Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River – Expanded Screening-Level Risk Evaluation

Final



Prepared for:
Idaho Department of Environmental Quality

November 26, 2025

Prepared by:
Alta Science and Engineering, Inc.
220 East 5th Street, Suite 325
Moscow, Idaho 83843
alta-se.com

Alta
Science & Engineering, Inc.

Contents

Section 1 Purpose and Background 1
1.1 Lake History 1
1.2 Background and Scope of the Expanded Screening-Level Risk Evaluation 4
Section 2 Conceptual Site Model and Recreational Site Sampling Summary 5
2.1 Conceptual Site Model 5
2.1.1 Contaminants of Potential Concern 6
2.1.2 Exposure Media 8
2.1.3 Exposure Routes 9
2.1.4 Receptors 9
2.1.5 Exposure Scenarios and Pathways 11
2.2 Field and Analytical Sampling Summary 12
2.2.1 Field and Sites Sampling Summary 15
2.2.2 Laboratory Methods 23
2.2.3 In Vitro Bioaccessibility (IVBA) Analysis 24
Section 3 Screening-Level Risk Evaluation 24
3.1 Data Evaluation 24
3.1.1 Replicate Sample Results 24
3.1.2 Bioavailability 25
3.2 Expanded SLRE Approach 25
3.3 Screening Levels 29
3.3.1 RBSL Updates 29
3.3.2 Target Risk Levels 30
3.3.3 Residential Baseline Lead Exposure Assumptions 31
3.3.4 Bioavailability 31
3.4 Exposure Point Concentrations 32
3.4.1 Surface Water 32
3.4.2 Sediment/Soil 32
3.5 EPC Comparisons to Screening Levels 34
3.5.1 Non-Lead COPCs 35
3.5.2 Lead 36
3.5.3 EPC and RBSL Comparison Findings 42
3.6 Qualitative Risk Evaluation 46
3.6.1 Construction Worker 46
3.6.2 Tribal Recreational Resident 46
3.6.3 Drinking Water Ingestion 47
3.6.4 Ingestion of Aquatic and Terrestrial Plants and Animals 48
3.7 Comparison to 1999 SLRA-CUA Findings 49
3.8 Uncertainties 49
3.8.1 Sample Collection/Analysis 50

3.8.2 Exposure Units....51
3.8.3 Exposure Point Concentration....51
3.8.4 Exposure Assumptions....51
3.8.5 RBSLs....52
3.8.6 IEUBK Model Assumptions....53
3.8.7 Bioavailability....53
3.9 Additional Risk Considerations and Findings....54
3.9.1 General Considerations and Findings....54
3.9.2 Site-Specific Considerations and Findings....59
Section 4 Conclusions and Recommendations....61
4.1 Conclusions....61
4.2 Recommendations....64

Tables

Table 1. Exposure Media Definitions 8
Table 2. Receptor Definitions and Exposure Areas 10
Table 3. Summary of Sampled Sites 13
Table 4. Site Sampling Summary 21
Table 5. Summary of Laboratory Methods 23
Table 6. Surface Water RBSLs 70
Table 7. Sediment/Upland Soil Non-Lead COPCs RBSLs 71
Table 8. Bioavailability-Adjusted Sediment/Upland Soil Arsenic RBSLs 72
Table 9. Sediment/Upland Soil Lead RBSLs 73
Table 10. EPC Derivation Summary by Media and Sample Type 74
Table 11. Estimated Lead Risks – Private and Public Recreators 75
Table 12. Nearshore Surface Water EPCs – Private Recreational Resident and Outdoor Workers 77
Table 13. Nearshore Surface Water EPCs – Public Recreational Visitors and Outdoor Workers 78
Table 14. Open Water EPCs 79
Table 15. Non-Lead COPCs Soil/Sediment EPCs for Private Recreational Residents and Outdoor Workers 80
Table 16. Non-Lead COPCs Soil/Sediment for Public Recreational Visitors and Outdoor Workers 82
Table 17. Arsenic Soil/Sediment EPCs for Private Recreational Residents and Outdoor Workers 85
Table 18. Arsenic Soil/Sediment/EPCs for Public Recreational Visitors and Outdoor Workers 86
Table 19. Initial Lead Screening Results 88
Table 20. Summary of EPCs that Exceed Screening Levels – Private Recreational Resident 91
Table 21. Summary of EPCs that Exceed Screening Levels – Public Recreational Visitor 92
Table 22. Comparison of 1998 and 2024 Lead Concentrations 95
Table 23. Comparison of 1998 and 2024 Arsenic Concentrations 96
Table 24. Soil/Sediment Background Concentrations 97
Table 25. Sediment/Upland Soils RBSLs Compared to Background Concentrations 98
Table 26. Bioavailability-Adjusted Sediment/Upland Soils Arsenic RBSLs Compared to Background Concentrations 99
Table 27. Sediment/Upland Soil DU EPCs Compared to Background Concentrations 100

Figures

Figure 1. Coeur d'Alene Lake and Spokane River 3
Figure 2. Conceptual Site Model 7
Figure 3. Site Locations 14
Figure 4. Open Water Sample Locations 16
Figure 5. Expanded Screening-Level Risk Evaluation Approach 27
Figure 6. Screening Approach for Lead 28

Appendices

Appendix A Site Figures, Descriptions, Sampling Details, and Photographs ..... A
Appendix B 2024 Field Sampling and Analytical Results ..... B
Appendix C QA/QC Memorandum C
Appendix D Exposure Factors Used and Site-Specific Arsenic RBSLs ..... D
Appendix E ITRC Calculator Inputs and Outputs Summary Results of Levene's Test Summary of Pooled Standard Deviations and Pooled Variances and Standard Deviations ..... E
Appendix F IEUBK Inputs and Outputs ..... F

Acronyms and Abbreviations

ALM	Adult Lead Methodology
ABA	absolute bioavailability
Alta	Alta Science and Engineering, Inc.
AmTest	Am Test Laboratories
BHSS	Bunker Hill Mining and Metallurgical Complex Superfund Site
BLL	Blood Lead Level
CDA	Coeur d'Alene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Contaminant of potential concern
CUA	Common Use Areas
CSF	cancer slope factor
CSM	Conceptual Site Model
DEQ	Idaho Department of Environmental Quality
DU	decision unit
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
EU	exposure unit
FS	feasibility study
HHRA	human health risk assessment
HQ	Hazard Quotient
IEUBK	Integrated Exposure Uptake Biokinetic
IRIS	Integrated Risk Information System
ISM	Incremental Sampling Methodology
ITRC	Interstate Technology Regulatory Council
IVBA	In vitro bioaccessibility
LMP	Lake Management Plan
MCL	maximum contaminant level
NAS	National Academies of Sciences, Engineering, and Medicine
NPL	National Priorities List
P3.5	Probability of exceeding 3.5 micrograms per deciliter
P5	Probability of exceeding 5 micrograms per deciliter
QA/QC	quality assurance/quality control
QAPP	quality assurance project plan
RBA	relative bioavailability
RBSL	Risk-based screening level
RI	remedial investigation
ROD	Record of Decision
RSL	Regional Screening Level
SAP	Sampling Analysis Plan

SLRE	screening-level risk evaluation
SLRA-CUA	Screening Level Risk Assessment for Common Use Areas
TCL	Tshimakain Creek Laboratories
TerraGraphics	TerraGraphics Environmental Engineering, Inc.
UCL	Upper Confidence Limit
USGS	U.S. Geological Survey

Units

mg/kg	milligrams per kilogram
mg/L	milligrams per liter
L/day	liters per day
µm	micrometer
µg/dL	micrograms per deciliter
µg/day	micrograms per day
µg/L	micrograms per liter

Executive Summary

In response to a recommendation from a recent National Academy of Sciences study (NAS 2022) and as part of the Idaho Department of Environmental Quality's (DEQ) mission to protect human health and the environment, DEQ undertook an expanded screening-level risk evaluation (SLRE) beginning in 2023 to evaluate exposure from metals present in sediment and lake water to people who recreate and work around or on Coeur d'Alene (CDA) Lake and the Spokane River in Idaho. CDA Lake is Idaho's second largest lake and a popular recreational destination, part of the CDA Tribe's Aboriginal Territory, an economic catalyst for North Idaho and Eastern Washington, and is the heart of local communities. Although CDA Lake is within the Bunker Hill Mining and Metallurgical Complex Superfund Site (BHSS; National Priorities List number IDD0483409210), the lake was not selected for remedial actions in the 2002 Operable Unit (OU) 3 Interim Record of Decision (ROD).

By February 2024, DEQ, in collaboration and under contract with Alta Science and Engineering Inc. (Alta), completed a data gap analysis of existing CDA Lake data and developed the expanded SLRE approach, which was documented in the SLRE Work Plan that incorporated public input from a questionnaire about use and activity patterns (Alta 2024a). Due to the data gaps associated with the conceptual site model, Alta recommended sampling recreation sites around CDA Lake and the Spokane River in Idaho. DEQ worked with the CDA Tribal staff and the Tribe's Research Committee to enter into an agreement for DEQ and Alta to collect samples within the boundaries of the Coeur d'Alene Reservation. Additionally, DEQ and Alta solicited consent from public agencies that manage public recreation sites, as well as private owners with recreational lakeshore and riverfront properties.

In July through September 2024, Alta collected samples at 32 public and privately owned recreational sites on CDA Lake and the Spokane River in Idaho to address identified data gaps and acquire current sediment, soil, and surface water data for key metals. Sites mainly consisted of beaches, boat ramps, and picnic areas where children and families recreate, and occupational activities occur. Sampling and analysis followed methods detailed in the Quality Assurance Project Plan (QAPP; Alta 2024b).

Alta and DEQ collected samples from up to three soil and sediment types and two surface water types, including:

- Upland soils from low elevation areas that may flood or have previously flooded from high spring lake levels.
- Dry sediment from shoreline areas above the water line, where children likely dig, play, and build sandcastles.
- Saturated (wet) sediment from underwater shoreline areas (less than three feet of water), where wading and swimming activities occur.
- Nearshore surface water in shallow water less than three feet deep where recreators swim or wade.
- Open water surface water from the top ten feet of lake or river water, near the general vicinity of 13 of the recreation sites sampled for this project.

Contract laboratories analyzed the samples collected in 2024 for antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc. These nine metals were identified as contaminants of concern in the SLRE Work Plan (Alta, 2024a). In addition, one laboratory analyzed a subset of the sediment and soil samples for lead and arsenic bioavailability.

By August 2025, Alta completed a majority of the expanded SLRE. DEQ and the CDA Tribe reviewed the draft report, which also underwent external technical peer review by SRC, Inc. This final expanded SLRE report summarizes the 2024 sampling effort, presents the 2024 data, and evaluates whether key metals in beach sediment, nearshore soil, and surface water pose unacceptable health risks to recreators or workers at the 32 sites sampled.

To evaluate potential health risks to recreators and workers at the sampled sites, Alta applied standard screening level risk evaluation methods. The 2024 metals data were used to calculate exposure point concentrations (EPCs) for each metal (or contaminant of potential concern, or COPC). Alta then compared EPCs to screening levels (risk-based screening levels, or RBSLs). If EPCs are below the RBSLs, the site is unlikely to pose unacceptable risk to people. If the EPCs are greater than the RBSLs, further evaluation may be warranted.

This SLRE evaluates potential health risks to visitors at public recreational sites (Public Recreational Visitors), residents at private sites (Private Recreational Residents), and workers at private and public recreational sites (Outdoor Workers). It uses conservative assumptions that are protective of human health to avoid an underestimation of health risks and increase confidence that sites are accurately excluded from further evaluation. Screening levels were calculated using target risk goals of 1×10^{-5} for carcinogens, a hazard quotient of 0.1, and the probability of exceeding a target blood lead level of 5 µg/dL for lead. A qualitative evaluation of Tribal Recreational Residents and Construction Workers, as well as other recreational pathways such as ingestion of fish, are also included in this expanded SLRE.

Alta and DEQ incorporated additional topics, which expand upon a typical screening level risk evaluation but would be considered in a baseline risk assessment or as part of risk management decision making. As an example, this expanded SLRE includes a qualitative discussion of site EPCs compared to regional background sediment metals concentrations.

Conclusions:

- **Open Surface Water:** Surficial surface water in the open waters of CDA Lake and the Spokane River in Idaho are unlikely to pose unacceptable health risks while recreating or working in surficial waters at the 13 locations evaluated in this expanded SLRE. All COPC levels in open surface water locations are below RBSLs.
- **Primary Risk Drivers:** Arsenic and lead in upland soils, dry sediment, and wet sediment are the primary reasons for exceedances of RBSLs. All other COPCs are less than RBSLs or are unlikely to pose a health risk when considering additional risk concepts.
- **Bioavailability:** Site-specific arsenic bioavailability data are substantially less than, and lead bioavailability data are less than or similar to, default values used to develop RBSLs. Several factors, such as lake biogeochemistry, likely limit people's ability to absorb ingested lead and arsenic at the recreation sites.
- **Concentration Trends:** This is the first comprehensive evaluation of metals contamination since 1998, when EPA conducted the *Coeur d'Alene Basin RI/FS Expedited Screening Level Risk Assessment for Common Use Areas* (SLRA-CUA) around CDA Lake as part of the Comprehensive Environmental Response, Compensation, and Liability Act efforts to investigate the area outside the original BHSS (URS Greiner, Inc. et al. 1999). Although direct comparisons between these 2024 metals concentrations and the SLRA-CUA are not advised due to differences in

sample collection and analysis methods, the metals concentrations overall did not greatly differ.

- **Contribution of Background to Site Risks:** Background levels of metals, especially arsenic, likely contribute to a significant portion, if not all, of the overall cancer and non-cancer risk (depending on the recreation site). The upper-bound regional sediment arsenic background concentration is greater than all of the arsenic cancer and non-cancer RBSLs, and many of the bioavailability-adjusted arsenic RBSLs.
- **Sites Below Non-Arsenic RBSLs and Background, Factoring in Additional Risk Considerations:** Twenty-one (21) sites are unlikely to pose unacceptable health risks to recreators and outdoor workers. EPCs do not exceed RBSLs or if they exceed RBSLs, they are within local background concentrations (e.g., arsenic). Although three sites included in this list have EPCs above RBSLs and background levels, consideration of target organ toxicity (or critical effects systems) and drinking water standards results in the conclusion that they are unlikely to pose unacceptable health risk. The 21 recreation sites are:
  - Greensferry Park (S004)
  - Tubbs Hill West Beach, Site 1 (S013)
  - Tubbs Hill South Beach, Site 2 (S014)
  - Tubbs Hill East Beach, Site 3 (S015)
  - Sanders Beach Public (S017)
  - Higgens Point Beaches, Site 2 (S021)
  - Higgens Point Beaches, Site 1 (S022)
  - Mica Bay Boater Park (S033)
  - Loff's Bay (S036)
  - Carlin Bay (S038)
  - Rockford Bay Public Access (S041)
  - Windy Bay (S044)
  - Bell Bay Campground (S046)
  - Rocky Point (S058)
  - 7 privately owned sites (CONF02, CONF03, CONF04, CONF06, CONF08, CONF09, CONF11).
- **Sites above RBSLs and Background, Factoring in Additional Risk Considerations:** Eleven (11) sites have EPCs that exceed arsenic cancer RBSLs and arsenic background levels, or exceed P5 for lead screening. However, the lead and arsenic EPCs at these 11 sites are all less than the BHSS OU 3 action levels of 700 mg/kg and 100 mg/kg, respectively, and the arsenic EPCs are within criteria for clean replacement material for OU 3. The 11 recreation sites are:
  - Corbin Park (S001)
  - Q'Emiln Park (S003)

  - Atlas Waterfront Park (S007)
  - Blackwell Island (S008)
  - Cheamkwet Park (S009)
  - Yap-Keehn-Um Beach (S010)
  - Boardwalk Public Beach (S012)
  - Sanders Beach West (S016)
  - Higgens Point Day Use (S020)
  - 2 privately owned sites (CONF05 and CONF07)
- **Qualitative Evaluations:** A Tribal Recreational receptor, as well as other public or private recreational receptors, that regularly engage in soil/sediment contact-intensive activities such as harvesting aquatic plants and/or consuming aquatic and nearshore terrestrial plants and animals, likely have higher exposures to metals than those quantified in this expanded SLRE. Tribal members practicing cultural activities that involve these types of exposures are potentially at higher risk.

Recommendation:

Based on the expanded SLRE outcomes, 11 sites warrant future consideration when or if new EPA arsenic and lead guidance is evaluated site-wide for the BHSS. Risk management decisions should be consistent within a Superfund site.

