15cm) and subsurface (0-45cm) horizons by public beach. Shaded cells indicate where the subsurface COPC concentration exceeded the surface concentration by more than 10%. The frequency is tallied in the right-most column for each COPC in the table. As shown the subsurface concentration of COPCs was generally no greater than the surface concentration, the exceptions being Barnaby Island Campground and Bradbury. For all other beaches, risk management decisions for surface sediment would be protective of subsurface exposures. For Barnaby Island Campground and Bradbury, additional consideration may be warranted.

		Antimony				Arsenic				Chromium				Cobalt				Iron				Lead				Manganese				Count COPCs
Beach Name	Study LocID	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	0-15cm Mean	0-45cm Mean	Higher	RPD	Freq >10%RPD
AA Campground	CR-AAE	0.0684	0.0667	N	n/a	1.712	1.737	Y	1%	9.74	9.089	N	n/a	4.418	4.301	N	n/a	12440	11917	N	n/a	5.378	7.768	Y	36%	198.8	198	N	n/a	1
Barnaby Island Campgr	CR-BCE	0.0724	0.1055	Y	37%	1.418	1.554	Y	9%	6.102	6.87	Y	12%	3.06	3.42	Y	11%	9756	10537	Y	8%	11.658	12.214	Y	5%	156.2	192.7	Y	21%	4
Black Sand	CR-BSE	48.38	53.87	Y	11%	19.1	20.17	Y	5%	105.66	110.94	Y	5%	46.16	46.8	Y	1%	163720	173660	Y	6%	226.2	209.1	N	n/a	3128.2	3344.1	Y	7%	0
Bossburg Flat	CR-BFE	2.57	1.9345	N	n/a	6.708	6.21	N	n/a	15.726	14.628	N	n/a	5.945	5.2755	N	n/a	20130	17939	N	n/a	1229.8	810.8	N	n/a	295.8	294.6	N	n/a	0
Bradbury	CR-BBE	0.297	0.3707	Y	22%	6.402	8.322	Y	26%	14.75	16.578	Y	12%	6.414	8.023	Y	22%	15600	18720	Y	18%	60.62	57.17	N	n/a	234.4	321.5	Y	31%	6
Colville Flats	CR-CFE	1.066	1.127	Y	6%	6.98	7.226	Y	3%	18.22	16.79	N	n/a	5.466	5.328	N	n/a	18880	18230	N	n/a	299.2	299.7	Y	0%	284.8	284	N	n/a	0
Colville River	CR-CRE	0.1376	0.1433	Y	4%	1.806	1.797	N	n/a	11.35	11.966	Y	5%	5.53	5.374	N	n/a	14294	14482	Y	1%	7.746	9.119	Y	16%	260	239.2	N	n/a	1
Crescent Bay	CR-CSE	0.0712	0.0784	Y	10%	1.892	1.9665	Y	4%	4.112	4.038	N	n/a	5.996	5.861	N	n/a	20100	19780	N	n/a	3.642	3.689	Y	1%	316	306.3	N	n/a	0
Dallas Orchard	CR-DSE	32.78	28.319	N	n/a	10.562	10.1325	N	n/a	48.88	46.33	N	n/a	21.68	18.74	N	n/a	112580	108940	N	n/a	272	268.8	N	n/a	2144	2004	N	n/a	0
Enterprise	CR-ENE	0.0922	0.0906	N	n/a	1.527	1.5475	Y	1%	8.134	8.037	N	n/a	3.565	3.4895	N	n/a	9848	10098	Y	3%	4.387	5.2315	Y	18%	157.7	148.25	N	n/a	1
Evans Campground	CR-EVE	1.2762	1.0032	N	n/a	6.154	5.922	N	n/a	20.788	17.311	N	n/a	5.294	4.824	N	n/a	16688	15507	N	n/a	379.46	316.113	N	n/a	198.86	189.66	N	n/a	0
Flat Creek	CR-FCE	7.488	7.525	Y	0%	8.962	10.763	Y	18%	24.06	23.68	N	n/a	10.016	8.937	N	n/a	26320	30080	Y	13%	239	341.7	Y	35%	439.6	476.3	Y	8%	3
Hawk Creek	CR-HCE	0.3006	0.2861	N	n/a	7.678	7.802	Y	2%	8.852	9.498	Y	7%	5.964	6.451	Y	8%	19460	20430	Y	5%	8.23	8.606	Y	4%	350.2	368.8	Y	5%	0
Hunters	CR-HTE	0.2858	0.3069	Y	7%	3.61	3.726	Y	3%	17.72	17.25	N	n/a	7.614	7.381	N	n/a	18180	17880	N	n/a	59.304	69.643	Y	16%	314.2	306.6	N	n/a	1
Jones Bay	CR-JBE	0.2056	0.2251	Y	9%	5.912	6.224	Y	5%	8.066	8.296	Y	3%	3.934	4.008	Y	2%	14080	14340	Y	2%	5.422	5.534	Y	2%	246.6	242.9	N	n/a	0
Kamloops Island	CR-KLE	0.0456	0.0499	Y	9%	1.928	1.88	N	n/a	14.38	14.46	Y	1%	5.294	5.112	N	n/a	12760	12510	N	n/a	9.504	9.957	Y	5%	221.2	199.2	N	n/a	0
Kettle Falls	CR-KFE	0.0944	0.0926	N	n/a	1.632	1.6355	Y	0%	8.41	8.2505	N	n/a	3.472	3.3795	N	n/a	11624	11002.5	N	n/a	82.828	43.219	N	n/a	162.6	163.5	Y	1%	0
Lyons Island	CR-LYE	0.571	0.5523	N	n/a	4.188	4.383	Y	5%	10.86	10.72	N	n/a	4.556	4.401	N	n/a	14280	14200	N	n/a	172.44	149.25	N	n/a	167	168.8	Y	1%	0
McGuires	CR-MGE	0.2352	0.1863	N	n/a	4.598	4.919	Y	7%	14.53	14.883	Y	2%	6.438	6.31	N	n/a	16840	16520	N	n/a	7.476	7.258	N	n/a	261.4	265.1	Y	1%	0
Mitchell Point	CR-MPE	0.2072	0.2229	Y	7%	4.284	4.522	Y	5%	12.12	12.29	Y	1%	5.504	5.648	Y	3%	14360	14750	Y	3%	5.276	5.535	Y	5%	217.8	221.5	Y	2%	0
Naborlee	CR-NAE	0.18	0.18465	Y	3%	3.732	4.1645	Y	11%	12.88	13.572	Y	5%	5.46	5.962	Y	9%	13540	14450	Y	7%	11.52	11.349	N	n/a	197.6	233.8	Y	17%	2
Nez Perce	CR-NZE	0.1788	0.1834	Y	3%	6.98	7.53	Y	8%	16.82	17.61	Y	5%	6.602	7.516	Y	13%	16640	17340	Y	4%	7.84	8.63	Y	10%	262.2	295.3	Y	12%	2
Northport Beach	CR-NPE	10.488	7.9736	N	n/a	6.264	5.175	N	n/a	21.86	19.283	N	n/a	8.96	7.78	N	n/a	36280	32530	N	n/a	199.6	180.994	N	n/a	554	523.34	N	n/a	0
R.V. Park	CR-RVE	9.934	7.939	N	n/a	9.142	8.118	N	n/a	22.3	20.76	N	n/a	7.64	7.22	N	n/a	49740	50270	Y	1%	328.1	324.75	N	n/a	932.2	974	Y	4%	0
Seven Bays	CR-SBE	0.2866	0.2388	N	n/a	5.914	6.024	Y	2%	7.142	7.021	N	n/a	3.878	3.802	N	n/a	13840	13550	N	n/a	5.912	5.869	N	n/a	249	247.4	N	n/a	0
Spring Canyon	CR-SCE	0.185	0.1983	Y	7%	8.936	9.208	Y	3%	8.298	8.542	Y	3%	3.907	4.1145	Y	5%	15960	16370	Y	3%	7.338	7.06	N	4%	252.7	273.95	Y	8%	0
Summer Island	CR-SRE	0.6386	0.4893	N	n/a	3.526	2.965	N	n/a	12.95	12.565	N	n/a	4.8	4.83	Y	1%	16210	15935	N	n/a	154.164	111.064	N	n/a	215	208.8	N	n/a	0
Swawilla Basin	CR-SWE	0.1626	0.1648	Y	1%	5.786	5.603	N	n/a	9.338	8.527	N	n/a	4.196	4.102	N	n/a	14000	14130	Y	1%	7.296	6.548	N	n/a	220.2	227.3	Y	3%	0
Swimming Hole	CR-DME	72.28	63.84	N	n/a	20.46	18.82	N	n/a	86.78	81.31	N	n/a	43.48	40.82	N	n/a	137640	130650	N	n/a	213.2	201.7	N	n/a	2642	2413	N	n/a	0
Welty Bay	CR-WBE	0.4548	0.4291	N	n/a	3.588	3.5135	N	n/a	19.24	17.29	N	n/a	6.532	5.9935	N	n/a	18620	17575	N	n/a	109.36	93.65	N	n/a	353.6	317.65	N	n/a	0
Whitestone Campground	CR-WSE	0.1844	0.2275	Y	21%	3.932	3.632	N	n/a	7.578	8.069	Y	6%	4.17	4.148	N	n/a	15260	14540	N	n/a	6.834	7.078	Y	4%	224.6	216.2	N	n/a	1
Wilmont Creek	CR-WCE	0.2546	0.252	N	1%	6.222	5.973	N	n/a	16.66	17.06	Y	2%	7.828	7.555	N	n/a	17560	18050	Y	3%	9.578	11.082	Y	15%	312.6	297	N	n/a	1

Appendix 10:
CH2M Groundwater Memorandum

Groundwater Exposure Assessment - Upper Columbia River Site

PREPARED FOR:	Monica Tonel/EPA Marc Stifelman/EPA
PREPARED BY:	Marilyn Gauthier LPG
DATE:	March 6, 2018
PROJECT NUMBER:	670274

The purpose of this technical memorandum is to summarizes the occurrence of groundwater in the Upper Columbia River (UCR) Site and evaluate the potential for groundwater to be or become impacted by releases of metals from Teck's Trail Smelter and/or other sources. This evaluation is needed to determine whether groundwater exposure should be evaluated as a complete pathway in the human health risk assessment for the UCR Site. This memorandum was prepared as an update to the Human Health Risk Assessment Work Plan (EPA 2009), which acknowledged the potential for groundwater to be impacted from releases at the Site, but did not include any data or evaluation findings.

Summary of Geology and Hydrogeology

As shown in Figure 1, surface geology along the shore of the UCR north of the Kettle River consists primarily of gravel, sand and clay deposited by glacial streams adjacent to or downstream from temporary ice fronts related to glaciation during the Pleistocene. The UCR is located within the footprint of the ancestral glacial Lake Columbia, which formed at least three times during the Pleistocene glacial period. The glacial lake and its tributaries deposited coarser materials interbedded with silt and clay, forming deltas between bedrock ridges and outcrops. In certain areas, such as the international border, Little Dalles, and Kettle Falls, glacio-fluvial sediments are absent and the river runs over and between bedrock outcrops (typically metasedimentary rocks, limestone, and quartzite). A similar pattern of glacio-fluvial sediments interspersed with bedrock outcrops is found along the Columbia River between Trail and the border (Figure 2). The surface geology south of the Kettle River consists of basalt, and, in some places along the south shore of the Lake Roosevelt reservoir, the basalt cliffs rise nearly 1,000 feet above the lake.

Discontinuous local aquifers are present in permeable glacial alluvial deposits and in permeable sedimentary rocks (sandstones and limestones) (Whitehead 1994) along the Columbia River. Yields of wells completed in these aquifers are in the tens to hundreds of gallons per minute, depending upon the aquifer extent and groundwater recharge (Whitehead 1994). The aquifer that provides the water supply for the City of Northport is an example of a permeable glacial deposit that contains useable quantities of groundwater. The sand and gravel deposits that comprise this aquifer extend from ground surface to depths greater than 200 feet, with static water levels on the order of 75 feet below ground surface (Weston Solutions, Inc. [Weston] 2004). Maximum pumping rates from these wells range from 20 to 100 gallons per minute (Weston 2004).

Groundwater in the project area occurs in interconnected pore spaces between granular particles of unconsolidated aquifers and in fractures or voids of bedrock aquifers. These aquifers receive recharge

from percolation of precipitation into the ground and leakage from surface water bodies (Whitehead 1994). Groundwater flows from higher-elevation recharge areas to lower elevations in the project area, where it discharges into streams, lakes, or rivers, or is pumped from the ground for various uses.

Shallow perched groundwater has been observed at elevations up to 160 feet above the full pool level of the Lake Roosevelt reservoir (Riedel et al. 1997). A study by Thompson (1977), using thermal infrared imagery, identified broad areas of bank seepage, spring discharge, stream inflow, and subsurface discharge into Lake Roosevelt. Observations of bank seepage and groundwater discharge correlated with the presence of unconsolidated glacial sediments rather than bedrock. Shallow groundwater seepage into the reservoir has been identified as a contributor to soil instability and landslides (Jones et al. 1961).

Movement of water between the Lake Roosevelt reservoir and the adjacent geologic strata depends upon several factors, including reservoir stage, bank storage and discharge during various reservoir stages, elevation and gradients of adjacent shallow aquifers, and regional discharge of groundwater into the reservoir from deeper aquifers (Thompson 1977).

Groundwater in the Columbia Plateau basalts aquifer discharges to Lake Roosevelt at the northern edge of the south-sloping Columbia basalts (Whitehead 1994). Lower reaches of the Columbia River farther to the south (and outside of the UCR study area) subsequently receive discharge from this extensive basalt aquifer. Groundwater in the basalt units may flow upward or downward among the units, depending upon local water level, groundwater gradients, and pumping conditions (Whitehead 1994). Depths to groundwater measured in water wells on properties nearest the river range from 60 to 110 feet below grade

Groundwater Use

Groundwater from wells and springs located within the UCR Site is used for public and domestic potable water supply, irrigation, power generation, and industry. There are 139 public water systems that utilize groundwater located within 5 miles of the UCR and Lake Roosevelt shoreline (Table 1). 3,312 water wells, 12 water supply springs, and 131 public water systems that utilize groundwater located within 5 miles of the UCR and Lake Roosevelt shoreline. Area residents may also have their own wells or may be served by a community well. In the northern portion of the Site, where potential impacts from smelter emissions and/or slag deposits along the river are of concern, there are 1,940 registered active water supply wells. Based on available records for water supply wells in the area[1], wells located nearest the river and reservoir are generally completed in local glacio-fluvial aquifers. Where glacio-fluvial sediments are absent or thin, wells are completed in fractured bedrock.

Chemical Sources

Potential sources of chemicals that could reach and impact groundwater at the UCR Site include current and historic mining and smelting operations. Teck's Trail Smelter, located approximately 10 river miles north of the border, is considered a source of metals found in soil, sediment, and other media at the UCR Site. However, other sources such as current/historic mines, mills, and smelters in the area that have been operated by other companies may also have contributed metals and other chemicals. Known and suspected releases from the Trail facility and other sources that have relevance to the UCR Site are depicted on the left side of Figure 3. These sources include, but are not limited to:

- Atmospheric emissions (stack and fugitive)
- Disposal of slag, tailings, liquid and solid waste to the Columbia River

[1] https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/WellConstructionMapSearch.aspx

- Discharge of process wastewater and accidental spills and releases to the Columbia River

Another potential concern could be groundwater migration from upland source areas.

Groundwater Exposure Assessment

The following sections describe the release and transport mechanisms that could link chemical releases from the Trail Smelter and other sources to human exposure to impacted groundwater.

Aerial Emissions

Lead and arsenic potentially related to atmospheric emissions from the Trail Smelter may be present in surface soil at some locations in the northern portion of the UCR Site. As indicated in Figure 3, where present, metals have the potential to dissolve and leach into the underlying soil and groundwater. However, lead is strongly adsorbed to soil and is generally retained in the upper layers of soil and does not leach appreciably into the subsoil and groundwater (ATSDR 2007). Arsenic behaves similarly, but may leach to subsurface soil and groundwater under reducing conditions (Ecology 2006). Soil pH measurements from the upland soil study conducted in 2014 (TAI 2015) show that surface soil in the UCR aerial deposition study area is generally acidic or neutral (pHs between 5 and 7) so there is limited potential for leaching of lead and arsenic to subsurface soil or groundwater accessed by a water supply well. Therefore, given that depths to groundwater measured in water wells on properties nearest the river are in the range of 60 feet below grade and deeper, the groundwater exposure pathway for this source/release combination is incomplete, as shown in Figure 3.

Disposal of Slag to Columbia River

Approximately 10 million tons of granulated slag were discharged into the Columbia River from the Trail Smelter until 1995. The slag was transported as suspended and bed load during periods of high flow and was deposited further downstream when flow rates diminished. Slag-impacted sediments are commonly observed in depositional features (banks, bars) in the upper reaches of the UCR Site between Marcus and the international border. Slag has also been observed in sediment cores taken from the former river channel (thalweg) portion of Lake Roosevelt, indicating that the river carried slag further south prior to its impoundment behind Grand Coulee Dam.

Metals present in the slag have potential to leach to interstitial water between sediment grains (sediment porewater). However, at locations where slag may be present in sediments in or adjacent to a stream channel and bank, the daily and seasonal ranges of river stage and lake levels at the Site make it impractical to construct or use water supply wells in such areas. Additionally, except for local surface water influx into sediment/soil adjacent to the river during periods of high water (bank storage), groundwater flow is toward the river so migration of potentially impacted porewater or groundwater from where slag may be present in sediment to areas where water supply wells are located, typically several hundred feet away from and upgradient of the river, is unlikely. Therefore, the groundwater exposure pathway for this source/release combination is incomplete, as shown in Figure 3.

Liquid Effluent, Spills, and Other Aqueous Releases to Columbia River

Liquid effluent has been discharged to the Columbia River since the early days of smelter operations. Dissolved metal concentrations in the effluent and the number of spills and other aqueous release have decreased over time. Recent rounds of surface water sampling in the river have not identified water quality issues. All samples were below drinking water standards, except samples designed to retain suspended sediments. However, based on sediment quality data from the lower reaches of the Site where finer grained sediments are present, metals from earlier releases may have become attached to flocculated particles that settled out as sediment in the reservoir (TAI 2011). The impacted fine-grained sediments are primarily within Lake Roosevelt and water supply wells are not completed in this material. As with slag-enriched deposits in the upper reaches of the Site, groundwater flow is from upland areas

toward the reservoir so migration of potentially impacted porewater or groundwater from potentially affected sediments is unlikely. Therefore, the groundwater exposure pathway for this source/release combination is incomplete, as shown in Figure 3.

Groundwater Migration from Upland Source Areas

Water wells located downgradient of upland source areas have the potential to be impacted by leaching and dissolution of contaminants into the underlying groundwater and subsequent migration of the contaminant plume. Based on sampling at 39 mines and mills within the UCR Site (EPA 2002 and 2003) and the removal actions at Northport (Weston 2005) and Young America Mine (TechLaw 2012), there is no evidence that groundwater is contaminated by metals within or downgradient of known source areas within the UCR Site. For example, during the removal action at Young America Mine, groundwater samples were collected from a private water supply well installed through the former tailings impoundment and from a seep within a mine adit. Concentrations of metals in both samples were below EPA maximum contaminant levels (MCLs). Therefore, the groundwater exposure pathway for this source/release combination is incomplete, as shown in Figure 3.

Concerns have been expressed about possible migration of known groundwater contamination related to Teck's operations in Trail, British Columbia. The following bullets summarize conditions in the area and provide the basis for concluding that the plume will not affect groundwater within the UCR Site:

- The impacted groundwater is broadly characterized as an ammonium sulphate plume and contains elevated concentrations of nitrogen, sulphate, fluoride, total dissolved solids, and various metals (e.g., arsenic, cadmium, iron, lead, manganese, and zinc) (Teck 2012).
- Surface and subsurface geology in the vicinity of Trail consist of fine sands, silty fine sands, and sandy silts, which are consistent with a glacio-fluvial or glacio-lacustrine origin. In addition to the finer-grained material, a zone of higher permeability sediments (sand and gravel) is present under Teck's Trail facility. The gravel-rich zone appears to extend under the Columbia River and beneath East Trail. The zone appears to provide a pathway for groundwater flow and plume migration. The shallow portion of the plume discharges to the river just downgradient of the facility, but the deeper portion of the plume crosses under the Columbia River in the gravel-rich strata and flows into the East Trail Aquifer, eventually discharging back to the Columbia River through river bed sediments and into the river itself approximately 600 hundred feet downstream (Teck 2012). The approximate extent of the plume is shown in yellow on Figure 4.
- Teck installed a hydraulic containment system within the footprint of the plume near, but upgradient of, the point of initial discharge to the Columbia River. The recovered groundwater is routed to a recently constructed water treatment plant located on the bench above the river at the Trail facility. The goal of the remedial action is to "provide sufficient plume capture to eliminate or reduce the discharge of deleterious substances to fish-frequented waters." (Teck 2012). The recovery and treatment system was expected to be fully operational by summer of 2017 (Teck 2017).
- An ecological risk assessment was performed to determine if active remediation would be required to address plume re-entry to the Columbia River downstream of East Trail. The assessment found that unacceptable risks were unlikely and that no remedial intervention was required (Teck 2012). However, follow-up monitoring was planned to confirm that conditions in the area remain similar to those used in the risk assessment (Teck 2015).
- As indicated in Figure 4, the ammonium sulphate groundwater plume has been delineated. The impacted aquifers do not extend into the UCR project area. Consequently, groundwater in the UCR project area cannot be impacted by the ammonium sulfate plume and the groundwater exposure pathway for this source/release combination is incomplete.

Groundwater Data

As part of the research effort for this memorandum, CH2M reviewed Washington Department of Health (DOH) pre-treatment water quality monitoring records for all public water systems located in the northern portion of the Site where potential impacts from smelter emissions and/or slag deposits along the river are of concern. Data for a total of 65 public water systems (4 spring-sourced systems and 61 well-sourced systems) were reviewed. The results of the data reviews are listed by water system in Table 1. More information about each water system can be found at the link below:

https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem.aspx

For the most part, the water provided by public water systems in the upper portion of the UCR Site meets drinking water standards. Exceptions include infrequent exceedances of the criteria for total coliform, e. coli, and fecal coliform, along with occasional exceedances of the criteria for iron and manganese. Such contaminants are not related to releases from the Teck smelter. Sporadic exceedances of the arsenic criterion were reported in a cluster of systems near Hunters, WA (Hunters Water District, Hunters Campground, and Columbia School District) and the system for Union Gospel Mission Camp near Wellpinit, WA (which is not part of the UCR Site). The elevated concentrations of arsenic in these systems are not thought to be related to releases from the Trail smelter because the sources for these systems are located in upland areas considerably outside of the estimated footprints for higher smelter emissions soil impacts and well past the area of slag impacts in the river/reservoir.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 2007. Toxicological profile for lead. https://www.atsdr.cdc.gov/toxprofiles/tp13-c6.pdf

Ecology. 2006. Arsenic and lead mobility in area-wide contamination-impacted soils. Prepared by Landau Associates. http://www.ecy.wa.gov/programs/tcp/SAB/SAB_mtg_info/mtg_061211/As%20&%20Pb%20Mobility_TM.pdf

EPA. 2002. Preliminary Assessments and Site Inspections Report, Upper Columbia River Mines and Mills, Stevens County, Washington. Prepared by Ecology and Environment, Inc. for EPA, Region 10, Seattle, WA. October.

EPA. 2003. Upper Columbia River Expanded Site Inspection Report; Northeast Washington. TDD:01-02-0028. Contract: 68-S0-01-01. U.S. Environmental Protection Agency, Region 10, Seattle, WA. 84 pp.

EPA. 2009. Human Health Risk Assessment Work Plan for the Upper Columbia River Site Remedial Investigation and Feasibility Study. Prepared by Syracuse Research Corporation for EPA Region 10. Seattle, WA. March.

Riedel, J.L., C. Gable, J. Lawrence, and S. Hebner. 1997. Lake Roosevelt National Recreation Area, Washington, Water Resources Scoping Document. Technical Report NPS/NRWRD/NRTR-97/107. United States Department of the Interior, National Park Service.

TechLaw. 2012. Young America Mine EPA Removal Assessment Report. March. Prepared for EPA.

Teck American Incorporated (TAI). 2011. Baseline Ecological Risk Assessment Work Plan. Prepared by Parametrix, Exponent, HydroQual, Integral, and Cardwell Consulting. February 2011.

Teck American Incorporated (TAI). 2015. Final Soil Study Data Summary Report. Prepared by Windward Environmental.

Teck. 2012. Ammonium Sulphate Groundwater Plume 2012 Final Remediation Plan Teck Metals Ltd., Trail, BC. Prepared by Golder Associates.

Teck. 2017. Teck Trail Operations Completes Construction of Groundwater Treatment Plant. Press Release dated March 14, 2017

Teck. 2015. Teck Operations Groundwater Update. Presentation dated February 2015.

Thompson, T.H. 1977. Use of infrared imagery in bank-storage studies. U. S. Geological Survey Journal of Research 5(1):1–10.

Washington DOH. 2006. Washington State drinking water sources [computer file]. Washington State Department of Health, Tumwater, WA.

Washington DOH. 2017. Washington State drinking water sources database. Washington State Department of Health, Tumwater, WA. Accessed at https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem.aspx

Weston. 2004. Technical Memorandum: Assessment of Effects on Water Quality Due to Mine Waste Contaminated Soil Placements near City of Northport Municipal Water Wells. Prepared for U.S. Environmental Protection Agency. Weston Solutions, Inc., Seattle, WA.

Weston. 2005. Le Roi Smelter Removal Action Report Northport, Stevens County, Washington. January. Prepared for U.S. Environmental Protection Agency. Weston Solutions, Inc., Seattle, WA.

Whitehead, R.L. 1994. Groundwater Atlas of the United States, Segment 7, Idaho. Oregon, Washington. USGS Hydrologic Atlas 730-H. U.S. Government Printing Office, Washington, DC.

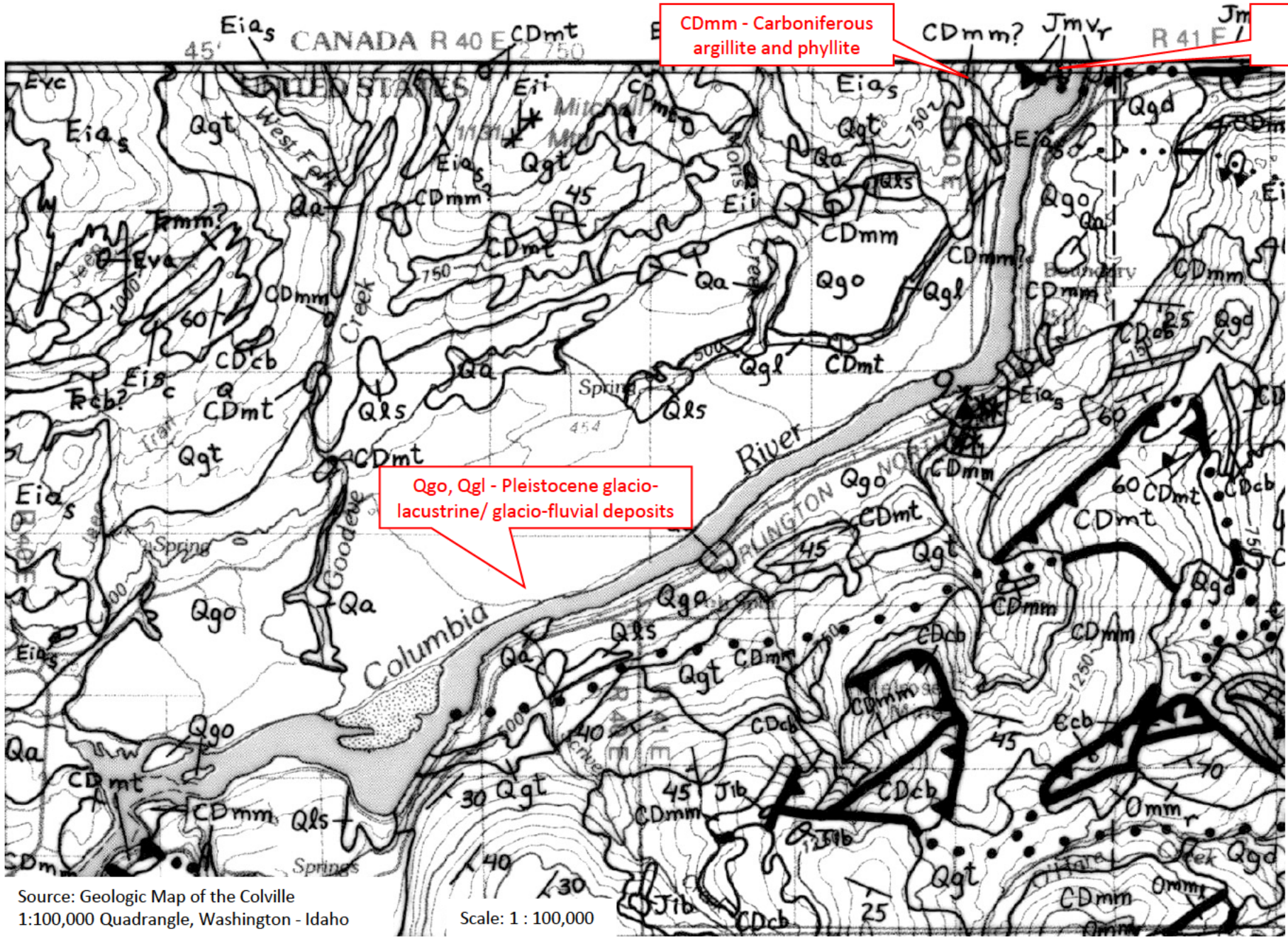
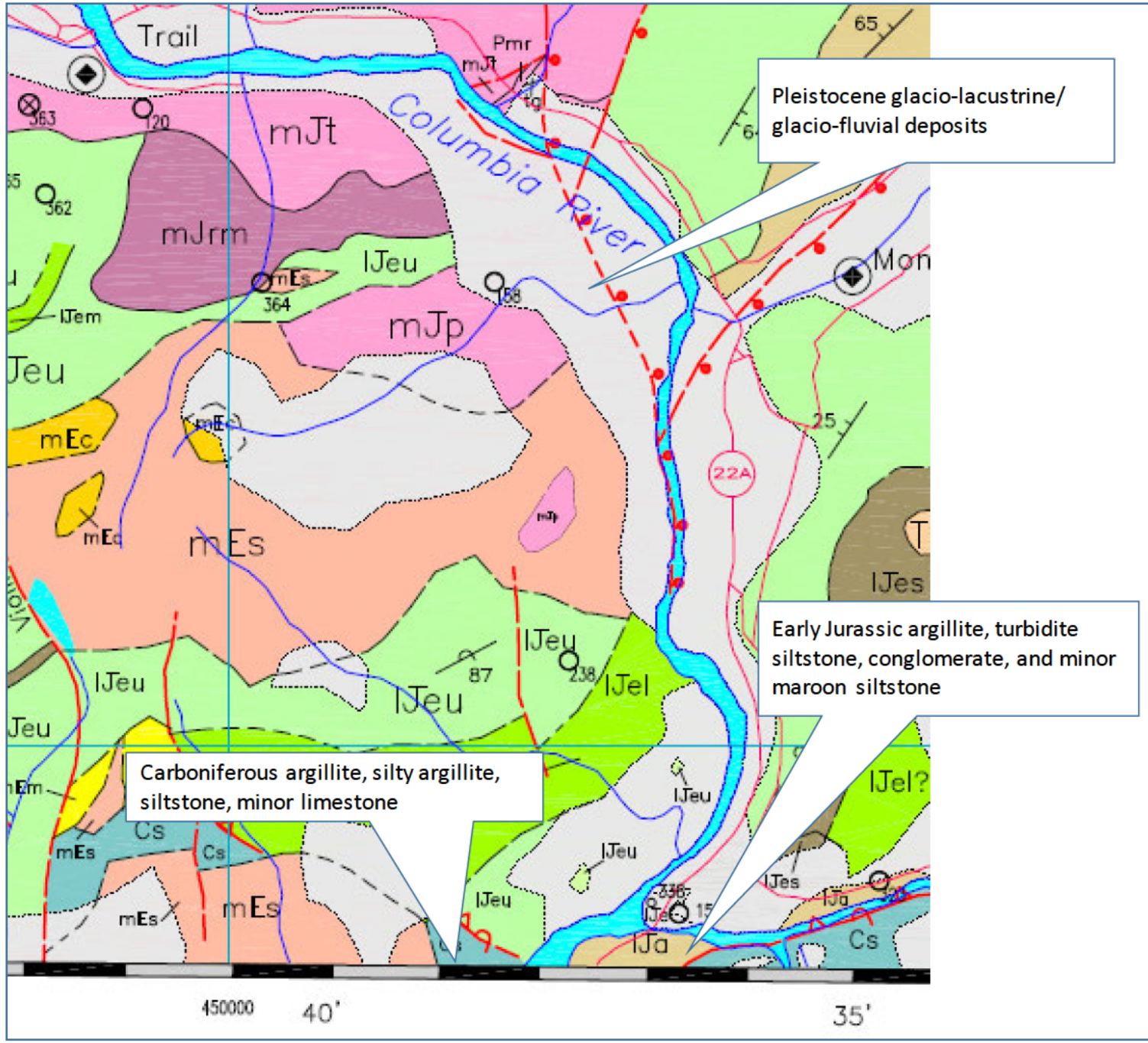


Figure 1
Surface Geology Between Northport WA and Border



Pleistocene glacio-lacustrine/ glacio-fluvial deposits

Early Jurassic argillite, turbidite siltstone, conglomerate, and minor maroon siltstone

Carboniferous argillite, silty argillite, siltstone, minor limestone

LEGEND

CENOZOIC

TERTIARY

Tr — rhyolite dikes

Ti — hornblende–feldspar and hornblende porphyries

MIDDLE EOCENE

mEc — CORYELL INTRUSIONS: biotite monzonite, biotite – augite monzonite; mEm–syenite; mEg–granitic; gr–gneissic

mEs — SHEPPARD INTRUSIONS: granite, rhyolite dikes

mEm — MARRON FORMATION: andesite flows; minor lapilli tuff, tuffaceous sandstone and tuffaceous conglomerate

EOCENE – PALEOCENE

PEg — leucocratic biotite quartz monzonite, granite

PALEOCENE

Pgn — K–feldspar megacrystic biotite–hornblende quartz monzonite

MESOZOIC

LATE CRETACEOUS

uKsm — SOPHIE MTN FORMATION: coarse conglomerate with quartzite and/or siltstone clasts, minor argillite

EARLY CRETACEOUS

lKg — granite, quartz porphyry, granitic gneiss; kg–Kinnaird pluton; Kinnaird gneiss

MIDDLE TO EARLY JURASSIC

mJp — NELSON INTRUSIONS: includes Nelson, Bonnington (mJb), Trail (mJt), and Mackie (mJm) plutons; porphyritic granite, granodiorite, quartz monzonite, tonalite; minor diorite, porphyry and breccia

EARLY TO MIDDLE JURASSIC

mJrm — ROSSLAND MONZONITE: biotite/biotite–augite monzonite, monzodiorite

mJsk — SILVER KING INTRUSIONS: plagioclase porphyry (leucodiorite)

Jec — EAGLE CREEK PLUTONIC COMPLEX: diorite, gabbro, meta–diorite, pyroxenite, monzonite

Jm — monzogabbro; monzonite, diorite

EARLY JURASSIC

lJr — ROSSLAND GROUP: mafic to intermediate flows and tuffs, tuffites, argillaceous siltstone, turbidite siltstone and wacke, minor pebble conglomerate and subvolcanic intrusions

lJh — HALL FORMATION: argillite, carbonaceous siltstone; minor pebble conglomerate and carbonate

lJe — ELISE FORMATION: mafic flows, pyroclastic breccia; mafic to intermediate tuffs, tuffites

lJes — Elise sedimentary rock: argillaceous siltstone

lJeu — Upper Elise Formation: basaltic to andesitic lapilli, crystal and fine tuff, mafic flows, tuffaceous siltstone and conglomerate; lJem–mafic flows

lJel — Lower Elise Formation: basaltic flows and flow breccias, basaltic pyroclastic breccia, minor basaltic to andesitic crystal and fine tuff

lJa — ARCHIBALD FORMATION: argillite, turbidite siltstone, conglomerate and minor maroon siltstone

EARLY JURASSIC AND LATE TRIASSIC (?)

lJy — YMIR GROUP: argillite, siltstone, grit, impure limestone; minor chert, wacke; generally rusty–weathering

DEVONIAN TO EOCENE (?)

tg — TRAIL GNEISS: amphibolite and biotite gneiss, hornblende gneiss, minor schist, pegmatite and aplite

PENNSYLVANIAN (?)

cg — CASTLEGAR GNEISS COMPLEX: heterogeneous hornblende ±biotite quartz–feldspar paragneiss, amphibolite, calc–silicate gneiss, orthogneiss

DEVONIAN

Djp — JOHNSON CREEK PLUTON: trondhjemite

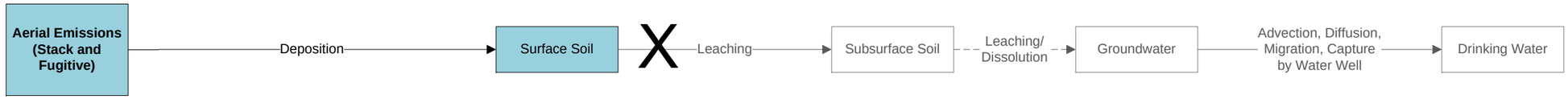
Scale: 1 : 100,000

Source: Geologic Compilation of the Trail Map-Area Southeastern British Columbia, 1998

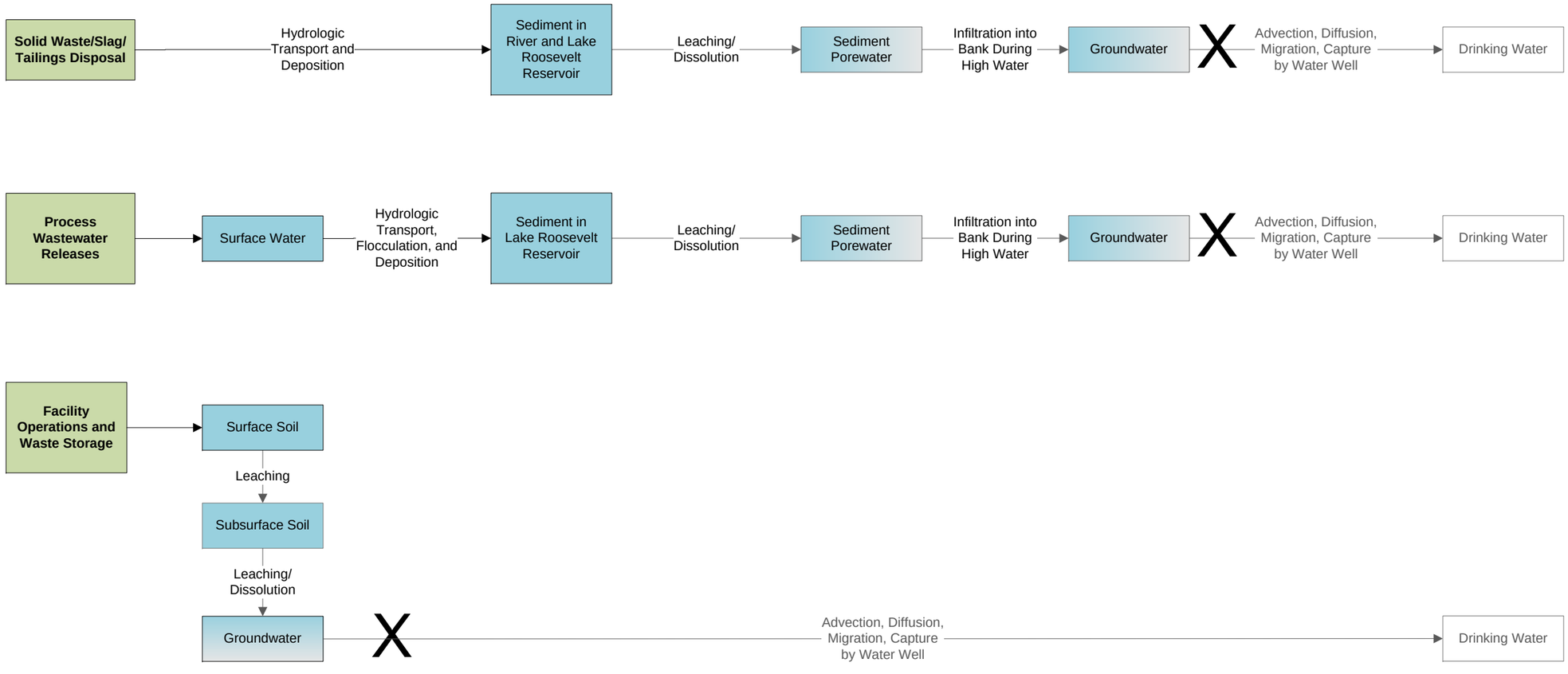
Figure 2
Surface Geology Between Trail and Border

UCR Groundwater Exposure Conceptual Site Model

Smelter Emissions



Current/Historic Mining & Smelter Operations



Explanation

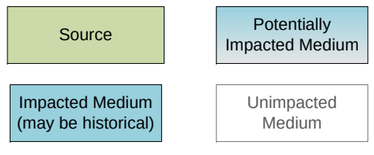
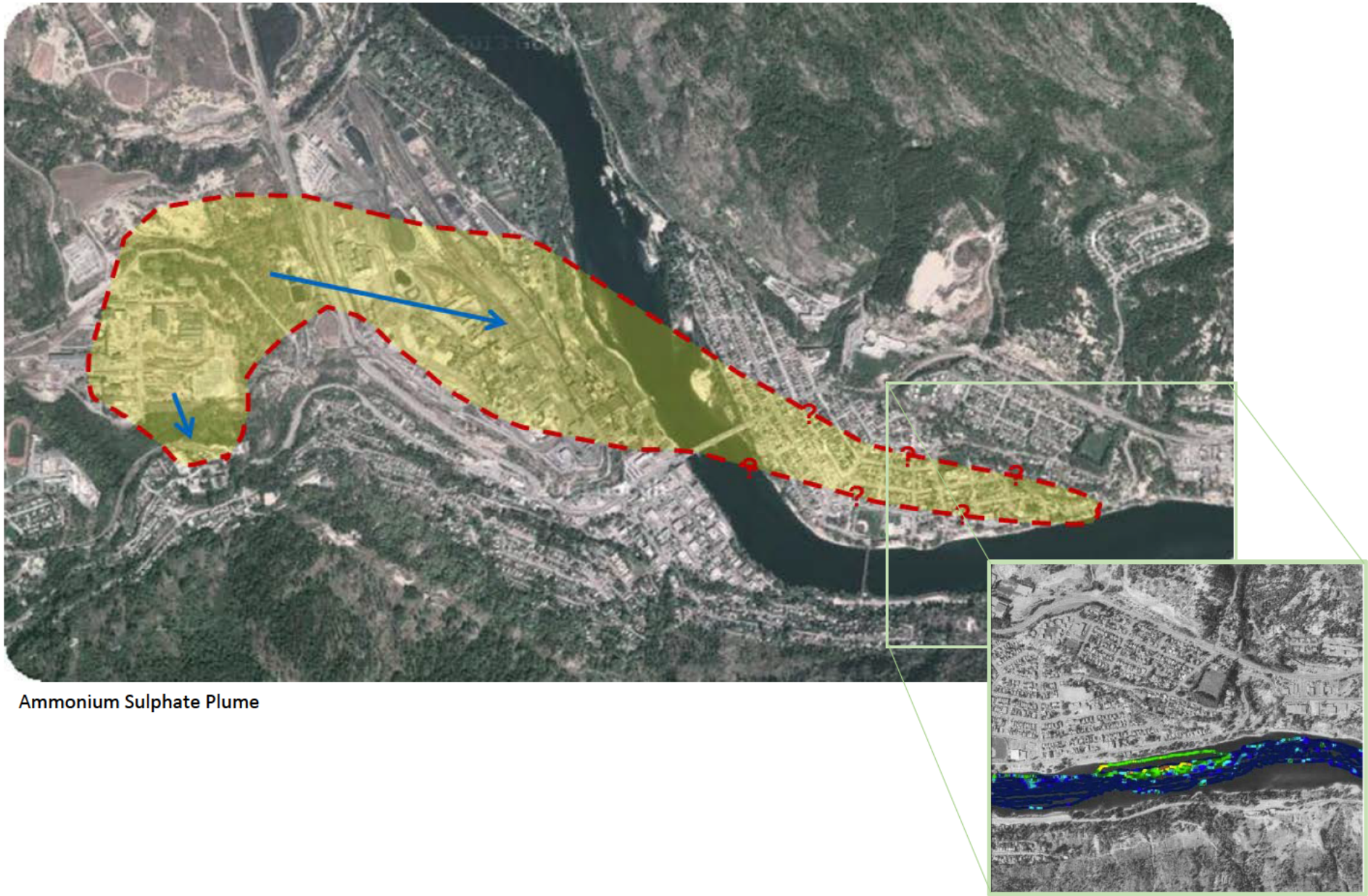


Figure 3
UCR Groundwater Exposure
Conceptual Site Model



Source: Trail Operations Groundwater Update (Teck 2015)

Figure 4
Approximate Extent of Ammonium Sulphate Plume and Groundwater Discharge Area Along Columbia River Trail, British Columbia

Table 1
Public Water Systems with Groundwater Sources in Vicinity of UCR Site

Water System ID	System Name	Group	System Type	County	Source Type	Use	DOH Monitoring Data Reviewed for Groundwater Exposure Memorandum	Summary of DOH Data Review
Springs (12)								
4490	Upper Columbia RV Park & Campground	A	Transient Non-Community	STEVENS	Spring	Permanent	Yes	Fecal coliform exceedances only
1649H	MARBLE WATER SYSTEM	B	Group B	STEVENS	Spring	Permanent	Yes	System is listed but no data
17710	DAISY WATER SYSTEM	B	Group B	STEVENS	Spring	Permanent	Yes	E. coli and total coliform exceedances in 1996. No other data
18451	MY PARENTS ESTATE	B	Group B	STEVENS	Spring	Permanent	Yes	E. coli and total coliform exceedances in 2006 and 2007
26810	FRUITLAND WATER ASSN	B	Group B	STEVENS	Spring	Permanent	No*	System is listed but no data
89080	TRAILS WEST SUBDIVISION	B	Group B	STEVENS	Spring	Permanent		Iron and manganese exceedances 1981, total coliform exceedances multiple years
AC539G	Isreal Camp	B	Group B	STEVENS			Yes	Not listed in HHRA Work Plan. E. coli and total coliform exceedances in 2012
26090	FORT SPOKANE STORE	B	Group B	LINCOLN	Spring	Permanent	No*	
41164	BROUGHER RANCH INC	B	Group B	LINCOLN	Spring	Permanent	No*	
NP280	FORT SPOKANE CAMPGROUND	A	Transient Non-Community	LINCOLN	Spring	Permanent	No*	
2190	TOWNSHIP CREEK WATER SYSTEM	B	Group B	FERRY	Spring	Permanent	No*	
34737	BISBEE ACRES WATER ASSOCIATION	B	Group B	FERRY	Spring	Permanent	No*	
75825	SAN POIL BAY IMPROVEMENT ASSN INC	B	Group B	FERRY	Spring	Emergency	No*	
Wells (127)								
3554	Union Gospel Mission Tshimakain	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Near Wellpinit. Arsenic exceedances in 2008 and 2007, iron and manganese exceedances in 1990, multiple total coliform exceedances 1990s and early 2000s
7664	COLUMBIA SCHOOL DISTRICT 206	A	Non-Transient, Non-Community	STEVENS	Well(s)	Permanent	Yes	Near Hunters. Arsenic exceedances 2005 through 2008, manganese exceedacnes 1995 and 1997
23960	EVANS WATER SYSTEM	A	Community	STEVENS	Well(s)	Permanent	Yes	Multiple total coliform and e. coli exceedances 2000s and 2010s
24162	EVERGREEN SCHOOL DISTRICT #205	A	Non-Transient, Non-Community	STEVENS	Well(s)	Permanent	Yes	Near Gifford. Total coliform exceedances 1990s and 2000s
26790	FRUITLAND BIBLE CAMP	A	Transient Non-Community	STEVENS	Well(s)	Permanent and Seasonal	Yes	Multiple total coliform exceedances 1990s and 2000s
30434	MISSION RIDGE WATER SYSTEM	A	Community	STEVENS	Well(s)	Permanent	No	No record of water system in database
34889	HUNTERS WATER DISTRICT	A	Community	STEVENS	Well(s)	Permanent and Emergency	Yes	Arsenic exceedances 2006 - 2017, manganese exceedances 1980s, total coliform exceedances 2005 and 2007
38400	KETTLE FALLS WATER DEPT	A	Community	STEVENS	Well(s)	Permanent	Yes	Total coliform exceedances 1990s 2008, 2011, 2013
41379	WELLPINIT SCHOOL	A	Non-Transient, Non-Community	STEVENS	Well(s)	Permanent	Yes	Total coliform exceedances 2007 and 2008
51550	MARCUS WATER DEPT	A	Community	STEVENS	Well(s)	Seasonal, Permanent, and Emergency	Yes	Sporadic exceedances for conductivity, TDS, manganese, cadmium (one time), and iron in 1990s and early 2000s. Multiple exceedances for total coliform. Most recent metals data is from 4/16/2015
55822	Onion Creek School District	A	Non-Transient, Non-Community	STEVENS			Yes	Not listed in HHRA Work Plan. Total coliform exceedance in 1998
61850	NORTHPORT WATER SYSTEM	A	Community	STEVENS	Well(s)	Permanent	Yes	Multiple exceedances for total coliform; sporadic exceedances for iron, manganese, cadmium (one time) and conductivity in late 1970s; sporadic exceedances for manganese and iron in 2000 and 2001. Most recent metals results are from 9/20/2016
99330	YE OLD COUNTRY STORE	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	No exceedances
NP070	CAMP NABOR LEE	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Total coliform exceedances 2005, 2010, 2012
NP110	CLOVERLEAF CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron exceedance 1978
NP240	EVANS CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Sporadic exceedances for iron, manganese, conductivity, and sulfate in late 1970s. One total coliform exceedance in 1997.
NP300	GIFFORD CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron and manganese exceedances 1978, total coliform exceedance 1998 and 2006
NP380	HUNTERS CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Arsenic exceedance 2002, total coliform exceedances 2001
NP460	KAMLOOPS ISLAND CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron exceedances 1984 and 1997
NP610	MARCUS ISLAND CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron and manganese exceedances in 1984, one total coliform exceedance in 2004
NP660	NORTH GORGE CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron exceedance 1981, total coliform exceedaces 1996 and 2009
NP780	SNAG COVE CAMPGROUND	A	Transient Non-Community	STEVENS	Well(s)	Permanent	Yes	Iron exceedances 1984 and 1997, manganese exceedance 1984, total coliform exceedances 2003
1852	DEER MEADOWS WATER COMPANY INC	A	Community	LINCOLN	Well(s)	Permanent	No*	
19928	HANSON HARBOR HOMEOWNERS ASSN	A	Community	LINCOLN	Well(s)	Permanent	No*	
20116	RANTZ MARINE PARK	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
23324	RIVER RUE WATER SYSTEM	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
23391	SUNNY HILLS WATER SYSTEM	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
45366	LAKEVIEW TERRACE MHP	A	Community	LINCOLN	Well(s)	Permanent	No*	
47283	ROOSEVELT LAKE RANCH	A	Community	LINCOLN	Well(s)	Permanent	No*	
77651	SEVEN BAYS ESTATES UNLIMITED	A	Community	LINCOLN	Well(s)	Permanent	No*	
HD340	KELLER FERRY LANDING	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
NP280	FORT SPOKANE CAMPGROUND	A	Transient Non-Community	LINCOLN	Well(s)	Seasonal	No*	
NP335	HAWK CREEK CAMPGROUND	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
NP469	KELLER FERRY MARINA	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
NP470	KELLER FERRY CAMPGROUND	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
NP700	PORCUPINE BAY CAMPGROUND	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
NP810	SPRING CANYON CAMPGROUND	A	Transient Non-Community	LINCOLN	Well(s)	Permanent	No*	
8114	SUNBANKS RESORT	A	Transient Non-Community	GRANT	Well(s)	Permanent	No*	
15451	COULEE GRANDE-BANKS LK GOLF COURSE	A	Transient Non-Community	GRANT	Well(s)	Seasonal	No*	
22850	ELECTRIC CITY, TOWN OF	A	Community	GRANT	Well(s)	Permanent and Seasonal	No*	

Water System ID	System Name	Group	System Type	County	Source Type	Use	DOH Monitoring Data Reviewed for Groundwater Exposure Memorandum	Summary of DOH Data Review
28700	GRAND COULEE WATER DEPT, CITY OF	A	Community	GRANT	Well(s)	Permanent	No*	
7216	WATERING HOLE, THE	A	Transient Non-Community	FERRY	Well(s)	Permanent	No*	
8174	COLUMBIA CEDAR	A	Non-Transient, Non-Community	FERRY	Well(s)	Permanent	No*	
33301	NORTH LAKE ROOSEVELT RESORT	A	Transient Non-Community	FERRY	Well(s)	Permanent	No*	
33489	LAKESIDE PARK	A	Community	FERRY	Well(s)	Permanent	No*	
35550	INCHELIUM WATER DISTRICT	A	Community	FERRY	Well(s)	Permanent and Emergency	No*	
51877	MARTIN CREEK COMMUNITY ASSN	A	Community	FERRY	Well(s)	Permanent	No*	
73032	RIVERWOOD WATER SYSTEM	A	Community	FERRY	Well(s)	Permanent	No*	
NP330	HAAG COVE CAMPGROUND	A	Transient Non-Community	FERRY	Well(s)	Permanent	No*	
NP495	KETTLE RIVER CAMPGROUND	A	Transient Non-Community	FERRY	Well(s)	Permanent	No*	
1577	(b) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
1664	(b) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
1804	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2185	(b) WELL	B	Group B	STEVENS	Well(s)	Permanent	Yes	Total coliform exceedance 1997
2471	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2491	(b) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2524	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	No	No record of system in database
2525	(b) (6)	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2539	(b) 6) SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2704	FRONTIER WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2752	(b) (6) SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2769	VERY DEEP WELL WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	Total coliform exceedances 1997 and 2005
2839	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
2984	(b) (6) WTR. SYS.	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
3024	DRAKE S WATER COMPANY	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
3135	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
3252	(b) (6) . SYS.	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
3719	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
3743	(b) WELL	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
4112	RICKEY CANYON SUBDIVISION	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
4430	(b) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	System is listed but no data
5283	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
5320	ECHO RIDGE VETERINARY HOSPITAL	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
6224	CHINA BEND VINEYARDS	B	Group B	STEVENS	Well(s)	Permanent	Yes	Iron, manganese, and total coliform exceedances in late 1990s and early 2000s
6870	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	Iron exceedance 1998
7800	(b) (6) WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
7804	RICE CHURCH	B	Group B	STEVENS	Well(s)	Permanent	Yes	Iron and manganese exceedances 2000
8268	(b) (6) DISTRICT	B	Group B	STEVENS	Well(s)	Permanent	Yes	Sulphate, TDS, iron, and conductivity exceedances 2000 and 2001
33856	CE MINERALS/CALHOUN MILL	B	Group B	STEVENS	Well(s)	Permanent	Yes	System is listed but no data
34825	(b) (6) SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
41431	SNAG COVE WATER SYSTEM	B	Group B	STEVENS	Well(s)	Permanent	Yes	Iron and manganese exceedances in late 1980s, total coliform exceedances in 2007
62252W	(b) WATER SYSTEM	B	Group B	STEVENS			Yes	No exceedances
AA168	CLEAR WATER	B	Group B	STEVENS	Well(s)	Permanent	Yes	Iron and manganese exceedances 2000
AA572	BUCK CANYON LODGE	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
AA757	Gold Edge Estates	B	Group B	STEVENS	Well(s)	Permanent	Yes	System is listed but no data
AA980	Stevens Co Fire District #12	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
AB381	Victory Baptist Church	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
AC2556	Onion Creek General Store	B	Group B	STEVENS			Yes	Not listed in HHRA Work Plan. No exceedances
AC469E	La Z Daze Retreats	B	Group B	STEVENS			Yes	Not listed in HHRA Work Plan. No exceedances
NR720	SHEEP CREEK CAMPGROUND	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
NR900	WILLIAMS LAKE CAMP GROUND	B	Group B	STEVENS	Well(s)	Permanent	Yes	No exceedances
196	PORTER WELL WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
2484	(b) (6) WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
4298	COLUMBIA SPRINGS ESTATES	B	Group B	LINCOLN	Well(s)	Permanent	No*	
4991	(b) WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
5403	LAKEVIEW HEIGHTS WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
5694	LAKE ROOSEVELT HIDEAWAY	B	Group B	LINCOLN	Well(s)	Permanent	No*	
6538	(b) (6)	B	Group B	LINCOLN	Well(s)	Permanent	No*	
6719	PORCUPINE BAY ESTATES	B	Group B	LINCOLN	Well(s)	Permanent	No*	
6998	TRANQUIL ESTATES	B	Group B	LINCOLN	Well(s)	Permanent	No*	
7007	(b) (6) WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
7944	FDR ESTATES #5	B	Group B	LINCOLN	Well(s)	Permanent	No*	
7961	FDR ESTATES #6	B	Group B	LINCOLN	Well(s)	Permanent	No*	
8271	(b) (6)	B	Group B	LINCOLN	Well(s)	Permanent	No*	
8340	CAMPBELL BAY FARMS	B	Group B	LINCOLN	Well(s)	Permanent	No*	
24292	LONG LAKE OPERATORS VILLAGE	B	Group B	LINCOLN	Well(s)	Permanent	No*	
38625	SQUAW CANYON PLAT III	B	Group B	LINCOLN	Well(s)	Permanent	No*	
51131	(b) WATER SYSTEM	B	Group B	LINCOLN	Well(s)	Permanent	No*	
56364	ROCKY TOP ESTATES	B	Group B	LINCOLN	Well(s)	Permanent	No*	
AA087	(b) (6)	B	Group B	LINCOLN	Well(s)	Permanent	No*	
AA292	WIND WALKER	B	Group B	LINCOLN	Well(s)	Permanent	No*	

Water System ID	System Name	Group	System Type	County	Source Type	Use	DOH Monitoring Data Reviewed for Groundwater Exposure Memorandum	Summary of DOH Data Review
AA482	ROOSEVELT VIEWS SUBDIVISION	B	Group B	LINCOLN	Well(s)	Permanent	No*	
AB219	Lakeview Catering	B	Group B	LINCOLN	Well(s)	Permanent	No*	
AB341	Pavlov Water System	B	Group B	LINCOLN	Well(s)	Permanent	No*	
NP190	DETILLION CAMPGROUND	B	Group B	LINCOLN	Well(s)	Permanent	No*	
6012	KENT WATER SYSTEM	B	Group B	FERRY	Well(s)	Permanent	No*	
8014	BOYDS TAVERN	B	Group B	FERRY	Well(s)	Permanent	No*	
34014	ANDERSON K. R. LOTS	B	Group B	FERRY	Well(s)	Permanent	No*	
34017	FREDRICKSON SHORT PLAT	B	Group B	FERRY	Well(s)	Permanent	No*	
38951	COLUMBIA RIVER WATER ASSOCIATION	B	Group B	FERRY	Well(s)	Permanent	No*	
AA644	R GARDEN INTERNATIONAL	B	Group B	FERRY	Well(s)	Permanent and Emergency	No*	
AB500	AOY Cascade	B	Group B	FERRY	Well(s)	Permanent	No*	

Sources: Washington Dept. of Health (WDOH) 2006 and WDOH 2017 (https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem aspx)

Note: System Name and Use entries are shown as provided by DOH (https://fortress.wa.gov/doh/eh/portal/odw/si/FindWaterSystem.aspx).

Emergency = Any source that is approved by the department for emergency purposes only, is not used for routine or seasonal water demands, is physically disconnected, and is identified in the purveyor's emergency response

Seasonal = A public water system source used on a regular basis, that is not a permanent or emergency source.

Permanent = A public water system supply source that is used regularly each year, and based on expected operational requirements of the system, will be used more than three consecutive months in any twelve-month period.

Public water systems are defined as all systems serving more than one single-family residence or more than five residences on the same farm, and are classified as either Group A or Group B depending on the number of people served and the number of residential connections

* System is located outside of upland and/or near-river areas thought to be impacted by Teck smelter releases

Appendix 11:
Approach Used to Adjust Soil and Sediment Arsenic and Lead Concentrations Based on Relative Bioavailability

Note: Table 1 in the following memorandum, dated 9/20/17, contained an errata based on a misclassification of one DU. The following table is corrected and utilized in the UCR Site-wide HHRA.

Table 1. Summary Statistics for DU RBAs (Excluding Beaches)

	N	Mean	SD	SE	SD/Mean
Lead RBA %					
Outside 2014 Boundary	32~~31~~	50.5~~50.9~~	13.6	2.4	0.27
Inside 2014 Boundary	107	63.9	7.6	0.7	0.12
Arsenic RBA %					
Outside 2014 Boundary	32~~31~~	16.4~~16.3~~	6.6~~6.7~~	1.2	0.41
Inside 2014 Boundary	107	27.6	7.4	0.7	0.27

Note: This memorandum has been updated to add the following EPA guidance:
U.S. EPA. 2020. Guidance for sample collection for *in vitro* bioaccessibility assay for arsenic and lead in soil and applications of relative bioavailability data in human health risk assessment. U.S. Environmental Protection Agency. Office of Land and Emergency Management, Office of Superfund Remediation and Technology Innovation. September.

Memorandum

To: Monica Tonel and Marc Stifelman, EPA Region 10

Cc: David Charters, EPA ERT

From: Gary Diamond, Mark Follansbee, Bill Thayer, and Julie Rothrock

Date: September 20, 2017

Re: Approach that will be used to adjust soil arsenic and lead concentrations in residential soils based on relative bioavailability (RBA) in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA)

The Residential Soil Study sampled residential soils in 2014 and 2016 (Figures 1 and 2). The study included measurements of soil arsenic and lead concentrations in each Decision Unit (DU) and measurement of arsenic and lead in vitro bioaccessibility (IVBA) from soil in a subset of DUs (SRC 2014, Ramboll Environ 2016). The IVBA measurements will be used to calculate RBA-adjusted soil concentrations for DUs included in the study. This memorandum describes how the IVBA data collected in 2014 and 2016 will be used to adjust the lead and arsenic soil concentrations for RBA, as discussed during the meeting in Spokane on May 11, 2017. RBA-adjusted lead and arsenic concentrations for properties that were sampled in 2014 were provided to landowners in 2015 (U.S. EPA 2015). This memorandum briefly describes how the IVBA data were used to adjust the 2014 arsenic and lead concentrations as well.

RBA Adjustments of Arsenic and Lead Concentrations of Residential Soils Collected in 2014

For each DU with IVBA data, an RBA-adjusted soil lead concentration was calculated using the following equations (U.S. EPA 2006, 2009, 2020):

$$RBA = (0.878 \times IVBA - 0.028) \quad \text{Equation 1}$$

$$\text{RBA-adjusted Pb concentration} = RBA/0.6 \times \text{measured Pb concentration} \quad \text{Equation 2}$$

where IVBA is in decimal format (i.e., not as a percentage), 0.6 is the default soil RBA in the Integrated Exposure Uptake Biokinetic (IEUBK) Model for Lead in Children (0.6 = 0.3/0.5), and the measured Pb concentration is based on the IC soil sample result (or average, if replicate IC samples were collected).

Soil lead concentrations measured in DUs without IVBA data were adjusted using one of two RBAs, depending on whether the DU was a beach (CM2M Hill 2016). RBAs for beaches were estimated using Equation 1 with the average IVBA for all beach DUs. RBAs for all other types of DUs were estimated using Equation 1 with the average IVBA for all DUs except beaches.

Arsenic concentrations collected from residential soils in 2014 were adjusted for RBA using the national default value of 60% for soil arsenic (Equation 3; U.S. EPA 2012), as EPA had not completed validation of a method for predicting arsenic RBA from arsenic IVBA at the time the Residential Soil Study results for 2014 were provided to property owners.

$$\text{RBA-adjusted As concentration} = 0.6 \times \text{measured As concentration} \quad \text{Equation 3}$$

Where the measured As concentration is based on the IC soil sample result (or average, if replicate IC samples were collected).

RBA Adjustments of Arsenic and Lead Concentrations of Residential Soils Collected in 2014 and 2016

The RBA means for DUs sampled in 2016 are significantly lower for both lead and arsenic than the means for DUs sampled in 2014 (t-test, $p<0.001$). The mean difference between the 2014 and 2016 arsenic RBA was 11.6 (95% CI: 9, 14); and the mean difference in lead RBA was 12.6 (8, 17).

Several factors may have contributed to the differences in the RBA means from the 2014 and 2016 sampling events, including chemical form of arsenic or lead in the soil as well as physical chemical characteristics of arsenic- or lead-bearing soil particles in soils. Given that the above factors may have contributed to spatial variability in RBA, and given that the 2016 samples were collected, in general, further south than the 2014 samples, RBA adjustments of soil arsenic and lead concentrations will be based on the RBAs estimated for soils within or outside of the 2014 soil study boundary (Figures 1 and 2). The following approach will be used to adjust arsenic and lead concentrations for RBA:

Lead:

- For each non-beach DU in which lead IVBA was measured: Assign RBA calculated from Equation 1. Calculate the RBA-adjusted soil concentration using Equation 2.
- For each non-beach DU within the 2014 study boundary and in which lead IVBA was not measured: Using the average of the IVBA data for all non-beach DUs located within the 2014 boundary, calculate the RBA for the DU using Equation 1. Calculate RBA-adjusted soil concentration using Equation 2.
- For each non-beach DU located outside the 2014 study boundary and in which lead IVBA was not measured: Using the average of the IVBA data for all non-beach DUs located outside the 2014 boundary, calculate the RBA for the DU using Equation 1. Calculate RBA-adjusted soil concentration using Equation 2.
- For each beach DU in which lead IVBA was measured: Assign RBA calculated from Equation 1. Calculate adjusted soil concentration using Equation 2.
- For each beach DU located within the 2014 study boundary and in which lead IVBA was not measured: Using the average of the IVBA data for all beach DUs located within the 2014 boundary[1], calculate the RBA for the DU using Equation 1. Calculate RBA-adjusted soil concentration using Equation 2.
- For each beach DU located outside the 2014 study boundary and in which lead IVBA was not measured: Using the average of the IVBA data for all beach DUs located outside the 2014

[1] As described in SRC (2017), this includes 7 beaches sampled between 2009-2011 (Integral, 2014) as well as beach DUs that were sampled as part of the 2014 and 2016 Residential Soil Studies (CH2M Hill, 2016; Ramboll Environ, 2017). Four of the 7 beaches sampled between 2009-2011 are located within the 2014 residential soil study boundary; IVBA data for the four beaches were included in the data that were used to estimate the average IVBA for beaches located within the 2014 residential soil study boundary. Three of the 7 beaches sampled between 2009-2011 are located outside the 2014 residential soil study boundary; IVBA data for the three beaches were included in the data that were used to estimate the average IVBA for beaches located outside the 2014 residential soil study boundary. Two of these 7 beaches (Flat Creek and Swimming Hole) were reanalyzed in 2013 for IVBA of the <250µm fraction; those data are used in place of the values from the 2009-2011 analysis.

boundary[1], calculate the RBA for the DU using Equation 1. Calculate RBA-adjusted soil concentration using Equation 2.

Arsenic:

EPA recently validated a method for using IVBA to predict RBA of arsenic in soil (U.S. EPA 2017, 2020). Soil arsenic concentrations will be adjusted for RBA using the following equations:

$$RBA = (0.79 \times IVBA + 0.03) \quad \text{Equation 4}$$

where IVBA is in decimal format (i.e., not as a percentage)

$$\text{RBA-adjusted As concentration} = RBA \times \text{measured As concentration} \quad \text{Equation 5}$$

the measured As concentration is based on the IC soil sample result (or average, if replicate IC samples were collected).

The same approach described above for lead will be used to adjust arsenic soil concentrations for RBA:

- For each non-beach DU in which arsenic IVBA was measured: Assign RBA calculated from Equation 4. Calculate the RBA-adjusted soil concentration using Equation 5.
- For each non-beach DU within the 2014 study boundary and in which arsenic IVBA was not measured: Using the average of the IVBA data for all non-beach DUs located within the 2014 boundary, calculate the RBA for the DU using Equation 4. Calculate RBA-adjusted soil concentration using Equation 5.
- For each non-beach DU located outside the 2014 study boundary and in which arsenic IVBA was not measured: Using the average of the IVBA data for all non-beach DUs located outside the 2014 boundary, calculate the RBA for the DU using Equation 4. Calculate RBA-adjusted soil concentration using Equation 5.
- For each beach DU in which arsenic IVBA was measured: Assign RBA calculated from Equation 4. Calculate adjusted soil concentration using Equation 5.
- For each beach DU located within the 2014 study boundary and in which arsenic IVBA was not measured: Using the average of the IVBA data for all beach DUs located within the 2014 boundary[1], calculate the RBA for the DU using Equation 4. Calculate RBA-adjusted soil concentration using Equation 5.
- For each beach DU located outside the 2014 study boundary and in which arsenic IVBA was not measured: Using the average of the IVBA data for all beach DUs located outside the 2014 boundary[1], calculate the RBA for the DU using Equation 4. Calculate RBA-adjusted soil concentration using Equation 5.

The mean RBAs for arsenic and lead that will be applied to the soils not evaluated for IVBA are presented in Tables 1 and 2. The approach for adjusting arsenic and lead concentrations for DUs that were not evaluated for IVBA requires the DU to be categorized as to being located within or outside the 2014 residential soil study area and assigned the corresponding RBA mean from Table 1 (non-beach DUs) or Table 2 (beach DUs). Two of these 7 beaches were included in the beach reanalysis effort; those data are used in place of the 2009-2011 calculated results.

Table 1. Summary Statistics for DU RBAs (Excluding Beaches)

	N	Mean	SD	SE	SD/Mean
Lead RBA %					
Outside 2014 Boundary	31	50.9	13.6	2.4	0.27
Inside 2014 Boundary	107	63.9	7.6	0.7	0.12
Arsenic RBA %					
Outside 2014 Boundary	31	16.3	6.7	1.2	0.41
Inside 2014 Boundary	107	27.6	7.4	0.7	0.27

Table 2. Summary Statistics for Beach DU RBAs (SRC, 2017)

	N	Mean	SD	SE	SD/Mean
Lead RBA %					
Outside 2014 Boundary	5	50.2	9.7	4.3	0.19
Inside 2014 Boundary	18	56.8	5.8	1.4	0.10
Arsenic RBA %					
Outside 2014 Boundary	5	21.2	6.2	2.8	0.29
Inside 2014 Boundary	18	30.0	5.1	1.2	0.17

References

CH2M Hill. 2016. UCR Residential Soil Study Field Sampling and Data Summary Report. Prepared for EPA Region 10. February.

Integral, 2014. Upper Columbia River Final Beach Sediment Study Field Sampling and Data Summary Report. Prepared for Teck American Incorporated. December.

Ramboll Environ. 2016. Memorandum to Teck American Incorproated re: selection of soil samples collected during the 2016 UCR residential soil study to be submitted for IVBA analysis. December 2, 2016.

Ramboll Environ. 2017. Upper Columbia River Draft Final Residential Soil Study Data Summary Report, Prepared for Teck American Incorporated. July, 2017.

SRC. 2014. Memorandum to U.S. EPA Region 10 re: selection of UCR residential study soil samples for IVBA. December 18, 2014.

SRC. 2017. Memorandum to U.S. EPA Region 10 re: Arsenic and Lead RBA for Residential Beach DUs. August 30, 2017.

U.S. EPA. 2006. Guidance for Evaluating the Oral Bioavailability of Metals in Soils for Use in Human Health Risk Assessment. OSWER 9285.7-80. December 2006.

U.S. EPA. 2009. Validation Assessment of In Vitro Arsenic Bioaccessibility Assay for Predicting Relative Bioavailability of Lead in Soils and Soil-like Materials at Superfund Sites. OSWER 9300.3-51 June, 2009.

U.S. EPA. 2015. Letters from EPA to landowners who participated in the 2014 UCR residential soil sampling program. U.S. Environmental Protection Agency, Region 10. Richland, Washington.

U.S. EPA. 2017. Validation Assessment of In Vitro Arsenic Bioaccessibility Assay for Predicting Relative Bioavailability of Arsenic in Soils and Soil-like Materials at Superfund Sites. OLEM 9355.4-29 April 20, 2017.

U.S. EPA. 2020. Guidance for sample collection for *in vitro* bioaccessibility assay for arsenic and lead in soil and applications of relative bioavailability data in human health risk assessment. U.S. Environmental Protection Agency. Office of Land and Emergency Management, Office of Superfund Remediation and Technology Innovation. September.

Figure 1. Location of 2014 Residential Soil DUs Sampled for Lead and Arsenic IVBA

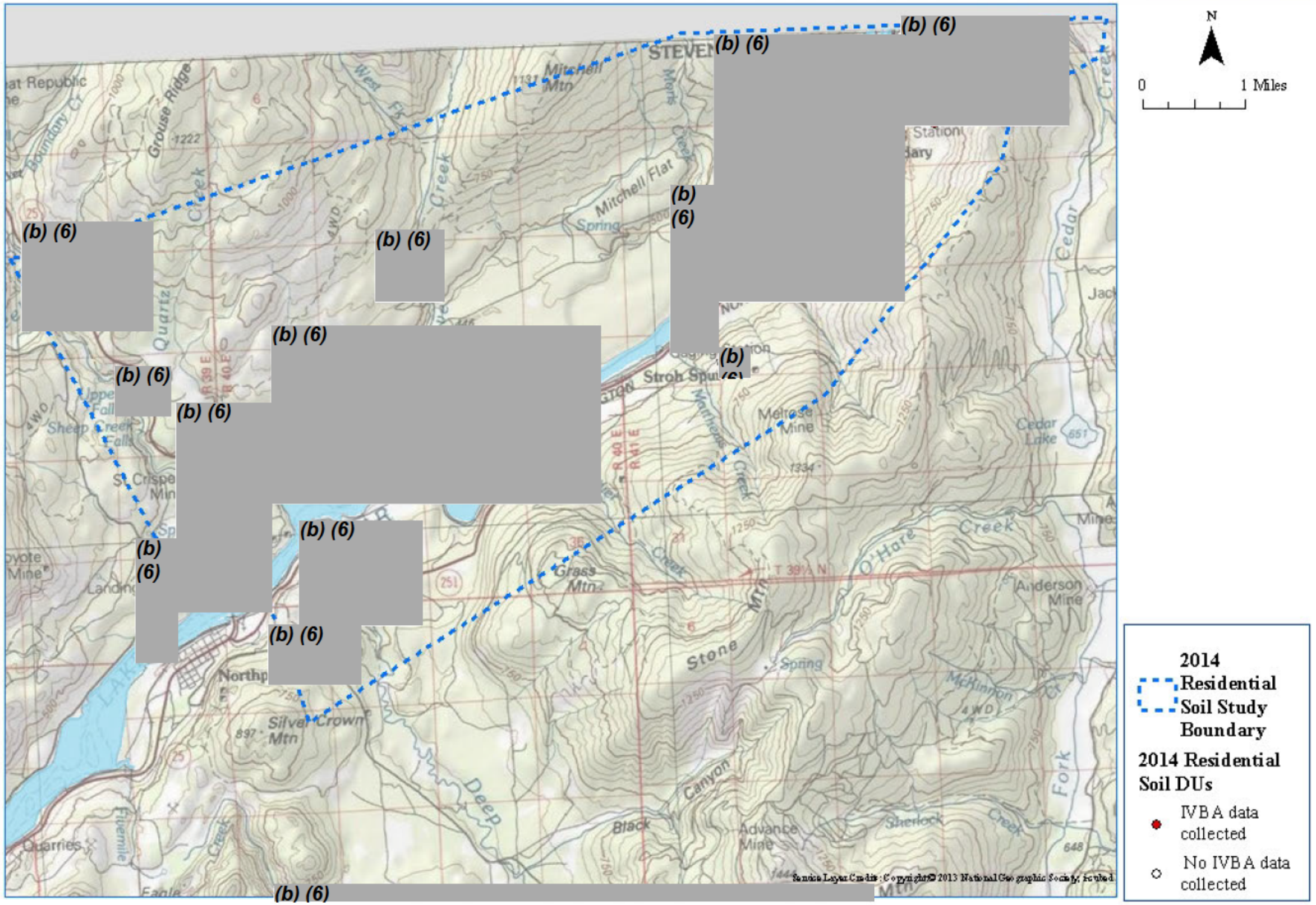
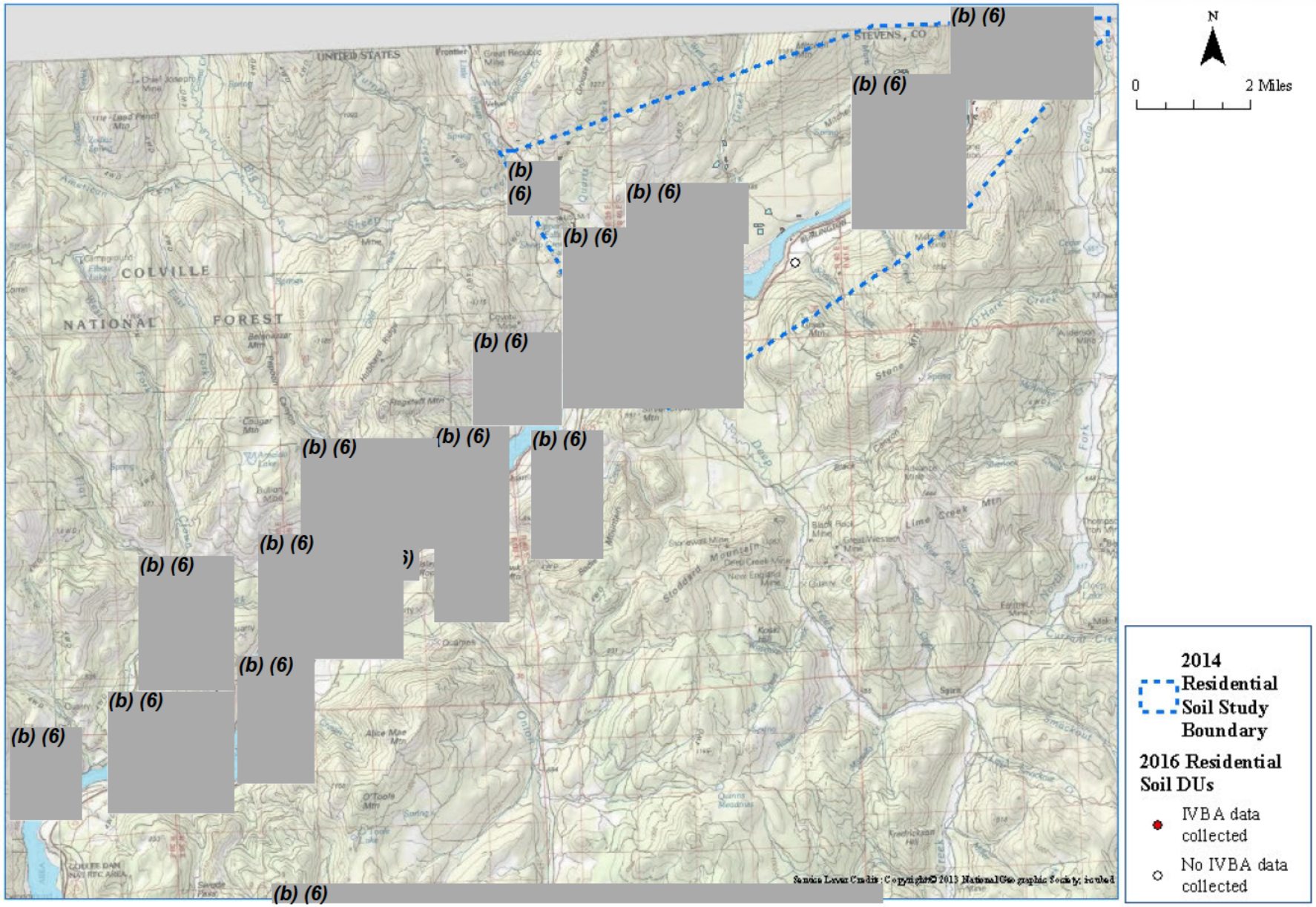


Figure 2. Location of 2016 Residential Soil DUs Sampled for Lead and Arsenic IVBA



Appendix 12:
Estimation of Exposure Point Concentrations (EPCs) at the Upper Columbia River (UCR) Site from Single Incremental Composite Samples (ICS)

Memorandum

TO: David Charters, EPA, ERT

CC: Robert Tan, Marc Stifelman, and Monica Tonel, EPA Region 10

FROM: Gary Diamond, Mark Follansbee, Rebekha Shaw, Julie Rothrock, Bill Thayer and Karen Kracko

DATE: 08/05/19

RE: Estimation of Exposure Point Concentrations (EPCs) at the Upper Columbia River (UCR) site from Single Incremental Composite Samples (ICS)

In a previous memorandum dated July 17, 2019 (Attachment A), a method was proposed for estimating exposure point concentrations (EPCs) from a single incremental composite sample (ICS) when ≥3 ICS composite samples were not available for estimating the 95% upper confidence limit on the mean (95UCL). The July 17 memorandum provided a statistical rationale for deriving a confidence factor (CF) to be applied to the soil concentration measured in the single ICS composite sample. The CF was based on the 95UCL/mean ratio estimated for decision units (DUs) with 3 composite samples. The 95th percentile of 95UCL/mean ratio was selected as the CF to ensure that the probability of a false negative error was ≤5% (i.e., concluding that the population mean at the DU is below a level of concern when it actually equals or exceeds the level of concern). This report describes the approach used to derive a value for the CF that was used at the Upper Columbia River (UCR) site.

Central to application of the CF method is the requirement to derive a robust estimate of a CF that can be applied broadly across DUs and, preferably, across contaminants. This was accomplished at the UCR site by examining estimates of the 95th percentile of the 95UCL/mean ratio derived from various groupings of DU types. Table 1 presents the results for two groupings: (1) all residential soil DUs and; (2) all DUs (e.g., residential soils, beaches, upland soils). CFs based on the residential soils provide the strongest basis for the CF because this group comprises the largest set of observations (n=259) which were obtained by application of a uniform sampling methodology (depth, ICS plan, sieving). The "all DU" grouping includes a variety of DU types (soils, beaches, relict floodplains) for which numbers of DUs of each type (with the exception of residential soils) were too small to reliably estimate a CF (<20 DUs). The various DU types are likely to have been impacted by different sources of contamination (e.g., aerial deposition, deposition of sediments) which could contribute to different degrees of spatial heterogeneity. The resulting CFs were nearly identical for the two DU groupings. The mean CF (defined as the 95th percentile of the 95UCL/mean ratio) was 1.2 for both DU groupings and the mean relative percent difference (RPD) was negligible for individual metals (1.4%; range: -0.1 - 5.3%).

Based this analysis, a CF value of 1.2 was selected for calculating the EPC for DUs at which a single ICS composite sample was available. This CF was applied to all contaminant of potential concern (COPC) metals. EPC was calculated as follows:

$$\text{EPC} = \text{concentration in single ICS composite sample} \times 1.2$$

Table 1.

Analyte	P95 of 95UCL/mean				
	Residential Soil DUs		All DUs		
	N	P95	N	P95	RPD
Aluminum	259	1.09	292	1.11	1.17
Antimony	259	1.31	296	1.38	5.31
Arsenic	259	1.21	301	1.25	3.11
Arsenic (RBA-adjusted)	259	1.21	292	1.23	1.16
Cadmium	259	1.29	292	1.29	-0.06
Chromium	259	1.18	301	1.18	0.41
Cobalt	259	1.14	292	1.14	0.54
Iron	259	1.08	300	1.10	1.47
Manganese	259	1.15	292	1.17	1.65
Nickel	259	1.16	276	1.16	0.00
Thallium	259	1.25	292	1.25	0.45
Vanadium	259	1.15	292	1.17	1.89
MEAN		1.19		1.21	1.38
SD		0.073		0.083	1.58
SD/MEAN		0.062		0.069	1.15
MEDIAN		1.18		1.18	1.16
MIN		1.08		1.10	-0.06
MAX		1.31		1.38	5.31

P95 = 95th percentile; RPD = relative percent difference

ATTACHMENT A to Appendix 12

Memorandum

To: David Charters, EPA ERT

From: Gary Diamond, Mark Follansbee, Julie Rothrock, Bill Thayer and Karen Kracko

Date: July 17, 2019

Re: Proposed approach to derive an exposure point concentration (EPC) for soil concentrations derived from a single incremental composite sample (ICS) in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA)

Derivation of an Exposure Point Concentration (EPC) for soil concentrations derived from a single Incremental Composite Sample (ICS)

Adequacy of data from decision units (DUs) sampled with 1 ICS composite: The data quality objective (DQO) established for residential soils was to estimate the EPC for non-lead chemicals of potential concern (COPCs) as the 95% upper confidence limit on the mean (95UCL) of 3 ICS composite samples. It is not possible to satisfy the DQO for DUs that were sampled with 1 composite because the 95UCL cannot be calculated for a single composite sample. Although data for DUs that had 1 composite fail the DQO requirement, the data are still useful for human health risk assessment (HHRA) in that each single composite represents the mean of 30 randomly positioned increments collected from the DU and, therefore, provide an estimate of the DU mean. Since an estimate of confidence in the mean from a single composite cannot be directly calculated, an alternative approach was taken in which the single composite mean was adjusted by multiplying by a confidence factor (CF). The CF was derived from estimates of confidence in the mean for DUs from which 3 ICS composite sample were collected. The CF was based on the 95UCL/mean ratio estimated for DUs with 3 composite samples. This report describes a general procedure for deriving CFs and provides a rationale for using an upper percentile (specifically the 95th percentile) of 95UCL/mean ratio as the basis for the CF. The actual values for the CFs used in the Upper Columbia River HHRA are presented in Appendices to the HHRA.

False negative probability for uncertainty adjustment: In the context of HHRA, a false negative error corresponds to concluding that the true mean concentration (the population mean at the DU) is below a level of concern (risk-based concentration, RBC) when it actually equals or exceeds the RBC. The CF adjustment serves to control the probability of a false negative error (i.e., type 1 error, where the null hypothesis is population mean $\geq$ RBC).

A false negative error will occur if we conclude that the adjusted mean (i.e., measured concentration from a single composite x CF) is less than the RBC when it is actually greater than or equal to the RBC. The observed standard deviation (SD) of residential soil arsenic concentrations, for example, is approximately 0.61 x the mean (11.8 ppm ± 7.19, n=1139). If it is assumed that soil arsenic concentrations are lognormally distributed, we can expect concentrations obtained from random single composite samples to have a probability distribution similar to that shown in Figure 1 (in the simulation the true mean was assumed to be equal to the RBC, 20 ppm). The mean 95UCL/mean ratio for arsenic in residential soils at DUs where 3 ICS composite samples were obtained is 1.09 (95UCL ratio: 1.08, 1.10; 95th percentile ratio: 1.21; n=219). If the concentration obtained from a single composite sample were to be adjusted with a CF equal to the mean of the 95UCL/mean ratios (adjusted mean = measured mean x 1.09), the probability

of a false negative error can be expected to be 24% (Figure 2). Typically, we would like the false negative error to be ≤5%. This can be achieved for DUs with a single ICS composite sample if the CF is the observed 95th percentile of the 95UCL/mean ratios (adjusted mean = measured mean x 1.21; Figure 3). A false negative error of ≤5% will be satisfied for all COPC metals if the single composite mean is adjusted by the 95th percentile of the 95UCL/mean ratios (Table 1).

Method used to estimate EPC for single composite DUs in the HHRA: If the DU mean was based on a single composite, the mean was adjusted by the 95th percentile of the 95UCL/mean ratios estimated for DUs in which 3 ICS composite samples were used to estimate the DU mean. The 95UCLs for the 3-composite DUs were based on the t statistic for n=3 composites. The values for the 95th percentile of 95UCL/mean ratio were estimated for specific types of DUs (e.g., residential soil DUs, upland soil ADAs, beaches) based on triplicate ICS composite samples for DUs that were considered most similar to the specific DU type.

Table 1. Predicted False Negative Error for Mean Concentration Adjusted with the 95th Percentile of the Ratio 95UCL/Mean

Metal	95th Percentile of 95UCL/Mean Ratio[a]	CV for Concentration (SD/mean)[b]	False Negative Error for DU with Single ICS Composite
Arsenic	1.21	0.61	4.7%
Cobalt	1.14	0.36	2.3%
Iron	1.08	0.23	3.5%
Manganese	1.15	0.38	2.5%
Thallium	1.25	0.50	0.9%

[a]Estimated from residential soil DUs (excluding beaches and drip lines) in which there were 3 composites (N=259).
[b]Estimated from residential soil samples (N=1139)
CV, coefficient of variation

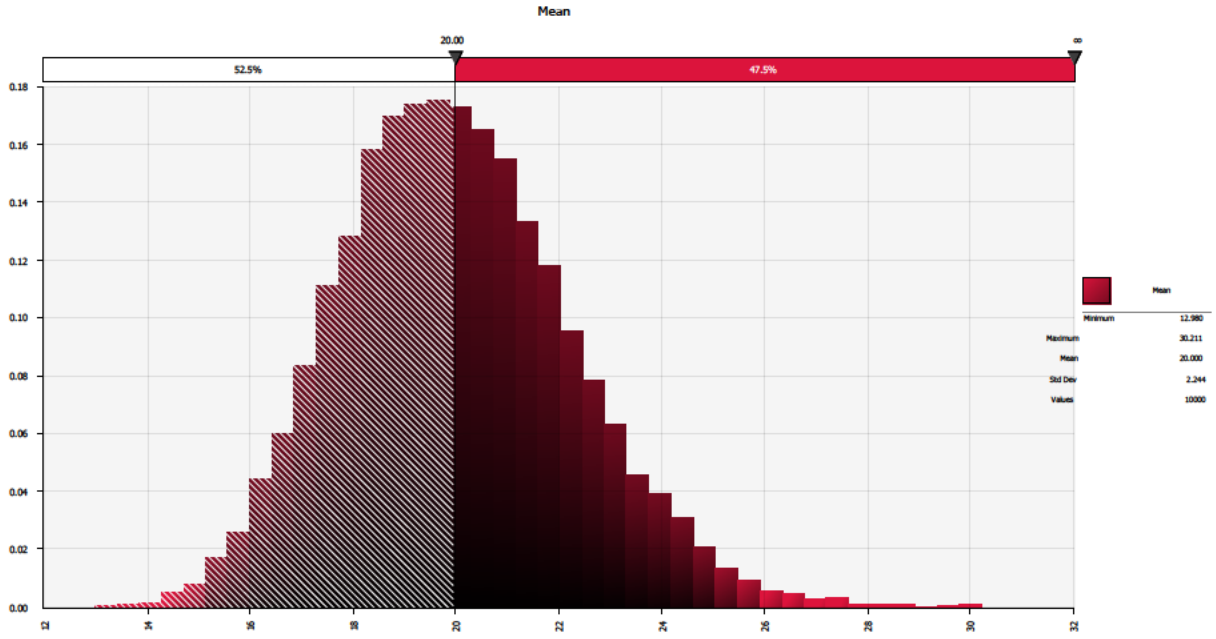


Figure 1. Monte Carlo simulation of arsenic concentrations estimated from a single composite sample consisting of 30 increments. Shown is the probability density for means from 10,000 random composites drawn from a lognormal distribution of arsenic concentration (mean=20, SD=0.61 x mean). Arsenic concentration is shown on the x-axis and probability on the y-axis. If the RBC is 20 (=mean), then approximately half of the single composites are below the RBC (false negative) and half are above the RBC (false positive).

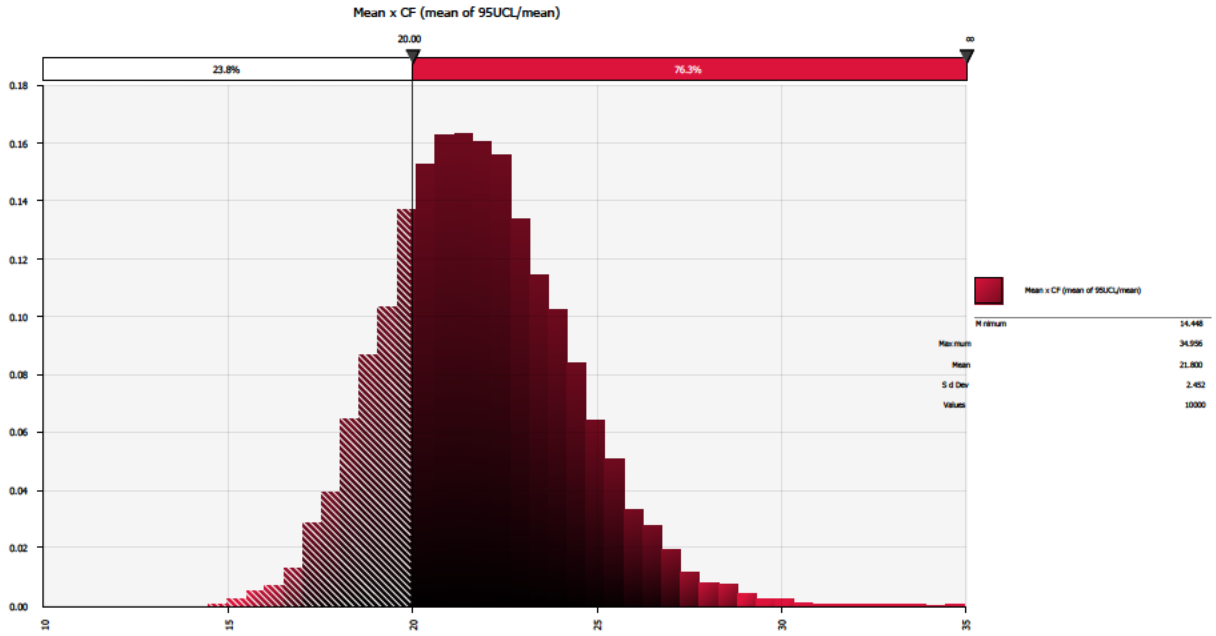


Figure 2. Probability density of CF-adjusted arsenic concentration (mean X CF), when the CF is the mean ratio 95UCL/mean (=1.09) of residential soils DUs where 3 ICS composite samples were collected. Approximately 24% of the single composites are below the RBC (false negative).

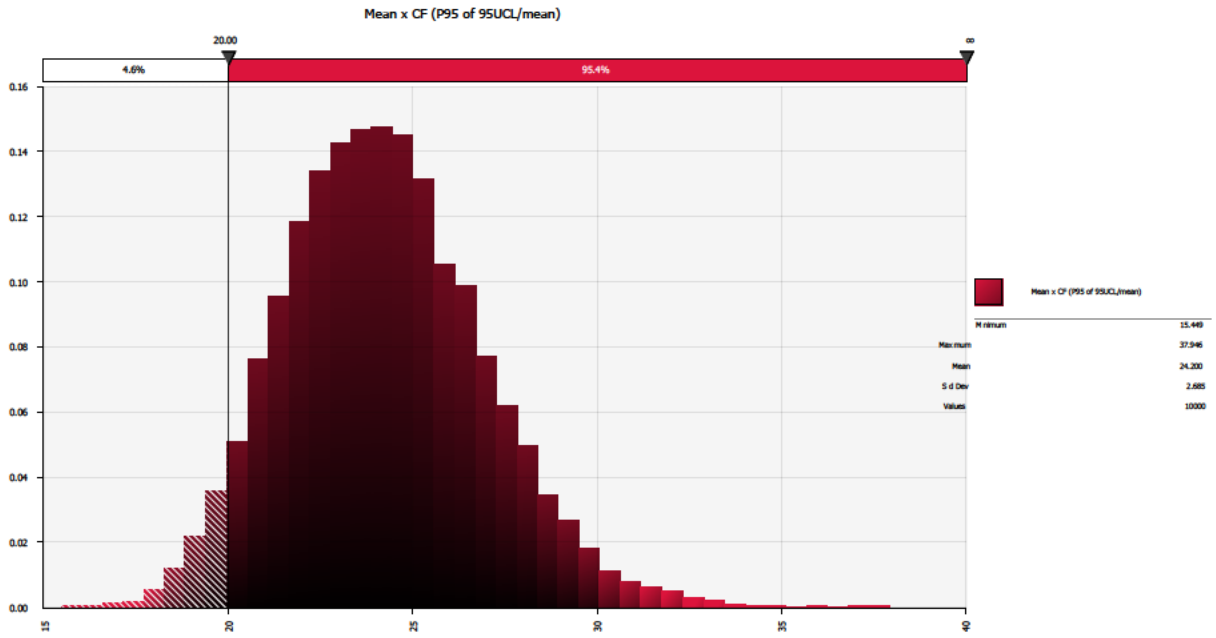


Figure 3. Probability density of uncertainty-adjusted arsenic concentration (mean X CF), when the CF is the 95th percentile ratio 95UCL/mean (=1.21) of residential soils DUs where 3 ICS composite samples were collected. Approximately 4.7% of the single composites are below the RBC (false negative).

Appendix 13:
Residential Soil EPCs Used in Lead Residential Beach IEUBK Evaluation

Appendix 13. Residential Soil EPCs Used in Lead Residential Beach IEUBK Evaluation

Beach DU	Year Sampled	Adjusted Beach Lead Conc (ppm)	Paired Residential Soil DU ID	Residential Soil for TWA (ppm)	TWA Result Soil/sediment (ppm)
202	2014	194	Average house DU201, DU180-H1, DU180-H2	296.35	267.10
800B	2014	191	Not a house DU, but DU801 on the same property. (b) (6) (b) (6)	239.94	225.99
204	2014	119	House DU203 on the property.	12.78	43.03
251B	2014	246	House DU253 on the property.	109.97	148.96
255	2014	266	No other DUs on property, so use avg house DU conc for the study area	129.00	168.12
195	2014	171	Average house DU1021, DU193, DU194	55.26	88.33
131-B1	2014	179	House DU131-H1 on the property.	135.45	147.84
197	2014	317	Average house DU196, DU109-H1, DU203-H1	17.75	103.32
124-B1	2014	182	House DU124-H1 on the property.	35.08	77.16
224	2014	256	No other DUs on property, so use avg house DU conc for the study area	129.00	165.16
324	2014	130	Not house DUs, but DU326 and DU327 on the same property; no house DUs within 1/2 mile.	60.76	80.51
171-B1	2014	80	House DU171-H1 on the property.	233.49	189.76
226	2014	171	Average of house DU226-C and DU40	204.02	194.46
226A	2014	285	House DU226C on the property.	395.27	363.86
303	2014	178	House DU288; (b) (6)	68.16	99.55
075-B1	2016	99	House DU075-H1 on the property.	81.75	86.60
157-B1	2016	158	Average of house DU157-H1 and DU157-H2 on the property.	77.82	100.76
157-B2	2016	167	Average of house DU157-H1 and DU157-H2 on the property.	77.82	103.24
098-B1	2016	75	Closest house DU098-H1 on the property (b) (6) (b) (6)	34.41	46.02
173	2014	271	Not a house DU, but DU172U on the same property. (b) (6) (b) (6)	294.04	287.40
1000	2014	242	House DU70 on the property.	202.62	213.83

Appendix 14:
Proposed Approach to Calculate Food Consumption Rates in Children from Adult Consumption Rates in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA)

Memorandum

To: David Charters, EPA ERT

Cc: Robert Tan, Marc Stifelman, and Monica Tonel, EPA Region 10

From: Gary Diamond, Mark Follansbee, Julie Rothrock, Bill Thayer and Karen Kracko

Date: August 5, 2019

Re: Proposed approach to calculate food consumption rates in children from adult consumption rates in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA)

Calculation of Food Consumption Rates in Children from Adult Consumption Rates

Food consumption rates for the Confederated Tribes of the Colville Reservation (CCT) exposure scenario in the Upper Columbia River (UCR) Human Health Risk Assessment (HHRA) were derived from a survey of CCT residents (the "Tribal Survey;" Westat, 2012). The survey included a 24-hour dietary recall and a food frequency questionnaire and was intended to yield estimates of consumption for children (ages 0-6 years) and other ages. For most foods, a sufficient number of adult subjects reported eating the food to provide a reliable estimate of adult consumption rates. However, for some foods, the number of children who consumed the food was insufficient for estimating consumption rates for children.

In the HHRA, if a rate of consumption of a specific food could not be estimated for children from the Tribal Survey (or other credible sources), consumption rates for children were calculated from the adult consumption rate using the following equation (Equation 1):

$$CR_{child} = CR_{adult} \cdot \frac{EER_{child}}{EER_{adult}} \qquad \text{Eq. (1)}$$

where CR is the consumption rate (grams [g]/day) for children or adults, and EER is the Estimated Energy Requirement for children and adults. Values for EER were calculated based on regression models for EER reported in IOM (2005). Based on the EERs calculated from IOM (2005), a value of 0.5 was used in Equation 1 to represent the EER_{child}/EER_{adult} ratio. The basis for this child/adult ratio of 0.5 is described below.

Calculation of Estimated Energy Requirement (EER) for children and adults:

Estimates of EER reported in IOM (2005) were based on clinical studies of clearance of doubly labeled water. Measurement of clearance of doubly labeled water provides an estimate of the metabolic production of carbon dioxide, from which estimates of oxygen consumption and energy expenditure can be derived. IOM (2005) reports values for the EER, which is the sum of basal energy expenditure, thermal effect of food (energy expended as a result of consumption of food), and energy expenditures from physical activity, thermal regulation and growth of tissue including pregnancy and production of milk (energy deposition). Doubly labeled water studies are cross-sectional measurements of energy expenditure and, therefore, do not measure energy deposition. Values for energy deposition reported in IOM (2005) were based on estimates of the energy content of protein and adipose added to body mass during growth. Energy deposition varies with age; being highest during infancy 175 kilocalories [kcal]/day at age ≤3 months) and decreasing to 20 kcal/day at age ≥13 months). After cessation of growth, total energy expenditure and EER converge (energy balance).

Values for EER for specific ages were estimated from regression equations reported in IOM (2005) that related EER to body size (body mass and length). The regression equations used to calculate EER within specific age ranges are described below.

EER for ages 1 – 35 months (Equation 2):

$$\mathrm{EER} = (89 \cdot \mathrm{BW} - 100) + \mathrm{ED} \qquad \text{Eq. (2)}$$

where EER is expressed in units of kcal/day, BW is body weight (kilograms [kg]) and ED is energy deposition (kcal/day). Age-range values for ED were as follows:

ED 0–3 months: 175 kcal

ED 4–6 months: 56 kcal

ED 7–12 months: 22 kcal

ED 13–36 months: 20 kcal

EER for ages 3-18 years (Equations 3 and 4):

$$\mathrm{EER(male)} = 88.5 - (61.9 \cdot \mathrm{age}) + \mathrm{PA} \cdot (26.7 \cdot \mathrm{BW} + 903 \cdot \mathrm{HT}) + \mathrm{ED} \qquad \text{Eq. (3)}$$

$$\mathrm{EER(female)} = 135.3 - (30.8 \cdot \mathrm{age}) + \mathrm{PA} \cdot (10.0 \cdot \mathrm{BW} + 934 \cdot \mathrm{HT}) + \mathrm{ED} \qquad \text{Eq. (4)}$$

where age is in years, PA is a physical activity coefficient and HT is body height (meters [m]). Age range values for ED were as follows:

ED ages 3-8 years: 20 kcal/day

ED for ages 9-18 years: 25 kcal/day

Values for PA used in the regression equations were as follows:

PA Level	Males	Females
sedentary	1.00	1.00
low active	1.13	1.16
active	1.26	1.31
very active	1.42	1.56

The bases for physical activity coefficients of children are described in detail in IOM (2005). Physical activity levels in children are approximately equivalent exertion from the following activities:

sedentary: lying awake, sitting

low active: walking at a pace of 2.5 miles/hour for 2 hours

active: walking at a pace of 2.5 miles/hour for 4 hours

very active: walking at a pace of 2.5 miles/hour for 6 hours

EER for ages 19 years and older (Equations 5 and 6):

$$\mathrm{EER(male)} = 662 - (9.53 \cdot \mathrm{age}) + \mathrm{PA} \cdot (15.91 \cdot \mathrm{BW} + 539.6 \cdot \mathrm{HT}) \qquad \text{Eq. (5)}$$

$$\mathrm{EER(female)} = 354 - (6.91 \cdot \mathrm{age}) + \mathrm{PA} \cdot (9.36 \cdot \mathrm{BW} + 726 \cdot \mathrm{HT}) \qquad \text{Eq. (6)}$$

Values for PA used in the adult regression equations were as follows:

PA Level	Males	Females
sedentary	1.00	1.00
low active	1.11	1.12
active	1.25	1.27
very active	1.48	1.45

The bases for physical activity coefficients for adults are described in detail in (IOM, 2005). Physical activity levels in adults are approximately equivalent to exertion from the following activities:

sedentary: physical activities required for independent living

low active: walking 2.2 miles/day at a rate of 3-4 miles/hour

active: walking 7 miles/day at a rate of 3-4 miles/hour

very active: walking 17 miles/day at a rate of 3-4 miles/hour

The above regression equations require values for body height and/or weight. Reference values for body weight and height used in the regression equations are presented in Table 1 (IOM, 2005).

Estimates of energy requirement in children and adults:

Figure 1 shows EERs calculated from regression equations and reference body weights and heights for children and adults. The EERs shown in Figure 1 are the average values for three physical activity categories: low active, active or very active (sedentary was not included in the average). The discontinuities in the age profiles shown in Figure 1 result from three different regression models for subjects in specific age ranges (i.e., 1-35 months, 3-18 years, ≥19 years). Table 2 summarizes EER estimates for adults and children (HHRA age range category 0-6 years) for the four physical activity levels represented in the IOM (2005) regression equations. Child/adult ratios (male female average) for EER ranged from 0.48 (very active) to 0.53 (sedentary). The average for the non-sedentary activity levels was 0.50. This value was selected for use in Equation 1 for calculating food consumption rates for children from adult consumption rates.

References

IOM. 2005. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acid (2005). Institute of Medicine. National Academy Press, Washington, DC.

Westat, Inc. 2012. Upper Columbia River Site Remedial Investigation and Feasibility Study. Tribal Consumption and Resource Use Survey. Final Report. Prepared for U.S. Environmental Protection Agency, Region 10 by Westat, Inc.: Rockville, MD. April. http://www.colvilletribes.com/final_report_june_2012_.php

Table 1. Body Weights and Heights Used in Regression Equations for Estimated Energy Requirement

		Males		Females	
Age	**Unit**	**Weight (kg)**	**Height (m)**	**Weight (kg)**	**Height (m)**
1	month	4.4	--	4.2	--
2	month	5.3	--	4.9	--
3	month	6.0	--	5.5	--
4	month	6.7	--	6.1	--
5	month	7.3	--	6.7	--
6	month	7.9	--	7.2	--
7	month	8.4	--	7.7	--
8	month	8.9	--	8.1	--
9	month	9.3	--	8.5	--
10	month	9.7	--	8.9	--
11	month	10.0	--	9.2	--
12	month	10.3	--	9.5	--
15	month	11.1	--	10.3	--
18	month	11.7	--	11.0	--
21	month	12.2	--	11.6	--
24	month	12.7	--	12.1	--
27	month	13.1	--	12.5	--
30	month	13.5	--	13.0	--
33	month	13.9	--	13.4	--
35	month	14.2	--	13.7	--
3	year	13.9	0.94	14.3	0.95
4	year	15.8	1.01	16.2	1.02
5	year	17.9	1.08	18.4	1.09
6	year	20.2	1.15	20.7	1.15
7	year	22.8	1.21	23.1	1.22
8	year	25.6	1.28	25.6	1.28
9	year	29.0	1.33	28.6	1.34
10	year	32.9	1.38	31.9	1.39
11	year	37.2	1.44	35.9	1.44
12	year	41.6	1.51	40.5	1.49
13	year	45.8	1.57	45.6	1.56
14	year	49.4	1.60	51.0	1.64
15	year	52.0	1.62	56.3	1.70
16	year	53.9	1.63	60.9	1.74
17	year	55.1	1.63	64.6	1.75
18	year	56.2	1.63	67.2	1.76
≥19	year	70.0	1.80	60.0	1.50

Based on IOM (2005)

Table 2. Energy Expenditure in Children and Adults

Physical Activity Level	Age Category	Energy Requirement (kcal/day)		
		Male	Female	Male and Female
Sedentary	Child	1084	1014	1049
	Adult	2289	1673	1981
	Child/Adult	0.47	0.61	0.53
Low active	Child	1180	1109	1145
	Adult	2519	1871	2195
	Child/Adult	0.47	0.59	0.52
Active	Child	1275	1199	1237
	Adult	2811	2119	2465
	Child/Adult	0.45	0.57	0.50
Very active	Child	1393	1347	1370
	Adult	3290	2416	2853
	Child/Adult	0.42	0.56	0.48
Mean for low active, active and very active	Child	1283	1218	1251
	Adult	2873	2135	2504
	Child/Adult	0.45	0.57	0.50

Child age range: 0-6 years
Adult age: 48 years (median for Tribal survey)
EER, estimated energy requirement

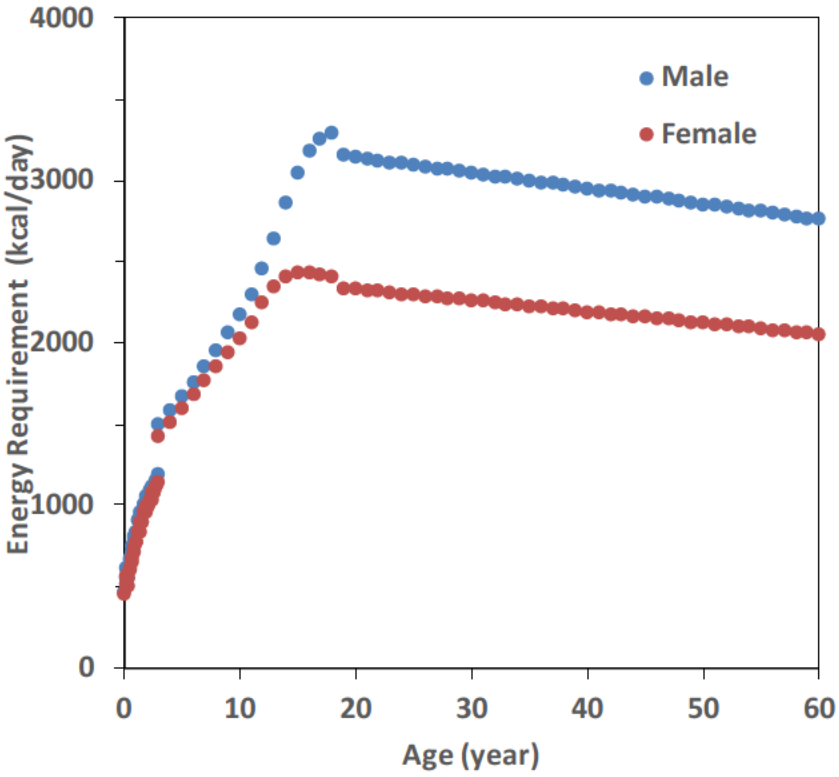


Figure 1. Energy requirement estimated from age-category regression models reported in IOM (2005). Values shown are averages for physical activity categories low active, active and very active.

Appendix 15:
All Ages Lead Model Analysis

TO: Monica Tonel, Marc Stifelman, and David Charters (US EPA)

FROM: Gary Diamond and Mark Follansbee (SRC)

DATE: June 5, 2019

RE: Comparison of IEUBK Model (IEUBKM) and All Ages Lead Model (AALM) simulations of blood lead levels (BLLs) resulting from visits to hypothetical public beaches at the UCR site.

The AALM.CSL (v4.3_122118) was used to simulate repeated single day exposures to public beach sediments in combination with a baseline exposure.

The baseline simulation was constructed as age-specific Pb intakes (ug/day) that predicted BLLs similar to the age-year BLLs predicted from the IEUBKM for combined exposures to Pb in air, food, drinking water, and residential soil and dust. Figure 1 compares the AALM and IEUBKM baseline simulations. The Pb intakes used in the AALM were as follows:

Age (year)	Age (day)	Pb Intake (ug/day)
0.0	0	0
0.2	90	9
1	365	10
2	730	8.5
3	1095	8.5
4	1460	10
5	1825	12
6	2190	12
7	2555	11
8	2920	11
9	3285	11
10	3650	11

Beach exposures were simulated as 6 single-day beach visits over a 3-month period, each year. The interval between events was 15 days. The exposure was to beach sediment at the mean RBA-adjusted concentration measured at hypothetical public beaches with high-end concentration of lead in beach sediment (within the range observed at the UCR site). Using higher exposure point concentrations for the beach (relative to the residence) would tend to magnify the difference in BLL predicted by the IEUBKM and AALM for acute exposure scenarios. When the child was not at the beach, the child was assumed to be at the residence; for these comparisons, the residential soil lead concentration was 129 ppm (based on site-specific information). The indoor dust lead concentration was based on the residential soil lead concentration of 129 ppm using the MSA analysis in the IEUBKM (using UCR measured air data), because the residence was assumed to be not located close to the beach. Soil, dust, and sediment ingestion rates were assumed to be the age-year IEUBKM defaults for soil plus dust (IR_{SD}). See SRC 2018 for a complete list of inputs to the IEUBKM.

Figure 2 shows the BLLs predicted from the AALM for combined baseline exposures (air, food, drinking water, and residential and indoor dust) and exposures to beach A sediment during a single 3-month season of beach visits occurring between the first year and second year. The AALM simulates each exposure at the beach as a single-day event. This results in a BLL spike associated with each beach visit, representing uptake of Pb during the exposure followed by the elimination of Pb from blood and a return towards the baseline BLL.

Figure 3 shows BLLs predicted from the AALM for repeated seasons of beach A visits each age year. Overlaid on the AALM simulation are the age-year BLLs predicted from the IEUBKM for the same scenario, along with the average BLL predicted for ages 12 – 72 months. The 12 to 72-month average is the IEUBKM prediction used in the risk assessment for this scenario. The age-year BLLs predicted from the IEUBKM are within the range of the discrete BLL spikes predicted from the AALM. This reflects the time-weighting calculation used in the IEUBKM which adjusts the exposure concentration by for the frequency of beach visits within the season rather than within the year (e.g., the exposure concentration is adjusted by the 1/7, the weekly frequency, rather than by 1/7 x 3/12). This approach ensures that average BLLs are not underestimated for the season by averaging with BLLs out of season (U.S. EPA 2003; Lorenzana et al., 2005). The 12 to 72-month average BLL predicted by the IEUBKM is 1.95 µg/dL. The corresponding average for the same age range predicted by the AALM is 1.87 µg/dL.

Figure 4 shows the corresponding AALM simulation of visits to beach B. The higher sediment concentration at beach B results in larger BLL spikes than beach A. The 12 to 72-month average BLL predicted by the IEUBKM is 2.5 µg/dL. The corresponding average for the same age range predicted by the AALM is 2.12 µg/dL.

Recommendation: Because the difference between the IEUBKM and AALM for these hypothetical public beach exposures is small (the IEUBKM prediction falls within the range of BLLs predicted by the AALM), the IEBUKM results should be included in the risk characterization section of the site-wide baseline HHRA and the information in this memorandum should be included in the uncertainty section of the site-wide baseline HHRA.

REFERENCES

Lorenzana RM; Troast R; Klotzbach JM; Follansbee MH; Diamond GL. (2005) Issues related to time averaging of exposure in modeling risks associated with intermittent exposures to lead. Risk Anal 25(1):169-178.

SRC. 2018. Draft Upland Human Health Risk Assessment: Upper Columbia River (UCR) Site. Prepared for US EPA under contract: EP-W-09-031. November 27, 2018.

U.S. EPA. 2003. Assessing Intermittent or Variable Exposures at Lead Sites. OSWER #9285.7-76.

https://www.epa.gov/superfund/lead-superfund-sites-guidance#leadsites.

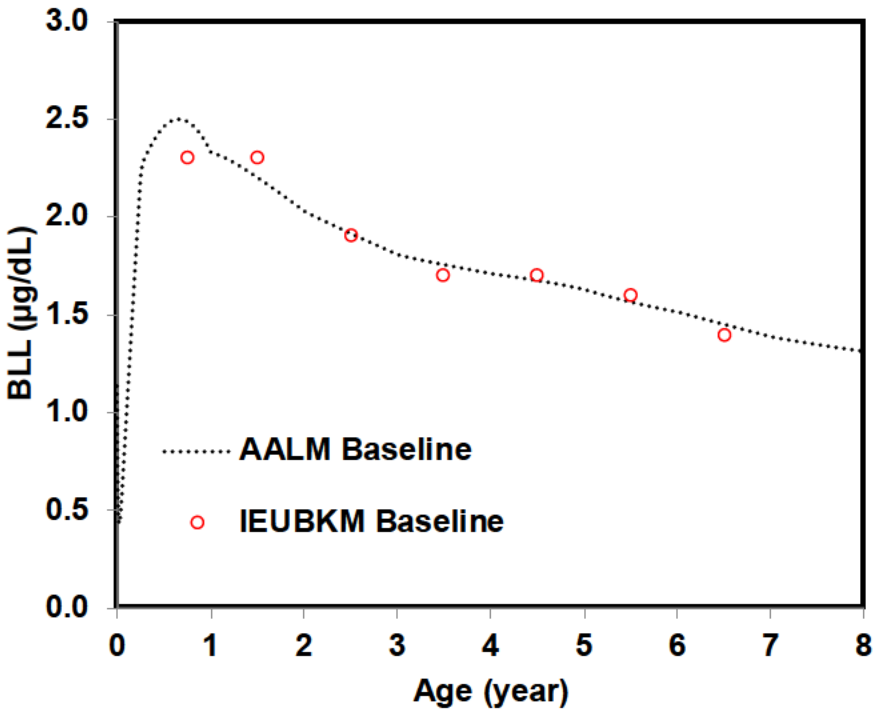


Figure 1. AAALM simulation of baseline BLLs predicted from the IEUBKM.

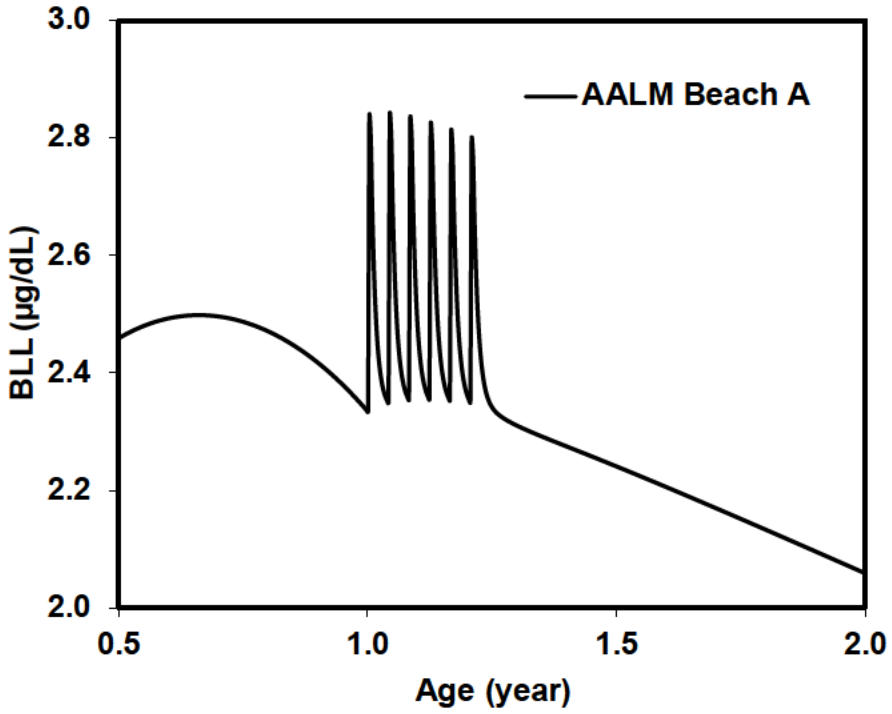


Figure 2. BLLs predicted from the AALM for combined baseline exposures (air, food, drinking water, and residential and indoor dust) and exposures to beach A sediment during a single 3-month season of beach visits.

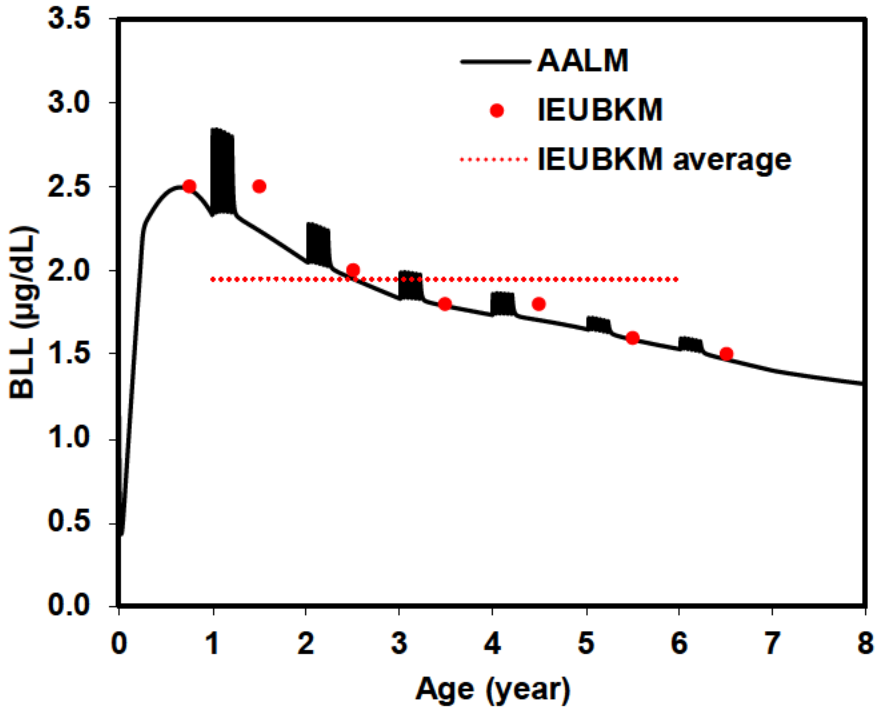


Figure 3. BLLs predicted from the AALM for repeated seasons of beach A visits each age year. Overlaid on the AALM simulation are the age-year BLLs predicted from the IEUBKM for the same scenario, along with the average BLL predicted for ages 12 – 72 months.

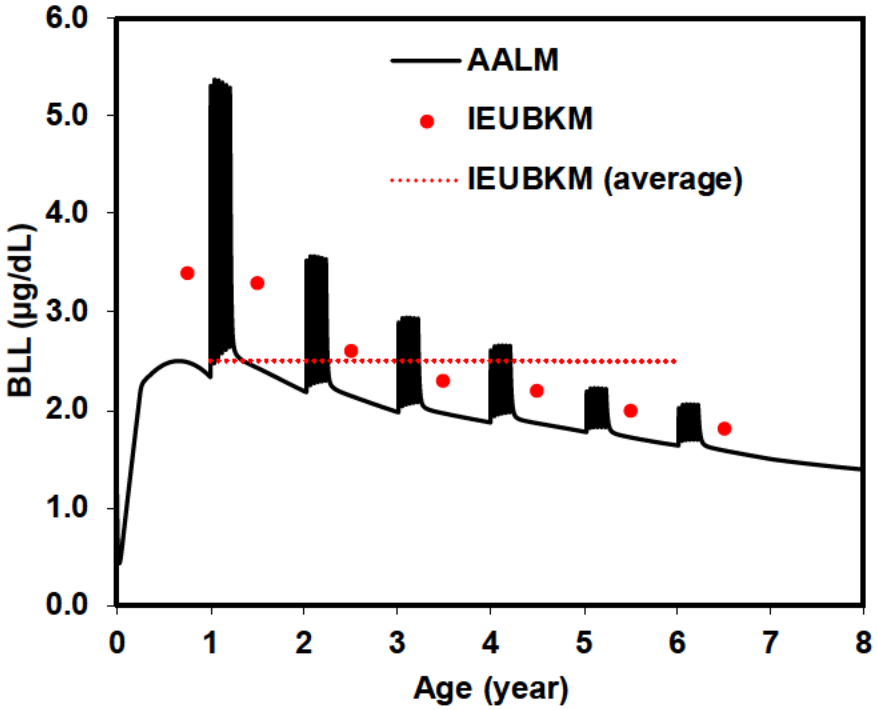
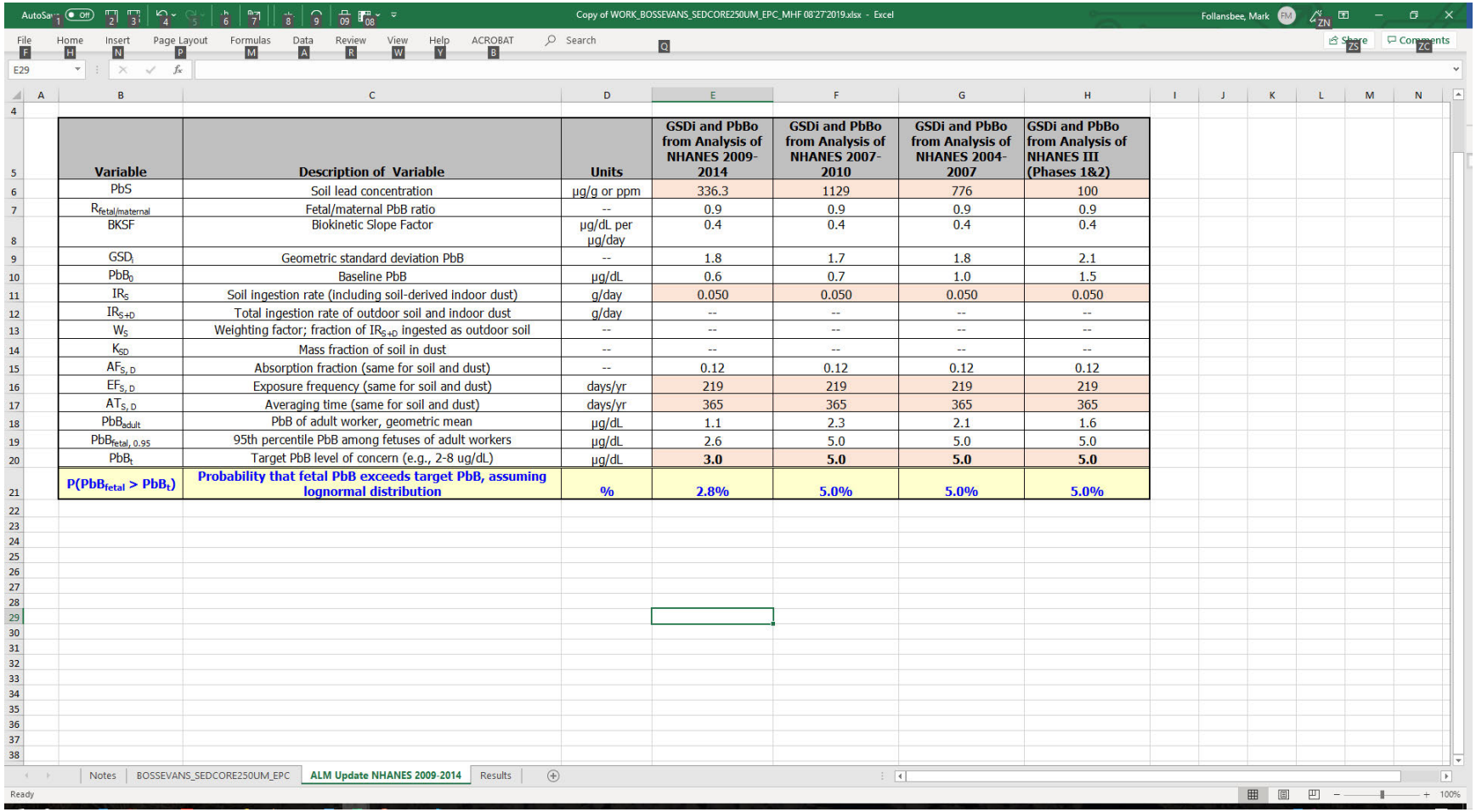


Figure 4. BLLs predicted from the AALM for repeated seasons of beach B visits each age year. Overlaid on the AALM simulation are the age-year BLLs predicted from the IEUBKM for the same scenario, along with the average BLL predicted for ages 12 – 72 months.

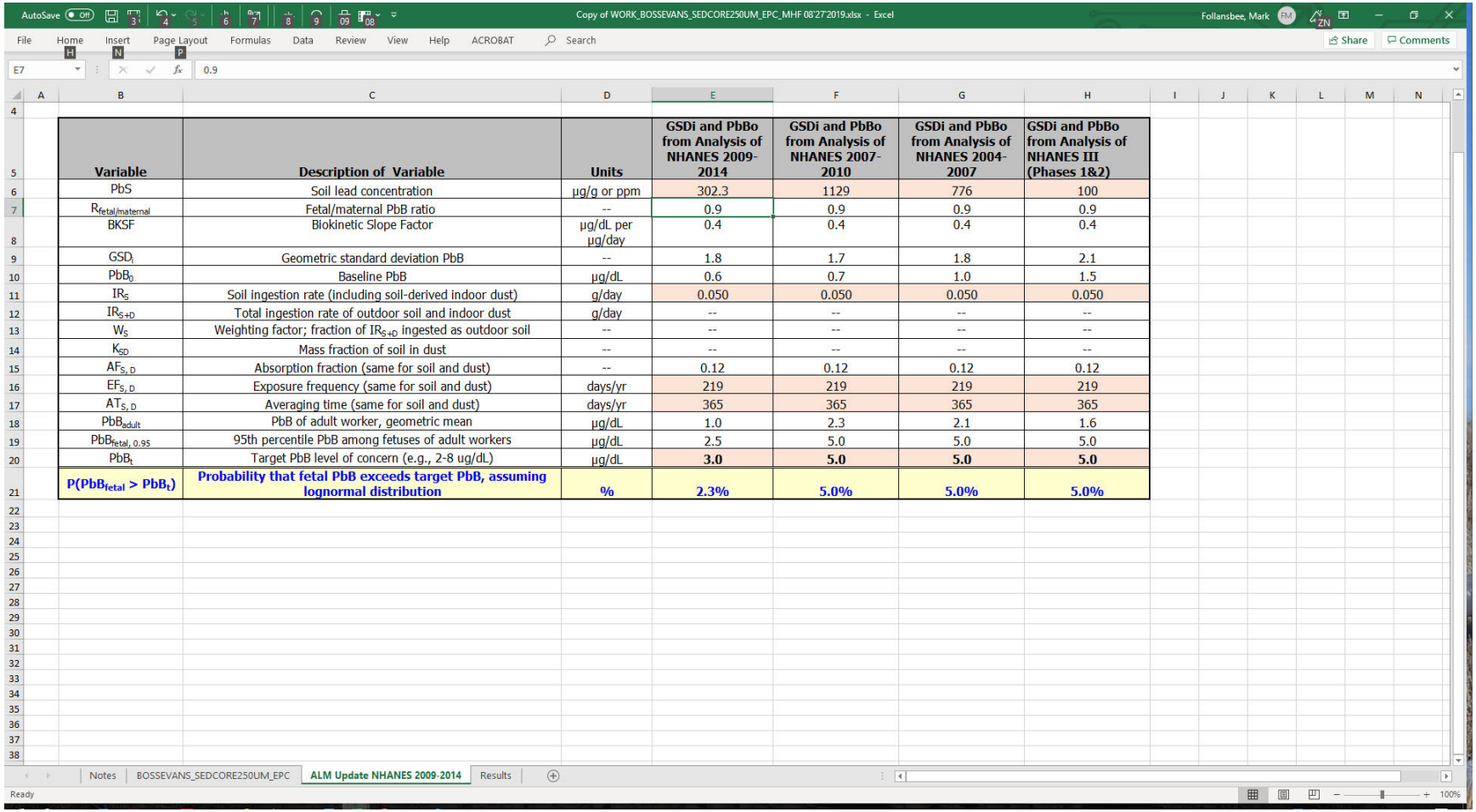
Appendix 16:
Results of ALM

Bossburg Flat SDU-01



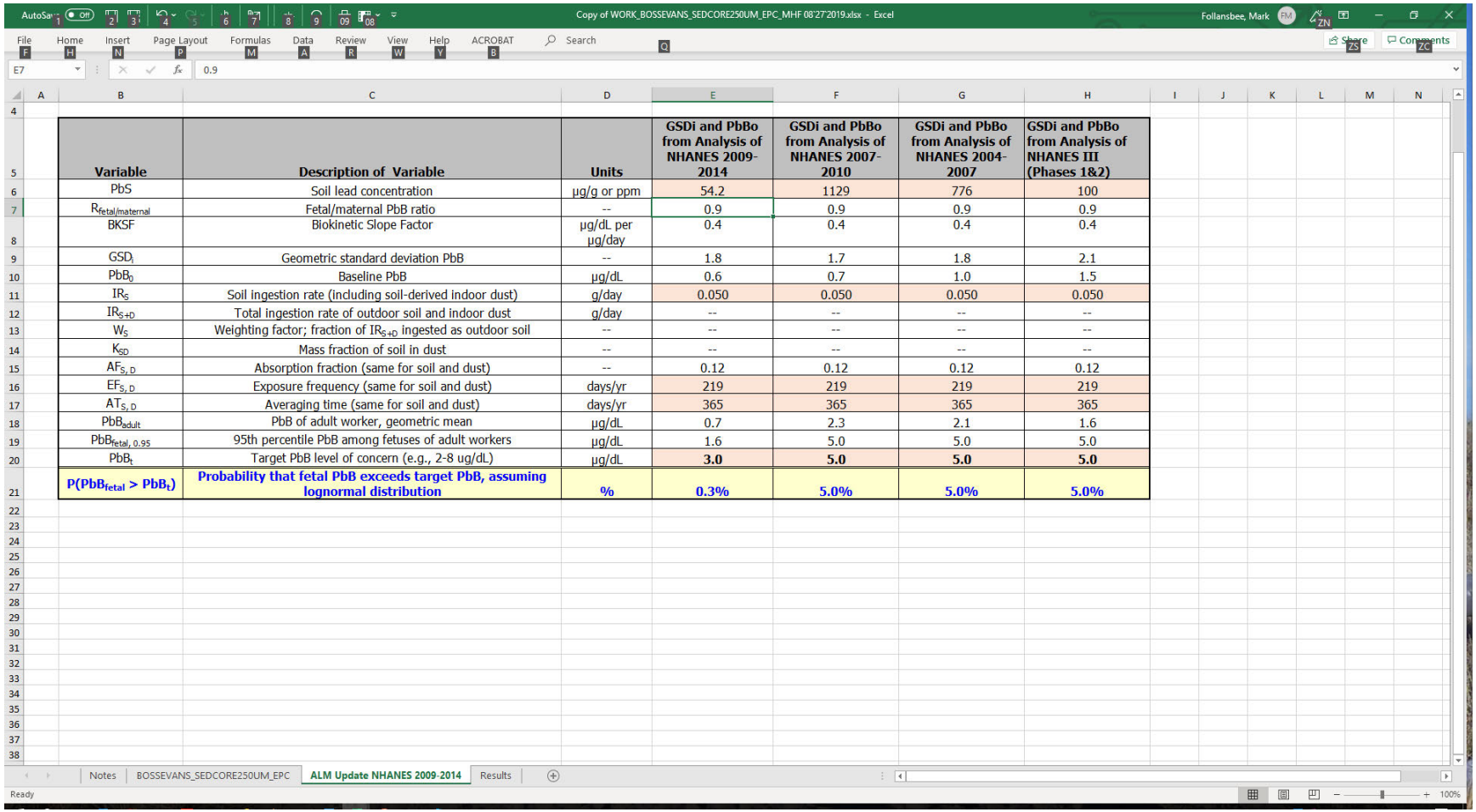
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	336.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**2.8%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-02



Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	302.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**2.3%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-03



Copy of WORK_BOSSEVANS_SEDCORE250UM_EPC_MHF 08'27'2019.xlsx - Excel

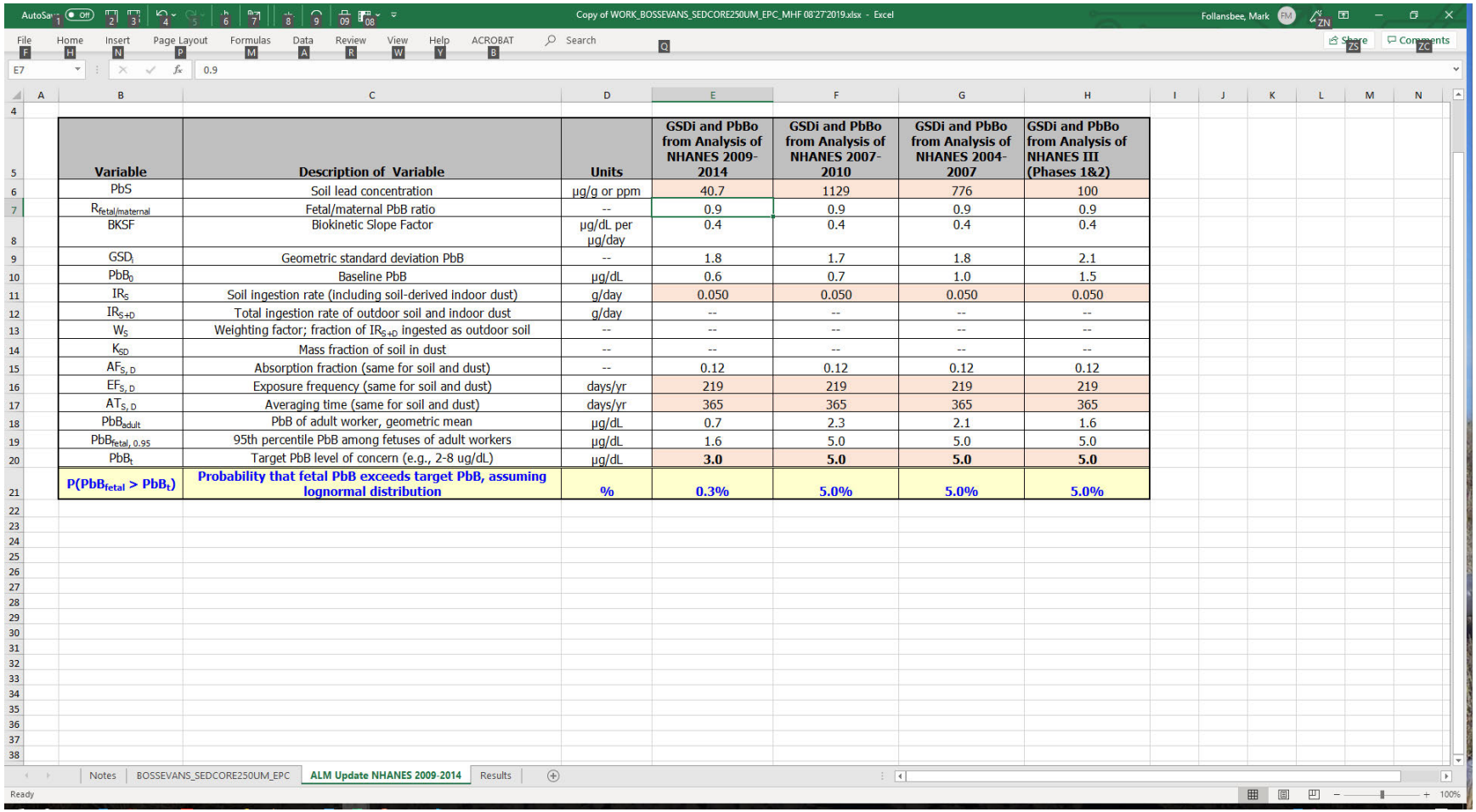
E7: 0.9

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	54.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.3%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

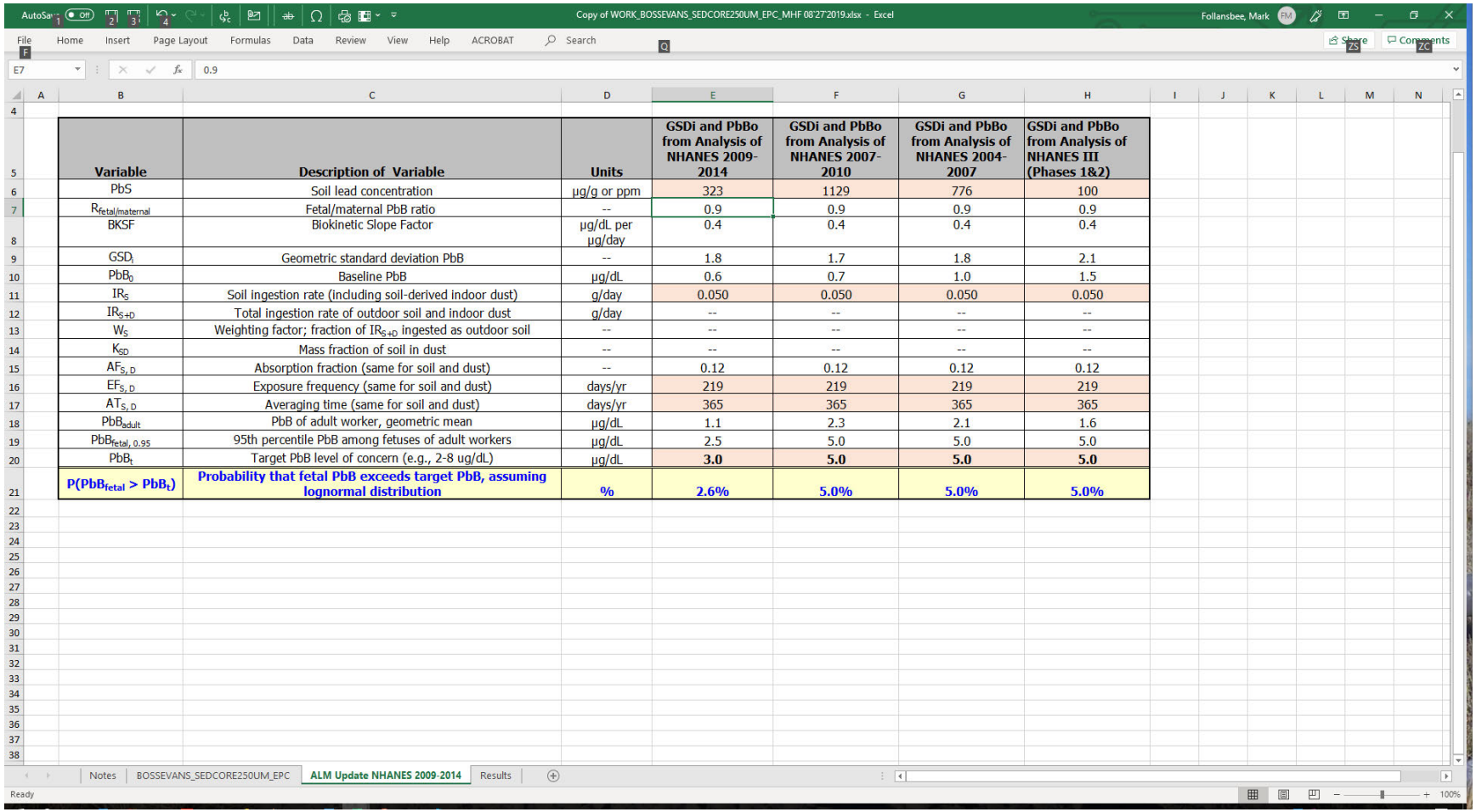
Ready

Bossburg Flat SDU-04



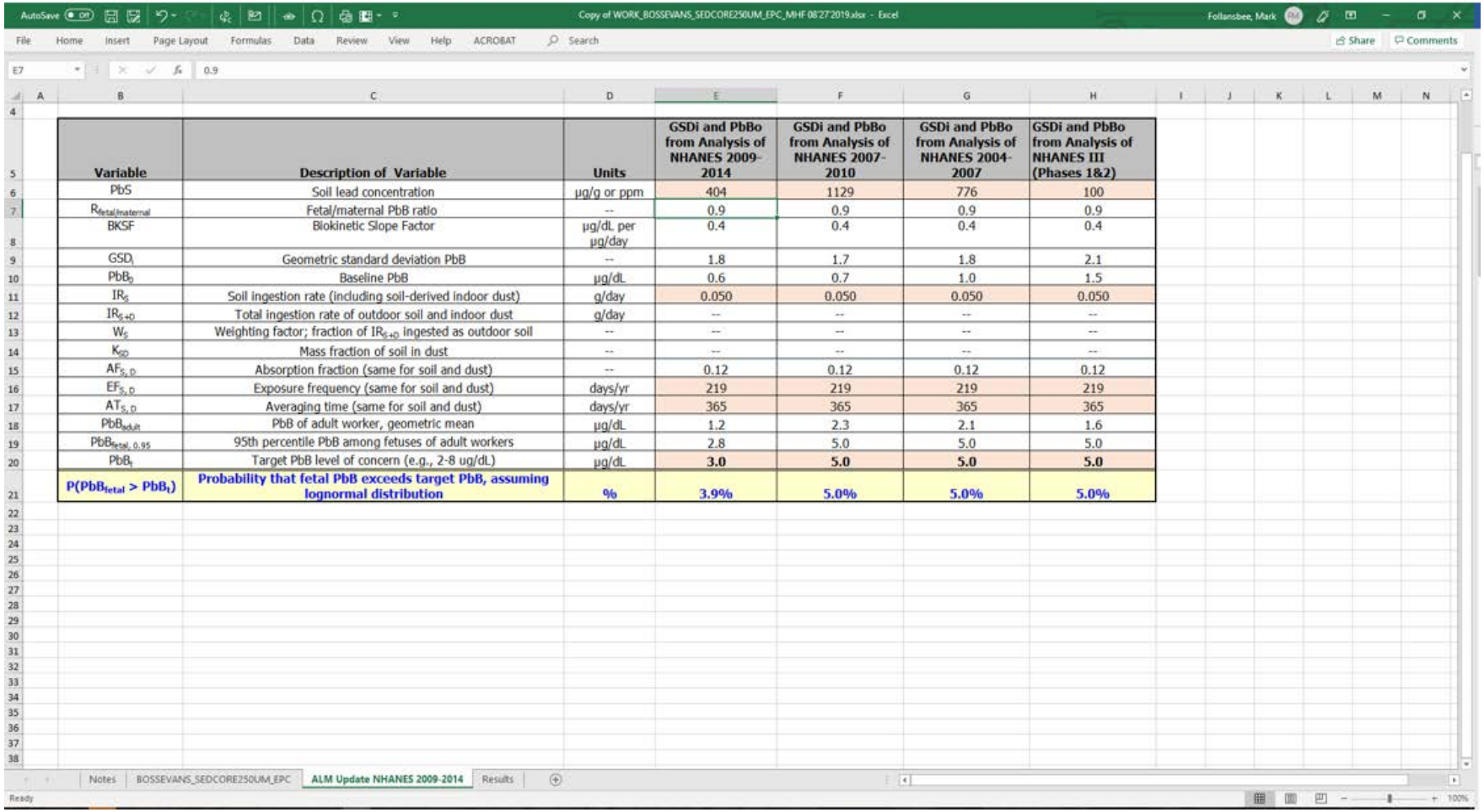
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	40.7	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.3%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-08



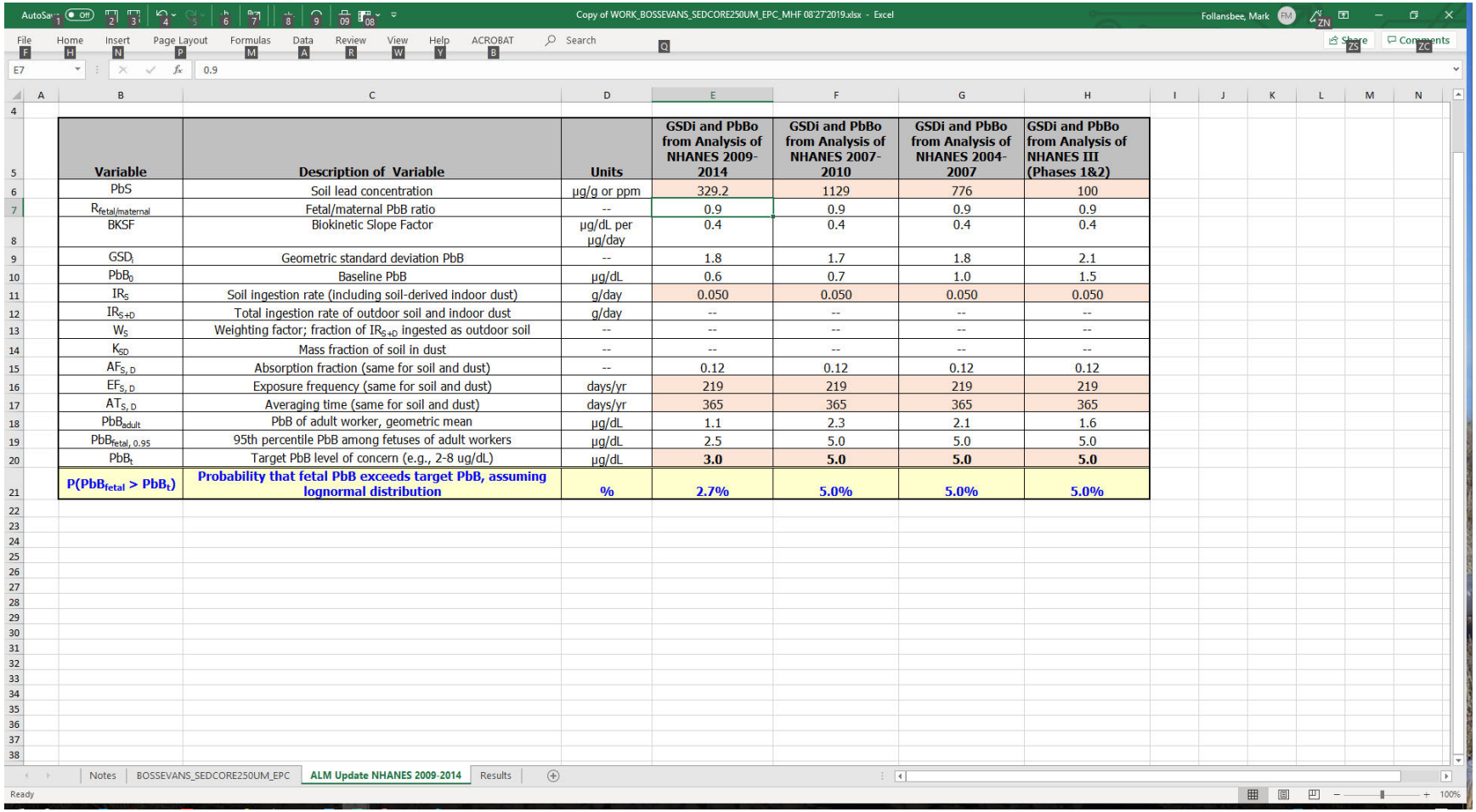
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	323	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**2.6%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat F-01



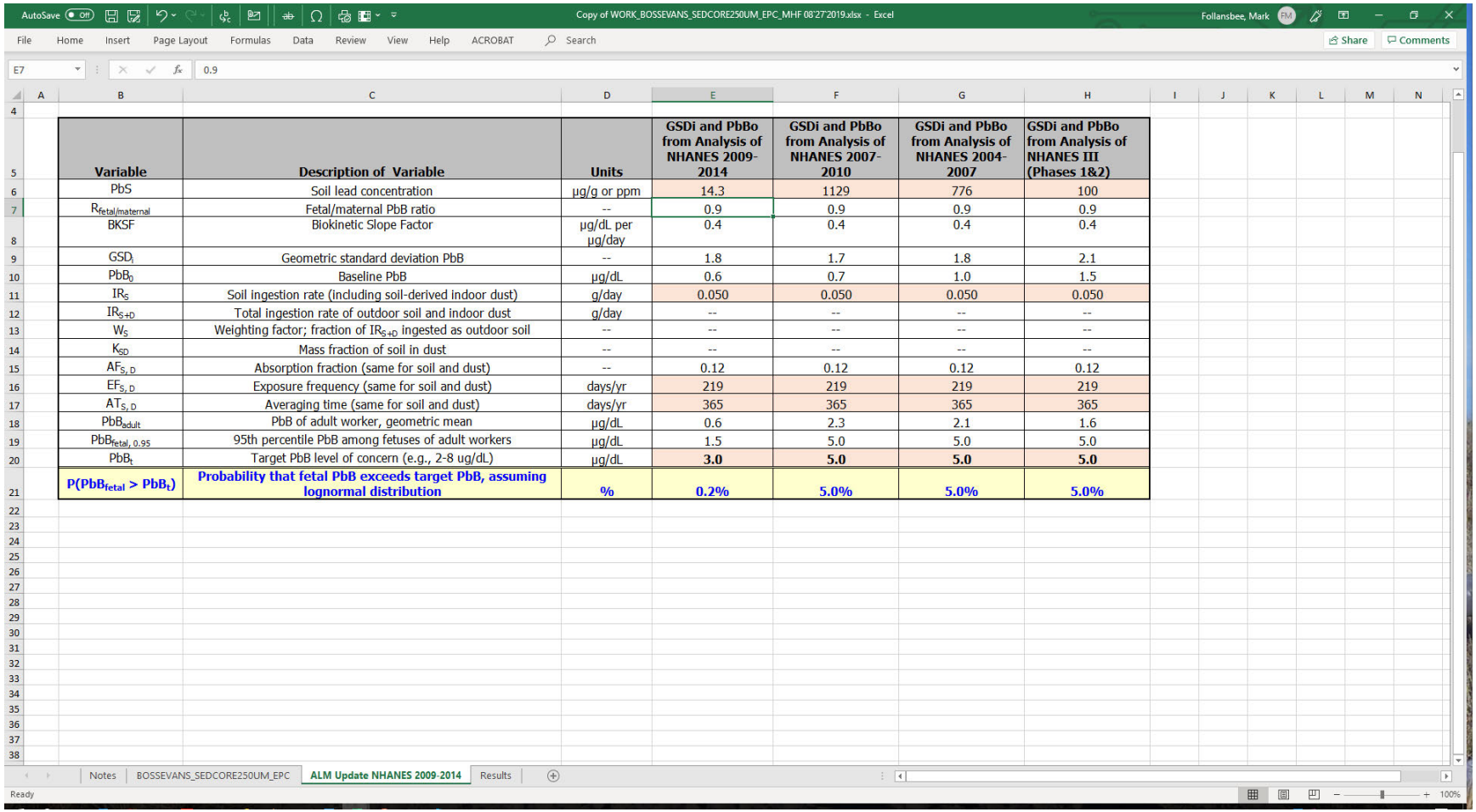
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	404	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.2	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**3.9%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-05



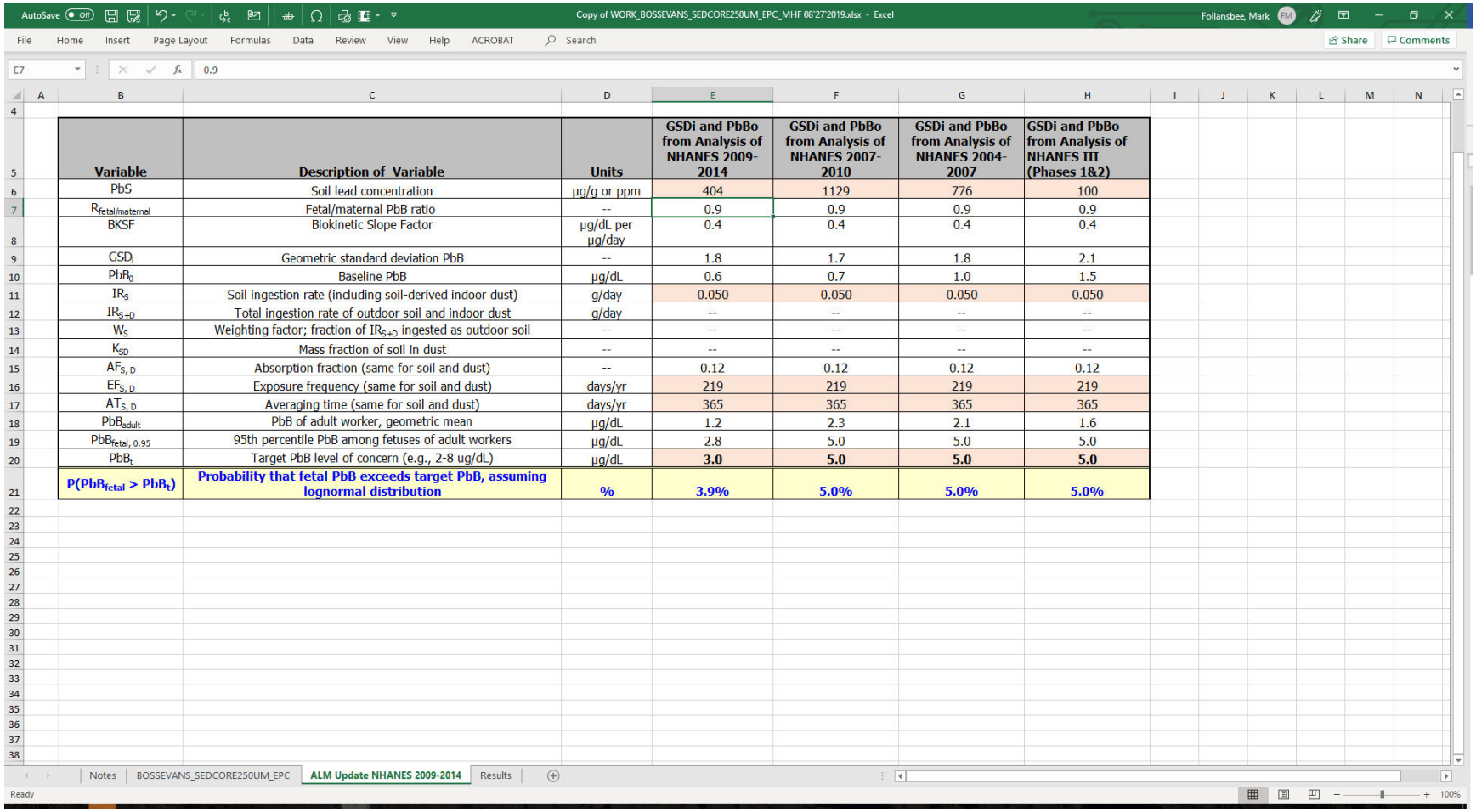
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	329.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**2.7%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-06