Section 1 Purpose and Background

The protection of human health and the environment is a high priority for the State of Idaho and is a common goal of the Idaho Department of Environmental Quality (DEQ), the Coeur d'Alene (CDA) Tribe, the CDA Lake Advisory Committee, and the U.S. Environmental Protection Agency (EPA). One of the recommendations in a recent study, "The Future of Water Quality in Coeur d'Alene Lake (NAS 2022)," was to develop a lake-focused human health risk assessment to evaluate exposure of people who frequent CDA Lake to contaminants present in sediment and lake water. In response to that recommendation, and through Governor Little's Leading Idaho initiative, DEQ initiated an expanded Screening Level Risk Evaluation (SLRE) of Selected Recreational Areas in CDA Lake and the Spokane River.

The purpose of this report is to present data used in and the outcomes of the expanded SLRE. This report is organized as follows:

- Section 1 includes a brief history of CDA Lake and the source of metals contamination, as well as the background and scope of the expanded SLRE.
- Section 2 summarizes the conceptual site model (CSM) used to guide this SLRE and the 2024 sampling of CDA Lake and Spokane River sites.
- Section 3 details the expanded SLRE methods, findings, uncertainties, and additional risk considerations that are typically not included in a screening level risk assessment.
- Section 4 lists conclusions and recommendations.

1.1 Lake History

Coeur d'Alene Lake is Idaho's second largest lake and a popular recreational destination, an economic catalyst for North Idaho and Eastern Washington, and the heart of the local communities. The lake is part of the CDA Tribe's Aboriginal Territory, and the southern third of the lake falls within their current reservation boundary (Figure 1). The CDA Reservation originally included the entire lake, but after a series of Executive Order negotiations, the reservation was reduced to its present size based on the 1894 Harrison Cession.

The "Silver Valley", located along the South Fork of the CDA River (one of two primary tributaries of the CDA River), was among the nation's largest producers of silver, lead, and zinc for nearly a century from the late 1880s to the early 1980s. Due to decades of historical mining activity, millions of tons of metals-laden sediments were introduced into the CDA River, adjacent floodplains, wetlands, and CDA Lake and remain present in the sediments on the lake bottom today. All of these areas have seen an increase in recreational use since the Bunker Hill Mining and Metallurgical Complex Superfund Site (BHSS) was added to the National Priorities List (NPL; IDD048340921) in 1983.

After discovery of ore veins at the Bunker Hill Mine in 1885, numerous mines were established and associated ore processing began. By 1914, it became visually apparent that the mine waste generated in the Silver Valley was impacting the South Fork of the CDA River and entering the lake. By the 1930s, evidence of mining impacts to CDA Lake was confirmed. However, this problem was overshadowed by the Great Depression (1929-1941) and World War II (1939-1945). Eventually, in 1981, smelting operations in the Silver Valley ceased due to the drop in metal prices and the need to invest significant capital to meet new environmental regulations.

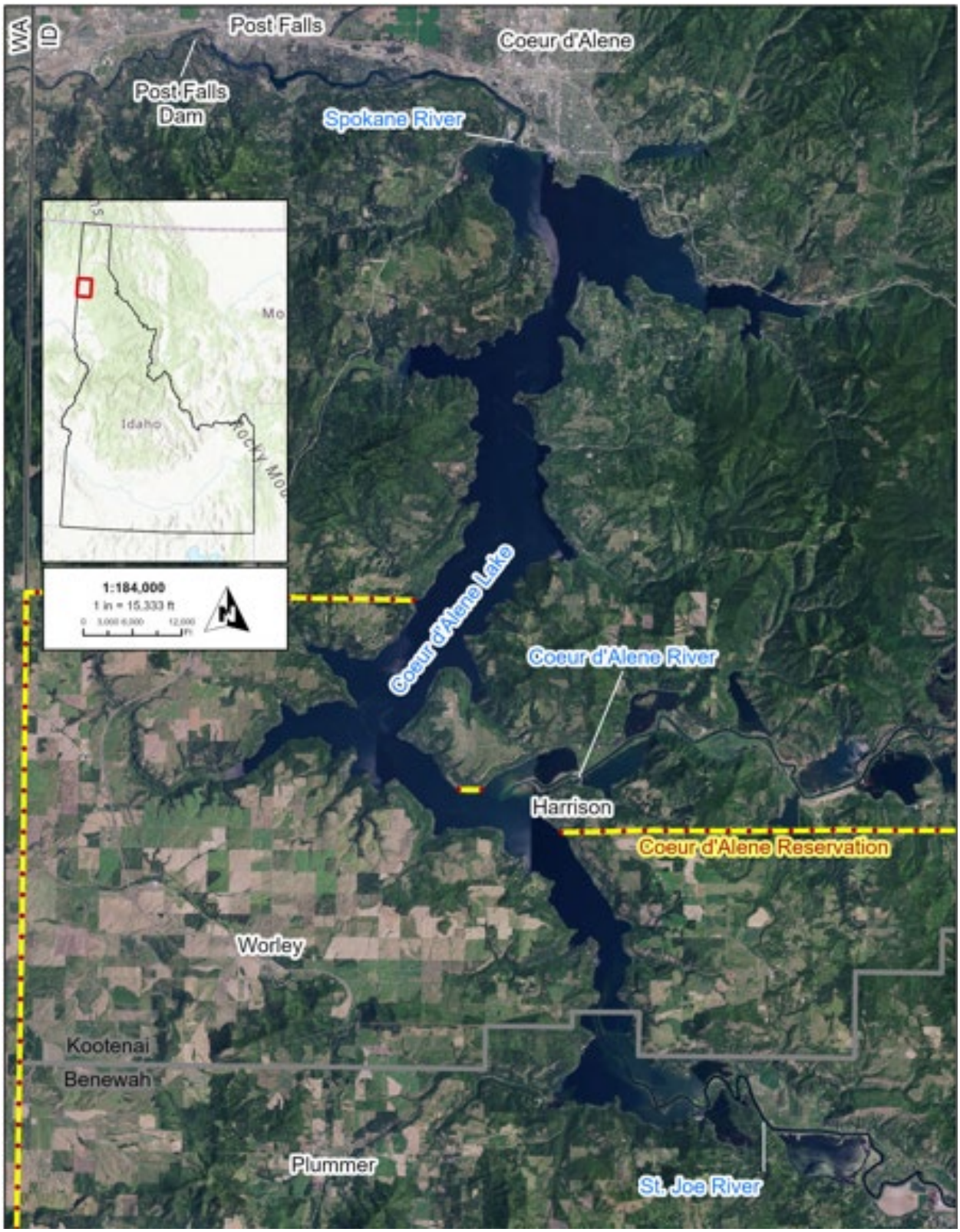
In 1998, the U.S. Geological Survey (USGS) estimated the amount of mining waste and tailings that were disposed of in the CDA River and its tributaries over the century to be "about 56 million metric tons of tailings containing 2,200 metric tons of silver, 800,000 metric tons of lead, and at least 650,000 metric tons of zinc" (USGS 1998). In addition, the USGS estimated that "another 13.2 million metric tons of tailings containing 400 metric tons silver, 200,000 metric tons lead, and at least 290,000 metric tons zinc were stockpiled along the floodplain of the CDA River" (USGS 1998). This waste remained in the CDA River and its tributaries or was transported to CDA Lake.

Although CDA Lake is within the BHSS, the lake was not selected for remedial actions in the 2002 Operable Unit (OU) 3 Interim Record of Decision (ROD). The EPA deferred remedy selection for the lake in favor of managing nutrient and metals inputs to the lake through the development of a revised CDA Lake Management Plan (LMP) that would be implemented by the CDA Tribe (Tribe) and DEQ. In 2019, the Tribe confirmed with EPA and DEQ that water quality triggers had been exceeded; consequently, the Tribe withdrew their support for and adoption of the LMP as a non-CERCLA approach to managing mine waste contamination in the bottom of CDA Lake. The Tribe continues to monitor water quality in tribal waters as well as public education and outreach outside of the LMP process, while DEQ continues to implement the LMP.

Continued development around the lake and throughout the CDA Basin has been dramatic in recent years, and the area features multiple resorts, an ever-increasing number of homes, and an influx of new residents and visitors to the area.

A detailed history surrounding the lake can be found in the CDA Basin Remedial Investigation/Feasibility Study (RI/FS) report, Part 5 (URS Greiner, Inc. and CH2M Hill 2001). Additional information on the history of the lake and the mining activity in the Silver Valley can be found in numerous documents (USGS 1998; TerraGraphics et al. 2001; NRC 2005; NAS 2022).

Figure 1. Coeur d'Alene Lake and Spokane River



1.2 Background and Scope of the Expanded Screening-Level Risk Evaluation

A human health risk-based evaluation is a multi-step process that can be used to determine if areas around CDA Lake and the Spokane River (the portion within the State of Idaho) may pose unacceptable health risks due to exposure to key metals generated from historic mining activities upstream in the CDA River Basin. DEQ is undertaking initial steps to evaluate health risks by conducting this expanded SLRE. This is the first comprehensive evaluation of information related to metals contamination since the late 1990s, when EPA conducted the *Coeur d'Alene Basin RI/FS Expedited Screening Level Risk Assessment for Common Use Areas* (SLRA-CUA) around CDA Lake as part of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) efforts to investigate the area outside the original BHSS (URS Greiner, Inc. et al. 1999).

DEQ and Alta developed the expanded SLRE approach in 2023, which is documented in the *Final Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River – Work Plan* (Alta 2024a) (hereinafter referred to as the Work Plan). The Work Plan developed risk-based screening levels (RBSLs) that account for the recreational and occupational activities that occur on the lake and river. Additionally, Alta reviewed existing environmental data available for CDA Lake and the Spokane River to evaluate if any existing data could be used for the SLRE and to identify data gaps. Although some data were available to support a qualitative discussion in the SLRE, substantial temporal and spatial data gaps existed, and field sampling activities were recommended. Subsequently, Alta sampled 32 sites in 2024 to provide data for use in the SLRE of current potential human health risks to recreationists and outdoor workers.

This report describes the expanded SLRE findings and approach to evaluate recreational and occupational exposures to key metals including antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc in beach sediment, upland soil, and surface water at selected sites located on public and privately-owned lands along the shores of CDA Lake and the Spokane River in Idaho. In general, the SLRE approach is as follows: RBSLs are identified/calculated for all contaminants of potential concern (COPCs); Exposure Point Concentrations (EPCs) are calculated for wet and dry sediments, upland soils, nearshore surface water, and open water based on measured 2024 metals concentrations; the EPCs are compared to identified RBSLs to determine if the EPCs exceed RBSLs. If EPCs do not exceed RBSLs, then the site is unlikely to cause harm to human health. For EPCs that exceed RBSLs, additional risk considerations are presented to inform risk management decisions and provide DEQ, the Tribe's government, and the project partners with more information to decide future steps to minimize potential risks to human health. Since completion of the Work Plan in 2023, EPA released updated risk-based screening levels and toxicity values for lead and arsenic, respectively, that are also applied and discussed within this report[1].

Goals of this expanded SLRE are to:

- Determine whether metals concentrations in areas accessed by recreators and workers are unlikely to pose a threat to human health and can be excluded from future evaluation or action.

[1] Lead soil screening guidance was issued in January 2024 and arsenic toxicity values were issued in January 2025. EPA also recently published a new lead soil cleanup directive on October 16, 2025, which was issued after a majority of this expanded SLRE was completed and is not incorporated into this expanded SLRE.

- Expand upon the typical screening evaluation process to inform decision-makers by:
    - Considering site-specific bioavailability data relative to default bioavailability applied to RBSLs.
    - Evaluating site conditions and contaminant concentration data relative to local background soil/sediment data.
    - Evaluating target organ or critical effect systems (non-cancer endpoints).
    - Considering drinking water standards.
    - Determining target blood lead levels (BLLs).
    - Evaluate site conditions relative to appropriate OU 3 soil/sediment thresholds.
- Determine (qualitatively) how exposures to metals and potential health risks may have changed over time.
- Increase public awareness of the presence of metals in and around CDA Lake and the Spokane River.

This expanded SLRE is intended to support DEQ, the Tribe's government, EPA, and stakeholders with human health risk-based information to make decisions about future actions.

Section 2 Conceptual Site Model and Recreational Site Sampling Summary

A CSM is used to guide the risk evaluation process and is the basis for determining data needs and data gaps. This section summarizes the CSM and the sampling conducted to support this expanded SLRE. Using data collected in 2024, this expanded SLRE evaluates recreational and occupational exposures to key metals for the exposure scenarios (sources, pathways, and receptors) described in the CSM. Recreational site sampling was designed to support this SLRE as described in the Work Plan (Alta 2024a). Sampling included the collection of soil, sediment, and surface water samples from 32 sites around CDA Lake and along the Spokane River in Idaho and was performed during the summer months (late July through September 2024) to best represent when most human exposures occur.

2.1 Conceptual Site Model

The human health CSM for the Site is shown in Figure 2. A detailed CSM including a description of the geology and hydrology of the lake and river, climate, lake hydrodynamics, land use, and contaminant sources and transport is presented in the Work Plan (Alta 2024a). The human health CSM shows the relationship between site-related constituents in media (e.g., sediment) and exposure pathways through which a hypothetical human might be exposed in each exposure area. The information presented in the CSM was used to identify relevant exposure media and associated data, receptors, potentially complete and significant pathways, and appropriate screening levels to conduct the SLRE. Observations made during sampling supported the preliminary CSM presented in the Work Plan.

Recreation on CDA Lake and the Spokane River is high during summer months, also resulting in more occupational activities related to tourism. Consequently, risks to both recreational users and workers are evaluated using sample data collected during the summer months, along with summertime exposure parameters to represent recreational and occupational exposures. CDA Lake levels fluctuate throughout the year. During the summer months (typically from June 15 to

September 15) the outflow of the river is regulated by the dam to maintain the lake elevation at 2,125 feet above sea level (2,128 is the maximum summer level and natural level). The present lake elevation is controlled by the bedrock outlet of the lake on the Spokane River at Post Falls. For most of the year, the flow on the river is unregulated by the dam at Post Falls, during which time the volume of flow on the river directly correlates with the elevation of the lake. Avista, who maintains lake levels, attempts to lower the lake by 7.5 feet by the end of January each year (Kootenai County 2025). Thus, wet sediment sampling locations (discussed below) may not be under water for portions of the year and may expose recreators or workers at other times of the year. This is further discussed in Section 3.8.1.

2.1.1 Contaminants of Potential Concern

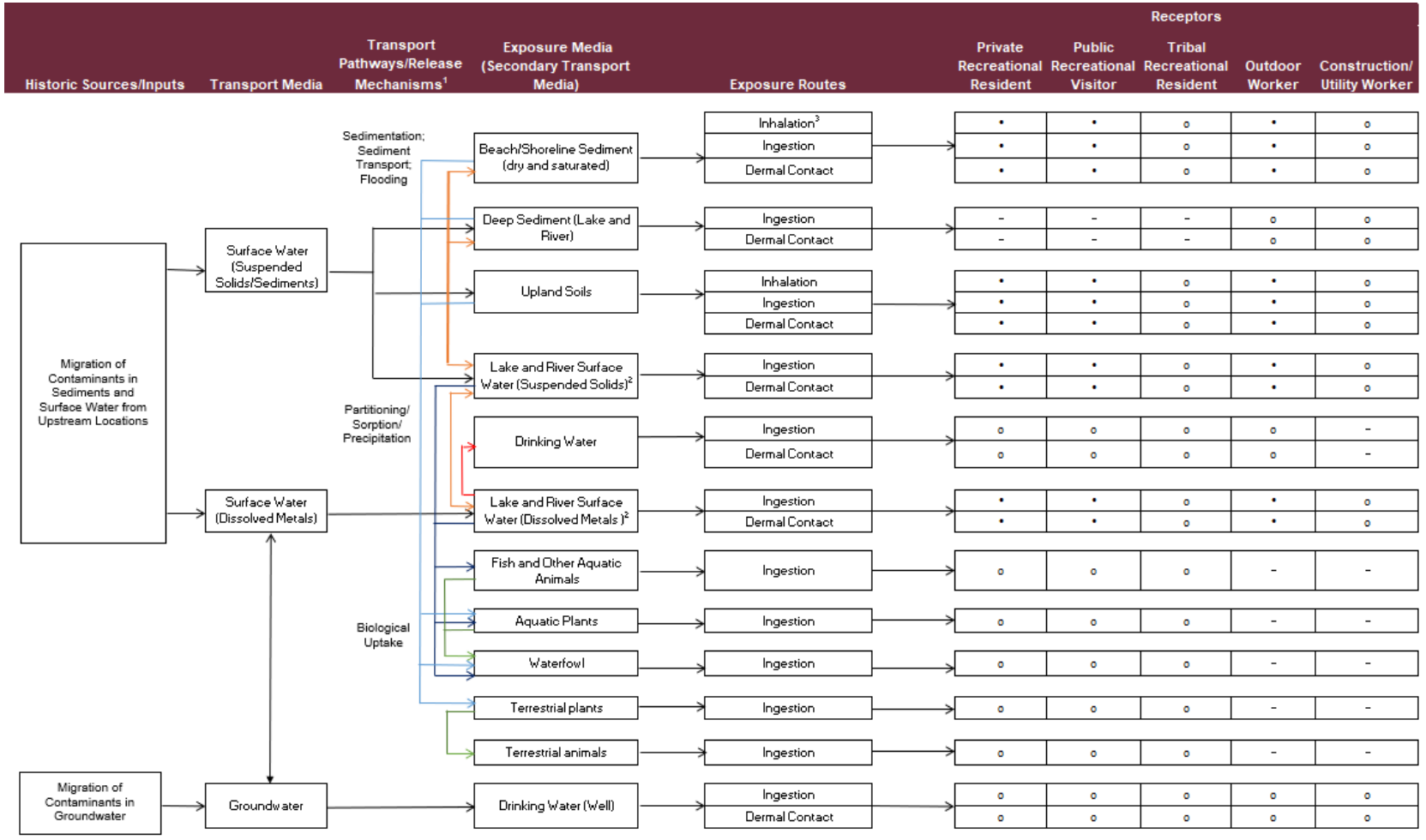
The following nine metals are considered COPCs assessed in the expanded SLRE: antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc.