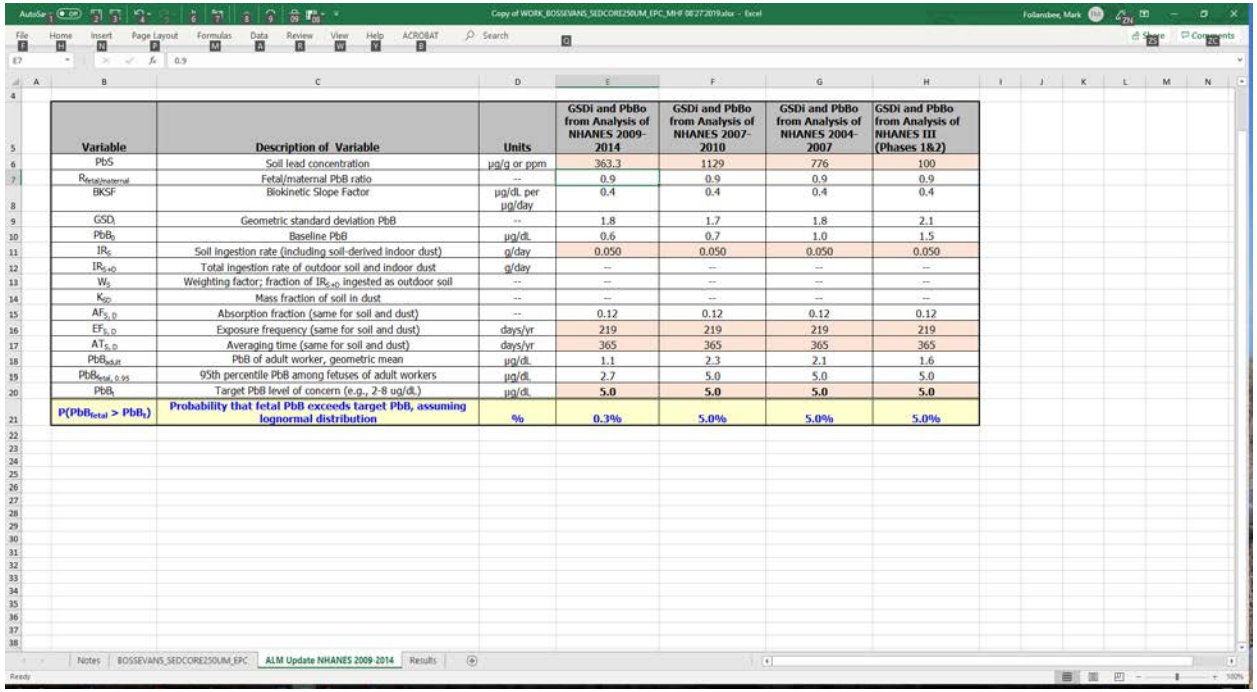
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	14.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.2%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-07



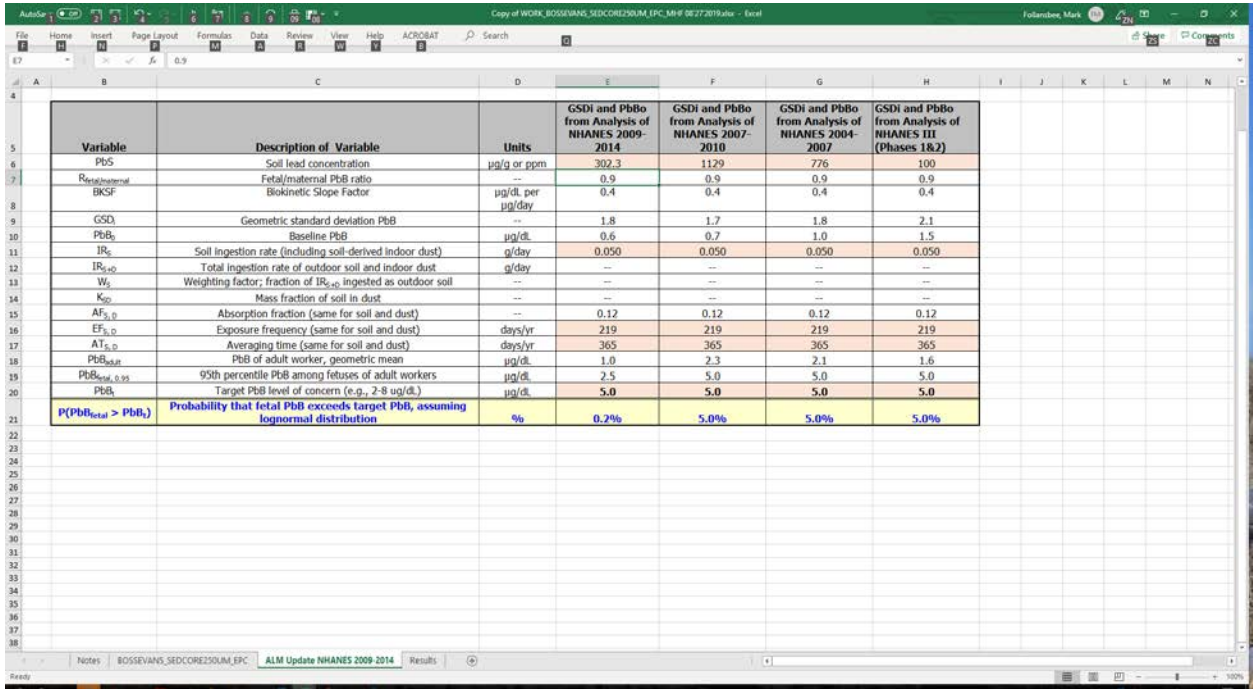
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	404	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.2	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**3.9%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-01



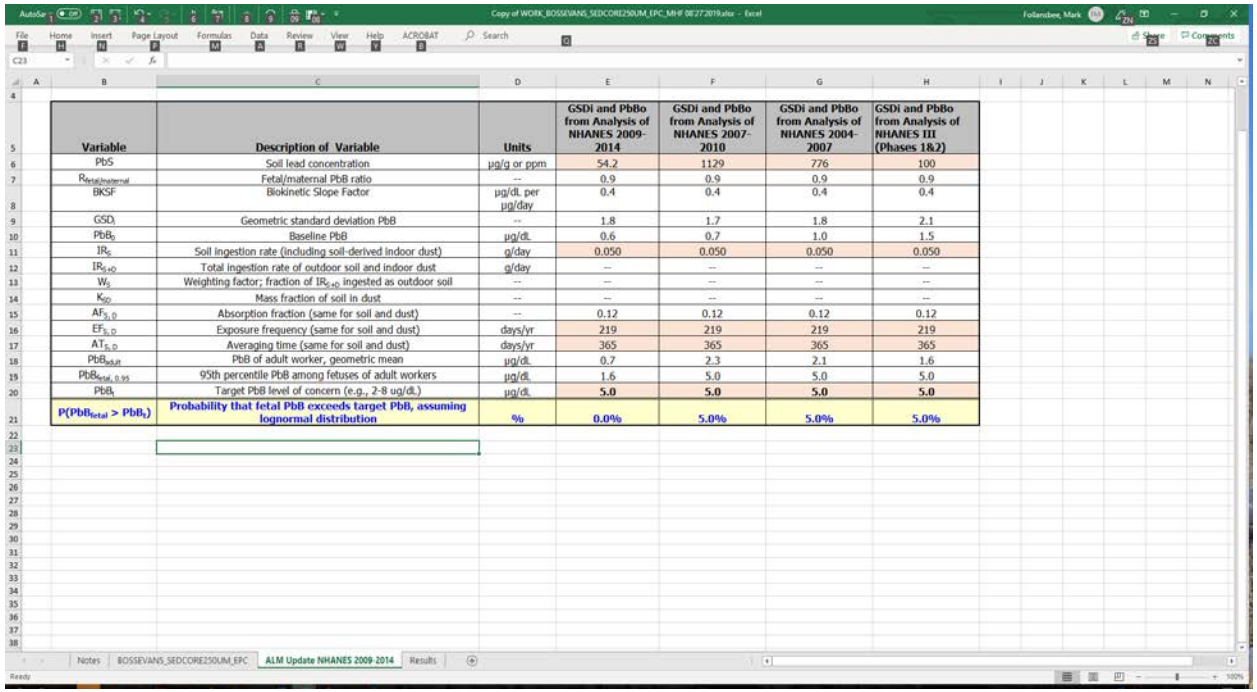
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	363.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.7	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.3%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-02



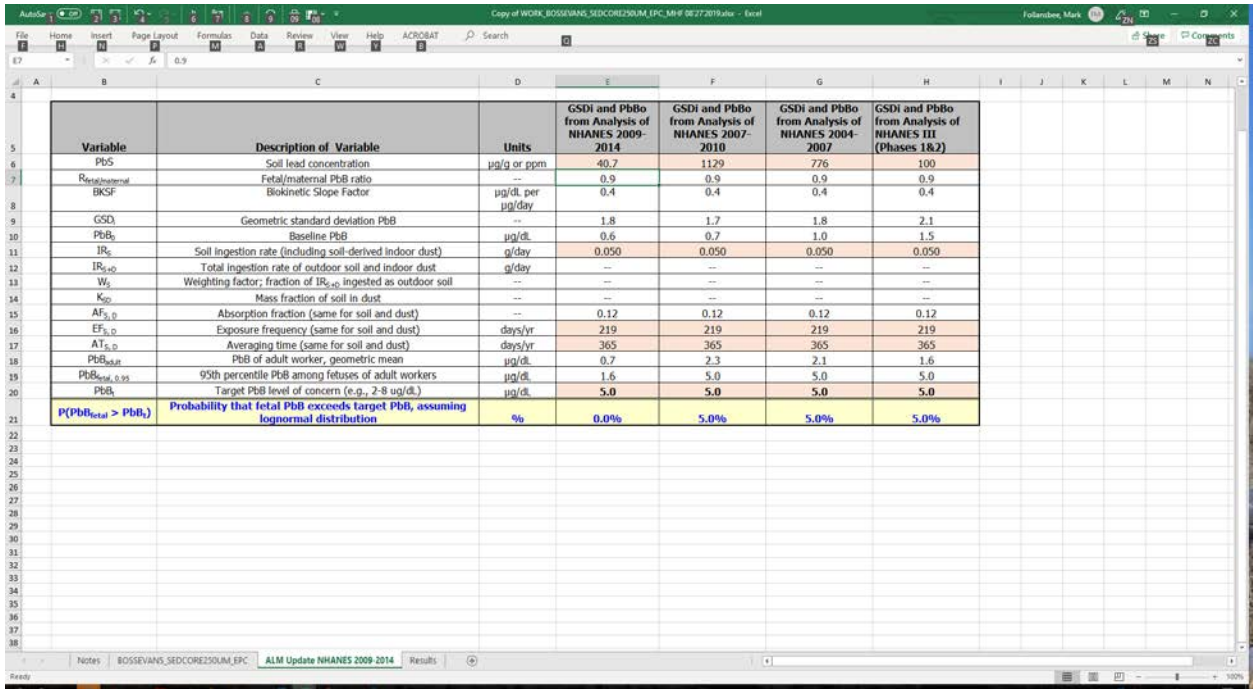
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	302.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.2%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-03



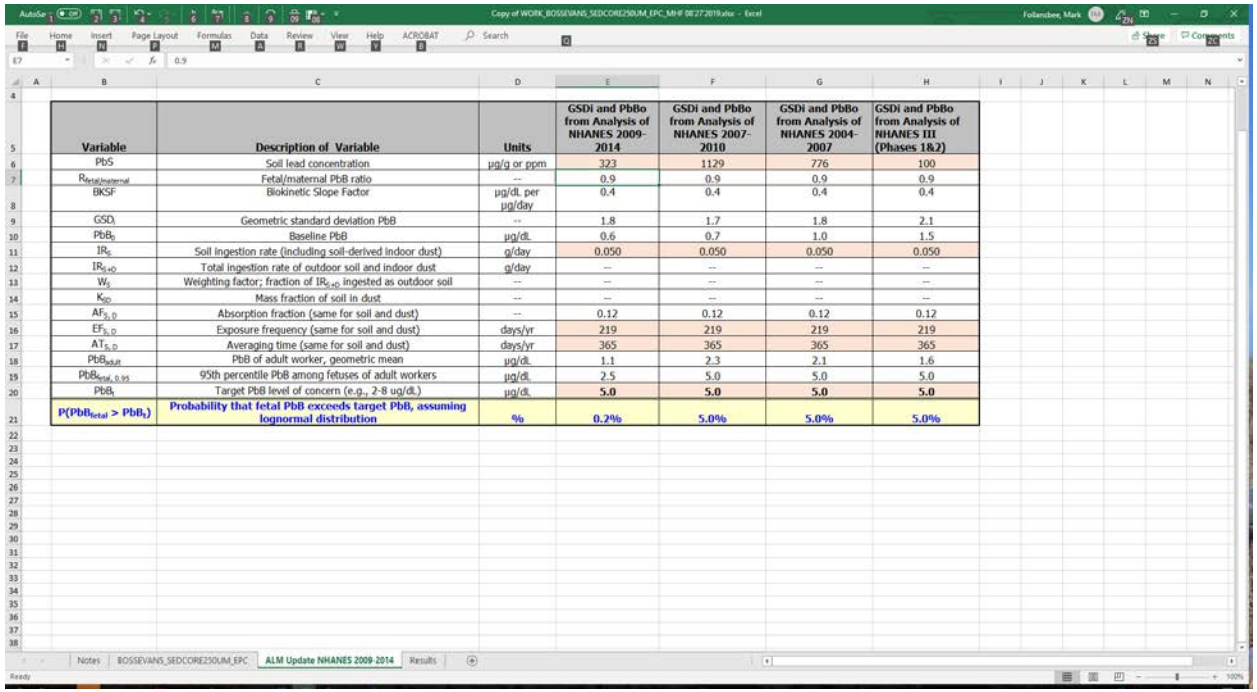
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	54.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-04



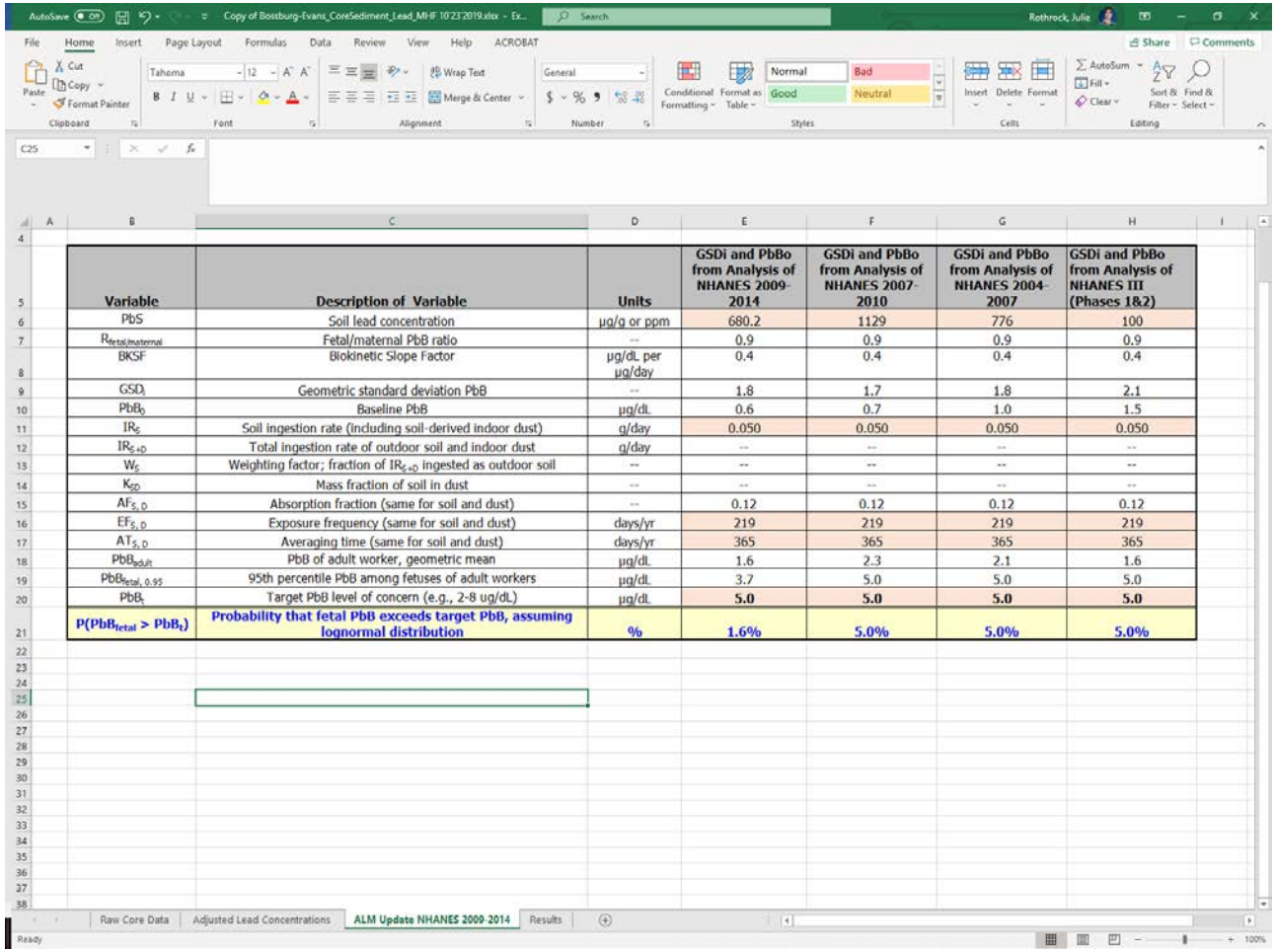
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	40.7	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-08



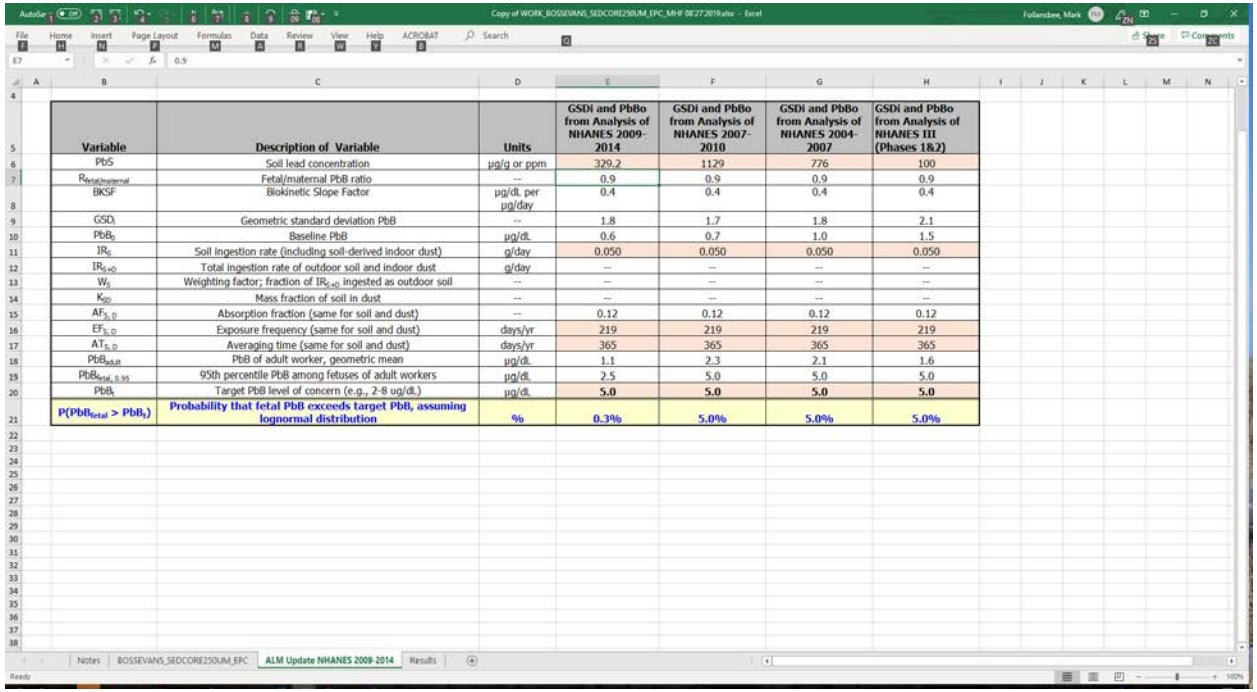
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	323	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.2%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat F-01



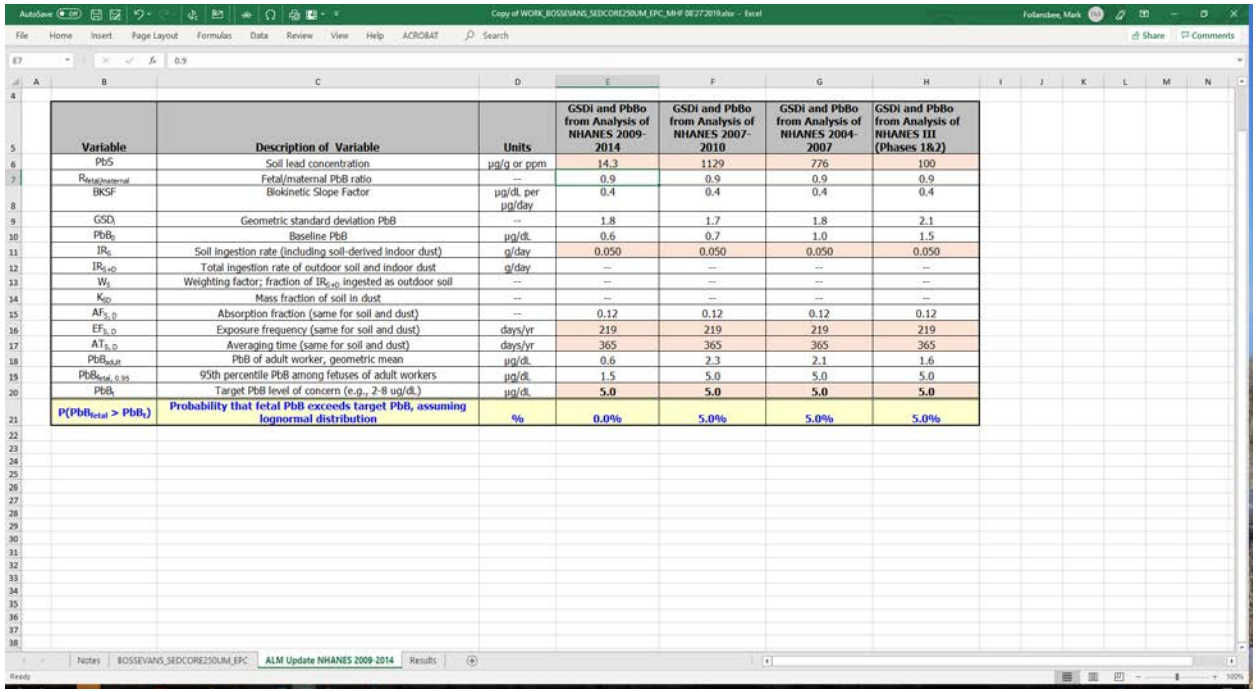
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	680.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.7	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**1.6%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-05



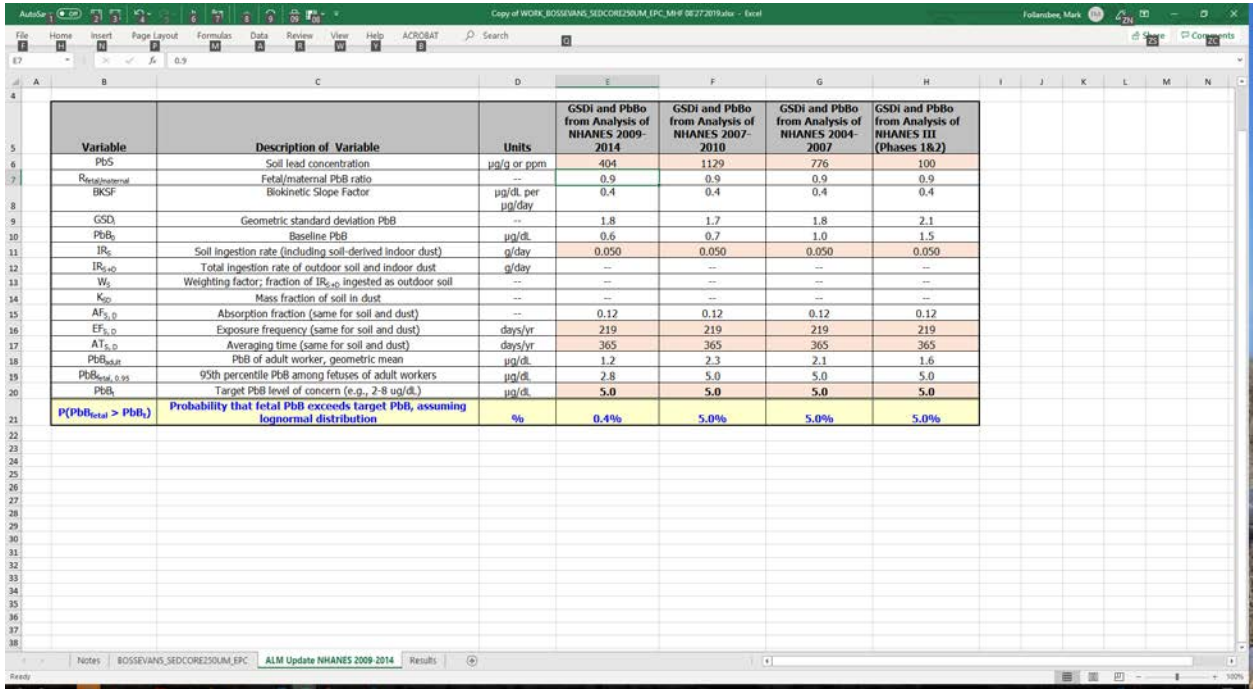
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	329.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.3%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-06



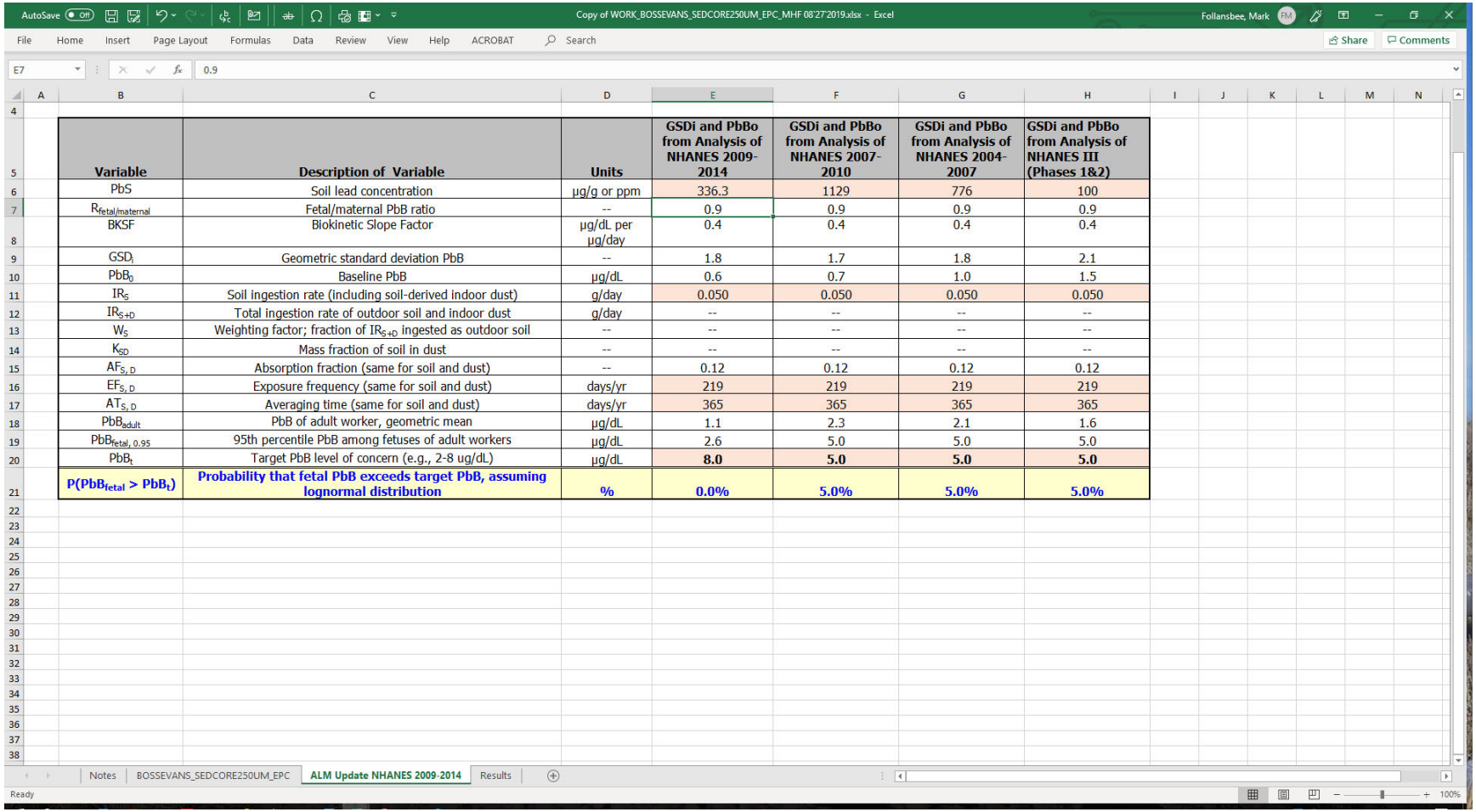
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	14.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-07



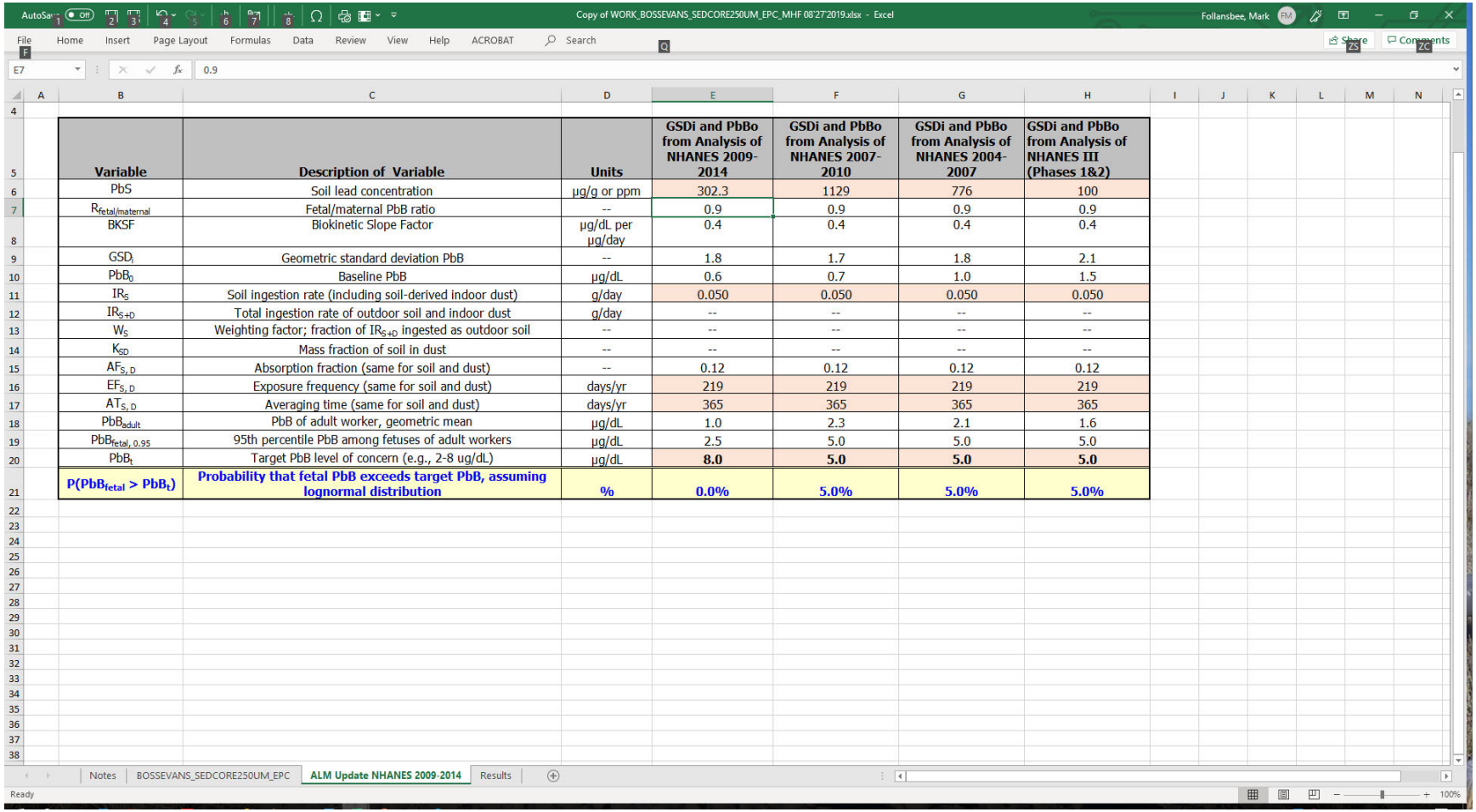
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	404	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.2	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.4%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-01



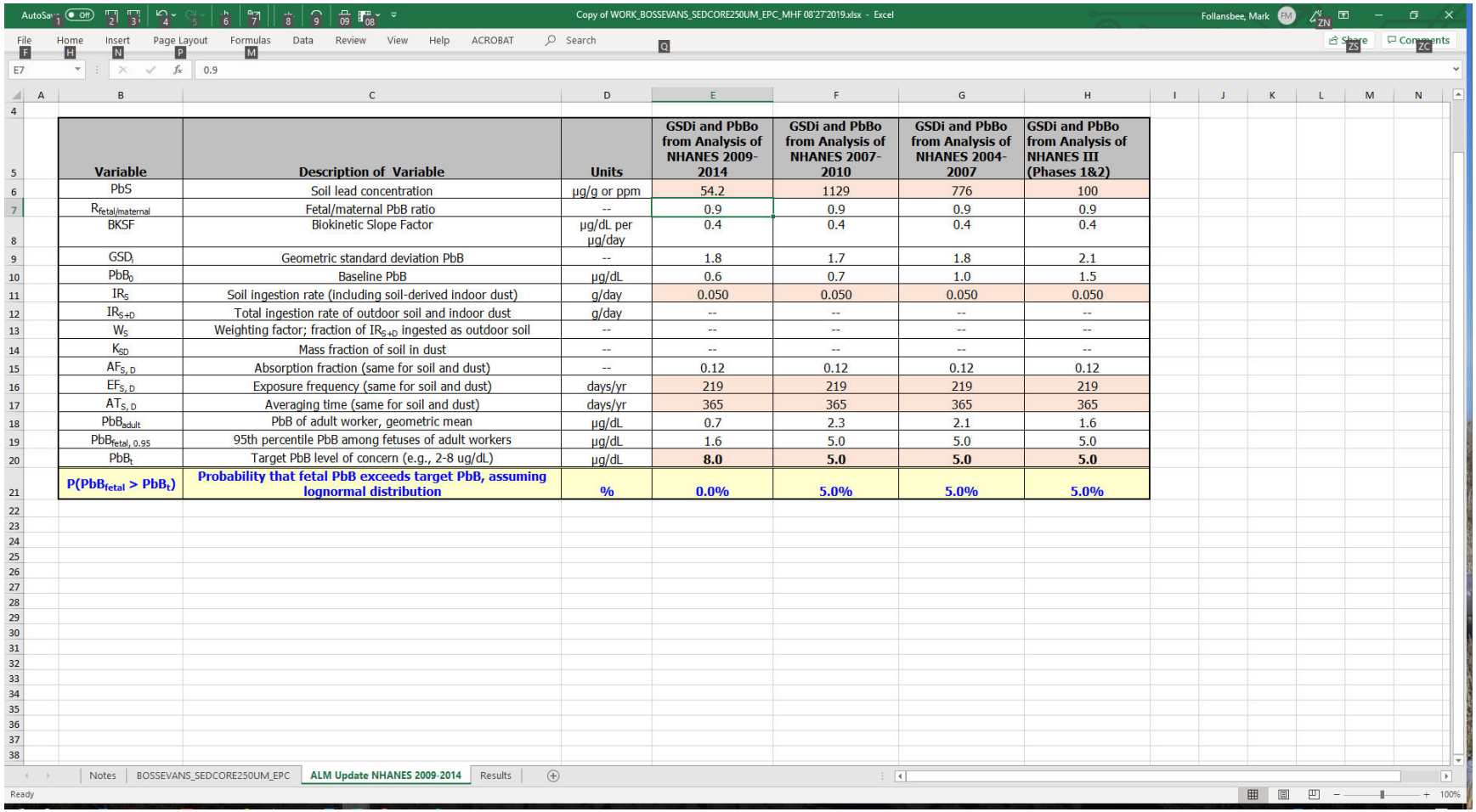
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	336.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-02



Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	302.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-03



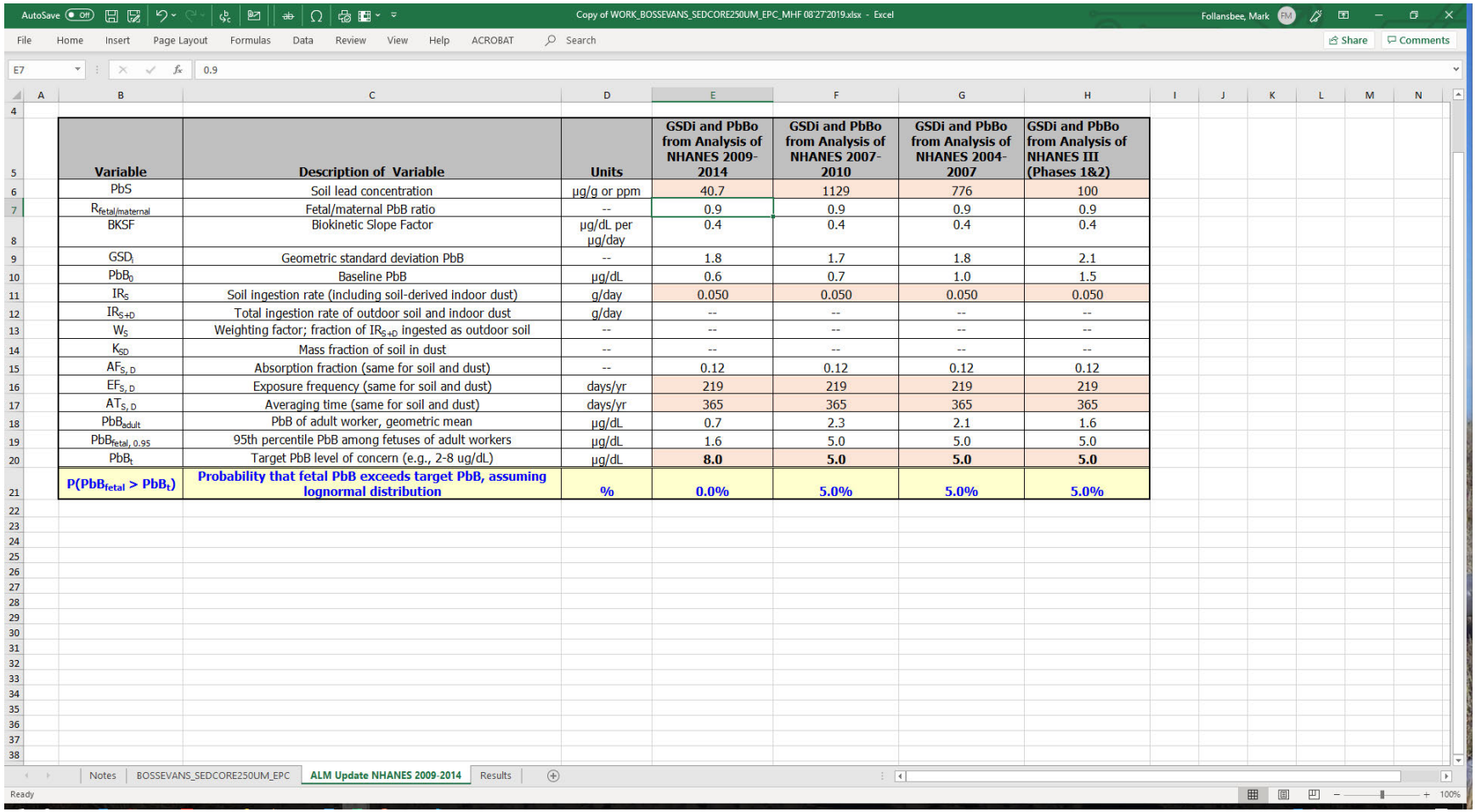
Copy of WORK_BOSSEVANS_SEDCORE250UM_EPC_MHF 08'27'2019.xlsx - Excel

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	54.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

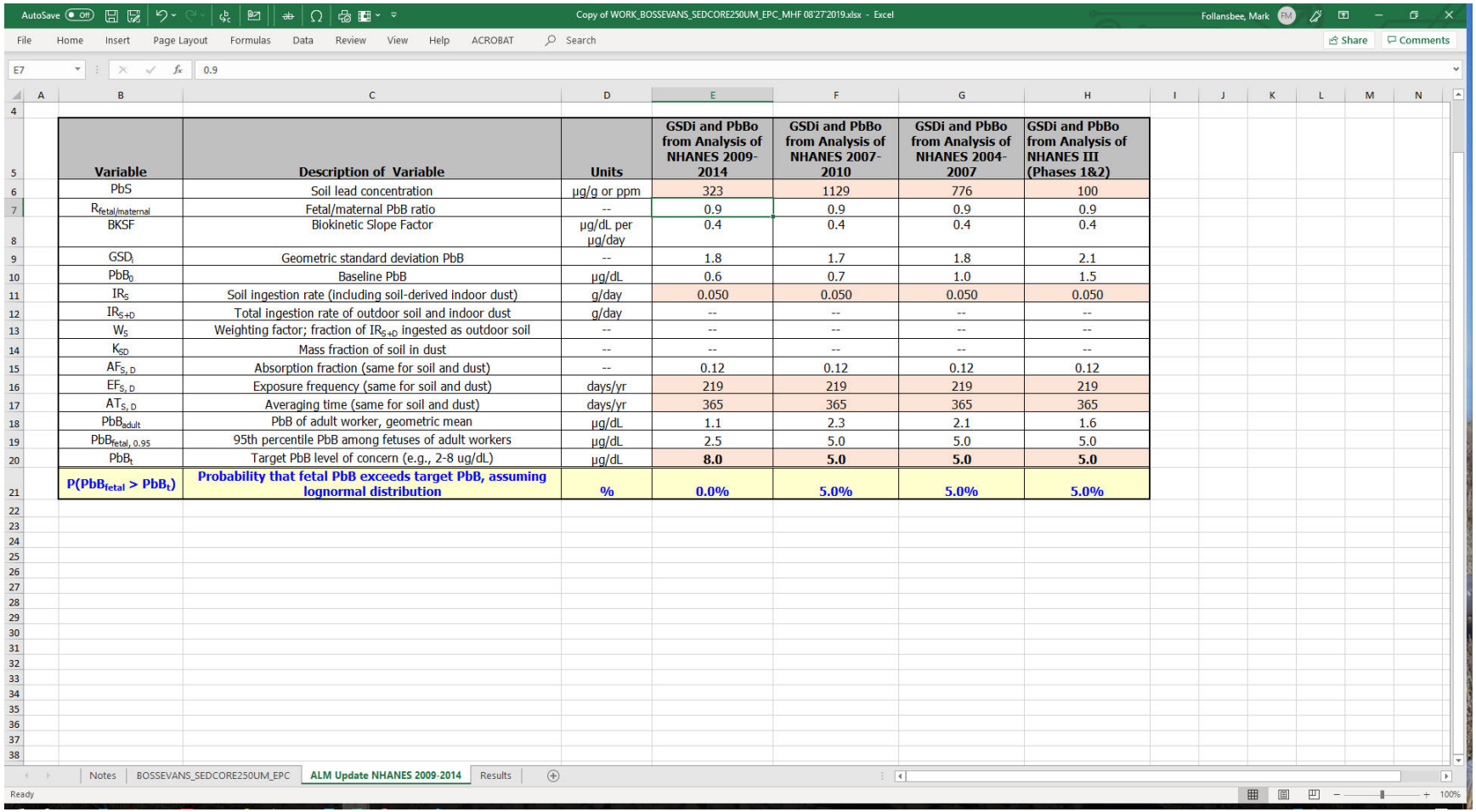
Ready

Bossburg Flat SDU-04



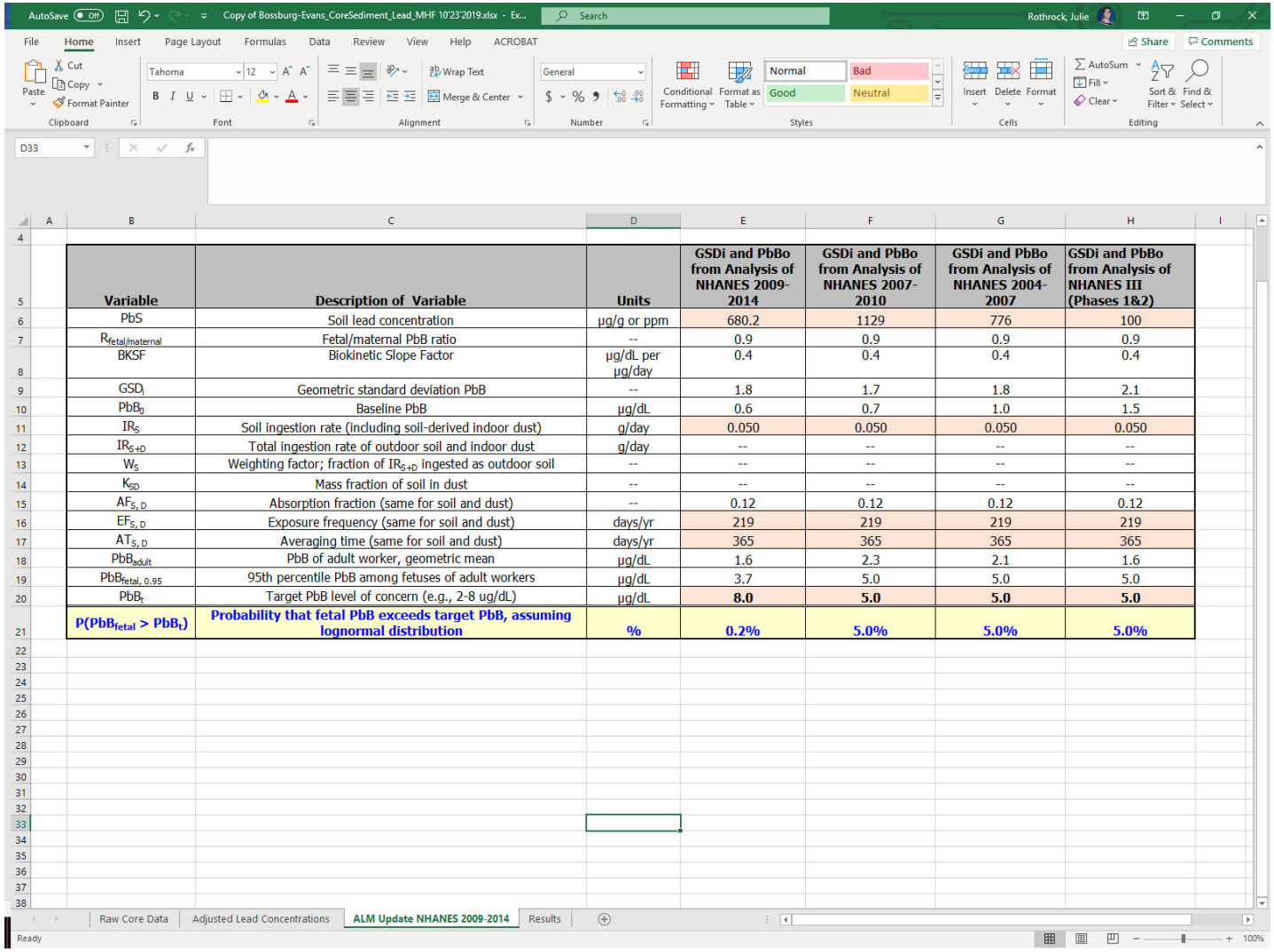
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	40.7	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.6	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat SDU-08



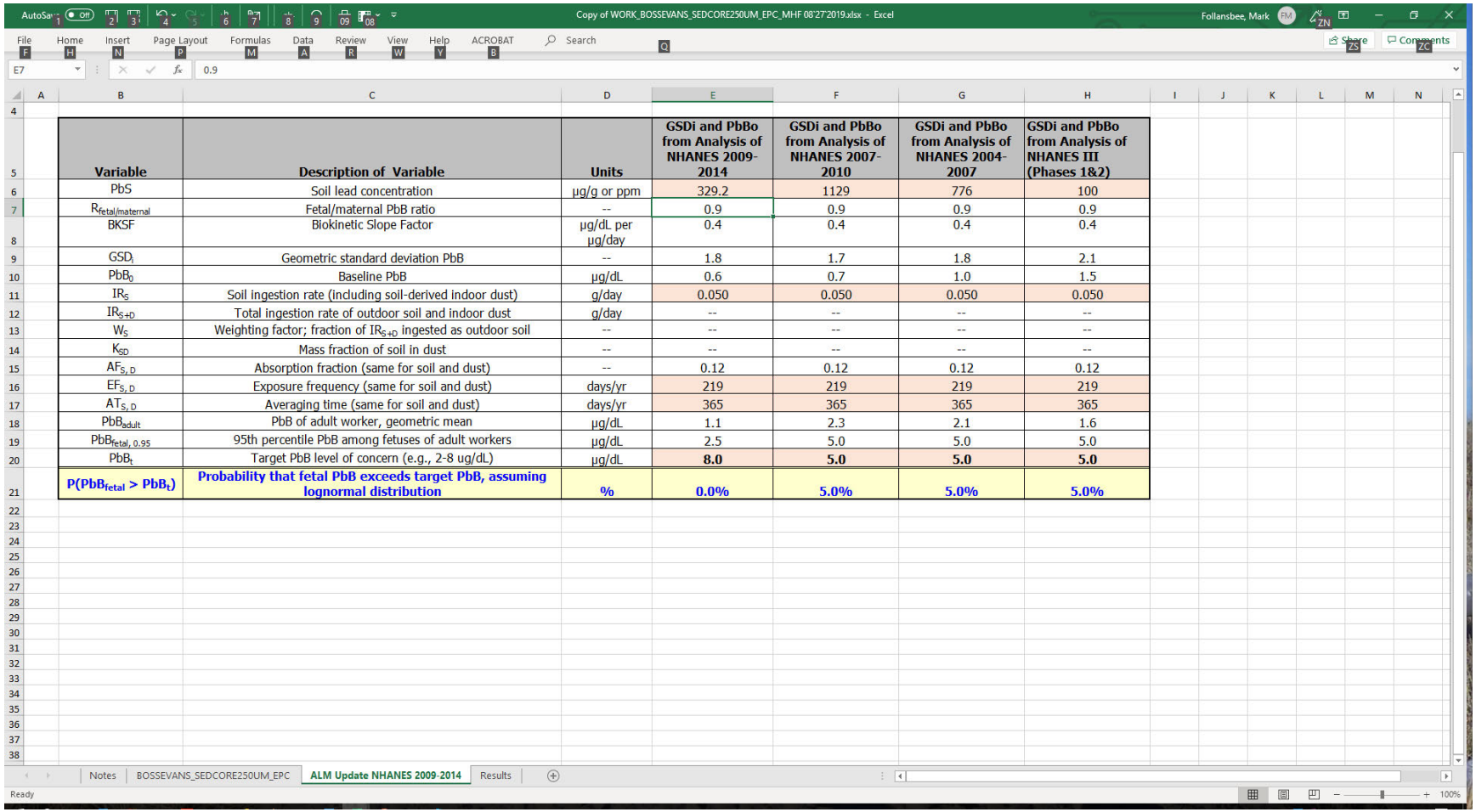
Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	323	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Bossburg Flat F-01



Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	680.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.7	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.2%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-05



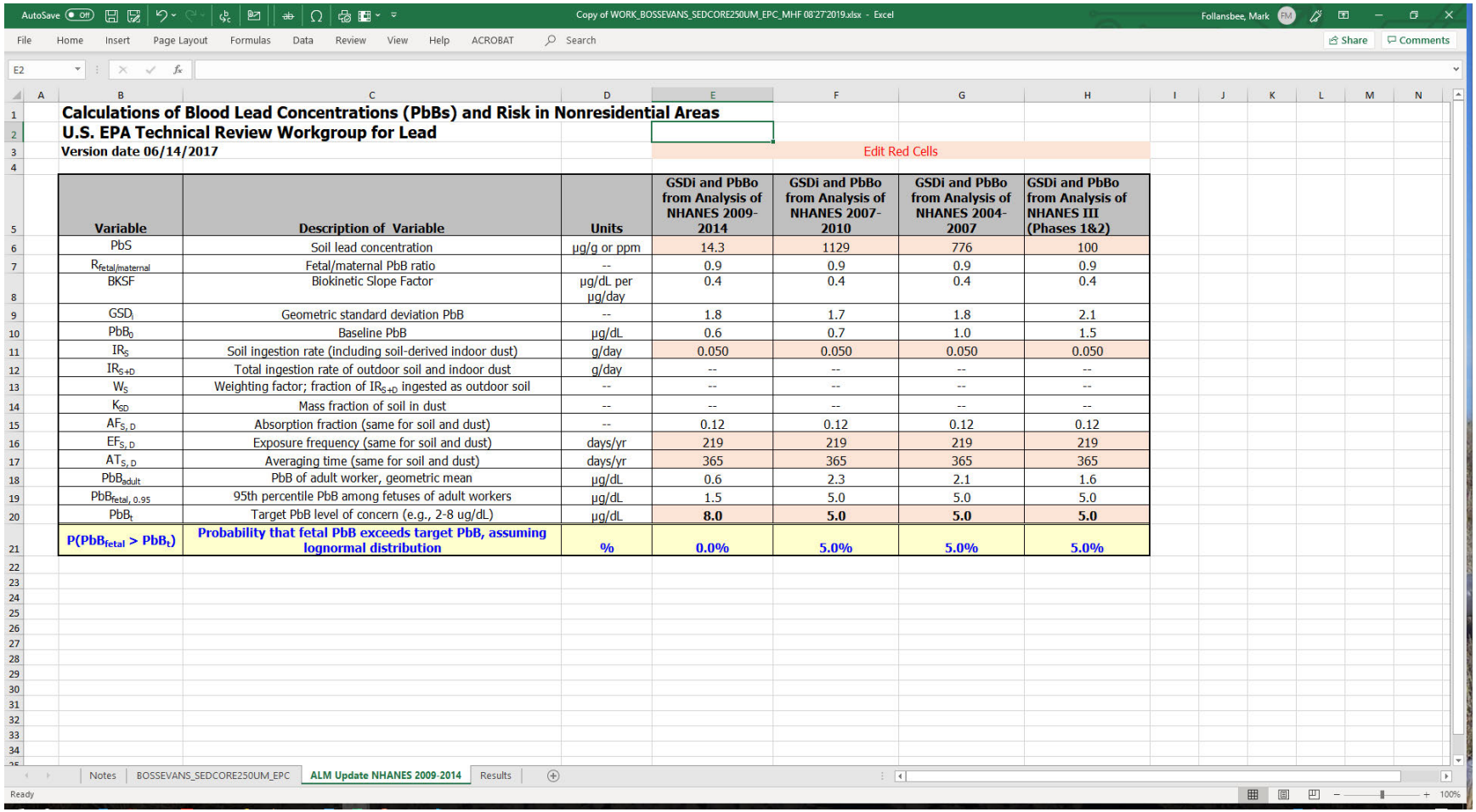
Copy of WORK_BOSSEVANS_SEDCORE250UM_EPC_MHF 08'27'2019.xlsx - Excel

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	329.2	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.1	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

Ready

Evans Campground SDU-06



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

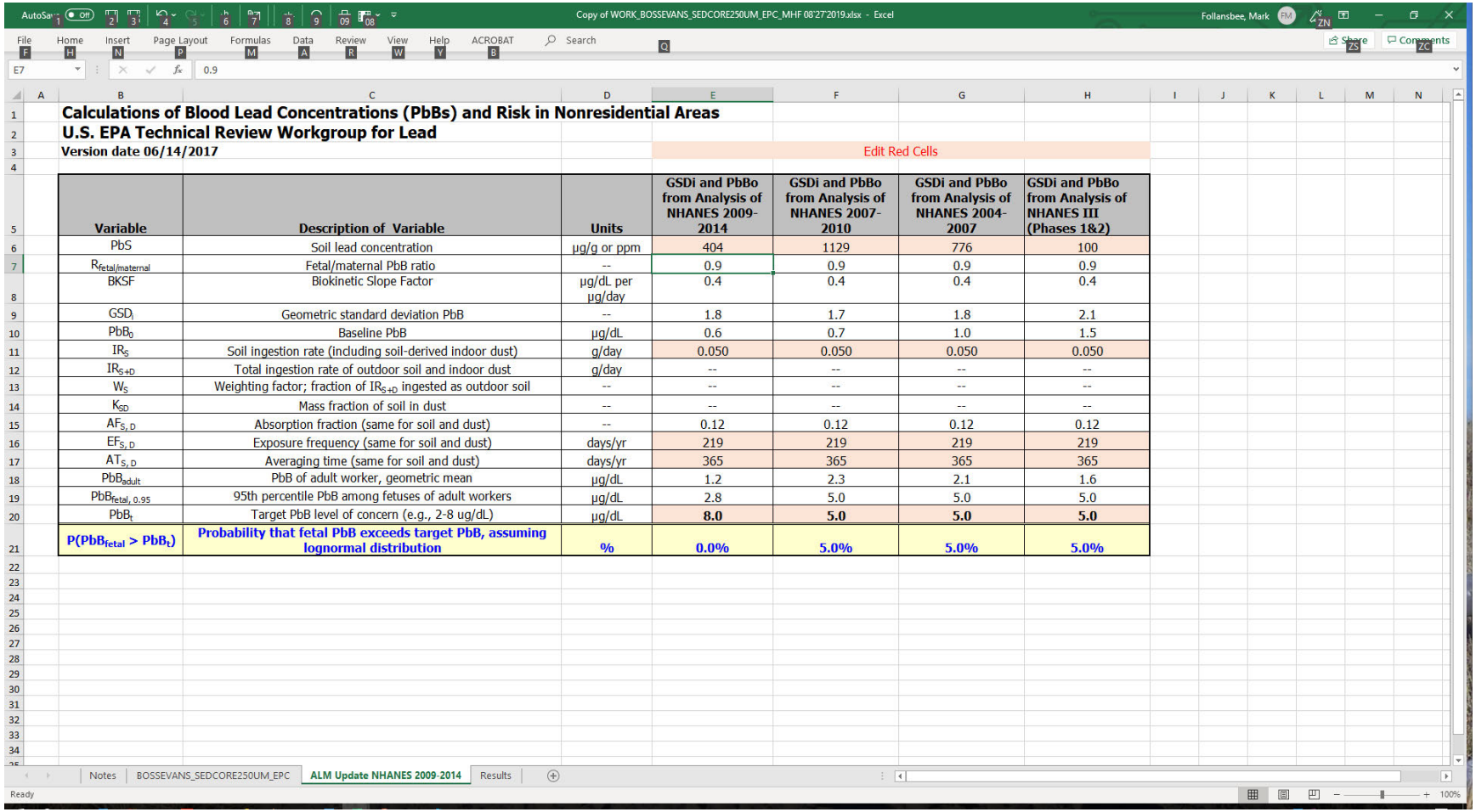
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	14.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Evans Campground SDU-07



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

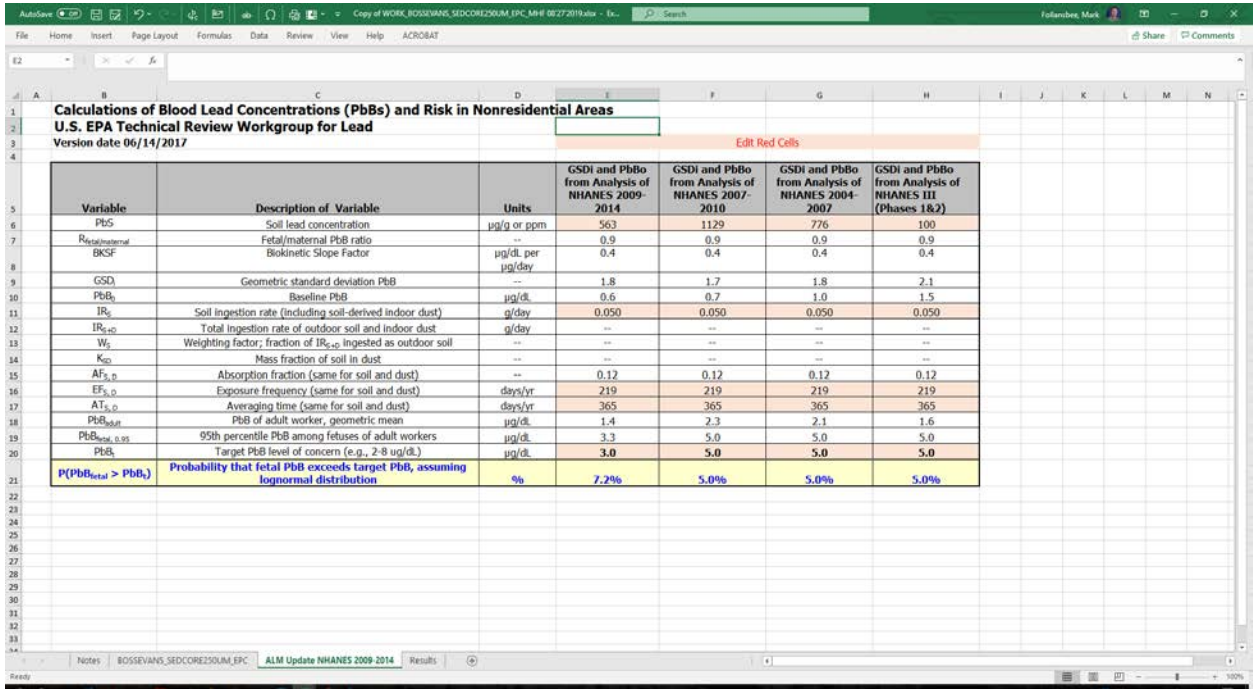
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	404	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.2	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

UDU-01



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

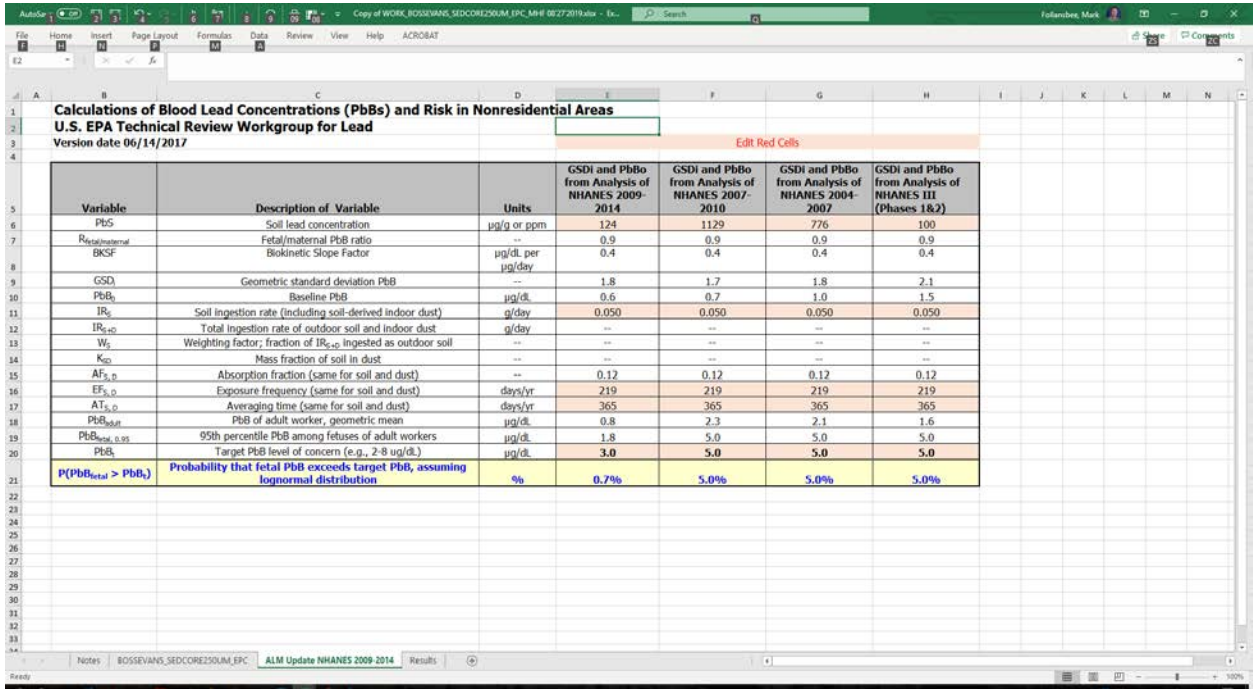
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	563	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.4	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**7.2%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-02



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

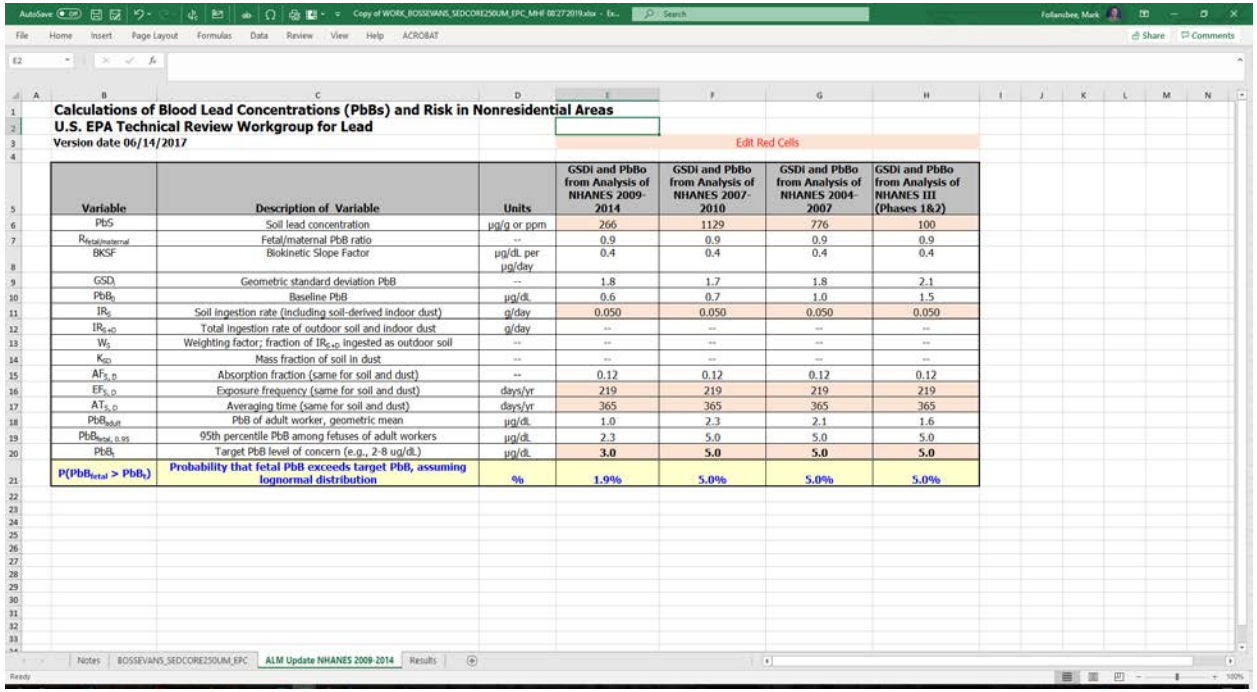
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	124	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.8	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.7%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-03



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

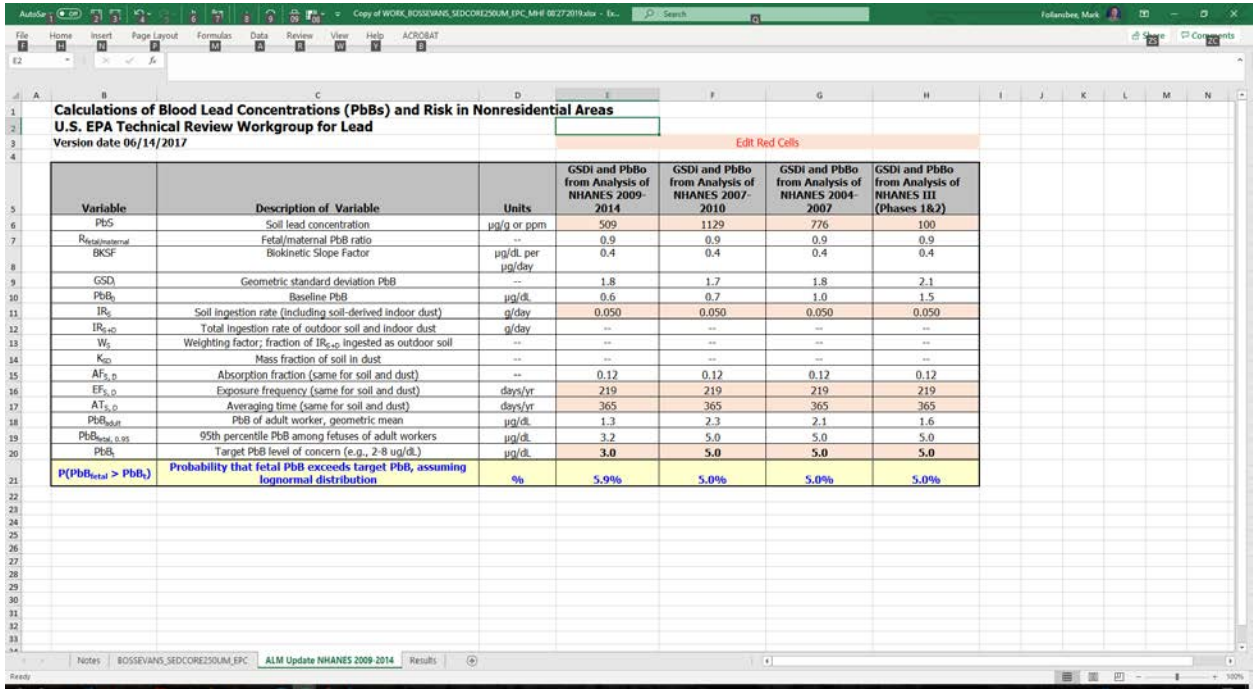
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	266	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**1.9%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-04



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

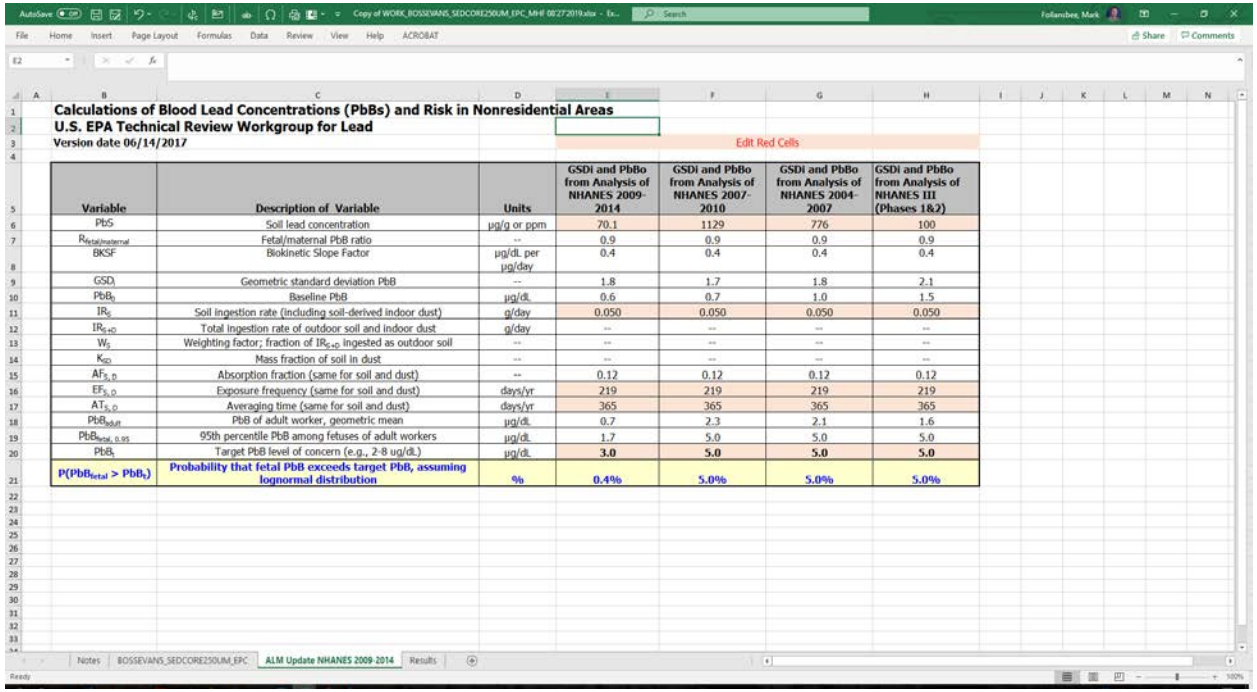
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	509	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.3	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.2	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**5.9%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-05



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

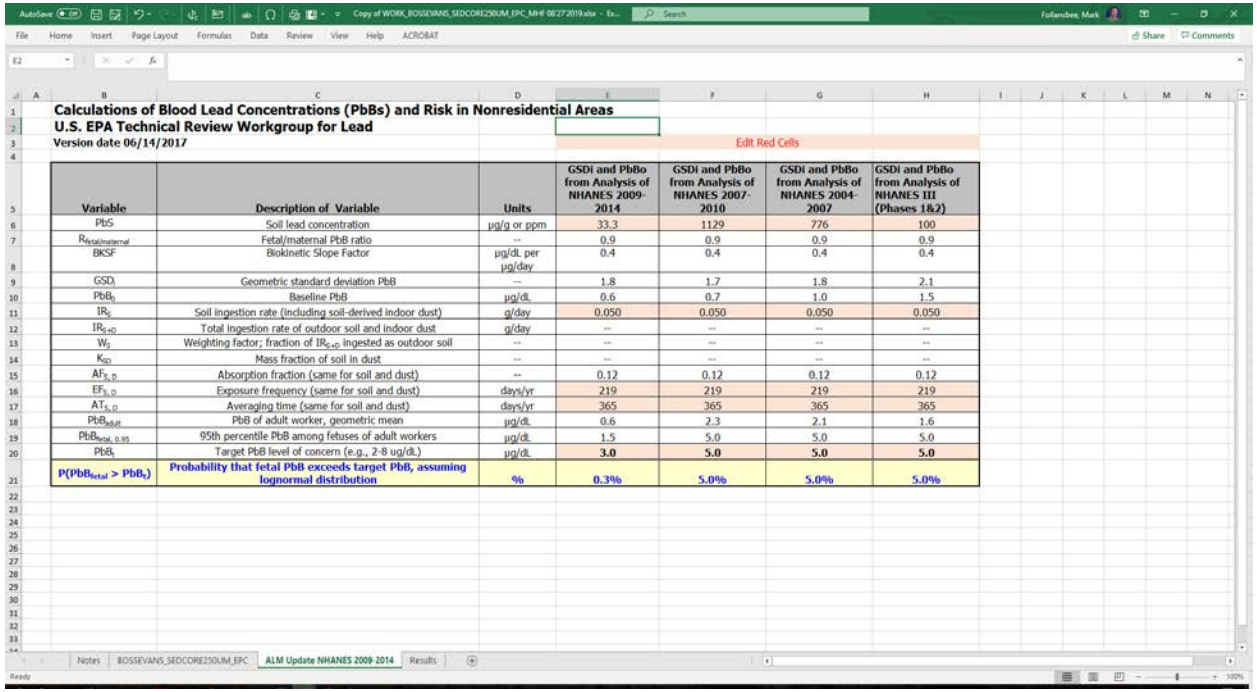
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	70.1	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.7	5.0	5.0	5.0
PbB_T	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_T)$	**Probability that fetal PbB exceeds target PbB_T assuming lognormal distribution**	**%**	**0.4%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-06



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

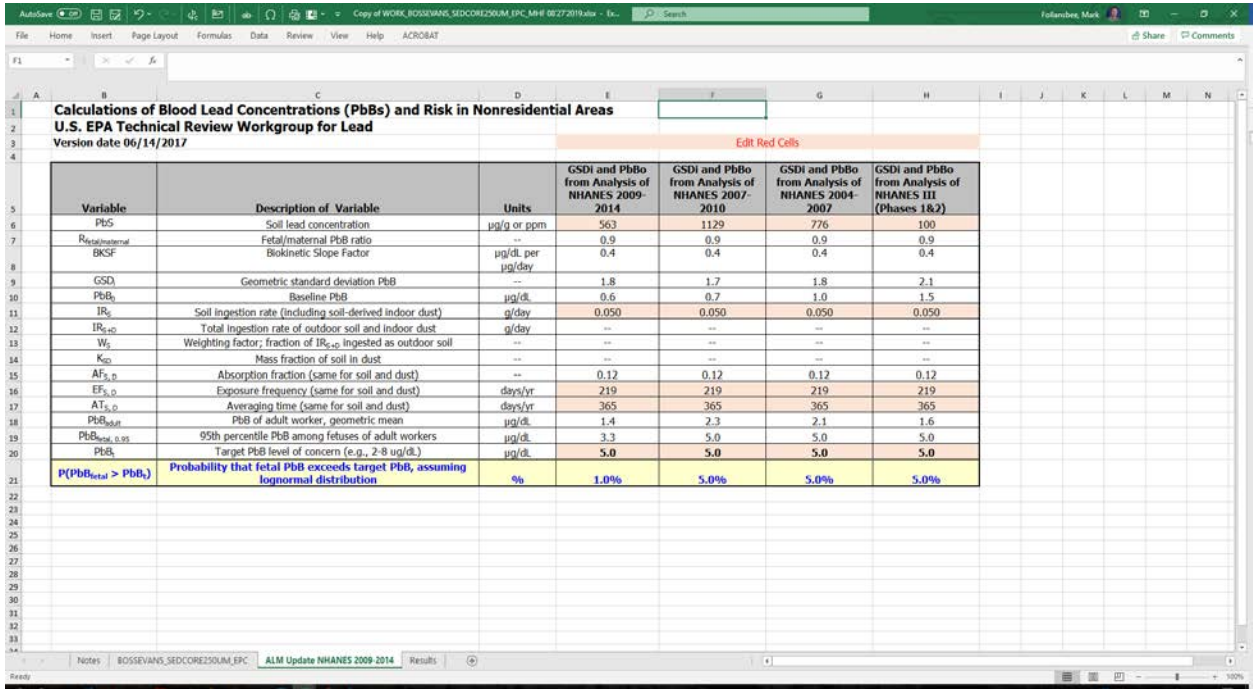
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	33.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**3.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.3%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-01



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

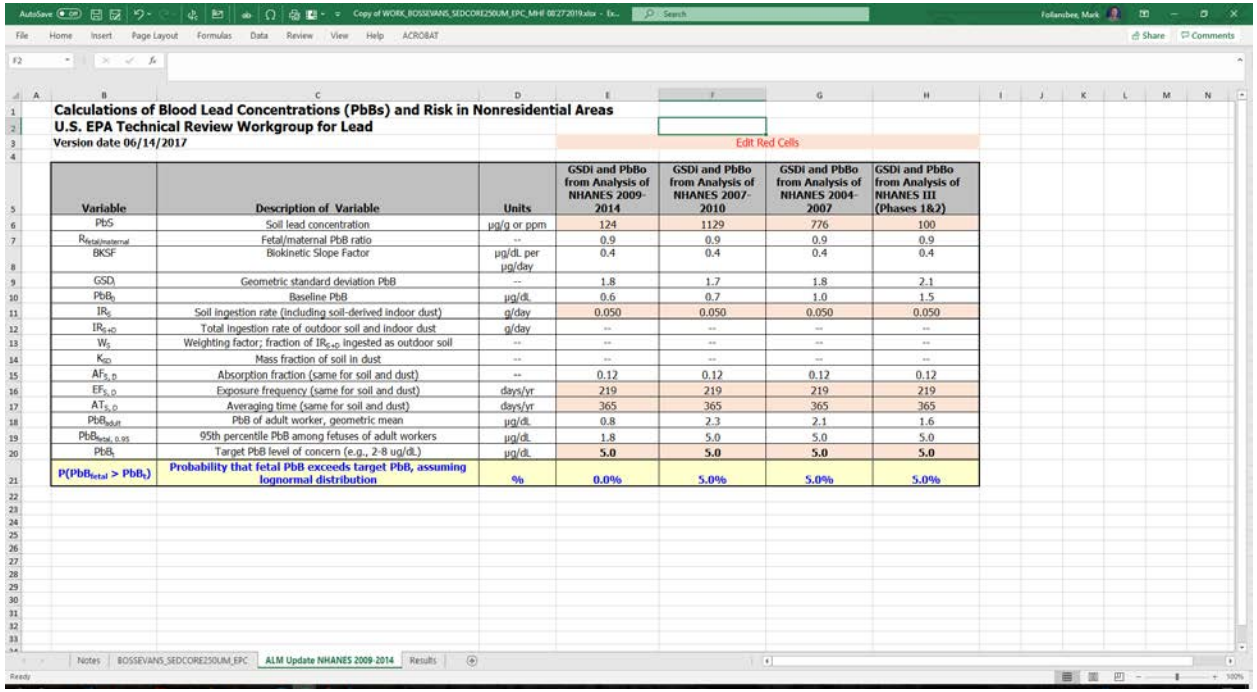
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	563	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.4	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**1.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-02



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

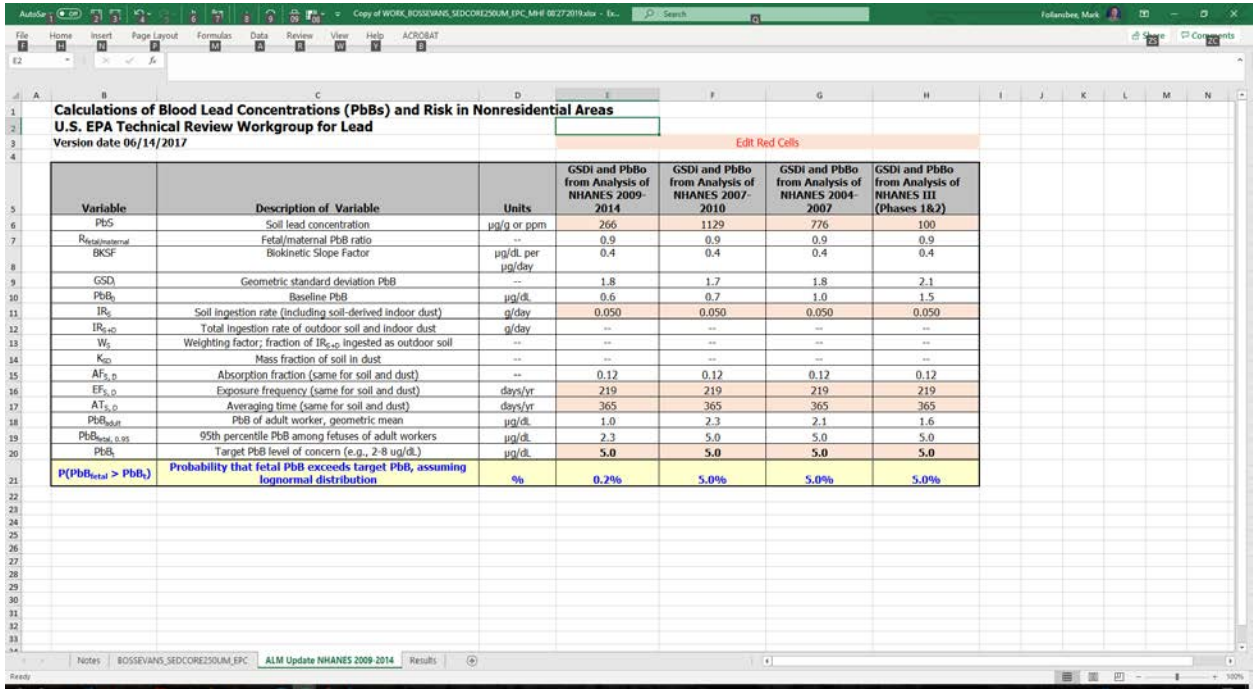
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	124	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.8	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.8	5.0	5.0	5.0
PbB_T	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_T)$	**Probability that fetal PbB exceeds target PbB_T assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

UDU-03



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

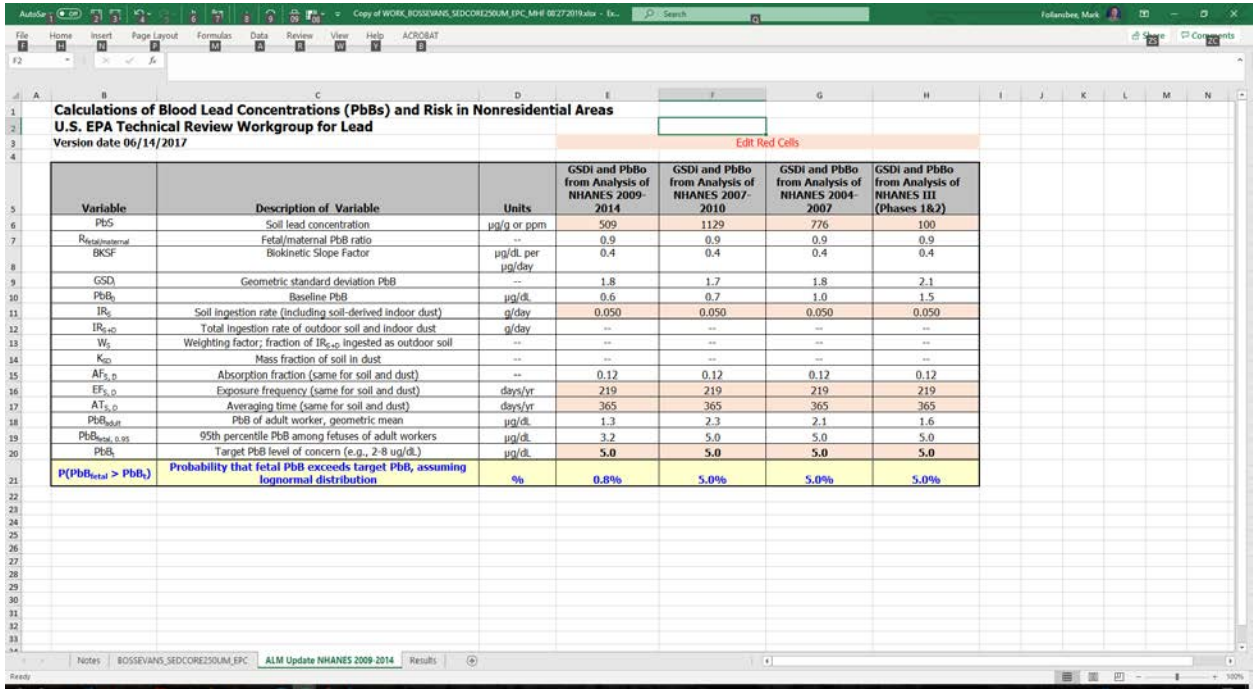
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	266	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.2%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-04



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

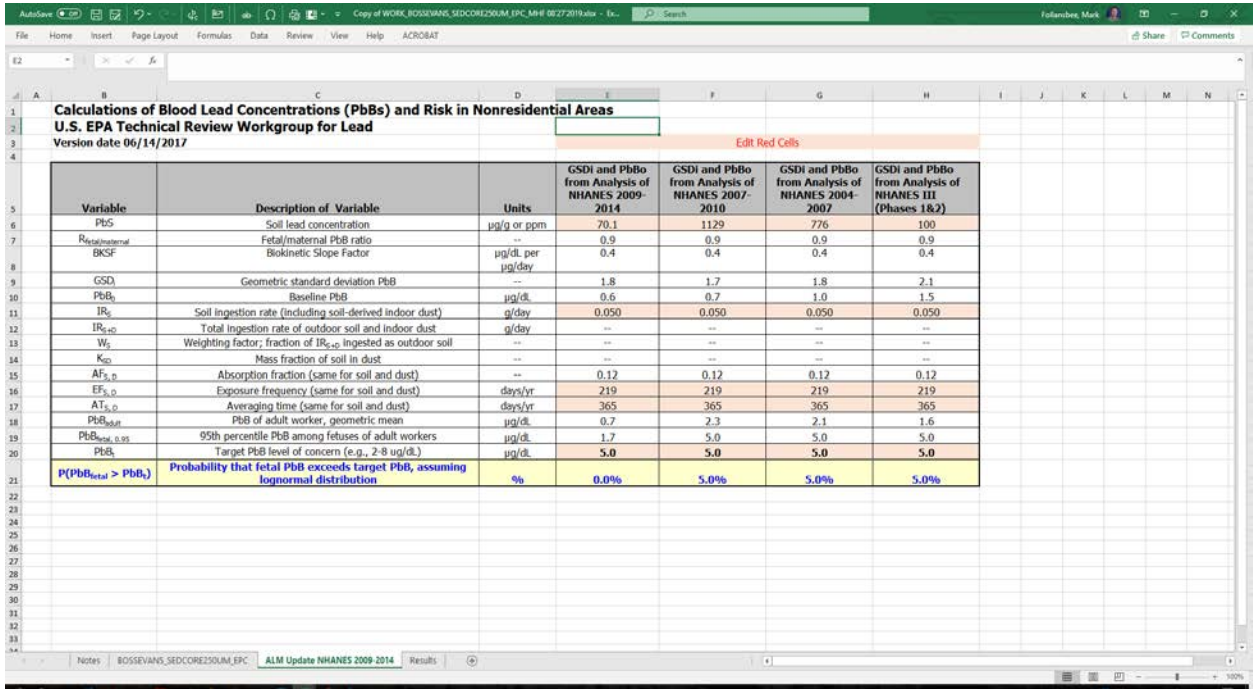
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	509	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.3	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.2	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.8%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-05



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

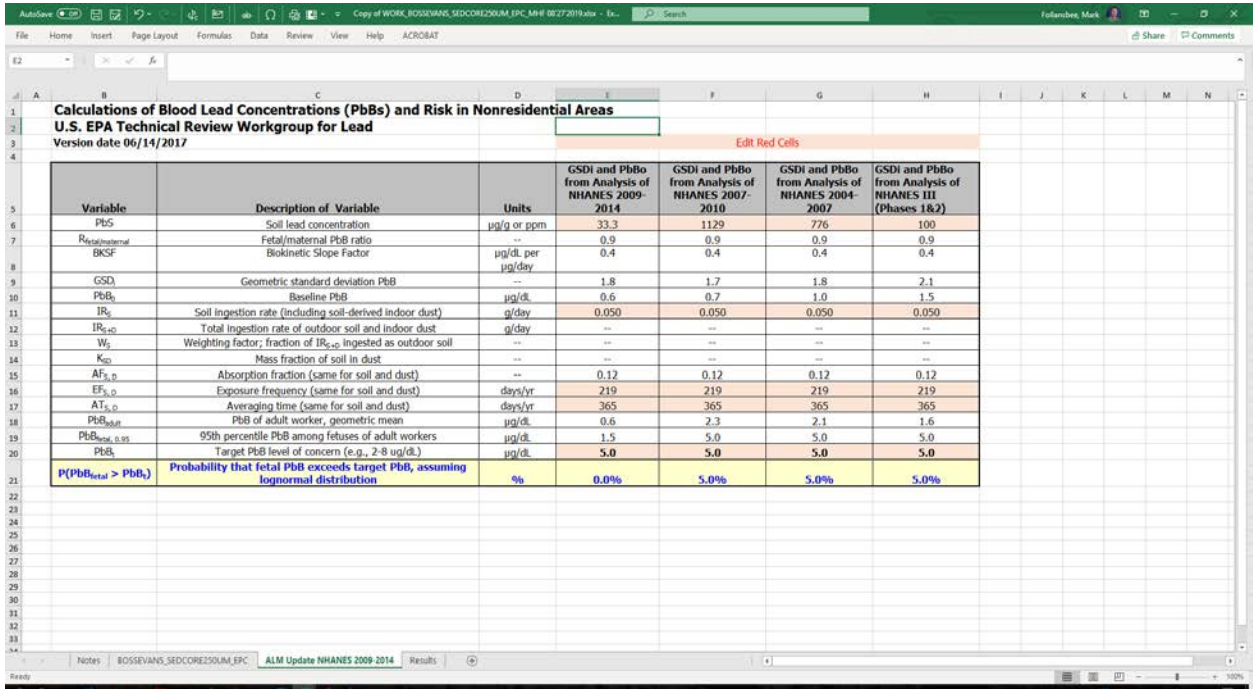
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	70.1	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.7	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-06



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

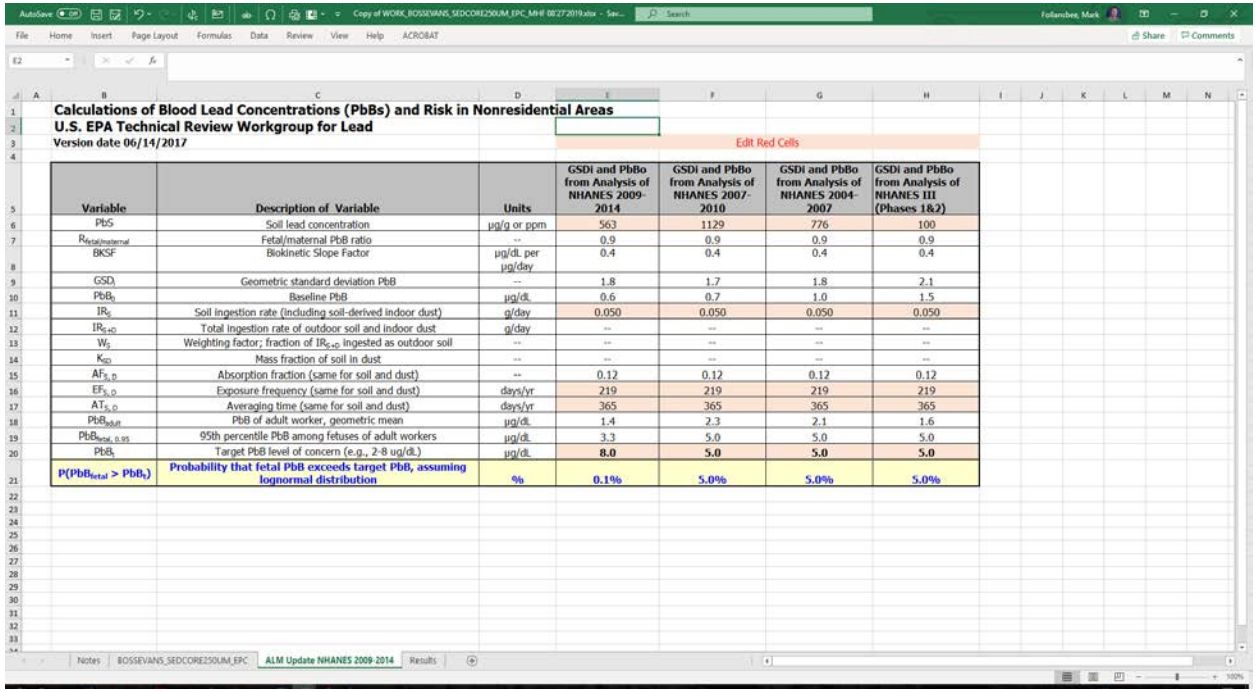
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	33.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**5.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

UDU-01



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

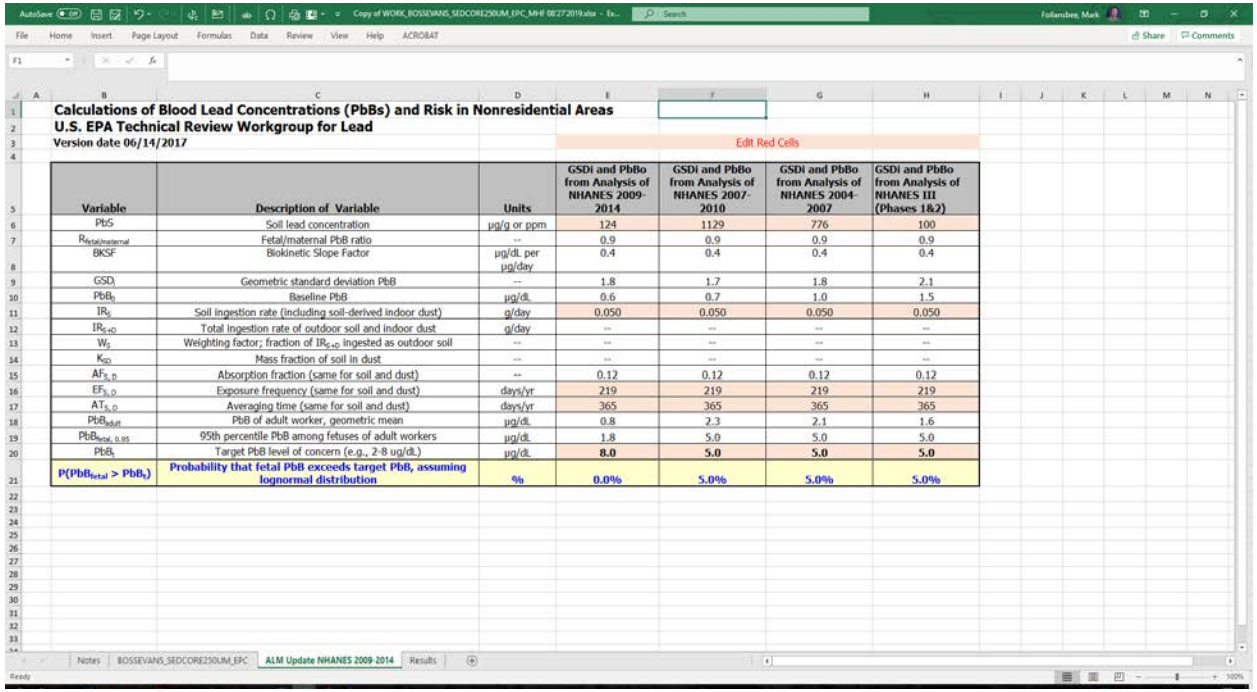
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	563	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.4	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.1%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-02



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

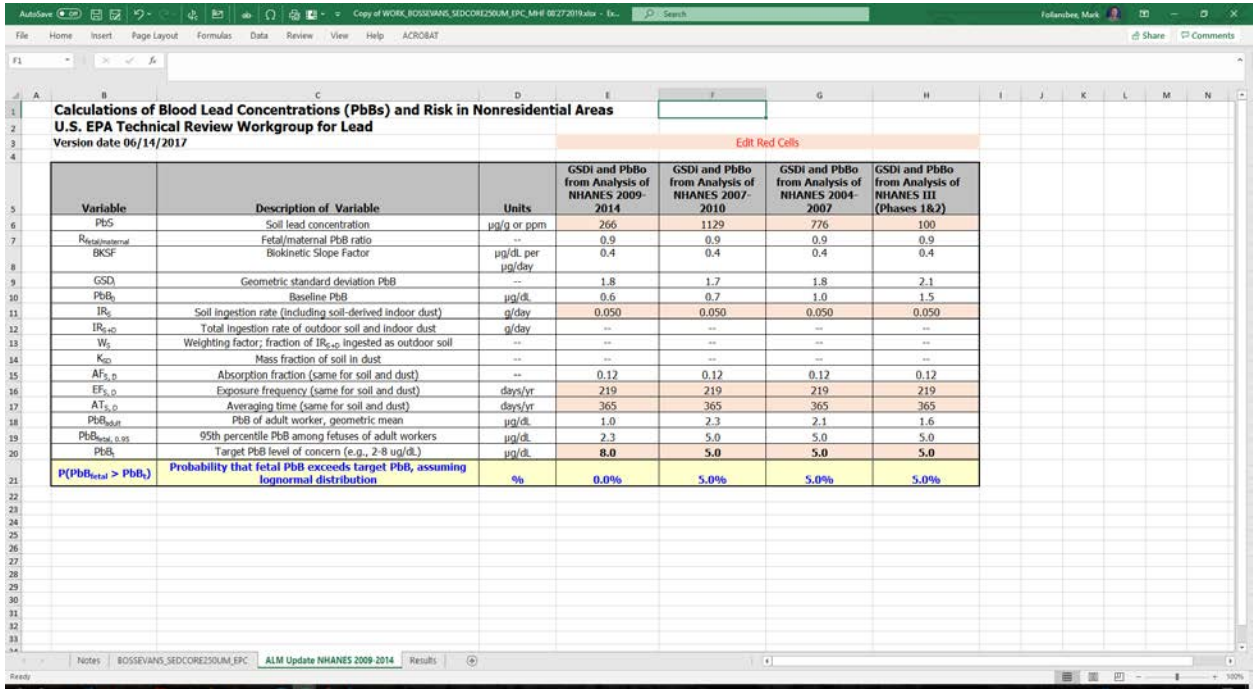
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	124	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.8	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.8	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-03



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

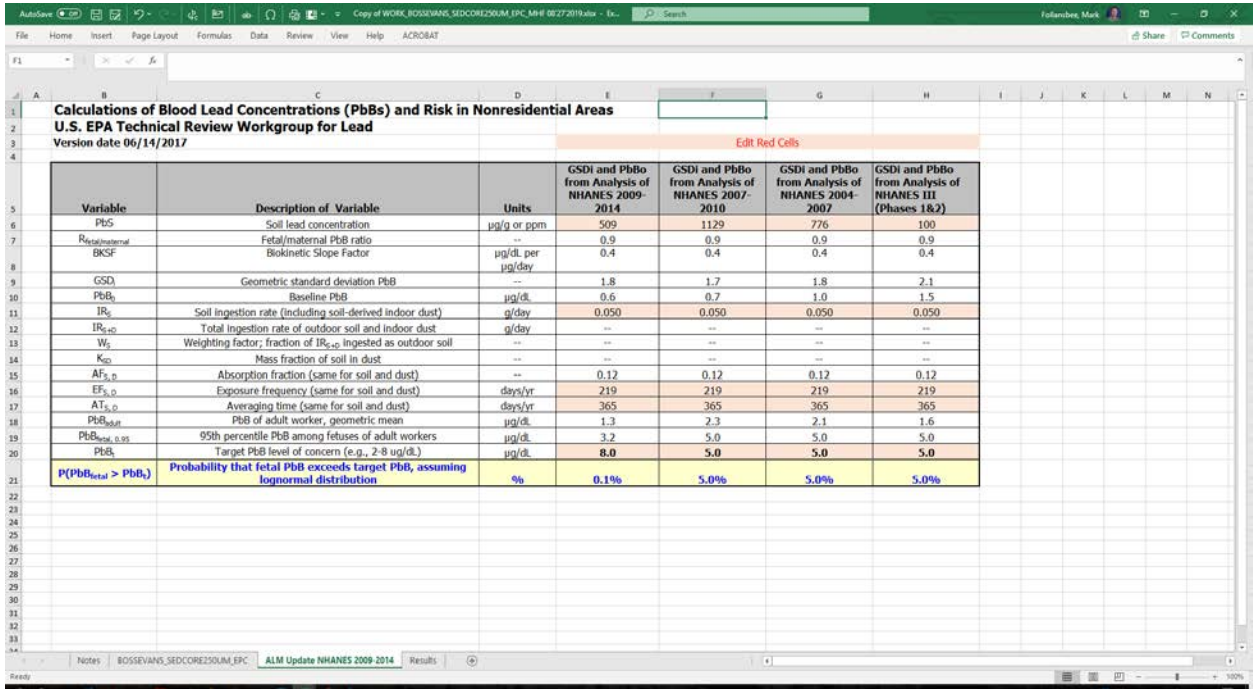
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	266	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.0	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	2.3	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

UDU-04



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

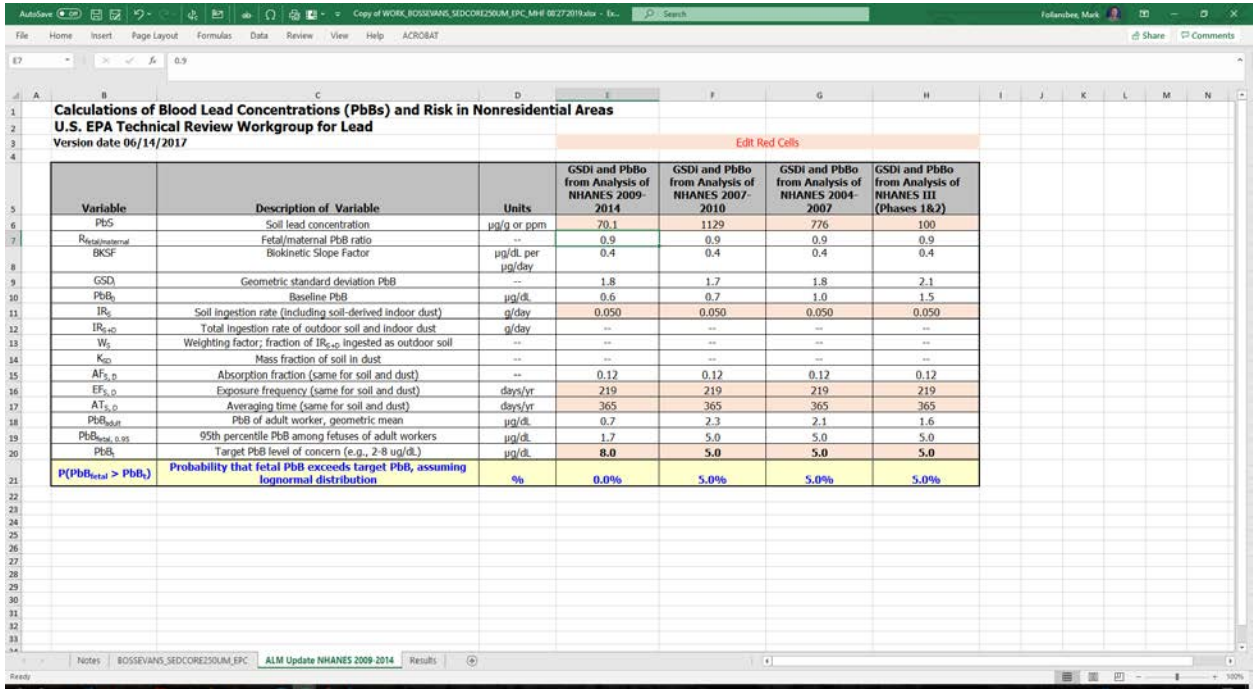
U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	509	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	1.3	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	3.2	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	**%**	**0.1%**	**5.0%**	**5.0%**	**5.0%**

UDU-05



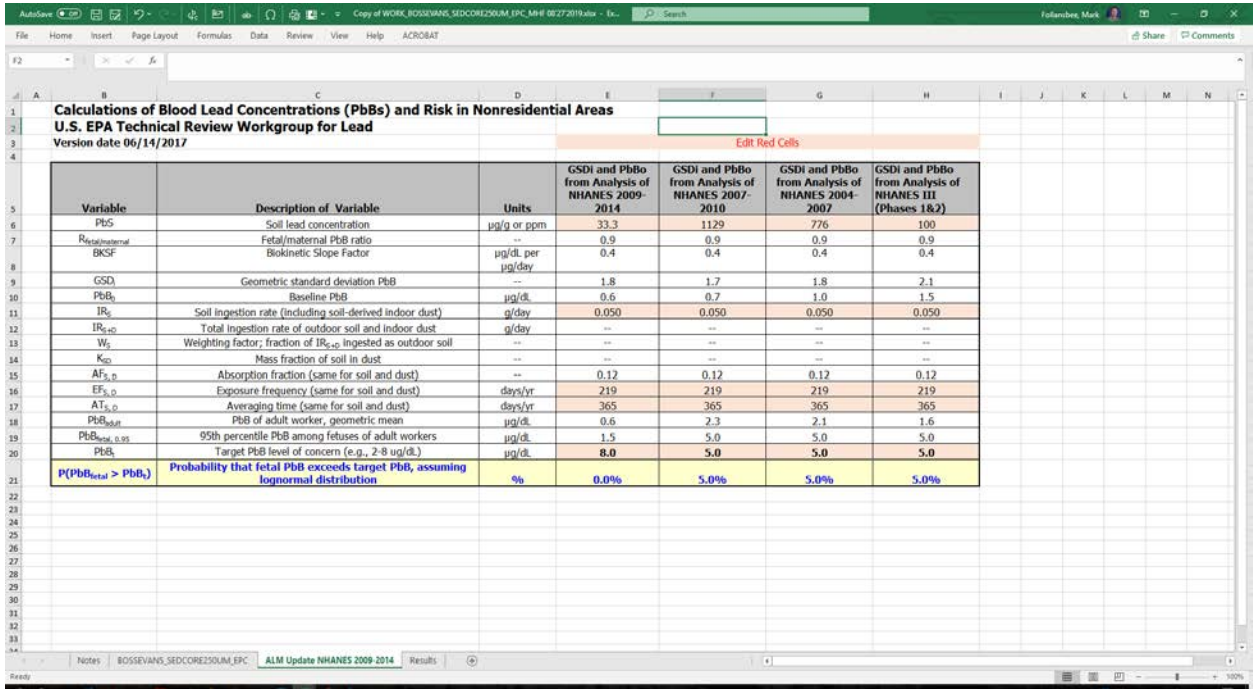
Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas
U.S. EPA Technical Review Workgroup for Lead
Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	70.1	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.7	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.7	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t, assuming lognormal distribution**	%	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

UDU-06



Calculations of Blood Lead Concentrations (PbBs) and Risk in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead

Version date 06/14/2017

Edit Red Cells

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 2004-2007	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	µg/g or ppm	33.3	1129	776	100
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--	--	--
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,O}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,O}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	PbB of adult worker, geometric mean	µg/dL	0.6	2.3	2.1	1.6
$PbB_{fetal,\ 0.95}$	95th percentile PbB among fetuses of adult workers	µg/dL	1.5	5.0	5.0	5.0
PbB_t	Target PbB level of concern (e.g., 2-8 ug/dL)	µg/dL	**8.0**	**5.0**	**5.0**	**5.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB exceeds target PbB_t assuming lognormal distribution**	**%**	**0.0%**	**5.0%**	**5.0%**	**5.0%**

Notes | BOSSEVANS_SEDCORE250UM_EPC | ALM Update NHANES 2009-2014 | Results

Calculations of Preliminary Remediation Goals (PRGs) for Soil in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 06/14/2017

EDIT RED CELLS

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	3	3	3	3
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0 050	0.050	0.050	0.050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**464**	**481**	**186**	**-359**

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	5	5	5	5
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0 050	0.050	0.050	0.050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**1,050**	**1,126**	**773**	**97**

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	8	8	8	8
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0 050	0.050	0.050	0.050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**1,931**	**2,093**	**1,653**	**780**

Appendix 17:
Response to TAI Comment on Public Review Draft of the UCR HHRA: Alternative Diet Lead Intake

Appendix 17: Response to TAI Comment on Public Review Draft of the UCR HHRA: Alternative Diet Lead Intake

Default diet lead intakes for the IEUBK V2 model (EPA, 2018) were estimated using data from 2003-2006 of the What We Eat In America (WWEIA) dietary interview component of the National Health and Nutrition Examination Survey (NHANES) and the 1995-2005 Food and Drug Administration (FDA) Total Diet Study (TDS) food contaminants data.[1] Mean daily ingestion rates (grams food/day) were calculated for each IEUBK model food category using the NCI method (Tooze et al., 2006). Estimated daily lead intakes (µg Pb/day) were calculated by multiplying the estimated ingestion rates and the mean lead concentration for each of the 15 IEUBK food categories, then summing the intakes for each of the 7 age ranges in the IEUBK model (EPA, 2018). Zartarian et al. (2017) used dietary lead intakes from the EPA Stochastic Human Exposure and Dose Simulation (SHEDS)-Multimedia Model in IEUBK model simulations of national exposures to lead and corresponding blood lead levels (BLLs).

The effect of using the diet lead intake estimates by Zartarian et al. (2017) on predicted geometric mean (GM) and P5 blood lead concentrations was evaluated to determine the magnitude of uncertainty associated with this choice of variable value. Geometric mean blood lead concentrations predicted using the V2 default diet lead intakes were compared to predictions made using diet lead intakes reported by Zartarian et al. (2017). To isolate the effect of diet lead intake on predicted BLLs, lead intakes due to soil, dust, water and air were set equal to zero.

Table 1 shows the diet lead intakes and predicted GM BLLs by the age ranges in the model. Figure 1 shows the predicted GM BLLs by age for both of the diet lead intakes. Differences in the predicted GM BLLs ranged from 0.7 µg/dL for the 6-11-month age range to 0.3 µg/dL for the last 4 age ranges. For the 12-72 month age range which is used for site lead risk assessment, the GM with the V2 default was approximately 0.4 µg/dL greater than the GM estimated using the Zartarian et al (2017) diet lead. This magnitude of difference would not have appreciably affected model performance for predicting the GM BLL; however, the effect on the P5 would depend on the exposure and predicted P5. For a soil exposure to 200 ppm and all other parameter values set to default, the IEUBK model V2 predicts a GM BLL of 2.3 µg/dL and P5 of 5.0%; if the Zartarian et al. (2017) dietary estimates are used in place of default values, the resulting predicted GM BLL is 2.0 µg/dL and P5 is 2.3%.

References:

Environmental Protection Agency (EPA). 2018. Estimation of dietary lead exposure: update to the default values for the integrated exposure uptake biokinetic model for lead in U.S. children. OLEM Directive 9200.1-149. February 17.

Tooze, J.A.; Midthune, D.; Dodd, K.W.; Freedman, L.S.; Krebs-Smith, S.M.; Subar, A.F.; Guenther, P.M.; Carroll, R. J.; Kipnis, V. 2006. A New Statistical Method for Estimating the Usual Intake of Episodically Consumed Foods with Application to their Distribution. J. Amer. Diet. Assoc. 106(10): 1575-87.

Vandenberg, J. 2020. Evaluation of IEUBK version 2.0 model performance. Memorandum to B. Lowery, Director, Assessment and Remediation Division, OSRTI, OLEM. U.S. Environmental Protection Agency, Office of Research and Development. September 23.

Zartarian, V., Xue, J., Tornero-Velez, R., Brown, J. 2017. Children's lead exposure: A multimedia modeling analysis to guide public health decision-making. Environ Health Perspect 125(9)097009. https://ehp.niehs.nih.gov/doi/10.1289/EHP1605.

[1] EPA's ORD recently evaluated the performance of IEUBK model (V2) as it would be typically applied for risk assessment at Superfund sites. This evaluation relied on data collected from 1995 to 2018 at the Bunker Hill Superfund Site (BHSS) located in the Coeur d'Alene River basin in northern Idaho and used the TRW for Lead recommended changes to IEUBK V1.1 input parameter default values to reflect recent scientific information. The differences between IEUBK (V2) and IEUBK (V1.1) with the updated input parameter values shown in Tables 3-30 and 3-31 of the Draft Site-wide HHRA for the UCR site are too small to meaningfully impact the results of the HHRA. The ORD memo found strong support for applications of the IEUBK V2 model in CERCLA-related human health risk assessments (Vandenberg, 2020).

Table 1. IEUBK V2 - Diet sensitivity analysis

Age (months)	diet intake (µg/day)		BLL (µg/dL)	
	V2 default	Zartarian et al. (2017)	V2 default	Zartarian et al. (2017)
6-11	2.66	0.07	0.7	0.0
12-23	5.03	2.58	1.0	0.4
24-35	5.21	3.44	1.0	0.6
36-47	5.38	3.54	0.9	0.6
48-59	5.64	3.57	0.9	0.6
60-71	6.04	3.85	0.9	0.6
72-84	5.95	3.8	0.8	0.5

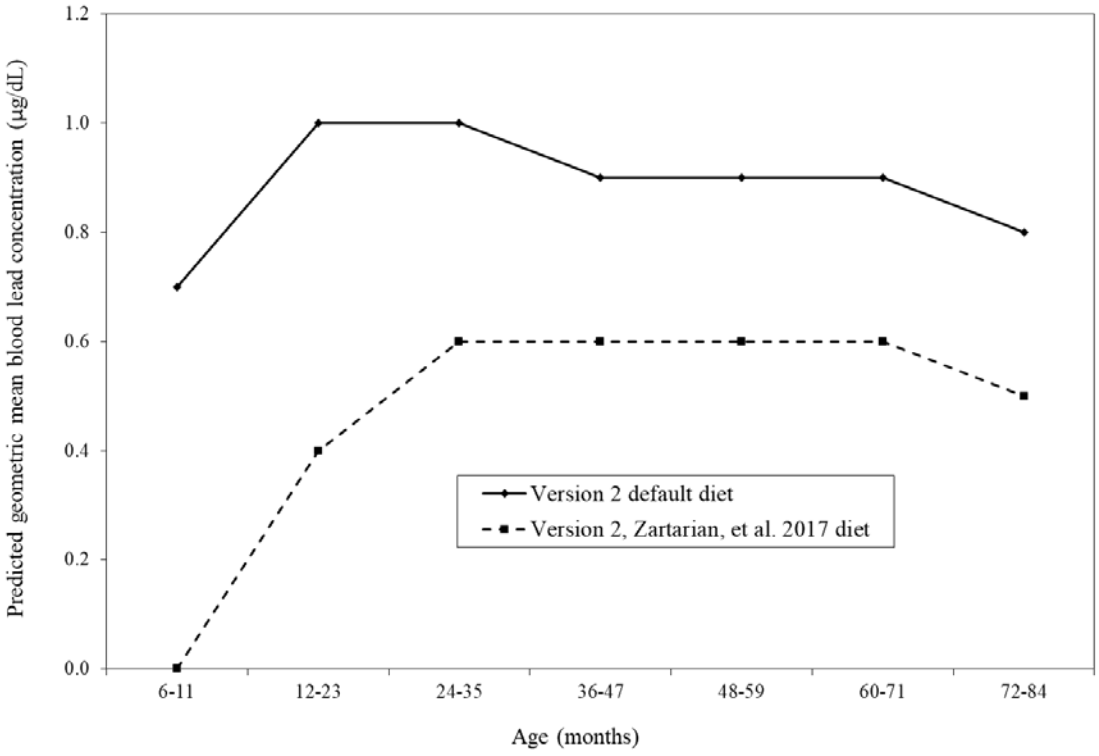


Figure 1. Comparison of predicted geometric mean (GM) blood lead concentrations (µg/dL) using the IEUBK model, V2 with the V2 default diet lead intake estimates and diet lead intake estimated by Zartarian et al. (2017). Lead intake due to soil, dust, air and water was set equal to zero to isolate the effect of the two diet intakes on the predicted GMs. The largest difference in the predicted GM blood lead concentration of 0.7 µg/dL occurs at <12 months and levels off at 0.3-0.4 µg/dL from 24 to 72 months.

Attachment 1:
EPA Response to Public Comments Received on April 3, 2020 Public Review Draft Site-wide HHRA for the UCR

Environmental Protection Agency (EPA) Response to Public Comments Received on April 3, 2020 Public Review Draft Site-wide Human Health Risk Assessment (HHRA) for the Upper Columbia River (UCR)

#	Date	Commenter	Comment	Response
Comments Received from Participating Parties and TAI				
1	7/27/20	Confederated Tribes of the Colville Reservation (CCT)	In the Colville High Intensity Resource User (CHIRU) Appendix 1, the soil exposure point concentration (EPC) for upland bird calculations was changed to the cultural plant co-located soil from a site-wide set of samples. We would like to have a discussion about the reasoning behind this change in order to evaluate whether it is the best choice.	The soil EPCs used in the calculations to model chemical of potential concern (COPC) concentrations in upland bird and mammal tissue were originally mean site-wide soil concentrations from samples collected at a depth interval of 0-3 inches. Plant and co-located soil data were collected and validated during the 2018 plant tissue study. During discussions with wildlife biologists regarding the appropriate plant species to represent the diet of deer and turkey used in the uptake models, it was decided to use the co-located soil samples in the models rather than the site-wide data (Sample and LaTier, 2019). These data best represent the soil that would be incidentally ingested by upland birds and game while feeding on plants.
2	7/27/20	CCT	We would like to know whether sections pertaining to background soil concentrations will be updated to reflect the newer memo that has been released on that topic, and we would like the chance to review those changes.	The background assessment for the HHRA was conducted using data quality objectives (DQOs) for human health receptors (i.e., using soil data sieved to the <149 µm particle size). As noted in the recently finalized background report, the <2 mm upland soil samples were retained in the dataset used to derive BTVs and the <149 µm soil samples were removed. The background evaluation in the HHRA will remain as is.
3	7/27/20	CCT	We would like to review the new air monitoring data and pertinent sections that will be changing in the HHRA.	Given that air is not a risk driver, changes in risk results are not expected.
4	7/27/20	CCT	On page 11 of the CHIRU Appendix, the following statement is made: "Given that contaminants found in surface sediment or soil are likely those found in aquatic and terrestrial plants, respectively, aquatic and terrestrial plant COPCs were assumed equal to surface sediment and surface soil COPCs." This is not strictly true, as mercury was added as a COPC for some of the plant tissues (kinnikinnick leaves, wild rose leaves and stems, wild mint, willows, and tules). Please revise to include that information.	The statement referenced on page 11 of the CHIRU Appendix will be revised to note that mercury was also added as a COPC for kinnikinnick leaves, wild rose leaves and stems, wild mint, willows, and tules (bulrush), and carried through risk calculations as appropriate.
5	7/27/20	CCT	Please add the following text from the 2004 Remedial Investigation/Feasibility Study (RI/FS) Scoping Plan (drafted by EPA but not finalized) to the beginning of the second paragraph of Section 1.1 of the main report to document history prior to Settlement Agreement: "In August 1999, the Colville Confederated Tribes petitioned EPA to conduct an assessment of the UCR. The petition expressed concerns about risks to people's health and the environment from contamination in the river. In December 2000, EPA completed a preliminary assessment (EPA, 2000c), which indicated that further data collection was warranted. In 2001, EPA conducted an expanded site inspection and collected sediment samples to learn more about	The following additional text will be added to be beginning of the second paragraph of Section 1.1 of the main report: "In August 1999, the Colville Confederated Tribes petitioned EPA to conduct an assessment of the UCR. The petition expressed concerns about risks to people's health and the environment from contamination in the river. In December 2000, EPA completed a preliminary assessment (E&E, 2000), which indicated that further data collection was warranted. In 2001, EPA conducted an expanded site inspection and collected sediment samples to learn more about the types and amounts of pollution present (EPA, 2003a). The results showed that contamination was present and that an RI/FS was warranted."

#	Date	Commenter	Comment	Response
			the types and amounts of pollution present (EPA, March 2003). The results showed that contamination was present and that an RI/FS was warranted."	
6	7/27/20	CCT	Please add the following text from pages 5-6 of the HHRA Work Plan to Section 2.3, the Site History section. It can replace the paragraph on page 9 that starts, "The Colville Indian Reservation was established…" "The Colville Reservation was created by executive order in 1872; the Spokane Reservation was created by executive order in 1881. Portions of the UCR Site are located within the Colville and Spokane reservations. The present boundaries of the Colville Reservation include approximately 1.4 million acres (2,200 square miles), including northern and western shorelines of approximately 93 miles of the UCR extending upstream from Grand Coulee Dam (Map 2-1) (CCT 2008). The original north boundary of the reservation was the Canadian border; this former "North Half" of the Colville Indian Reservation continues to be an important homeland to the CCT. The CCT exercises certain management and regulatory authority in this area from the northern boundary of the current reservation north to the Canadian border, bounded by the Okanogan and Columbia rivers. CCT-owned land and individual tribal members reside on the North Half and use the lands, waters, and natural resources for cultural and subsistence uses as they do on the reservation. In Antoine v. Washington, the Supreme Court affirmed the Colville Tribes' rights to hunt and fish on the North Half (Alexander Antoine v. State of Washington 420 US 194. 1975). The total population of the Colville Reservation in the year 2000 was estimated to have been approximately 7,600 people (Washington State Office of Financial Management [OFM] 2006)."	The following additional text will be added to replace the paragraph on page 9 of the main report that starts, "The Colville Indian Reservation was established...: "The Colville Reservation was created by executive order in 1872; the Spokane Reservation was created by executive order in 1881. Portions of the UCR Site are located within the Colville and Spokane reservations. The present boundaries of the Colville Reservation include approximately 1.4 million acres (2,200 square miles), including northern and western shorelines of approximately 93 miles of the UCR extending upstream from Grand Coulee Dam (Map 2-1 in SRC [2009]) (CCT, 2008). The original north boundary of the reservation was the Canadian border; this former "North Half" of the Colville Indian Reservation continues to be an important homeland to the CCT. The CCT exercises certain management and regulatory authority in this area from the northern boundary of the current reservation north to the Canadian border, bounded by the Okanogan and Columbia rivers. CCT-owned land and individual tribal members reside on the North Half and use the lands, waters, and natural resources for cultural and subsistence uses as they do on the reservation. In Antoine v. Washington, the Supreme Court affirmed the Colville Tribes' rights to hunt and fish on the North Half (Alexander Antoine v. State of Washington 420 US 194. 1975). The total population of the Colville Reservation in the year 2000 was estimated to have been approximately 7,600 people (Washington State Office of Financial Management [OFM], 2006)."
7	7/23/20	Spokane Tribe of Indians (STI)	The STI and the CCT should be distinguished throughout the document. In multiple instances throughout the report, the word "tribal" is used to refer to both the STI and the CCT. In many of these instances it is important to differentiate between the two tribes because the exposure scenarios differ between the two tribes.	We will do this to the extent possible, though we will use "CCT" instead of "CHIRU," as proposed in the suggested edits. The CHIRU population is a subset of the CCT.
8	7/23/20	STI	Pg. xxxvii: "A Site-specific Tribal Consumption and Resource Use Survey ("Tribal Survey") (Westat, 2012; SRC, 2019b) was conducted and provided exposure parameters that were used to evaluate the CHIRU population." i. Suggested edit: "A Site-specific Tribal Consumption and Resource Use Survey for the CCT ("CCT Tribal Survey") (Westat, 2012; SRC; 2019b) was conducted that provided exposure parameters to	We will change the abbreviation of "Tribal Survey" to "CCT Tribal Survey" per suggested edit.

#	Date	Commenter	Comment	Response
			evaluate the Colville High Intensity Resource User (CHIRU) population." ii. Suggested edit: We recommend that all instances of "Tribal Survey" be changed to "CCT Tribal Survey" throughout the HHRA, including in the "Acronyms and Glossary."	
9	7/23/20	STI	Pg. 24: "Tribal allotment IC surface soil results were used to evaluate tribal exposure to surface soil COPCs in Appendix 1." Suggested edit: "Tribal allotment IC surface soil results were used to evaluate Colville High Intensity Resource User (CHIRU) exposure to surface soil COPCs in Appendix 1."	This change will be made.
10	7/23/20	STI	Pg. 24: "The <250 µm composite surface sediment sample results were used to evaluate exposure to surface sediment COPCs during recreational and tribal activities (one beach DU was located on a tribal allotment; see Appendix 1) and to estimate uptake by waterfowl in Appendix 1." Suggested edit: "The <250 µm composite surface sediment sample results were used to evaluate exposure to surface sediment COPCs during recreational and CHIRU tribal activities (one beach DU was located on a tribal allotment; see Appendix 1), and to estimate uptake by waterfowl in Appendix 1."	This change will be made, though we will use "CCT tribal activities" instead of "CHIRU tribal activities."
11	7/23/20	STI	Table 2-5: i. "Collected from locations randomly distributed throughout each beach between the water's edge and the maximum beach elevation to evaluate exposure to recreational, occupational, and tribal populations." Suggested edit: "Collected from locations randomly distributed throughout each beach between the water's edge and the maximum beach elevation to evaluate exposure to recreational, occupational, and CHIRU populations."	This change will be made, though we will use "the CCT population" instead of "CHIRU populations."
12	7/23/20	STI	Table 2-5: ii. "Sample results were used in the COI screen and to evaluate risk to residents who own a property with a beach and tribal populations and to estimate uptake by waterfowl." Suggested edit: "Sample results were used in the COI screen and to evaluate risk to residents who own a property with a beach and CHIRU populations, and to estimate uptake by waterfowl."	This change will be made, though we will use "the CCT population" instead of "CHIRU populations."
13	7/23/20	STI	Table 3-3: Phrase "Tribal Receptor" and "Tribal Scenario" are used multiple times in this table.	This table supports the COPC screen, which was conducted several years ago. We will clarify in the table, to the extent practical, that this is intended for the CCT population and not a general "tribal population."
14	7/23/20	STI	Figure 3-1: "Tribal" appears throughout this figure. In some instances, it refers to both STI and CCT, but in other instances only the CCT are evaluated for that source.	To the extent practical, the word "Tribal" will be replaced with "CCT" in instances where only CCT are evaluated. This includes relabeling, to the extent practical, the grey boxes connected to: "Sweat Lodge Air," "Disturbed Surface Water," "Beach Sediment

#	Date	Commenter	Comment	Response
			Suggested edit: Replace "Tribal" with "CHIRU" in instances where only the CCT are evaluated. This includes the grey boxes connected to the "Sweat Lodge Air," "Disturbed Surface Water," "Beach Sediment (not sediment to the thalweg)," "Mammals and Upland Birds," "Waterfowl," "Aquatic Plants," "Macroinvertebrates," "Amphibians/Reptiles," "Terrestrial Wild Plants," and "Terrestrial Cultivated Plants" boxes.	(not sediment to the thalweg)," "Mammals and Upland Birds," "Waterfowl," "Aquatic Plants," "Macroinvertebrates," "Amphibians/Reptiles," "Terrestrial Wild Plants," and "Terrestrial Cultivated Plants" boxes.
15	7/23/20	STI	The approach for summarizing lead risks does not align with the approach used for summarizing risks for other COPCs. In the main body of the report, the risk analysis discussion for non-lead COPCs presents risk from the consumption of nine individual fish species. In contrast, the discussion of risk for lead does not list out risk by the separate fish species, but rather, presents a general statement. Specifically, the document states, "Consuming fish from the UCR may pose an additional lead risk to current residents" (pg. xlii). To be consistent with the presentation of risk in the main document of the text, we recommend that the lead analyses that were conducted for individual fish species (presented in Appendix 5 of the HHRA) be included in the main body of the document. In other words, the lead results from consuming individual fish species should be summarized in the discussion in the main body of the text similarly to how the results are summarized for non-lead COPCs (Table 1). We are aware that EPA's risk assessment for lead is different than for other COPCs because there is no reference dose for lead. However, the relative risk from consuming each species can still be presented in the main body of the text using the blood lead level evaluation benchmarks presented in the HHRA.	This information will be added.
16	7/23/20	STI	Re: "The <149 µm ADA sample results were used to evaluate potential future residential exposure to surface soil and to evaluate tribal exposure to surface soil COPCs in Appendix 2." (pg. 22) Comment: This statement should be updated to reflect that the aerial deposition area (ADA) sample results are no longer used to evaluate tribal exposure to surface soil COPCs in Appendix 2.	This correction will be made.
17	7/23/20	STI	Re: Table 3-30 and Table 3-31 do not indicate that most of the Integrated Exposure Uptake Biokinetic (IEUBK) model analyses were conducted in batch mode. Outputs of the IEUBK model are slightly different in batch vs. single run due to the age input. Comment: An additional row for age input should be added to Table 3-30 to indicate that an age of 32 months was used for the batch mode runs. Additionally, a table footnote should be added to indicate that the analyses were generally run in batch mode.	This information will be added.
18	7/23/20	STI	Re: Table 3-30 states that the outdoor air concentration input for the IEUBK model is 0.023 µg Pb/m^3; however, when the IEUBK model is run in batch mode, the program only considers two significant	This is correct. This information will be added as a footnote to the table, explaining that the results of the IEUBK model analyses are

#	Date	Commenter	Comment	Response
			digits (to the right of the decimal point). As shown in Appendix 5, for the analyses conducted in batch mode, the outdoor air concentration is 0.02 µg Pb/m^3. Comment: Table 3-30 should be updated to reflect that the outdoor air concentration equals 0.02 µg Pb/m^3 when the model is run in batch mode, which is the case for most analyses.	not sensitive to changes in the third digit to the right of the decimal point for air lead concentration.
19	7/23/20	STI	Re: Table 3-3 states, "Fish 95th percentile IRs for tribal receptor adult and child are the 95th percentile values for children (0-17 yr old males and females) and adults (18+ yr old males), based on the 12/14/17 memorandum from Mountain Whisper Light to CH2M (MWL, 2017)." Comment: This reference (MWL, 2017) should be added to the list of references.	This change will be made.
20	7/23/20	STI	The content of tables ES-1, ES-3, 7-1 and 7-3 is unclear. In these tables, it is unclear what is meant by the heading row, "# of ADAs that Exceed both Lead and Non-Lead Benchmarks." This text contrasts with the entries in the first column (e.g., "COPCs other than Lead…"). Comment: Please improve the clarity of these tables and add additional text to explain what the reader should take away.	These tables are being reworked for improved clarity.
21	7/24/20	Teck American Incorporated (TAI)	We note that the incorrect Teck corporate entity is referenced and should be corrected. Specifically, the executive summary, page xxxvii, and Section 1, paragraph 1, to accurately report the name of the company operating the Trail smelter: Teck ~~Resources Limited~~ Metals Ltd. ("Teck"), and again in Section 2.3.1, on page 11.	This change will be made.
22	7/24/20	TAI	We recommend adding a footnote to Section 2.6.2.7 of the HHRA to advise readers that the 2016 Residential Soil Study did not include the "Northport Exclusion Area", consistent with EPA's directive to TAI (EPA 2015a, 2015b); otherwise, readers will get a misimpression of the level of risk present in these areas. The historical operation of the Le Roi smelter and Northport Smelter in Northport and the 2004 EPA removal actions in the Northport Exclusion Area are described in Section 2.3.2; however, EPA's planning for additional removals to be completed in 2020 and 2021 is not described. Since there is residual contamination from the Le Roi and Northport smelters, it is important to note in Section 2.6.2.7 that the remaining contamination in that area is not being evaluated as part of this HHRA.	A footnote to Section 2.6.2.7 will be added stating that the 2016 Residential Soil Study did not include the "Northport Exclusion Area." Any removals that have occurred to date in 2020 can be described in the report, but not removals that are merely planned.
23	7/24/20	TAI	The Northport Exclusion Area and ongoing actions should be noted in Section 2.3.2.	The Northport Exclusion Area actions to date will be noted in Section 2.3.2.
24	7/24/20	TAI	1 Draft Site-wide HHRA: Key Findings An ongoing concern we share with other stakeholders is how to make the key findings of this very detailed and complex HHRA understandable to most stakeholders, including specifically the	Risk results for receptors need to be presented summed across pathways. Where appropriate, the HHRA notes which specific media do not exceed risk benchmarks on their own, along with the caveat stating that populations are not exposed to just one medium.

#	Date	Commenter	Comment	Response
			general public who are most interested in understanding the more straightforward questions of whether the water, fish, beaches, air and soils are safe. The draft Site-wide HHRA mixes river and upland exposures for some, but not all, assessed scenarios, even though the pathways are different (i.e., fish ingestion + residential soil exposure). The effect of this technical choice is to complicate the interpretation of the results, and in turn, to complicate the communication of the results. It is also unclear how risk managers would be able to use the results to determine the necessity and nature of further response actions, since response actions are for individual environmental media. For that reason, we continue to believe a summary of the key HHRA results by environmental medium would be most useful to risk managers, as well as for stakeholders and the general public, who want to know if the water is safe for swimming, if they can recreate on beaches, and if they can safely consume local fish consistent with the existing Washington Department of Health (DOH) Fish Consumption Advisories. The EPA and DOH did a good job of answering these questions in the June 10, 2020 virtual public meeting. We recommend these questions be directly answered in the HHRA after the summary table in the Executive Summary and Conclusions sections. Alternatively, EPA may wish to expand the Notes to Users to include a results summary in response to these questions. Specifically, the HHRA should state: • The HHRA shows that all UCR surface water is safe for all users. Specifically, exposure to surface water does not pose unacceptable risks due to any COPCs. • UCR air is safe to breathe. That is, exposure to air does not pose unacceptable risks due to any COPCs. • There are no unacceptable human health risks from exposure to sediments on public beaches (other than Bossburg) or relict floodplains throughout the UCR. Bossburg has been closed since December 2011. • For some current residential properties in the northern portion of the UCR Site, risks from lead in soil or beaches cause risk benchmarks to be exceeded. Eighteen properties with the highest lead levels have already been voluntarily remediated by TAI. • Certain potential future residential properties within the areas sampled may need to be re-evaluated to assess risk if they become residential. • The HHRA concludes that people can consume UCR fish at levels consistent with the Washington DOH fish advisories for the UCR, which are less restrictive than advisories for the rest of the state.	Summary tables for the current and potential future resident in the Executive Summary and Section 7 will be revised to add a row summarizing non-lead risks not including fish consumption, along with statements describing these risk results similar to those made at the public meetings. Any changes of this sort would only apply to the Executive Summary; no changes in results presentation will be made to Section 5. Fish advisory information may be noted in the Executive Summary. In the Note to Readers, additional text will be added to describe where the HHRA fits into the RI/FS process (similar to the content of the slide on this topic presented at the public meetings). EPA will work with Teck and other project stakeholders to develop public risk communication tools.

#	Date	Commenter	Comment	Response
			We also recommend that these statements be followed by a statement about how the HHRA results will be used in the RI/FS going forward.	
25	7/24/20	TAI	2.1 Lead Risks Using Alternate IEUBK Assumptions Should be Included (MSD) As discussed in previous comments, the following assumption used in the IEUBK modeling cause the calculated risks to be inflated. Results using appropriate alternative assumptions should be modeled and presented: The HHRA relies on an outdated and unsupported analysis of the soil-to-dust factor or mass fraction of soil in indoor dust (MSD), and did not incorporate an alternate MSD supported by more recent studies. Brief statements have been added to the uncertainty analysis acknowledging more recent MSD analyses (Section 6.2.1.7); however, the results should reflect this more recent science, and additional discussion should describe the current scientific developments upon which those results are based. Specifically, Brattin and Griffin 2011 and Tu et al. 2020 calculate MSDs based on more than a dozen studies at mining and smelting sites with climates similar to the UCR and find an MSD of 0.4 to be sufficiently protective for use in the IEUBK model. Application of the MSD of 0.4 is better supported by the available science than the outdated EPA default MSD of 0.7 (derived more than 25 years ago) that is not supported by any reliable data (EPA no longer has the data or documentation of how the value was derived). Using the more scientifically valid MSD yields lead clean-up levels much higher than those derived using default assumptions. This is in sharp contrast to assertions in Section 6 of the HHRA that this does not contribute significantly to uncertainty. Application of this more scientifically valid assumption would significantly reduce the number of properties that appear to exceed the risk benchmarks. The alternate value for MSD should be included in the Section 3.4.1 discussion of IEUBK model inputs and the impact of the more scientifically valid assumption should be described in the risk characterization, uncertainty, and summary sections. Specifically, the results using the alternate values should be compared with the results using the default values to reflect more recent and representative exposure research.	Until the default MSD is changed by the Technical Review Workgroup (TRW) Lead Committee or site-specific data is collected, the HHRA will use an MSD of 0.7. The uncertainties surrounding the MSD are discussed in Section 6.2.1.7 of the HHRA. EPA is utilizing the information that's currently available; however, EPA continues to be responsive to new information and is integrating this new information into EPA benchmarks through our internal review and external peer review process. EPA's Office of Research and Development (ORD) recently evaluated the performance of IEUBK model (version 2) as it would be typically applied for risk assessment at Superfund sites. This evaluation relied on data collected from 1995 to 2018 at the Bunker Hill Superfund Site (BHSS) located in the Coeur d'Alene River basin in northern Idaho and used the TRW for Lead recommended changes to IEUBK version 1.1 input parameter default values to reflect recent scientific information. The differences between IEUBK (version 2) and IEUBK (version 1.1) with the updated input parameter values shown in Tables 3-30 and 3-31 of the Draft Site-wide HHRA for the UCR site are too small to meaningfully impact the results of the HHRA. The ORD memo found strong support for applications of the IEUBK version 2.0 model in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-related HHRAs (Vandenberg, 2020).
26	7/24/20	TAI	2.1 Lead Risks Using Alternate IEUBK Assumptions Should be Included (Dietary Intake) As discussed in previous comments, the following assumption used in the IEUBK modeling cause the calculated risks to be inflated. Results using appropriate alternative assumptions should be modeled and presented: The UCR HHRA relies on dietary lead intake assumptions higher than those used historically in the IEUBK model	EPA will continue to use the national default recommended for the IEUBK model for dietary inputs for the UCR HHRA. IEUBK Dietary inputs are not site-specific. Specific concerns relating to dietary inputs in the IEUBK should be submitted to the EPA TRW Workgroup for evaluation. See Attachment 1 to this Response to Comments.

#	Date	Commenter	Comment	Response
			for Superfund HHRAs. These values are also higher than dietary lead intakes now being used in the IEUBK model for national rulemaking by other EPA programs. The newer values used in national EPA rulemaking are based on the most recent dietary studies and should also be applied in the HHRA. Brief statements have been added to the uncertainty analysis acknowledging more recent dietary intake analyses (Section 6.2.1.8); however, the results should reflect this more recent science, and additional discussion should describe the current scientific developments upon which those results are based. EPA authors (Zartarian et al. 2017) recently published dietary lead intake values based on more recent dietary surveys than used by the EPA TRW to derive the dietary lead estimates used in the HHRA. The Zartarian et al. (2017) intakes are much lower than the TRW values. Using the more scientifically valid dietary intakes yields lead clean-up levels much higher than those derived using default assumptions. This is in sharp contrast to assertions in Section 6 of the HHRA that these factors do not contribute significantly to uncertainty. Application of these more scientifically valid assumptions would significantly reduce the number of properties that appear to exceed the risk benchmarks. The alternate values for this parameter should be included in the Section 3.4.1 discussion of IEUBK model inputs and the impact of the more scientifically valid assumptions should be described in the risk characterization, uncertainty, and summary sections. Specifically, the results using the alternate values should be compared with the results using the default value to reflect more recent and representative exposure research.	EPA is utilizing the information that's currently available; however, EPA continues to be responsive to new information and is integrating this new information into EPA benchmarks through our internal review and external peer review process. EPA's ORD recently evaluated the performance of IEUBK model (version 2) as it would be typically applied for risk assessment at Superfund sites. This evaluation relied on data collected from 1995 to 2018 at the BHSS located in the Coeur d'Alene River basin in northern Idaho and used the TRW for Lead recommended changes to IEUBK version 1.1 input parameter default values to reflect recent scientific information. The differences between IEUBK (version 2) and IEUBK (version 1.1) with the updated input parameter values shown in Tables 3-30 and 3-31 of the Draft Site-wide HHRA for the UCR site are too small to meaningfully impact the results of the HHRA. The ORD memo found strong support for applications of the IEUBK version 2.0 model in CERCLA-related HHRAs (Vandenberg, 2020).
27	7/24/20	TAI	2.2 Indoor Air EPCs Should Account for Reduced Concentrations Indoors Airborne metals will be associated with particulate matter. Infiltration ratios for airborne particulates have been the subject of several studies. The HHRA assumes that indoor air concentrations are the same as outdoor air concentrations (Section 3.3.9, page 115). In Section 6.3.1.5 of the uncertainty section, the HHRA acknowledges this assumption could overestimate exposures. The HHRA now cites a comprehensive study by Allen et al. (2012) that better quantifies the reduced indoor air concentrations. However, despite the strong evidence in Allen at al. (2012), the HHRA still cites an older study that does not document much reduction in particle infiltration into a home (Thatcher and Layton 1995), and it is not clear why EPA continues to rely on this older, less comprehensive study in the HHRA. Allen et al. (2012) conducted one of the largest studies of paired indoor and outdoor particulate sampling. They collected particulate matter (PM) 2.5 filter samples	These studies were reviewed after discussions with Teck. Thatcher and Layton (1995) state that the building envelope "provides little, if any, filtration of airborne particles in ambient air" for particles 0.3 to 25 µm and note that previous studies showing a difference in indoor and outdoor air concentrations failed to account for resuspension of settled particles by building occupants. Allen et al. (2012) stressed the large variability in the ratio of indoor to outdoor PM2.5 (using sulfur as a surrogate), but the analysis suggests that the ratio is <1. Lacking site-specific information to adjust the PM10 air data at the Site, as assumption setting indoor air concentrations equal to outdoor air concentrations seems reasonable. No quantitative changes will be made to the HHRA in this regard; however, this assumption of unity is acknowledged as an uncertainty in the uncertainty section of the HHRA.

#	Date	Commenter	Comment	Response
			from 353 homes in seven communities. Of these, 173 homes were sampled twice in different seasons. They report a mean (± standard deviation [SD]) indoor to outdoor fraction of 0.62 ± 0.21 across all communities and seasons. The fraction was generally highest in warm weather when windows were opened, and lowest in cold weather or during warm weather when windows were more frequently closed and air conditioning was used. Due to the long cold period in the UCR region, it is reasonable to assume that 0.6 may approximate the average year-round infiltration rates at the Site. Because people spend much more time indoors than outdoors (>80% according to the HHRA), this indicates that the overall exposures to airborne metals presented in the HHRA are at least twice the expected exposures when reduced indoor concentrations are considered. A discussion of the impacts of this overestimation of air exposures should be included in the uncertainty analysis and carried over into the risk characterization, summary, and executive summary.	
28	7/24/20	TAI	2.3.1 Thallium RfD is Too Unreliable to Support a Determination of Unacceptable Risk EPA has determined that thallium does not have adequate toxicity data to support derivation of a reliable reference dose (RfD), a fact acknowledged in Section 6.3.4 of the HHRA uncertainty section. However, nowhere in the HHRA are the specific limitations of the toxicity studies described, which is essential in understanding the significant uncertainties associated with the RfD applied in the HHRA and the significance of the resulting risks. In particular, the thallium RfD is based on effects in rats, e.g., alopecia, that are not believed to be applicable to humans. From their analysis of the toxicity data for thallium, including review of a study by Brockhaus et al. (1981) in which a large human population was exposed to thallium at concentrations up to 100 times greater than the RfD, EPA (2008) determined that there was a negative correlation between thallium exposure and hair loss (i.e., alopecia). In addition, the thallium RfD is at or below concentrations associated with background exposures, such that "Site" exposures could not practically be reduced to "acceptable" levels. A detailed description of the problems with the thallium toxicity studies is provided in Attachment 3 to these comments. Due to the unreliability of the thallium RfD, it is inappropriate to add thallium hazard quotients (HQs) to those for any other COPCs by target organ, i.e., the skin, hair, nails category. Furthermore, the thallium RfD is so unreliable that it should not be presented in the results section of the HHRA, but only in the uncertainty section. If thallium risks remain in the main text, those results should not be used in a determination that	This is currently discussed in the uncertainty section. Language will be added to the HHRA that EPA continues to work with ORD/Integrated Risk Information System (IRIS) to monitor the thallium research that may be used to revise the toxicity value in the future, and EPA communications regarding the timeline for an updated provisional peer-reviewed toxicity value (PPRTV) for thallium will be cited. EPA is utilizing the information that's currently available; however, EPA continues to be responsive to new information and is integrating this new information into EPA benchmarks through our internal review and external peer review process.

#	Date	Commenter	Comment	Response
			there are unacceptable risks. We also recommend an alternate approach, such as "read across," be considered to provide an alternate RfD based on an analogous metal such as arsenic that has better toxicity data.	
29	7/24/20	TAI	2.3.2 Recent Arsenic Studies Support a Threshold for Cancer Effects Recent literature supporting a threshold below which arsenic does not increase cancer risk should be reported in the toxicity and uncertainty assessment sections of the HHRA. While the toxicity values listed in EPA's IRIS may be properly included, the HHRA should also advise that arsenic cancer risks are therefore likely overestimated. A summary of the recent research is provided here, and a detailed description of these studies is provided in Attachment 4 to these comments. The current EPA arsenic toxicity factors were derived many years ago, and do not represent the current state of knowledge about arsenic toxicity and dose-response. EPA's ongoing effort to update the toxicity factors has been long delayed. In the meantime, other groups have generated new inhalation unit risk factors that incorporate updated cohorts for the epidemiological studies considered by EPA in 1984. In addition, recent research has demonstrated the plausibility of a nonlinear dose–response relationship for ingested arsenic that supports a threshold for arsenic carcinogenicity (Cohen et al. 2013, Gentry et al. 2014a, 2014b, Tsuji et al. 2019). These studies provide evidence for a mode of action involving cytotoxicity and regeneration based on human, animal, and mechanistic studies. Tsuji et al. 2019 conclude the likely threshold for arsenic in drinking water is 100 µg/L, well above the current drinking water standard. This threshold is high enough that most exposures to arsenic in diet, soil, and other environmental media should pose no carcinogenic risk when drinking water concentrations are not elevated. Since common mechanisms are expected for inhaled and ingested arsenic, a threshold is also expected for inhaled arsenic (Lewis et al. 2015). The toxicity assessment for arsenic in the HHRA should include a discussion of these new studies and the uncertainty analysis should include the possibility that there is a threshold below which there is no carcinogenic risk for arsenic. The more recent inhalation unit risk factors should also be described and the uncertainty analysis should advise that inhalation risks based on the EPA unit risk factor may overestimate cancer risks by up to 20-fold.	EPA does not recognize a threshold for carcinogenicity dose-response of arsenic. Text regarding uncertainty in the arsenic toxicity value is already in Section 6.3.4 of the HHRA. EPA shared this information with the IRIS program managers for consideration in the updated arsenic toxicity review, until this is reviewed and changed EPA will use the current IRIS toxicity number. Language will be added to the HHRA that EPA continues to work with ORD/IRIS to monitor the arsenic research that may be used to revise the toxicity value in the future. EPA is utilizing the information that's currently available; however, EPA continues to be responsive to new information and is integrating this new information into EPA benchmarks through our internal review and external peer review process.
30	7/24/20	TAI	2.4 Site-Specific IVBA Data for All Metals Should be Presented and Considered Quantitatively Site-specific in vitro bioaccessibility (IVBA) was measured for lead and arsenic in many soil and beach sediment samples. For a subset of those samples, EPA also requested that TAI measure IVBA for	There is no validated basis for quantitatively adjusting RBA with the IVBA data for elements other than arsenic and lead. Therefore, we need to assume RBA=1 in the HHRA. However, IVBA values that are substantially below 1 would support an interpretation (e.g., in the uncertainty assessment) that the assumption of RBA=1 when the

#	Date	Commenter	Comment	Response
			more than 20 additional metals. The details of these analyses (i.e., number of samples and metals analyzed) should be documented in Section 2.6.2 in the subsections for the 2014 upland soils and the relict floodplains. Adjustments for relative bioavailability (RBA) are discussed in Section 4.6 of the HHRA and are applied for lead and arsenic only. As requested by TAI (TAI 2020), site-specific IVBA data for other metals are now included in the HHRA; however, the table with the data is part of the uncertainty section (Section 6, Table 6-2). We request the IVBA data for other metals be presented and discussed in Section 4.6 of the HHRA along with the discussion of RBA adjustments for lead and arsenic. Although many of the metals' IVBA results have not been validated in animal models to produce RBA regression estimates, we observe from cases where validation has been performed that the IVBA values are comparable to RBA, meaning use of the unmodified IVBA data would still provide reasonable estimates of RBA values. Section 6.3.1.3 of the uncertainty section briefly discusses and then dismisses the IVBA data for metals other than lead and arsenic. We specifically object to the concluding statement in Section 6.3.1.3 (page 192) that "Risk estimates for other metals are overestimated to an unknown extent based on the assumption of 100% bioavailability." This is simply not true. The site-specific IVBA data provide a direct estimate of the extent to which risk estimates may be overestimated. As presented in Attachment 5 of these comments, four metals have IVBA values less than 10% (chromium, iron, nickel, and vanadium). IVBA values are 20% or less for aluminum, cobalt, and thallium. We recommend including Table 1 from Attachment 5 in Section 6.3.1.3 of the HHRA and using it to support a discussion of the magnitude of potential overestimates of exposure for metals that are estimated to have elevated risks for soil. Due to limitations in the ability of animal studies to provide RBA estimates for poorly absorbed soil metals, we recommend assuming an RBA of 25% to provide an upper-bound estimate of RBA for the seven metals with IVBA values less than 20%. For antimony, cadmium, and manganese, we recommend using the mean site-specific IVBA values. We continue to recommend that these data are reliable enough to use in primary risk estimates in the body of the HHRA. If not incorporated into the risk estimates, we request that the implications of the IVBA data be discussed in the conclusions and executive summary sections, stating that the RBA for metals other than lead and arsenic is substantially less than 100% and likely no more than 25%.	IVBA is much less than 1 may contribute to an upward bias in risk estimates for the soil ingestion pathway for these COPCs. Language will be added to the HHRA that recognizes EPA Region 10 continues to work with the TRW Bioavailability committee to review data. EPA is utilizing the information that's currently available; however, EPA continues to be responsive to new information and is integrating this new information into EPA benchmarks through our internal review and external peer review process.
31	7/24/20	TAI	3.1.1 Uncertainties Related to Background Chemicals in Fish Should be Clearly Communicated in the Executive Summary	Comparison to other waterbodies in the region that may or may not be contaminated is outside the scope of the UCR HHRA. EPA will

#	Date	Commenter	Comment	Response
			The HHRA concludes that lead, thallium, mercury, and toxic equivalency (TEQ) for dioxin-like PCBs contribute to "unacceptable" risks in fish but now appropriately acknowledges in the uncertainty assessment (HHRA Section 6.3.3.3) that the concentrations of these constituents in UCR fish are comparable to the concentrations in fish from other regional waterbodies unconnected with the UCR. However, these points are not communicated clearly in the Executive Summary despite their critical importance to interpreting risks and supporting risk management decisions. We recommend that the general summary table of results presented in the Executive Summary include a footnote stating that methylmercury, thallium, and TEQ concentrations in fish are consistent with or lower than concentrations measured in other waterbodies in the region. Fish is an important part of a healthy diet, and it is important that UCR fish consumers, actual or would-be, do not get the impression that consumption of UCR fish presents particular risks.	work with DOH and other stakeholders on risk communication related to this issue.
32	7/24/20	TAI	3.1.2 Daily Fish Consumption Rates Calculated for Children Are Too High The daily fish consumption rate of 14 g/day for children used in the HHRA is not based on the available site-specific data for child fish consumption. The HHRA states that reliable site-specific daily consumption rates (DCRs) for children could not be derived (Section 3.5.2.1, page 82), and describes the process for adjusting the site-specific rates for adults for use with children. The HHRA does not explicitly state the daily fish consumption rates for children that were derived by Mountain Whisper Light (MWL; 2017) or in the Recreational Use Survey (RecUse) data analysis report (DAR). MWL calculated a 95th percentile DCR for children 0-17 years old of 4.8 g/day. The RecUse DAR calculated a DCR for children 1-6 years old of 5.8 g/day. Thus, these site-specific analyses suggest DCRs less than half the value selected for the HHRA. The results of these analyses should be described in the HHRA and justification provided if EPA concludes that the MWL or RecUse DAR rates for children were not reliable. These rates should be stated and discussed in the uncertainty analysis (Section 6.3.2.3.3) because they provide insights to the possible magnitude of overestimation of DCRs using the HHRA approach (i.e., the estimated energy equivalent (EER) ratio approach). Instead of using the site-specific data, the HHRA assumes that the child:adult DCR ratio for fish consumption is the same as the EER ratio of 0.5, an assumption that yields much higher child fish consumption rates than those developed based on site-specific data. The EER ratio is based on the results of the Institute of Medicine (IOM; 2005) study. The HHRA	The child DCR for fish was estimated using the ratio of 0-6 year old child-to-adult total energy requirements (n=845; IOM, 2005), as the RecUse survey sample size available for children 0-6 years of age (n=7) was not sufficient to develop reliable estimates for the fish DCR. Based on additional analysis of adult and child DCR data from other surveys as described below, 0.5 falls within the range of other calculated ratios and is based on the very robust NHANES dataset. See Attachment 3 to this Response to Comments. The ratio of child:adult mean finfish consumption rates ranges from 0.1 to 0.7 for the Tulalip, Squaxin and Squamish tribes (EPA, 2011, based on Duncan, et al., 2000 and Polissar, et al., 2006). Based on the data from a survey of Pacific Northwest tribes (Columbia River Inter-Tribal Fish Commission [CRITFC], 1994), the ratio of child:adult mean DCRs was 0.31 for all finfish combined. For fish species relevant to the UCR HHRA, the ratios for Pacific Northwest tribes ranged from 0.74 for trout to 2.36 for whitefish (CRITFC, 1994). The EPA Exposure Factors Handbook (EFH) includes statistics for consumption rates by children and adult members of the Squamish, Squaxin and Tulalip tribes (EPA, 2011; Tables 103, 104 and 107 based on Duncan et al., 2000; Polissar et al., 2006; and Toy et al., 1996). The mean, median, and 95th %tile consumption rate for mussels by child members of the Squamish were estimated to be 0.02, 0, and 0.17 grams/day, respectively. For all shellfish combined, the ratios of the mean consumption rates (child:adult) for the three tribes were 0.09 (Squamish), 0.10 (Tulalip) and 1.54 (Squaxin) (Table 1 of Attachment 3 to this Response to Comments). The ratios

#	Date	Commenter	Comment	Response
			footnote 70 on page 82 acknowledges that the ratio applies "to the overall diets of children and adults, but may not accurately reflect child/adult consumption ratios for specific foods that are likely to be affected by differences in food preferences between children and adults." However, the HHRA does not provide any instances where this ratio has been used in other HHRAs. In fact, the EPA (2014) study on fish consumption rates shows that consumption by adults increases with age. Therefore, since the IOM study shows energy needs decrease with age, it implies that younger people get a lower proportion of their energy from fish. The site-specific data for the UCR indicates the DCR for children 1-6 years old is below the 14 g/day used in the Site-wide HHRA and that the child:adult DCR ratio is below 0.5. According to the MWL memo on finfish consumption from the tribal survey, the 95th percentile for children 0-17 years old is 4.8 g/day, which implies a DCR child:adult ratio 0.2 (MWL 2017). The confidence interval for the 95th percentile is 1.0 – 14.2 g/day. Therefore, the 14 g/day used in the Site-wide HHRA for children is at the outer extent of reasonable maximum exposure values and likely overestimates child consumption. Site-specific fish consumption diary data reported in the RecUse DAR show a DCR for children 1-6 years old of 5.8 g/day, which yields a child:adult ratio of 0.21, less than half 0.5. Other sources of EPA data also indicate that the adult/child DCR could be below 0.5 and are consistent with the UCR site-specific results. For example, using the data from the 2003-2006 NHANES study, the child:adult DCR ratio for children 1-6 years old versus adults 21–<50 years old is 0.4. Data from Table 10-38 (EPA 2011) shows the average (overall) child (1-5)/adult (16-49) DCR ratio is 0.36 and that the ratio from a Connecticut study is 0.19. Some higher ratios are derived from short-term surveys that may reflect just comparative meal sizes for children versus adults instead of the overall average consumption, meaning that if children consume fish less frequently than adults, their average daily consumption rates will be overestimated by the short-term ratios. EPA's EFH Table 10-120 (EPA 2011) shows that at the 95th percentile, the average child:adult fish meal size is 0.5. The National Health and Nutrition Examination Survey (NHANES) data show children consumed fish about 50 percent as frequently as adults. Taken together these two values suggest a DCR ratio of about 0.25. In addition, in Section 5.3 of the HHRA, EPA data on the child/adult consumption ratio for consumption of shellfish by tribal members ranges from 0.1 to 0.3. Therefore, there is significant data that shows the appropriate ratio is well below 0.5. The site-specific child DCR data has limitations because of the sample size, but the HHRA is now using a unique approach based on relative energy	of the median consumption rates were 0.03 (Tulalip), 0.07 (Squamish) and 0.39 (Squaxin). Comparing shellfish consumption rates between children and adults for the U.S. population as a whole is consistent with the ratios reported for the Squamish, Squaxin and Tulalip tribes. Based on an analysis of NHANES 2003-2010 data (EPA, 2014), the ratio of the median child:adult shellfish DCRs is approximately 0.2, while the ratio of the child:adult 95th percentile DCRs is approximately 0.3. Based on EPA's analysis of survey data for 4 states, the ratios of mean child:adult DCRs for fish and shellfish combined range from 0.42 to 0.75 for the general population. Given the small sample size available for tribal members in each of the 4 states, a weighted ratio of the child:adult mean DCRs was calculated as 0.38, using the sample sizes as the weights. The range in the ratios of the child:adult P95 DCRs are similar to the ratios of the mean DCRs: 0.39 to 0.72. The ratio of child:adult DCRs for finfish vary widely from less than 0.1 to greater than 1. The ratio of 0.5 used in the HHRA is consistent with the data summarized in Attachment 3. The IOM/EER approach is based on a large database and measured data (doubly labeled water), and therefore avoids limitations associated with small surveys (see IOM [2005]; https://www nap.edu/read/10490/chapter/25v). No change will be made to the HHRA.