The rationale for evaluating these metals is as follows:

- Seven of the metals (excluding iron and manganese) were identified as contaminants of concern in the original two OUs of the BHSS and subsequently evaluated in the 1999 SLRA-CUA (URS Greiner, Inc. et al. 1999).
- Seven metals (antimony, arsenic, cadmium, iron, lead, manganese, and zinc) were screened and evaluated as COPCs in the 2001 CDA Basin human health risk assessment (HHRA) for OU 3 of the BHSS, which is the BHSS OU that abuts the lake. The resulting contaminants of concern that contributed to the greatest human health risk in OU 3 were lead, arsenic, cadmium, and iron (TerraGraphics et al. 2001).
- The 2022 NAS study concluded the primary human health concerns in the lake are associated with lead, arsenic, and mercury due to methylmercury bioaccumulating in fish (NAS 2022).
- Elevated iron and manganese concentrations may affect lead bioavailability (IVBA) in soil (Freeman et al. 1992; Rieuwerts et al. 2015). The importance and application of IVBA in this expanded SLRE is discussed in Section 2.2.3.

The COPCs selected for evaluation in this SLRE address: 1) exposures to the metals previously found to cause the greatest human health risk in the BHSS, which is the source of metals to the lake, and 2) potential cumulative risk from exposure to multiple metals by also including the other metals evaluated for health risk in the 1999 SLRA-CUA and 2001 CDA Basin HHRA.

Figure 2. Conceptual Site Model



LEGEND:

-	Pathway is not complete, no evaluation required
•	Pathway is or may be complete
o	Pathway is or may be complete but is excluded from quantitative evaluation.

[1] Colored lines are for visual purposes only and represent the various transport and release mechanisms between media

[2] Direct contact with lake surface water will account for total metals (dissolved and suspended solids)

[3] Inhalation of dry sediments only

2.1.2 Exposure Media

The environmental media to which humans (i.e., receptors) are exposed are defined in Table 1 below.

Table 1. Exposure Media Definitions

Media	Definition
Dry Beach/Shoreline Sediments (Above the waterline)	Dry sediments along the beaches and shoreline that are above the waterline during the summer lake levels.
Saturated Beach Sediments (Below the waterline)	Nearshore saturated sediments are those along beaches and shorelines that are submerged below water during the summer lake levels at depths generally less than 3 feet (i.e., the wading portion of the beach).
Deep Sediment[1] (Below the waterline)	Deeper lake and river sediments are saturated sediments that are submerged below water during the summer lake levels at depths generally greater than 3 feet.
Upland Soils	Upland soils include soils and sediments in areas subject to regularly occurring inundation of lake or river water during seasonal high-water or areas that have been inundated by lake or river during past extreme flood events. During historic flood events, contaminated sediments may have been transported to and deposited in these areas.
Nearshore Surface Water[2]	Surface water along beaches and shorelines that is generally less than 3 feet deep. Surface water in shallow nearshore areas is more likely to be used for wading, swimming, and water play activities and, relative to deeper, open water areas, nearshore surface waters may have higher amounts of suspended solids due to disturbance by wave action, other factors, and these recreational activities.
Deep or Open Water Surface Water[2]	Surface water further from the shorelines in the deeper areas of the lake that is generally greater than 3 feet deep. Surface water in deep or open water areas is more likely to be accessed by boat or dock and used for swimming, snorkeling, and motorized water sports (e.g., wake boarding, water skiing). Relative to nearshore surface water, deeper, open water areas may have lower amounts of suspended solids due to the greater water depths and distance from lake or river bottom sediments.
Drinking Water	Potable water supplies that are from CDA Lake and the Spokane River surface water or groundwater from the shallow aquifer that is recharged by the lake or river.*
Fish	Fish that are caught in the lake and river for human consumption.
Aquatic Plants	Plants that are submerged, emergent, or free floating in the lake or river that are gathered and/or harvested for human consumption or other uses (e.g., weaving mats). An example of an emergent edible plant that grows in CDA Lake is the water potato (*Sagittaria latifolia*).

Media	Definition
Aquatic Animals	Aquatic animals other than fish that live in the lake, such as crayfish and amphibians, which may be harvested for human consumption.
Waterfowl	Waterfowl (e.g., ducks, geese) hunted for human consumption that feed on potentially affected plants and ingest affected sediments (incidental) and surface water in the lake and/or the river.
Terrestrial plants/animals	Harvested terrestrial plants that grow in potentially affected media (e.g., upland soil) and animals hunted for human consumption that consume plants, lake water, and/or animals from potentially affected areas.

Notes:
[1] Exposure to deep sediments by outdoor and construction/utility workers are potentially complete exposure pathways (per the CSM) but are not evaluated in this SLRE (see Section 2.1.5).
[2] Receptors are exposed to surface water contaminants in both the dissolved and suspended solids phase (or total).
* For purposes of the SLRE, drinking water is only considered at public recreational sites where potable water is not regulated by DEQ and/or are not connected to a municipal facility.

2.1.3 Exposure Routes

Routes of exposure are the mechanisms by which a contaminant enters an individual or population. The potential exposure routes considered in this SLRE include:

- Incidental ingestion of saturated and dry beach/shoreline sediment, upland soils, and nearshore and open water surface water at public and private recreational sites.
- Dermal contact with saturated and dry beach/shoreline, upland soils, and surface water.
- Inhalation of dust from dry beach/shoreline sediment and upland soil.
- Ingestion of drinking water.
- Ingestion of fish, aquatic animals other than fish (e.g., crayfish), waterfowl, and aquatic plants (e.g., water potato).
- Ingestion of terrestrial plants and animals.

2.1.4 Receptors

The properties and land around CDA Lake and the Spokane River include a mix of residential and commercial properties, public and private beaches, trails, campgrounds, parks, and Tribal lands. Thus, a wide variety of receptor groups could be exposed to affected media in the lake and the river and their immediate vicinity (i.e., along the shoreline).

Receptors range from residents living on the shorelines to recreational users that visit the lake during the summer to landscapers and workers that maintain or develop residential or commercial properties along the shoreline. Residents and recreational users include both adults and children, and workers include adults. Appendix A of the Work Plan provides a detailed listing of the various receptor groups (Alta 2024a).

Table 2 defines the various receptors and the areas in which they may be exposed to certain environmental media.

Table 2. Receptor Definitions and Exposure Areas

Receptor	Definition	Potential Exposure Locations
Public Recreational Visitor	Members of the public (children and adults) who engage in recreational activities on the lake/river and along the shoreline, but do not live adjacent to or in the immediate vicinity of the lake or river. They may, for example, include tourists that visit the lake while on vacation, youth that attend summer camp, or members of the surrounding communities that recreate at the lake or river. Recreational exposures are expected to occur in public locations (i.e., public beaches, open water, upland parks, trails, campgrounds). Exposures to potentially affected media for these receptors are expected to be shorter and less frequent than the Private Recreational Resident.	Public Beaches/Shorelines, Nearshore Waters, Open Waters, and Upland Trails, Parks, and Campgrounds
Private Recreational Resident	Lake or river residents (children and adults) who permanently or seasonally live in homes or cabins along the lake/river shoreline and recreate on a private beach/soil area located on their condominium/resort/association property and at public locations. This Private Recreational Resident receptor is inclusive of permanent or seasonal lakeside or riverside residents that may have a boat dock and/or share a private beach with other residents as part of a community association. Exposures to potentially affected media for these receptors are expected to be longer in duration and of greater frequency than the Public Recreational Visitor due to their proximity and ease of access to the lake and river.	Private Beaches/Shorelines, Public Beaches/Shorelines, Nearshore Waters, Open Waters, and Upland Trails, Parks, and Campgrounds
Tribal Recreational Resident	CDA Tribal members may recreate at the lake and live on the shoreline, similar to the Private Recreational Resident receptor. However, CDA Tribal members likely have additional exposures because they may also engage in cultural practices at the lake that can bring them into contact with potentially affected media at increased intensity of exposures (e.g., harvest and consumption of water potatoes). Exposures to potentially affected media for these receptors are expected to be longer in duration and of greater frequency than the Private Recreational Resident due to cultural practices.	Private Beaches/Shorelines, Public Beaches/Shorelines, Nearshore Waters, Open Waters, and Upland Trails, Parks, and Campgrounds
Outdoor Worker	Workers that perform routine maintenance, cleanup, or other occupation-based activities within or near the lake and/or river at private commercial or residential properties, beaches, picnic areas, campgrounds, and trails. Examples include youth camp workers/volunteers, campground or beach maintenance workers, rental boat or boat tour operators, landscapers, and workers engaged in scientific-related work such as routine monitoring of lake conditions and aquatic life. These receptors may come in contact with potentially affected media while working.	Private Beaches/Shorelines, Public Beaches/Shorelines, Nearshore Surface Waters, Open Waters, and Upland Trails, Parks, and Campgrounds

Receptor	Definition	Potential Exposure Locations
	Exposures to potentially affected media for these receptors are expected to be longer in duration and more frequent than the Construction Worker.	
Construction Worker	Workers that engage in short-term intensive construction and utility activities. Construction activities may include the construction of trails, pier pilings, campground and picnic area buildings, and residential/commercial buildings along the shoreline. Utility workers may dig trenches to install power, sewer, and water lines. While more intense, exposures to potentially affected media for these receptors are expected to be shorter in duration (less than one year) and less frequent than the Outdoor Worker.	Private Beaches/Shorelines, Public Beaches/Shorelines, Nearshore Surface Waters, Open Waters, Deep Lake Sediments, and Upland Trails, Parks, and Campgrounds

2.1.5 Exposure Scenarios and Pathways

Exposure scenarios describe the combination of activities that expose receptors to environmental media via routes of exposure. This SLRE focuses on certain complete and significant scenarios and associated pathways. The various types of activities[2] considered in the exposure scenarios are presented in detail in the Work Plan (Alta 2024a).

An exposure pathway represents the course a chemical takes from its source to the exposed individual. An exposure pathway consists of four parts: (1) a source and mechanism of chemical release, (2) a retention or transport medium, (3) a point of potential human contact with the affected medium, and (4) an exposure route at the contact point (USEPA 1989). Without all of these four parts, a potential exposure pathway is incomplete and therefore not further considered in this SLRE. Potentially complete and incomplete exposure pathways are depicted in Figure 2, and the potentially complete pathways evaluated in this SLRE are summarized below.

2.1.5.1 Quantitatively Evaluated Exposure Scenarios

The following exposure scenarios are quantitatively evaluated in this SLRE:

- Public Recreational Visitors
- Private Recreational Residents
- Outdoor Workers

The potentially complete exposure pathways evaluated for Public Recreational Visitors and Private Recreational Residents are:

- Incidental ingestion of soils, sediment, and lake or river water at public or private sites.
- Dermal contact with soils, sediment, and lake or river water.

[2] Activities described and considered in this SLRE are consistent with previous risk assessments, based on local knowledge/observations, and identified by respondents in the 2023 CDA Lake and Spokane River Recreational Use Questionnaire (https://cdapress.com/news/2023/aug/20/new-study-looks-recreational-areas-coeur-dalene-la/).

- Inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.

The potentially complete exposure pathways evaluated for Outdoor Workers are:

- Incidental ingestion of soils, sediment, lake or river water, and potable water at public sites.
- Dermal contact with soils, sediment, and lake or river water.
- Inhalation of contaminants in dry soil or sediment that is released into air via construction, digging, or wind.

The Public Recreational Visitor scenario is evaluated for public properties and privately-owned properties used by the public. The Private Recreational Resident scenario is evaluated for private properties (not used by the public). The Outdoor Worker scenario is evaluated for both public and privately-owned properties.

2.1.5.2 Qualitatively Evaluated Exposure Scenarios

Tribal Recreational Residents and Construction Workers are qualitatively evaluated in this SLRE. The rationale behind evaluating these receptors and scenarios is discussed in Section 4.1.6.1 of the Work Plan (Alta 2024a).

The following potentially complete exposure pathways are qualitatively evaluated in this SLRE:

- Ingestion of terrestrial and aquatic plants/animals, including fish.
- Ingestion of surface water as a public or residential drinking water source.

These pathways are qualitatively evaluated in this SLRE because they are monitored and overseen by state environmental agencies, have been evaluated recently, or require a significant amount of additional data and information to quantitively derive RBSLs for a given pathway. They are further discussed in Section 3.6.

In addition, individuals might fall into more than one receptor group and therefore be exposed to potentially affected media in more than one way. The related increases in incremental risk due to multiple exposures for scenarios such as these is discussed in the Uncertainties Section (Section 3.8).

2.2 Field and Analytical Sampling Summary

As recommended in the Work Plan, field sampling occurred to fill temporal and spatial data gaps for exposure media. Field crews sampled a total of 32 of the prioritized recreational sites identified in the Work Plan and Sampling and Analysis Plan/Quality Assurance Project Plan (SAP/QAPP), as well as a total of 13 open water sites (Alta 2024a, 2024b). Recreational areas included swimming and beach areas, campgrounds, boat launches, developed parks, picnic areas, playgrounds, sport courts, and private use areas and ranged in level of development from primitive sites to sites with well maintained and extensive infrastructure. Table 3 summarizes the total number of sampled sites, and the publicly owned sites are shown in Figure 3. Sites sampled include those where owners granted access in time to allow field crews to prepare for and conduct the sampling within the allocated field timespan. Project sampling goal achievements (described in Alta 2024a) are discussed below:

- A total of 24 out of 30 higher priority sites were sampled (80%). These 30 prioritized sites were targeted locations because they represent areas where sensitive populations

are most likely to recreate, where local-area workers access the most often, and where mining contamination is most likely to affect sites.

- Seventeen (17) of 24 EPA 1999 SLRA-CUA sites (68%) were sampled.
- Seven (7) privately owned properties with beaches were sampled.
- Sampling achieved spatial representation of the river and lake, including Spokane River sites from CDA Lake to below the Post Falls Dam, and CDA Lake locations on the north to the south end of the lake and in bays on the east and west sides of the lake.
- Open water sampling occurred at 13 of the 32 sites.