#	Date	Commenter	Comment	Response
			requirements of children and adults that also has limitations. The HHRA should include a sensitivity analysis that shows the impact of using alternative ratios and DCRs on the HQ. For example, child HQ values for fish consumption change proportionally with changes in an intake rate (DCR). Section 6.3.2.3.3 of the HHRA, which describes the uncertainties in fish consumption estimates for recreational visitors, now acknowledges that survey data collected for tribal and recreational anglers in four states yields a ratio of the mean child:adult DCRs for fish and shellfish combined of 0.4 for both the tribal and angler populations. While higher than the site-specific estimates for the UCR that are closer to 0.2, use of a ratio of 0.4 instead of 0.5 will still significantly reduce fish risk estimates. The uncertainty analysis should include more specific assessment of the impacts of using the higher ratio on risk results. Our concern related to use of a child:adult DCR ratio of 0.5 also is relevant to assessing exposures through consumption of all other biota, e.g., crayfish, reptiles/amphibians, upland game, and birds.	
33	7/24/20	TAI	3.1.3 Current Fish Consumption by Tribal Members Should Be Clearly Reported The HHRA estimates risks from fish consumption for current residents using data from the Tribal Use Survey and the RecUse Survey. Thus, risks include current residents who are tribal users. However, the HHRA does not directly state, as it should, that fish consumption at actual consumption rates does not result in unacceptable risks for tribal users. This statement should be clearly made in the uncertainty analysis and summaries.	We will add text explaining that while Appendix 1 is the CHIRU scenario (high-intensity), the non-subsistence CCT population is represented by the Resident in the body of the HHRA, and recreational risks are represented by the recreational user.
34	7/24/20	TAI	3.2 Surface Water Lead Risks Should be Presented Separately Although the HHRA includes contact with surface water in the IEUBK model, lead risks for surface water are not presented separately from the other environmental media in the risk characterization. Thus, it is unclear to the reader what the relative contribution is from surface water to total lead risks. We recommend that the relative contribution of surface water to lead risks be presented separately from the other media in HHRA Sections 5.1.1.3 to 5.1.1.12.	Surface water risks for lead cannot be presented on their own. However, in the uncertainty section, the lead calculations will be rerun without water and the delta will be presented to illustrate how water contributes to blood lead for one example receptor.
35	7/24/20	TAI	3.3 Exposure Frequency for Beach, Boat, and Camping Trips is Overestimated in IEUBK Model The HHRA provides greater discussion of the basis for the exposure frequency (EF) assumption for beach, boat, and camping trips used in IEUBK model (in Sections 5.1.1.4 to 5.1.1.12) than previous drafts. This discussion states that using the assumption of 13 visits in a season instead of the 4.4 visits per season supported by the RecUse survey does not significantly impact predicted blood lead concentration. In the uncertainty analysis (Section 6.2.1.9) the	The EFs for beach, boating and camping trips/year are (CTE, RME): beach: 5.9, 16; boating: 5.5, 16; and camping: 4.3, 10 (Table 3-39 of the HHRA). Therefore, this statement will be added to the HHRA: "The 13 days/year EF used in the IEUBK model is closer to the RME than the CTE. Because of IEUBK model constraints (EPA, 2003b), 13 days/year was used as the exposure frequency. As shown in Appendix 15, the difference in predicted blood lead between 6 and 13 days is small."

#	Date	Commenter	Comment	Response
			HHRA refers to an analysis using the All Ages Lead Model (AALM) to support a conclusion that, "the adjustment to the exposure frequency necessary to use the IEUBK model is small and unlikely to influence risk-based decisions." However, only an example analysis using the model is presented in Appendix 15 and it is not clear that this analysis addresses our concern about overpredicting blood lead levels (BLLs) by using a much higher beach visit frequency than is supported by the site-specific data. As we have noted in previous comments, the EF value of 13 used in the HHRA is not consistent with central tendency assumptions that are intended for use in the IEUBK model. Table 3 of our comments shows the 95th percentile EF values for children from the RecUse DAR. The table shows that five of the nine reported 95th percentile EF values for boating, camping and beach trips to each of the three river regions are below 13 trips. The assumptions used by EPA overestimate trips per location. The assumption of 13 beach trips is actually the 97th percentile for trips per beach. Sections 5.1.1.4 through 5.1.1.12 should state that this value is not the central tendency exposure (CTE) estimate, and is actually much closer to the 95th percentile value, depending on how the number of trips is calculated. Also, Section 6.2.1.9 should advise that this assumption has contributed to overestimation of the contribution of beach visits to BLLs.	
36	7/24/20	TAI	4.1 Consideration of Property-Wide Risks EPA did not update the upland residential risk estimates to provide property-specific risks as requested previously. Risks are evaluated for each decision unit (DU) as if 100 percent of exposure occurs at that DU, as opposed to averaging exposure over the entire property (as represented by all DUs tested on that property). This overestimates or underestimates risks at all DUs where residents spend less than 100 percent of their time, depending on the concentration of the COPC at the DU being evaluated and if it is lower or higher than the average COPC concentration in DUs where actual exposure occurs. The Site-wide HHRA briefly acknowledges this uncertainty in Section 6.3.2.1.1 of the uncertainty assessment, but further evaluation on this topic should be included in the uncertainty assessment of the HHRA. For DUs with a COPC concentration exceeding risk thresholds, further evaluation should be performed to consider risk associated with the entire property. This could include evaluating risk based on the average COPC concentration of all DUs at a property, or by generating a weighted average concentration based on exposure estimates that represent the fraction of exposure spent on the various DUs on a property.	With DUs, EPA has already decided that these are Decision units (i.e., decisional). To evaluate risks property-wide, we would need more information from the property owners on how to weight the DUs. This could potentially be done later as part of the Preliminary Remediation Goal (PRG) memo and proposed plan. EPA determined that assumption of full-time residential exposure was the preferred approach to assessing risk at this site: 1) all DUs were selected based on exposure potential; 2) house DUs likely account for most exposure to lead for young children; 3) it is efficient and expedient to deal with different types of DUs during subsequent risk management than as part of the HHRA. Due to privacy concerns, the data will only be released by EPA to the property owner.

#	Date	Commenter	Comment	Response
37	7/24/20	TAI	4.2 Residential Risks Are Overstated for ADAs That Will Not Be Developed for Residential Use TAI previously commented that based on current landholdings, for most ADAs, continued use as forest land with recreational access is the most likely future land use and a future worker scenario is more realistic for these areas. Therefore, ADA DUs located on privately-owned forest lands, federal, or state lands should be evaluated under a worker scenario to represent current risks. We note that the HHRA now includes text in Section 3.1.2.2 acknowledging that workers may also work full-time in upland areas away from the river (e.g., in the forestry or agricultural industries). The HHRA also states that "the potential future residential exposure evaluation is protective of the upland outdoor worker population and a separate evaluation for upland workers is not warranted." We disagree that a worker scenario is not warranted because such a scenario is needed to assess current risks. This is important due to the very low likelihood that these properties will ever be developed for residential use. The majority of the ADA DUs are located on privately-owned forest lands, United States Forest Service (USFS) land, or Washington (WA) State forest and trust lands managed by Washington Department of Natural Resources (WDNR). The six largest landowners of ADA DU land account for 69% of the total ADA DU land. Other than national forest and Washington State lands, almost all the ADA DU land use is categorized as designated forest land, generally falling under the resource production and extraction land use category. Only a portion of 8 ADA DUs (<1% of the total land) are currently zoned residential. The HHRA addresses this point in Sections 6.2.1.10 and 6.3.2.1.1 stating "…it is possible this area will experience significant pressure for land use change in the future, including residential expansion (both year-round and seasonal). Although many of the upland areas are presumably unavailable to residential development because they are protected by government ownership/management, there are thousands of acres of private land in the Site area where development could occur." Privately-owned forest lands, WA State forest lands, and national forest lands located in the UCR region, are highly unlikely to be developed for future residential use. Therefore, assuming residential exposure at these places overstates risks. The large tracts of privately-owned lands managed for forestry are also unlikely to be developed for residential use. As we commented before, the available data indicate that the potential for increased land use pressure is very small. Figure 1 shows the number of visitations to the National Recreation Area (NRA) for Lake Roosevelt for 1987 to 2017. As shown, there has been no increase in the recreational use of the UCR since the early	Without deed restrictions (which are considered in risk management and not risk assessment), future potential residential use was evaluated on the ADAs in the HHRA to inform risk management decisions. The land use information previously provided by TAI was used in Section 6.2.1.10 and Section 6.3.2.1.1 of the HHRA to provide context on the likelihood of potential future residential land use for some of the ADAs. The outdoor worker population description was expanded to state that it could include upland workers, but that population's risk is protected by the future residential scenario. Section 6.2.1.10 ("Uncertainty in Residential Use and Future Use Scenario Assumptions") of the Public Review Draft Site-wide HHRA will be revised as shown in Attachment 2 to this Response to Comments to incorporate soil lead PRGs that would be derived for the outdoor worker receptor (assuming non-residential land use). The text in Sections 6.2.1.10 and 6.3.2.1.1 will be modified as follows: "it is possible this area ~~will~~ could experience ~~significant~~ pressure for land use change in the future, including residential expansion (both year-round and seasonal). Nevertheless, ~~Although~~ many of the upland areas are presumably unavailable to residential development because they are protected by government ownership/management." Attachment 2 to this Response to Comments will be added to the Response to Comments appendix of the HHRA.

#	Date	Commenter	Comment	Response
			1990s. Figure 2 shows population growth projections by the state of Washington for Spokane County. The prediction shows that the most likely growth path for the population of Spokane County, by far the largest and most populated county in the area, is about 1% per year for the next 20 years. EPA Risk Assessment Guidance for Superfund (RAGS; 1989) notes that although residential land use is the most conservative choice, an assumption of future residential land use is not justifiable if the probability of future residential use at the site is "exceedingly small." EPA (1989) suggests that, should an alternate land use be incorporated into the risk assessment, it may be advisable to consider a recreational or open space land use: "If the site is industrial and is located in a very rural area with a low population density and projected low growth, future residential use would probably be unlikely. In this case, a more likely alternate future land use may be recreational." Ultimately, EPA (1989) recommends that any future land use selection that varies from current land use should be supported with a logical and reasonable argument. Consideration of alternate land uses is supported by the EPA (1995) discussion of land use considerations with remedy selection which states that "In cases where the future land use is relatively certain, the remedial action objective generally, should reflect this land use." Based on current landholdings, continuation of use as forest land with recreational access is the most likely future land use, and the likelihood of conversion to residential use is "exceedingly small." Despite the low likelihood of residential development, the HHRA evaluated all ADA DUs under a future residential scenario. A worker scenario is more representative of current risks for these areas. Therefore, ADA DUs located on privately owned forest lands, federal, and state lands should be evaluated under a worker scenario. In addition, the HHRA should advise that the likelihood of future residential development of most of these lands within the Site area is low. For example, the text in Sections 6.2.1.10 and 6.3.2.1.1 cited above could be modified as follows: "it is possible this area ~~will~~ could experience ~~significant~~ pressure for land use change in the future, including residential expansion (both year-round and seasonal). Nevertheless, ~~Although~~ many of the upland areas are presumably unavailable to residential development because they are protected by government ownership/management, and although there are thousands of acres of private land in the Site area where development could occur, none of the available data suggests significant development is likely."	
38	7/24/20	TAI	Comment on CHIRU Appendix: One broadly applicable comment is the assumption of a child:adult DCR ratio of 0.5. As discussed in our comment in Section 3.1.1 of these comments, available UCR survey	At the May 14, 2019 Participating Parties meeting in Spokane, WA, the CCT asked EPA to use the IOM/EER approach (ratio of 0.5) to derive the child DCR from the adult DCR (these are their specific

#	Date	Commenter	Comment	Response
			information, as well as survey data from other fish consumption studies in the region, support use of a DCR ratio less than 0.50.	tribal consumption rates). The IOM/EER approach is based on a large database and measured data (doubly labeled water), and therefore avoids limitations associated with small surveys.
39	7/24/20	TAI	5.1 Surface Water Does Not Cause Exceedance of Lead Risk Targets Section 3.1.3 of Appendix 1 mistakenly states that surface water at the tribal allotment beach exceeds the P3 and P5 levels for lead. Adding surface water to the sediment exposure increased the predicted blood lead concentration by only 0.06 µg/dL and increased the risk of exceeding the P5 by only 0.5%. This is an insignificant increase in exposure, per EPA's guidelines for evaluating biota, and the text should be revised. In response to TAI's comments on the 2019 Draft Site-wide HHRA, EPA (2020b) agreed that it is, "…not "water" but "water plus beach sediment exposure required to access the water"" that causes the P3 and P5 risk benchmarks to be exceeded. Nevertheless, the text in Section 3.1.3 was not revised and still misleadingly attributes lead risks to surface water intake.	Additional text will be added to the second to last sentence of the last paragraph of Section 3.1.3 in Appendix 1 stating "; however, incidental ingestion of beach sediment explains most of the increased risk while ingestion of surface water contributes minimally (incidental ingestion of surface water contributes an additional 1% to P3 risk and 0.5% to P5 as shown in Tables 28 and 29)."
40	7/24/20	TAI	5.2 Fish Consumption Rates Don't Reflect Current CCT Tribal Survey Rates Instead of relying on the Tribal Use Survey data that reflects current CCT fish consumption rates, the CHIRU scenario uses aspirational fish consumption rates. As stated in our prior comments, Appendix 1 should clearly state that current CCT risks associated with fish consumption are described in the main body of the HHRA, and that Appendix 1 describes aspirational consumption rates. Appendix 1 should state if any of the unacceptable risks calculated for UCR fish are comparable to risks that would be associated with other fisheries when applying the CCT aspirational fish consumption rates. Additionally, a discussion of the uncertainty associated with the CCT fish consumption rates should be added to Appendix 1 Section 4.4, as is done for the other Site biota. The uncertainty analysis should include quantification of risks at the consumption rates reported in the Tribal Use Survey DAR and MWL memos (SRC 2019b, MWL 2016, MWL 2017) because these are representative of current consumption levels by tribal members. The rationale for the selection of the subsistence fishery consumption rates should also be discussed.	These CHIRU fish DCRs came directly from the CCT. EPA will note in Section 3 of the main body of the HHRA that the fish DCRs used to evaluate fish consumption for the residential population encompass non-subsistence CCT fish consumption.
41	7/24/20	TAI	5.3 Consumption Rates for Shellfish Do Not Reflect CCT Tribal Survey or Regional Data As noted in our prior comments, the Appendix 1 HHRA shellfish consumption rates for children are not reflective of values calculated for the CCT or other regional tribe populations. We note the additional explanation provided in Section 6.3.2.3.3 of the main HHRA, which states "Based on EPA's analysis of survey data collected for tribal and recreational anglers in four states, the ratio of	EPA's analysis of these data concluded that the literature shows a wide range in the child:adult ratio for DCR for shellfish and concluded the IOM approach would be retained. It is worth noting that the studies that provided data for children and adult shellfish consumption rates for tribal populations have small sample sizes for children ($n \leq 31$ for each tribe [Squamish, Squaxin, Tulalip]) or provide consumption rates for finfish and shellfish combined (EPA, 2013). See Attachment 3 to this Response to Comments.

#	Date	Commenter	Comment	Response
			the mean child:adult DCRs for fish and shellfish combined was 0.4 for both the tribal and angler populations (EPA, 2013c). The ratios ranged from 0.4 to 0.7 for the tribal populations and from 0.3 to 0.6 for the angler populations." This is inconsistent with our interpretation of the data for shellfish. EPA's EFH includes statistics for consumption rates of shellfish by children and adults that can be considered in estimating a DCR ratio for the UCR (EPA 2011). Shellfish consumption rates for members of the Suquamish, Squaxin, and Tulalip tribes from the EFH (EPA 2011; Tables 10-104, 10-108, 10-109 and 10-113 based on Duncan et al., 2000 and Polissar et al. 2006) are presented in [reference] and used to calculate a child:adult ratio for shellfish consumption. These rates are for consumers only. The ratios of the consumption rates for the Suquamish and Tulalip are equal to or less than 0.1, while median and 90th percentile rates for the Squaxin are 0.39 and 0.219, respectively. These data from Native American populations with good access to saltwater shellfish indicate children generally have much lower consumption rates than adults. Comparing shellfish consumption rates between children and adults for the U.S. population as a whole is consistent with the ratios reported for the Squamish, Squaxin, and Tulalip tribes. Based on an analysis of consumer-only shellfish intake from NHANES 2003-2006 data (presented in EPA 2011), the ratio of the mean shellfish consumption rate for children (13.3 g/day) to adults (41.9 g/day) is approximately 0.3. The ratio of the 95th percentile values (45 g/day and 138 g/day for children and adults, respectively) is also 0.3. Based on these statistics, a reasonable assumption for calculating a shellfish DCR for children (grams/day) is 0.1 to 0.3. This demonstrates that a ratio of 0.5 to estimate the DCR for children results in a substantial overestimate of exposure for children. In addition, this analysis suggests that exposures are also overestimated for children consuming other biota harvested in the UCR (e.g., upland game, birds, shellfish, plants). While the Section 4.4.5 (page 38) reports there is "some uncertainty" in applying the 0.5 ratio to estimate the child consumption rate, this section should include a discussion of the magnitude of possible overestimation of risks by selection of the 0.5 ratio. This discussion should also incorporate sensitivity analysis to compare risks using site-specific consumption rates versus the rates based on energy requirement ratios. Section 4.4.5 concludes with the statement that "The application of a single EER ratio to estimate DCRs for specific foods assumes that amounts of individual foods consumed by children and adults scale with EER." This is another significant source of uncertainty in the broad application of the EER approach. Further information should be provided to explore the uncertainty associated with variable	

#	Date	Commenter	Comment	Response
			consumption rates for different kinds of foods by children and adults. Substantial literature should be available to support such a discussion.	
42	7/24/20	TAI	5.4 Results and Risk Summaries for Non-Lead Effects Should Include COPCs and Reference Uncertainty Discussions We recommend that the Section 3 results and risk summaries in Section 5 on page 42 of Appendix 1 indicate which COPCs are applicable for exposure media identified as having elevated risks based on target organs. Links to discussions of uncertainties should also be added. Specifically, non-lead COPCs result in child hazard indices (HIs) >1 (by target organ) for soil/dust at two tribal allotments and for one plant category (spring beauty/Indian potato) based on thallium concentrations. As described in Section 2.3.1 above, the thallium RfD is not reliable and does not support a conclusion of unacceptable risk. Thus, we recommend adding ("thallium, see Section 2.3.1)" to the results sections (Section 3.2.1.1 for soil/dust, Section 3.2.1.10 for plants, and the relevant bullets on page 42 of Appendix 1 CHIRU). Similarly, the bullet on page 42 for fish risks should repeat the COPC statement in Section 3.2.5, i.e., "COPCs contributing the most to non-cancer risk were mercury, thallium, and TEQ." In addition to a reference to the Section 2.3.1 discussion about thallium, the summary should repeat and refer to the conclusion from page 168 of the HHRA that "Measured concentrations of COPCs in fish collected from the UCR are similar to concentrations measured in other locations in the northeastern portion of Washington and in Idaho."	Risk drivers can be added to Section 3 and Section 5. Relevant sections of the HHRA will be referenced and formally cited as appropriate in the uncertainty section of Appendix 1.
43	7/24/20	TAI	5.5 Cancer Risks in Fish Should Present Arsenic Risks Separately Appendix 1 Section 3.2.2.5 concludes that cancer risks for fish consumption are above EPA's acceptable cancer risk range, without any further discussion in either the results or the uncertainty section. The text should note that risks due to arsenic are all within EPA's acceptable risk range, with the highest estimate being 2 x 10-5, and that the elevated cancer risks are driven by organic chemicals, which are present in fish tissue at concentrations consistent with regional water bodies. This is especially important considering that arsenic is specifically called out in 9 of the 12 cancer risk results sections. The failure to specify the arsenic results in Appendix 1 Section 3.2.2.5 leaves the reader with the erroneous and misleading impression that arsenic is causing the elevated cancer risks. The risks attributable to arsenic should also be specified in the cancer risk summary bullet on page 42.	Text will be added to Section 3.2.2.5 and the cancer risk summary bullet on page 42 stating that cancer risks due to arsenic are all within EPA's acceptable risk range, with the highest estimate being 2×10^{-5}. The elevated cancer risks are driven by organic chemicals, which are present in fish tissue at concentrations consistent with concentrations in fish collected at other regional water bodies.

#	Date	Commenter	Comment	Response
Comments and Questions from Public Meetings and Citizens				
44	6/10/20	(b) (6) Citizens for a Clean Columbia (CCC)	Why has nothing been done to remediate Bossburg?	Our usual process requires that we complete the remedial investigation and subsequent feasibility study before making a final cleanup decision. The UCR investigation is still ongoing. For Bossburg, EPA and the National Park Service (NPS) decided in 2012 that closing the beach to public access was the best way to protect public health until a final cleanup decision can be made.
45	6/10/20	(b) (6)	Will risk assessment include probability and impact scoring so the public can see how mitigation plans are rationalized?	The risk assessment is not a decision document. The decision document comes later with the Proposed Plan and Record of Decision. What the risk assessment does is to compare estimated exposure and risk to health-based benchmarks. Benchmarks for lead and cancer risk are probabilistic.
46	6/10/20	(b) (6)	Slide 16 [of the public meeting presentation] did not show results for tribes. Could you discuss how those compare, since it includes workers and recreation and residents?	This webinar was focused on results to the exposure groups evaluated in the primary risk assessment. Tribal population and high natural resource users are included as appendices in the risk assessment. For example, the current draft includes an appendix for the Colville Tribe high resource user. We are also working with the STI on a Spokane Tribal appendix. These are being completed separately because fish ingestion rates, locations and other factors differs between these groups. Exposures to worker and recreators are acceptable except for Bossburg Beach, which has unsafe levels of lead and has been closed since 2011. The primary concern is lead exposure from ingesting soil by young children in residential areas of the site.
47	6/10/20	(b) (6)	Do these data imply that the soils could be even higher (in lead) in Canada?	The UCR HHRA is limited to properties within Washington State. Sampling was not conducted in Canada as part of this investigation.
48	6/10/20	(b) (6)	Is a map available for the beaches sampled that is similar to the upland soil data presented in slide 24 [of the public meeting presentation]?	The risk assessment does include a map with results from the residential beaches but does not include a summarized map of public beaches that were sampled. EPA will develop one to share with the Lake Roosevelt Forum (LRF).
49	6/10/20	(b) (6)	Which pathways are causing the most risk? Fish consumption vs. soil and sediment exposure?	Young children are generally the most sensitive to risk from lead in residential soil, which is why we focus on that exposure group. While fish is part of a healthy diet, consumers should follow the fish consumption advisory (FCA) issued by the DOH. Risks are proportionally higher to members of the Colville or Spokane Tribes to the extent that they may eat more fish than others. Risks are low for recreators and workers. Risks to members of the Colville or Spokane Tribes are proportionally higher to the extent that they may eat more fish than others.
50	6/10/20	(b) (6)	Can you just give us a very simplified answer - are community members in danger from long term exposure?	The risk assessment compares the exposure and estimated risk from contaminants within the site to health-based benchmarks. There are areas of the site where these benchmarks are exceeded. Our primary concern is for young children exposed to contaminated soil, due to

#	Date	Commenter	Comment	Response
				their increased sensitivity to lead. Over the course of the investigation, removal actions were completed at the most contaminated properties with soil lead concentrations above 600 parts per million. EPA focuses on risk to preschool-aged children as they are the most vulnerable to lead. By being protective of this group, we also address risks to adults.
51	6/10/20	(b) (6)	You have focused primarily on lead; is cancer risk from ingestion of arsenic within acceptable cancer risk levels for tribal?	Update to webinar response: During the webinar, we answered in error, confusing arsenic risks from tribal plants with lead. Risks were estimated separately for the Colville and Spokane tribes of Indians. Arsenic is within acceptable EPA risk levels for the Colville and Spokane Tribes and residents. The following species of plants, collected from Tribal Allotments located near Northport, remain a potential concern for lead exposure, especially in children under the age of six (listed in decreasing order of lead exposure): • Black Tree Lichen • Spring beauty, known as Indian potato • Camas • Lomatium, also known as Indian parsley or biscuitroot • Sarvisberry, also known as service berry
52	6/10/20	(b) (6)	I was thinking of harvest of root plants.	Root plants sampled as part of this investigation were targeted close to Northport and Mitchell Road. The results do not necessarily imply that root plants are a problem further south. The CCT have prepared fact sheets to help summarize risks to tribal subsistence resource users. For information, please contact Cindy Marchand with the CCT: Cindy Marchand CERCLA Coordinator Office of Environmental Trust Colville Confederated Tribes 509.722.7618-Office (b) (6) -Cell
53	6/10/20	Dave McBride, DOH	Noted fish contaminant levels in the UCR vs mid-section; noted fish advisories. Fish in mid-section: higher levels	NA
54	6/10/20	Unidentified commenter	Regarding future generations: will fish ever be safe to eat without any advisories? Metals in Columbia system - is this going to resolve itself or will there always be advisories on fish?	Response provided by Dave McBride, Washington State Department of Health: "Well, it's likely that some of the contaminants do have half-lives in the environment, like PCBs), and I think we've seen if you look at Osprey eggs, where researchers have studied them and contaminant levels in osprey eggs, that we see levels of some of the organics, such as PCBs, have dropped significantly. The kind of plateauing

#	Date	Commenter	Comment	Response
				very low levels that may or may not impact fish advisories, it's a little bit harder to say with mercury because of the global distribution of mercury, we're still having increases of use of coal-fired power plants around the world, and as long as that's occurring, as long as that's increasing, we're likely to have more mercury deposition throughout the world."
55	6/10/20	Michelle, CCT Fish and Wildlife (F&W)	In what ways is EPA sharing information with public (like fish advisory)?	We work collaboratively with our project partners to produce materials and share the results of the investigations. Project partners include the CCT, the STI, the Washington State Department of Ecology (ECY), and TAI. We also work with the CCC and the LRF to share results and provide project updates.
56	6/10/20	Kay Morrison, EPA	Is fish advisory information given to people purchasing fishing licenses?	Response provided by Dave McBride, Washington State Department of Health: "Yes, we have worked with the Department of Interior on specific signage for Lake Roosevelt and we worked with the Colville Tribe on helping them develop a great calendar. I'm not sure if that's still in effect nowadays or not, but that was a great piece for getting the message out to tribal individuals. We have a web page and the mobile kind of app for fish advisories that includes the Upper Columbia Lake Roosevelt, so that's available, I know, on someone's smartphone if they wanted to check that out as well."
57	6/10/20	***(b) (6)*** CCT F&W	Is fish advisory information Posted on DOH facebook page?	Response provided by Dave McBride, Washington State Department of Health: "You know, I don't believe we have this on the Department of Health Facebook page, but I could check into that in the future. And there's a cost associated with them printing out that calendar. I love those, but they don't do them anymore and I've been asking about that as well, but anything that we can easily share to community members."
58	6/10/20	***(b) (6)*** CCC	Newsletters are prepared by Lake Roosevelt Forum (LRF) and CCC that also try to keep people informed; and the LRF conference.	NA
59	6/10/20	***(b) (6)*** CCC	CCC has a facebook page as well.	NA
60	6/10/20	***(b) (6)*** LRF	Next LRF conference is April 2021. The Forum will also put out a public guide summarizing the HHRA.	NA
61	6/10/20	***(b) (6)*** Ramboll	As an FYI for Dave McBride: WA Dept of Fish & Wildlife has a "Fish WA" app containing fishing regulations and also links to DOH website for fish consumption advisories.	NA

#	Date	Commenter	Comment	Response
62	6/16/20	(b) (6) (CCC) and (b) (6) (LRF)	Prepare a map of all public beaches to highlight Bossburg as the only area above our recreational risk thresholds.	Ok; new map was drafted for Section 5 of the HHRA showing public beach results for lead (not including fish consumption).
63	6/16/20	(b) (6), LRF	Prepare a soil results map, similar to Slide 24 in our presentation, but add and highlight properties addressed by the time critical removal actions (TCRAs) to better depict the pattern of aerial deposition/soil contamination. This may require a note to clarify that the areas have been cleaned up. I expect the "circles" may need to be large to meet privacy requirements.	EPA cannot map the TCRA locations due to privacy concerns.
64	6/16/20	(b) (6) LRF	Modify Table ES-1 to add a new second row to summarize the soil results without fish consumption. The "no fish" row should precede Burbot, the first species listed.	Table ES-1 was modified as requested.
65	7/1/20	(b) (6)	I attended the first online conference and thought your team did an excellent job on the presentation. I have a couple of questions. WRT lead benchmarks for recreational visitors to public beaches (slide 16), what is the difference between sediment and soil? How would I identify these on a beach where the water level may differ by tens of feet annually? What is a relict floodplain and where are they located? It seems that with the wide variation in the lead benchmark at public beaches, the medium and high risk areas should be differentiated and noted by signs or maps for the public's edification. Just my $0.02.	Regarding lead benchmarks for recreational visitors to public beaches, although we estimated risks using recreational EFs, the benchmarks on slide 16 are based on full-time residential use by young children. The concentrations don't distinguish between soil and sediment. We sampled public beaches during drawdown to maximize the sampling area. Residential beaches were generally sampled during the summer. Relict floodplains, as described in Section 2.6.2.5 of the HHRA, are areas that may have been flooded under past UCR flow conditions but are not expected to be inundated under current pool level management controls. As such, exposure to surface soil ("beach soil") samples collected from these areas was evaluated as exposure to soil. The relict floodplain is the delineated area between high-pool seasonally inundated lands and the maximum pre-1973 strandline. The five largest relict floodplain areas (ranging from 0.13 mi^2 to 0.42 mi^2) are located near Northport, Washington and were targeted for sampling in 2014. Because of lack of access, no samples were collected from one of the five relict floodplains (RFE), and not all targeted samples were collected from RFB, RFC, and RFD. They are shown in Figure 2-9 of the HHRA. All of the public beaches exceeded the lowest lead benchmark (50 ppm) and only Bossburg Flats exceeded the highest benchmark (400 ppm). All of the other beaches exceed the middle benchmark (200 ppm).

#	Date	Commenter	Comment	Response
66	7/15/20	(b) (6)	What sort of data has been collected from the border? By who?	The current Draft HHRA uses air monitoring data from the Sheep Creek monitoring station, which was located north of Northport and operated through 2009. EPA has also reviewed more recent data from the Columbia Gardens air monitoring station, which is part of a network of monitors located in British Columbia (B.C.) Canada and operated by Teck Metals. Recent evaluation of the Columbia Gardens data confirms that decreases in metals concentrations occurred with emission reductions from the Trail Facility. The Sheep Creek monitor was discontinued when those levels plateaued back in 2009. The Columbia Gardens data further confirms that decreasing trend. EPA's evaluation of the Columbia Gardens dataset and subsequent discussion have been added to Section 6 of the HHRA.
67	7/15/20	(b) (6)	Why is there not a data monitoring program in place? (for air) Why is there not a current air monitoring network in the US?	We received a community petition in 2017 requesting ongoing air monitoring. Based on analysis of the Sheep Creek data, EPA determined that airborne concentrations were below regulatory thresholds and demonstrated a decreasing trend leading up to 2009 when the monitor was decommissioned. The observed decrease in airborne concentrations coincides with facility enhancements made by Teck in the early-mid 2000s at the Trail Facility in Canada. Data collected from the Columbia Gardens monitor through 2015 indicate that the decreasing emissions trend continued past 2009. EPA has determined that data collected from the Sheep Creek and Columbia Gardens stations are sufficient to estimate current air exposure conditions in the HHRA. Ongoing air monitoring falls outside the scope of the Remedial Investigation and HHRA.
68	7/15/20	(b) (6) CCC	Would the smaller particles from the newer stacks be expected to travel further away from Trail?	Yes, smaller particles do have the ability to travel further. For example, a monitor directly next to a smokestack might not capture finer particles. Air modelers within EPA's Air Program have evaluated data from the Canadian network of air monitors and conducted dispersion modeling to examine the distribution of concentrations along the path of the plume. We would expect the maximum surface concentration and deposition rate of the finer particles to occur before the smelter plume reaches the U.S. border. Therefore, pollutant concentration measurements taken within Canada provide a conservative estimate of concentrations at the border – we expect surface air pollutant concentrations from the smelter plume to be higher in Canada than the U.S. a great majority of the time, even with longer particle transport distances. Update to the Webinar Response: Based on evaluation of air monitoring data and the Washington State ECY 2017 report, "Preliminary Review and Evaluation of Available Air Quality Monitoring Data and Consideration of Potential Present-Day Health Risks" (Kadlec et al., 2017), EPA has concluded that

#	Date	Commenter	Comment	Response
				concentrations at the U.S. – Canada border can generally be assumed to be 80% of the concentrations measured at the Columbia Gardens site. Section 6 of the Draft-Final HHRA has been updated to provide further discussion of uncertainty regarding the predicted air EPCs.
69	7/15/20	(b)	How far south on the Columbia River have tests taken place? Has anything been found at the confluence of the Spokane River or down-river from there?	We have sampled water from the Columbia River, sediment, and fish from downstream of Canada to the Grand Coulee Dam. Sediment and river water are very clean downstream from Marcus, except for Bossburg Flats. Concentrations of contaminants in fish were averaged across the entire site because fish and people who consume them are mobile. Most of the work was sampled in 2009 to 2011. Hatchery Sturgeon and northern pike were sampled in 2016 and 2018, respectively.
70	7/15/20	(b) (6)	When will fish be re-evaluated for metals? It's been some time now since those first rounds were conducted.	There are currently no plans to do additional fish tissue sampling as part of the HHRA. EPA collected different species in different years. The data for Northern Pike and Sturgeon are more recent. Primary fish species were sampled twice; first by EPA in 2005, and for a longer list of analytes in 2009. Hatchery Sturgeon and northern pike were sampled in 2016 and 2018, respectively. Studies indicate steady concentrations or slow declines in mercury and larger declines in furans.
71	7/15/20	(b) (6) CCC	There were a few questions from the first webinar not answered – when can we expect those answers?	Answered by EPA
72	7/15/20	(b) (6)	Does the State of Washington plan to conduct air monitoring?	We are not aware of any State-led air monitoring efforts focused specifically on the UCR area at this time.
73	7/15/20	(b)	Is there going to be more information at a later date or is this investigation over?	The HHRA is a milestone in the overall Remedial Investigation, which is still ongoing. The Baseline Ecological Risk Assessment (BERA) is another part of the study and we expect to complete it by 2023. Information from the BERA will be combined with the HHRA in the final Remedial Investigation Report.
74	7/22/20	(b) (6) (see Attachment 4 of this Response to Comments for original letter)	The draft document represents the risk assessment as an "on-going" assessment, yet EPA have made final decisions regarding No Further Action with regards to fish sampling and has made the determination to not link the Ecological Risk Assessment to this Human Health Risk Assessment- artificially dividing an indivisible environment, a clear example of "silo science." This flaw in the Superfund "process" must be addressed at this site. While we have tribal data about uses, the river system is complex. There has not been robust work, if any work conducted on the Ecological Risk studies to understand the Nature and Extent of contamination, the fate of metals and other hazardous substances transported in the system. These factors and perhaps others may impact toxicity of tribal resources at any time.	The HHRA is part of the ongoing Remedial Investigation that is being conducted by EPA and Teck. The BERA is also part of the Remedial Investigation and is currently ongoing. The BERA includes sediment sampling and facies mapping to better characterize impacted areas of the riverbed and potential ecological impacts. The project teams working on both the HHRA and BERA are in regular communication to ensure close coordination between the two reports. The HHRA uses fish tissue data from samples that were collected in 2005, 2009, 2017 and 2018. EPA has determined that these data are sufficient for the purposes of estimating risk from fish ingestion in the HHRA.

#	Date	Commenter	Comment	Response
			Teck is an operating lead/zinc smelter just north of the border. In the upper portions of the River, sediments have the potential to move continuously between accumulation zones. Unknown hazardous substances potentially in the sediments and current discharges from the facility have the potential to impact the Citizens of the watershed. Tribal people and resources are inextricably woven together.	
75	7/22/20	***(b) (6)***	The background/summary of the draft document is somewhat sanitized. The draft fails to fully describe that the site is located on the Colville Indian Reservation, within former reservation lands, and within our aboriginal territory. A more complete description of the site which includes the Tribes territory within the site is suggested. Reference the UCR Work Plan 2006. In addition, in the history/background Section, describes that EPA began work at the site. It was the Colville Tribes who petitioned the EPA, which started the EPA investigation.	The following additional text will be added to be beginning of the second paragraph of Section 1.1 of the main report: "In August 1999, the Colville Confederated Tribes petitioned EPA to conduct an assessment of the UCR. The petition expressed concerns about risks to people's health and the environment from contamination in the river. In December 2000, EPA completed a preliminary assessment (E&E, 2000), which indicated that further data collection was warranted. In 2001, EPA conducted an expanded site inspection and collected sediment samples to learn more about the types and amounts of pollution present (EPA, 2003a). The results showed that contamination was present and that an RI/FS was warranted." The following additional text will be added to replace the paragraph on page 9 of the CHIRU appendix that starts, "The Colville Indian Reservation was established...: "The Colville Reservation was created by executive order in 1872; the Spokane Reservation was created by executive order in 1881. Portions of the UCR Site are located within the Colville and Spokane reservations. The present boundaries of the Colville Reservation include approximately 1.4 million acres (2,100 square miles), including northern and western shorelines of approximately 93 miles of the UCR extending upstream from Grand Coulee Dam (Map 2-1 in SRC [2009]) (CCT, 2008). The original north boundary of the reservation was the Canadian border; this former "North Half" of the Colville Indian Reservation continues to be an important homeland to the CCT. The CCT exercises certain management and regulatory authority in this area from the northern boundary of the current reservation north to the Canadian border, bounded by the Okanogan and Columbia rivers. CCT-owned land and individual tribal members reside on the North Half and use the lands, waters, and natural resources for cultural and subsistence uses as they do on the reservation. In Antoine v. Washington, the Supreme Court affirmed the Colville Tribes' rights to hunt and fish on the North Half (Alexander Antoine v. State of

#	Date	Commenter	Comment	Response
				Washington 420 US 194. 1975). The total population of the Colville Reservation in the year 2000 was estimated to have been approximately 7,600 people (Washington State Office of Financial Management [OFM] 2006)." <u>Pasted from the RI Work Plan</u>: The Site is located wholly within the state of Washington and consists of the areal extent of hazardous substances contamination in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake (Lake Roosevelt), from the Grand Coulee Dam to the U.S.-Canada border (Map 2-1), and all suitable areas in proximity to such contamination necessary for implementation of response actions. This encompasses a river reach extending approximately 150 miles downstream of the U.S.-Canada border. The Site includes land and waters within the boundaries of the Colville Indian Reservation and the Spokane Indian Reservation, over which the Tribes have civil regulatory jurisdiction, as well as land and waters administered by the National Park Service and the Bureau of Reclamation within the U. S. Department of the Interior (USEPA 2006a). The construction of Grand Coulee Dam, a federal reclamation project, was completed in 1940 on a portion of the Columbia River that forms the southern boundary of the Colville Reservation (DOI 1977). A multi-purpose project, it provides flood control, irrigation, hydropower production, recreation, stream flows, and fish and wildlife benefits (USEPA 2003a). Located immediately behind the Grand Coulee Dam is Lake Roosevelt, a large reservoir extending approximately 133 river miles north of the dam at full pool6 and bordered by over 600 miles of shoreline, approximately 312 miles of which are part of the Lake Roosevelt National Recreation Area (LRNRA) (NPS 2006a; USEPA 2003a). <u>From the 2006 Settlement Agreement</u>: 1. This Settlement Agreement ("Agreement") is made and entered into by the United States, on behalf of the US. Environmental Protection Agency ("EPA"), and by Teck Cominco American Incorporated ("TCAI") and a separately incorporated affiliate, Teck Cominco Metals Ltd. ("TCM"), which is a Party to this Agreement solely for the limited purposes set out herein (collectively, the "Parties"). This Agreement concerns the Upper Columbia River Site ("Site"), which consists of the areal extent of hazardous substances contamination within the United States in or adjacent to the Upper Columbia River, including the Franklin D. Roosevelt Lake ("Lake Roosevelt"), from the border between the United States and Canada downstream to the Grand

#	Date	Commenter	Comment	Response
				Coulee Dam, and all suitable areas in proximity to such contamination necessary for implementation of the response actions described below. The Site may include land and waters within the boundaries of the Colville Indian Reservation and the Spokane Indian Reservation, which the Tribes have civil regulatory jurisdiction, as well as land and waters administered by the National Park Service and the Bureau of Reclamation within the US. Department of the Interior ("DOI"). The Parties enter into this Agreement to provide for the implementation of the activities described herein at the Upper Columbia River Site. 2. On December 11, 2003, EPA issued a Unilateral Administrative Order ("UAO") under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), directing TCM to perform a Remedial Investigation and Feasibility Study ("RI/FS") at the Site. The United States contends that discharges from the Trail Smelter, situated approximately ten (10) river miles north of the U.S.- Canada border, have contributed to releases of hazardous substances, as defined in CERCLA, at the Site. The United States acknowledges that other entities may have contributed to releases of hazardous substances at the Site. While TCM and TCAI deny that they have liability under CERCLA for the Site, TCM and TCAI have offered to enter into this contractual agreement with EPA to perform the tasks set forth herein.
76	7/22/20	***(b) (6)***	For many years prior to and after passage of relevant U.S. law enacted to protect the environment from polluters and pollutants, the federal government fell short in protecting lands and waters of the UCR, including several decades during which applicable, relevant and appropriate environmental laws and permits were being enforced elsewhere. The Colville Tribes and the State of Washington, through their litigation efforts in Federal Court determined that Teck is the responsible party and that Teck has strict joint and several liability for the pollution at this Site. This empowers EPA to ensure that a complete HHRA and ongoing monitoring of the condition and health of the system is conducted. In addition, Teck's discharges both permitted and uncontrolled, flow virtually unimpeded into the U.S. as EPA does not regulate the Trail facility, therefore day to day operations are not subject to U.S. regulatory frameworks. Teck's operations can, without notice or transparency change. Federal Indian Policy lays out the responsibility of the government in consideration of the Reservation Environment. EPA must honor, embrace and implement that policy. Tribal standards for the	EPA and Teck continue to work with both the CCT and the STI as key stakeholders in the UCR Site. This work includes routine meetings along with other stakeholders, and funding for participation costs by Teck through EPA cooperative agreements. Consistent with the National Oil and Hazardous Substance Contingency, applicable or relevant and appropriate requirements (ARARs) will be considered prior to issuing a Record of Decision regarding remedial action taken at the site.

#	Date	Commenter	Comment	Response
			protection of tribal resources must be recognized and achieved. A plan should be laid out in the HHRA on how EPA will honor this policy with regards to on-going understanding, resource protection and clean up at the UCR.	
77	7/22/20	(b) (6)	Fish Sampling: A schedule to conduct fish sampling and identify data gaps must be developed and included in the Draft HHRA. To simply trust that "trends" indicate fish are safe to eat is not adequate for our tribal citizens, nor do they support future tribal uses. I recommend that a fish monitoring program be established as long as the industry continues to operate and discharge to the Columbia River. If the EPA is not interested in conducting this work, this could be conducted by one or more of the government parties equipped to undertake the task in coordination with the government parties and adequately and fully funded by Teck.	Fish tissue samples were collected in 2005, 2009, 2017 and 2018. These data were used in the HHRA to estimate concentrations of contaminants of potential concern from consuming fish among each of the exposure groups evaluated in the risk assessment. EPA determined that the data collected were robust and representative of successive species, and sufficient for the purpose of conducting the HHRA. The chemicals responsible for most of the human health risks of consuming fish include polychlorinated biphenyls (PCBs), furans, and mercury. These chemicals are ubiquitous (i.e., present everywhere) in the environment and similar to levels found in other fish in western Washington. PCBs were banned in the U.S. in 1979 and concentrations of this and other contaminants appear stable or possibly decreasing slowly over time. Washington State monitoring results for mercury and other pollutant trends in the UCR are expected to be consistent with other fish in the region (Mathieu et al., 2013). In the 1990s, PCB levels appeared stable, while mercury and furan levels decreased. The furan decreases were attributed to process improvements at a Canadian pulp mill in Castlegar (Munn and Council, 2000).
78	7/22/20	(b) (6)	During the webinar, EPA stated that the EPA expert has conducted a review of air monitoring data. This was conducted based upon a few years of data obtained from the State near the border and with other B.C. data, the conclusion being that all is well with the air in the US. EPA's experts should acknowledge the reality that conducting a review with inadequate data is not an adequate review. I have been unable to find the report and accompanying "current" data supporting EPA's conclusion. The review is not adequate for tribal citizens who have tribal lands near the border, nor should it be that any citizens of the watershed rely on only a few years of data that does not incorporate current conditions. An air monitoring network should be established with an adequate number of monitors to assure a clear determination supported by current and future data. This network should be established via a work group of the government parties and a citizen representative (or more). We were promised a few years ago this would happen, but it was ignored.	Outdoor air EPCs in the HHRA are based on data obtained from 2002 to 2009 at the Sheep Creek air monitoring station located just north of the Town of Northport, Washington. Due to concern that these data may underestimate air concentrations closer to the U.S. - Canada border, EPA evaluated concentrations from the Columbia Gardens Air Monitoring Station, located approximately 5 kilometers north of the U.S. – Canada Border. EPA also evaluated an analysis of air monitoring data conducted by the Washington State ECY in the 2017 report, "Preliminary Review of Evaluation of Available Air Quality Monitoring Data and Consideration of Potential Present-Day Health Risks: Upper Columbia River valley, near Northport, Washington" (Kadlec et al., 2017). Methodology from the ECY report was used to derive estimated concentrations at the border from data collected at the air monitoring station. The Columbia Gardens monitoring data covered years 2012-2014. The adjusted border concentrations are approximately 80% of those recorded at the Columbia Gardens monitor when accounting for the additional travel distance.

<table>
<tr><th>#</th><th>Date</th><th>Commenter</th><th>Comment</th><th>Response</th></tr>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><th>Air pollutant</th><th>Statistic</th><th>2012-2014 Columbia Gardens site conc (µg/m^3)</th><th>Estimated conc at the border (µg/m^3)</th><th>ECY 2017 (predicted Northport average)</th><th>HHRA Conc (µg/m^3)</th></tr>
<tr><td>Lead</td><td>Mean</td><td>0.057</td><td>0.050</td><td>0.029</td><td>0.0233</td></tr>
<tr><td>Arsenic</td><td>95th UCL Mean</td><td>0.005</td><td>0.004</td><td>0.003</td><td>0.0059</td></tr>
<tr><td>Cadmium</td><td>95th UCL Mean</td><td>0.003</td><td>0.002</td><td>0.001</td><td>0.002</td></tr>
</table>

The lead concentration at the border is approximately twice as high as the value used in the risk assessment 0.05 versus 0.0233 µg/m^3, but remains a low value compared with the EPA National Ambient Air Quality Standards (NAAQS) of 0.15 µg/m^3. More recent concentrations of arsenic at the border have decreased and cadmium is the same concentration. This analysis and the analyses from ECY support the conclusion that metals in air remain safe for people to breathe (Kadlec et al., 2017).

The Draft HHRA report has been updated to reflect this analysis with additional discussion of impact of using the estimated concentrations at the border included in the Uncertainty Analysis in Section 6.
</td></tr>
<tr><td>79</td><td>8/10/20</td><td>***(b) (6)*** (see Attachment 4 of this Response to Comments for original letter)</td><td>I will limit my critique of the health study to air monitoring as I feel this is of more immediate concern since the stopping of all meaningful monitoring of trans-boundary air emissions from the Teck smelter. Leaving we residents of the U.S. Upper Columbia River Valley to be protected only by biased monitoring by the polluter or by B.C. Environment who has demonstrated a protective bias for the polluter in air monitoring and granting of variances over the years.
There is need for a permanent PM2.5 air monitoring program to protect our health conducted by our government for U.S. Territory due to past history of the Trail smelter who has had an absolute disregard for, in fact deliberately, polluted our Upper Columbia River and valley for a century. Their pollution history has been one of avoidance, falsehood and fraud which I will substantiate later. This is why we cannot let the fox guard the chicken house. I recommend the following:
<u>First</u>, due to the smaller size of the air particulates emitted by the Kivcet Smelter, the lighter particles will probably travel further so a larger test area be sampled in a pilot program.</td><td>We know the additional controls installed at the smelter have resulted in a significant decrease in the amount of larger PM10 particles emitted such that the majority of particles still emitted are in the PM2.5 size range. There has not been an increase in PM2.5 particles emitted, but the fraction of total particles emitted in the PM2.5 range has increased. Note the “PM10” range of particles also contains much of the particles in the PM2.5 size range since PM10 is all particles of 10 micrometers and smaller in diameter.</td></tr>
</table>

#	Date	Commenter	Comment	Response
80	8/10/20	(b) (6)	Second, PM 2.5 monitors must be used to accurately measure the pollutants. This monitoring size must also be used in the permanent phase as the smelter particulates have been proven to be more hazardous than PM10 can detect. This is evidenced by PM.5 advocacy by the World Health Organization and lesser levels of Govt, including Wash. State (Attachment 5 exhibit #1) for the monitoring for Human Health.	EPA examined the 2014-2016 Columbia Gardens monitoring record to estimate PM2.5 impacts. Only PM10 (not PM2.5) was measured at the monitor during the campaign. However, the PM10 measurement would contain the majority of the PM2.5 particle mass. Therefore, a highly conservative estimate of PM2.5 impact can be made using PM10 as a proxy and assuming all PM10 is PM2.5 (that is, all particle mass measured in the PM10 measurement is assumed to be in the PM2.5 size range of 2.5 micrometer diameter and below).
81	8/10/20	(b) (6)	Third -once the geographic area is determined it is important that one of the permanent monitors be placed adjacent to the U.S.-Canada Border in U.S. Territory for only then can it be determined if our sovereignty is violated and if Article IV of the Boundary Waters Treaty of 1909 has been violated. The Trail Smelter's monitoring history has shown it to be self-serving.	In addition to using data from the Sheep Creek Monitoring Station outside of Northport, EPA is able to use the Columbia Gardens dataset to estimate concentrations at the U.S.-Canada border, which are about 80% of the concentrations measured at Columbia Gardens, by applying concentration gradients determined by ECY (Kadlec et al., 2017). EPA estimated the 3-year average annual concentration of PM10 at the U.S.-Canada border to be 12.2 $\mu g/m^3$. This value just slightly exceeds the annual PM2.5 NAAQS of 12.0 $\mu g/m^3$. If all PM10 mass is assumed to be PM2.5, then the annual PM2.5 NAAQS is just slightly exceeded at the border. However, this assumption is highly conservative, so it is highly unlikely PM2.5 annual NAAQS is exceeded at the border. Given smelter emissions have not increased since the 2014-2017 period, we assume that impacts due to the smelter at the border do not exceed the annual NAAQS. EPA also estimated a 24-hour PM2.5 design concentration at the border, assuming all PM10 was PM2.5 during the 2014-2016 period. The design concentration (3-year average of 98th percentile of 24-hour average values) was 26 $\mu g/m^3$, which is well below the PM2.5 24-hour NAAQS of 35 $\mu g/m^3$.
82	8/10/20	(b) (6)	Fourth – The U.S. is a world power, not some 3rd world Banana Republic. As such we should be able to conduct our own monitoring and not depend on a foreign nation and its cooperation to protect our border. Proposed monitoring is inane.	Our current conservative estimates of PM10 impacts at the border give us high confidence that concentrations of PM2.5 are at or below annual the NAAQS. These estimates, using monitoring from the 2014-2016 period, are likely valid given emissions from the smelter have not increased. The evidence does not support the need for continued air monitoring at the U.S.-Canada border for the purpose of the HHRA. While outside the scope of the UCR HHRA, EPA agrees that it would be reasonable, however, to deploy a network of low-cost consumer-grade PM2.5 sensors to provide additional assurance to nearby communities. Regulatory agencies have been deploying networks of these low-cost sensors as screening tools to identify areas of air quality concern. Found to be reasonably accurate and dependable, they can be used to identify candidate areas for

#	Date	Commenter	Comment	Response
				deployment of regulatory monitors when air pollutant concentrations of concern are found. EPA will continue to work with Stakeholders to explore potential programs or separate funding resources that may be available to support the deployment of such monitors.
83	8/10/20	(b) (6)	Fifth – Permanent border monitoring is necessary as the Trail smelter has a history of unethical monitoring practicing avoidance, untruthfulness and sophisticated cheating. 1. Avoidance – of meaningful air monitoring. - In the Trail smelter case our government wanted the tribunal mandated air monitor in the U.S. to be on the Gunderson farm, well within the determined 6 mile heavy fallout area south of the border. Cominco objected so this monitor was sited near Northport approximately 10 miles south of the border outside this heavy fallout area. 2. Avoidance and Untruthfulness – In the Phase IV WA DOE monitoring plan, a joint effort by DOE and Cominco to each simultaneously monitor air pollution in the heavy fallout zone during the final phase of the old smelter and then monitor the replacement smelter, Cominco failed to activate the electricity for the monitors until after the old smelter shut down. A period of delay longer than it takes normally to activate a new electrical installation. - In addition the Bennich Farm occupants offered to supply electricity from their source well before the old smelter shut down. Thus Cominco avoided monitoring their old smelter air pollution in the heavy fallout zone and then was untruthful about their ability to obtain electricity to monitor pollution. - Unfortunately this incident reflects on the conduct of WA DOE in failing to properly oversite the Bennich incident and is typical of DOE's conduct bordering on nonfeasance. - This type of DOE conduct typical of an earlier Phase II air monitoring incident at the northern ranch where DOE malpositioned the air monitor to the trunk of a tree below its branches when nearby clear area was available. This was in the heavy fallout zone close to the border. After this air monitor's pollution readings were higher than all other Phase II monitorings, DOE stopped and removed this monitor because it was malpositioned (by themselves). Then they disallowed it findings. - During the Phase IV air monitoring search for a site, a stop was made at the tribunal mandated Northport Cominco monitoring site. I pointed out to the DOE person in charge of site selection the violation of the adjacent trees being too close to the	Historic compliance with tribunal mandates for air monitoring are outside of the scope of the UCR HHRA. Actions taken by the Department of Energy (DOE) in relation to the referenced Phase II Air Monitoring incident are also outside the scope of the HHRA. The HHRA report is limited in scope to data and evaluation necessary to estimate risks to human health from current potential exposures. For this purpose, data from only the Sheep Creek and Columbia Gardens Monitoring Stations were used. Concerns regarding the positioning of these air monitors may affect EPCs used in the HHRA. To further evaluate these concerns, EPA requested and reviewed aerial photographs and supplemental location information provided by Teck for the Sheep Creek and Columbia Gardens Monitoring Stations during the periods in which data have been used in the HHRA (2002-2009 and 2012-2014 for each station, respectively). For the Columbia Gardens Monitoring Station, this included the monitor location following relocation in 2011. Based on this review, EPA has concluded that it is strongly unlikely that vegetation inhibited monitor performance to the extent needed to impact results in the HHRA. Furthermore, the relative exposure contribution from air inhalation in the HHRA is well below screening levels. The ratio of screening levels to the estimated EPCs for the highest air-born contaminants of potential concern are as follows: Arsenic 2.6 Cadmium 5.2 Lead 6.4 Arsenic is the "worst case," meaning that our estimated EPC would need to be off by a factor of 2.6 in order to equate to an HQ of 1. Currently, it's a level where its risk and exposure are equivalent to background levels of As in soil. For cadmium and lead the ratios are twice as high. The estimated EPCs could increase by a factor of 5 or 6, respectively, before hitting the screening value (see table below).

<table>
<tr><th>#</th><th>Date</th><th>Commenter</th><th>Comment</th><th>Response</th></tr>
<tr><td></td><td></td><td></td><td>monitor and he dismissed my complaint as it was not his responsibility.
- Above negative past conduct was administrative inspired and does not present the conduct of today's DOE employees or my evaluation of them which is good, but there still appears to be a lack of initiative by DOE to protect us and the navigable Columbia River and Valley from transboundary pollution. See Attachment 5 exhibit # 4 for Bennich, and exhibit #5 for Northern malpositioning of monitors by DOE.
3. Sophisticated cheating – aptly describes Cominco's operation of the TSC Tribunal mandated SO_2 air monitor at the Columbia Gardens monitoring site a few miles north of the US-Canadian Border. Because the International Joint Commission (IJC) required no physical onsite oversite Cominco was able to impede the polluted air flow into the air monitor intake probe. This resulted in the unclear recording of the pollution content of the air at the site. This impedance was caused by Cominco allowing a tree to flourish extremely close and completely obstructing the probe. The resulting lower toxic SO_2 readings allowed Cominco to exceed regime pollution allowances and thereby increase profits for approximately a half century.
- This monitor was directly connected by wire to the smelter smoke control room and had the ability to directly control smelter pollution by decreasing or ceasing production.
- As per the tribunal mandate this monitor site was visited monthly by a smelter employee who removed the recorded data which was sent to the IJC for review.
- So Cominco had what amounted to a monthly inspection of the monitor site, and an opportunity to evaluate the condition of same.
- There were a multitude of additional air monitor siting requirements according to B.C. siting guidelines which also added to the underreporting of pollution. This all adds up to deliberative gross negligence, a technical term for cheating (see Attachment 5 exhibit #3).</td><td><table><tr><th>Analyte</th><th>EPC in HHRA (µg/m^3)</th><th>Lowest Screening Value (SV) (µg/m^3)</th><th>Ratio of EPC/SV</th><th>Ratio of SV/EPC</th></tr><tr><td>Arsenic</td><td>0.0059</td><td>0.0156</td><td>38%</td><td>2.6</td></tr><tr><td>Cadmium</td><td>0.00201</td><td>0.0104</td><td>19%</td><td>5.2</td></tr><tr><td>Lead</td><td>0.0233</td><td>0.15</td><td>16%</td><td>6.4</td></tr></table>Note: Screening values for arsenic and cadmium from the EPA Regional Screening Level (RSL) calculator assuming an HQ of 1; screening value for lead is from NAAQS.</td></tr>
<tr><td>84</td><td>8/10/20</td><td>(b) (6)</td><td>4. A similar but lesser negligent condition existed at the tribunal mandated Northport site. The results of this site were not electrically connected to the smelter smoke control room, a stand-alone monitor. This site also visited monthly by a smelter employee and SO_2 air monitor results collected and sent to the IJC for evaluation. Again an opportunity for an onsite inspection. The probe location of this monitor in violation of EPA Regulations and the close proximity of trees were in</td><td>EPA's review of air monitor locations for the Sheep Creek and Columbia Gardens stations concluded that the observed proximity to vegetation is highly unlikely to result in an underreporting of concentrations to the extent needed to impact the relatively low contribution of air inhalation in the HHRA (see response above). Furthermore, uncertainty in air EPCS used in the HHRA is mitigated by using the larger data range for the Sheep Creek Monitoring Station from 2002-2009, during which air concentrations have decreased (Figure 2-13 of the HHRA).</td></tr>
</table>

#	Date	Commenter	Comment	Response
			violation of both EPA and WA DOE regulations (see Attachment 5 exhibit #3). The site surveys were made by me in the 1990s as well as changing exposed filters and sending them for laboratory analysis for Ph II of several sites. This writer sent copies of Attachment 5 exhibits #2 and #3 to the IJC, the appointed oversight body. They responded stating they would take no punitive action as Cominco was installing the KIVCET system. In 2017 WA DOE made a review and evaluation of air quality re: potential health risks. Their conclusion was updated air quality monitoring is recommended. Arsenic and cadmium levels exceed WA. St. ASIL. Indium and thallium should be monitored (see Attachment 5 Exhibit #6). In the 1994 WA DOH study of airborne toxic metals at Northport Area and Trail, 57% of the Northport Results exceeded those of Trail. We are now supposed to rely on a Trail monitor which under reports? Page 31, Table 8. (see Attachment 5 exhibit #7).	EPA has reviewed the 2017 ECY Report, "Preliminary Review and Evaluation of Available Air Quality Monitoring Data and Consideration of Potential Present-Day Health Risks" (Kadlec et al., 2017). In 2018, EPA provided a response to the community petition for ongoing air monitoring which references the ECY report. In our response, EPA concluded that the Sheep Creek monitoring data were sufficient for purposes of the UCR HHRA. The basis for EPA's determination is explained in EPA's letter to the Petitioners, dated April 18, 2018 (EPA, 2018). In response to further concerns regarding the adequacy of data obtained from the Sheep Creek Station, EPA also evaluated more contemporary data from the Columbia Gardens Air Monitoring Station from 2012-2014. The Columbia Gardens Air Monitoring Station is located in Canada, approximately 7 miles from the Trail Facility, and is likely to overestimate exposure to US residents further from the facility. This evaluation has been added to Section 6 of the HHRA.
85	7/21/20	***(b) (6)*** (see Attachment 4 of this Response to Comments for original email)	21 years ago ***(b) (6)*** from the Colville Tribe came to a meeting of Citizens for a Clean Columbia and asked us to join in the RIFS and give our input in an issue that has affected many of our neighbors in the Upper Columbia. Our relationship over all those years with representatives from the EPA has not always been smooth and often we have felt left out of much of this convoluted process that seems to have no end. We have seen some of our members die of old age waiting for a resolution that seems so elusive and intentionally so. From the beginning we were approached by the EPA and offered the Technical Advisor position to represent our group and quickly realized that this had strings attached that we refused. For 3 years, back and forth with EPA trying to foist a TA connected to a handpicked choice by you and we refused and demanded that you accept our choice and told you that you could not attach our name to your pick. After 3 years and your realization that we would not concede you finally gave in. ***(b) (6)*** contribution has given you something that has given this process more credit than the EPA deserves. You have changed project directors so many times and every time we get someone that actually wants to do what the name EPA suggests, they get shunted off to some other project. 21 years! How many more? How long will this continue? Who or what are you actually protecting? Are you really protecting the environment or the people who live in it? Is this a game of last man standing? Simple solutions to not so complex	<u>On EPA staff turnovers</u>: EPA recognizes potential disruption caused by changes in staff. Unfortunately, staff retirements and subsequent reorganization have both contributed to personnel turnover since 2006. <u>On Air monitoring</u>: As part of the HHRA, EPA evaluated air data measured at the Sheep Creek monitoring station near Northport from 1999 to 2009. During this period, concentrations for each of the metals evaluated were observed at or below regulatory and risk-based thresholds. Measurements over this period demonstrate a decreasing trend of airborne contaminants, which is further supported by operational improvements made at the Trail Facility and subsequent air measurements (Figure 2-13 of the HHRA). The mean air concentrations from the Sheep Creek monitoring during 1999-2009 were presented in EPA's response to a community petition and are summarized below. • "Lead: The air concentration was 0.0233 $\mu g/m^3$, which is well below the levels expected to pose significant human health risks based on current understanding of relationships between air lead concentrations and blood lead concentrations resulting from direct and indirect exposures to airborne lead. • Arsenic: The air concentration was 0.00421 $\mu g/m^3$, which corresponds to a cancer risk of 2×10^{-5} (an increased risk of cancer of two in one hundred thousand for a lifetime exposure).

#	Date	Commenter	Comment	Response
			problems can easily be solved by sticking to things that will help us, but never seem to happen! Air monitors to ensure that Teck is not charging our air with toxics. Opening up the cleanup in Northport to give those properties that chose not to be tested previously to be tested. Actually doing a HHRA that includes the medical issues of Northport and surrounding areas. Being perfectly honest about my overall impression of the EPA and the HHRA, you are not protecting the environment. You are run by politics and the seesaw effects of the work done over the last 21 years says nothing more to me than job security. I hope to see a change in direction next January, but after 21 years, there's not much left in my tank!	For comparison, this is the same level of risk from naturally occurring arsenic in soil. • Cadmium: The air concentration was 0.00136 µg/m^3, which corresponds to a cancer risk of 2×10^{-6} (an increased risk of cancer of 2 in one million for a lifetime exposure). • Zinc: The air concentration was 0.0514 µg/m^3, which is well below all risk-based screening levels." On Opening up the cleanup in Northport: Current removal actions in Northport, Washington, are being conducted as follow-up to previous removal and assessment work conducted in 2004. At the time of the 2004 removals, EPA's threshold for TCRAs for lead was 1,000 ppm. The threshold for TCRAs has since been lowered to 700 ppm to reflect evidence of adverse health effects from lead exposure at lower blood lead concentrations. The ongoing work in Northport is being conducted through EPA's Removal Program. Actions taken by the removal program are prioritized and limited by program funding. The current removal actions are limited in scope to those properties that accepted voluntary sampling in 2003-2004 and exceeded the UCR site-specific removal action level for lead in soil of 700 ppm. On the HHRA including medical issues in Northport and the surrounding areas: We recognize and share your frustration with abnormally high incidences of Crohn's disease and Inflammatory Bowel Syndrome in Northport and surrounding areas. Unfortunately, we are limited by our current understanding of these diseases which have not been linked to the wide array of chemicals we have sampled in the UCR. Our risk assessment is based on established standards and methods which do not address epidemiologic data. We routinely review relevant studies as they are published and share information with the Agency for Toxic Substances and Disease Registry (ATSDR), Washington DOH, Dr. Mindy Smith, and the CCC. These studies evaluate genetic susceptibility and other factors unrelated to pollution, including smoking, diet, early childhood infections and antibiotic treatments and a general trend of increased urbanization. EPA has contacted the Crohn's Colitis Foundation and are following their ongoing research. We have spent years coordinating with the researchers and have been disappointed that they have never reported back to the community or published any results. Additional work falls outside of the scope of the UCR HHRA.
Comments Received on Appendix 2 (STI) (Note: Appendix 2 was under development and not included during the public comment period)				

#	Date	Commenter	Comment	Response
86	8/17/20	STI	Re: "Calculations for the STI population utilized exposure parameters provided to EPA by the STI to represent a traditional Spokane Indian subsistence scenario (STI Hazardous Substances Control Act [HSCA], 2006; STI Surface Water Quality Standards [WQS], 2010). EPA has no opinion on the scientific veracity of these parameters." (p. 1) Comment: It is unnecessary for the EPA to make the statement, "EPA has no opinion on the scientific veracity of these parameters." This statement is extraneous; the sentence before this statement provides sufficient information for the reader to understand that the STI exposure parameters came from the STI and not EPA. In addition, EPA's statement is incorrect with regard to the Tribe's 2010 water quality standard (WQS). EPA accepted the Tribe's 2010 WQS after its lengthy technical review (circa 2010–2013) process and consultation with the Tribe in accordance with Section 303(c) of the Clean Water Act, 33 U.S.C. 1333(c). Accordingly the Tribe's 2010 WQS have the legal status of federally approved water quality standards under the Act. It is difficult to imagine how EPA can take the position in this draft HHRA that it "has no opinion on the scientific veracity of these parameters" in the Tribe's 2010 WQS when, in fact, forming such an opinion would have been necessary for the Agency's acceptance of the Tribe's 2010 WQS pursuant to Section 303(c) of the Act. Moreover, EPA's statement is also inaccurate insofar the cleanup standards identified in the Tribe's 2006 Hazardous Substances Control Act (HSCA), Section 34-1.11, include the Tribe's current "Surface Water Quality Standards," which in this context are the Tribe's 2010 WQS. For all of these reasons, the Tribe strongly recommends that EPA strike from Appendix 2 the Agency's remark that it "has no opinion on the scientific veracity of these parameters."	EPA removed the referenced sentence.
87	8/17/20	STI	The soil samples used to calculate the EPCs for the Spokane Reservation are outdated and were not collected in areas near residences on the Spokane Reservation. The soil samples used to calculate EPCs on the Spokane Reservation are located near the Midnite Mine and not in areas near Tribal residences (Attachment 1). Additionally, these samples were collected in the 1970s and collected for the purpose of characterizing mineralized areas (see excerpt from Church et al., 2008). The text in Church et al. (2008) states: "Stream-sediment samples from Blue Creek upstream of the Midnite Mine tributary confluence, from Oyachen Creek, and from Sand Creek where they were not influenced by historical mining were pooled to calculate the premining geochemical background (table 23 and tables A20 and	The data provided by the STI were not sieved to <149 µm. For human health receptors, the DQO (see Attachment A of SRC [2014]) for solid media samples (including background) for the UCR site stipulates that samples be sieved to <149µm, since this particle size fraction sticks to a child's hands and best represents exposure (EPA, 2016). After an initial evaluation, these samples were determined not to be of the size fraction relevant to the UCR HHRA, and do not meet the DQOs for this human health risk assessment. Therefore, EPA did not incorporate the data into the human health background.

#	Date	Commenter	Comment	Response
			A21). Collectively, these sites constitute a geochemical background reference area (U.S. EPA, 2002)." We suggest that EPA consider using soil values that (1) are more representative of the residential soil, and (2) were collected more recently. In Table 1 we present some suggested EPCs that are more representative of current residential soil concentrations on the Spokane Reservation. These values come from two separate sampling efforts. One sampling effort, conducted by NewFields (2018) in 2017, includes surface soil samples from two parcels along the eastern edge of the reservation, near the town of Ford, Washington (Figure 1; exact sampling locations can be provided, if requested). The other sampling effort was conducted by the STI in 2011 (personal communication, Brian Crossley, STI, Water and Fish Program Manager, July 29, 2020). During this effort, STI collected six surface soil samples north and south of Wellpinit, Washington (Figure 2). The 2017 samples were analyzed for arsenic, cadmium, chromium, and lead (NewFields, 2018); while the 2011 samples were analyzed for lead (personal communication, Brian Crossley, STI, Water and Fish Program Manager, July 29, 2020). These soil data represent community residences in the eastern part of the reservation. There are also community residences located to the west of this area; however, there are no soil data available from areas near these western residences. We consider this a data gap in the background data for the STI.	
88	8/17/20	STI	Cadmium and copper were not included as COPCs for fish. However, if the STI consumption rate is used to identify COPCs, then cadmium and copper would be identified as COPCs. To determine COPCs for each medium, the Site-Wide HHRA lists three steps (see page 48 of the Site-Wide HHRA). For fish tissue, the Site-Wide HHRA indicates that cadmium and copper meet the criteria described in the first two steps, but do not meet the criteria outlined in step three (see Table 3-15 of the Site-Wide HHRA). The third step states: "Calculate medium-specific risk based screening levels (RBSLs) for each COI based on the exposure scenario that results in the highest exposure; remove any contaminant of interest (COI) with a maximum detected concentration that is less than the RBSL for that medium." The Site-Wide HHRA indicates that the exposure scenario used to calculate RBSLs for fish is the Tribal adult scenario (see table 3-3 of the Site-Wide HHRA). However, the consumption rate that was used to calculate RBSLs for the Tribal adult scenario was 33.5 g/day, which does not correspond with the highest fish consumption rate, which is the STI daily consumption rate of fish for adults and children of 865 g/day and 433 g/day, respectively. When	The COPC screen documented in the main HHRA report is applicable to both the CCT and STI evaluations. To remain consistent with the HHRA, the COPC screen was not changed in the revised version of Appendix 2.

#	Date	Commenter	Comment	Response
			either of these consumption rates are used in the RSL calculator, the maximum detected concentration of both cadmium and copper are greater than the RBSL for that medium. Therefore, both cadmium and copper meet the criteria outlined in step 3 for determining COPCs and should be classified as such. We only specifically reviewed EPA's calculations for copper and cadmium. It may be necessary for EPA to re-run the third step in this process for all constituents, given this issue.	
89	8/17/20	STI	The sections discussing the methodology and results of the IEUBK model are unclear and difficult to follow. The "Methodology of Lead Exposure Evaluation" section is unclear, especially in regard to how fish consumption is included in the model. In the Site-Wide HHRA, IEUBK batch mode outputs are presented in Appendix 5, and a similar approach should be taken for Appendix 2. By providing the text file or batch mode output for each run, both the methodology and input selection will be clarified	Batch mode results are provided as an attachment to the revised version of Appendix 2.
90	8/17/20	STI	In the "Lead Risk Calculations and Results" section, the values presented in the results table (Table 9 of Appendix 2) do not represent the values that are generated using the inputs in Tables 7 and 8 of Appendix 2. The inputs and/or results should be updated so that the values generated from the inputs in Tables 7 and 8 give the results shown in Table 9. In other words, Table 7 appears to be pulled directly from the Site-Wide HHRA and is not representative of the inputs to the STI IEUBK model. Comments and suggested edits for this table are shown in Table 2 in our comments.	Tables 7, 8, and 9 of the STI appendix were reviewed and updated so that the values generated from the inputs in Tables 7 and 8 give the results shown in Table 9.
91	8/17/20	STI	Mountain Whitefish and Lake Whitefish results are combined and presented as "Whitefish." Mountain Whitefish were generally found in the northernmost fish sample collection areas (FSCAs; FSCAs 1 and 2), while Lake Whitefish were generally collected in FSCAs 2–6. While, we understand that EPA collected Mountain Whitefish as a surrogate for Lake Whitefish when they were not available, there are differences in the preferred habitat of each fish species, which may impact concentrations of contaminants in fish tissue. Therefore, the STI would like to understand the risk associated with consuming each of these species individually.	There are 23 total whitefish samples (7 are mountain whitefish and 16 are lake whitefish). Metals and TEQ results are available for all samples, but only 9 samples were analyzed for Pesticides/Herbicides, polybrominated diphenyl ethers (PBDEs), and semi-volatile organic compounds (SVOCs)/polycyclic aromatic hydrocarbons (PAHs) (3 mountain whitefish and 6 lake whitefish). Discussion has been added to the revised version of Appendix 2, including a comparison of concentrations in mountain whitefish to lake whitefish.
92	8/17/20	STI	Re: Levels of lead in fish tissue. Comment: The results presented in Appendix 2 demonstrate that the fish from the Site exceed lead risk levels. The Tribe would like to understand how these results impact fish consumption. Do these results indicate that there should be a Tribal fish consumption advisory specific to lead?	HHRAs do not necessarily trigger fish advisories.

#	Date	Commenter	Comment	Response
93	8/17/20	STI	What outreach material is EPA intending to develop to present these results to the Tribal community? EPA should consider outreach materials through multiple media to ensure that the STI community is made award of the results of the HHRA, and the information should be communicated in plain language. This may include holding virtual public meetings, preparing fact sheets, and publishing information in the local newspaper. We understand that, due to concerns regarding COVID-19, EPA is currently conducting virtual public meetings. These type of meetings are not always effective for members of the Tribal community. Some members of the STI community have limited access to the internet and have difficulties attending a virtual public meeting, even if a phone line is available. Therefore, we suggest that EPA uses multiple tools to communicate the results with the Tribes. In addition to a public meeting, EPA could create fact sheets that are easy to understand and distribute these around the community. EPA could also provide information in the Tribal newspaper.	EPA will work with STI on risk communication.
94	8/17/20	STI	Re: "This appendix contains the HHRA for the STI population. This population represents residents of the Spokane Reservation who engage in a traditional lifestyle, obtaining most of their food by fishing, hunting, and gathering at the UCR Site." (p. 1) Comment: The analysis represents residents of the Spokane Reservation who obtain most of their fish from the UCR site. This analysis does not evaluate the STI exposure to hunting or gathering at this site. Therefore, this statement should be modified to reflect the analysis that was conducted in Appendix 2.	The statement on page 1 has been modified in the revised version of Appendix 2 as follows: "This appendix contains the HHRA for the STI population. This population represents residents of the Spokane Reservation who engage in a traditional lifestyle, obtaining most of their food by fishing~~, hunting, and gathering~~ at the UCR Site."
95	8/17/20	STI	Re: Figure 1. Tribal is used throughout this figure. In some instances, Tribal refers to exposures to both the STI and the CCT, but in other instances Tribal refers to exposures evaluated for just the CCT. Suggested edit: Replace "Tribal" with "CHIRU" in instances where only CCT are evaluated. This includes the grey boxes connected to the "Sweat Lodge Air," "Disturbed Surface Water," "Beach Sediment," "Mammals and Upland Birds," "Waterfowl," "Aquatic Plants," "Macroinvertebrates," "Amphibians/Reptiles," "Terrestrial Wild Plants," and "Terrestrial Cultivated Plants" boxes.	In the revised version of Appendix 2, "Tribal" has been replaced with "CHIRU" in instances where only CCT are evaluated. This includes the grey boxes connected to the "Sweat Lodge Air," "Disturbed Surface Water," "Beach Sediment," "Mammals and Upland Birds," "Waterfowl," "Aquatic Plants," "Macroinvertebrates," "Amphibians/Reptiles," "Terrestrial Wild Plants," and "Terrestrial Cultivated Plants" boxes in Figure 1 (Conceptual Site Model).
96	8/17/20	STI	Re: "The results in Table 9 indicate that for the Spokane Reservation, ingestion of fish from the UCR and incidental ingestion of soil and soil-derived dust exceeded risk benchmarks for lead as follows: Incidental ingestion of soil and soil-derived dust, in the absence of exposure from consuming fish from the UCR, did not exceed any risk benchmarks for lead." (p. 8). Suggested edit: Table 9 does not provide results for incidental ingestion of soil and soil- derived dust, in the absence of exposure	A "no fish" row of results has been added to Table 9.

#	Date	Commenter	Comment	Response
			from consuming fish from the UCR. The results of this analysis should be added to Table 9.	
97	8/17/20	STI	Re: "Child residents of the Spokane Reservation who are exposed to lead from consuming fish from the UCR and lead in soil on the reservation are likely to exceed the P3 risk benchmark." (p. 13) Suggested edit: This statement implies that only children (not adults) are at risk from lead when consuming fish. An earlier paragraph in the summary section states that "Risks from exposure to lead were assessed using the IEUBK model for children," thereby making it clear that the Adult Lead Model (ALM) was not used for this HHRA. Because it is possible that adults are also at risk of consuming fish contaminated with lead, we suggest that the ALM also be run. If not, a suggested edit for the statement above is provided here: "As stated above, risks from exposure to lead were only assessed for children. Child residents of the Spokane Reservation who are exposed to lead from consuming fish from the UCR and lead in soil on the reservation are likely to exceed the P3 risk benchmark." EPA should make this edit to all the statements in Appendix 2 that are similar to the one described above.	EPA has shared an analysis of adult risk from consuming fish from the UCR using the STI exposure factors.
98	11/25/20	STI	EPA added the following text to the STI Appendix: "The fish COI screen for the Site-wide HHRA was conducted using a fish consumption rate lower than that used by the STI. Use of the STI fish consumption rate may have resulted in identification of additional fish COPCs, including copper and cadmium. Including these COPCs would be unlikely to substantially change the results of the HHRA." (p. 6 of STI Appendix) Applying EPA's methodology and using the STI fish consumption rate, cadmium, copper, and zinc are in fact fish COPCs. Although the level of risk associated with these contaminants may not substantially change the results of the HHRA, they do expand the list of site contaminants contributing to risk overall, which is significant to STI Therefore, we request that EPA update this text. Suggested edit: "The fish COI screen for the Site-wide HHRA was conducted using a fish consumption rate lower than that used by the STI. Use of the STI fish consumption rate results in the identification of additional fish COPCs, including cadmium, copper, and zinc. Including these COPCs may have resulted in the identification of additional risk to the STI".	EPA modified the highlighted sentences as suggested with one edit to the last sentence as follows: "The fish COI screen for the Site-wide HHRA was conducted using a fish consumption rate lower than that used by the STI. Use of the STI fish consumption rate results in the identification of additional fish COPCs, including cadmium, copper, and zinc. Including these COPCs may have resulted in <u>a small amount</u> ~~the identification~~ of additional risk to the STI."
99	11/25/20	STI	Tables 7, 8, and 9 of the STI appendix were reviewed and updated so that the values generated from the inputs in Tables 7 and 8 give the results shown in Table 9. While Table 7 has been updated in the revised draft of the STI appendix, Tables 8 and 9 remain unchanged, and have not been updated. We wanted to make EPA aware that when we run the IEUBK batch mode analysis using the inputs in	After revision of Table 7, EPA evaluated Table 8 and found it to be correct. Table 9 was revised to be consistent with Table 7.