Table 3. Summary of Sampled Sites

Total Sites Sampled	Medium Priority Sites	High Priority Sites	1999 SLRA-CUA Sites	Public Sites	Private Sites*
32	8	24	17	21	7

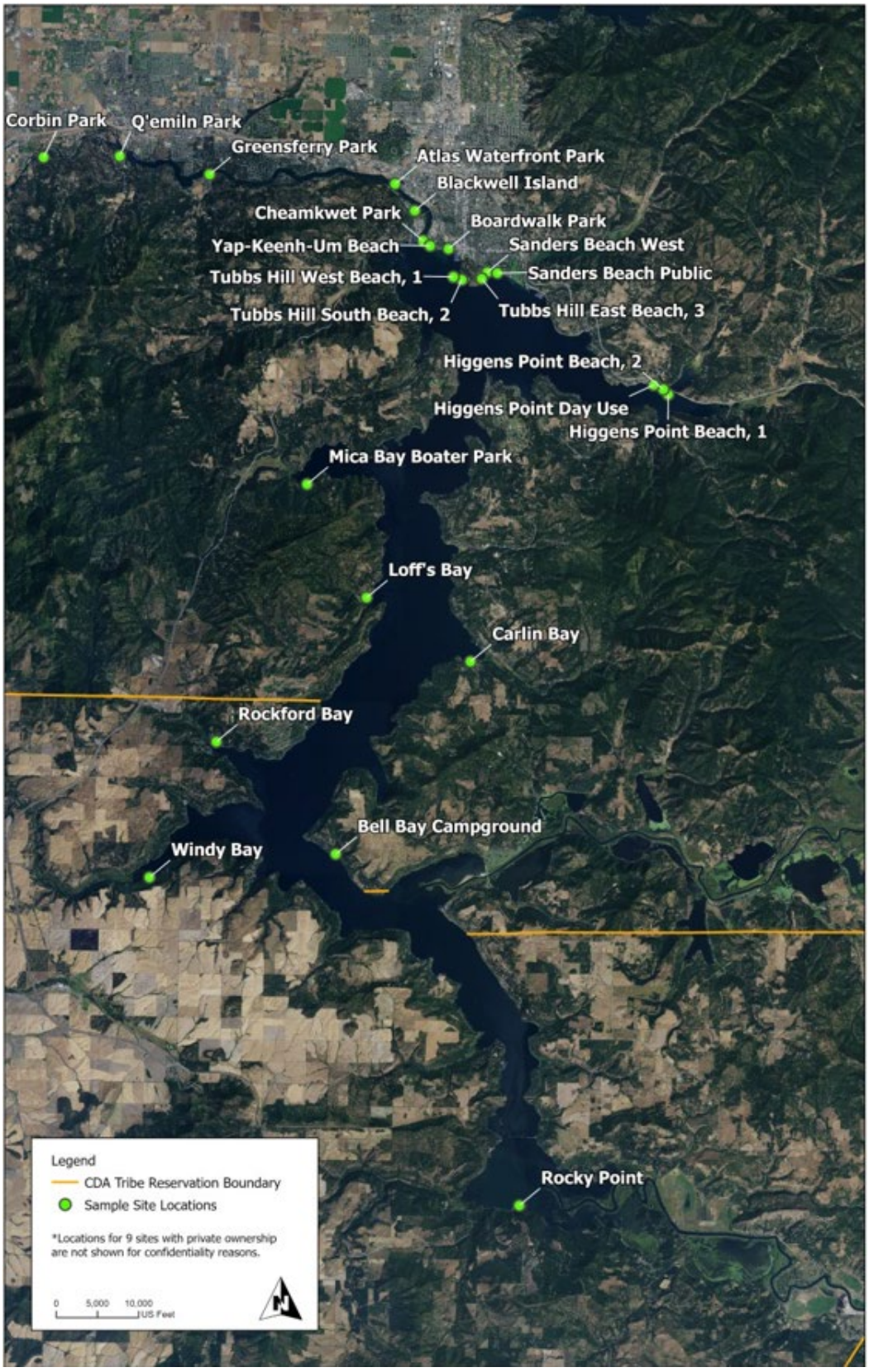
Note: * Only private properties with no public access are included for calculating project goals above.

For privately-owned properties, generic site identification numbers are used throughout this expanded SLRE report instead of the Site name and number to protect participant confidentiality. Generic site identification numbers are also used for a couple of privately-owned properties that are used by the public and evaluated for the Public Recreational Visitor.

Full site descriptions, sampling locations and details, and select photographs (for public sites only) are included in Appendix A for all sampled sites. A more detailed summary of sampling activities and analytical results is presented in Appendix B.

The following sections summarize the sampled media, sites, and laboratory analyses.

Figure 3. Site Locations



2.2.1 Field and Sites Sampling Summary

Up to three soil and sediment types were collected from each recreational site in the project area, including:

- Upland soils from low elevation areas that are subject to inundation from high water levels or past extreme flood events.
- Dry sediment from shoreline areas above the water line.
- Saturated (wet) sediment from submerged shoreline areas (in less than three feet of water).

Each soil/sediment type was sampled as a unique decision unit (DU) within each recreational site. Multiple DUs per soil/sediment type were sampled at some recreational sites when the soil/sediment type was separated by long distances or topographic/physical features (not likely to be accessed by the same users during the same visit), had distinctly different recreation use types (i.e., boat launch versus beach play area), and/or consisted of distinctly different soil/sediment types (i.e., dry beach sediment that was primarily sand in one location and more gravel and cobble in another beach location). Sediment and soil conditions ranged from sandy to gravel sand mixes to mostly cobble beaches, and upland soils ranged from silty to rocky.

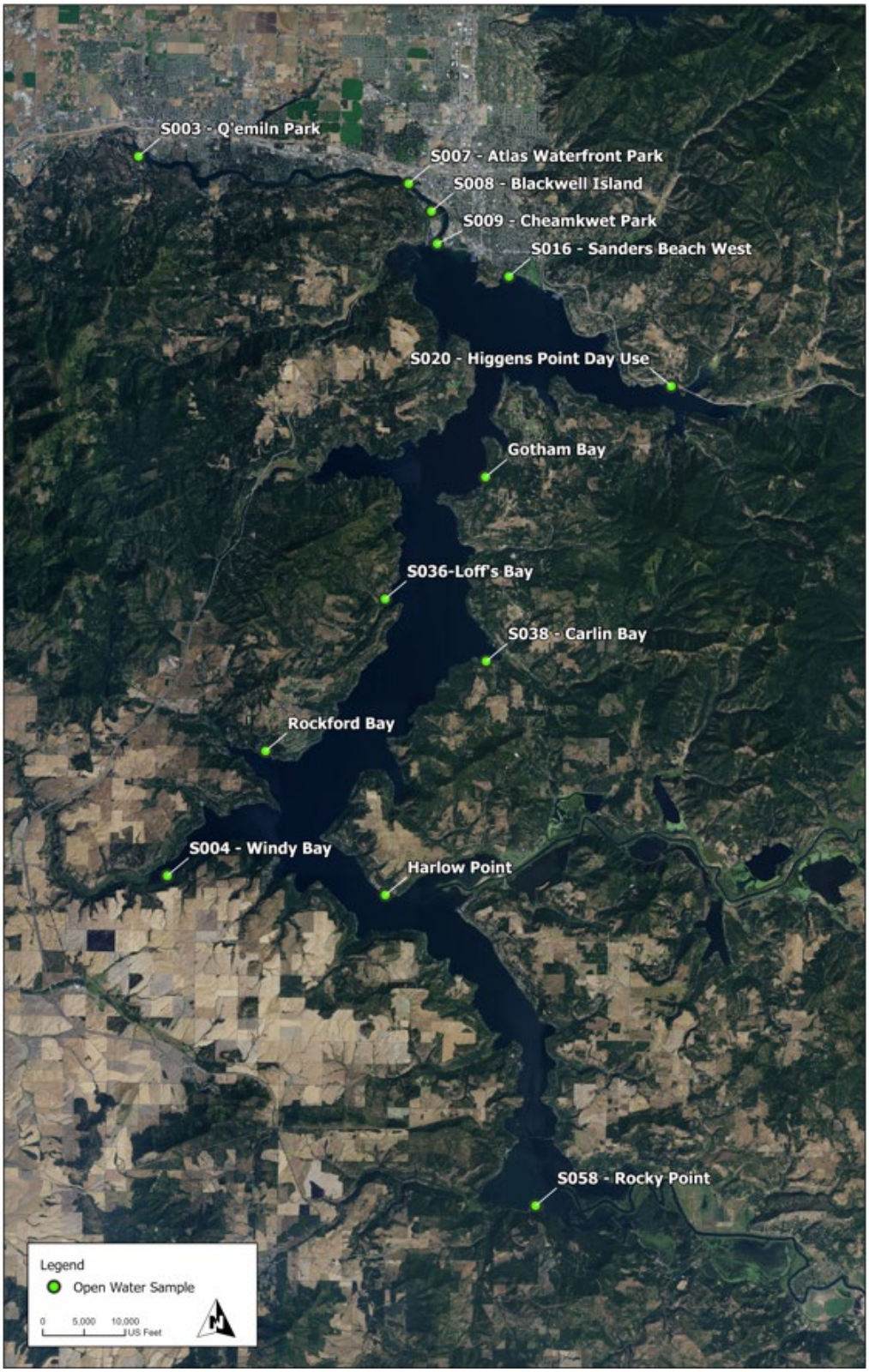
Two types of surface water samples were collected:

- Nearshore surface water in shallow water (less than three feet deep at recreation sites where nearshore water-play activities occur). A nearshore surface water sample was collected from the same spatial footprint as the wet sediment DU, resulting in multiple nearshore water DUs at some sites for the reasons explained above.
- Open water surface water samples at select locations in CDA Lake and the Spokane River near the recreational sites sampled for this project (see Figure 4).

All sites visited during the 2024 sampling effort were evaluated for unregulated drinking water sources. No eligible drinking water sources were identified; therefore, no drinking water samples were collected.

A detailed description of the field sampling, handling, documentation, and analytical procedures is provided in the *Sampling and Analysis Plan (SAP)/ Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River* (Alta 2024b).

Figure 4. Open Water Sample Locations



A brief summary of each site sampled is provided below (CUA Site numbers refer to the sites sampled for the 1999 SLRA-CUA). Full site descriptions, sampling locations and details, and select photographs are included in Appendix A. Table 4 presents a summary of the sites and the total number and type of samples collected at each site.

S001 Corbin Park (CUA Site No. 8): Developed public park and boat launch located on the Spokane River downstream of the Post Falls Dam. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is gravely sand. Dry and wet sediment is comprised of cobble/rock, gravel, and sand. Upland picnic areas, sport courts, and other park infrastructure are outside of flood areas and were not sampled.

S003 Q'Emiln Park (CUA Site No. 3): Privately owned property that is developed for public use. The park, located on the Spokane River, includes a picnic area, beach, protected swim area, sport courts, boat launch, hiking trails, and rock-climbing area. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil is silt and sand. Sediments are comprised of silty to sandy gravels.

S004 Greensferry Park (CUA Site No. 5): Developed public park on the Spokane River. Park features include a small beach with a protected swim area, picnic area, and gravel parking lot. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is silt and sand. Sediments are comprised of silty to sandy gravels.

S007 Atlas Waterfront Park: Developed public park on the Spokane River. Park includes a paved parking area, walking and biking paths, covered picnic area, playground, restroom facilities, food trucks, multiple beach areas with protected swim areas, docks, a dog park, and accessibility dock with wheelchair ramp for water access. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediments were primarily gravel and sand with increased cobbles and boulders in shallow water areas. The fenced dog park beach was sampled as a separate dry and wet sediment DU from the open public beach areas because of the different user types for these areas. The playground is outside of flood areas and was not sampled. The park was constructed, partly with imported materials, as part of the Atlas Waterfront Project, which started in 2017[3].

S008 Blackwell Island (CUA Site No. 21): Developed public park with extensive paved parking (car and boat trailer areas), four-lane boat launch with multiple docks, numerous picnic areas with tables on concrete pads, a group picnic pavilion, boardwalk trail through marsh/wetlands, and restroom facilities. Upland soil, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil was silty with intermixed organics. Sediment was silt and mud. The areas sampled include the shallow-water areas on the river side channel and the upland area adjacent to the channel. Developed picnic areas had concrete pads that separate recreators from area soils.

S009 Cheamkwet Park (CUA Site No. 1): Developed beach areas include access paths (stairs or gravel walkways) leading from higher elevation parking/road to beach level, walking path, kayak/paddle board launch area, and picnic tables with charcoal grills on concrete pads. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil was hard packed sand. Sediment was fine to coarse sand with gravel. Dry and wet sediment areas were divided into multiple DUs because of the size of the beach areas and because there was a distinct difference in sediment type between beaches along the Spokane River and the beach at the lake/river interface. Elevated areas such as maintained lawn that are associated with the North Idaho College Campus were not sampled.

[3] https://www.cdaid.org/7171/departments/administration/atlas-waterfront-archives

S010 Yap-Keehn-Um Beach (CUA Site No. 2): Developed park that includes picnic areas with tables, volleyball courts/fields, restroom facilities, boat launch, and beach areas. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediment was gravelly sand with cobbles. Elevated areas that contain parking and walking trails were not sampled.

S012 Boardwalk Public Beach (CUA Site No. 9): Developed park, greenbelt, and public beaches include paved bike/walking paths, sport courts, benches, water features, bathroom facilities, public dock/pier, food truck, float plane and tour boat services, paved parking area, and concrete steps and other designated paths to beaches. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediment is sandy with some gravel. Only beach areas were sampled. Two beaches separated by the pier and developed park areas were each sampled as separate DUs because of the distance between the sites. Other park and greenbelt areas are outside of flood areas and were not sampled.

S013 Tubbs Hill West Beach, Site 1 (CUA Site No. 10): The west beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops that are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides, and crag outcrops adjacent to the beach area. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is sand with cobble and gravel, and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S014 Tubbs Hill South Beach, Site 2 (CUA Site No. 11): The south beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops that are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides, and crag outcrops adjacent to the beach area. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediment is sand with cobble and gravel, and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S015 Tubbs Hill East Beach, Site 3 (CUA Site No. 12): The east beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops that are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides, and crag outcrops adjacent to the beach area. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is sand with cobble and gravel, and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S016 Sanders Beach West: The site is a gently sloping beach set between residential properties. Development at the site includes a concrete retaining wall between beach and adjacent road, paved road with streetside parking, and city stormwater outlets buried beneath the beach. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediments were fine to coarse sands. No private property was sampled at this site.

S017 Sanders Beach Public: The site is a gently sloping beach set between residential properties. Development at the site includes a concrete retaining wall between beach and adjacent road, fencing separating beach from private properties, and paved road with streetside parking. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments were gravely sands with some cobble in shallow water areas. No private property was sampled at this site.

S020 Higgens Point Day Use: The day use area contains paved road access and paved parking, a paved bike path, a boat launch, a dirt trail with educational signs, and restroom. A narrow, undeveloped shoreline is accessible from multiple social trails down a steep, rocky embankment and is used for fishing, boating, and lake access. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediment was primarily rock and gravel with interstitial fines. No sampling was conducted at the boat launch or on elevated trails/paths outside of flood areas.

S021 Higgens Point Beaches, Site 2 (CUA Site No. 16): The site is a beach area accessed by a maintained hiking trail down the hillside from a developed group use area. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is compacted silt and gravel, and wet sediment is gravel with interstitial sand. No sampling was conducted at the developed group use area on top of the hill because it is outside of any flood areas.

S022 Higgens Point Beaches, Site 1 (CUA Site No. 15): The site is a gently sloped beach at the base of a steep, forested hillside (rocky point that protrudes into the lake). The site is accessed by a maintained hiking trail from the nearby paved bike path or by boat. Beach area development includes maintained hiking/ access trail, picnic tables, and two boat docks. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediment was compacted silts and gravel.

CONF02: This site is private property. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil was silty with organic material. Sediment was gravelly silt and sand with increased cobble in the shallow water areas.

CONF03: This site is private property. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments are gravelly sand.

CONF04: This site is private property. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments are loose, poorly graded sand.

CONF05: This site is private property. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water (in Gotham Bay) were sampled at this site. Soil is silt and clay with organics. Sediment is sand and sandy gravels.

S033 Mica Bay Boater Park (CUA Site No. 24): This site is a developed boat-in campground that includes two playgrounds (swing sets in raised boxes filled with gravel/sand), picnic tables with charcoal grills, group shelter, two docks, beach with protected swim area, restrooms (vault toilets), walking paths, camp sites (including tables and fire rings), information signage, camp host, and water drinking fountains. Upland soil (from low lying areas only), dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is silt/fine sand. Sediments are gravely sands. No samples were collected from playgrounds or campsites because these areas appear to be outside of flood areas.

S036 Loff's Bay (CUA Site No. 26): Site is a developed boat launch that includes gravel parking area, restroom (vault toilet), signage, and boat launch ramp/dock. Upland soil, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil is hard packed with gravel and sand in grassy areas. Sediment is rocky/gravelly sand.

CONF06: The site is private property. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediments were sandy gravels with silt. Some beach sediments have been imported from off-site (see Appendix A). Two beaches on site (approximately 350 feet apart)

were separated by a headland and had different recreational uses and were therefore sampled as separate DUs.