#	Date	Commenter	Comment	Response
			Table 7 and 8 we do not get the same results that are listed in Table 9. The values that we obtain in our analysis are close to those presented in Table 9 (e.g., these slight differences would not lead to substantively different conclusions), but our results are not exactly the same as EPA's. We note that when we independently run the IEUBK batch mode analysis presented in the Site-wide HHRA we are able to reproduce the exact results presented by EPA in Site-wide HHRA. This leads us to suspect that there may still be some issue(s) with slightly incorrect values in the Tables that may need to be addressed.	
100	11/25/20	STI	The Tribe appreciates that the updated STI appendix includes a comparison of the concentrations of lead in Mountain Whitefish and Lake Whitefish. However, the STI would like to understand the risk associated with consuming each of these species individually. The Tribe would prefer that these two species are included separately in Tables 9 and10, and the non-lead COPC tables. Mountain Whitefish were generally found in the northernmost FSCAs (FSCAs 1 and 2), while Lake Whitefish were generally collected in FSCAs 2–6. While, we understand that EPA collected Mountain Whitefish as a surrogate for Lake Whitefish when they were not available, there are differences in the preferred habitat and geographic location of each fish species. Therefore, Tribal members are fishing for these species in different areas and would like to understand the risk associated with consuming these species separately.	Mountain whitefish and lake whitefish were added to the list of fish species evaluated; EPCs and risks were calculated for these individual species and the results were added to the appendix.
101	11/25/20	STI	The Tribe recognizes that HHRAs do not necessarily trigger fish consumption advisories (FCAs). The Tribe understands that EPA does not set FCAs in the state of Washington. However, the Tribe further understands that the results presented in the STI HHRA appendix demonstrate that the fish from the Site exceed lead risk levels considerably, and therefore might be expected to trigger FCAs. Given this, the Tribe is requesting that EPA coordinate with Washington Department of Health on risk associated with lead levels in fish, and whether any additional consumption advice, beyond the current UCR FCA, may be needed to protect Tribal members.	EPA will coordinate with the Washington DOH.
102	11/25/20	STI	The Tribe is requesting a meeting with EPA to discuss next steps on planning/coordinating outreach with the STI community. This may involve coordinating on both the content and platform of communications, making sure to take into consideration that not all Tribal members have access to the internet.	EPA will work with STI on risk communication.
103	11/25/20	STI	EPA provided a separate analysis of adult lead risk for the STI. The analysis estimated blood lead levels to adults from fish ingestion. It does not estimate the risk to pregnant women (i.e., risk to a fetus). It is not included in the STI appendix. • The STI would like EPA to include the adult analysis in	The IEUBK assesses risk to the more sensitive receptor (the young child).

#	Date	Commenter	Comment	Response
			the STI appendix of the HHRA. The STI would like to EPA to estimate risk to pregnant women. The ALM can calculate the probability of a fetus having elevated blood lead levels compared to a target threshold (e.g., 5 µg/dL). To be consistent with the most recent WADOH methods for lead, the exceedance of lead risk could be based on the goal that no fetus have a greater than 5% probability of having a BLL above 5 µg/dL (WADOH, 2017).	
104	11/25/20	STI	Common names of fish species are capitalized. See American Fisheries Society guidelines section 2.15 (https://fisheries.org/docs/pub_stylefl.pdf) and https://fisheries.org/docs/pub_style10.pdf. Sturgeon should be referred to as White Sturgeon. *Catostomas spp.* should be *Catostomus spp.*	EPA made these changes in Appendix 2, as well as the main report and Appendix 1.

Abbreviations:

AALM = All Ages Lead Model; ADA = Aerial Deposition Area; ALM = Adult Lead Model; ARAR = Applicable or Relevant and Appropriate Requirements; ATSDR = Agency for Toxic Substances and Disease Registry; B.C. = British Columbia; BERA = Baseline Ecological Risk Assessment; BHSS = Bunker Hill Superfund Site; BLL = Blood Lead Level; BTV = Background Threshold Value; CCC = Citizens for a Clean Columbia; CCT = Confederated Tribes of the Colville Reservation; CCT Tribal Survey = Tribal Consumption and Resource Use Survey; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CHIRU = Colville High Intensity Resource User; COI = Chemical of Interest; Conc = Concentration; COPC = Chemical of Potential Concern; CRITFC = Columbia River Inter-Tribal Fish Commission; CTE = Central Tendency Exposure; DAR = Data Analysis Report; DCR = Daily Consumption Rate; dL = deciliter(s); DOE = Department of Energy; DOH = Department of Health; DOI = Department of the Interior; DQO = Data Quality Objective; DU = Decision Unit; ECY = Washington State Department of Ecology; EER = Estimated Energy Equivalent; EF = Exposure Frequency; EFH = Exposure Factors Handbook; EPA = Environmental Protection Agency; EPC = Exposure Point Concentration; FCA = Fish Consumption Advisory; FS = Feasibility Study; FSCA = Fish Sample Collection Area; F&W = Fish and Wildlife; g = gram(s); HHRA = Human Health Risk Assessment; HI = Hazard Index; HQ = Hazard Quotient; HSCA = Hazardous Substances Control Act; IC = Incremental Composite; IEUBK = Integrated Exposure Uptake Biokinetic; IJC = International Joint Commission; IOM = Institute of Medicine; IR = Intake Rate; IRIS = Integrated Risk Information System; IVBA = *in vitro* Bioaccessibility; kg = kilogram(s); KIVCET = Oxygen, Vortex, Cyclone and Electrothermic (in Russian); L = Liter(s); Lake Roosevelt = Franklin D. Roosevelt Lake; LRF = Lake Roosevelt Forum; LRNRA = Lake Roosevelt National Recreation Area; m = meter(s); m^3 = cubic meter(s); µg = microgram(s); µm = micrometer(s); mi^2 = square mile(s); mm = millimeter(s); MSD = Mass Fraction of Soil in Indoor Dust; MWL = Mountain Whisper Light; n = Sample Size; NAAQS = National Ambient Air Quality Standards; NHANES = National Health and Nutrition Examination Survey; NPS = National Park Service; NRA = National Recreation Area; OFM = Office of Financial Management; OLEM = Office of Land and Emergency Management; ORD = Office of Research and Development; OSRTI = Office of Superfund Remediation and Technology Innovation; OSWER = Office of Solid Waste and Emergency Response; P3 = 5% Probability of Exceeding a PbB of 3 µg/dL; P95 = 95th Percentile; PAH = Polycyclic Aromatic Hydrocarbon; Pb = Lead; PBDE = Polybrominated Diphenyl Ether; PCB = Polychlorinated Biphenyl; PM = Particulate Matter; ppm = Parts per Million; PPRTV = Provisional Peer-Reviewed Toxicity Value; PRG = Preliminary Remediation Goal; RAGS = Risk Assessment Guidance for Superfund; RBA = Relative Bioavailability; RBSL = Risk-based Screening Level; RecUse Survey = Recreational Consumption and Resource Use; RfD = Reference Dose; RI = Remedial Investigation; RME = Reasonable Maximum Exposure; RSL = Regional Screening Level; SD = Standard Deviation; Site = UCR Site; SO_2 = Sulfur Dioxide; STI = Spokane Tribe of Indians; SV = Screening Value; SVOC = Semi-volatile Organic Compound; TAI = Teck American Incorporated; TCAI = Teck Cominco American Incorporated; TCM = Teck Cominco Metals Ltd.; TCRA = Time Critical Removal Action; Teck = Teck Metals Ltd.; TEQ = Toxic Equivalent; TRW = Technical Review Workgroup; UAO = Unilateral Administrative Order; UCL = Upper Confidence Limit; UCR = Upper Columbia River; U.S. = United States; USFS = United States Forest Service; WA = Washington; WADOH = Washington Department of Health; WDNR = Washington Department of Natural Resources; WQS = Water Quality Standard; WRT = With Regards to; yr = Year; < = Less than; > = Greater than; ≤ = Less than or Equal to; % = Percent

References:

Allen, R.W., Adar, S.D., Avol, E., Cohen, M. Curl, C.L. et al. 2012. Modeling the residential infiltration of outdoor PM2.5 in the multi-ethnic study of atherosclerosis and air pollution (MESA Air). Environ Health Perspect 120(6):824-830.

CCT. 2008. Facts and Information. http://www.cct-hsy.com/facts.htm.

CRITFC. 1994. A fish consumption survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin. Columbia River Inter-Tribal Fish Commission

Duncan, M. 2000. Fish consumption survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region. Suquamish, WA: The Suquamish Tribe, Port Madison Indian Reservation. http://www.deq.state.or.us/wq/standards/docs/toxics/suquamish2000report.pdf

E&E. 2000. Upper Columbia River/Lake Roosevelt River Mile 597 to 745 preliminary assessment report, Washington, U.S. Environmental Protection Agency. Ecology and Environment, Inc. Contract No. 68-S0-01-02, Technical Direction Document (TDD) No. 99-10-0002, Seattle, Washington.

EPA. 2003a. Upper Columbia River expanded site inspection report; Northeast Washington. TDD: 01-02-0028. Contract: 68-S0-01-01. U.S. Environmental Protection Agency, Region 10, Seattle, WA.

EPA. 2003b. Assessing intermittent or variable exposures at lead sites. Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, DC. EPA540R03008. OSWER #9285.7-76.

EPA. 2006a. Settlement agreement for implementation of remedial investigation and feasibility study at the Upper Columbia River Site. U.S. Environmental Protection Agency, Region 10, Seattle, WA. June 2, 2006. https://www.ucr-rifs.com/assets/Docs/Settlement_Agreement.pdf.

EPA. 2011. Exposure factors handbook: 2011 edition. U.S. Environmental Protection Agency. EPA600R090052F.

EPA. 2013. Fish consumption in Connecticut, Florida, Minnesota, and North Dakota. U.S. Environmental Protection Agency, National Center for Environmental Assessment, Washington, DC. EPA600R13098F. http://epa.gov/ncea.

EPA. 2014. Estimated fish consumption rates for the U.S. population and selected subpopulations (NHANES 2003-2010). Final. U.S. Environmental Protection Agency. EPA820R14002.

EPA. 2016. Recommendations for sieving soil and dust samples at lead sites for assessment of incidental ingestion. U.S. Environmental Protection Agency. OLEM Directive #9200.1-128. July.

EPA. 2018. Response to December 2017 petition re: A comprehensive air monitoring program from Northport to the U.S. - Canada border. U.S. Environmental Protection Agency.

IOM. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acid (2005). Institute of Medicine, Washington, DC.

Kadlec, M., Gruenfelder, C., Roland, J. 2017. Preliminary review and evaluation of available air quality monitoring data and consideration of potential present-day health risks. W. S. D. of. Ecology. Olympia and Spokane, Washington, Washington State Department of Ecology https://fortress.wa.gov/ecy/publications/SummaryPages/1702003.html.

Mathieu, C., Furl, C.V., Roberts, T.M., Friese, M. 2013. Spatial trends and factors affecting mercury bioaccumulation in freshwater fishes of Washington State, USA. Arch Environ Contam Toxicol 65(1): 122-131.https://www.ncbi.nlm.nih.gov/pubmed/23435684.

Munn, M.D. and L.R.W.Q. Council. 2000. Contaminant trends in sport fish from Lake Roosevelt and the upper Columbia River, Washington, 1994-1998. Tacoma, Wash. Denver, CO, U.S. Dept. of the Interior U.S. Geological Survey, Information Services distributor.

OFM. 2006. Office of Financial Management, State of Washington website. https://www.ofm.wa.gov/washington-data-research/population-demographics/decennial-census/2000-census.

Polissar, N.L., Neradilek, B., Liao, S., Toy, K.A., Mittelstaedt, G.D. 2006. A fish consumption survey of the Tulalip and Squaxin Island tribes of the Puget Sound region – Consumption rates for fish consumers only. Seattle, WA: MountainWhisper-Light Statistical Consulting.

Sample, B.E., LaTier, A. 2019. Personal communication: conference call to discuss bird and mammal uptake models. February 6, 2019.

SRC. 2009. Human health risk assessment work plan for the Upper Columbia River Site Remedial investigation and feasibility study. Prepared for U.S. Environmental Protection Agency Region 10.

SRC. 2014. Quality Assurance Project Plan, Upper Columbia River residential soil study, Washington State. Prepared for U.S. Environmental Protection Agency Region 10, Seattle, WA. August 13.

Thatcher, T.L., Layton, D.W. 1995. Deposition, resuspension, and penetration of particles within a residence. Atmospheric Environment 29(13):1487-1497.

Toy, K.A., Polissar, N.L., Liao, S., Mittelstaedt, G.D. 1996. A fish consumption survey of the Tulalip and Squaxin Island tribes of the Puget Sound region. Marysville, WA: Tulalip Tribes, Department of Environment. http://www.deq.state.or.us/wq/standards/docs/toxics/tulalipsquaxin1996.pdf.

Vandenberg, J. 2020. Evaluation of IEUBK version 2.0 model performance. Memorandum to B. Lowery, Director, Assessment and Remediation Division, OSRTI, OLEM. U.S. Environmental Protection Agency, Office of Research and Development. September 23.

Attachment 1: Response to TAI Comment on Public Review Draft of the UCR HHRA: Alternative Diet Lead Intake

Default diet lead intakes for the IEUBK V2 model (EPA, 2018) were estimated using data from 2003-2006 of the What We Eat In America (WWEIA) dietary interview component of the National Health and Nutrition Examination Survey (NHANES) and the 1995-2005 Food and Drug Administration (FDA) Total Diet Study (TDS) food contaminants data.[1] Mean daily ingestion rates (grams food/day) were calculated for each IEUBK model food category using the NCI method (Tooze et al., 2006). Estimated daily lead intakes (µg Pb/day) were calculated by multiplying the estimated ingestion rates and the mean lead concentration for each of the 15 IEUBK food categories, then summing the intakes for each of the 7 age ranges in the IEUBK model (EPA, 2018). Zartarian et al. (2017) used dietary lead intakes from the EPA Stochastic Human Exposure and Dose Simulation (SHEDS)-Multimedia Model in IEUBK model simulations of national exposures to lead and corresponding blood lead levels (BLLs).

The effect of using the diet lead intake estimates by Zartarian et al. (2017) on predicted geometric mean (GM) and P5 blood lead concentrations was evaluated to determine the magnitude of uncertainty associated with this choice of variable value. Geometric mean blood lead concentrations predicted using the V2 default diet lead intakes were compared to predictions made using diet lead intakes reported by Zartarian et al. (2017). To isolate the effect of diet lead intake on predicted BLLs, lead intakes due to soil, dust, water and air were set equal to zero.

Table 1 shows the diet lead intakes and predicted GM BLLs by the age ranges in the model. Figure 1 shows the predicted GM BLLs by age for both of the diet lead intakes. Differences in the predicted GM BLLs ranged from 0.7 µg/dL for the 6-11-month age range to 0.3 µg/dL for the last 4 age ranges. For the 12-72 month age range which is used for site lead risk assessment, the GM with the V2 default was approximately 0.4 µg/dL greater than the GM estimated using the Zartarian et al (2017) diet lead. This magnitude of difference would not have appreciably affected model performance for predicting the GM BLL; however, the effect on the P5 would depend on the exposure and predicted P5. For a soil exposure to 200 ppm and all other parameter values set to default, the IEUBK model V2 predicts a GM BLL of 2.3 µg/dL and P5 of 5.0%; if the Zartarian et al. (2017) dietary estimates are used in place of default values, the resulting predicted GM BLL is 2.0 µg/dL and P5 is 2.3%.

References:

Environmental Protection Agency (EPA). 2018. Estimation of dietary lead exposure: update to the default values for the integrated exposure uptake biokinetic model for lead in U.S. children. OLEM Directive 9200.1-149. February 17.

Tooze, J.A.; Midthune, D.; Dodd, K.W.; Freedman, L.S.; Krebs-Smith, S.M.; Subar, A.F.; Guenther, P.M.; Carroll, R. J.; Kipnis, V. 2006. A New Statistical Method for Estimating the Usual Intake of Episodically Consumed Foods with Application to their Distribution. J. Amer. Diet. Assoc. 106(10): 1575-87.

Vandenberg, J. 2020. Evaluation of IEUBK version 2.0 model performance. Memorandum to B. Lowery, Director, Assessment and Remediation Division, OSRTI, OLEM. U.S. Environmental Protection Agency, Office of Research and Development. September 23.

Zartarian, V., Xue, J., Tornero-Velez, R., Brown, J. 2017. Children's lead exposure: A multimedia modeling analysis to guide public health decision-making. Environ Health Perspect 125(9)097009. https://ehp.niehs.nih.gov/doi/10.1289/EHP1605.

[1] EPA's ORD recently evaluated the performance of IEUBK model (V2) as it would be typically applied for risk assessment at Superfund sites. This evaluation relied on data collected from 1995 to 2018 at the Bunker Hill Superfund Site (BHSS) located in the Coeur d'Alene River basin in northern Idaho and used the TRW for Lead recommended changes to IEUBK V1.1 input parameter default values to reflect recent scientific information. The differences between IEUBK (V2) and IEUBK (V1.1) with the updated input parameter values shown in Tables 3-30 and 3-31 of the Draft Site-wide HHRA for the UCR site are too small to meaningfully impact the results of the HHRA. The ORD memo found strong support for applications of the IEUBK V2 model in CERCLA-related human health risk assessments (Vandenberg, 2020).

Table 1. IEUBK V2 - Diet sensitivity analysis

Age (months)	diet intake (µg/day)		BLL (µg/dL)	
	V2 default	Zartarian et al. (2017)	V2 default	Zartarian et al. (2017)
6-11	2.66	0.07	0.7	0.0
12-23	5.03	2.58	1.0	0.4
24-35	5.21	3.44	1.0	0.6
36-47	5.38	3.54	0.9	0.6
48-59	5.64	3.57	0.9	0.6
60-71	6.04	3.85	0.9	0.6
72-84	5.95	3.8	0.8	0.5

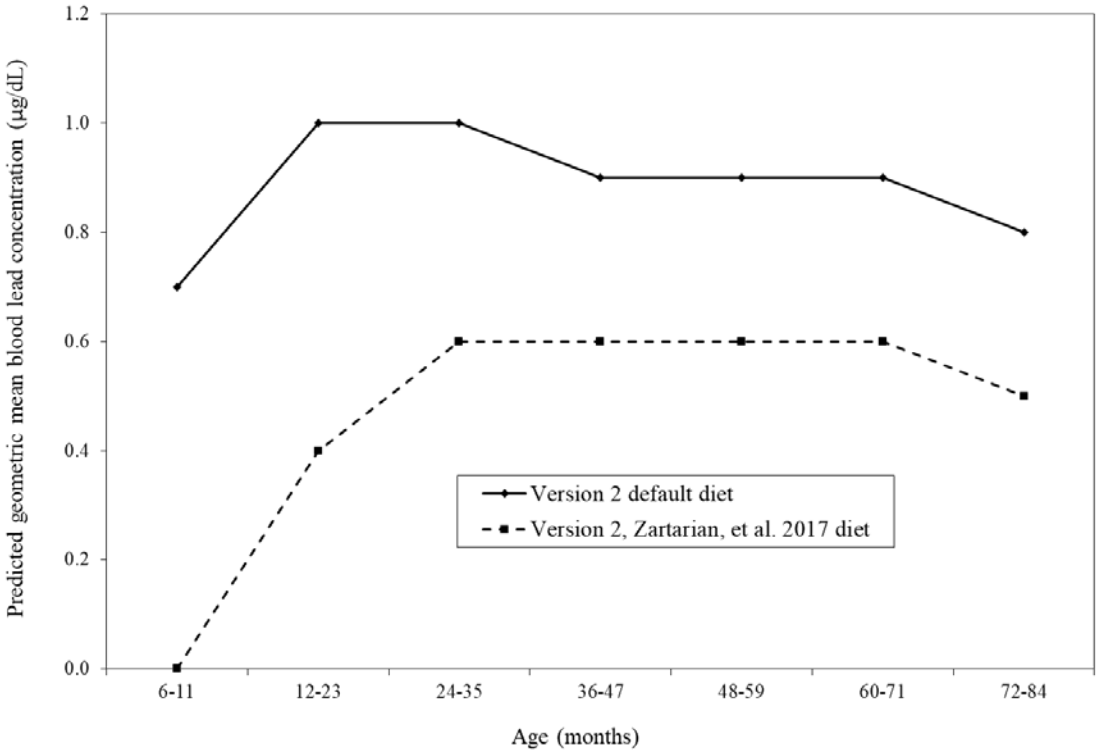


Figure 1. Comparison of predicted geometric mean (GM) blood lead concentrations (µg/dL) using the IEUBK model, V2 with the V2 default diet lead intake estimates and diet lead intake estimated by Zartarian et al. (2017). Lead intake due to soil, dust, air and water was set equal to zero to isolate the effect of the two diet intakes on the predicted GMs. The largest difference in the predicted GM blood lead concentration of 0.7 µg/dL occurs at <12 months and levels off at 0.3-0.4 µg/dL from 24 to 72 months.

Attachment 2: Response to TAI's Comment, "4.2 Residential Risks are Overstated for ADAs that will not be Developed for Residential Use"

Section 6.2.1.10 (Uncertainty in Residential Use and Future Use Scenario Assumptions) of the April 3 Public Review Draft Site-wide HHRA could be revised as follows to incorporate soil lead PRGs that would be derived for the outdoor worker receptor (assuming non-residential land use).

Exposure to soil at this Site assumed full-time residential use of residential DUs that are not house DUs and for upland ADAs without residences. This simplifying assumption overestimates exposure for DUs and ADAs that are not used regularly by young children. This overestimate must be balanced with the possibility that future development may occur and the need to inform risk decisions for the near and long term. Because the Site is near a National Recreation Area, it is possible this area will experience pressure for land use change in the future, including residential expansion (both year-round and seasonal). Although many of the upland areas are presumably unavailable to residential development because they are protected by government ownership/management, there are thousands of acres of private land in the Site area where development could occur. The exposure assumptions used herein are provided to enable risk managers considering the risks associated with future residential development to inform risk reduction strategies for these areas. The difference in soil lead PRG for residential land use vs. that for non-residential land use is quite large (ranging from 5 to 10-fold) as shown in Table 1.

Table 1. Soil lead PRGs derived for residential land use (based on the IEUBK model as described in Section 3.4) vs. non-residential land use (based on the ALM as described in Appendix 16; assuming worker exposures do not have intensive contact with soil; i.e. soil ingestion rate = 50 mg/day). These PRGs are based on an assumed default RBA of 60% for lead in soil.

Land Use Assumption Receptor	P3 Soil Lead PRG (ppm)	P5 Soil Lead PRG (ppm)	P8 Soil Lead PRG (ppm)
Residential Land Use Young Child	50	200	400
Non-Residential Land Use Adult Outdoor Worker	500	1050	2000

If these non-residential soil lead PRGs were used for land that is later developed, the risk to children would be unacceptable. The respective child risk estimates for each of these non-residential land use PRGs are shown in Table 2.

Table 2. Child Pb risks corresponding to non-residential soil Pb PRGs

Non-residential PRG (ppm)	Child P3	Child P5	Child P8
500	73%	32%	7%
1050	96%	75%	37%
2000	100%	95%	75%

The following will be added to Appendix 16:

Calculations of Preliminary Remediation Goals (PRGs) for Soil in Nonresidential Areas

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 06/14/2017

EDIT RED CELLS

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	3	3	3	3
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0 050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**464**	**481**	**186**	**-359**

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	5	5	5	5
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0 050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**1,050**	**1,126**	**773**	**97**

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 2009-2014	GSDi and PbBo from Analysis of NHANES 2007-2010	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
$PbB_{fetal,\ 0.95}$	Target PbB in fetus (e.g., 2-8 µg/dL)	µg/dL	8	8	8	8
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	µg/dL per µg/day	0.4	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	1.7	1.8	2.1
PbB_0	Baseline PbB	µg/dL	0.6	0.7	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	0.050	0 050
$AF_{S,\ D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,\ D}$	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,\ D}$	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PRG in Soil for no more than 5% probability that fetal PbB exceeds target PbB		**ppm**	**1,931**	**2,093**	**1,653**	**780**

Attachment 3: Response to TAI's Comment, "5.3 Consumption Rates for Shellfish Do Not Reflect CCT Tribal Survey or Regional Data"

The following was presented to TAI in a meeting in Spokane, WA on February 6, 2020:

Child Daily Consumption Rates (DCRs)
Comment: In the HHRA, when adequate Site-specific data were not available to estimate child DCRs, a child:adult ratio based on energy expenditure (IOM, 2005) was applied to estimate child DCR from adult DCR. TAI does not feel this is appropriate.

Response: As discussed when finalizing the RecUse DAR, the sample size of 0-6 yr old children in the RecUse Survey (n=7) was not adequate to derive a defensible fish DCR. The IOM approach was discussed with TAI at that time with application to other biota. A summary of data that support this decision follows.

Table 1. Summary of Ratios of Child:Adult Fish and Shellfish DCRs.

Species	Population	Group	n (child, adult)	Mean	Median	P95	Source
Measured total energy expenditure	General population for North America	Four different activity levels: sedentary, low active, active, and very active; for females and males combined	676, 169[a]	0.5	0.5	b	IOM (2005)
Shellfish	Squamish Tribe	Consumers and non-consumers	31, 92	0.09	0.07	0.09	EPA, 2011 (based on Duncan, 2000, Polissar et al., 2006, and Toy et al., 1996) (Children: 0-6 yrs)
	Squaxin Tribe	Consumers only	31, 86	1.54	0.39	0.22	
	Tulalip Tribe	Consumers only	11, 61	0.10	0.03	0.11	
Finfish	Squamish Tribe	Consumers and non-consumers	31, 92	0.66	0.48	0.84	
	Squaxin Tribe	Consumers only	35, 117	0.13	0.03	0.17	
	Tulalip Tribe	Consumers only	15, 72	0.11	0.14	NR	
Finfish (all)	Tribal	Consumers only	194, 464	0.31	0.38	0.43	CRITFC, 1994 (Children: 0-5 yrs)
Trout	Tribal		361	0.92	NR	NR	
Salmon	Tribal		164, 471	0.74	NR	NR	
Fish and Shellfish combined	4 states (CT, FL, MN, ND)	Consumers only	509, 8401	0.42	NR	NR	EPA, 2013 (Table 3-5; Children: 0-5 yrs)
Fish and Shellfish combined	CT, non-Hispanic white	Consumers only	51, 278	0.42	0.43	0.42	EPA, 2013 (Table E-55; Children: 0-18 yrs)
	FL, non-Hispanic white		987, 5620	0.58	0.59	0.58	
	FL, Tribal		12, 51	0.54	0.96	0.39	
	MN, non-Hispanic white		156, 578	0.53	0.62	0.48	
	MN, Tribal		2, 10	0.03	NR	NR	

Species	Population	Group	n (child, adult)	Mean	Median	P95	Source
	ND, non-Hispanic white		145, 371	0.75	0.75	0.72	
	ND, Tribal		5, 8	0.48	0.67	NR	

[a] Children ages 0-8 years: n=676; "adults" ages 9-18 years: n=169.

[b] The maximum of ratios derived for the 4 activity levels (sedentary, low active, active and very active) for males and females combined is 0.53. A P95 was not calculated for this analysis (see Appendix 14 of the UCR site-wide HHRA for more information).

- The ratio of child:adult DCRs for finfish vary widely, from <0.1 to >1.
- The ratio used in the HHRA (based on IOM methodology) is consistent with the data presented in the previous table.
- The ratio of child:adult DCRs for shellfish also vary widely, from <0.1 to >1, though the data for shellfish are more limited.

References:

CRITFC (Columbia River Inter-Tribal Fish Commission). 1994. A fish consumption survey of the Umatilla, Nez Perce, Yakama, and Warm Springs Tribes of the Columbia River Basin.

Duncan, M. 2000. Fish consumption survey of the Suquamish Indian Tribe of the Port Madison Indian Reservation, Puget Sound Region. Suquamish, WA: The Suquamish Tribe, Port Madison Indian Reservation. http://www.deq.state.or.us/wq/standards/docs/toxics/suquamish2000report.pdf

EPA. 2011. Exposure factors handbook: 2011 Edition. U.S. Environmental Protection Agency. EPA/600/R-090/052F. September.

EPA. 2013. Fish consumption in Connecticut, Florida, Minnesota, and North Dakota. United States Environmental Protection Agency, National Center for Environmental Assessment, Washington, DC; EPA/600/R-13/098F. Available online at http://epa.gov/ncea.

IOM. 2005. Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acid (2005). Institute of Medicine, Washington, DC.

Polissar, NL; Neradilek, B; Liao, S; Toy, KA; Mittelstaedt, GD. 2006. A fish consumption survey of the Tulalip and Squaxin Island tribes of the Puget Sound region – Consumption rates for fish consumers only. Seattle, WA: MountainWhisper-Light Statistical Consulting.

Toy, KA; Polissar, NL; Liao, S; Mittelstaedt, GD. 1996. A fish consumption survey of the Tulalip and Squaxin Island tribes of the Puget Sound region. Marysville, WA: Tulalip Tribes, Department of Environment. http://www.deq.state.or.us/wq/standards/docs/toxics/tulalipsquaxin1996.pdf

Attachment 4:
Public Correspondence

-----Original Message-----
From: (b) (6)
Sent: Tuesday, July 21, 2020 8:01 AM
To: Tan, Robert <Tan.Robert@epa.gov>
Subject: HHRA

21 years ago (b) (6) from the Colville Tribe came to a meeting of Citizens for a Clean Columbia and asked us to join in the RIFS and give our input in an issue that has affected many of our neighbors in the Upper Columbia. Our relationship over all those years with representatives from the EPA has not always been smooth and often we have felt left out of much of this convoluted process that seems to have no end. We have seen some of our members die of old age waiting for a resolution that seems so elusive and intentionally so. From the beginning we were approached by the EPA and offered the Technical Advisor position to represent our group and quickly realized that this had strings attached that we refused. For 3 years, back and forth with EPA trying to foist a TA connected to a hand picked choice by you and we refused and demanded that you accept our choice and told you that you could not attach our name to your pick. After 3 years and your realization that we would not concede you finally gave in. (b) (6) contribution has given you something that has given this process more credit than the EPA deserves. You have changed project directors so many times and every time we get someone that actually wants to do what the name EPA suggests, they get shunted off to some other project. 21 years! How many more? How long will this continue?
Who or what are you actually protecting? Are you really protecting the environment or the people who live in it? Is this a game of last man standing? Simple solutions to not so complex problems can easily be solved by sticking to things that will help us, but never seem to happen! Air monitors to ensure that Teck is not charging our air with toxics. Opening up the cleanup in Northport to give those properties that chose not to be tested previously to be tested. Actually doing a HHRA that includes the medical issues of Northport and surrounding areas. Being perfectly honest about my overall impression of the EPA and the HHRA, you are not protecting the environment. You are run by politics and the seesaw effects of the work done over the last 21 years says nothing more to me than job security. I hope to see a change in direction next January, but after 21 years, there's not much left in my tank!

Sincerely,

(b) (6) Chairman Citizens for a Clean Columbia

July 22, 2020

Robert Tan, Project Manager
US EPA, Region 10
1200 6th Avenue
Seattle, WA

RE: Comments on the Upper Columbia River Draft Human Health Risk Assessment

Dear Robert:

Thanks for your consideration of these comments regarding the draft risk assessment for human health. (b) (6) (b) (6) lives on the river and owns tribal land near the US/Canada border. As a member of the Colville Tribes, I am fortunate to access and utilize resources of the watershed. After reading through the draft report and attending the July webinar I offer the following comments:

1. The draft document represents the risk assessment as an "on-going" assessment, yet EPA have made final decisions regarding No Further Action with regards to fish sampling and has made the determination to not link the Ecological Risk Assessment to this Human Health Risk Assessment – artificially dividing an indivisible environment, a clear example of "silo science". This flaw in the Superfund "process" must be addressed at this site. While we have tribal data about uses, the river system is complex. There has not been robust work, if any work conducted on the Ecological Risk studies to understand the Nature and Extent of contamination, the fate of metals and other hazardous substances transported in the system. These factors and perhaps others may impact toxicity of tribal resources at any time.

   Teck is an operating lead/zinc smelter just north of the border. In the upper portions of the River, sediments have the potential to move continuously between accumulation zones. Unknown hazardous substances potentially in the sediments and current discharges from the

facility have the potential to impact the Citizens of the watershed. Tribal people and resources are inextricably woven together.

2. The background/summary of the draft document is somewhat sanitized. The draft fails to fully describe that the site is located on the Colville Indian Reservation, within former reservation lands, and within our aboriginal territory. A more complete description of the site which includes the Tribes territory within the site is suggested. Reference the Upper Columbia River Work Plan 2006. In addition, in the history/background Section, describes that EPA began work at the site. It was the Colville Tribes who petitioned the EPA, which started the EPA investigation.

   For many years prior to and after passage of relevant U.S. law enacted to protect the environment from polluters and pollutants, the federal government fell short in protecting lands and waters of the UCR, including several decades during which applicable, relevant and appropriate environmental laws and permits were being enforced elsewhere. The Colville Tribes and the State of Washington, through their litigation efforts in Federal Court determined that Teck is the responsible party and that Teck has strict joint and several liability for the pollution at this Site. This empowers EPA to ensure that a complete HHRA and ongoing monitoring of the condition and health of the system is conducted. In addition, Teck's discharges both permitted and uncontrolled, flow virtually unimpeded into the U.S. as EPA does not regulate the Trail facility, therefore day to day operations are not subject to U.S. regulatory frameworks. Teck's operations can, without notice or transparency change.

   Federal Indian Policy lays out the responsibility of the government in consideration of the Reservation Environment. EPA must honor, embrace and implement that policy. Tribal standards for the protection of tribal resources must be recognized and achieved. A plan should be laid out in the HHRA on how EPA will honor this policy with regards to on-going understanding, resource protection and clean up at the UCR.

3. Fish Sampling: A schedule to conduct fish sampling and identify data gaps must be developed and included in the Draft HHRA. To simply trust that "trends" indicate fish are safe to eat is not adequate for our tribal citizens,

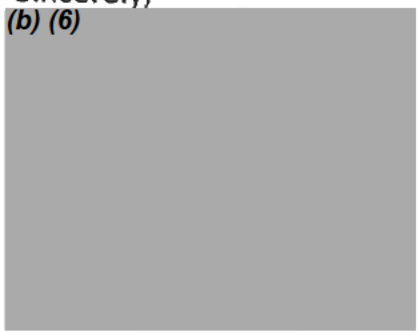
nor do they support future tribal uses. I recommend that a fish monitoring program be established as long as the industry continues to operate and discharge to the Columbia River. If the EPA is not interested in conducting this work, this could be conducted by one or more of the government parties equipped to undertake the task in coordination with the government parties and adequately and fully funded by Teck.

4. During the webinar, EPA stated that the EPA expert has conducted a review of air monitoring data. This was conducted based upon a few years of data obtained from the State near the border and with other B.C. data, the conclusion being that all is well with the air in the US. EPA's experts should acknowledge the reality that conducting a review with inadequate data is not an adequate review. I have been unable to find the report and accompanying "current" data supporting EPA's conclusion. The review is not adequate for tribal citizens who have tribal lands near the border, nor should it be that any citizens of the watershed rely on only a few years of data that does not incorporate current conditions. An air monitoring network should be established with an adequate number of monitors to assure a clear determination supported by current and future data. This network should be established via a work group of the government parties and a citizen representative (or more). We were promised a few years ago this would happen, but it was ignored.

In conclusion, I offer these comments with sincerity and with the knowledge and experience on this site that they are realistic and can be implemented and funded.

Sincerely,

(b) (6)



JULY 17, 2020

①

- I will Limit my Critique of the Health Study To Air monitoring as I feel This is of more immediate Concern Since the Stopping of all meaningful monitoring of Trans-Boundary Air emissions from the Teck Smelter. Leaving we Residents of the U.S. upper Columbia River Valley To be Protected only by Biased monitoring by the Polluter or by B.C. enrichment who has demonstrated A Protective Bias For the Polluter in Air monitoring & Granting of Variances over the Years.
- There is need for A Permanent PM2.5 Air monitoring Program To Protect our Health Conducted by our Government For U.S. Territory Due To Past History of the This Trail Smelter who has had an absolute disregard for, in fact deliberately, Polluted our upper Columbia River & Valley for a Century. There Pollution History has been one of Avoidance, Falsehood & Fraud Which I will Substantiate Later. This is why we Cannot Let The Fox Guard The Chicken House.

- I Recommend the Following:
- First, Due To the Smaller Size of the Air Particulates emitted by the Kivcet Smelter, The Lighter Particles will Probably Travel Further So A larger Test Area be Sampled in a Pilot Program.
- Second PM 2.5 monitors must be used To Accurately measure the Pollutants. This monitoring Site must also be used in the Permanent Phase as the Smaller Particulates have been Proven To Be more Hazardous than PM10 can detect. This is evidenced by PM2.5 Advocacy by the World Health Organization & Lesser levels of Govt. including Wash. State (Enclosed exhibit #1) for the monitoring for Human Health.

(b) (6)

Third - Once the Geographic area is determined it is important that one of the Permanent monitors be Placed adjacent to the U.S.-Canada Border in U.S. Territory for only then can it be determined if our Sovereignty is Violated & if Article IV of the Boundary Waters Treaty of 1909 has been Violated. The TRAIL Smelters' monitoring History has Shown it to be Self Serving.

Forth - The U.S. is a World Power, Not Some 3rd World Banana Republic. As Such we Should be able To Conduct our own monitoring & NOT depend on a Foreign Nation and its Corporation To Protect our Border. Proposed monitoring is inane.

Fifth - Permanent Border monitoring is necessary as the TRAIL Smelter has a History of unethical monitoring Practices, Avoidance, untruthfulness, & Sophisticated cheating.

① Avoidance - of manual AIR monitoring.

- In the TRAIL Smelter Case our Government invited the Tribunal mandated Air monitor in the U.S. To be on the Sanderson Farm. Well within the determined 6 mile Heavy Fallout Area South of the Border. Cominco objected So this monitor was Sited Near Northport Approximately 10 mi. So of the Border outside this Heavy Fallout Area.

② Avoidance & untruthfulness - In the Phase IV we DOE monitoring Plan a Joint effort by DOE & Cominco To each Simultaneously monitor Air Pollution in the above heavy Fallout Zone during the Final Phase of the old Smelter & Then monitor the Replacement Smelter. Cominco Failed To activate the electricity for the monitors until After the old Smelter Shut Down. A Period of Time Longer Than it Takes Manually To Activate a New electrical Installation.

(CONT'd)

(b) (6)

(Avoidance & Untruthfulness Cont'd)

- In addition the Bennick Farm occupants offered to supply electricity from their source well before the old Smelter shut down. This Cominco Avoided monitoring their old Smelter air pollution in the heavy Fallout Zone & then was untruthful about their ability to obtain electricity to monitor pollution.
- Unfortunately this incident Reflects on the Conduct of the DOE in Failing to Properly oversite the Bennick incident and is typical of DOE's Conduct Bordering on Non-Feasance.

(3) - This type of DOE conduct typical of an earlier Phase II air monitoring incident at the Wartham Ranch where DOE mal Positioned the Air monitor to the Trunk of a Tree below its Branches when nearby clear area was available. This was in the heavy Fallout Zone close to the Border. After this air monitors' Pollution Readings were higher than all other Phase II monitorings. DOE stopped & Removed this monitor because it was mal positioned (By themselves). Then they disallowed its findings.

- During the Phase IV air monitoring Search for a Site, a STOP was made at the Tribunal mandated NORTH PORT Cominco monitoring site. I pointed out to the DOE Person in charge of Site Selection the Violation of the adjacent Trees being to close to the monitor & he dismissed my Complaint as it was not his Responsibility.
- Above Negative P&I Conduct was Administrative Inspired & does not Represent the Conduct of Today's DOE employees or my evaluation of them which is Good, but there still appears to be a lack of initiative by DOE to Protect us & its' The Navigable Columbia River & Valley from Trans Boundary Pollution. See exhibits #4 for Bennick & #5 for Waneta mal positioning of monitors by DOE.

(Cont'd.)

(b) (6)

(3) Sophisticated cheating - Aptly describes Cominco's operation of the I.S.C. Tribunal mandated SO_2 air monitor at the Columbia Gardens monitoring site a few miles North of the U.S.-Canadian Border. Because the International Joint Commission (I.J.C.) required no physical onsite oversite Cominco was able to impede the polluted air flow into the air monitor intake probe. This resulted in the under recording of the pollution content of the air at the site.

- This impedence was caused by Cominco allowing a tree to flourish extremely close & completely obstructing the probe. The resulting lower toxic SO_2 readings allowed Cominco to exceed realtime pollution allowances & thereby increase profits for approximately a half century.

- This monitor was directly connected by wire to the Smelter smoke control room & had the ability to directly control Smelter pollution by decreasing or ceasing production.

- As per the Tribunal mandate this monitor site was visited monthly by a Smelter employee who removed the recorder data which was sent to the IJC for review.

- So Cominco had in what amounted to a monthly inspection of the monitor site & an opportunity to evaluate the condition of same.

- There were a multitude of additional air monitor siting requirements according to B.C. siting guidelines which also added to the underreporting of pollution.

- This all adds up to deliberate gross negligence, a technical term for cheating. (see exhibit #3)

-5

(cont'd)

(b) (6)

(4) A Similar, but Lesser Needlessly Condition existed at the Tribunal mandated North Port Site. The Results of this Site were Not electrically Connected To the Smelter Smoke Control Room, A Stand Alone Monitor. This Site Also Visited monthly by a Smelter employee & So2 AIR Monitor Results Collected & Sent To the DEL for evaluation. Again An Opportunity for an on Site inspection.

- The Probe location of this monitor in Violation of EPA Regulations & the close proximity of Trees were in Violation of Both EPA & WA. DOE Regulations. (See exhibit #3)

The Site Surveys were made by me in the 1990's as well as changing exposed Filters & Sending them For Laboratory Analysis. both II of Several Sites.

This Monitor sent copies of exhibits #2 & #3 To the DEL. The Afore-said Onsite Rely That Responded Stating they would take no Further action As Ecology was installing the Koncot System.

IN 2017 WA. DOE made a Review Evaluation of AIR Quality Data Re-Potential Health Risk. Their Conclusion was updated AIR Quality Monitoring is Recommended. Arsenic & Cadium levels exceed WA. St. ASIL. Inhalation & Ingestion Should be Monitored. (See Exhibit #5)

IN the 1994 Wa. DOH Study of AIR Born Toxic Metals at North Port Area & TRAIL. 57% of the NO. PT. Results exceeded Those of TRAIL. We are Now Supposed To Rely on A TRAIL Monitor Which under Reports? Page 31, Table 8. (See exhibit #7)

SIGNED - (b) (6) 7-19-20

Attachment 5:
Exhibits Accompanying (b) (6) Comments

EXHIBIT 1

Exhibit # 1

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Focus

Major Air Pollutants

Particulate Matter

Background

Particulate matter is particles of soot, dust and unburned fuel suspended in the air. The smaller particles, less than 10 microns, are a public health concern. Thousands of these tiny particles would fit on the period at the end of this sentence. Visible smoke is largely composed of these tiny particles. The particles cannot always be seen, since they are so small, but enough can still be present to threaten health.

Particulate matter is a product of many things: soil erosion, road dust, industrial wood waste boilers, wood stoves, slash fires, land clearing fires, agricultural burning and backyard burning. The federal government regulates particulate matter less than 10 microns in diameter as one of six major air pollutants for which health-based air quality standards have been set.

Washington's particulate matter problem

The federal Environmental Protection Agency declared seven areas of Washington State as locations where the concentration of particulate matter in the air exceeds the national health-based standard. These locations are:

- Olympia, Lacey, Tumwater
- Spokane area
- Yakima area
- Tacoma Tideflats
- Kent area
- Duwamish area (Seattle)
- Parts of Benton, Franklin, Walla Walla counties

Health effects of particulate matter

Particulate matter larger than 10 microns in diameter collects in the upper respiratory system (throat and nose) and is eliminated by sneezing, coughing, spitting or the digestive system. Smaller particulate matter is a much more serious health threat.

Your body cannot keep the smaller particulates out of your lungs. Tiny particles collect in the most remote portions of the lungs, called alveoli -- the tiny air sacs where oxygen enters the blood stream.

Once in your body, the tiny particulate matter can cause structural and chemical changes deep in the lungs. These small particles can damage the alveoli and act as carriers for other toxic or carcinogenic materials. Damage can result in scarring, which reduces the ability of the lung to absorb oxygen. Chronic diseases, such as emphysema, chronic bronchitis, cancer and cardiovascular complications of lung damage have been associated with exposure to fine particles. Death rates from these diseases in U.S. and

European cities, have increased during pollution episodes which included increased levels of fine particles. Local studies have also shown a relationship between levels of particulate matter and lung capacity and hospitalization of asthmatic children. The levels affecting these children were below current health standards.

Pre-adolescent children, the elderly and people with pre-existing respiratory diseases are the most susceptible to health problems from particulate matter.

In addition to these health effects, particulate matter can cause damage to materials and can cause deposits on land and in water.

Controlling particulate matter

The Clean Air Washington Act of 1991 tackles the particulate matter problem in Washington State on many levels. The Act requires us to to decrease the amount of small particulate matter in the air around us through the following:

- A permit program for industrial facilities,
- Stricter wood stove regulations,
- Restricted backyard and land clearing fires,
- Reduction in slash burning and agricultural burning,
- Decreased traffic and decreased use of single-occupancy vehicles, and
- A permitting system to minimize unnecessary agricultural burning.

You can help decrease particulate air pollution by composting yard waste instead of burning it; using a form of heat other than wood heat or making sure your wood stove is burning cleanly; obeying all burn ban days; and using your car less. For more information on these topics, contact Ecology (see below). Through individual and government efforts, we can make a difference in the air our children and grandchildren breathe.

For more information

Ecology has prepared fact sheets on each major element of Clean Air Washington, as well as major pollutants. These are available from the Washington State Department of Ecology, PO Box 47600, Olympia, WA 98504-7600, or call:

Susan Campbell (206) 438-7709
Outreach Specialist

EXHIBIT 2

Province of
British Columbia
MINISTRY OF ENVIRONMENT
LANDS AND PARKS

BC
Environment

#401 -333 Victoria Street
Nelson, British Columbia
V1L 4K3
Telephone:(604)354-6333
Main Fax: (604)354-6332
EP Fax: (604)354-6367

File: PA-2691

October 21, 1996

(b) (6)

Dear (b) (6)

Enclosed is a copy of the information you requested on siting for Hivolume particulate samplers and SO2 monitoring equipment. It must be kept in mind that these are considered guidelines and sometimes it is necessary to modify them slightly. An example is when a land owner does not want to have trees cut down. In addition we may want to maintain a long term site for trend monitoring purposes even if trees have grown up around it or other development has taken place that makes the site less than ideal.

Yours truly,

Carl Johnson
Industrial Section Head

CAJ:mh

Attachment

This is a ridiculous excuse by B.C. Envi. for covering up Cominco's SO_2 monitoring cheating. However, it shows prior knowledge of this cheating by BC Envi. & that they are not regulating Cominco. My information is that (b) (6) is a former employee of Cominco.

(b) (6)







Exhibit A

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE ON THE WANETA-NELWAY RD. 4 MILES NORTH OF THE U.S.-CANADA BOUNDARY. THIS MONITOR IS REQUIRED BY THE TRAIL SMELTER ARBITRAL TRIBUNAL DECISION OF 1941 AS PART OF ITS REGIME TO MEASURE, RECORD & AUTOMATICALLY TRANSMIT BY LAND LINE SO2 LEVELS TO THE SMELTER CONTROL ROOM. THIS IS THE KEY CONTROL MECHANISM TO LIMIT TRANS BOUNDARY SO2 AIR POLLUTION. IF ITS READINGS EXCEED REGIME LIMITS, SMELTER PRODUCTION IS EITHER CURTAILED OR REDUCED UNTIL CONDITIONS IMPROVE.

A1

HOWEVER, IF THE POLLUTED AIR IS OBSTRUCTED FROM FREELY FLOWING TO THE SO2 INTAKE PROBE THE RECORDER WILL BE UNABLE TO READ & RECORD ITS' TRUE POLLUTION CONTENT. THE RESULT WILL BE AN UNDER REPORTING OF THE SO2 AIR POLLUTION AT THE C OLUMBIA GARDENS & CONSEQUENTLY AN UNDER REPORTING OF THE TRANS BOUNDARY AIR POLLUTION IMPACTING THE U.S. COLUMBIA RIVER VALLEY. THE PURPOSE OF THIS REPORT IS TO SHOW THAT THE COMINCO COLUMBIA GARDENS & NORTHPORT AIR MONITORS ARE SO OBSTRUCTED ACCORDING TO E.P.A., WA. ST. D.O.E. REGULATIONS, AND CANADIAN GUIDELINES.

A2

PHOTO A#1 TAKEN 6-3-96 FROM THE SO-EAST VIEWING NO-WEST SHOWING LINE OF TREES RUNNING SOUTH TO NORTH ON BOTH SIDES OF MONITOR BUILDING. NOTE VERY LARGE MAPLE (DIAGRAM TREE #8) ON LEFT, ITS DRIPLINE IS 32 ft FROM SO2 PROBE & 40 ft FROM PM MONITOR; STUMP REGROWTH IN FRONT OF BLDG; & MAPLE (DIAGRAM TREE #1) ITS DRIPLINE IS 18 ft TO SO2 PROBE & 25 ft TO PM MONITOR.

PHOTO A#2 TAKEN 6-3-96 FROM THE EAST VIEWING WEST SHOWING MONITOR BLDG WITH SO2 PROBE AT ROOF EDGE , & 4 ft x 21 in. STUMP WITH REGROWTH. TREE TRUNK OF STUMP WAS 41 in. FROM SO2 PROBE.

PHOTO A#3 TAKEN 6-3-96 FROM EAST VIEWING WEST SHOWING STUMP & REGROWTH. P.M. MONITOR IS IN BACKGROUND ON RIGHT. PRIOR TO 1994 THIS STUMP WAS A LIVING TREE WHOSE CANOPY SHROUDED THE SO2 PROBE AND THE MONITOR BUILDING.

A3

Exhibit B







PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.

PHOTO B#1 TAKEN 6-3-96 FROM IN FRONT OF

B1 MONITOR BUILDING VIEWING NORTH SHOWING MAPLE LEAVES OF STUMP REGROWTH WHICH ARE WITHIN 1 TO 2 ft. OF SO2 INTAKE PROBE, & THE 1st MAPLE NORTH (DIAGRAM TREE #1) WHOSE DRIPLINE IS 18 ft. FROM THE SO2 PROBE & 25 ft. TO THE P.M. MONITOR.

PHOTO B#2 TAKEN 6-3-96 FROM THE SOUTH VIEWING NORTH SHOWING LOW INTERFERING BRANCHES OF 1st MAPLE SOUTH (DIAGRAM TREE #8) OLD FOUNDATION PIERS OF APPARENT PREVIOUS MONITOR SITE; STUMP & REGROWTH IMMEDIATELY IN FRONT OF SO2 PROBE; & IN BACKGROUND 1st MAPLE NORTH (DIAGRAM TREE #1).

PHOTO B#3 TAKEN 8-18-96 FROM SOUTH VIEWING NORTH SHOWING OLD FOUNDATION PIERS. SPACING OF PIERS WOULD SUPPORT PRESENT MONITOR BUILDING. AT AN UNKNOWN DATE EVIDENC INDICATES THE MONITOR WAS RELOCATED NORTH 12 ft. 6 in. RESULTING IN SO2 INTAKE PROBE BEING CLOSER & DIRECTLY OPPOSITE, WITHIN 41 in., OF TRUNK OF MAPLE TREE, NOW STUMP.

B2 COMINCO STATES THEY CUT THIS TREE DOWN IN 1994. FOR DECADES THE CANOPY OF THIS TREE SHROUDED THE SO2 INTAKE PROBE IMPEDING THE AIRFLOW TO THE PROBE & THUS UNDER REPORTING THE SO2 POLLUTION PRESENT. THIS SAME CONDITION REPEATED BY STUMP REGROWTH 1994/1996. THIS STUMP HAS A CIRCUMFERENCE OF 64.5 in. & A RING COUNT OF 57 INDICATING THIS TREE STARTED ITS' GROWTH IN APPROX. 1939, PRECEDING THE 1941 COURT DECISION UNDER WHOSE REGIME THIS MONITOR IS TO OPERATE IN PERPETUITY.

COMINCO HAS FAILED TO EXERCISE ORDINARY CARE IN THE MAINTENANCE OF THIS MONITOR SITE. ALLOWED A SAPLING TO GROW TO MATURITY SO ITS CANOPY SHROUDED THE SO2 PROBE. THEN ALLOWED ITS STUMP REGROWTH TO SHROUD THE PROBE. THE DRIPLINES OF TREES #1 & #8 ARE WITHIN 10 METERS OF THE SO2 PROBE IN VIOLATION OF EPA REGULATIONS & CANADIAN GUIDELINES. THIS CONTINUING NEGLECT

B3 VIOLATES THE INTENT OF THE 1941 COURT DECISION REGIME & THUS INFRINGES ON THE RIGHTS OF U.S. CITIZENS IN THE COLUMBIA RIVER VALLEY. THIS IS THE RESULT OF NO BI-NATIONAL OVERSITE BODY PERSONALLY OVERSEEING THIS MONITORING TO SEE THAT THE COURTS REGIME WAS BEING COMPLIED WITH. THIS DEFICIENCY NEEDS CORRECTION BY INVOLKING THE AMENDMENT PROCEDURE PROVISION Pg# 40 TRAIL SMELTER ARBITRAL TRIBUNAL DECISION OF 1941.

Exhibit C

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.



C1 PHOTO C#1 TAKEN 6-3-96 FROM THE NORTH VIEWING SOUTH SHOWING VERY LARGE SIZE OF & LOW HANGING BRANCHES OF 1st MAPLES TO THE SOUTH (DIAGRAM TREES #8 & #9), THEIR DRIPLINE IS 30 ft. SOUTH OF THE SO2 PROBE & 40 ft. SOUTH OF THE P.M. MONITOR



C2 PHOTO C#2 TAKEN 6-3-96 FROM THE NORTH VIEWING SOUTH SHOWING LOW HANGING BRANCHES OF 1st MAPLE (DIAGRAM TREE #1) NORTH; SHOWING SO2 INTAKE PROBE AT EAST ROOF EDGE OF MONITOR BUILDING; & STUMP REGROWTH. NOTE THAT PROBE IS LOCATED ON THE EAST SIDE OF MONITOR BUILDING RATHER THAN FACING NORTH, THE DIRECTION OF THE SMELTER & PREVAILING WINDS.



C3 PHOTO C#3 TAKEN 6-18-96 FROM THE NORTH VIEWING SOUTH SHOWING CLOSE PROXIMITY OF STUMP REGROWTH, WITHIN 1 TO 2 ft. OF THE SO2 INTAKE PROBE; THE P.M. MONITOR ON A 8 ft. HIGH PLATFORM AT THE REAR OF THE MONITOR BUILDING; & IN THE BACKGROUND THE EXTRAORDINARY EAST-WEST WIDTH, 74 ft. DRIPLINE TO DRIPLINE, OF THE FIRST MAPLES (DIAGRAM TREES #8 & #9) SOUTH OF THE MONITORS. VISUALIZE HOW THE CANOPY OF THE FELLED TREE SHROUDED THE MONITOR BUILDING.

Exhibit D

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE IF 1941.



D1 PHOTO D#1 TAKEN 6-18-96 FROM THE WEST VIEWING EAST SHOWING REAR OF MONITOR BUILDING WITH STUMP REGROWTH IN FRONT EXCEEDING HEIGHT OF BUILDING; P.M. MONITOR ON 8 ft PLATFORM AT REAR ; & PROXIMITY OF THE 1st MAPLE NORTH (DIAGRAM TREE #1) WHOSE DRIPLINE IS 18 ft FROM THE SO2 PROBE & 25 ft FROM THE P.M. MONITOR.



D2 PHOTO D#2 TAKEN 6-18-96 FROM THE WEST VIEWING EAST SHOWING ABOVE SCENE FROM GREATER DISTANCE GIVING A BETTER PERSPECTIVE OF DRIPLINE TO MONITORS & SIZE OF MAPLE TO NORTH (DIAGRAM TREE #1). NOTE EFFECT OF SOUTH WIND ON TREES, HOWEVER, IN GENERAL THE SURFACE WIND FLOWS DOWN RIVER (PG #7 1941 DECISION OF ARB. TRIBUNAL). THE PREDOMINANCE OF THIS NORTH/SOUTH WIND FLOW & THAT THE TREES AT COLUMBIA GARDENS ARE ALIGNED IN A NORTH/SOUTH ROW GIVES RISE TO THE HIGH PROBABILITY THAT THEIR CUMLATIVE EFFECT OF IMPEADING THE AIR FLOW TO THE MONITORS IS MULTIPLIED VIA THE 'VORTEX STREET' PRINCIPLE, ESPECIALLY WHEN THE CANOPY OF THE TREE, WHICH WAS FELLED IN 1994, WAS DIRECTLY OVER THE MONITOR BUILDING.



D3 PHOTO D#3 TAKEN 6-18-96 FROM THE WEST VIEWING EAST SHOWING MONITOR BUILDING IN RELATION TO 1st MAPLE TO THE SOUTH (DIAGRAM TREE #8), NOTE ITS LARGE SIZE & LOW BRANCHES. ITS' DRIPLINE IS 32 ft TO THE SO2 PROBE & 40 ft TO THE P.M. MONITOR. NOTE OLD CONCRETE FOUNDATION PIER TO RIGHT OF CHAIN LINK FENCE.







Exhibit E

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.

E1 PHOTO E#1 TAKEN 8-15-96 FROM SOUTH EAST VIEWING NORTH WEST SHOWING MONITOR BUILDING & NOW VISIBLE SO2 PROBE AS 4 ft STUMP & SHROUDING REGROWTH HAS BEEN CUT DOWN SINCE COMPLAINT OF SAME ON 6-20-96, A TACIT ADMISSION OF FAULT BY COMINCO. HOWEVER, THIS SITE STILL DOES NOT CONFORM TO EITHER CANADIAN GUIDELINES OR E.P.A. REGULATIONS AS DRIPLINES OF BOTH MAPLES TO NORTH & SOUTH (DIAGRAM TREES #1 & #8) ARE WELL WITH IN THE 20 METER LIMIT (SEE DIAGRAM #3) FOR BOTH THE SO2 PROBE & THE P.M. MONITOR. NOTE THE ABANDONED STUMP AT ROAD EDGE. NOTE PROXIMITY OF BRANCHES OF MAPLE TO NORTH (DIAGRAM TREE #1).

E2 PHOTO E#2 TAKEN 8-15-96 FROM SOUTH VIEWING NORTH SHOWING CUT MAPLE STUMP & REGROWTH BRANCHES ON GROUND TO LEFT; SHOWING RELATIONSHIP OF SO2 INTAKE PROBE TO ROOF EAVE; & SHOWING RELATIONSHIP OF 1 st MAPLE NORTH (DIAGRAM TREE #1) TO SO2 PROBE.

E3 PHOTO E#3 TAKEN 8-15-96 FROM THE NORTH VIEWING SOUTH SHOWING CLOSEUP OF SO2 INTAKE PROBE & RELATIONSHIP TO ROOF EAVE. INTAKE PROBE IS 93 in. ABOVE GROUND LEVEL & EXTENDS 5 in. OUT FROM ROOF EAVE OF WHICH HAS A 14 in. OVERHANG.

THE MONTH END MEAN SNOW DEPTH FOR THE TRAIL AREA FOR THE WINTER MONTHS; DEC 11.4 in., JAN 14.6 in., & FEB 8.2 in., FOR AN AVERAGE OF 11.4 in. (ENVI. CANADA SUNNINGDALE STATION 1959-1970). THE MONTH END MEAN SNOW DEPTH FOR NORTHPORT AREA FOR THE WINTER MONTHS; DEC 5 in., JAN 10 in., & FEB 7 in. FOR AN AVERAGE OF 7.33 in. (US. WEATHER BUR NORTPORT STA 1931-1965). THE COMBINED AVERAGE FOR BOTH STATIONS IS 9.36 in. & SHOULD BE A GOOD REPRESENTATION OF THE SNOW DEPTH AT COLUMBIA GARDENS AS ALL THREE ARE AT THE SAME RELATIVE ELEVATION. THE GREATEST MONTHLY DEPTH AT THE NORTHPORT STA. WAS; DEC '64 23 in., JAN '52 33 in., & FEB '49 28 in. IT IS REASONABLE TO CONCLUDE THAT LIKE AMOUNTS OF SNOW WOULD BE ON THE ROOF EAVE WHICH WOULD IMPEDE THE FREE FLOW OF AIR TO THE PROBE, & PROBABLE THAT AS THE SNOW SLID OFF IT WOULD COME IN PHYSICAL CONTACT WITH THE SO2 INTAKE PROBE.







Exhibit E cont'd

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS-BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.

E4 PHOTO E#4 TAKEN 12-10-96 FROM THE EAST VIEWING WEST SHOWING MONITOR BUILDING UNDER WINTER CONDITIONS. SO2 INTAKE PROBE IS TO RIGHT OF DOOR AT ROOF EAVE LEVEL. PHOTO SHOWS RELATIONSHIP OF PROBE TO SNOW SLIDING OFF OF ROOF. DEPTH OF SNOW ON GROUND IS 16 ins, DEPTH OF SNOW AT ROOF EAVE NEAR PROBE APPEARS TO BE OF SAME DEPTH (UNABLE TO MEASURE BECAUSE OF FENCE). NOTE: THESE PHOTOS TAKEN IN LATE FALL 10 DAYS PRIOR TO THE ONSET OF WINTER. IT IS REASONABLE TO CONCLUDE THAT THE DEPTH OF SNOW ON THE ROOF WILL INCREASE FROM EXPECTED SNOWFALLS AS WINTER PROGRESSES THUS INCREASING IMPEDANCE OF AIR FLOW TO INTAKE PROBE.

PHOTO E#5 TAKEN 12-10-96 FROM NORTH VIEWING SOUTH SHOWING PROXIMITY OF SNOW ON ROOF EAVE TO SO2 INTAKE PROBE.

E5 NOTE: ALTHOUGH MAPLES TO SOUTH OF MONITOR HAVE LOST MOST OF THEIR LEAVES, THEY STILL CONSTITUTE A MASS & CAN IMPEDE AIRFLOW IN THE VICINITY OF THE MONITOR.

PHOTO E#6 TAKEN 12-10-96 FROM SOUTH VIEWING NORTH SHOWING CLOSER VIEW OF MONITOR BUILDING & SO2 INTAKE PROBE.

NOTE: PHOTO SHOWS SNOW IS SLIDING, CURLING OVER & MOVING DOWN FACE OF EAVE. WHILE SNOW AT THIS TIME IS NOT COMING IN PHYSICAL CONTACT WITH INTAKE PROBE, IT SHOWS THAT SUCH CONTACT IS HIGHLY PROBABLE ESPECIALLY DURING PERIODS OF HEAVY SNOWFALL. IN ANY EVENT THE CLOSE PROXIMITY OF THE INTAKE PROBE TO THIS ROOF SNOW WHETHER IN DRY POWDER CONDITION OR HIGH MOISTURE CONTENT CAN IMPEDE THE AIR FLOW & COULD ENTER OR OBSTRUCT THE INTAKE PROBE.

E6 THIS SO2 MONITOR IS MALPOSITIONED: THE INTAKE PROBE IS NOT FACING THE PREVAILING NORTH WIND FROM THE SMELTER; THE MONITOR IS SITED IN A GROVE OF TREES WHOSE PROXIMITY IS IN VIOLATION OF EPA REGULATIONS & CANADIAN GUIDELINES; THE INTAKE PROBE WAS SHROUDED BY THE CANOPY OF THE FORMER MAPLE TREE GROWING DIRECTLY ABOVE IT & IT IS LOCATED ON AN EAVE SUBJECT TO SNOW IMPEDANCE.

Environment Canada
Environnement Canada

GARY MYERS
Superintendent of Climate Services
Application & Services
Pacific and Yukon Region
Suite 120-1200 West 73rd Avenue
Vancouver, B C , V6P 6H9

Phone (604) 664-9156
Fax (604) 664-9133
Email myersg@aesvan.am.doe.ca

Canada

TRAIL SUNNINGDALE , BC (49°8'N 117°44'W, 433m, 1959 to 1970)
ID : 1148212, User Calculated Means For (1959-1970)

Parameters	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
perature													
an Daily													
aximum (°C)													
ean	0.1	4.8	9.6	15.6	21.4	25.6	29.7	28.4	22.9	14.0	5.9	0.9	14.9
o.Yrs	10	10	10	10	10	11	11	11	11	11	11	11	
an Daily													
inimum (°C)													
ean	-5.3	-2.9	-1.6	2.2	5.8	9.8	11.3	10.8	7.3	3.6	-0.2	-3.9	3.1
o.Yrs	10	10	10	10	10	11	11	11	11	11	11	11	
treme Daily													
aximum (°C)													
ean	7.2	10.3	18.5	23.8	30.0	33.7	36.1	36.5	30.6	22.3	12.8	7.5	37.1
o.Yrs	10	10	10	10	11	11	11	11	11	11	11	11	
treme Daily													
inimum (°C)													
ean	-16.1	-11.3	-9.6	-3.5	-0.2	4.0	6.6	5.8	1.3	-2.7	-8.5	-15.8	-20.8
o.Yrs	10	10	10	10	11	11	11	11	11	11	11	11	
cipitation													
tal													
ainfall (mm)													
ean	21.2	30.3	38.5	35.9	54.6	51.0	22.8	35.8	33.6	50.6	69.0	33.8	477.0
o.Yrs	11	11	11	11	11	11	11	11	11	12	12	12	
tal													
nowfall (cm)													
ean	73.3	22.8	17.1	1.8	0.2	0.0	0.0	0.0	0.0	0.1	22.6	70.9	208.8
o.Yrs	11	11	11	11	11	11	11	11	11	12	12	12	
treme Daily													
nowfall (cm)													
ean	16.1	8.7	7.3	1.3	0.2	0.0	0.0	0.0	0.0	0.1	10.1	17.5	22.4
o.Yrs	11	11	11	11	11	11	11	11	11	12	12	12	
ys With Snowfall													
0.2 cm	14	7	5	*	*	0	0	0	0	*	6	13	45
ean	11	11	11	11	11	11	11	11	11	12	12	12	
o.Yrs													
ys With Snowfall													
10.0 cm	2	*	*	*	0	0	0	0	0	0	*	2	5
ean	11	11	11	11	11	11	11	11	11	12	12	12	
o.Yrs													
ys With Snowcover													
1 cm	M	M	M	M	M	M	M	M	M	M	M	M	N
ean	0	0	0	0	0	0	0	0	0	0	0	0	
o.Yrs													
ys With Snowcover													
10 cm	M	M	M	M	M	M	M	M	M	M	M	M	N
ean	0	0	0	0	0	0	0	0	0	0	0	0	
o.Yrs													
pth of Snow on Ground													
t Month-end (cm)	37	21	1	0	0	0	0	0	0	0	6	29	
ean	11	11	11	11	11	11	10	10	9	10	12	12	
o.Yrs													

Table II-27. SNOW DEPTH: End of Month -- Mean, Median, Greatest, Least, Probability for Measurable Amount, 1931-1965

WASHINGTON

STATION	STATISTIC	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
LIND 3 NE	MEAN	0	T	1	2	T	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	4	8	18	2	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.12	.32	.49	.06	0	0	0
LONGVIEW	MEAN	0	0	T	1	T	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	2	6	3	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.03	.21	.03	0	0	0
MC MILLIN RES	MEAN	0	0	T	T	0	0	0	0
22 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	2	4	1	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.05	.18	.05	0	0	0
MOSES LAKE 3 E	MEAN	0	T	1	2	0	0	0	0
11 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	4	8	9	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.07	.45	.40	0	0	0	0
NESPELEM 2 S	MEAN	0	1	2	3	1	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	6	13	14	5	0	0	1
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.21	.40	.53	.24	0	0	0
NEWPORT	MEAN	0	2	7	12	9	1	0	0
31 YEARS	MEDIAN	0	0	6	7	6	0	0	0
	GREATEST	1	10	27	29	30	13	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	.03	.35	.69	.76	.65	.26	0	0
NORTHPORT	MEAN	0	1	5	10	7	0	0	1
31 YEARS	MEDIAN	0	0	2	11	5	0	0	0
	GREATEST	0	8	18	25	22	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.33	.70	.84	.61	0	0	0
OLGA 2 SE	MEAN	0	0	*	T	T	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	1	2	3	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.26	.29	.33	0	0	0
OLYMPIA AP	MEAN	0	T	T	1	0	0	0	0
19 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	1	3	3	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.35	.16	.26	0	0	0	0
OMAK 2 NW	MEAN	0	1	5	7	2	0	0	0
35 YEARS	MEDIAN	0	0	1	4	0	0	0	0
	GREATEST	0	8	28	30	10	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.31	.56	.76	.41	0	0	0
OTHELLO	MEAN	0	T	T	1	0	0	0	0
15 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	4	4	5	1	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.05	.06	.25	.04	0	0	0
PALMER 3 SE	MEAN	0	0	3	5	1	T	0	0
35 YEARS	MEDIAN	0	0	0	3	0	0	0	0
	GREATEST	1	1	32	40	18	3	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	.03	.03	.26	.43	.18	.03	0	0
PROSSER 4 NE	MEAN	0	T	T	1	0	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	4	4	7	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.09	.18	.40	0	0	0	0
PULLMAN 2 NW	MEAN	0	0	1	2	1	0	0	0
12 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	1	4	12	7	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.08	.33	.42	.33	0	0	0

STATION	STATISTIC	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
PUYALLUP 2W EXP STA	MEAN	0	0	0	T	T	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	1	5	6	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.03	.06	.03	0	0	0
QUINAULT R S	MEAN	0	0	T	2	T	0	0	0
27 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	5	11	3	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.08	.27	.05	0	0	0
RAINIER LONGMIRE	MEAN	1	4	16	27	32	28	7	
35 YEARS	MEDIAN	0	2	12	21	30	25	0	
	GREATEST	10	28	66	66	80	67	54	
	LEAST	0	0	0	0	0	0	0	
	PROBABILITY	.11	.53	.85	.89	.89	.86	.26	0
RIMROCK TIETON DAM	MEAN	T	2	8	15	12	6	0	0
18 YEARS	MEDIAN	0	0	2	9	6	0	0	0
	GREATEST	2	16	32	64	62	44	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	.06	.39	.53	.72	.67	.44	0	0
SEATTLE-TACOMA AP	MEAN	0	T	T	T	0	0	0	0
19 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	1	2	6	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.05	.11	.05	0	0	0	0
SEATTLE CITY	MEAN	0	0	0	T	0	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	1	4	1	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.03	.11	.03	0	0	0
SEDRO WOOLLEY	MEAN	0	0	0	0	0	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	6	12	0	0	0	4
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	.09	.19	0	0	0	5
SEQUIM	MEAN	0	0	0	T	0	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	0	0	5	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	0	0	.07	0	0	0	0
SKAGIT PWR PLT	MEAN	0	1	5	6	5	0	0	
28 YEARS	MEDIAN	0	0	0	0	0	0	0	
	GREATEST	0	5	37	24	50	1	0	
	LEAST	0	0	0	0	0	0	0	
	PROBABILITY	0	.11	.43	.44	.31	.04	0	0
SNOQUALMIE FALLS	MEAN	0	T	T	1	0	0	0	0
35 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	3	5	16	0	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.03	.03	.13	0	0	0	0
SNOQUALMIE PASS	MEAN	2	22	50	78	80	93	59	10
31 YEARS	MEDIAN	0	12	46	74	77	90	65	2
	GREATEST	17	78	136	150	197	172	124	58
	LEAST	0	0	6	35	27	11	0	0
	PROBABILITY	.23	.82	.93	1.00	1.00	1.00	.93	.55
SPOKANE AP	MEAN	0	1	3	4	1	0	0	0
35 YEARS	MEDIAN	0	0	0	1	0	0	0	0
	GREATEST	0	4	18	21	7	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.23	.46	.54	.26	0	0	0
SPRUCE	MEAN	0	0	1	3	1	0	0	0
32 YEARS	MEDIAN	0	0	0	0	0	0	0	0
	GREATEST	0	1	6	16	8	0	0	0
	LEAST	0	0	0	0	0	0	0	0
	PROBABILITY	0	.03	.15	.38	.19	0	0	0
STAMPEDE PASS	MEAN	3	25	51	91	112	118	90	27
23 YEARS	MEDIAN	0	22	45	84	108	111	82	20
	GREATEST	16	57	101	206	192	185	180	111
	LEAST	0	2	8	26	28	53	12	0
	PROBABILITY	.30	.47	.91	1.00	1.00	1.00	1.00	.65

Exhibit F

PHOTOS ARE OF THE COURT ORDERED COMINCO COLUMBIA GARDENS AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941



F1 PHOTO F#1 TAKEN 8-15-96 FROM THE NO-WEST VIEWING SO-EAST SHOWING BRANCHES FROM STUMP IN FOREGROUND & STUMP IN BACKGROUND.



F2 PHOTO F#2 TAKEN 8-18-96 OFF SITE SHOWING CLOSEUP OF TOP PORTION OF FORMER LIVE STUMP. NOTE A FEW OF LOWER PORTIONS OF REGROWTH BRANCHES REMAIN. REFER TO PHOTO E#1.



F3 PHOTO F#3 TAKEN 8-18-96 OFF SITE SHOWING DIAGONALLY CUT CROSS SECTION OF FORMER LIVE STUMP. THIS STUMP HAS A RING COUNT OF 57 INDICATING THIS MAPLE STARTED IT'S GROWTH IN APPROXIMATELY 1939. THE CIRCUMFERENCE OF THIS STUMP IS 64.5 in. COMINCO STATED THEY CUT THIS TREE DOWN IN 1994. FOR DECADES PRIOR TO THAT THIS TREES CANOPY SHROUDED THE SO2 PROBE AND MONITOR BUILDING. THIS MAPLE TREE PRECEDED THE 1941 COURT DECISION UNDER WHOSE REGIME THIS MONITOR IS TO OPERATE IN PERPETUITY.

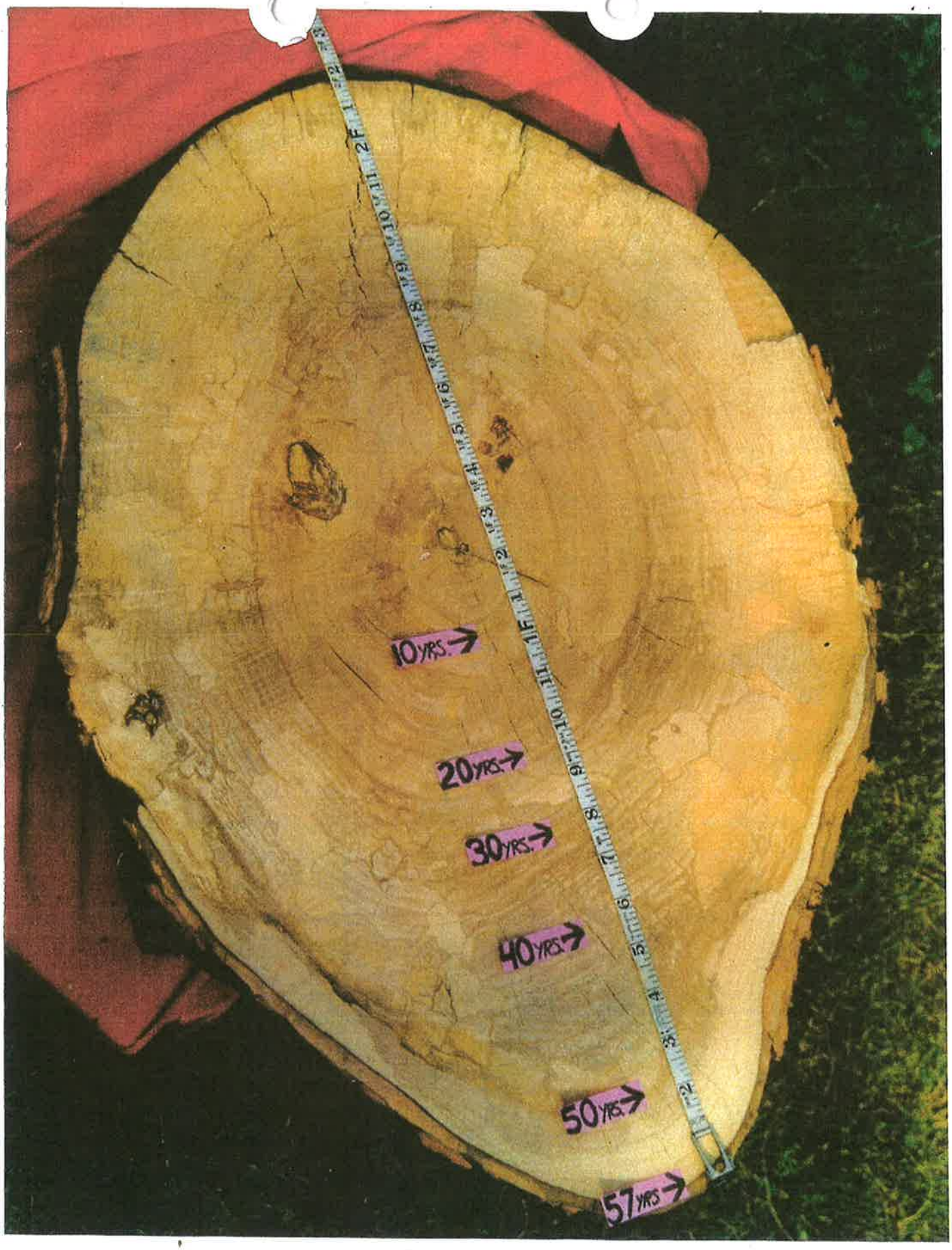

10 YRS.
20 YRS.
30 YRS.
40 YRS.
50 YRS.
57 YRS.

Exhibit G





PHOTOS G1 & G2 TAKEN 6-3-96 OF THE BRITISH COLUMBIA DEPT. OF ENVIRONMENT AIR MONITOR AT AT BUTLER PARK, TRAIL B.C.. NOTE ABSENCE OF TREES OR OBSTRUCTIONS NEAR THEIR MONITOR SITE DENOTING THE PROVINCIAL REGULATORY AGENCYS' PERSONAL COMPLIANCE WITH PROVINCIAL & ENVI. CANADA GUIDELINES. HOWEVER, B.C. ENVI. EITHER LACKS THE POWER OR THE WILL TO OBTAIN COMINCOS' COMPLIANCE WITH THE SAME AIR MONITORING GUIDELINES AS EVIDENCED BY CLOSE PROXIMTTY OF TREES TO COMINCOS' DANIEL ST. & COLUMBIA GARDENS MONITORS. SEE PHOTOS EXHIBITS A THRU F OF COMINCO COLUMBIA GARDENS SITE & PHOTOS EXHIBIT H TAKEN 6-3-96 OF COMINCOS' DANIEL ST. AIR MONITOR SITE IN TRAIL, B.C. ALTHOUGH THE DANIEL ST. MONITOR DOES NOT MEASURE TRANS-BOUNDARY AIR FLOW THIS IS FURTHER EVIDENCE THAT REGULATORY OVERSIGHT IS LACKING AND THE I.J.C. IS NEEDED.

Exhibit H













Final Exhibit

AS A RESULT OF THE TRAIL SMELTER CASE COURT DECISION COMINCO WAS ORDERED TO OPERATE A AIR MONITOR IN COLUMBIA GARDENS B.C. TO REGULATE TRANS-BOUNDARY SO_2 POLLUTION. FOR DECADES COMINCOS NEGLIGENT MAINTENANCE OF THIS SITE ALLOWED TREES TO SHROUD THE AIR INTAKE PROBE IMPEDING THE AIRFLOW TO THE SO_2 RECORDER NEGATIVELY AFFECTING ITS READINGS TO COMINCOS ECONOMIC ADVANTAGE.

IN THE MID 1990'S THIS WAS BROUGHT TO THE PUBLICS ATTENTION. COMINCO CLAIMED SUCH SHROUDING DID NOT AFFECT THE RECORDER READINGS. WHAT ELSE COULD THEY SAY, THEY WERE CAUGHT RED HANDED.

HOWEVER COMINCO HAS NOW TACIDLY ADMITTED GUILT AS DEMONSTRATED BY THESE RECENT PHOTOS SHOWING THAT THE MONITORING SITE IS NOW NEARLY IN COMPLIANCE. THE SHROUDING HAS BEEN ELIMINATED, THE INTAKE PROBE HAS BEEN MOVED FROM UNDER THE EAVE TO THE OTHER SIDE OF THE BUILDING FACING THE SMELTER & ITS HEIGHT RAISED FOR UNIMPEDED EXPOSURE TO THE AIR FLOW. MOST OF THE OTHER IMPEDING BRANCHES OF NEARBY TREES HAVE BEEN REMOVED.

ACCOMPANYING PHOTOS TAKEN 7-27-04













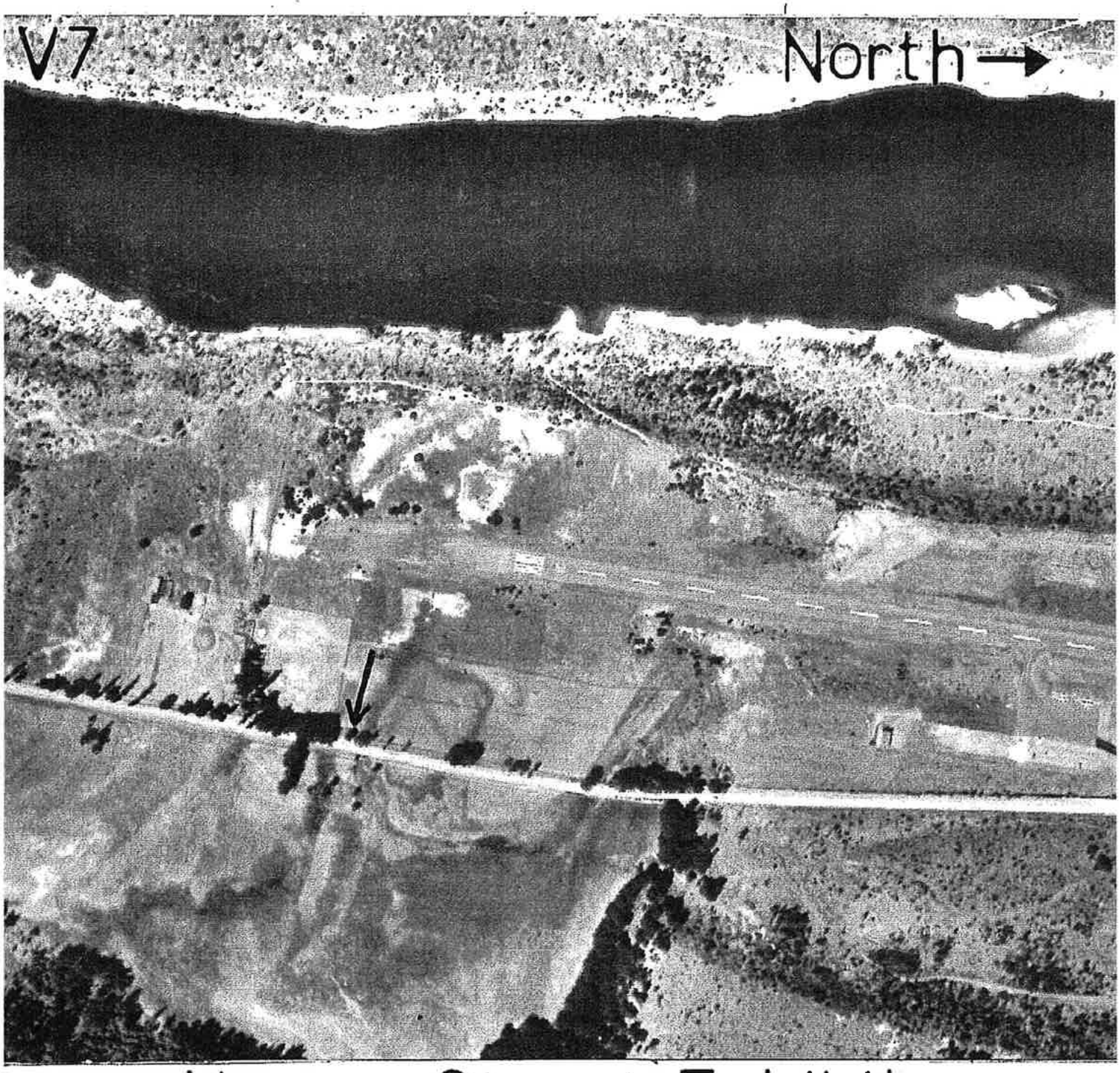






SEVERAL TIMES DURING AUGUST A SMOKY DAY, 0.23 PPM, IN DOUGLAS CO. BECAUSE OF THIS CONTINUING CONDITION COMINCO'S STEEL WORKERS UNION COMPLAINED OF THE AIR POLLUTION. THE RESPONSE FROM SMELTER MANAGER, ROGER WATSON, WAS DO YOU WANT JOBS OR CLEAN AIR?

NOTE SMELTER DISCHARGE OF SLAG INTO THE COLUMBIA RIVER WHICH THEN TRANSPORTED IT ACROSS THE BORDER TO COMINCO'S KAZAMOOR WASTE DISPOSITION SITE, THE U.S. COLUMBIA RV. & LAKE ROOSEVELT.



Vortex Street Exhibit

AERIAL PHOTO V#7 WAS TAKEN IN 1979 AT 9:35 AM. IT IS AN ENLARGEMENT OF A OFFICIAL PROVINCE OF BRITISH COLUMBIA PHOTO #BC 79 135 No 018 SHOWING THE COMINCO COLUMBIA GARDENS AIR MONITOR SITE. MONITOR BUILDING CANNOT BE SEEN IN PHOTO AS IT IS COMPLETELY SHROUDED BY THE CANOPY OF A MAPLE TREE THEN GROWING IMMEDIATELY NEXT TO & ABOVE THE BUILDING (LEFT CENTER OF PHOTO NEXT TO ROADWAY-MARKED BY ARROW). COMINCO CUT THIS TREE DOWN IN 1994. SEE PHOTOS EXHIBIT A3, E2, F1, F2, & F3. NOTE STRAIGHT LINE OF NORTH-SOUTH TREES MONITOR IS SITED WITHIN. MONITOR SITE IS MALPOSITIONED NOT ONLY BECAUSE OF THIS LINE OF 'VORTEX STREET' TREES, BUT ALSO BECAUSE THIS SITE IS NOT REPRESENTATIVE OF THE COLUMBIA GARDENS AREA TO BE MONITORED WHICH IS LARGELY OPEN FIELDS. NOTE THIS PHOTO TAKEN IN 1979, SINCE THEN THESE TREES HAVE HAD 16 MORE YEARS OF ADDITIONAL GROWTH TO INCREASE THEIR OBSTRUCTION TO AIRFLOW TO THE $O2 PROBE. NOTE- PHOTO TAKEN AT 9:35 AM; THE RISING SUN IN THE EAST CAST LONG SHADOWS FROM THE TREES TO THE WEST.

V1

V2

Vortex Street Exhibit

PHOTO V#1 TAKEN 9-9-96 IS AN OVERVIEW OF THE COLUMBIA RIVER VALLEY FROM THE NORTH VIEWING SOUTH SHOWING THE COLUMBIA GARDENS AIR MONITOR SITE AREA IN THE CENTER OF PHOTO. THE RIVER VALLEY AT THIS POINT RUNS ALMOST DUE NORTH-SOUTH. THE MONITOR IS CENTERED IN A STRAIGHT ROW OF TREES WHICH RUN NORTH-SOUTH; 11 TREES TO THE NORTH OF THE MONITOR FOR A DISTANCE OF .15 mi; & 19 TREES TO THE SOUTH FOR A DISTANCE OF .2 mi; FOR A TOTAL DISTANCE OF .35 mi. THE SURFACE WIND IN GENERAL IS DOWN THE RIVER VALLEY PARALLELING THIS ROW OF TREES, THE NECESSARY CONDITIONS TO CREATE A VORTEX STREET EFFECT ARE PRESENT.

PHOTO V#2 TAKEN 9-9-96 IS AN OVERVIEW OF THE COLUMBIA GARDENS MONITOR SITE AREA FROM THE SOUTH VIEWING NORTH SHOWING THIS SAME ROW OF TREES TO THE LEFT OF THE ROADWAY IN THE CENTER OF THE PHOTO. NOTE-NUMEROUS POTENTIAL SITE AREAS MONITOR COULD BE INSTALLED WITHOUT PLACING IT IN A ROW OF TREES.

Vortex Street Exhibit









PHOTOS TAKEN 9-9-96. V#3 TAKEN FROM FRONT OF MONITOR BUILDING VIEWING STRAIGHT ROW OF 19 TREES IN .2 mi. SOUTH. V#4 TAKEN OF V#3 TREES FROM SOUTH VIEWING NORTH. V#5 TAKEN FROM IN FRONT OF THE MONITOR BUILDING VIEWING STRAIGHT ROW OF 11 TREES IN .15 mi. NORTH. V#6 TAKEN OF V#5 TREES FROM NORTH VIEWING SOUTH.

THIS SO2 MONITOR HAS BEEN IN OPERATION SINCE 1941 AS PART OF THE TRAIL SMELTER ARBITRAL TRIBUNAL REGIME. ONE MUST ENVISION A 57 YR. OLD MAPLE GROWING IN FRONT OF THE MONITOR BLDG. (CUT DOWN IN 1994, SEE REMAINS OF STUMP IN PHOTO V#5). IT SHROUDED THE MONITOR & FILLED IN THE GAP BETWEEN DIAGRAM TREES #1 & #8 MAKING THE TREE ROW MORE CONTINUOUS THUS ENHANCING THE VORTEX STREET EFFECT. SEE MATHEMATICAL CREATION OF FELLED TREE, DIAGRAM #1,2,&3.

References

[1] A. Betz, Untersuchung einer Joukowskyschen Tragfläche. ZFM 6, 173—179 (1915).
[2] O. Flachsbart, Neuere Untersuchungen über den Luftwiderstand von Kugeln. Phys. Z. 28, 461 (1927).
[3] O. Flachsbart, Winddruck auf Gasbehälter. Reports of the Aerodyn. Versuchsanstalt in Göttingen. IVth series, pp. 134—138 (1932).
[4] G. Fuhrmann, Theoretische und experimentelle Untersuchungen an Ballonmodellen. Diss. Goettingen 1910 — Jahrb. d. Motorluftschiff-Studienges. 1911/12, p. 63.
[5] G. Hagen, Über die Bewegung des Wassers in engen zylindrischen Röhren. Pogg. Ann. 46, 423 (1839).
[6] F. Homann, Einfluß großer Zähigkeit bei Strömung um Zylinder. Forschg. Ing.-Wes. 7, 1—10 (1936).
[7] A. Naumann, Luftwiderstand von Kugeln bei hohen Unterschallgeschwindigkeiten. Allgem. Wärmetechnik. 4, 217—221 (1953).
[8] J. Poiseuille, Récherches expérimentelles sur le mouvement des liquides dans les tubes de très petits diamètres. Comptes Rendus 11, 961 and 1041 (1840); 12, 112 (1841); in more detail: Mémoires des Savants Etrangers, 9 (1846).
[9] O. Reynolds, Phil. Trans, Roy, Soc., London, (1883) or Collected-Papers II, 51.

CHAPTER II

Outline of boundary layer theory

a. The boundary layer concept

In the case of fluid motions for which the measured pressure distribution nearly agrees with the perfect fluid theory, such as the flow past the stream-line body in Fig. 1.11, or the aerofoil in Fig. 1.13, the influence of viscosity at high Reynolds numbers is confined to a very thin layer in the immediate neighbourhood of the solid wall. If the condition of no slip were not to be satisfied in the case of a real fluid there would be no appreciable difference between the field of flow of the real fluid as compared with that of a perfect fluid. The fact that at the wall the fluid adheres to it means, however, that frictional forces retard the motion of the fluid in a thin layer near the wall. In that thin layer the velocity of the fluid increases from zero at the wall (no slip) to its full value which corresponds to external frictionless flow. The layer under consideration is called the *boundary layer*, and the concept is due to L. Prandtl [13].

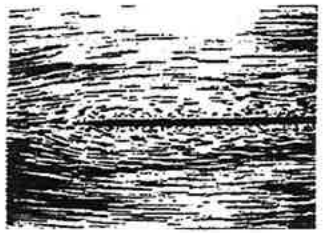


Fig. 2.1. Motion along a thin flat plate, from Prandtl-Tietjens
l — length of plate;
Reynolds number $R = Vl/\nu = 3$

Figure 2.1 reproduces a picture of the motion of water along a thin flat plate in which the stream-lines were made visible by the sprinkling of particles on the surface of the water. The traces left by the particles are proportional to the velocity of flow. It is seen that there is a very thin layer near the wall in which the velocity is considerably smaller than at a larger distance from it. The thickness of this boundary layer increases along the plate in a downstream direction. Fig. 2.2 represents diagrammatically the velocity distribution in such a boundary layer at the plate, with the dimensions across it considerably exaggerated. In front of the leading edge of the plate the velocity distribution is uniform. With increasing distance

from the leading edge in the downstream direction the thickness, δ, of the retarded layer increases continuously, as increasing quantities of fluid become affected. Evidently the thickness of the boundary layer decreases with decreasing viscosity.

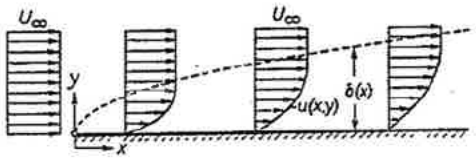


Fig. 2.2. Sketch of boundary layer on a flat plate in parallel flow at zero incidence

On the other hand, even with very small viscosities (large Reynolds numbers) the frictional shearing stresses $\tau = \mu\, \partial u/\partial y$ in the boundary layer are considerable because of the large velocity gradient across the flow, whereas outside the boundary layer they are very small. This physical picture suggests that the field of flow in the case of fluids of small viscosity can be divided, for the purpose of mathematical analysis, into two regions: the thin boundary layer near the wall, in which friction must be taken into account, and the region outside the boundary layer, where the forces due to friction are small and may be neglected, and where, therefore, the perfect fluid theory offers a very good approximation. Such a division of the field of flow, as we shall see in more detail later, brings about a considerable simplification of the mathematical theory of the motion of fluids of low viscosity. In fact, the theoretical study of such motions was only made possible by Prandtl when he introduced this concept.

We now propose to explain the basic concepts of boundary layer theory with the aid of purely physical ideas and without the use of mathematics. The mathematical boundary layer theory which forms the main topic of this book will be discussed in the succeeding chapters.

The decelerated fluid particles in the boundary layer do not, in all cases, remain in the thin layer which adheres to the body along the whole wetted length of the wall. In some cases the boundary layer increases its thickness considerably in the downstream direction and the flow in the boundary layer becomes reversed. This causes the decelerated fluid particles to be forced outwards, which means that the boundary layer is separated from the wall. We then speak of *boundary layer separation*. This phenomenon is always associated with the formation of vortices and with large energy losses in the wake of the body. It occurs primarily near blunt bodies, such as circular cylinders and spheres. Behind such a body there exists a region of strongly decelerated flow (so-called wake), in which the pressure distribution deviates considerably from that in a frictionless fluid, as seen from Figs. 1.9 and 1.10 in the respective cases of a cylinder and sphere. The large drag of such bodies can be explained by the existence of this large deviation in pressure distribution, which is, in turn, a consequence of boundary layer separation.

Estimation of boundary layer thickness: The thickness of a boundary layer which has not separated can be easily estimated in the following way. Whereas friction forces can be neglected with respect to inertia forces outside the boundary layer,

owing to low viscosity, they are of a comparable order of magnitude inside it. The inertia force per unit volume is, as explained in Section I e, equal to $\varrho\, u\, \partial u/\partial x$. For a plate of length l the gradient $\partial u/\partial x$ is proportional to U/l, where U denotes the velocity outside the boundary layer. Hence the inertia force is of the order $\varrho\, U^2/l$. On the other hand the friction force per unit volume is equal to $\partial\tau/\partial y$, which, on the assumption of laminar flow, is equal to $\mu\, \partial^2 u/\partial y^2$. The velocity gradient $\partial u/\partial y$ in a direction perpendicular to the wall is of the order U/δ so that the friction force per unit volume is $\partial\tau/\partial y \sim \mu\, U/\delta^2$. From the condition of equality of the friction and inertia forces the following relation is obtained:

$$\mu \frac{U}{\delta^2} \sim \frac{\varrho\, U^2}{l}$$

or solving for the boundary layer thickness δ†:

$$\delta \sim \sqrt{\frac{\mu\, l}{\varrho\, U}} = \sqrt{\frac{\nu\, l}{U}}\,. \tag{2.1}$$

The numerical factor which is, so far, still undetermined will be deduced later (Chap. VII) from the exact solution given by H. Blasius [1], and it will turn out that it is equal to 5, approximately. Hence for *laminar* flow in the boundary layer we have

$$\delta = 5 \sqrt{\frac{\nu\, l}{U}}\,. \tag{2.1a}$$

The dimensionless boundary layer thickness, referred to the length of the plate, l, becomes:

$$\frac{\delta}{l} = 5 \sqrt{\frac{\nu}{U\, l}} = \frac{5}{\sqrt{\mathrm{R}_l}}\,, \tag{2.2}$$

where R_l denotes the Reynolds number related to the length of the plate, l. It is seen from eqn. (2.1) that the boundary layer thickness is proportional to $\sqrt{\nu}$ and to $\sqrt{l}$. If l is replaced by the variable distance x from the leading edge of the plate, it is seen that δ increases proportionately to $\sqrt{x}$. On the other hand the relative boundary layer thickness δ/l decreases with increasing Reynolds number at $1/\sqrt{\mathrm{R}}$ so that in the limiting case of frictionless flow, with $\mathrm{R} \to \infty$, the boundary layer thickness vanishes.

We are now in a position to estimate the shearing stress τ_0 on the wall, and consequently, the total drag. According to Newton's law of friction (1.2) we have

$$\tau_0 = \mu \left(\frac{\partial u}{\partial y}\right)_0,$$

where subscript o denotes the value at the wall, i. e. for $y = 0$. With the estimate

† A more rigorous definition of boundary layer thickness is given at the end of this section.

$(\partial u/\partial y)_0 \sim U/\delta$ we obtain $\tau_0 \sim \mu\, U/\delta$ and, inserting the value of δ from eqn. (2.1), we have

$$\tau_0 \sim \mu\, U \sqrt{\frac{\varrho\, U}{\mu\, l}} = \sqrt{\frac{\mu\, \varrho\, U^3}{l}}\,. \tag{2.3}$$

Thus the frictional stress near the wall is proportional to the power $U^{3/2}$.

We can now form a dimensionless stress with reference to $\varrho\, U^2$, as explained in Chap. I, and obtain

$$\frac{\tau_0}{\varrho\, U^2} \sim \sqrt{\frac{\mu}{\varrho\, U\, l}} = \frac{1}{\sqrt{\mathrm{R}_l}} \tag{2.3a}$$

This result agrees with the dimensional analysis in Chap. I, which predicted that the dimensionless shearing stress could depend on the Reynolds number only.

The total drag D on the plate is equal to $b l \tau_0$ where b denotes the width of the plate. Hence, with the aid of eqn. (2.3) we obtain

$$D \sim b \sqrt{\varrho\, \mu\, U^3\, l}\,. \tag{2.4}$$

The laminar frictional drag is thus seen to be proportional to $U^{3/2}$ and $l^{1/2}$. Proportionality to $l^{1/2}$ means that doubling the plate length does not double the drag, and this result can be understood by considering that the downstream part of the plate experience a smaller drag than the leading portion because the boundary layer is thicker towards the trailing edge. Finally, we can write down an expression for the dimensionless drag coefficient in accordance with eqn. (1.14) in which the reference area A will be replaced by the wetted area bl. Hence eqn. (2.4) gives that

$$C_D \sim \sqrt{\frac{\mu}{\varrho\, U\, l}} = \frac{1}{\sqrt{\mathrm{R}_l}}\,.$$

The numerical factor follows from H. Blasius' exact solution, and is 1·328, so that the drag of a plate in parallel laminar flow becomes

$$C_D = \frac{1{\cdot}328}{\sqrt{\mathrm{R}_l}}\,. \tag{2.5}$$

The following numerical example will serve to illustrate the preceding estimation: Laminar flow, stipulated here, is obtained, as is known from experiment, for Reynolds numbers Ul/ν not exceeding about 5×10^5 to 10^6. For larger Reynolds numbers the boundary layer becomes turbulent. We shall now calculate the boundary layer thickness for the flow of air ($\nu = 0{\cdot}144 \times 10^{-3}$ ft²/sec) at the end of a plate of length $l = 3$ ft at a velocity $U = 48$ ft/sec. This gives $\mathrm{R}_l = Ul/\nu = 10^6$ and from eqn. (2.2)

$$\frac{\delta}{l} = \frac{5}{10^3} = 0{\cdot}005; \quad \delta = 0{\cdot}18 \text{ in}\,.$$

The drag coefficient from eqn. (2.5) is $C_D = 0{\cdot}0013$ i. e. exceedingly small when compared with that for a circular cylinder, Fig. 1.4.

Definition of boundary layer thickness: The definition of the boundary layer thickness is to a certain extent arbitrary because transition from the velocity in the boundary to that outside it takes place asymptotically. This is, however, of no practical importance, because the velocity in the boundary layer attains a value which is very close to the external velocity already at a small distance from the wall. It is possible to define the boundary layer thickness as that distance from the wall where the velocity differs by 1 per cent. from the external velocity. With this definition the numerical factor in eqn. (2.2) has the value 5. Instead of the boundary layer thickness, another quantity, the *displacement thickness* δ^*, is sometimes used, Fig. 2.3. It is defined by the equation

$$U\,\delta^* = \int_{y=0}^{\infty} (U - u)\,\mathrm{d}y\,. \tag{2.6}$$

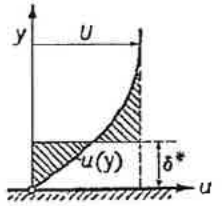


Fig. 2.3. Displacement thickness δ^* in a boundary layer

The displacement thickness indicates the distance by which the external streamlines are shifted owing to the formation of the boundary layer. In the case of a plate in parallel flow and at zero incidence the displacement thickness is about $\frac{1}{3}$ of the boundary layer thickness δ given in eqn. (2.1a).

b. Separation and vortex formation

The boundary layer near a flat plate in parallel flow and at zero incidence is particularly simple, because the static pressure remains constant in the whole field of flow. Since outside the boundary layer the velocity remains constant the same applies to the pressure because in the frictionless flow Bernoulli's equation remains valid. Furthermore, the pressure remains sensibly constant over the width of the boundary layer at a given distance x. Hence the pressure over the width of the boundary layer has the same magnitude as outside the boundary layer at the same distance, and the same applies to cases of arbitrary body shapes when the pressure outside the boundary layer varies along the wall with the length of arc. This fact is expressed by saying that the external pressure is "impressed" on the boundary layer. Hence in the case of the motion past a plate the pressure remains constant throughout the boundary layer.

The phenomenon of boundary layer separation mentioned previously is intimately connected with the pressure distribution in the boundary layer. In the boundary layer on a plate no separation takes place as no back-flow occurs.

In order to explain the very important phenomenon of boundary layer separation let us consider the flow about a blunt body, e. g. about a circular cylinder, as shown

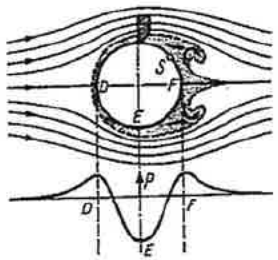


Fig. 2.4. Boundary layer separation and vortex formation on a circular cylinder (diagrammatic)
S = point of separation

in Fig. 2.4. In frictionless flow, the fluid particles are accelerated on the upstream half from D to E, and decelerated on the downstream half from E to F. Hence the pressure decreases from D to E and increases from E to F. When the flow is started up the motion in the first instant is very nearly frictionless, and remains so as long as the boundary layer remains thin. Outside the boundary layer there is a transformation of pressure into kinetic energy along DE, the reverse taking place along EF, so that a particle arrives at F with the same velocity as it had at D. A fluid particle which moves in the immediate vicinity of the wall in the

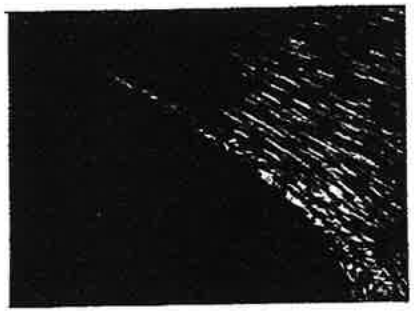


Fig. 2.5a

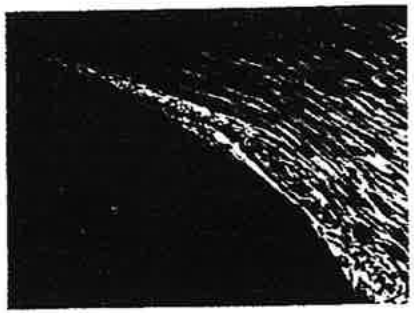


Fig. 2.5b

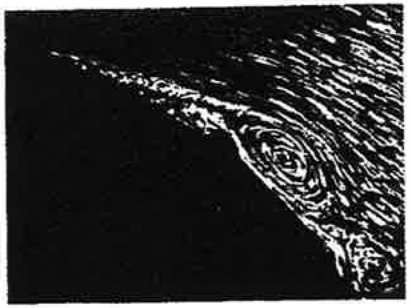


Fig. 2.5c



Fig. 2.5d

Fig. 2.5a, b, c, d. Development of boundary layer separation with time, after Prandtl-Tietjens

boundary layer remains under the influence of the same pressure field as that existing outside, because the external pressure is impressed on the boundary layer. Owing to the large friction forces in the thin boundary layer such a particle consumes so much of its kinetic energy on its path from D to E that the remainder is too small to surmount the "pressure hill" from E to F. Such a particle cannot move far into the region of increasing pressure between E and F and its motion is, eventually, arrested. The external pressure causes it then to move in the opposite direction. The photographs reproduced in Fig. 2.5 illustrate the sequence of events when a fluid flow is started near the downstream side of a round body. The pressure increases along the body contour from left to right, the flow having been made visible by sprinkling aluminium dust on the surface of the water. The boundary layer can be easily recognized by reference to the short traces. In Fig. 2.5a, taken shortly after the start of the motion, the reverse motion has just begun. In Fig. 2.5b the reverse motion has penetrated a considerable distance forward and the boundary layer has thickened appreciably. Fig. 2.5c shows how this reverse motion gives rise to a vortex, whose size is increased still further in Fig. 2.5d. The vortex becomes separated shortly afterwards and moves downstream in the fluid. This circumstance changes completely the field of flow in the wake, and the pressure distribution suffers a radical change, as compared with frictionless flow. The final state of motion can be inferred from Fig. 2.6. In the eddying region behind the cylinder there is considerable suction, as seen from the pressure distribution curve in Fig. 1.9. This suction causes a large pressure drag on the body.

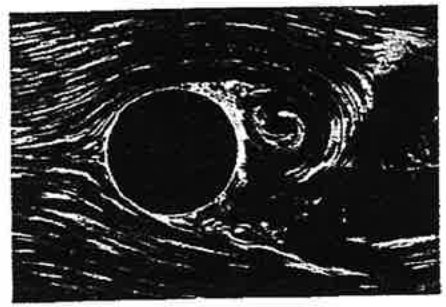


Fig. 2.6. Instantaneous photograph of flow with complete boundary layer separation in the wake of a circular cylinder, after Prandtl-Tietjens

At a larger distance from the body it is possible to discern a regular pattern of vortices which move alternately clockwise and counterclockwise, and which is known as a Kármán vortex street [9], Fig. 2.7 (see also Fig. 1.6). In Fig. 2.6 a vortex moving in a clockwise direction can be seen to be about to detach itself from the body before joining the pattern. In a further paper, von Kármán [10] proved that such vortices are generally unstable with respect to small disturbances parallel to themselves. The only arrangement which shows neutral equilibrium is that with $h/l = 0{\cdot}281$ (Fig. 2.8). The vortex street moves with a velocity u, which is smaller than the flow velocity U in front of the body. It can be regarded as a highly idealized picture of the motion in the wake of the body. The kinetic energy contained in the velocity field of the vortex street must be continually created, as the body moves

through the fluid. On the basis of this representation it is possible to deduce an expression for drag from the perfect fluid theory. Its magnitude per unit length of the cylindrical body is given by

$$D = \varrho\, U^2\, h \left[2{\cdot}83\, \frac{u}{U} - 1{\cdot}12 \left(\frac{u}{U}\right)^2\right].$$

The width h, and the velocity ratio u/U must be known from experiment.



Fig. 2.7. Kármán vortex street, from A. Timme [21]

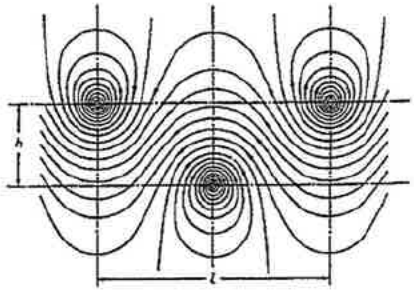


Fig. 2.8. Kármán vortex street (diagrammatic); stream-lines drawn in a system of coordinates moving with the vortex street

The frequency with which vortices are shed in a Kármán vortex street behind a circular cylinder was first extensively measured by H. Blenk, D. Fuchs and L. Liebers [2]. A regular Kármán street is observed only in the range of Reynolds numbers $V D/\nu$ from about 60 to 5000. At lower Reynolds numbers the wake is laminar and has the form visible in the first two photographs of Fig. 1.6; at higher Reynolds numbers there is complete turbulent mixing. Measurements show that in the regular range given above, the dimensionless frequency,

$$\frac{nD}{V} = \mathrm{S}\,, \qquad \text{(Strouhal number)}$$

also known as the Strouhal number [20], depends uniquely on the Reynolds number. This relationship is shown plotted in Fig. 2.9 which is based on the more recent measurements performed by A. Roshko [16]. The experimental points which were obtained with cylinders of different diameters D and at different velocities V arrange themselves well on a single curve. At the higher Reynolds numbers the Strouhal number remains approximately constant at $\mathrm{S} = 0{\cdot}21$. When the diameters of the cylinders are small and the velocities are moderate, the resulting frequencies lie in the acoustic range. For example, the familiar "aeolian tones" emitted by telegraph wires are the result of these phenomena. At a velocity of $V = 10$ m/sec (30·48 ft/sec) and a wire of 2 mm (0·079 in) in diameter, the frequency becomes $n = 0{\cdot}21\ (10/0{\cdot}002) = 1050\ \mathrm{sec}^{-1}$, and the corresponding Reynolds number $\mathrm{R} \approx 1200$.

Two recent papers by C. C. Lin [11] and U. Domm [4] concern themselves with the theory of the Kármán vortex street.

The boundary layer theory succeeds in this manner, i.e. with the aid of the explanation of the phenomenon of separation, in throwing light on the occurrence of pressure or form drag in addition to viscous drag. The danger of boundary layer separation exists always in regions with an adverse pressure gradient and the

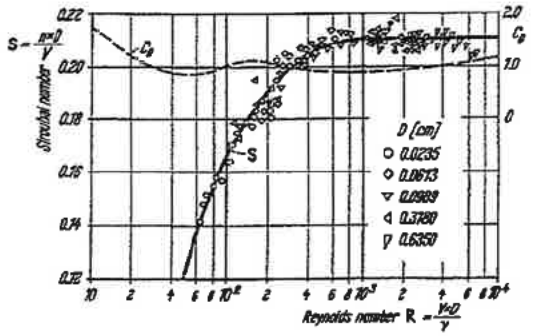


Fig. 2.9. The Strouhal number in terms of the Reynolds number for the flow past a circular cylinder as measured by A. Roshko [16]

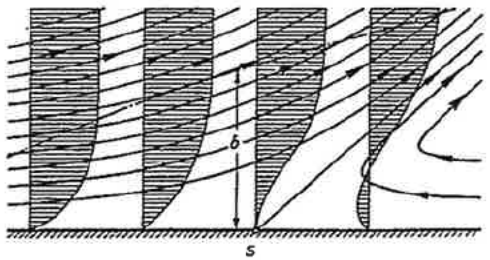


Fig. 2.10. Diagrammatic representation of flow in the boundary layer near a point of separation
S = point of separation

likelihood of its occurrence increases in the case of steep pressure curves, i.e. behind bodies with blunt ends. The preceding argument explains also why the experimental pressure distribution shown in Fig. 1.11 for the case of a slender stream-line body differs so little from that predicted for frictionless flow. The pressure increase in the downstream direction is here so gradual that there is no separation. Consequently, there is no appreciable pressure drag and the total drag consists mainly of viscous drag and is, therefore, small.

The stream-lines in the boundary layer near separation are shown diagrammatically in Fig. 2.10. Owing to the reversal of the flow there is a considerable thickening of the boundary layer, and associated with it, there is a flow of boundary layer material into the outside region. At the point of separation one stream-line intersects the wall at a definite angle, and the point of separation itself is determined by the condition that the velocity gradient normal to the wall vanishes there:

$$\left(\frac{\partial u}{\partial y}\right)_{wall} = 0 \quad \text{(separation)}\,. \qquad (2.7)$$

The precise location of the point of separation can be determined only with the aid of an exact calculation, i. e. by the integration of the boundary layer equations.

Separation, as described for the case of a circular cylinder, can also occur in a highly divergent channel, Fig. 2.11. In front of the throat the pressure decreases in the direction of flow, and the flow adheres completely to the walls, as in a frictionless fluid. However, behind the throat the divergence of the channel is so large that the boundary layer becomes separated from both walls, and vortices are formed. The stream fills now only a small portion of the cross-sectional area of the channel.



Fig. 2.11. Flow with separation in a highly divergent channel, from Prandtl-Tietjens

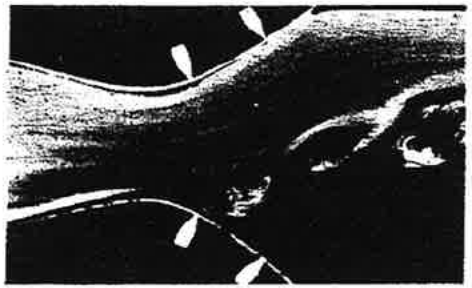


Fig. 2.12. Flow with boundary layer suction on upper wall of highly divergent channel

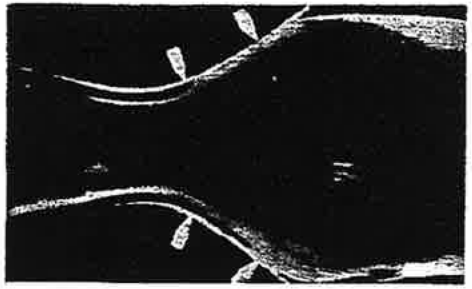


Fig. 2.13. Flow with boundary layer suction on both walls of highly divergent channel

The photographs in Figs. 2.14 and 2.15† prove that the adverse pressur gradient together with friction near the wall determine the process of separatio which is independent of such other circumstance as e.g. the curvature of the wall The first picture shows the motion of a fluid against a wall at right angles to it (plan stagnation flow). Along the stream-line in the plane of symmetry which leads to th stagnation point there is a considerable pressure increase in the direction of flow. N separation, however, occurs, because no wall friction is present. There is no separatio near the wall, either, because here the flow in the boundary layer takes place in th direction of decreasing pressure on both sides of the plane of symmetry. If now a thi wall is placed along the plane of symmetry at right angles to the first wall, Fig. 2.15 the new boundary layer will show a pressure increase in the direction of flow

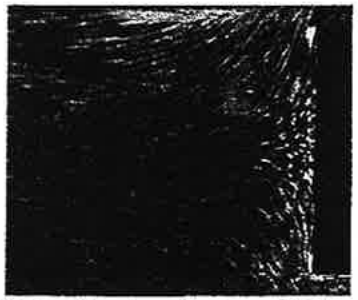


Fig. 2.14. Free stagnation flow without separation, as photographed by Foettinger

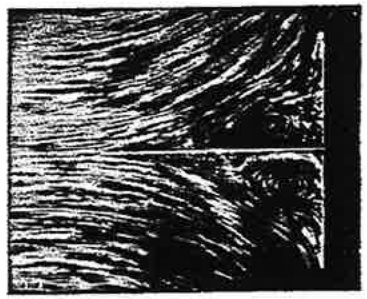


Fig. 2.15. Decelerated stagnation flow with separation, as photographed by Foettinger

Consequently, separation now occurs near the plane wall. The incidence of separation is often rather sensitive to small changes in the shape of the solid body, particularly when the pressure distribution is strongly affected by this change in shape. A very instructive example is given in the pictures of Fig. 2.16 which show photographs of the flow field about a model of a motor vehicle (the Volkswagen delivery van), [12, 18]. When the nose was flat giving it an angular shape (a), the flow past the fairly sharp corners in front caused large suction followed by a large pressure increase along the side walls. This led to complete separation and to the formation of a wide wake behind the body. The drag coefficient of the vehicle with this angular shape had a value of $C_D = 0{\cdot}76$. The large suction near the front end and the separation along the side walls were eliminated when the shape was changed by adding the round nose shown at (b). Simultaneously, the drag coefficient became markedly smaller and had a value of $C_D = 0{\cdot}42$.

Separation is also important for the lifting properties of an aerofoil. At small incidence angles (up to about 10°) the flow does not separate on either side and closely approximates frictionless conditions. The pressure distribution for such a case ("sound" flow, Fig. 2.17a) was given in Fig. 1.13. With increasing incidence there

† Figs. 2.14 and 2.15 have been taken from the paper "Strömungen in Dampfkesselanlagen" by H. Foettinger, Mitteilungen der Vereinigung der Groß-Kesselbesitzer, No. 73, p. 151 (1939).

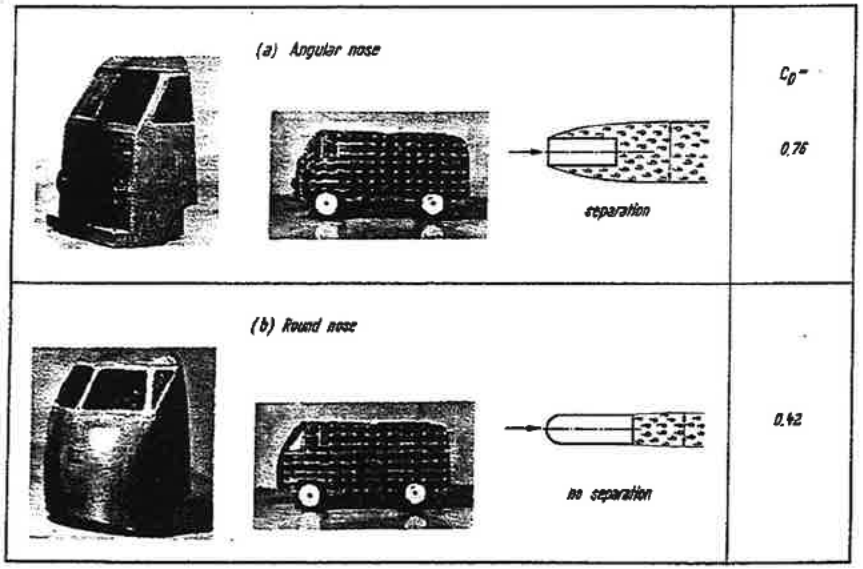


Fig. 2.16. Flow about a model of a motor vehicle (Volkswagen delivery van), after E. Moeller [12]. a) Angular nose with separated flow along the whole of the side wall and large drag coefficient ($C_D = 0.76$); b) Round nose with no separation and small drag coefficient ($C_D = 0.42$)

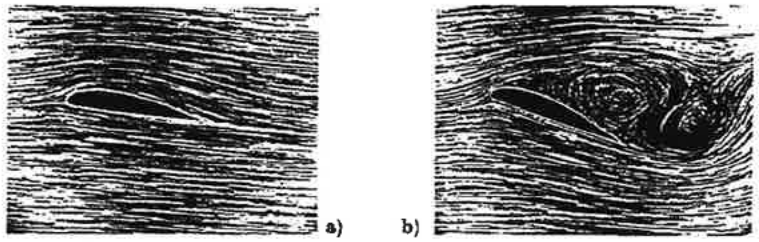


Fig. 2.17a, b. Flow around an aerofoil, after Prandtl. a) 'sound' flow, b) flow with separation

is danger of separation on the suction side of the aerofoil, because the pressure increase becomes steeper. For a given angle of incidence, which is about 15°, separation finally occurs. The separation point is located fairly closely behind the leading edge. The wake, Fig. 2.17 b, shows a large "dead-water" area. The frictionless, lift-creating flow pattern has become disturbed, and the drag has become very large. The beginning of separation nearly coincides with the occurrence of maximum lift of the aerofoil.

c. Turbulent flow in a pipe and in a boundary layer

Measurements show that the type of motion through a circular pipe which was calculated in Section Id, and in which the velocity distribution was parabolic, exists only at low and moderate Reynolds numbers. The fact that in the laminar motion under discussion fluid laminae slide over each other, and that there are no radial velocity components so that the pressure drop is proportional to the first power of the mean flow velocity, constitutes an essential characteristic of this type of flow. This characteristic of the motion can be made clearly visible by introducing a dye into the stream and by discharging it through a thin tube, Fig. 2.18. At the moderate Reynolds numbers associated with laminar flow the dye is visible in the form of a clearly defined thread extending over the whole length of the pipe, Fig. 2.18a. By increasing the flow velocity it is possible to reach a stage when the fluid particles cease to move along straight lines and the regularity of the motion breaks down. The coloured thread becomes mixed with the fluid, its sharp outline becomes blurred and eventually the whole cross-section becomes coloured, Fig. 2.18b.

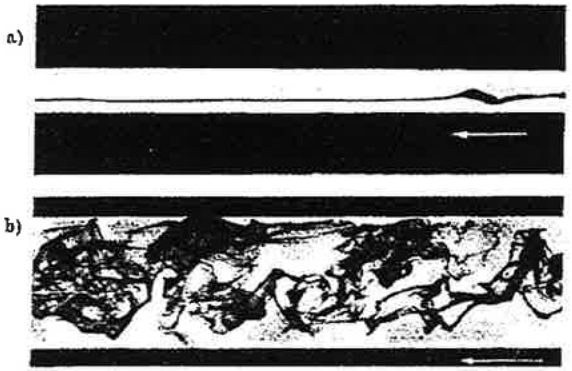


Fig. 2.18. The Reynolds dye experiment. Flow in water made visible by the injection of a dye, after W. Dubs [5]. a) laminar flow, R = 1150; b) turbulent flow, R = 2520

On the axial motion there are now superimposed irregular radial fluctuations which effect the mixing. Such a flow pattern is called *turbulent*. The dye experiment was first carried out by O. Reynolds [15], who ascertained that the transition from the laminar to the turbulent type of motion takes place at a definite value of the Reynolds number (critical Reynolds number). The actual value of the critical Reynolds number depends further on the details of the experimental arrangement, in particular on the amount of disturbance suffered by the fluid before entering the pipe. With an arrangement which is as free from disturbances as possible critical Reynolds numbers $(\bar{u}d/\nu)_{crit}$ exceeding 10^4 can be attained ($\bar{u}$ = denotes the mean velocity averaged over the cross-sectional area). With a sharp-edged entrance the critical Reynolds number becomes approximately

$$\left(\frac{\bar{u}\,d}{\nu}\right)_{crit} = \mathrm{R}_{crit} \approx 2300, \text{ (pipe)}. \tag{2.8}$$

Survey of Maple Trees at Columbia Gardens,

To The North - Starting with first Tree North of Stump

Tree #	Distance from Stump	Circumference	Tree Height	Branch Extension North	South	East	West	Dripline Average	Remarks
Stump		64.5.							Maple
#1	42'	86"	44'	28'	24'	16'	20'	22'	Maple
#2	76'	52"	57'	8'	15'	10'	28'	15'	Alder
#3	142.5'	46"	57'	5'	15'	8'	12	10'	Alder Poor Health
#4	209'	54"	42'	11'	15'	13'	15	13.5'	Alder Poor Health
#5	375'	80"	61.5	13'	25'	12'	26'	19'	Maple
#6	407'	100"	83'	14'	24'	15'	26'	20'	Alder
#7	438'	132"	86'	38'	25'	15'	30'	27'	Maple
#A	Not measured Est. 1/4 mi	53"	41	16'	15'	10'	22'	16'	Maple

To The South - Starting with first Tree South of Stump

#8	90'	122"	65'	60'	23'	29'	45'	39'	Maple
#9	92'	112"	64'	These Trees So Close & Intertwined They Must be Considered As One Tree					Maple
#10	120'	122"	75'	13'	43	27'	27'	27½'	Alder
#11	153'	156"	67'	32'	37'	30'	47'	36½	Maple
#12	213'	118"	59'	25'	20'	19'	35'	25'	Maple
#13	247'	132"	66'	20'	42'	22'	31'	29'	Alder
#14	318'	113"	85'	30'	23'	29'	44'	31½'	Maple Very Tall
#B	Not measured est. 1/8 mi	80"	49'	32'	21'	17'	30'	25'	Maple East Side of Road
#C	"	76"	57'	19'	21'	22'	23'	21'	Maple East Side of Ro

There are 11 Major Trees in a Straight Line North of the Monitor for .15 mi.
" " 19 " " " " " South " " " " .2 mi

This Survey is the Basis for Recreating the Maple Tree which Completely Shrouded the Columbia Gardens Monitor SO_2 Probe Prior to 1994. This Tree was Felled by Cominco in 1994. 12 Like Maple Trees within 1/4 mi Vicinity were Averaged to Compute the Former Size of the Felled Tree.

1

```
TREEDATA←⍉(3 17)⍴TH,TR,TC
```

```
      TREEDATA
 44  22  86
 57  15  52
 57  10  46
 42  14  54
 62  19  80
 85  20 100
 86  27 132
 65  39 122
 64  39 112
 75  28 122
 67  37 156
 59  25 118
 66  29 132
 85  32 113
 49  25  80
 57  21  76
 41  16  53
```

2

```
[0]   Z←REGR X
[1]   B←((Y+.×X)-(+/Y)×XM)÷XSQ←+/(X-XM←(+/X)÷N←⍴X)*2
[2]   A←(YM←(+/Y)÷N)-B×XM
[3]   SST←+/(Y-YM)*2
[4]   SSE←+/(Y-A+B×X)*2
[5]   V←SSE÷N-2
[6]   VB←V÷XSQ
[7]   VA←(((XM*2)÷XSQ)+÷N)×V
[8]   COV←-XM×V÷XSQ
[9]   RSQ←1-SSE÷SST
[10]  'SAMPLE SIZE IS          ',⍕N
[11]  'MEAN OF X IS            ',⍕XM
[12]  'MEAN OF Y IS            ',⍕YM
[13]  'VARIANCE OF X IS        ',⍕(XSQ÷N)
[14]  'VARIANCE OF Y IS        ',⍕(SST÷N)
[15]  'VARIANCE OF ERROR IS    ',⍕V
[16]  'COEFF A IS              ',⍕A
[17]  'VARIANCE OF A IS        ',⍕VA
[18]  'T-RATIO OF A IS         ',⍕(A÷VA*0.5)
[19]  'COEFF B IS              ',⍕B
[20]  'VARIANCE OF B IS        ',⍕VB
[21]  'T-RATIO OF B IS         ',⍕B÷VB*0.5
[22]  'COEFF OF DETERM IS      ',⍕RSQ
[23]  'COVAR (A,B) IS          ',⍕COV
```

```
      TD REGR TC
VALUE ERROR
      TD REGR TC
       ^
```

3

```
      TH REGR TC
SAMPLE SIZE IS          17
MEAN OF X IS            96.11764706
MEAN OF Y IS            62.41176471
VARIANCE OF X IS        1038.221453
VARIANCE OF Y IS        192.4775087
VARIANCE OF ERROR IS     128.4408346
COEFF A IS              35.8732661
VARIANCE OF A IS        74.78648092
T-RATIO OF A IS         4.148196971
COEFF B IS              0.2761043307
VARIANCE OF B IS        7.277198125E¯3
T-RATIO OF B IS         3.236615571
COEFF OF DETERM IS      0.4112031634
COVAR (A,B) IS          ¯0.699467161
```

$TH = 35.873 + 0.276\,TC$

$(TH \mid TC = 64.5) = 53.675$

→ 54′

Tree height

```
      TR REGR TC
SAMPLE SIZE IS          17
MEAN OF X IS            96.11764706
MEAN OF Y IS            24.58823529
VARIANCE OF X IS        1038.221453
VARIANCE OF Y IS        72.00692042
VARIANCE OF ERROR IS     22.76884922
COEFF A IS              3.094498844
VARIANCE OF A IS        13.25748243
T-RATIO OF A IS         0.8498842768
COEFF B IS              0.2236190451
VARIANCE OF B IS        1.290036984E¯3
T-RATIO OF B IS         6.225979811
COEFF OF DETERM IS      0.720996802
COVAR (A,B) IS          ¯0.1239953195
```

$TR = 3.094 + 0.224\,TC$

$(TR \mid TC = 64.5) = 17.54$

→ 18′

drip line radius

Monitoring Guidelines B.C. Envi.

SITE SELECTION GUIDELINES AND CRITERIA

FOR

AMBIENT AIR MONITORS

T. B. Leung
B. B. Manna
Air Quality Engineering Unit
Waste Management Branch

May, 1984

2. PROBE SITING CRITERIA

This section describes probe siting criteria to be applied to ambient air quality monitors after the general monitor location has been selected based on the monitoring objectives as discussed in the previous section.

To ensure that the air quality data collected are compatible and comparable, these criteria must be followed to the maximum extent. Practical considerations such as prevention of vandalism, accessibility, power availability etc. may be such that these criteria cannot be met. These situations should be thoroughly documented to facilitate proper interpretation of data thus collected.

2.1 TOTAL SUSPENDED PARTICULATE (TSP) MONITORS

Table 2 contains probe siting criteria for monitoring Total Suspended Particulate (TSP). The type of samplers that these criteria are applicable include Lo-volume and Hi-volume samplers, Anderson Head, Dichotomous samplers Size Inlet Heads and Nephelometers.

2.2 SULPHUR DIOXIDE (SO_2) TOTAL REDUCED SULPHUR (TRS AS H_2S) AND HYDROGEN FLUORIDE (HF) MONITORS

Table 3 shows the probe siting criteria for SO_2, TRS and HF monitors. For SO_2 and TRS one of the criteria is that the probe should not be located near furnace or incineration flues. The distance is dependent of the height of the furance or incineration flue, type of waste or fuel burned and the quality of fuel such as sulphur and ash content. This is to avoid undue influences from minor pollutant sources.

SO_2 Siting Guidelines B.C. Envi

(15)

Ledeuman Submission

IV-2 Colvin Guns

SITE SELECTION GUIDELINES AND CRITERIA

FOR

AMBIENT AIR MONITORS

T. B. Leung
B. B. Manna
Air Quality Engineering Unit
Waste Management Branch

May, 1984

2. PROBE SITING CRITERIA

This section describes probe siting criteria to be applied to ambient air quality monitors after the general monitor location has been selected based on the monitoring objectives as discussed in the previous section.

To ensure that the air quality data collected are compatible and comparable, these criteria must be followed to the maximum extent. Practical considerations such as prevention of vandalism, accessibility, power availability etc. may be such that these criteria cannot be met. These situations should be thoroughly documented to facilitate proper interpretation of data thus collected.

2.1 TOTAL SUSPENDED PARTICULATE (TSP) MONITORS

Table 2 contains probe siting criteria for monitoring Total Suspended Particulate (TSP). The type of samplers that these criteria are applicable include Lo-volume and Hi-volume samplers, Anderson Head, Dichotomous samplers Size Inlet Heads and Nephelometers.

2.2 SULPHUR DIOXIDE (SO_2) TOTAL REDUCED SULPHUR (TRS AS H_2S) AND HYDROGEN FLUORIDE (HF) MONITORS

Table 3 shows the probe siting criteria for SO_2, TRS and HF monitors. For SO_2 and TRS one of the criteria is that the probe should not be located near furnace or incineration flues. The distance is dependent of the height of the furance or incineration flue, type of waste or fuel burned and the quality of fuel such as sulphur and ash content. This is to avoid undue influences from minor pollutant sources.

TABLE 3

PROBE SITING CRITERIA FOR

SULPHUR DIOXIDE (SO_2), TOTAL REDUCED SULPHUR (As H_2S)

AND HYDROGEN FLUORIDE (HF) MONITORS

HEIGHT ABOVE GROUND (m)	DISTANCE FROM SUPPORTING STRUCTURES (m)		OTHER SPACING CRITERIA
	VERTICAL	HORIZONTAL [1]	
3-15 $39.37 \times 3 =$ $118.11 = 9.84$ feet	>1	>1	a. >20 m from trees. (78 feet) b. Distance from sampler to obstacle, such as buildings, must be at least twice the height the obstacle protrudes above the sampler. c. Unrestricted air flow from 3/4 of all wind directions including the dominant wind direction for the season of greatest potential pollutant concentration. d. No furnace or incineration flues nearby for SO_2 and TRS. e. Probe on roof or intermediate height of a building must be less than 80% of the mean height of the buildings in the vicinity to minimize non-uniformity in vertical concentration.

[1] When probe is located on rooftop, this separation distance is in reference to walls, parapets, or penthouses located on the roof.

The Environmental Protection Compendium

Air Monitoring Guidelines: Volume I Particulate Non-Continuous

Part 1: Total Suspended Particulate
PM10 Inhalable Particulate: High-volume
PM10 Inhalable Particulate: Low-Flow Rate

March, 1996

PM10 SITING GUIDELINES BC. ENVI

Table of Contents

1. Introduction
2. Scope
3. Equipment

- 3.1 Reference Method vs Equivalent Method
- 3.2 Reference Method
  - 3.2.1 Total Suspended Particulate
  - 3.2.2 Inhalable Particulate (PM10) High-Volume
  - 3.2.3 Inhalable Particulate (PM10) - Low Flow Rate
- 3.3 Sample Heads
- 3.4 Sampler/Equipment Specifications

4. Siting
5. Installation
6. Field Operations

- 6.1 High-Volume TSP and PM10 Sampler
- 6.2 Partisol ™ Low Flow Rate Sampler

7. Filter Media

- 7.1 Mechanical Stability
- 7.2 Chemical Stability
- 7.3 Temperature Stability
- 7.4 Blank Concentrations
- 7.5 Flow Resistance and Loading Capacity
- 7.6 Acceptance Testing

8. Calibration

8.1 Calibration Frequency

9. Maintenance
10. Audit

10.1 Laboratory Procedure

11. Data Reporting
12. Training

1.0 Introduction

The Air Monitoring Guidelines are prepared by the British Columbia Ministry of Environment to ensure that all atmospheric data collected, or for regulatory use, by the Ministry are scientifically acceptable and consistent throughout the province.

The Guidelines specify and standardize technical siting and operational monitoring procedures that are to be adopted by ministry staff , their contractors, and permit holders, if atmospheric monitoring data are to be processed by and/or accepted for use by the Ministry.

Volume I of the Guidelines, Non-Continuous Particulate Monitoring, Part 1, documents the technical procedures required for the most common methods of non-continuous particulate sampling; High-Volume Total Suspended Particulate (TSP), High-Volume Inhalable Particulate 10 microns and smaller (PM10) , and Low-Flow Rate PM10.

The monitoring methods and procedures specified in this Guideline to a large degree mirror those derived and implemented in the United States by the U.S. Environmental Protection Agency (USEPA). USEPA methods and procedures have been modified for application in British Columbia as appropriate. Consequently, BC Environment Guidelines take precedence over USEPA requirements for monitoring applications in British Columbia. In general, USEPA methods and procedures are adopted for use in British Columbia where provincial methods and procedures have not been specified.

The Atmospheric Monitoring Guidelines are subject to constant revision and updating to stay current with new and developing technologies and to remain sensitive to modern monitoring requirements. The Guidelines are maintained and kept current by the Ministry of Environment and made readily available for reference by ministry staff, permittees, and the public.

2.0 Scope

This document (Non-Continuous Particulate Monitoring: Part 1) provides the technical methods and procedures required for the static high-volume sampling of TSP and PM10 , and for static low flow rate sampling of PM10.

This Guideline encompasses the recommended technical methods and procedures for monitor siting, instrument selection, and sampler installation and operation. Other Ministry guidelines specify the planning and design of monitoring networks, air monitoring laboratory methods, and atmospheric data management requirements and are cited in this document where appropriate.

3.0 Equipment

3.1 Reference Method vs Equivalent Method

The USEPA designates particulate samplers as performing either reference or equivalent methods. Reference methods refer to sample collection using manual samplers which have been proven to meet specific performance criteria through rigorous laboratory and field testing. Equivalent status is assigned to those monitors which are proven to be acceptably comparable to a reference method (Federal Register, 1987).

Reference particulate sampling methods involve the drawing of an atmospheric sample through standard filter media. Reference methods require equilibration and weighing of the exposed filter in a laboratory. Equivalent methods, however, allow in situ determination of particle mass by beta-ray attenuation or by an inertial microbalance. Examples of manual samplers include high-volume and dichotomous samplers. The Tapered Element Oscillating Microbalance (TEOM) and beta gauge are examples of indirect (equivalent) methods which are able to provide near continuous measurements of ambient particulate concentrations.

USEPA reference and equivalent methods adopted for use in British Columbia are summarized in Table 1.

Table 1: BC Environment accepted ambient particulate monitoring methods.

Manual Reference Methods	Automated Equivalent Methods
Wedding & Associates PM_{10} Critical Flow Sampler *(Fed. Reg. Vol 52, 37366, dated 10/06/87)*	Rupprecht & Patashnick TEOM Series 1400 PM_{10} Monitor *(Fed. Reg. Vol. 55, 43406, dated 10/29/90)*
Sierra-Andersen/GMW 1200[1] *(Fed. Reg. Vol 52, 45684, dated 12/01/87; Fed. Reg. Vol. 53, 1062, dated 01/15/88)*	Wedding & Associates PM_{10} Beta Gauge Automated Particle Sampler *(Fed. Reg. Vol. 56, 9216, dated 03/05/91)*
Sierra-Andersen/GMW 321-B[1] *(Fed. Reg. Vol 52, 45684, dated 12/01/87; Fed. Reg. Vol. 53, 1062, dated 01/15/88)*	
Sierra-Andersen/GMW 321-C[1] *(Fed. Reg. Vol. 52, 45684, dated 12/01/87; Fed. Reg. Vol. 53, 1062, dated 01/15/88)*	
Rupprecht & Patashnick Partisol™ Model 2000 *(Fed. Reg. Vol. 59, 35338, dated 07/11/94)*	

(1) Size-selection-inlet (PM10) high-volume sampler.

3.2 Reference method

3.2.1 Total Suspended Particulate

Total Suspended Particulate (TSP) monitoring captures atmospheric particulate smaller than 40 μm in diameter.

The high-volume (hi-vol) sampler is the recommended standard sampler for TSP monitoring in British Columbia. It has a peaked roof and draws air through a 20.3 cm by 25.4 cm filter at a rate of 1,132 L/min

or 40 cfm.

TSP concentrations are determined by the net weight gain of the filter subsequent to exposure to the appropriate sample of air. The particulate sample may be further analysed in a laboratory to determine the chemical and metal constituents of the particulate sample collected.

3.2.2 Inhalable Particulate (PM10) High-Volume

British Columbia has adopted the USEPA size-selective inlet (SSI), retrofitted to the standard hi-vol sampler, as the reference method for sampling inhalable particulate (PM10).

Size selective inlets provide a means to sample specific size fractions. Inlet design is such that particles exceeding a specified aerodynamic diameter (or cutpoint) are removed from the inlet airstream with progressively less efficiency. PM10 samplers are designed to have a 50% cutpoint (D50) of 10 µm. This means that the sampler collects 50% and rejects 50% of 10 µm particles.

The SSI head is rounded to allow for unbiased sampling from any direction, in direct contrast to the gabled roof design of the original hi-vol sampler (Hicks and Corr, 1983). Air is drawn through a series of baffles, 1,132 L/min (40 cfm), to eliminate particles greater than 10 mm in diameter from the sample.

Samples are collected on Teflon-coated glass fibre filters to reduce artefact sulphate and nitrate formation (Dann, 1994). The mass and analytical techniques used for TSP filter analysis can be used for SSI filter samples.

Monitors made by different manufacturers may differ in the type of fractionating device used. Some incorporate a greased impaction surface below a series of impactor jets, while others employ a greased cyclone.

3.2.3 Inhalable Particulate (PM10) - Low Flow Rate

The Partisol™ Model 1200 has been designated a low flow rate sampling reference method.

The Partisol™ sampler is a manual, low flow rate sampler developed by Rupprecht & Patashnick. It was approved as a reference method by the EPA in 1994 (U.S. Federal Register, 1994). It consists of a hub station and up to two satellite stations. The hub unit contains a microprocessor with internal data storage, an active flow control system and a pump. Satellite units are fitted with a sample inlet and a 47 mm filter exchange mechanism which may employ quartz fibre, Teflon-coated glass fibre or Teflon filters. Only one satellite unit can operate at a time.

Menu-driven software can be used to determine conditions, such as wind speed, wind direction or mass loading, under which the hub or satellite units are active. Flow is controlled between 3-20 L/min.

The Partisol™ satellite units can be fitted with TSP, PM10 , PM2.5 or PM1.0 inlet heads to provide more selective sampling of particulate.

3.3 Sample Heads:

Inertial impactors provide a means of segregating particles on the basis of size. In particular, they classify particles by their aerodynamic diameter, which is a useful parameter in respiratory health effects studies. Impactors are based on the following principle of operation: An airstream is drawn through a series of nozzles or jets and directed towards a flat impaction plate. The high inertia of larger particles will carry them into the impaction plate, which may be coated with an adhesive or grease to aid collection. Smaller particles will

continue on with the airstream.

Virtual impactors differ from cascade impactors in that the impaction plate is replaced by an opening which directs larger particles to one sampling substrate, and the smaller particles to another. This principle is used in dichotomous samplers. Relative to cascade impactors, the effects of particle bounce-off and re-entrainment are reduced. However, this method requires that a portion of the total flow (typically 10%) be drawn through the virtual impaction surface. Hence, correction factors must be applied to the coarse channel flow to account for contamination by the fine fraction.

Cyclone samplers use an impeller to impose a circular motion to air entering a cylindrical tube. Centripetal force moves the particles toward the walls of the tube. Particles reaching the walls, which may be covered in an oil or grease coating, either adhere to it or drop into a hopper at the bottom of the tube. The inner tube and hopper are cleaned to minimize re-entrainment.

Sample head cut points differ slightly for different manufacturers. Consequently, it is recommended that a single brand and type of sample head be used in particulate monitoring programs that require multiple samplers.

3.4 Sampler/Equipment Specifications

Particulate samplers used by the Ministry of Environment or used as a requirement of the BC Ministry of Environment, must qualify as either a USEPA *Code of Federal Regulations (CFR)* reference or equivalent method and must be accepted by the Ministry of Environment for use in British Columbia.

High-Volume Sampler:

Reference Method for the Determination of Total Suspended Particulate Matter in the Atmosphere (High-Volume Method) 40 CFR part 50 appendix B, section 2.2.11

High-Volume PM10 Sampler:

Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume PM10 Sampler Method) 40 CFR part 50 appendix J, section 2.11.10

Low-Flow Rate PM10 Partisol™ Sampler:

Reference Method for the Determination of Ambient Concentrations of Particulate Matter measured as PM10. (Rupprecht & Patashnick Partisol™ Model 2000 Air Sampler) 40 CFR part 50 appendix J, section 2.11.10, Partisol™ Operating Manual

---

4.0 Siting

1. Approval: Written approval must be obtained from the property owner before the monitoring site is established.

2. Access: There must be unrestricted access to the sampler and site during the monitoring period and the site and equipment must be safely accessible in all weather conditions for the duration of monitoring operations.

3. Site category: Site requirements can be categorized as; (1) surface sites and (2) building or structure mounted sites. Surface located samplers are those samplers that are stand alone or enclosed in environmental enclosures on the ground rather than on a dominant structure.

1. Monitoring sites established for Ministry purposes are to be formally initiated using:

MOE Station Startup Form (SSF)
Parameter Sampling Description Form (PSD)
MOE Equipment Inventory Form (EIF) [where equipment is Ministry owned].

These forms are available from the Regional Air Monitoring Technician at the appropriate Ministry of Environment Regional Office.

Upon completion of the forms and approval by the Regional Air Monitoring Technician, a station number is issued and preparations completed for the processing of data and/or for inclusion of processed data in the appropriate provincial atmospheric database.

Monitors then are identified for inclusion in the Ministry of Environment air audit program.

2. Stand alone samplers must be provided with, and bolted to, a solid, level and stable foundation that is designed to prevent the sampler from toppling. Concrete, a concrete pad or elevated platform are acceptable.

The foundation must be at such a height so as to maintain the sample head at a minimum of 2 meters above the surface at all times. This applies to the snow surface in winter.

3. Sampler line power must be provided with service wires that comply with local and Provincial electrical codes.

Outdoor receptacles are to be protected with a dedicated ground-fault interrupter circuit.

Access to the circuit breaker must be provided at all times.

All exposed extension cables must use waterproof interlocking electrical connectors and the cable should be protected from mechanical damage, abrasion and ultraviolet deterioration by containing it in a protective (flexible) conduit.

4. Samplers must be located at least 2 meters, but not more than 4 meters, apart where more than one sampler is located at a given site. It is preferable to sample perpendicular to the prevailing wind flow.

5. Each sampler is to be fitted with an exhaust conduit that must be at least the same size as the exhaust port of the blower. The conduit is to extend at least 5 meters from the monitor inlet downwind of the prevailing wind direction.

6. All sides of the sampler must be easily accessible so that the operator may always service the instrument from the down wind side.

Samplers at least 2 meters apart

Demoich

6.0 Field Operations

An operational log book is to be maintained by the operator, for each monitoring station and retained for easy access by Ministry of Environment personnel. The log book must contain a record of all activities the operator, contractor, or audit member has undertaken in the operation and maintenance of the site and equipment.

Manufacturers instructions are to be followed for the routine operation of particulate monitors.

All operators and administrators associated with the sampling program are required to be in compliance with local and Provincial Workers' Compensation Board (WCB) safety codes.

Operators must follow the operational safeguards documented in the manufacturers equipment manuals. Since samplers are quite often located on rooftops and other unusual locations that are accessed by ladders or ramps in all weather conditions, a safe method for the access and egress of the site must be specified, in writing, for the operator.

Newly installed monitors require a multipoint flow rate calibration before sample collection begins.

The standard sampling duration for non-continuous monitoring of TSP and PM10 is 24 hours. The minimum sampling schedule endorsed by the Ministry of Environment is one 24 hour sample every 6th day and is consistent with the federal National Air Pollution Surveillance (NAPS) monitoring schedule.

High-volume sampling schedules are to be harmonized with the NAPS schedule for federal and provincial consistency. Schedules can be obtained from the air technical staff in the nearest Ministry of Environment regional office.

More frequent extraction of 24-hour samples may be undertaken within the NAPS monitoring schedule as dictated by the objectives of the individual monitoring program.

6.1 High-Volume TSP and PM10 Sampler

1. Particulate filters are to be conditioned and analyzed only by a laboratory approved by the BC Ministry of Environment.

2. Particulate filters are to be inspected, preconditioned, and weighed in a manner consistent with approved BC Ministry of Environment air laboratory methods (Air Laboratory Methods Manual, 1996).

3. Filters are to be ordered in sufficient quantity to ensure no disruption of the sampling schedule.

4. Filters must be handled with clean freshly laundered cotton gloves to avoid sample contamination. 47 mm filters require handling using Teflon coated, serration free, forceps.

5. New filters must be loaded into a filter cassette, in a clean room environment, prior to deployment into the field.

6. Filters are to lie flat in the sampler, remain in one piece, and provide a good seal with the sampling system to eliminate leaks.

7. Filters must be placed in the cassette with the smooth side down (control numbered side). Filters in their cassette must be covered with the cover provided and then stored in a plastic bag until deployment in the field.

8. Filter replacement in the field must be performed so as to reduce opportunities for sample contamination. The operator is to stand downwind of the filter when handling it. Clean cotton gloves or powder free plastic disposable gloves are used when handling the cassette.

9. The exposed filter is to be returned as soon as possible to a clean room environment where it is removed from the cassette for shipment to the analytical lab.

The exposed area of the filter must not be touched to avoid dislodging particle matter from the filter and

to avoid sample contamination.

10. The filter cassette must be cleaned thoroughly prior to loading with a new filter. Clean the cassette with a soft brush and a clean compressed air source. For severely soiled cassettes use a laboratory grade cleaner and rinse six times in deionized water, then dry thoroughly.

11. The filter cassette gasket must be inspected carefully with each handling and replaced if there are signs of damage or over-compression.

12. The sampler must be cleaned regularly and as conditions dictate. Size selective inlets (SSI) must be re-oiled according to the manufacturers specifications, if required, to prevent particle contamination and particle bounce from occurring.

6.2 Partisol™ low flow rate sampler

The manual provided with the Partisol™ sampler is very comprehensive. All aspects of routine field operations are described in detail. Partisol™ filters are pre-loaded in a filter cassette and shipped in a petri dish so loading/unloading of the filter into the cassette by field staff is not required.

7.0 Filter Media

A particle sampling filter consists of a tightly woven fibrous mat or plastic membrane that has been penetrated by microscopic pores. Filters should remove more than 99% of suspended particles drawn through them.

Filter media used in monitoring activities must have physical and chemical properties appropriate for the sample methodology and the laboratory analysis method used. Table 2 identifies air sampling filter types, acceptable to the Ministry of Environment.

Table 2: Filter media acceptable to MOE

TSP	Pallflex TX40H120 WWW EMFAB; 20.3 cm x 25.4 cm
PM10 Ambient Particulate	Pallflex TX40H120 WWW EMFAB; 20.3 cm x 25.4 cm
Partisol Ambient Particulate	Pallflex TX40H120-WW 47 mm

7.1 Mechanical Stability

Filters are to lie flat in the sampler, remain in one piece, and provide a good seal with the sampling system to eliminate leaks

A filter must allow precise and accurate sectioning in any subsequent laboratory analysis.

Brittle filter material may flake and negatively bias mass measurements. The pure quartz-fiber filters are very brittle, and portions of their edges often become attached to the filter holder, thereby biasing the mass measurement. Ringed Teflon membranes are stretched between a ring, and these curl when they are cut in half or when a punch is removed.

7.2 Chemical Stability

Filters must not chemically react with deposit, even when submitted to stro extraction solvents. They must not absorb contaminating gases. When gas absorption is desired, as it may be when the precursors of secondary particles are measured, the filter material should absorb those gases at near 100% efficiency. Some filter material are known to absorb artifacts such as sulfate, nitrate, organic vapor and also water vapor that can greatly bias mass measurements.

7.3 Temperature Stability

Filters should retain their porosity and structure in the presence of temperatures typical of the sampled airstream and the analytical methods.

7.4 Blank Concentrations

Filters should not contain significant and highly variable concentrations of the chemicals which are being sought by analysis. Each batch of the unexposed filters should be examined for blank concentration levels prior to field sampling.

7.5 Flow Resistance and Loading Capacity

Filters should allow sufficient amounts of air to be drawn through them to satisfy the flow rate requirements of the inlet and to obtain an adequate deposit. Particle concentrations up to 500 µg/m3 should be attainable over a 24 hour period.

7.6 Acceptance Testing

All filters require an "acceptance testing" program when they are to be used for, chemical characterization of the deposits. At least one filter from each lot, typically one per hundred, should be blank tested and analyzed for filter interference's. Each filter must be individually light tested over a light table for discoloration, pin-holes, creases or other defects. In addition to laboratory blanks, 5 to 10% of all filters should be designated as field blanks to follow all handling procedures except for actual sampling.

Some filters also require pretreatment before sampling. For example, quartz-fiber filters can be baked at high temperatures (> 500°C) prior to acceptance testing to remove adsorbed organic vapors. Nylon-membrane filters, used to collect nitric acid and total particulate nitrate, absorb nitric acid over time and need to be tested and/or cleaned prior to use. Cellulose-fiber and quartz-fiber filters can be soaked in solutions of gas-absorbing chemicals prior to sampling to collect gaseous nitric acid (HNO3), ammonia (NH3), sulfur dioxide (SO2), and nitrogen dioxide (NO2). Triethanolamine (TEA) has been use as an absorber for nitrogen dioxide (NO). The TEA is usually mixed with glycol or glycerin to improve its absorbing capacity. Peroxyacetyl nitrate (PAN), organic nitrates, and sulfur dioxide are also collected by TEA, and the nitrogen-containing compounds will appear as nitrite during analysis. TEA oxidizes in air and light, so impregnated filters must be stored in the dark in sealed containers.

8.0 Calibration

Calibration of High Volume samplers are to be performed in accordance with USEPA *Code of Federal Regulations (CFR)* calibration procedures:

Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High -Volume Method) 40CFR part 50, Section 2.2.2
Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High -Volume PM10 Sampler Method) 40CFR part 50, Section 2.11.2

Calibration of the Partisol™ low flow rate sampler is to be done in accordance with Rupprecht & Patashnick Co. calibration procedures:

Partisol™ Model 2000 Air Sampler, Operating Manual, Section 10

8.1 Calibration Frequency

Single point (Quality Control Procedure):

A field-calibration check of the operational flow rate is recommended at least once per month.

Multi-point (Calibration):

1. When sampler first installed
2. Every six months
3. After major repair work

High-Volume sampler:

4. Any time a one-point calibration check deviates by more than ± 7% from the calibration curve.

Partisol™ low flow rate sampler:

5. When a one-point calibration check of the flow in the "calc" column of the Calibration Screen, deviates by more than ±7% from the external flow meter reading.

9.0 Maintenance

Operators are to follow the operational maintenance and preventive maintenance schedules provided in the manufacturer's *Operators Manual.*

The operator must be aware of the sampler condition at all times and must provide routine and thorough inspection of the monitors and support systems. Proper maintenance requires that the operator be knowledgeable of the monitoring equipment and understand the theory of operation.

A maintenance and preventive maintenance schedule should be established for a monitoring installation concurrent with the installation of the monitoring equipment. A copy of this schedule is to be attached to the site log book.

10.0 Audit

High Volume Samplers will be audited once yearly by the Air Resources Branch, Air Audit Program, in accordance with USEPA *Code of Federal Regulations (CFR)* audit procedures:

Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method) 40CFR part 50, Section 2.2.7
Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere (High-Volume PM10 Sampler Method) 40CFR part 50, Section 2.11.7

Partisol low flow rate Samplers will b[illegible]udited once yearly by the Air Resourc[illegible]Branch, Air Audit Program, in accordance with Rupprecht & Patashnick Co. audit procedures:

Partisol Model 2000 Air Sampler, Operating Manual, Section 9

10.1 Laboratory Procedure

Particulate laboratory filter analysis techniques required by the Ministry for use in British Columbia are documented in **Air Laboratory Methods Manual, 1996**. This procedure encompasses those instructions established by the USEPA; *Code of Federal Regulations (40CFR 50, Appendix J).*

11.0 Data reporting

Data are to be provided to the Ministry of Environment on a schedule and in a form required by the Ministry. The BC Environment data submission guidelines are specified in the BC Environment document **Atmospheric Data Management Guidelines, 1996.**

12.0 Training

Operators must be adequately trained in the operation of ambient particulate monitoring samplers. They require a thorough understanding in the principals of ambient particulate monitoring techniques, and of the need to follow proper quality assurance\quality control (QA\QC) procedures. They must be sensitive to the wide range of problems that may arise in the operation of electronic instruments.

Operators should have received formal instruction in the area of physical sciences and demonstrate an aptitude in the operation of electronic instruments. An effective way to train capable new operators is through on-the-job training and mentoring by experienced technical staff.

Short courses from USEPA, seminars and workshops given by equipment manufacturers and government organization are good methods to bring the operating staff up to date on the latest developments of air monitoring technology and QA\QC procedures.

Return to the: Environmental Protection Compendium Home Page .

 Environmental Protection  B.C. Environment  B.C. Government

This page and all contents are Copyright © 1995, Province of British Columbia, Ministry of Environment, Lands and Parks. Disclaimer.

MONITORING REGULATIONS EPA.

5/1/96

code of federal regulations

Protection of Environment

40

PARTS 53 TO 59

Revised as of July 1, 1995

CONTAINING
A CODIFICATION OF DOCUMENTS
OF GENERAL APPLICABILITY
AND FUTURE EFFECT
AS OF JULY 1, 1995

With Ancillaries

Published by
the Office of the Federal Register
National Archives and Records
Administration
as a Special Edition of
the Federal Register

SO2 AIR MONITOR REGULATIONS

angle Park, NC. EPA Publication No. EPA-450/3-77-013. April 1977.

3. Ludwig, F. L. and J. H. S. Kealoha. Selecting Sites for Carbon Monoxide Monitoring. Stanford Research Institute, Menlo Park, CA. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Publication No. EPA-450/3-75-077. September 1975.

4. Ludwig, F. L. and E. Shelar. Site Selecting for the Monitoring of Photochemical Air Pollutants. Stanford Research Institute, Menlo Park, CA. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Publication No. EPA-450/3-78-013. April 1978.

5. Guideline on Air Quality Models. OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, NC. OAQPS No. 1.2-080. April 1978.

6. Control Techniques for Lead Air Emissions, OAQPS, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/2-77-012. December 1977.

7. Air Quality Criteria for Lead. Office of Research and Development, U.S. Environmental Protection Agency, Washington, DC. EPA-600/8-77-017. December 1977.

8. Johnson, D. E., et al. Epidemiologic Study of the Effects of Automobile Traffic on Blood Lead Levels, Southwest Research Institute, Houston, TX. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-600/1-78-055. August 1978.

9. Optimum Site Exposure Criteria for Lead Monitoring. PEDCo Environmental, Inc., Cincinnati, OH. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Contract No. 68-02-3013. (May 1981.)

10. Guidance for Lead Monitoring in the Vicinity of Point Sources. Office of Air Quality Planning and Standards, and Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/4-81-006. January 1981.

11. Cooper, J.A., et. al. Summary of the Portland Aerosol Characterization Study. (Presented at the 1979 Annual Air Pollution Association Meeting, Cincinnati, OH. APCA #79-24.4).

12. Bradway, R.M. and F.A. Record. National Assessment of the Urban Particulate Problem. Volume 1. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/3-76-024. July 1976.

13. U.S. Environmental Protection Agency, Air Quality Criteria for Particulate Matter and Sulfur Oxides, Volume 2. Environmental Criteria and Assessment Office. Research Triangle Park, NC. December 1981.

14. Watson, J.G., et al. Analysis of Inhalable and Fine Particulate Matter Measurements. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/4-81-035. December 1981.

15. Record, F.A. and L.A. Baci. Evaluation on Contribution of Wind Blown Dust from the Desert Levels of Particulate Matter in Desert Communities. GCA Technology Division, Bedford, MA. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/2-80-078. August 1980.