S038 Carlin Bay: The site is a public-use recreation area situated between private residential properties. The public portion of the site includes a beach area, a boat launch, and an elevated grassy area for picnicking. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Dry sediment was gravelly, silty sand, and wet sediment was gravel and cobble with intermixed sand. No samples were collected from the grassy picnic area because it is elevated above the flood area.

S041 Rockford Bay Public Access (CUA Site No. 25): The site is a developed public boat launch and day use area with picnic tables, boat launch ramp, and docks. Upland soil was sampled at this site. Soil is primarily silt with organics.

CONF07: The site is private property. Upland soil, dry sediment, wet sediment, and nearshore surface water were collected at this site. Soil was sandy beneath a sod layer. Dry sediments were gravel with coarse sand. Wet sediments ranged from fine sand with clay to rocky with interstitial sands. The site was divided into three separate areas based on recreational use and location on the property. Areas were separated by topographic features and distances ranging from 400 feet to 0.5 miles. Each of the three areas were sampled as separate DUs.

S044 Windy Bay (CUA Site No. 27): The site is a public boat-in campground containing campsites, picnic tables, fire rings, portable/vault toilets, and docks. Upland soil and open water surface water were sampled at this site. Soil was primarily silt with organics.

S046 Bell Bay Campground (CUA Site No. 23): The site is a developed National Forest campground with a paved campground loop road, established campsites, restrooms, drinking water, and an onsite camp host. A day use area on the shoreline below the campsite has two docks for boat-in access, picnic tables, hiking trail, and an outhouse on one of the floating docks. Upland soil and nearshore surface water were collected from the day use area. No wet sediment sample was collected because of insufficient recovery of fine sediments. Soil was rocky and hard packed. No samples were collected from the campground because the area is elevated well above lake level.

CONF08: Privately owned property that is developed for public use. The site is a boat launch with a small picnic area and portable toilet. Dry sediment, wet sediment, nearshore surface water, and open water surface water (near Harlow Point) were collected at this site. Dry sediment was hard packed sand and soil, and the wet sediment was rocky with interstitial sand.

CONF09: The site is private property used by the public. Upland soil, dry sediment, wet sediment, and nearshore surface water were collected at this site. Silty/clay soils were collected from beneath a sod layer. Dry sediment is sandy gravel imported to the site (see Appendix A). Wet sediment is gravel and cobble with intermixed silt, sand, and clay.

S058 Rocky Point: The site is a developed park containing cabins, a marina, paved parking, restrooms, picnic area, playground, beach, and protected swim area. Dry sediment, wet sediment, nearshore surface water, and open water surface water were collected at this site. Sediment is sandy gravel with some cobble in wet sediment.

CONF11: The site is private property. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water (in Rockford Bay) were collected at this site. Soil was collected from beneath a sod layer. Sediment was fine to medium grain sand and wet sediment areas were rocky.

Table 4. Site Sampling Summary

Site Name	Site ID	Dry Sediment	Wet Sediment	Upland Soil	Nearshore Water	Off Shore Water	Drinking Water	QC Replicates	Notes
Corbin Park	S001	1	1	1	1	0	0	replicate (WS)	replicate on wet sediment is cobble/gravel with interstitial sands
Q'Emiln Park	S003	1	1	1	1	1	0	replicate (US)	replicate on upland soils (soils beneath grass/sod layer)
Greensferry Park	S004	1	1	1	1	0	0		per local resident: soil brought into site from unknown source in 2016 and dispersed in upland area
Atlas Waterfront Park	S007	2	2	0	2	1	0		
Blackwell Island	S008	0	1	1	1	1	0	replicate (WS)	replicate on wet sediment
Cheamkwet Park	S009	2	2	1	2	1	0	replicate (US)	replicate on upland soils (gravelly soils)
Yap-Keehn-Um Beach	S010	1	1	0	1	0	0		
Boardwalk Public Beach	S012	2	2	0	2	0	0		
Tubbs Hill West, 1	S013	1	1	0	1	0	0		
Tubbs Hill South, 2	S014	1	0	0	1	0	0		
Tubbs Hill East, 3	S015	1	1	0	1	0	0	replicate (DS)	replicate on dry sediment (gravelly sand)
Sanders Beach West	S016	1	1	0	1	1	0		
Sanders Beach Public	S017	1	1	0	1	0	0	replicate (DS)	replicate on dry sediment (sand)
Higgens Point Day Use	S020	1	1	0	1	1	0		Dry sediment is strongly influenced by erosion of steep bank/bedrock immediately adjacent to site.
Higgens Point Beach, 2	S021	1	1	0	1	0	0		
Higgens Point Beach, 1	S022	1	0	0	1	0	0		
CONF02	CONF02	1	1	1	1	0	0	replicate (DS)	replicate on dry sediment (hard packed silts)
CONF03	CONF03	1	1	0	1	0	0		
CONF04	CONF04	1	1	0	1	0	0		
CONF05	CONF05	1	1	1	1	1[a]	0		
Mica Bay Boater Park	S033	1	1	1	1	0	0		
Loff's Bay	S036	0	1	1	1	1	0		
CONF06	CONF06	2	0	0	2	0	0		The beach sediments were imported to the site in the early 2000s. The imported sediments were designed to match native sediments from another beach area on the property. Unknown what volume of sediments were imported.
Carlin Bay	S038	1	1	0	1	1	0		
Rockford Bay	S041	0	0	1	0	0	0		
CONF07	CONF07	2	3	1	3	0	0	replicate (WS)	replicate on wet sediment (fine sand/clay with rocky areas)
Windy Bay	S044	0	0	1	0	1	0		
Bell Bay Campground	S046	0	0	1	1	0	0		
CONF08	CONF08	1	1	0	1	1[b]	0		

Site Name	Site ID	Dry Sediment	Wet Sediment	Upland Soil	Nearshore Water	Off Shore Water	Drinking Water	QC Replicates	Notes
CONF09	CONF09	1	1	1	1		0		Beach sediment has been imported several times since the early 2000s. Imported sand is from a Palouse area supplier. Lawn is watered with lake water. Original beach sand import has been augmented (2017, 2018, 2019, 2021, and 2023). 2023 was last time sand was imported.
Rocky Point	S058	1	1	0	1	1	0		
CONF11	CONF11	1	1	1	1	1[c]	0		Local creek dumps into lake at the site and may contribute silts and clays to lake deposits.

Notes:

US = upland soil, DS = dry sediment, WS = wet sediment

[a] Collected in Gotham Bay; [b] collected in Harlow Point; [c] collected in Rockford Bay.

2.2.2 Laboratory Methods

Table 5 presents a summary of laboratory methods and analyses, except for that presented in Section 2.2.3 below. More information is presented in Appendix B, which also includes a description of any analytical deviations from the QAPP.

Table 5. Summary of Laboratory Methods

Sample Type	Method
Upland Soil	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 100 mesh (<149 micrometer [µm]) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996), EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Dry Sediment	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 60 mesh (<250 µm) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996), EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Wet Sediment	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 60 mesh (<250 µm) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996) , EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Nearshore Surface Water	• Analysis by SVL Analytical (Kellogg, ID). • Analyze for total metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 200.7 (USEPA 1994a), EPA 200.8 (USEPA 1994b), and EPA 245.1/7470A (USEPA 1994c).
Open Water Surface Water	• Analysis by Tshimakain Creek Laboratories (TCL) in Spokane, WA or Am Test Laboratories (AmTest) in Kirkland, WA. • Analyze for total metals (antimony, arsenic, cadmium, calcium, copper, iron, lead, magnesium, manganese, mercury, and zinc) by methods EPA 200.7 (USEPA 1994a),EPA 200.8 (USEPA 1994b), and EPA 245.1/7470A (USEPA 1994c)

2.2.3 In Vitro Bioaccessibility (IVBA) Analysis

DEQ and Alta selected soil/sediment samples for arsenic and lead IVBA analysis after all concentration data were received and verified. All soil/sediment samples where arsenic or lead concentrations exceeded the lowest RBSL were analyzed for arsenic and lead IVBA. The lowest RBSLs (as of December 2024) used to select samples for IVBA analysis were the non-cancer RBSL for arsenic of 17.6 milligrams per kilogram (mg/kg) (Private Recreational Resident)[4] and the EPA screening level of 100 mg/kg for lead.

A total of 26 samples from 13 recreational sites were analyzed for IVBA. These include three sets of incremental sampling methodology (ISM) field replicate samples. ALS Environmental analyzed the samples following the EPA Standard Operating Procedures (USEPA 2017b; ITRC 2020).

After samples were identified and analyzed for IVBA, the data were reviewed and used to calculate site-specific bioavailability, as described in Section 3.1.2.

Section 3 Screening-Level Risk Evaluation

DEQ and Alta employed an expanded SLRE to determine if recreational sites around CDA Lake and along the Spokane River (the portion within the State of Idaho) are unlikely to pose unacceptable health risks due to exposure to key metals generated from historic mining activities upstream in the CDA River Basin. Following the Work Plan (Alta 2024a), this expanded SLRE evaluates recreational and occupational exposures to key metals including antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc in beach sediment, nearshore soil, and surface water at sites located on public and privately-owned lands along the shores of CDA Lake and the Spokane River.

This section summarizes the data and approach used to conduct the expanded SLRE, human health RBSLs, and results of the expanded SLRE.

3.1 Data Evaluation

Data used to conduct the quantitative SLRE were collected in 2024. Appendix B presents further information on the 2024 sampling and analysis and the analytical results used in the expanded SLRE. As discussed in Section 2.1, sampling methodologies focused on the areas and depths of media to which potential receptors would be exposed.

DEQ and Alta assessed data usability based on the data quality objectives included in the SAP/QAPP (Alta 2024b). The 2024 data are usable for the purpose of the SLRE and are of sufficient quality for estimating EPCs, except for open water copper data, which were rejected. Appendix C presents details of the data quality review conducted on the 2024 data.

3.1.1 Replicate Sample Results

When field replicate samples were collected (duplicates for surface water and triplicates for ISM soil and sediment samples), the higher of the results is used in this SLRE. Laboratory ISM replicates were also analyzed from two different samples, which were field triplicate samples. Alta calculated the arithmetic mean of the laboratory ISM replicate results, which was used as

[4] EPA issued new arsenic toxicity values in January 2025, which lowered the arsenic RBSLs used in this expanded SLRE after samples were selected for IVBA analysis.

the result for that field triplicate. In these two situations, if the average was the highest of the field triplicate results, it was used in this SLRE.

3.1.2 Bioavailability

Alta calculated site-specific bioavailability values for samples selected for IVBA analysis using the laboratory-derived IVBA results. The laboratory-derived IVBA results were converted to estimates of relative bioavailability (RBA) using the equations below (USEPA 2017b).

$$RBA_{Arsenic} = (0.79 \times IVBA) + 0.03 \quad (1)$$

$$RBA_{Lead} = (0.88 \times IVBA) - 0.028 \quad (2)$$

Where:

RBA = Relative bioavailability of lead or arsenic in soil (%).

IVBA = *In vitro* bioaccessibility of lead or arsenic (i.e., laboratory result).

RBA_{Lead} was then converted to absolute bioavailability $(ABA)_{soil}$ because ABA is used in the Integrated Exposure Uptake Biokinetic (IEUBK) model and lead RBSL development. The conversion is as follows (USEPA 2007b):

$$ABA_{soil} = ABA_{soluble} \times RBA_{lead} \quad (3)$$

Where:

ABA_{soil} = Absolute bioavailability of lead in soil.

$ABA_{soluble}$ = ABA value for reference material (for the IEUBK and Adult Lead Methodology [ALM] lead acetate = 50% and 20%, respectively).

3.2 Expanded SLRE Approach

The approach to this screening evaluation expands upon the standard EPA and DEQ screening level risk evaluation methods by incorporating several additional risk assessment and risk management considerations. Risk considerations not typically be incorporated in a SLRE include IVBA data, a discussion of regional background metals concentrations, and other risk topics that DEQ, the Tribe's government, and partner agencies can use to guide decisions regarding next steps for sites that exceed risk-based screening values.

In general, the approach to conduct this expanded SLRE is as follows: RBSLs are identified/calculated for all COPCs (Section 3.3); EPCs are calculated for soils/sediments, upland soils, and nearshore and open water surface water using the 2024 sampling data (Section 3.4); the EPCs are compared to identified RBSLs to determine if the EPCs exceed RBSLs (Section 3.5); and additional risk considerations are presented and discussed (Section 3.9), including regional background metals concentrations, non-cancer risk endpoints, and action levels in OU 3.

The screening-level approaches for arsenic and lead differ slightly from the approach for other COPCs. Figure 5 presents an overview of the screening approach that was followed for each COPC and Figure 6 depicts the screening approach used for lead that includes consideration of

lead ABA results. If a lead or arsenic result for a sample exceeded the lowest RBSL (as of December 2024), the sample was analyzed for lead and arsenic IVBA. Sample selection and bioavailability results are discussed in Sections 2.2.3 and Appendix B, respectively. Further details about the use of bioavailability in the SLRE are discussed in Section 3.3.4.

For arsenic, if site-specific bioavailability data are available, the RBSL is recalculated using the DU-specific bioavailability value. The EPC is then compared to the bioavailability-adjusted RBSL.

For lead, the initial screening compares lead sediment and soil DU EPCs with RBSLs, bioavailability-adjusted RBSLs, where applicable, and EPA residential screening levels (Section 3.5.2.1). If an EPC exceeds the Outdoor Worker RBSL, the DU-specific bioavailability value is applied to the ALM to calculate a bioavailability-adjusted RBSL. The EPC is then compared to the bioavailability-adjusted RBSL. Secondary screening is accomplished with IEUBK modeling for all sites that have both nearshore surface water and wet or dry sediment data to calculate the probability of exceeding a target BLL of 5 or 3.5 micrograms per deciliter (µg/dL) (P5 or P3.5, Section 3.5.2.2).[5]

For DUs where lead IVBA analysis occurred, the site-specific ABA values are discussed in the interpretation of the modeling results.

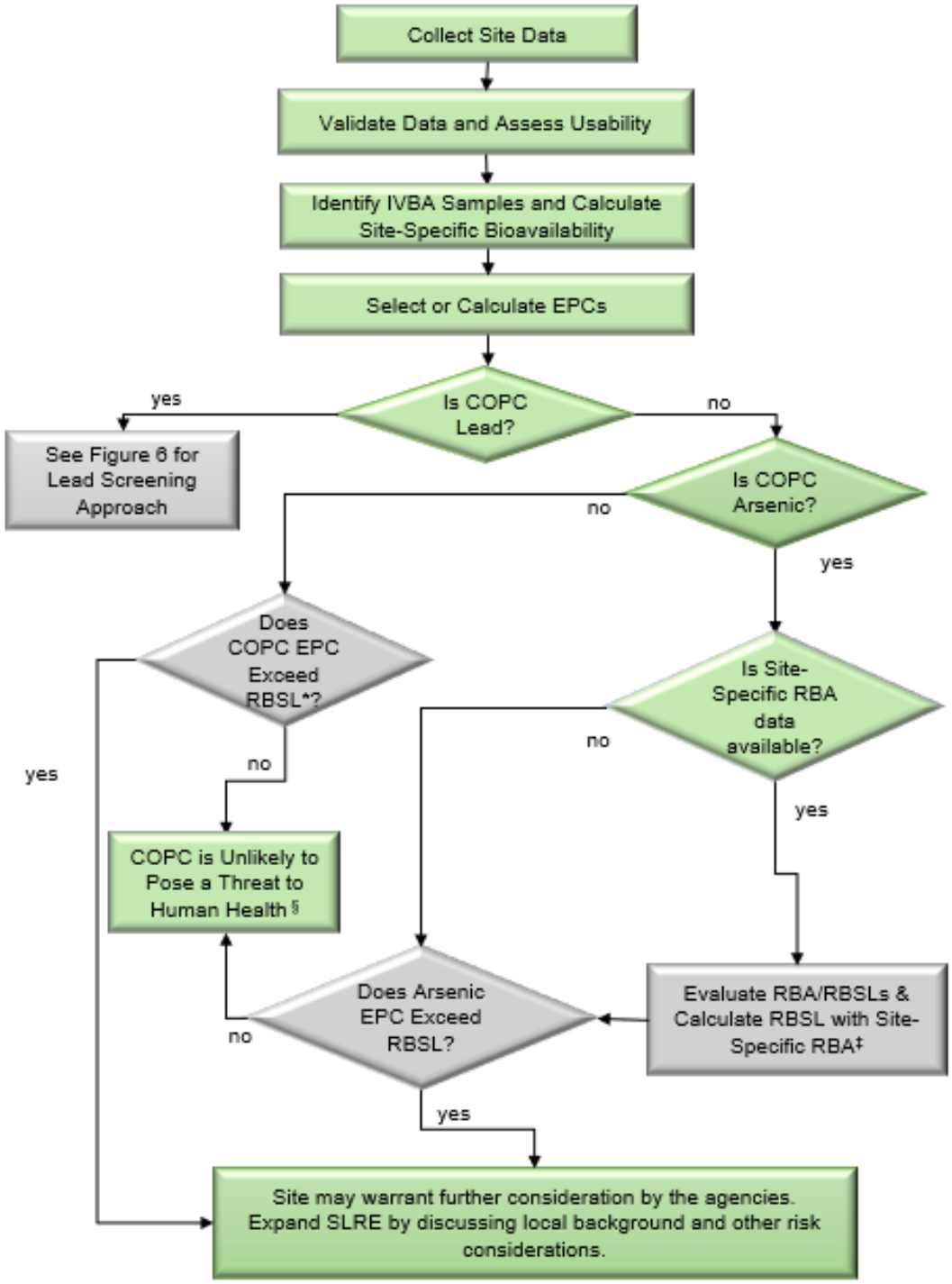
If EPCs of all non-lead COPCs are less than the RBSLs and lead concentrations result in P5 and P3.5 less than 5%, then the site poses no unacceptable risk to human health.

If EPCs of non-lead COPCs exceed RBSLs or lead concentrations result in P5 and P3.5 greater than 5%, the site may require further consideration by DEQ, the Tribe's government, and EPA. For sites with this outcome, additional risk considerations are evaluated and discussed in Section 3.9 to inform decision making at these sites.

The qualitative screening evaluation is described in Section 3.6 and uncertainties in the expanded screening level approach are discussed in Section 3.8.

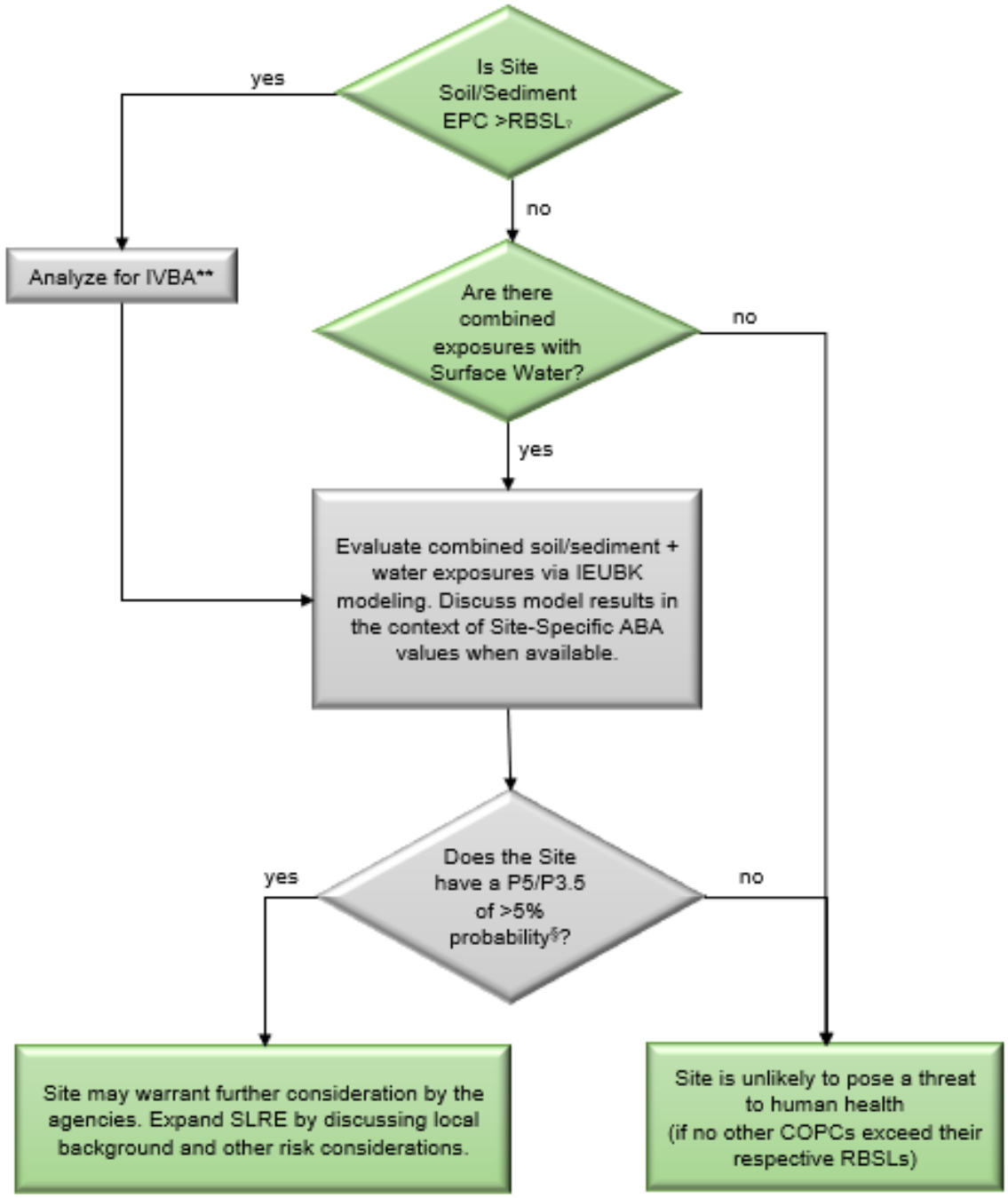
[5] Several recreational sites are located on private residential properties, which may have seasonal dwellings on site or nearby (existing or in the future). The activities (and their frequency) that bring residents in contact with potential contamination in beach sediments and surface water are expected to align with recreational use, as opposed to residential use.

Figure 5. Expanded Screening-Level Risk Evaluation Approach



* Complete the evaluation for each COPC.
‡ RBA=relative bioavailability as measured from IVBA.
§ All COPCs must be less than RBSLs to conclude that a site is unlikely to pose a threat to human health.

Figure 6. Screening Approach for Lead



- ABA=absolute bioavailability.
- ** All sites with sediment analyzed for IVBA also have surface water results.

§ P5/P3.5 is the probability of exceeding a blood lead level of 5 or 3.5 µg/dL.

3.3 Screening Levels

The first step in the screening process involves identification and development of RBSLs for the exposure media, pathways, and receptors described in Section 2.1. The RBSLs are used to compare with metals concentrations in sediments, upland soils, and surface water from each lake and river site. The focus of this SLRE is to compare each site's media concentrations (EPCs) to RBSLs that are protective of all receptors for their associated recreational and occupational activities that can occur at various lake and river locations. Consequently, RBSLs are derived for the sensitive receptors engaging in high-intensity exposure activities to be protective of all receptors for each exposure scenario (e.g., risk decisions based on children recreating at a beach and female occupational workers of child-bearing age are protective of all other receptors engaging in those activities).

RBSLs are identified from existing (default) sources of screening levels (e.g., EPA Regional Screening Levels [RSLs]) and/or derived by calculating site-specific values. If default screening levels are not available or applicable to the exposure scenario, site-specific RBSLs are derived. This is the case for a majority of the RBSLs in this SLRE. Table 6 through Table 9 present the RBSLs used in this SLRE.

All RBSLs are derived using equations and methodologies consistent with EPA's guidance as cited below:

- Non-lead RBSLs are calculated using EPA's online RSL calculator using equations presented in the EPA's RSL User's Guide (USEPA 2023) and site-specific exposure factors presented in Appendix D of this report.
- In addition to EPA's recommended screening levels (USEPA 2024a), lead RBSLs are calculated using EPA's IEUBK model version 2 for recreational exposures and the ALM (version date: 06/14/2017) for occupational exposures (USEPA 2017a).

Appendix C of the Work Plan provides a detailed description of the methods and assumptions used to derive initial RBSLs, including calculations, exposure factors, and toxicity values (Alta 2024a). Exposure factors used to calculate RBSLs are included in Appendix D of this report. Appendix B (Table 10) of the SAP/QAPP presents additional modifications to the method and assumptions for deriving initial lead RBSLs and are further discussed below (Alta 2024b). Key factors in developing RBSLs, target risk levels, assumptions regarding baseline lead residential exposures, and lead and arsenic bioavailability are briefly discussed in subsequent subsections and are described in more detail in the Work Plan.

3.3.1 RBSL Updates

The lead RBSLs used in this SLRE for recreational sediment and upland soil differ from the Work Plan (Alta 2024a). To derive RBSLs in the Work Plan, the default IEUBK soil intake values were adjusted by a factor of 1.45. This adjustment was consistent with the 1999 SLRA-CUA and BHSS approach using EPA lead risk assessment guidance available at that time (USEPA 2003) when adjusting soil ingestion rates to account for contact intensive activities, and/or increased soil/sediment adherence to wet skin and/or hands during water play. After the Work Plan was written, DEQ and Alta (based upon input from EPA) decided to deviate from the BHSS approach and apply EPA's more recent and updated recommendations on sieve sizes (use of 60 and 100 mesh; [USEPA 2016b]), and lead RBSLs were recalculated using the IEUBK model's default soil ingestion rates for consistency with the updated mesh sizes. The revised RBSLs were presented in Appendix B of the SAP/QAPP and are used in this SLRE (Alta 2024b).

In addition, the Work Plan included EPA's previous target BLL of 10 µg/dL (P10) to develop RBSLs. That target BLL was used at the time of the 1999 SLRA-CUA (URS Greiner, Inc. et al. 1999) and BHSS RODs (USEPA 1991; USEPA 2002b) and was provided for reference and potential comparison to the 1999 SLRA-CUA outcomes. Since that time, EPA issued guidance for residential (and recreational) soil lead screening, recommending the use of 200 mg/kg lead or 100 mg/kg if multiple sources of lead are identified (USEPA 2024a). Therefore, this SLRE applies the EPA screening values of 200 mg/kg and 100 mg/kg for reference and does not use P10 RBSLs for screening purposes[6]. In addition, as further discussed in Section 3.3.4, if a DU EPC exceeds an Outdoor Worker RBSL and DU-specific bioavailability lead data are available, a bioavailability-adjusted RBSL is calculated using the DU-specific bioavailability value.

The arsenic RBSLs used in this SLRE for recreational sediment, upland soil, and surface water also differ from the Work Plan and the SAP/QAPP (Alta 2024a, 2024b). In January 2025, EPA's Integrated Risk Information System (IRIS) program released an updated toxicological review of inorganic arsenic containing updated oral non-cancer and cancer toxicity values. These values replace the previous IRIS toxicity values used at the time of the Work Plan and represent the most current science on the health risks of inorganic arsenic. As a result, the arsenic RBSLs in this SLRE are calculated with an oral Reference Dose (RfD_o) of 6E-05 mg/kg-day and cancer slope factor (CSF) of 32 $(mg/kg\text{-}day)^{-1}$ compared to the RfD_o of 3E-04 mg/kg-day and CSF of 1.5 $(mg/kg\text{-}day)^{-1}$ used at the time the Work Plan and SAP/QAPP were finalized. In addition, if site-specific bioavailability arsenic data are available, the RBSLs are recalculated using the DU-specific bioavailability values. Appendix D includes the inputs and outputs for the arsenic RBSLs calculated using the EPA RSL calculator that are used in this SLRE.

3.3.2 Target Risk Levels

For non-lead COPCs, RBSLs are based on established target human health risk levels for both cancer and non-cancer health effects. For carcinogens, DEQ's standard target risk level is used, which is one in one hundred thousand (10^{-5}) excess cancer risk over a lifetime, or the probability that a lifetime exposure to a substance increases a person's chance of developing cancer by one chance in 100,000 or less. For the non-carcinogens, the target risk level used is a hazard quotient (HQ) of 0.1. A HQ is the ratio of the potential exposure to a substance (or dose) and the level at which no adverse effects are expected.

These same target risk levels were used to derive the RBSLs in the 1999 SLRA-CUA, are consistent with values DEQ uses in other risk evaluations and adequately address cumulative health risks from exposure to multiple contaminants.

For lead, RBSLs are based on the probability of exceeding target blood lead concentrations (or risk reduction goals) in children, specifically the fetus and young children (1-6 years old), the most sensitive receptors to lead exposures. Risk-based screening levels are derived using EPA's current risk reduction goal of no more than a 5% probability that a child's BLL will exceed 5 µg/dL (P5) in the absence of other lead sources. In addition, to account for recent advances in lead toxicology and updates to EPA's residential soil lead guidance, a separate set of lead RBSLs are derived using a target BLL of 3.5 µg/dL (P3.5). The target BLL of 3.5 µg/dL is based on the Center for Disease Control's current blood lead reference value. Consequently, site-specific lead RBSLs are presented as a matrix to account for various target BLLs and baseline exposures (Table 11). However, as further explained in Section 3.3.3, lead RBSLs for the Private Recreational Resident and the Public Recreational Visitor based on P3.5 cannot be

[6] EPA issued a new lead directive in October 2025 (after this expanded SLRE was completed) that recommends using a target BLL of 5 ug/dL and only 200 mg/kg to screen soils for lead.

derived because the RBSLs are exceeded by the residential baseline soil lead concentrations (without consideration of recreational exposures).

3.3.3 Residential Baseline Lead Exposure Assumptions

Lead RBSLs are developed using the IEUBK model for a range of recreational site exposure concentrations for lead (see Appendix C of the Work Plan [Alta 2024a]). In addition to estimates of lead exposure in recreational settings, the IEUBK uses either default or site-specific lead concentrations in residential exposure media, such as soil and indoor house dust, to evaluate risks attributable to time spent at a child's primary residence (i.e., residential baseline). Guidance is available from EPA (USEPA 2024b) describing evaluation of exposures that are not continuous for areas that are frequently visited by young children (such as recreation areas). This methodology requires information on the child's residential soil exposures as well as the other recreational locations to evaluate risk. For this SLRE, BHSS data were used to inform residential soil exposures.

Long-term investigations and sampling efforts at the BHSS have resulted in vast amounts of exposure data in several communities and geographic areas along the CDA River. Additionally, to better understand residential lead exposures at the BHSS, other northern Idaho communities unimpacted by mining were sampled in 1999 (Petrosyan et al. 2006; Spalinger et al. 2007). These regional and more site-specific residential data, presented as community-wide residential property lead concentrations for soil and indoor dust, are used to apply a plausible range of residential baseline lead exposures to the IEUBK model when deriving soil/sediment RBSLs. Additional discussion of the BHSS and northern Idaho residential community data used to develop residential baseline exposures is included in Appendix C of the Work Plan (Alta 2024a). The community-wide average lead concentrations selected to represent three possible residential baseline exposures that reflect minimum, average, and maximum lead exposures to property soil and indoor dust at a typical residence are:

- Minimum exposures: Northern Idaho communities unimpacted by BHSS mining within reasonable proximity to CDA Lake and the Spokane River (soil/dust = 80/130 mg/kg, respectively).
- Average exposures: Bunker Hill communities from the Lower Basin and Kingston areas that are closest to the lake (soil/dust = 150/130 mg/kg, respectively).
- Maximum exposures: Bunker Hill Upper Basin communities (soil/dust = 250/350 mg/kg, respectively).

RBSLs could not be derived for several of the scenarios because the calculated P3.5 or P5 values are already greater than 5% in the absence of recreational exposures. P3.5 values exceed 5% for the three residential baseline concentrations in the absence of recreational exposures. Therefore, any incremental recreational exposures using a time-weighted average approach will result in negative RBSLs, which is unrealistic. P5 values exceed 5% at residential baseline concentrations for the maximum exposure scenario. For this expanded SLRE, RBSLs based on minimum and average residential baseline exposures are used (discussed further in Section 3.5.2.2).

3.3.4 Bioavailability

Default bioavailability values are used in the IEUBK and ALM models, as well as the EPA RSL calculator in the derivation of RBSLs for all COPCs, except for DUs with arsenic and lead bioavailability data. The EPA RSL calculator assumes an RBA of 60% for arsenic and 100% for other non-lead metals. For DUs with IVBA data, bioavailability-adjusted RBSLs are calculated

using the DU-specific arsenic RBA values shown in Appendix B (supporting inputs/outputs are shown in Appendix D).

The IEUBK model bioavailability input is absorption fraction percent (AF_P) and the ALM uses a soil lead absorption factor (AF_S); both of which are equivalent to ABA for lead in soil[7]. For lead in soils, the IEUBK model assumes a default AF_P of 30%[8] and the ALM assumes a default AF_S of 0.12[9] (USEPA 2025c). For DUs where Outdoor Worker RBSLs are exceeded and DU-specific bioavailability data are available, bioavailability-adjusted lead RBSLs are calculated using the DU-specific RBA and are discussed in Section 3.5.2.1. RBSLs for recreators were not adjusted and IEUBK modeling was not completed using site-specific bioavailability data due to the complexities of time-weighted averaging of residential and recreational soil bioavailability, which would be typically included in a baseline human health risk evaluation, as opposed to a screening level risk evaluation.