16. Goldstein, E.A. and Paly M. The Diesel Problem in New York City. Project on the Urban Environment. Natural Resources Defense Council, Inc., New York, NY. April 1985.

17. Koch, R.C. and H.E. Rector. Optimum Network Design and Site Exposure Criteria for Particulate Matter. GEOMET Technologies, Inc., Rockville, MD. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA Contract No. 68-02-3584. EPA 450/4-87-009. May 1987.

18. Pace, T., et al. Procedures for Estimating Probability of Nonattainment of a PM_{10} Data. U.S. Environmental Protection Agency, Research Triangle Park, NC. EPA-450/4-86-017. December 1986.

[44 FR 27571, May 10, 1979; 44 FR 72592, Dec. 14, 1979, as amended at 46 FR 44168, Sept. 3, 1981; 51 FR 9597, Mar. 19, 1986; 52 FR 24742—23744, July 1, 1987; 52 FR 27286, July 20, 1987; 54 FR 15183, Apr. 17, 1989; 56 FR 64483, Dec. 10, 1991; 57 FR 44496, Sept. 28, 1992; 58 FR 8469, Feb. 12, 1993; 59 FR 41628, Aug. 12, 1994; 60 FR 11909, Mar. 3, 1995]

APPENDIX E—PROBE SITING CRITERIA FOR AMBIENT AIR QUALITY MONITORING

1. Introduction
2. [Reserved]
3. Sulfur Dioxide (SO_2)
3.1 Horizontal and Vertical Probe Placement
3.2 Spacing from Obstructions
3.3 Spacing from trees and other considerations.
4. Carbon Monoxide (CO)
4.1 Horizontal and Vertical Probe Placement
4.2 Spacing from Obstructions
4.3 Spacing from Roads
4.4 Spacing from trees and other considerations.
5. Ozone (O_3)
5.1 Vertical and Horizontal Probe Placement
5.2 Spacing from Obstructions
5.3 Spacing from Roads
5.4 Spacing from trees and other considerations.
6. Nitrogen Dioxide (NO_2)
6.1 Vertical and Horizontal Probe Placement
6.2 Spacing from Obstructions
6.3 Spacing from Roads

6.4 Spacing from tr
ations.
7. Lead(Pb)
7.1 Vertical Placem
7.2 Spacing from O
7.3 Spacing from R
7.4 Spacing from tr
ations.
8. Particulate Mat
8.1 Vertical Placem
8.2 Spacing from O
8.3 Spacing from R
8.4 Other Considera
9. Probe Material
Residence Time
10. Waiver Provisio
11. Discussion and
12. References

1. *Introduction*

This appendix cont
teria to be applied t
monitors or monitor
station location has
the monitoring objec
of representativeness
dix D of this part. Ad
criteria is necessary
collection of compati
quality data.

The probe siting
below must be follow
tent possible. It is rec
be situations when t
cannot be followed. If
not be met, this mu
mented with a writte
which describes how
teria differs. This doc
to avoid later questio
ditions under which
application for waive
teria are discussed ir
pendix.

The spatial scales
used in this appendi
neighborhood, urban,
fined and discussed
part. The pollutant s
teria generally apply
cept where noted ot
criteria that are pref
defined as a requir
must be approved thr
sions. However, siti
prefaced with a "sh
goal to meet for consi
quirement.

2. [Reserved]

3. *Sulfur Dioxide (SO_2)*

3.1 Horizontal and
ment. As with TSP m
sirable height for an
is near the breathing
enumerated before
inlet probe be elevat
probe must be locate

6.4 Spacing from trees and other considerations.
7. Lead(Pb)
7.1 Vertical Placement
7.2 Spacing from Obstructions
7.3 Spacing from Roadways
7.4 Spacing from trees and other considerations.
8. Particulate Matter (PM_{10})
8.1 Vertical Placement
8.2 Spacing from Obstructions
8.3 Spacing from Roadways
8.4 Other Considerations
9. Probe Material and Pollutant Sample Residence Time
10. Waiver Provisions
11. Discussion and Summary
12. References

1. *Introduction*

This appendix contains probe siting criteria to be applied to ambient air quality monitors or monitor probes after the general station location has been selected based on the monitoring objectives and spatial scale of representativeness as discussed in appendix D of this part. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

The probe siting criteria as discussed below must be followed to the maximum extent possible. It is recognized that there may be situations when the probe siting criteria cannot be followed. If the siting criteria cannot be met, this must be thoroughly documented with a written request for a waiver which describes how and why the siting criteria differs. This documentation should help to avoid later questions about the data. Conditions under which EPA would consider an application for waiver from these siting criteria are discussed in section 10 of this appendix.

The spatial scales of representativeness used in this appendix, i.e., micro, middle, neighborhood, urban, and regional are defined and discussed in appendix D of this part. The pollutant specific probe siting criteria generally apply to all spatial scales except where noted otherwise. Specific siting criteria that are prefaced with a "must" are defined as a requirement and exceptions must be approved through the waiver provisions. However, siting criteria that are prefaced with a "should" are defined as a goal to meet for consistency but are not a requirement.

2. [Reserved]

3. *Sulfur Dioxide (SO_2)*

3.1 Horizontal and Vertical Probe Placement. As with TSP monitoring, the most desirable height for an SO_2 monitor inlet probe is near the breathing height. Various factors enumerated before may require that the inlet probe be elevated. Therefore, the inlet probe must be located 3 to 15 meters above ground level. If the inlet probe is located on the side of a building, then it should be located on the windward side of the building relative to the prevailing winter wind direction. The inlet probe must also be located more than 1 meter vertically or horizontally away from any supporting structure and also away from dirty, dusty areas.

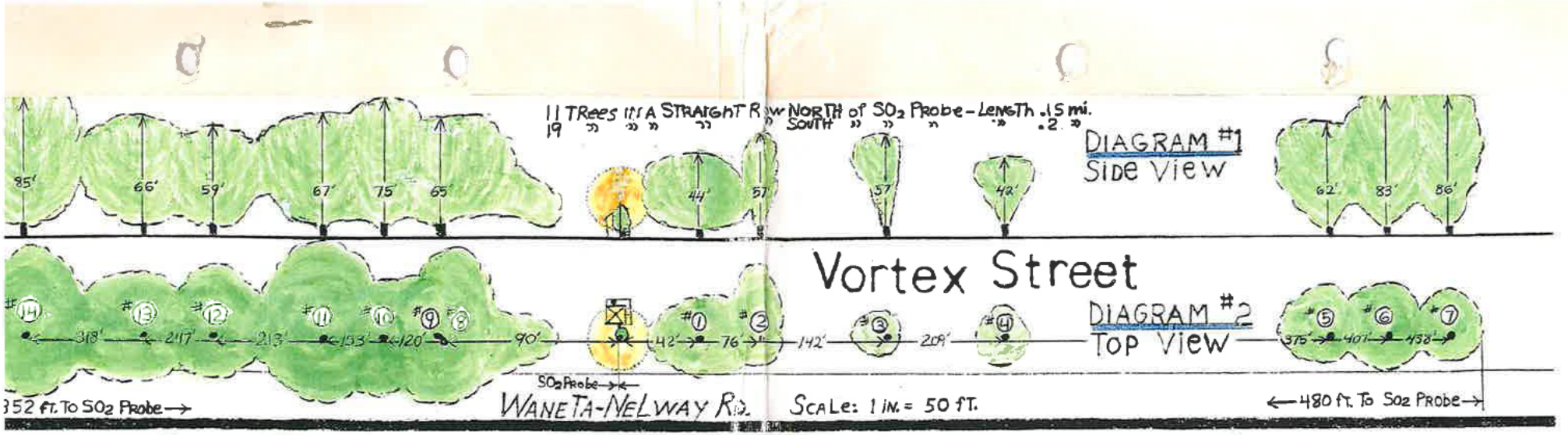
3.2 Spacing from Obstructions. No furnace or incineration flues, or other minor sources of SO_2 should be nearby. The separation distance is dependent on the height of the flues, type of waste or fuel burned, and the quality of the fuel (sulfur content). If the inlet probe is located on a roof or other structure, it must be at least 1 meter from walls, parapets, penthouses, etc.

The inlet probe must be located away from obstacles and buildings. The distance between the obstacles and the inlet probe must be at least twice the height that the obstacle protrudes above the inlet probe. Sampling stations that are located closer to obstacles than this criterion allows should not be classified as a neighborhood scale, since the measurements from such a station would closely represent middle scale stations. Therefore, stations not meeting the criterion should be classified as middle scale. Airflow must also be unrestricted in an arc of at least 270° around the inlet probe, and the predominant wind direction for the season of greatest pollutant concentration potential must be included in the 270° arc. If the probe is located on the side of a building, 180° clearance is required. Additional information on SO_2 probe siting criteria may be found in reference 11.

3.3 Spacing from trees and other considerations. Trees can provide surfaces for SO_2 adsorption and act as an obstruction to normal wind flow patterns. To minimize the possible effects of trees on the measured SO_2 levels, the sampler should be placed at least 20 meters from the drip line of trees. However, in situations where trees could be classified as an obstruction, i.e., the distance between the tree(s) and the sampler is less than twice the height that the tree(s) protrudes above the sampler, the sampler must be placed at least 10 meters from the drip line of the obstructing tree(s).

4. *Carbon Monoxide (CO)*

4.1 Horizontal and Vertical Probe Placement. Because of the importance of measuring population exposure to CO concentrations, air should be sampled at average breathing heights. However, practical factors require that the inlet probe be higher. The required height of the inlet probe for CO monitoring is therefore 3±½ meter for a microscale site, which is a compromise between representative breathing height and prevention of vandalism. The recommended 1 meter range of heights is also a compromise to some extent. For consistency and com-



SCALE: 1 IN. = 10 FT. DIAGRAM #3

north →

COMINCO COLUMBIA GARDENS AIR MONITOR

PM MONITOR - PLATFORM 8 ft Hi

← 58 ft. DRIPLINE TO MONITOR →

← 40 ft. DRIPLINE TO MONITOR →

← 50 ft MONITOR TO TRUNK →

35 ft. MONITOR TO DRIPLINE

OLD FOUNDATION

18 ft

POLE →

SO2 PROBE 93" Hi

21" STUMP

← 88 ft TRUNK TO MONITOR →

← 90 ft TRUNK TO SO2 PROBE →

← 42 ft SO2 PROBE TO TRUNK →

← 32 ft. DRIPLINE TO SO2 PROBE →

← 18 ft. SO2 PROBE TO DRIPLINE →

45 ft TO DRIPLINE

39 ft TO DRIPLINE

20 ft TO DRIPLINE

16 ft TO DRIPLINE

Tree #9
Height 65 ft.
Trunk Diam. 36 in.

Tree #8
Height of Tree 65 ft.
Trunk Diam 38 in

Height of #1 Tree 44 ft.
Trunk Diam. 28 in

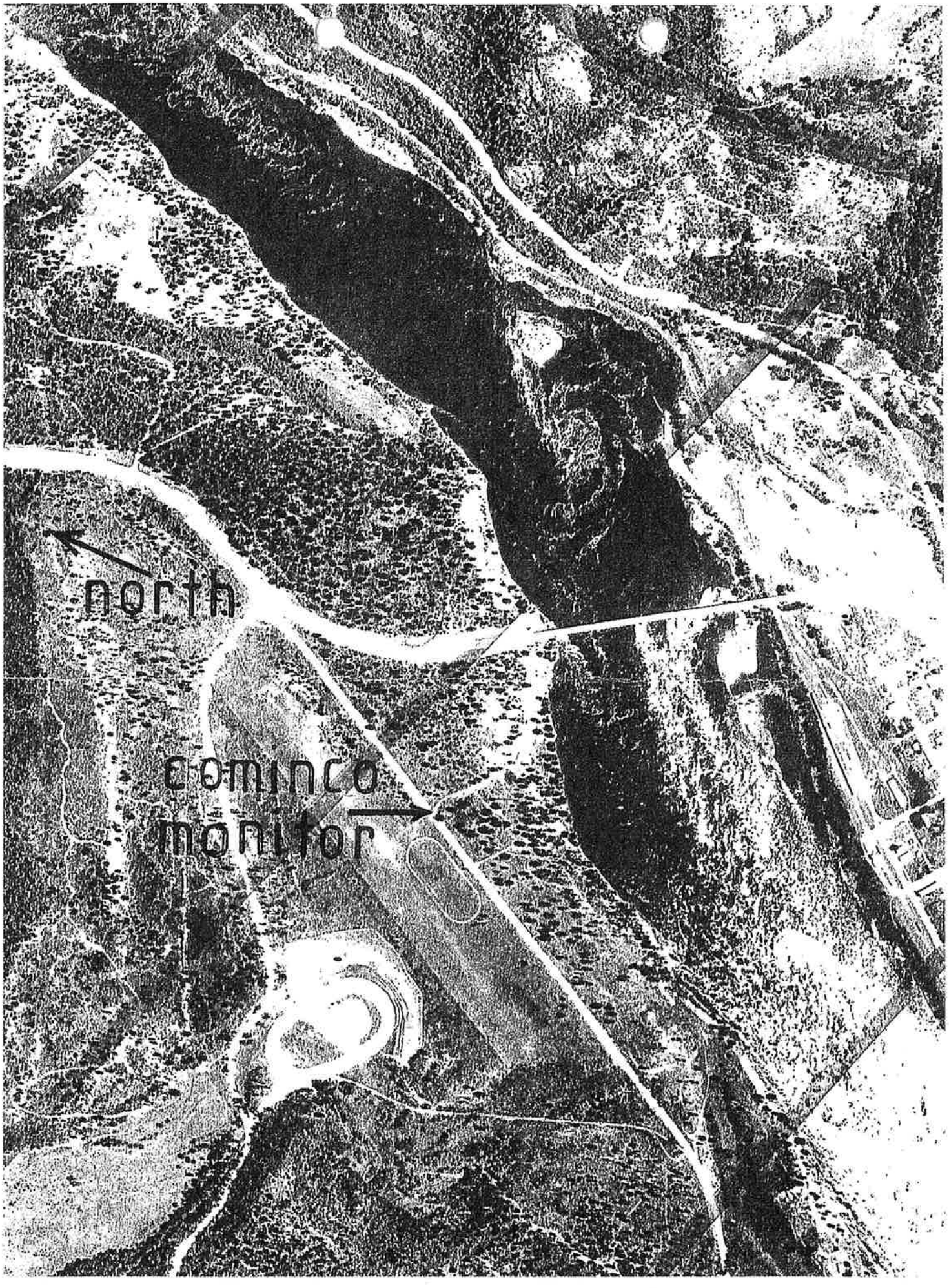
Re-creation of Felled Maple -
Estimated Height 36 ft.,
Dripline Diameter 34 ft.

Waneta-Nelway Rd

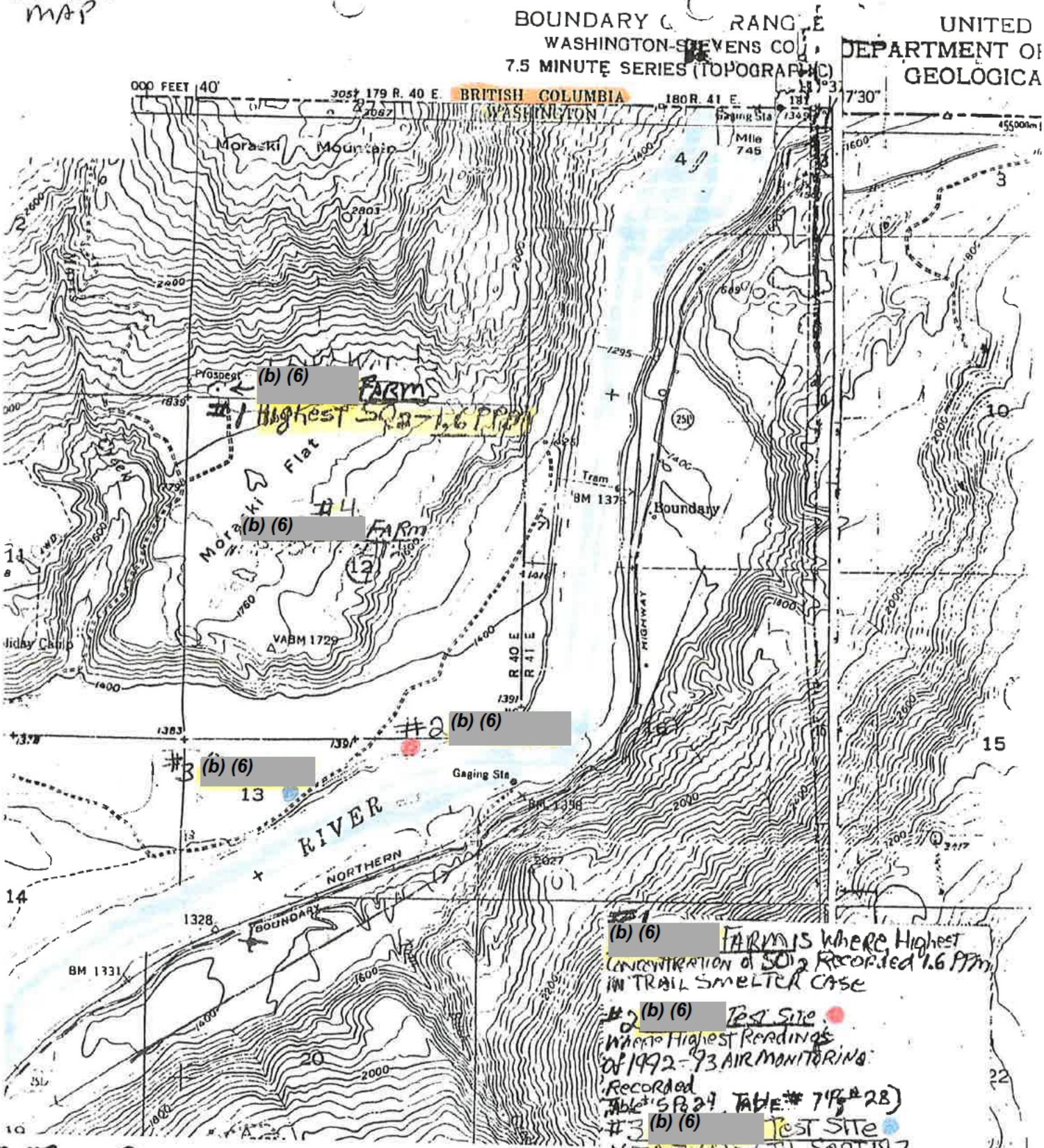
(b) (6)

EXHIBIT 3

Exhibit #3


north
eminco
monitor

MORASKI MAP?



#1 TRAIL SMELTER CASE SO2 AIR MONITORING

#2 D.O.E. PHASE II - WORTHEN " "

#3 " PHASE IV BENITCH " "

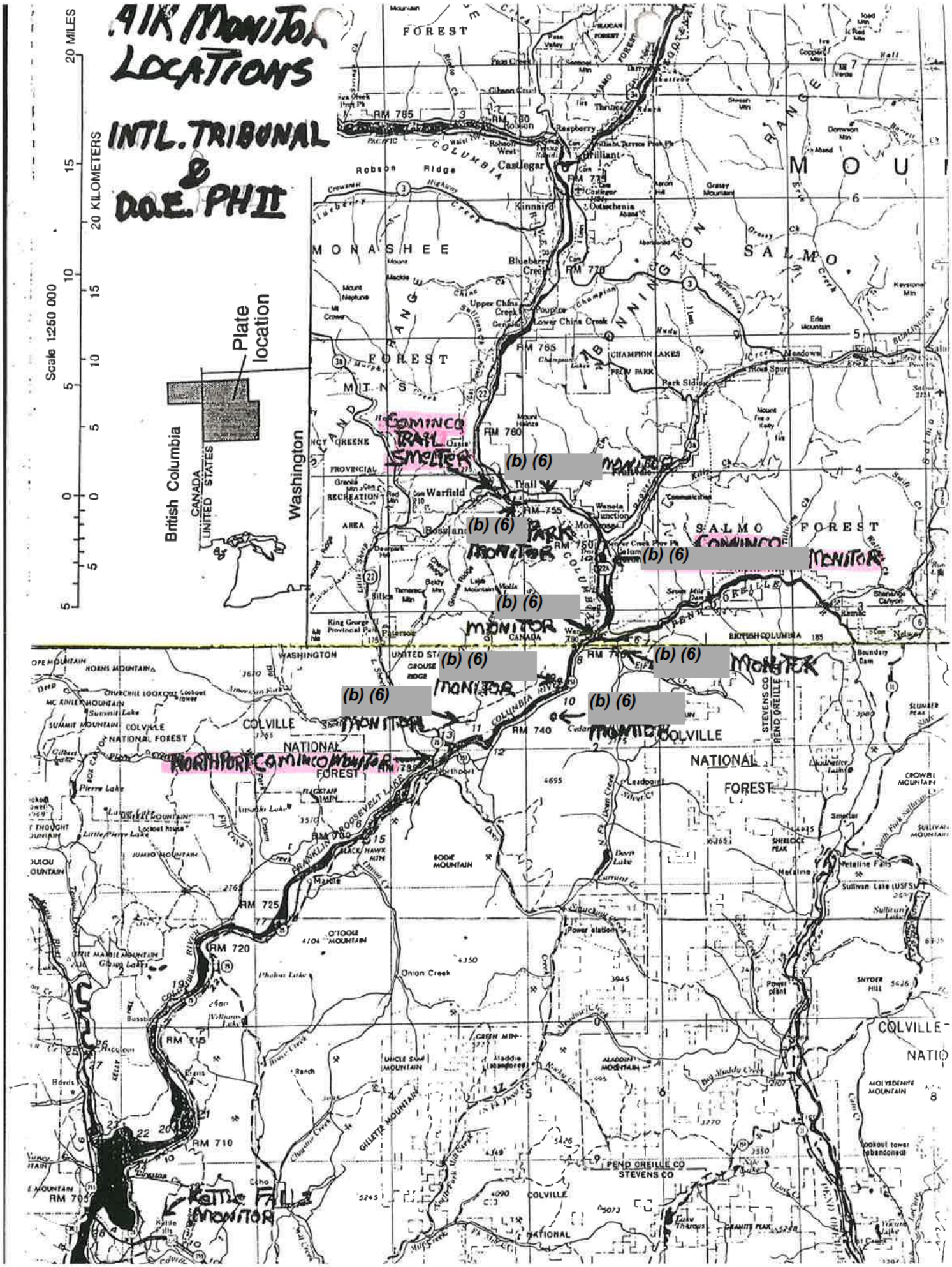
#1 (b) (6) FARM IS WHERE HIGHEST CONCENTRATION OF SO2 RECORDED 1.6 PPM IN TRAIL SMELTER CASE

#2 (b) (6) TEST SITE WHERE HIGHEST READINGS OF 1992-93 AIR MONITORING RECORDED TABLE # 5 PG 24 TABLE # 7 PG # 28)

#3 (b) (6) TEST SITE NOT ACTIVATED TIL SEPT '97

#4 (b) (6) FARM WAS LOCATED IN SEC 12 - THIS IS WHERE U.S. GOVT WANTED MONITORS NEAR TO MORASKI HIGH RECORDING.

ALL THREE CONTIGUOUS TO, OR IN SECTION 12


AIR MONITOR LOCATIONS
INTL. TRIBUNAL & D.O.E. PH II
Scale 1:250 000
20 MILES
20 KILOMETERS
Plate location
British Columbia
CANADA
UNITED STATES
Washington
COMINCO TRAIL SMELTER
(b) (6)
MONITOR
NORTHPORT COMINCO MONITOR
Kettle Falls MONITOR
Castlegar
Trail
Warfield
Rossland
Nelson
Grand Forks
Greenwood
Colville
Northport
Kettle Falls
Robson Ridge
MONASHEE MTNS
SELKIRK MTNS
SALMO FOREST
COLVILLE NATIONAL FOREST
PEND OREILLE CO
STEVENS CO
COLUMBIA RIVER
RM 765
RM 760
RM 755
RM 750
RM 745
RM 740
RM 735
RM 730
RM 725
RM 720
RM 715
RM 710
RM 705



PHOTOS TAKEN BY (b) (6) DURING THE WINTER OF 1996 FROM HIS RANCH, THE FORMER MURASKI RANCH OVERLOOKING THE MURASKI FLATS & THE COLUMBIA RIVER VALLEY. THE MURASKI FLATS HAD THE HIGHEST READINGS OF SO_2 IN THE TRAIL SMELTER CASE.

#1 TAKEN 3-1-96



#3 TAKEN 2-16-96

3-26-96

(b) (6)

HERE ARE THE PHOTO'S I TOOK OF SOME COMINCO AIR POLLUTION. #1 IS OF WHERE NORTHPORT IS SUPPOSED TO BE. #2 IS (b) (6) THE RIVER TOWARDS (b) (6) #3 IS TOWARDS WANETA. THEY WERE ALL TAKEN BETWEEN 10 AM and 12 NOON ~~AM~~.

I HOPE THEY DON'T MAKE YOU TOO ILL!

I SEE THIS ABOUT 20 or SO DAYS / YEAR.

(b) (6)



#2 TAKEN 2-14-96

Exhibit H



PHOTOS ARE OF THE COURT ORDERED COMING NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.

PHOTO H#1 TAKEN 5-30-96 FROM THE WEST VIEWING EAST SHOWING MONITOR BUILDING WITH SO2 PROBE NESTLED IN BETWEEN OBSTRUCTING POLE & ELECTRIC METER. NOTE UNOBSTRUCTED AREA TO RIGHT OF DOOR WHERE PROBE COULD HAVE BEEN INSTALLED. LARGE PINE (DIAGRAM TREE #2) TO IMMEDIATE RIGHT OF MONITOR BUILDING IS 112 ft. TALL & ITS DRIPLINE IS 60 ft. TO THE SO2 PROBE & 38 ft. TO THE P.M. MONITOR. THREE LARGE PINES IN THE BACKGROUND BEHIND MONITOR BUILDING ARE DIAGRAM TREE #4.

H1

DIAGRAM TREE #2 IS IN VIOLATION OF BOTH EPA. & WA. STATE DOE. REGULATIONS.



PHOTO H#2 TAKEN 5-30-96 FROM THE WEST VIEWING EAST SHOWING CLOSEUP OF THREE LARGE PINES (DIAGRAM TREE #4) IS 109 ft. TALL & ITS DRIPLINE IS 113 ft. TO THE P.M MONITOR & 126 ft. TO THE SO2 PROBE.

DIAGRAM TREE #4 IS IN VIOLATION OF WA. STATE REGULATION.

H2



PHOTO H#3 TAKEN 5-30-96 FROM THE WEST VIEWING EAST SHOWING 10 TO 15 ft. BRUSH 70 ft. FROM MONITOR & BACKGROUND TREES.

H3

Exhibit I

PHOTOS ARE OF THE COURT ORDERED COMINCO NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.



I-1 PHOTO I#1 TAKEN 5-30-96 FROM NORTH VIEWING SOUTH SHOWING DIAGRAM TREE #2 BEHIND P.M. MONITOR, IT IS 112 ft. TALL & ITS' DRIPLINE IS 38 ft. TO THE P.M. MONITOR & 60 ft. TO THE SO2 PROBE. TO THE LEFT ARE DIAGRAM TREES #4 THEY ARE 109 ft. TALL & THEIR DRIPLINE IS 97 ft. TO THE P.M. MONITOR & 126 ft. TO THE SO2 MONITOR.



I-2 PHOTO I#2 TAKEN 5-30-96 FROM NORTH- SO. SHOWING LARGE PINE (DIAGRAM TREE #2) BEHIND THE P.M. MONITORS & LARGE PINES (DIAGRAM TREES #6) IN THE BACK-GROUND BEHIND THE MONITOR BUILDING. THEY ARE 92 ft. TALL & THEIR DRIP-LINE IS 135 ft. TO THE P.M. MONITOR.



I-3 PHOTO I#3 TAKEN 5-30-96 FROM THE NORTH VIEWING SOUTH SHOWING LARGE PINES (DIAGRAM TREES #1, #2, & #6). DIAGRAM TREE #1 IS SHOWN TO THE RIGHT OF THE POWER POLE. IT IS 110 ft. TALL & ITS DRIPLINE IS 45 ft. TO THE SO2 MONITOR & 54 ft. TO THE P.M. MONITOR.

NOTE LIMB TRIMMING ON TREE #1, THIS WAS NOT DONE BY COMINCO TO REDUCE AIR FLOW IMPEDANCE, BUT BY WASH. WATER POWER IN APPROXIMATELY NOV. 1995 AS PART OF THEIR MAINTENANCE PROGRAM TO KEEP POWER LINES CLEAR OF TREE LIMBS. THIS TREE SHOULD BE VISUALIZED IN A MORE FULL LIMBED STATE JUDGING BY THE AMOUNT OF CUT LIMBS ON THE GROUND & THIS IS THE WAY IT IMPEDED AIRFLOW FOR DECADES.

Exhibit J

PHOTOS ARE OF THE COURT ORDERED COMINCO NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.



PHOTO J#1 TAKEN 5-30-96 FROM THE SOUTH VIEWING NORTH SHOWING MONITOR BLDG & P.M. MONITORS ON PLATFORM. PLATFORM IS 64 in. HIGH. TALL PINE IN CENTER OF PHOTO (DIAGRAM TREE #3) IS 61 ft. TALL & ITS DRIPLINE IS 63 ft. TO THE P.M. MONITOR & 64 ft. TO THE SO2 PROBE. THIS TREE DRIPLINE IS IN VIOLATION OF EPA.s 20 METER REGULATION & DOE.s $1\frac{1}{2}$ x HEIGHT REGULATION FOR BOTH SO2 PROBE & P.M. MONITOR

PINE TREES TO LEFT & BEHIND MONITOR BUILDING (DIAGRAM TREE #5) IS 56 ft. TALL & 95 ft. TO SO2 MONITOR. PINE TREES TO TO RIGHT & BEHIND P.M. MONITOR (DIAGRAM TREE #7) IS 51 ft. TALL & 111 ft. TO P.M. MONITOR.

J1



PHOTO J#2 TAKEN 5-30-96, TAKEN FROM A FURTHER DISTANCE SOUTH OVERVIEWING THE NORTH SHOWING SIMULAR SCENE AS PHOTO J#1 BUT INCLUDING DIAGRAM TREES #2 & #6.

J2



PHOTO J#3 TAKEN 5-30-96 FROM THE SOUTH VIEWING NORTH.

J3

Exhibit K

PHOTOS ARE OF THE COURT ORDERED COMING NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.



K1 PHOTO K#1 TAKEN 5-30-96 FROM THE EAST VIEWING WEST SHOWING SIZE & DISTANCE RELATIONSHIP OF LARGE PINES (DIAGRAM TREES #1 & #2) TO P.M. MONITORS & MONITOR BUILDING.



PHOTO K#2 TAKEN 5-30-96 FROM THE EAST VIEWING WEST SHOWING P.M. MONITORS ON PLATFORM & MONITOR BUILDING WITH SO2 INTAKE PROBE OBSCURED BY POLE & METER. SHOWING RELATIONSHIP OF DIAGRAM TREE #1 TO MONITOR BUILDING & P.M. MONITORS.

K2



PHOTO K#3 TAKEN 5-30-96 FROM THE EAST VISWING WEST SHOWING CLOSEUP OF PHOTO K#1.

K3

Exhibit L

PHOTOS ARE OF THE COURT ORDERED COMINCO NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941



-L1

PHOTO L#1 TAKEN 6-3-96 FROM THE NORTH VIEWING SOUTH SHOWING LIMB TRIMMING FOR POWERLINE CLEARANCE DONE BY WASHINGTON WATER POWER ON DIAGRAM TREE #1. MIKE GABRET OF W.W.P. 1-800-225 9155 STATED TREES TRIMMED LAST FALL (1995) BEFORE THANKSGIVING PROBABLY IN NOVEMBER.

LIMB TRIMMING WAS NOT DONE BY COMINCO TO REDUCE AIR FLOW IMPEDANCE TO MONITORS. THIS TREE SHOULD BE VISUALIZED IN ITS FULL LIMB STATE. JUDGING BY THE NUMBER OF LIMBS ON THE GROUND THE TRIMMING WAS EXTENSIVE & PRIOR TO THE TRIMMING ITS IMPEDANCE OF AIRFLOW TO MONITORS WAS MUCH GREATER DURING RECENT MONITORING FOR METALS & PARTICULATES 1992-1994 AS WELL FOR THE LONG TERM SO2 MONITORING CONDUCTED FROM 1941 THRU 1995.



-L2

PHOTO L#2 TAKEN 6-3-96 FROM THE WEST VIEWING EAST SHOWING LIMB TRIMMING FOR POWERLINE CLEARANCE BY W.W.P. ON DIAGRAM TREE #3. (NARRATIVE SAME AS FOR L#1).







Exhibit M

PHOTOS ARE OF THE COURT ORDERED COMINCO NORTHPORT AIR MONITOR SITE TO CONTROL TRANS BOUNDARY AIR POLLUTION AS A RESULT OF THE TRAIL SMELTER CASE OF 1941.

M1 PHOTO M#1 TAKEN 8-15-96 FROM THE NORTH WEST VIEWING SOUTH EAST SHOWING CLOSE UP OF MONITOR BUILDING & SO2 INTAKE PROBE NESTLED IN BETWEEN A 4½ in. DIAMETER (AT PROBE HEIGHT) UTILITY POLE & A 6 in. DIAMETER ELECTRIC METER THAT PROTRUDES 6½ in. OUT FROM THE WALL. THE SO2 INTAKE PROBE IS SPACED 4 in. FROM THE WALL. BOTH THE ELECTRIC METER & THE INTAKE PROBE ARE THE SAME HEIGHT, 7 ft. 1 in. ABOVE GROUND LEVEL. THE DISTANCE SEPERATING THE PROBE & THE ELECTRIC METER IS 9 in. & PROBE TO UTILITY POLE IS 6 in. (SEE DIAGRAM 4A).

THIS COMINCO PROBE FAILS EPA. SITING ORITERIA FOR SO2 ON 3 COUNTS 40 CFR CH.1 APPENDIX E SEC. 3.

1. THE INLET PROBE MUST BE LOCATED 3 TO 15 METERS ABOVE GROUND LEVEL. (THE INLET PROBE IN THIS CASE IS 2.13 METERS ABOVE GROUND LEVEL.) NOTE- 'MUST' IS MANDATORY.

M2 2. THE INLET PROBE MUST BE LOCATED MORE THAN 1 METER HORIZONTALLY FROM ANY SUPPORTING STRUCTURE. (IN THIS CASE THE SMALL UTILITY POLE WOULD QUALIFY AS 'ANY' SUPPORTING STRUCTURE AS THEY NORMALLY SUPPORT WIRES, NOTE PHOTO).

3. AIRFLOW MUST BE UNRESTRICTED IN AN ARC OF 180° IF INLET PROBE LOCATED ON THE SIDE OF A BUILDING. (ARC IS 163°).

PHOTO M#2 TAKEN 9-30-96 FROM THE NORTH VIEWING SOUTH SHOWING RELATIONSHIP OF SO2 INTAKE PROBE TO UTILITY POLE & ELECTRIC METER. NOTE AREA TO RIGHT OF DOOR IS UNOBSTRUCTED, BUT COMINCO CHOSE TO LOCATE IT ON THE LEFT & CLUTTER THE AIR FLOW WITH IMPEDIMENTS WHICH CAN RESULT IN LOWER SO2 READINGS. A SIMILAR PRACTICE FOLLOWED AT THE COLUMBIA GARDENS MONITOR, A PRACTICE THAT IS MORE PROFITABLE FOR COMINCO & MORE DETRIMENTAL TO U.S. CITIZENS BECAUSE IT RESULTS IN A HIGHER LEVEL OF UNRECORDED TRANS-

M3 BOUNDARY AIR POLLUTION ENTERING THE U.S. COLUMBIA RIVER VALLEY.

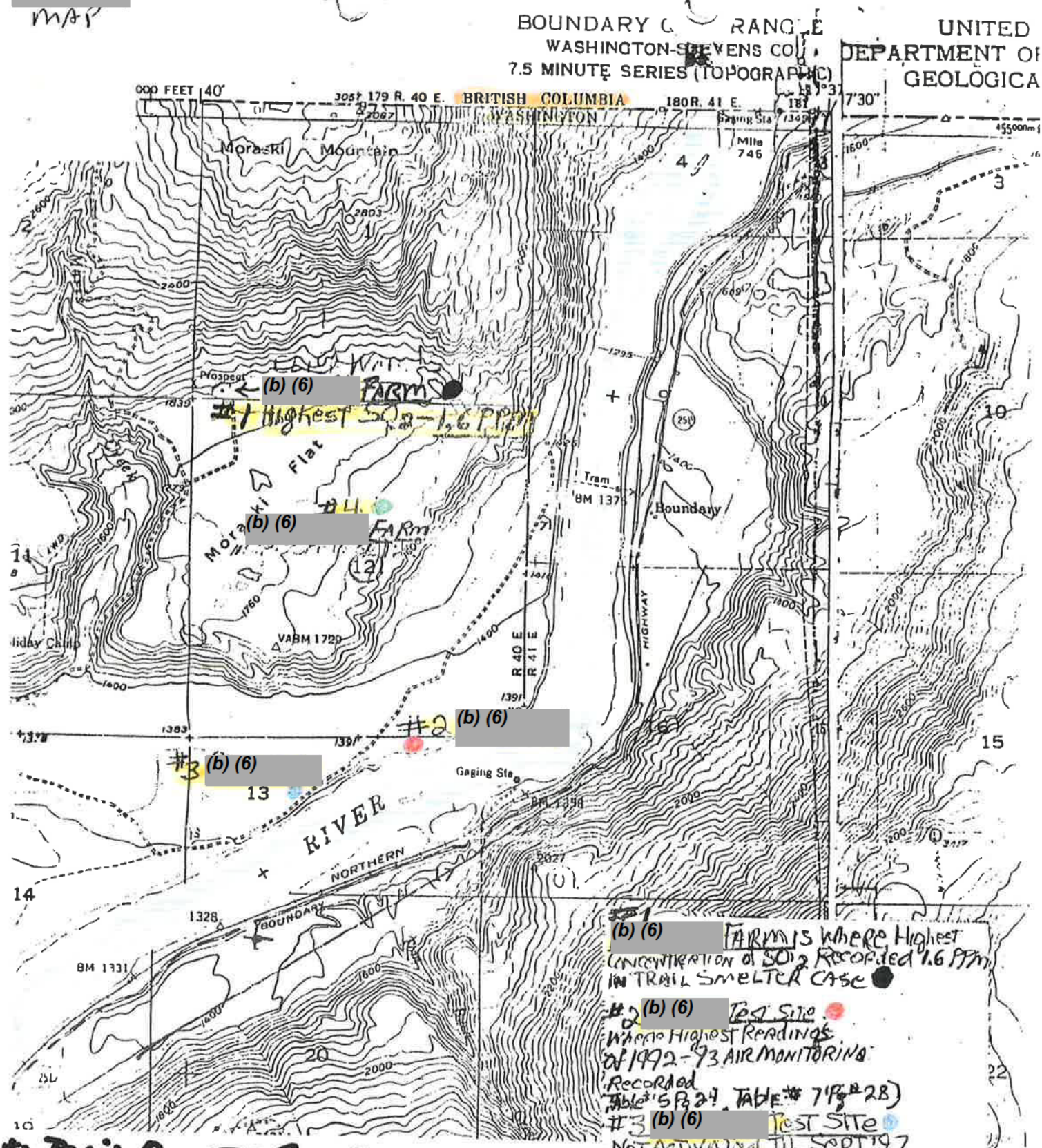
PHOTO M#3 TAKEN 9-30-96 FROM THE EAST VIEWING WEST SHOWING THE CLOSE PROXIMITY OF THE INTAKE PROBE, THE UTILITY POLE, & THE ELECTRIC METER TO THE SIDE OF THE BUILDING.

EXHIBIT 4


EXHIBIT #4
Bennich

(b) (6)

MAP



#1 (b) (6) FARM IS WHERE HIGHEST CONCENTRATION OF SO_2 RECORDED 1.6 PPM IN TRAIL SMELTER CASE

#2 (b) (6) TEST SITE WHERE HIGHEST READINGS OF 1992-93 AIR MONITORING RECORDED TABLE 5 PG 24, TABLE # 7 (PG # 28)

#3 (b) (6) TEST SITE NOT ACTIVATED TIL SEPT '97

#4 (b) (6) FARM WAS LOCATED IN SEC 12 - THIS IS WHERE U.S. GOVT WANTED MONITORS NEAR TO MORASKI HIGH RECORDING.

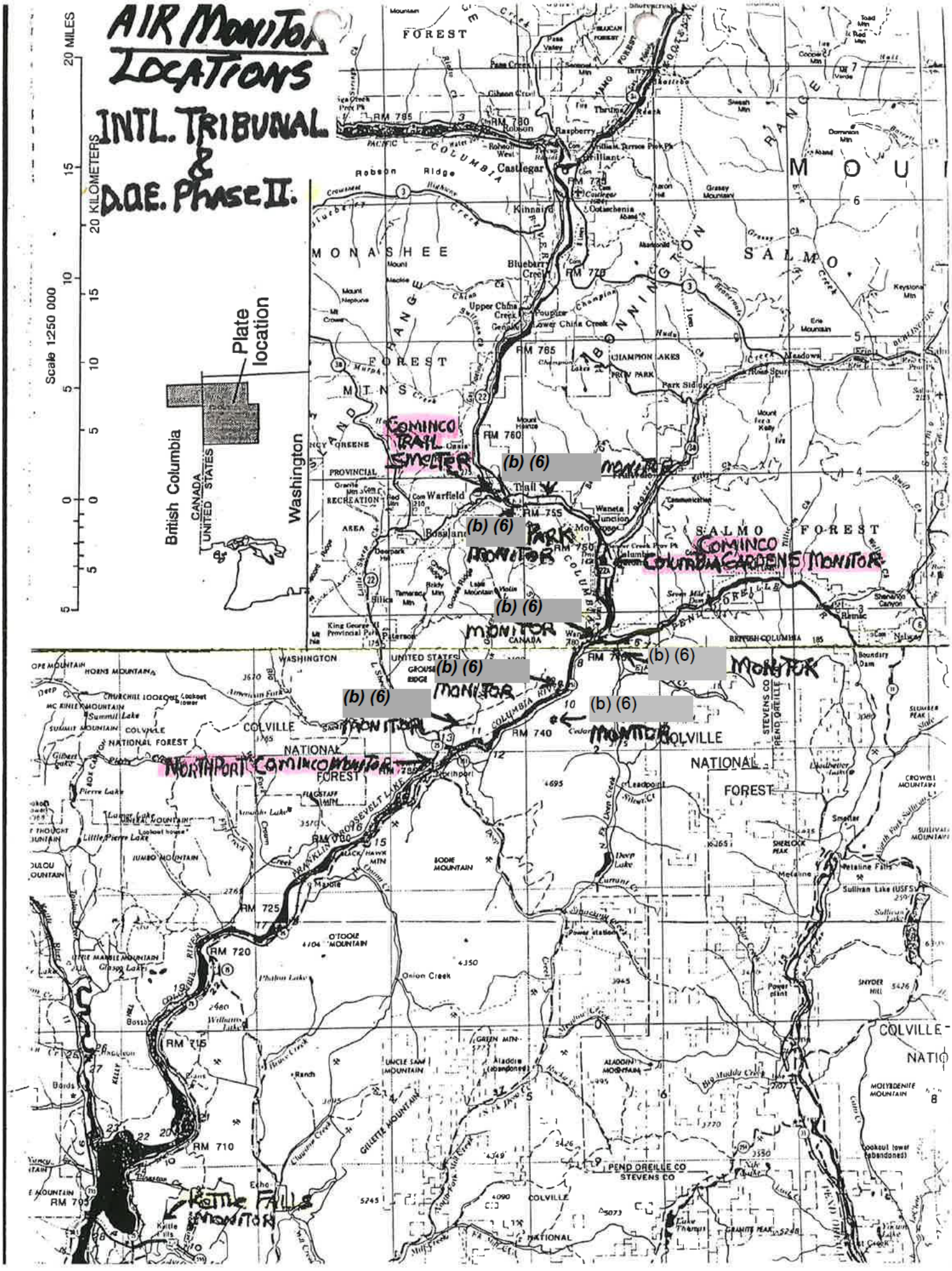
ALL THREE CONTIGUOUS TO OR IN SECTION 12

#1 TRAIL SMELTER CASE SO_2 AIR MONITORING

#2 D.O.E. PHASE II - WORTHEN TO "

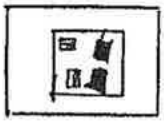
#3 " PHASE III (b) (6) " "

#4 U.S. PROPOSED TRIBUNAL " " SITE


AIR MONITOR LOCATIONS
INTL. TRIBUNAL & D.O.E. Phase II.
Scale 1:250 000
20 MILES
20 KILOMETERS
Plate location
British Columbia
CANADA
UNITED STATES
Washington
COMINCO TRAIL SMELTER
(b) (6)
MONITOR
PARK MONITOR
COMINCO COLUMBIA GARDENS MONITOR
NORTHPORT COMINCO MONITOR
KETTLE FALLS MONITOR
Trail
Warfield
Rossland
Castlegar
Kinnaird
Robson
Blueberry Creek
Upper China Creek
Lower China Creek
Champion Lakes
Park Siding
Waneta Junction
Boundary Dam
Metaline Falls
Sullivan Lake (USFS)
Colville
Northport
Kettle Falls
Columbia River
Roosevelt Lake
Franklin D. Roosevelt Lake
Monashee Mountains
Selkirk Mountains
Huckleberry Range
Monashee Range
Salmo Mountains
Colville National Forest
Pend Oreille Co
Stevens Co
RM 785
RM 780
RM 775
RM 770
RM 765
RM 760
RM 755
RM 750
RM 745
RM 740
RM 735
RM 730
RM 725
RM 720
RM 715
RM 710
RM 705

NO.

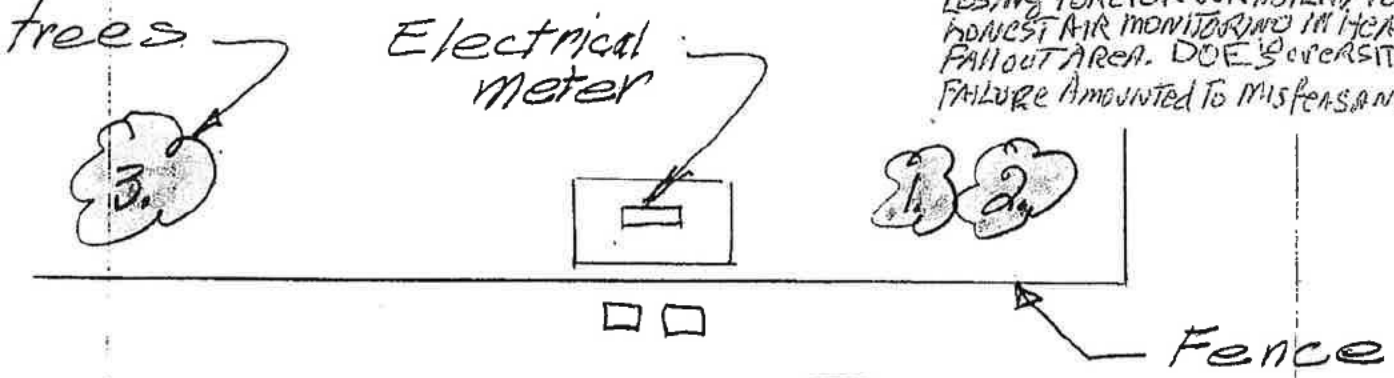
D.O.E AIR MONTORING PHASE IV



(b) (6) MONITOR SITE

WA. ST. DEPT Ecology PH IV AIR MONITORING PROGRAM To be Conducted By Cominco To Measure Pollution From Old Polluting Smelter Before It Shut Down in June 1997 - The Monitor Near Kivcet Smelter When it went into operation.

Cominco Failed To Connect Electricity Prior To Old Smelter Shut down - Power Line Appox 1000ft AWAY NEAR ROADWAY, Thus Losing Forever our ABILITY To Get honest AIR MONITORING IN HEAVY FALLOUT AREA. DOE's OVERSITE FAILURE AMOUNTED To MISFEASANCE

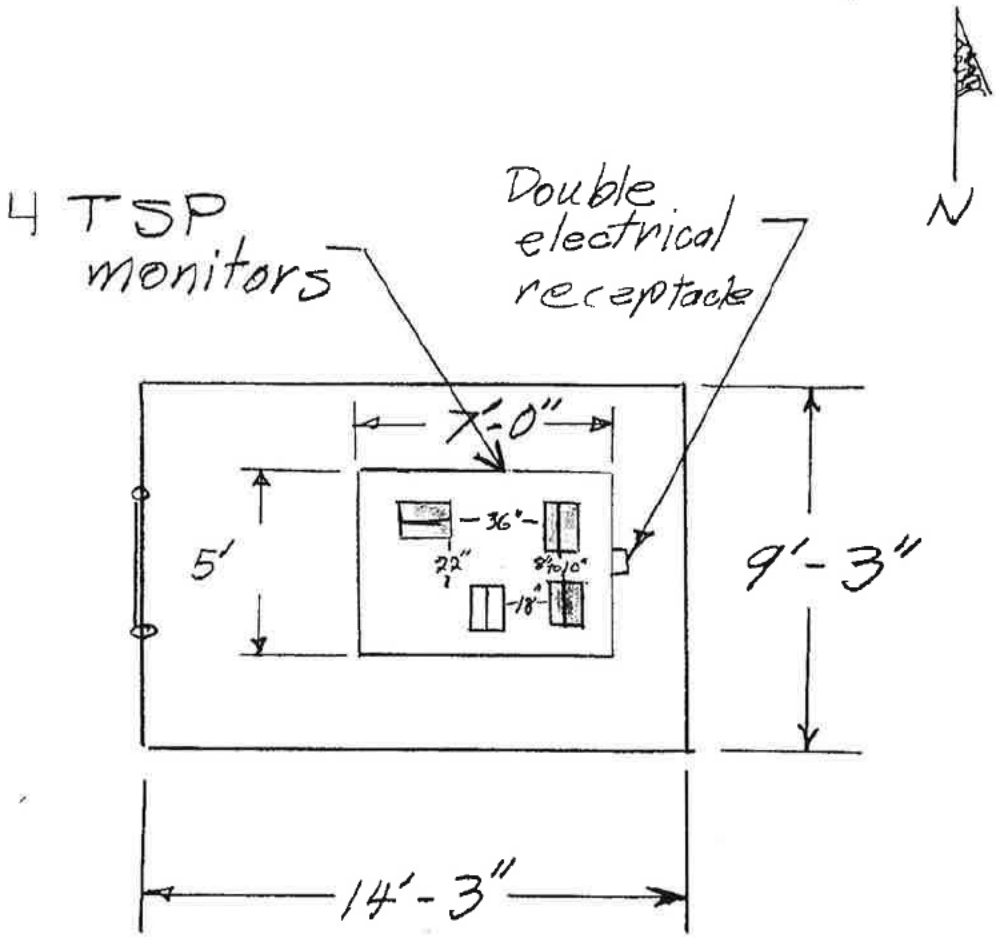


GRAVEL RD.

Distance to trees

#1. - 70' to drip line
#2. - 75' " " "
#3. - 80' " " "
#4. - 150' " " "

78' to fence
90' to road



Air Monitor Platform

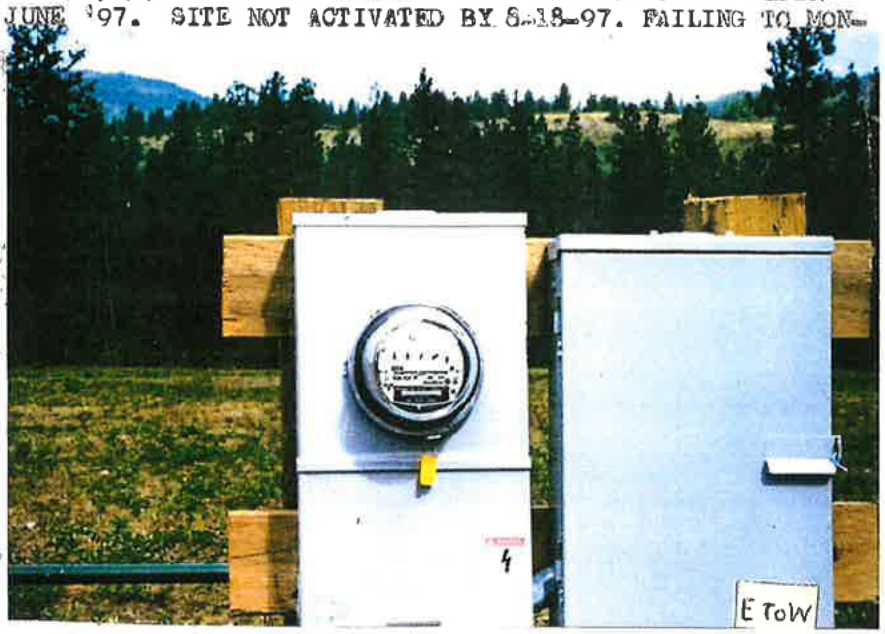
platform height = 5'-3"

(b) (6)

MONITORS

PHOTOS OF (b) (6) TSP MONITOR SITE TAKEN 9-5-97. SITE WAS SCHEDULED TO MONITOR OLD SMELTER
FOR TO ITS CESSATION OF OPERATIONS OF JUNE '97. SITE NOT ACTIVATED BY 8-18-97. FAILING TO MON-
OR OLD SMELTER. NO WEATHER STA. ON
E- 7.5 MI. AWAY. CLOSENESS OF TSP
ITS INTERFERES W/ AIRFLOW TO INTAKES.









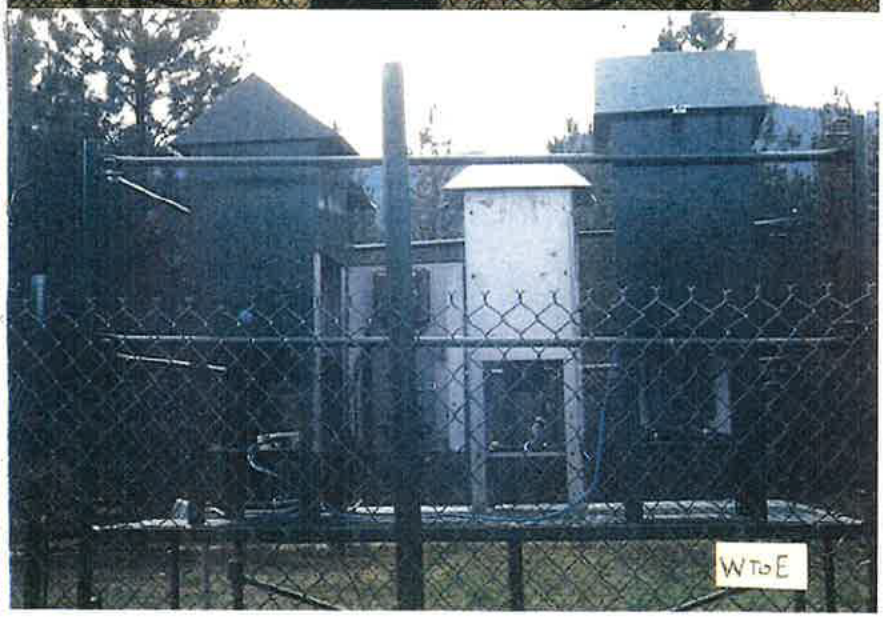


PHOTOS OF BENNETCH TSP MONIT[illegible]SITE TAKEN 9-5-97. SITE WAS S[illegible]LED TO MONITOR OLD SMELTER PRIOR TO ITS CESSATION OF OPERATIONS OF JUNE '97. SITE NOT ACTIVATED BY 8-18-97, FAILING TO MONITOR OLD SMELTER. NO WEATHER STA. ON SITE- 7.5 MI. AWAY. CLOSENESS OF TSP UNITS INTERFERES W/ AIRFLOW TO INTAKES.









PHOTO[illegible] BENNETCH TSP MONITOR SITE
TAKEN 2-18/24-99. TWO MONITORS REMOV
SINCE 9-5-97, REMAINING MONITORS STIL
TOO CLOSE TOGETHER-INTERFERS W/AIRFLO

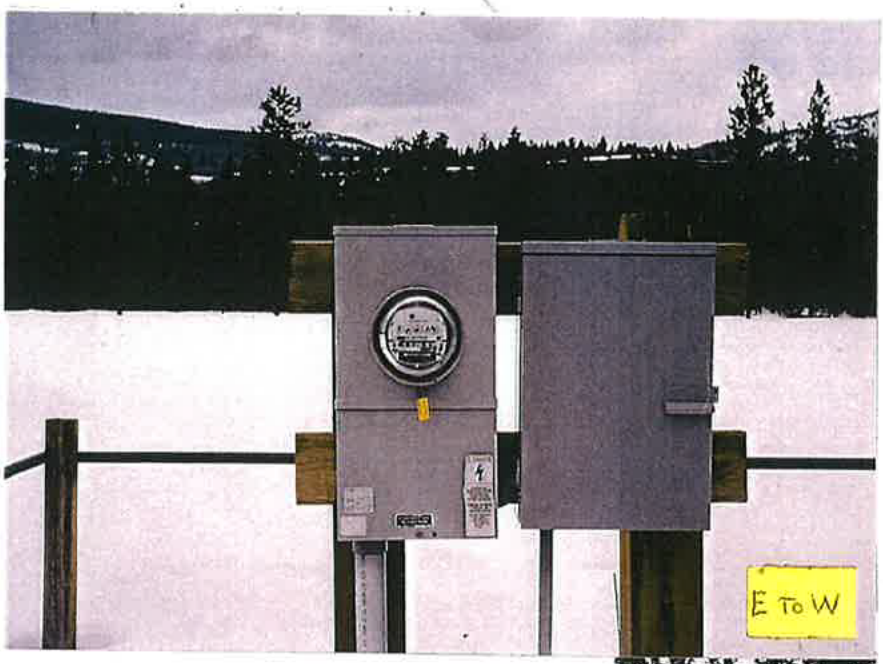


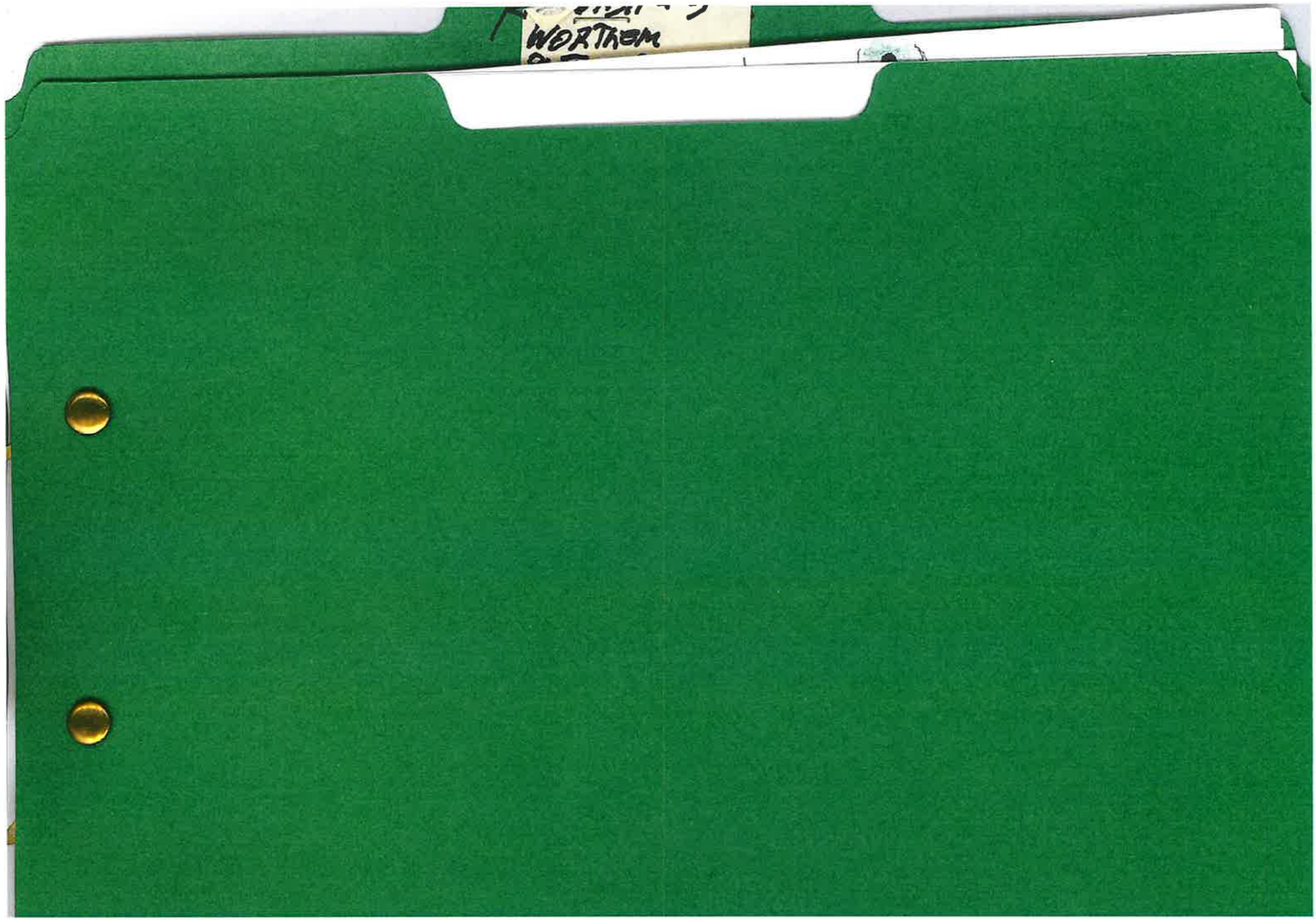




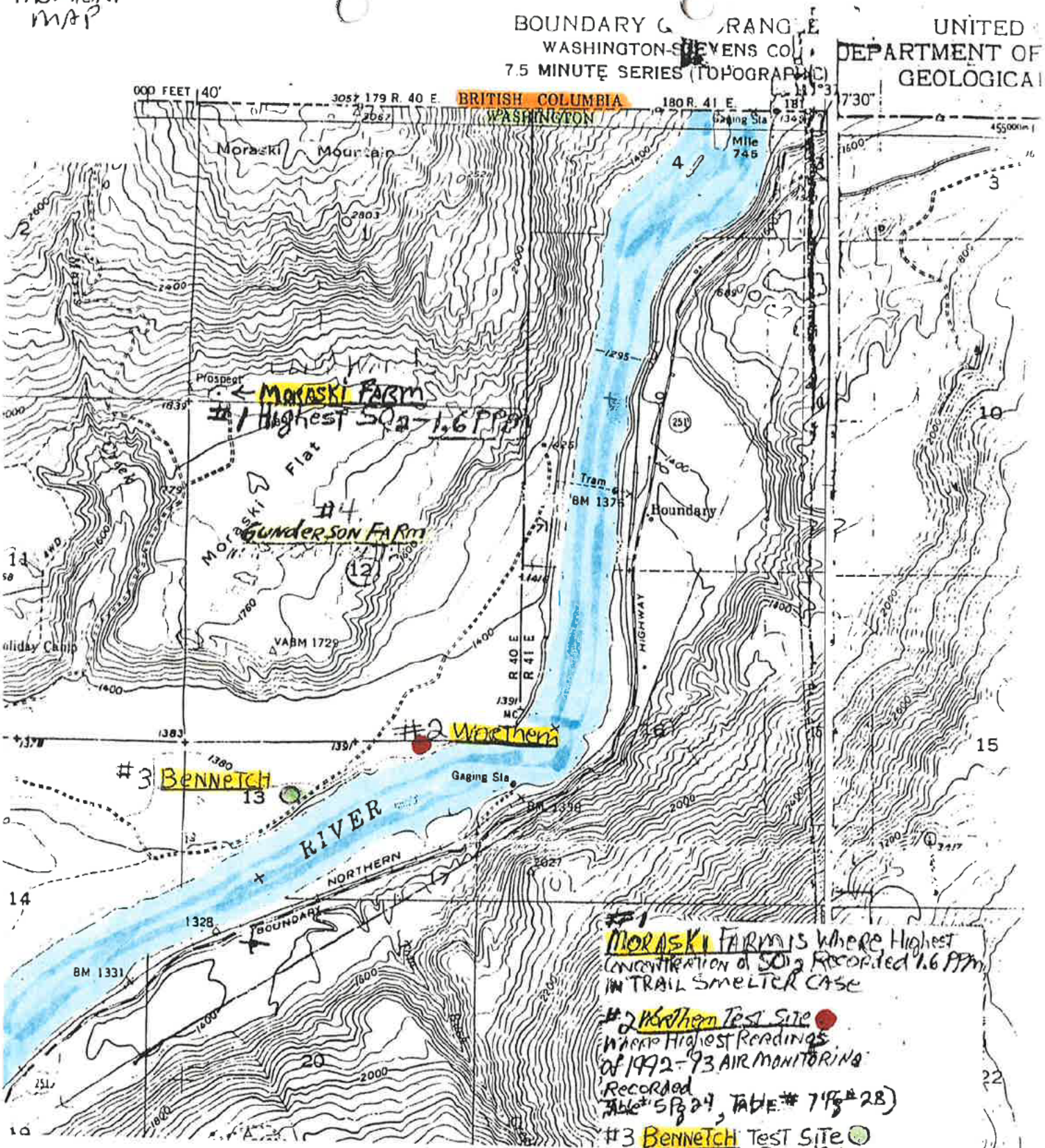




EXHIBIT 5


WORTHEM

MORASKI MAP



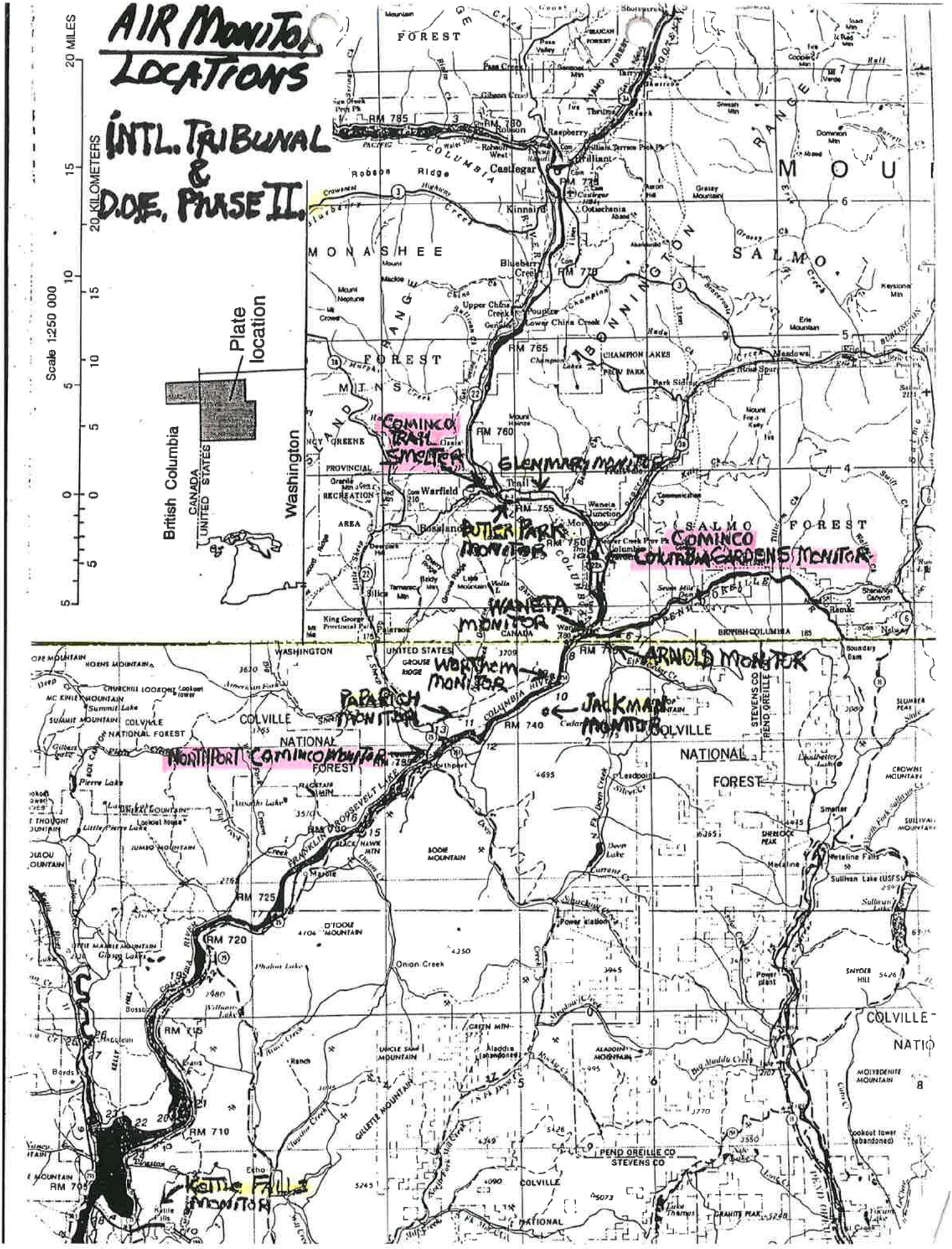
#1 MORASKI FARM is where Highest Concentration of SO_2 Recorded 1.6 PPM in TRAIL SMELTER CASE

#2 Northern Test Site
Where Highest Readings of 1992-93 AIR MONITORING Recorded
Table # 5 Pg 24, TABLE # 7 Pg # 28)

#3 BENNETCH Test Site
NOT ACTIVATED TIL SEPT '97

#4 GUNDERSON FARM WAS LOCATED IN SEC 12 - THIS IS WHERE U.S. GOVT WANTED MONITOR NEAR TO MORASKI HIGH RECORDING.

ALL THREE CONTIGUOUS TO, OR W SECTION 12


AIR MONITOR LOCATIONS
INTL. TRIBUNAL & D.O.E. PHASE II.
Scale 1:250 000
20 MILES
20 KILOMETERS
Plate location
British Columbia
CANADA
UNITED STATES
Washington
COMINCO TRAIL SMELTER
GLENMARY MONITOR
BUTLER PARK MONITOR
COMINCO COLUMBIA GARDENS MONITOR
WANETA MONITOR
ARNOLD MONITOR
WAITHEM MONITOR
PAPARICH MONITOR
JACKMAN MONITOR
NORTHPORT COMINCO MONITOR
KETTLE FALLS MONITOR
Castlegar
Trail
Warfield
Rossland
Kinnaird
Waneta Junction
Northport
Colville
Kettle Falls
Republic
Metaline Falls
Sullivan Lake (USFS)
Robson Ridge
Monashee Mts
Selkirk Mts
Columbia River
Kettle River
Pend Oreille Co
Stevens Co
Colville National Forest



PHOTOS TAKEN BY (b) (6) DURING THE WINTER of 1996 FROM HIS RANCH, THE FORMER MURASKI RANCH OVERLOOKING THE MURASKI FLATS & THE COLUMBIA RIVER VALLEY. THE MURASKI FLATS HAD THE HIGHEST READINGS OF 1.6 PPM SO_2 IN THE TROY SMELTER CASE.

#1 TAKEN 3-1-96



#3 TAKEN 2-16-96

(b) (6)

3-26-96

HERE ARE THE PHOTO'S I TOOK OF SOME COMINCO AIR POLLUTION. #1 IS OF WHERE NORTHPORT IS SUPPOSED TO BE. #2 IS DIRECTLY ACROSS THE RIVER TOWARDS (b) (6). #3 IS TOWARDS WANETA. THEY WERE ALL TAKEN BETWEEN 10 AM and 12 ~~AM~~ NOON.

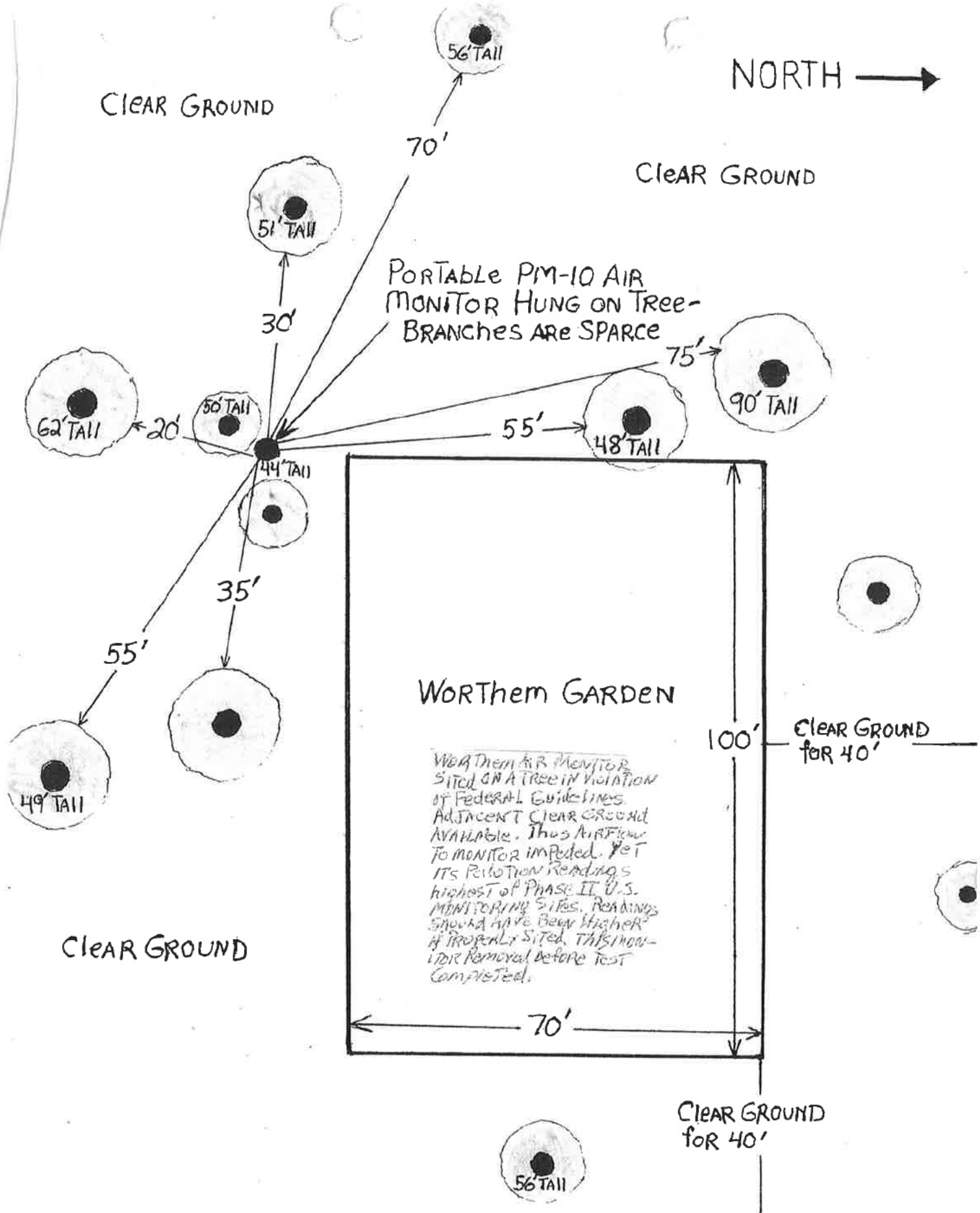
I HOPE THEY DON'T MAKE YOU TOO ILL!

I SEE THIS ABOUT 20 or SO DAYS / YEAR.

(b) (6)



#2 TAKEN 2-14-96



WORTHEM AIR MONITOR SITE PHASE II.

NORTHern SITe-PHOTOS TAKEN 9-4-96 (b) (6) POINTING TO LOCATION of MONITOR Removed by DOE.





CLEARED AREA TO NO EAST APROX 120 FT X 110 FT.







EXHIBIT 6

EXHIBIT #6

Preliminary Review and Evaluation of Available Air Quality Monitoring Data and Consideration of Potential Present-Day Health Risks

Upper Columbia River Valley, near Northport, Washington

by:

Matt Kadlec, Air Quality Program

Charles Gruenenfelder and John Roland, Toxics Cleanup Program

Washington State Department of Ecology
Olympia and Spokane, Washington

Conclusions and Recommendations

Evaluation of Canadian monitors and extrapolation methods to assess potential air quality conditions near Northport between 2009 and 2014 indicates recent average PM10 As and Cd concentrations exceed State of Washington ASILs. However, the data have several recognized limitations. An expanded data quality assessment would be necessary to attempt a verification of the representativeness of these BCMoE EMS datasets to support air quality decision-making.

The following recommendations are provided as an outcome from this AQP evaluation of historical Northport-area air quality monitoring data:

1. Updated upper Columbia River valley air quality monitoring in Washington State is recommended using current technologies, expanded methods, and consistent equipment at appropriate locations. Development of more contemporary air quality data will provide a better basis to assess current air quality conditions in the upper Columbia River valley of northeast Washington. This study should be scoped to assess current air quality conditions, including possible human health-related impacts attributable to nearby Trail, B.C., smelter emissions and potential re-dispersion of previously deposited particulates.

2. The suite of analytes should be expanded beyond just As, Cd, Pb, and Zn to allow for the quantification of certain metals/metalloids such as indium and thallium that also are known to be emitted from the smelter complex and may further contribute to potential human health impacts.

EXHIBIT 7

Exh [redacted] #7

Summary of Activities

Air Monitoring Data and Evaluation of Health Concerns Areas of Northeast Tri-County

April 1994

Washington State Department of Health

Prepared by:
Environmental Health Programs
Office of Toxic Substances
P.O. Box 47825
Olympia, Washington 98504-7825

In coordination with:

Department of Ecology
Air Quality Programs
P.O. Box 47600
Olympia, Washington 98504-7600
(206) 407-6800
(509) 456-6180

Contact person:
David McBride, Toxicologist
Office of Toxic Substances
(206) 586-8734

METALS ANALYSIS

The results of the laboratory analysis for the seven critical metals showed that the concentrations ranged from zero to levels higher than normal for typical rural settings. However, these higher concentrations were not unexpected given the type of industry (mining and smelting) found in the study area.

The maximum concentrations of the seven critical metals found during Phase II of the air monitoring study are shown in Table 8 below:

TABLE 8
PHASE II AIR QUALITY MONITORING STUDY
MAXIMUM METAL CONCENTRATIONS
IN MICROGRAMS PER CUBIC METER

SITE	LEAD	ARSENIC	CADMIUM	COPPER	ZINC	ANTIMONY	MANGANESE
Trail	.7412	.0679	.0400	.0020	1.6682	.2670	.0170
Waneta	1.0363	.1164	.0474	.0124	1.8764	.1811	.0111
(b) (6)	.7968	.0896	.0397	.0090	1.4921	.1196	.0146
(b) (6)	.5135	.0691	.0282	.0327	.8758	.0893	.0308
China Beach	.3343	.0481	.0186	.0351	.4193	.0499	.0096
Onion Creek	.0773	.0476	.0048	.0152	.1079	.0000	.0223
Kettle Falls	.1675	.0313	.0086	.0256	.1779	.0363	.0278

It is important to remember that the federal and state standard for lead is 1.5 micrograms per cubic meter average concentration over a three month period. Also, there are no federal or state standards for the other six metals (arsenic, cadmium, copper, zinc, antimony, or manganese). In these cases, Ecology uses what are called "Acceptable Source Impact Levels" or "ASIL." ASILs are outdoor concentration values of various air pollutants. ASIL concentrations are used by Ecology as "screening" levels, i.e., if the air concentrations are equal to or less than the ASIL values, the "risk" to the exposed population from that particular pollutant is considered negligible. If the pollutant concentrations are higher than the ASIL value, additional analysis are necessary to evaluate the risk to the exposed population.

- 57% of The U.S Colombia River Valley Monitoring Sites where There ARE Health Problems exceed The Readings of the Smelter Site AT TRAIL. The 409 ft. Smoke STACKS which were CONSTRUCTED To Relieve Fume Pollution in TRAIL are doing That by moving The Fumes down River into The U.S A!