3.4 Exposure Point Concentrations

An EPC is a conservative estimate of the concentration of the COPC that a receptor will be exposed to within an exposure unit (EU). EUs are generally defined as a geographic area where receptor exposures occur with random probability over a defined frequency and duration. Although recreational users and workers are expected to recreate and/or work at multiple locations on the lake and river, the exact time receptors spend at each location is unknown. For that reason, the SLRE evaluates each recreational site individually, or as an EU, which may be comprised of multiple DUs (or units for which a decision will be made). For the purposes of screening, each DU is treated as an EU; therefore, EPCs are calculated for each DU. For lead, this includes performing model runs using EPCs for surface water and soil/sediment.

Table 10 summarizes EPC estimation methods for soils, sediments, and surface water. The following subsections discuss details on the derivation of EPCs.

3.4.1 Surface Water

For surface water, each individual sample result is used as the EPC, in accordance with the Work Plan. To be health protective, if a field duplicate was collected, the higher of the two results is selected as the surface water EPC. Table 12 and Table 13 present the EPCs for the sites where surface water samples were collected (nearshore surface water samples). Table 14 presents the EPCs for open water samples. These tables also present the screening results discussed in Section 3.5.

3.4.2 Sediment/Soil

Soil and sediment EPCs for lead and non-lead COPCs are calculated using different methods, following ITRC guidance (ITRC 2020), described below. Where laboratory replicate samples

[7] Absolute bioavailability (ABA) refers to the fraction of an ingested dose of lead or arsenic that crosses the gastrointestinal epithelium and becomes available for internal distribution. Relative bioavailability (RBA) is the ratio of ABA for soil lead or soil arsenic to that of a water-soluble reference form of lead or arsenic; typically lead acetate or sodium arsenate, respectively. ABA and RBA are measured in animal models; however, RBA can also be predicted from IVBA assays (USEPA 2016a).

[8] AF_P in the IEUBK model is based on the absorption factor for soluble lead of 0.5 and relative bioavailability of lead in soil (RBA) of 0.6 (USEPA 2021)

[9] AF_S in the ALM is based on the absorption factor for soluble lead of 0.2 and relative bioavailability of lead in soil (RBA) of 0.6 (USEPA 2021).

were analyzed, the average concentration of the laboratory replicates is used as the result for that triplicate sample in the calculation of the EPC.

Table 15 through Table 19 present the calculated soil and sediment EPCs for non-lead and lead COPCs. These tables also present the screening results discussed in Section 3.5.

3.4.2.1 Non-lead COPCs

The 95% Upper Confidence Limit (UCL) is calculated as the EPC for non-lead COPCs in sediment and soils as described below. If a COPC was not detected, the value of the non-detected result is used for calculation purposes.

For DUs where field replicate ISM samples were collected, the ITRC ISM 95% UCL Calculator was used to calculate the EPC (https://ism-2.itrcweb.org/wp-content/uploads/2020/10/ISM_95__UCL_Calculator_2020_Update.xls). The ITRC ISM 95% UCL Calculator uses both Student's-*t* test and Chebyshev 95% methods and recommends which 95% UCL should be used. Outputs of the ITRC ISM 95% UCL Calculator are included in Appendix E.

The equation to calculate the one-sided (1-α) 95% UCL using the Student's-*t* test for a DU with three replicate ISM samples is:

$$Student's\text{-}t 95\%\ UCL = \bar{x} + 2.92\ \times \frac{SD}{\sqrt{3}} \quad (4)$$

Where

x = arithmetic mean of all replicate ISM samples in a DU

SD = standard deviation of all replicate ISM samples in the DU

The equation to calculate the one-sided (1-α) 95% UCL using the Chebyshev method for a DU with three replicate ISM samples is:

$$UCL = \bar{x} + \sqrt{19} \times \frac{SD}{\sqrt{3}} = \bar{x} + 4.36 \times \frac{SD}{\sqrt{3}} \quad (5)$$

Where

x = arithmetic mean of all replicate ISM samples in a DU

SD = standard deviation of all replicate ISM samples in the DU

Both of the above formulas for calculating UCLs require at least three ISM replicate sample results, as three is the lowest number of replicates needed to calculate the variance and standard deviation of a sample result for ISM samples.

For DUs where field replicate ISM samples were not collected, 95% UCLs were extrapolated using data from CSM-equivalent DUs where three replicate ISM samples were taken. DUs are considered CSM-equivalent if the mechanism of contamination is expected to be similar (ITRC 2020). Per ISM guidance, variances from CSM-equivalent DUs where replicate ISM samples were collected can be pooled if shown to not differ significantly from one another. The pooled variance is then used to compute the upper 95% UCL via the Chebyshev method for DUs where replicate ISM samples were not collected.

A statistical test (Levene's test, based on p<0.05) was used to compare variances between DUs of similar media type (dry sediment, wet sediment, or upland soil) where replicate ISM samples were taken. A summary of this analysis is provided in Appendix E. For all analytes at all three media types, the difference in variances was shown to not be statistically significant and thus, were pooled. A pooled standard deviation for each analyte and media type was then calculated using its corresponding pooled variance using the following equation from ITRC (2020).

$$s_{pooled} = \sqrt{\frac{s_1^2 + s_2^2 + \cdots + s_m^2}{m}} \quad (6)$$

Where

s^2 = sample variance

m = number of DUs with replicates

EPCs were then calculated using Chebyshev's method for a 95% UCL.

$$95\%\ Chebyshev\ UCL = \bar{x} + 4.36 \times s_{pooled} \quad (7)$$

Summaries of the pooled variances and standard deviations are included in Appendix E.

Field crews obtained information at four sites indicating the sites' source materials may differ from other sites (for example, material was hauled in from a different location in at least one sampled area). Field replicates are not available from these sites, and estimating EPCs using pooled variances from other sites' data is not appropriate, as the mechanism of contamination is not similar (ITRC 2020). For the following sites, each individual ISM sample result is used as the EPC for all COPCs:

- Greensferry Park (S004)
- Atlas Waterfront Park (S007)
- CONF06
- CONF09

3.4.2.2 Lead EPCs

Lead EPCs use average (or central tendency) estimates rather than 95% UCLs for consistency with the conceptual structure of the IEUBK and ALM models. ISM is a sampling and analytical protocol that provides an estimate of the mean contaminant concentration. Therefore, each individual ISM sample result is used as the EPC for lead in sediment and soils. If field replicate samples were collected from a DU, the highest lead concentration of the replicate samples is used as the EPC.

3.5 EPC Comparisons to Screening Levels

For quantitatively evaluated exposure scenarios and all analytes, soil/sediment and surface water EPCs for private beach sites are compared to RBSLs for the Private Recreational

Resident and soil/sediment and surface water EPCs for public recreational sites are compared to RBSLs for the Public Recreational Visitor.

DU EPCs for all sites or areas of the lake or river where outdoor work activities may occur are compared to the RBSLs for the Outdoor Worker for these same media.

Screening results for non-lead COPCs are discussed in Section 3.5.1.

Lead screening results are discussed in Section 3.5.2.

3.5.1 Non-Lead COPCs

Table 12 through Table 14 compare surface water DU EPCs with RBSLs for non-lead COPCs. Table 15 through Table 18 compare soil/sediment DU EPCs with RBSLs for non-lead COPCs. The results of this comparison (screening) are summarized in the following subsections.

3.5.1.1 Private Recreational Resident Scenario

Open water: All open water non-lead EPCs are below RBSLs for the Private Recreational Resident (Table 14).

Nearshore surface water: One private site (CONF02, DU03) has a nearshore surface water DU EPC (2.41 micrograms per liter [µg/L]) that is slightly higher than the arsenic cancer RBSL of 2.01 µg/L (Table 12). All other nearshore surface water non-lead DU EPCs are less than the RBSLs for the Private Recreational Resident.

Sediment/Soil: All seven recreational sites under the Private Recreational Resident scenario have one or more sediment/soil DU EPC that exceeds the associated RBSL(s) for arsenic (Table 15). Three of these sites (CONF05, CONF06, and CONF07) have site-specific arsenic bioavailability data, and even when accounting for the reduced bioavailability, DU EPCs still exceed their respective bioavailability-adjusted arsenic cancer RBSLs. One of those sites (CONF07) has an arsenic DU EPC that also exceeds the bioavailability-adjusted arsenic non-cancer RBSL.

Five of the seven sites under the Private Recreational Resident scenario also have DU EPCs that exceed RBSLs for metals other than lead and arsenic (Table 15). These sites and metals are:

- One site (CONF05) has soil/sediment DU EPCs that exceed cadmium, iron, and manganese RBSLs, and
- Four sites (CONF02, CONF06, CONF07, and CONF11) have soil/sediment DU EPCs that exceed the iron RBSL.

All seven sites have soil/sediment DU EPCs below the antimony, copper, mercury, and zinc RBSLs and the cadmium cancer RBSL for the Private Recreational Resident.

3.5.1.2 Public Recreational Visitor Scenario

Open water: All open water non-lead EPCs are below RBSLs for the Public Recreational Visitor (Table 14).

Nearshore surface water: Two public sites (Mica Bay Boater Park [S033] and Higgens Point Day Use [S020]) have nearshore surface water DU EPCs that exceed the Public Recreational Visitor arsenic cancer RBSL (Table 13). All other nearshore surface water non-lead DU EPCs are below RBSLs for the Public Recreator.

Sediment/Soil: All 25 sites under the Public Recreational Visitor scenario have at least one sediment/soil DU EPC that exceeds the associated RBSL(s) for arsenic (Table 18). Site-specific arsenic bioavailability data are available for 17 individual DUs. When accounting for the reduced bioavailability, 11 of these 17 DU EPCs still exceed their respective bioavailability-adjusted arsenic cancer RBSLs. None of the DUs with site-specific arsenic bioavailability data exceed their respective bioavailability-adjusted arsenic non-cancer RBSL. All DUs lacking arsenic bioavailability data exceed both the cancer and non-cancer RBSLs, except for three DUs at CONF09 that exceed the cancer RBSL but do not exceed the non-cancer RBSL (DU01, DU02, and DU03).

- Six of the 25 sites have DU EPCs that exceed RBSLs for metals other than lead and arsenic (Table 16). They are as follows:
  - One site, Blackwell Island (S008), has soil/sediment DU EPCs that exceed cadmium (non-cancer), iron, and manganese RBSLs;
  - Two sites, Corbin Park (S001) and Cheamkwet Park (S009), have soil/sediment DU EPCs that exceed the cadmium non-cancer RBSL; and
  - Three sites, Higgens Point Day Use (S020), Higgens Point Beaches, Site 1 (S022), and a privately owned but publicly accessed site (CONF08), have soil/sediment DU EPCs that exceed the iron RBSL.

All sites have soil/sediment DU EPCs below antimony, copper, mercury, and zinc RBSLs and the cadmium cancer RBSL for the Public Recreational Visitor.

3.5.1.3 Outdoor Worker Scenario

Open water: All open water non-lead EPCs are below RBSLs for the Outdoor Worker (Table 15).

Nearshore surface water: Four privately owned sites and 12 public sites have nearshore surface water DU EPCs that exceed the arsenic cancer Outdoor Worker surface water RBSL (Table 12 and Table 13). All other nearshore surface water non-lead DU EPCs are below RBSLs for the Outdoor Worker.

Sediment/Soil: All sites have sediment/soil EPCs in one or more DUs that exceed the arsenic cancer Outdoor Worker RBSL (Table 17 and Table 18). Nine sites also have one or more DUs that exceed the arsenic non-cancer Outdoor Worker sediment/soil RBSL (Table 17 and Table 18). Of the 20 individual DUs with arsenic bioavailability data, all have EPCs that exceed their respective bioavailability-adjusted arsenic cancer RBSLs that account for reduced RBA, and one site (CONF07) has an EPC that exceeds the bioavailability-adjusted arsenic non-cancer RBSL.

All soil/sediment DU EPCs are below Outdoor Worker non-cancer RBSLs for antimony, cadmium, copper, iron, manganese, mercury, and zinc and the cadmium cancer RBSL for the Outdoor Worker (Table 15 and Table 16).

3.5.2 Lead

Screening for lead uses a phased approach, as described in Section 3.2. The initial screening compares lead sediment/soil DU EPCs with RBSLs for all three exposure scenarios (Section 3.5.2.1). Secondary screening for private and public recreational visitors is accomplished with IEUBK modeling to account for the contribution of nearshore surface water to lead risk. For all sites that have both nearshore and wet or dry sediment data, IEUBK modeling was completed

using the minimum and average residential baseline lead levels to calculate the probability of exceeding a BLL of 5 or 3.5 µg/dL (P5 or P3.5, Section 3.5.2.2).

3.5.2.1 Soil/Sediment EPC Comparisons with RBSLs

Table 19 summarizes the initial screening of soil/sediment lead DU EPCs compared to the RBSLs.

The initial screening for lead uses four RBSLs per exposure scenario: EPA's 100 mg/kg and 200 mg/kg (applicable to recreational scenarios) and two RBSLs based on minimum and average residential baseline exposures. Ten sites, some with multiple DUs, have a soil/sediment DU EPC greater than or equal to the EPA residential screening level of 100 mg/kg lead, and are as follows:

- Corbin Park (S001): dry sediment (DU02), upland soil (DU01), wet sediment (DU03)
- Q'Emiln Park (S003): wet sediment (DU03)
- Blackwell Island (S008): upland soil (DU01)
- Cheamkwet Park (S009): dry sediment (DU02), upland soil (DU01), wet sediment (DU03)
- Yap-Keehn-Um Beach (S010): dry sediment (DU01), wet sediment (DU02)
- CONF05: upland soil (DU01)
- CONF06: dry sediment (DU01)
- Carlin Bay (S038): dry sediment (DU01)
- Bell Bay Campground (S046): upland soil (DU01)
- CONF08: wet sediment (DU02)

Four sites, two with multiple DUs, have a soil/sediment DU EPC greater than or equal to the EPA residential screening level of 200 mg/kg lead:

- Corbin Park (S001): dry sediment (DU02), upland soil (DU01)
- Blackwell Island (S008): upland soil (DU01)
- Cheamkwet Park (S009): dry sediment (DU02), upland soil (DU01)
- CONF05: upland soil (DU01)

All privately-owned recreational site DU EPCs are less than the Private Recreational Resident RBSLs of 330 and 420 mg/kg lead.

All public recreational site DU EPCs are less than the Public Recreational Visitor RBSLs of 410 and 590 mg/kg lead, except for upland soil at Corbin Park (S001). Upland soil at Corbin Park (S001) exceeds the average baseline residential RBSL (410 mg/kg) but is below the minimum baseline residential RBSL (590 mg/kg)[10].

[10] The Public Recreational Visitor and Private Recreational Resident lead RBSLs are based on P5. As noted in Section 3.3.3, no P3.5 RBSLs could be derived and therefore are not used in the RBSL comparisons. P3.5 RBSLs are available for the Outdoor Worker and are used in the comparisons for that exposure scenario.

Two sites have lead DU EPCs that exceed the Outdoor Worker RBSL of 297 mg/kg lead, based on P3.5: Corbin Park (S001; upland soil, DU01) and Cheamkwet Park (S009; dry sediment, DU02), with EPCs of 476 mg/kg and 367 mg/kg, respectively. These DUs also exceed the bioavailability-adjusted Outdoor Worker P3.5 RBSLs of 398 mg/kg (S001, DU01) and 335 mg/kg (S009, DU02), respectively. All DU EPCs are less than the Outdoor Worker RBSL of 511 mg/kg lead based on P5.

3.5.2.2 IEUBK Modeling

IEUBK modeling was used to evaluate all sites where both the sediment and surface water exposure pathways are complete for young child recreators. Exposure to lead in sediments represents a more significant portion of the total lead intake compared to surface water; therefore, the numerous and various combinations of surface water and sediment RBSLs were not calculated as discussed in the Work Plan (Alta 2024a). Instead, surface water results are evaluated (screened) in conjunction with soil/sediment results for each individual site using the IEUBK model. The IEUBK model (IEUBKwin version 2.0) is used to calculate the probability of exceeding a BLL of 5 or 3.5 µg/dL (P5 or P3.5). Details on assumptions and IEUBK inputs are provided in Section 3.5.2.2.1. Model results are presented and discussed in Section 3.5.2.2.2. Site-specific bioavailability data are discussed qualitatively when available in Section 3.5.2.3, to provide additional context for the IEUBK results.

IEUBK modeling is then completed using community mode for all sites that have both nearshore surface water and wet or dry sediment data using the inputs described in this section, regardless of initial screening results. Not every site is included in the IEUBK modeling (e.g., sites with only upland soil and no wet or dry nearshore sediment data). Rockford Bay Public Access (S041) and Windy Bay (S044) do not have sediment or nearshore surface water data. Based on field observations, Rockford Bay Public Access (S041) is primarily a boat launch, and there is no nearshore sediment area (only a grassy uplands area with an abrupt drop off to water). The underwater slope is steep and rocky and not conducive to wading/playing. Windy Bay (S044) is a boat-in campground. It has an elevated bench above the lake consisting of a grassy uplands area. There is no dry sediment transition from uplands to water, only a steep bank. The open water area is steep and rocky and is not conducive to wading/playing. The lead EPCs for the upland soils at both sites (48.2 and 28.9 mg/kg) are well below all lead RBLSs; therefore, no additional screening is necessary for these sites.

Bell Bay Campground (S046) has nearshore surface water data, but no sediment data. Based on field observations, it is primarily a boat-in day use site adjacent to a public campground. There is an upland soil area for picnicking with no beach area/transition to water. The vegetation/soil area goes to the water's edge during summer months. The underwater area consists of large boulders, with no fine sediment. The lead EPC for the upland soil at this site is 171 mg/kg, which is below the Public Recreational Visitor RBSLs of 410 mg/kg and 590 mg/kg lead; therefore, no additional screening is necessary for this site.

3.5.2.2.1 IEUBK Inputs

The IEUBK inputs used for site evaluation for this SLRE are summarized here.

3.5.2.2.1.1 Soil and Dust

Site-specific soil and dust lead concentrations are derived and utilized as follows.

Recreational exposures are intermittent[11]; therefore, exposures are evaluated using a time-weighted approach that partitions exposures at the primary residence ("baseline") and a secondary location (the recreational site) per EPA guidance (USEPA 2024b). The time-weighted average approach to estimate weighted soil lead concentrations is based on the period of exposure and is not annualized (i.e., averaged over the entire year) per USEPA guidance (USEPA 2024b). The exposure frequencies for Public Recreational Visitors and Private Recreational Residents are assumed to be 2 and 3 days per week, respectively, for 16 weeks, not annualized (USEPA 2024b).

Time-weighted soil concentrations are estimated using the following equation from EPA (USEPA 2024b).

$$Weighted\ PbC_{soil} = (PbC_{Res}\ x\ f_{Res}) + (PbC_{Loc}\ x\ f_{Loc}) \quad (8)$$

Where:

Weighted PbC_{soil} = weighted soil lead concentration (mg/kg).

PbC_{Res} = "baseline" residential soil concentration.

f_{Res} = fraction of week spent at home (number of days/7 days).

PbC_{Loc} = lake or river sediment/upland soil concentration (mg/kg).

f_{Loc} = fraction of week spent recreating at CDA Lake and the Spokane River (number of days/7 days).

It is assumed that f_{Res} = 5/7 and f_{Loc} = 2/7 for Public Recreational Visitors (at Public Sites) and f_{Res} = 4/7 and f_{Loc} = 3/7 for Private Recreational Residents (at Private Sites).

If multiple wet and/or dry sediment results are available at a site, the highest lead concentration from the wet and/or dry sediment DUs is used as PbC_{Loc}. Sediment results are used as opposed to upland soil results because it is assumed concurrent contact-intensive activities (e.g., sandcastle building and water play) occur in sediment and nearshore surface water, as opposed to upland soil areas, where differing less contact-intensive activities may occur.

Baseline residential soil concentrations (PbC_{Res}) are based on the minimum, average, and maximum lead concentrations in soil at a typical residence as discussed in Section 3.3.2. They are: 80, 150, and 250 mg/kg lead, respectively. Only two baseline soil concentrations (80 and 150 mg/kg) are used in this evaluation. The maximum baseline lead concentration scenario (250/350 mg/kg lead in soil/dust) results in P5 and P3.5 values that are greater than 5%, which does not allow for evaluation of a recreational site. The residential exposure already exceeds the BLL targets, and RBSLs cannot be calculated because they would have to be less than zero. The residential baseline concentrations are weighted with recreational soil exposures using equation 8 and assumptions above to derive two weighted soil lead concentrations per site that reflect a minimum and average residential exposure.

Indoor dust levels are entered into the IEUBK model as constant values representing the baseline residential dust lead levels discussed in Section 3.3.2. They are 130 mg/kg lead (representing both the minimum and average indoor dust) and 350 mg/kg lead (representing the

[11] IEUBK model is intended for use at residential sites and accounts for exposures to lead in soils, soil-derived indoor dust, and a variety of other sources (e.g., diet and drinking water) to predict BLLs in young children. Per EPA (USEPA 2024b), the IEUBK model can also be used to evaluate intermittent non-residential exposures to lead by children, such as recreational exposure scenarios that occur at least weekly for a minimum of three months.

maximum indoor dust). For the purposes of this SLRE, it is assumed that track-in from recreational sites is accounted for in the baseline residential dust lead levels. As discussed above, the maximum baseline lead concentration scenario (soil/dust is 250/350 mg/kg lead) is not used because the baseline soil and dust lead concentrations produce P5 and P3.5 values greater than 5% before time weighting any recreational exposures. Upon derivation, the weighted soil concentrations and assumed baseline dust concentrations are entered into the IEUBK model to estimate the probability of exceeding target BLLs.

3.5.2.2.1.2 Surface Water

It is assumed that recreational receptors will be exposed to lead in both sediment and surface water during recreational activities on the lake and/or river. Similar to sediments and soil, a time-weighted average approach is used to estimate the intake of lead from surface water. Incidental ingestion of surface water while wading/playing/swimming is inputted as an alternate source intake in the IEUBK model and does not replace the assumed volume of daily drinking water. The alternate source intake of lead is calculated using the following equations and assumptions.

$$ASI_{SW} = WeightedPbC_{SW} \times IR_{SW} \quad (9)$$

Where:

ASI_{SW} = alternate source intake from surface water (micrograms per day [µg/day])

Weighted PbC_{sw} = weighted surface water lead concentration (µg/L)

IR_{SW} = surface water incidental ingestion rate (liters per day [L/day])

$$WeightedPbC_{SW} = PbC_{SW} \times f_{Loc} \quad (10)$$

Where:

PbC_{SW} = surface water concentration (µg/L)

f_{Loc} = fraction of week spent at CDA Lake and Spokane River (number of days/7 days)

The f_{Loc} for Public Recreational Visitors is assumed to be 2/7 and f_{Loc} is 3/7 for Private Recreational Residents. Unlike the time-weighted approach used for sediments and soil, incidental ingestion of surface water is not expected to occur on days not recreating at the lake or river.

If field duplicate nearshore surface water results are available at a site, the highest lead result is used as PbC_{sw}.

An average incidental surface water ingestion rate (IR_{SW}) of 0.049 L/day is used. This value is provided in EPA's Exposure Factors Handbook (USEPA 2019) and is based on an average water ingestion rate while swimming for children (<18 years) (Dufour et al. 2006).

3.5.2.2.1.3 Other Sources

All other sources of lead exposure (e.g., drinking water, air, and diet) are based on default values used in the IEUBK model.

3.5.2.2.1.4 Age Range

The IEUBK models BLLs for children between the ages of 12 months to 6 years (72 months). This age grouping is recommended by EPA and is the default age range used in the IEUBK model (USEPA 2017c).

3.5.2.2.1.5 Other Assumptions

Consistent with the absorption fraction for drinking water, this SLRE uses an absorption fraction of 50% for the incidental ingestion of surface water while swimming. It is assumed that the lead bioavailability in surface water and drinking water are equivalent.

All other inputs not discussed above, including soil and dust bioavailability, are default values used in the IEUBK model.

Site-specific soil and surface water lead concentration inputs used in the IEUBK modeling for the secondary screening are summarized in Appendix F.

3.5.2.2.2 IEUBK Model Results

Results of the secondary screening based on combined surface water and sediment exposures are presented in Table 11. Appendix F contains the IEUBK output files.

All public and private recreational sites have P3.5 values greater than 5% for both the minimum and average assumed baseline residential scenarios. The exceedances are attributed to the assumed residential baseline soil and dust concentrations, as P3.5 values exceed 5% at residential baseline concentrations for all scenarios (see Section 3.3.2).

All private and public recreational sites (using their associated exposure scenario) have P5 values less than 5% for both the minimum and average assumed baseline residential scenarios, except for Cheamkwet Park (S009). P5 values for Cheamkwet Park (S009) are 6.6% and 8.5% for the minimum and average assumed baseline residential scenarios, respectively (Table 11).

3.5.2.3 Summary of Lead Screening

The initial screening compares lead sediment and soil DU EPCs with RBSLs, bioavailability-adjusted RBSLs where applicable, and EPA residential screening levels for all three exposure scenarios (Section 3.5.2.1). Secondary screening for public and private recreational receptors is accomplished with IEUBK modeling for all sites that have both nearshore surface water and wet or dry sediment data to calculate the probability of exceeding a target BLL of 5 or 3.5 µg/dL (P5 or P3.5, Section 3.5.2.2)[12].

As described in 3.5.2.2.1.1, upland soils were screened against RBSLs for all three exposure scenarios and were not included in the IEUBK modeling. Six sites have upland soil lead concentrations that are greater than that site's wet or dry sediment lead concentration: Corbin Park (S001), Blackwell Island (S008), Mica Bay Boater Park (S033), Loff's Bay (S036), and two privately owned sites (CONF02 and CONF05). The exact reason(s) for these findings is uncertain but may indicate a different source or transport pathway for lead in upland soils at these sites. For example, previous flooding events may have deposited lake sediments in upland areas that contained higher levels of metals relative to more recent sediment transport and mixing along the shoreline, resulting in differing concentrations. However, the sampling

[12] Several recreational sites are located on private residential properties, which may have seasonal dwellings on site or nearby (existing or in the future). The activities (and their frequency) that bring residents in contact with potential contamination in beach sediments and surface water are expected to align with recreational use, as opposed to residential use.

scheme was not intended nor designed to assess contaminant sources or transport pathways. Lead risks for these sites/DUs are based on comparisons of the upland soils to RBSLs and IEUBK modeling using wet or dry sediment and nearshore water lead concentrations.

IEUBK modeling for this SLRE uses the maximum site sediment and surface water result when field replicates were collected. As previously described, IEUBK modeling was not completed for three sites—Rockford Bay Public Access (S041), Windy Bay (S044), and Bell Bay Campground (S046)—because both surface water and sediment data were not available for these sites. Regardless, the initial lead screening for these three sites indicates their soil/sediment DUs are below RBSLs.

In summary, the following sites have at least one DU EPC that exceeds one or more recreational and/or Outdoor Worker lead RBSL or exceeds P3.5 or P5 for recreators based on IEUBK modeling for combined surface water and sediment exposures:

- Corbin Park (S001): upland soil at DU01 (476 mg/kg) exceeds the recreational P5 RBSL of 410 mg/kg based on the average baseline residential assumptions. The lead bioavailability of the upland soil area is slightly less than the default bioavailability used to calculate the Public Recreational Visitor RBSL (22% versus 30%); therefore, the exceedance may not be as significant if lead bioavailability was quantitatively evaluated with IEUBK-produced RBSLs. The upland soil (DU01) also exceeds the Outdoor Worker bioavailability-specific ALM modeled P3.5 RBSL of 398 mg/kg lead. However, the upland soil lead concentration does not exceed the Outdoor Worker P5 RBSL.
- Cheamkwet Park (S009): dry sediment at DU02 (367 mg/kg) exceeds the Outdoor Worker bioavailability-specific ALM modeled P3.5 RBSL of 335 mg/kg lead; however, it is less than the Outdoor worker RBSL based on P5. While DU EPCs do not exceed the Public Recreational Visitor upland soil RBSLs, IEUBK modeling of the combined sediment and surface water exposure indicates P5 values are 6.6% and 8.5% for the minimum and average assumed baseline residential scenarios, respectively. These results are further discussed in Section 3.9.2. The absolute bioavailability for DU02 is 26.6.%, which is slightly less than the default bioavailability used in the IEUBK model of 30%. Therefore, the P5 for the minimum residential baseline would be less than 6.6% (i.e., closer to 5%). Additional evaluation is needed to determine whether lead at this site poses unacceptable risk.
- For the site-specific IEUBK screening, 29 public and private recreational sites have P3.5 values greater than 5% for both the minimum and average baseline residential scenarios (Table 11). The exceedances are attributed to the assumed residential baseline soil and dust concentrations, as P3.5 values exceed 5% at residential baseline concentrations for both exposure scenarios (see Section 3.3.2).

3.5.3 EPC and RBSL Comparison Findings

Table 20 and Table 21 summarize the sites, media, and COPCs where one or more DU EPCs exceed RBSLs based on a target level of 1 x 10^{-5} and/or HQ=0.1. DU EPCs above background concentrations (discussed in Section 3.9) are also indicated in these tables. The general and site-specific findings based on EPC comparisons to RBSLs are summarized below.

3.5.3.1 General Findings

Open Water and Nearshore Surface Water: All open water DU EPCs for all metals are below RBSLs as are nearshore surface water DU EPCs, except for arsenic and lead. Arsenic levels in nearshore surface water samples exceed the Outdoor Worker RBSL at 16 sites, the Private

Residential Recreator RBSL at one site, and the Public Recreator at two sites. Lead levels in nearshore surface water samples contribute to the P5 screening exceedance for the Public Recreational Visitor at one site.

Soil and Sediment: Arsenic, cadmium, lead, iron, and manganese are the only COPCs with EPCs above RBSLs. The remaining COPC EPCs are below RBSLs. The number of sites exceeding RBSLs are as follows:

- Arsenic EPCs exceed the Outdoor Worker, Private Residential Recreator, and Public Recreator RBSLs at all sites.
- Cadmium EPCs exceed the Private Residential Recreator RBSL at one site and the Public Recreator RBSL at three sites.
- Lead EPCs exceed the Public Recreator, Private Residential Recreator, and Outdoor Worker RBSLs and IEUBK screening at 29 sites.
- Iron EPCs exceed the Private Residential Recreator RBSLs at five sites and the Public Recreator RBSLs at three sites.
- Manganese EPCs exceed the Private Residential Recreator RBSL at one site and the Public Recreator RBSL at one site.

3.5.3.2 Site-Specific Findings

As discussed in the previous section, multiple sites exceed RBSLs for arsenic, cadmium, lead, iron, and manganese. A breakdown of these exceedances for each recreation site by DU is provided below. To expand on these SLRE findings, Section 3.9 discusses additional risk considerations and further refines the findings for all sites listed below.

Sites with Multiple COPCs above RBSLs

Four sites have more than two COPC EPCs above RBSLs:

- **Corbin Park (S001)**: The upland soil lead EPC at DU01 (476 mg/kg) exceeds the Public Recreational Visitor RBSL (410 mg/kg) based on the average baseline residential assumptions and exceeds the bioavailability-adjusted Outdoor Worker P3.5 RBSL of 398 mg/kg lead; however, it is less than the Outdoor Worker P5 RBSL. The bioavailability of the upland soil area is slightly less than the default bioavailability used to calculate the Public Recreational Visitor RBSL (22%, shown in Appendix B, versus 30%); therefore, the exceedance may not be as significant. The DU01 cadmium EPC (8.62 mg/kg) slightly exceeds the Public Recreational Visitor RBSL of 5.4 mg/kg. Upland soil (DU01) and dry sediment (DU02) arsenic EPCs slightly exceed the bioavailability arsenic cancer RBSLs for Public Recreational Visitors and exceed the bioavailability-adjusted arsenic cancer RBSLs for Outdoor Workers.
- **CONF05:** Upland soil cadmium, iron, and manganese EPCs exceed the Private Recreational Resident RBSLs. The dry sediment iron EPC is also above the Private Residential Recreator RBSL. The upland soil arsenic EPC (14.0 mg/kg) is above the bioavailability-adjusted cancer RBSLs for Private Recreational Resident and Outdoor Worker. The wet and dry sediment arsenic EPCs are above the cancer and non-cancer arsenic RBSLs.
- **Blackwell Island (S008):** Upland soil and wet sediment arsenic EPCs (17.6 and 32.7 mg/kg) exceed bioavailability-adjusted arsenic cancer RBSLs for the Public Recreational Visitor and Outdoor Worker. The upland soil cadmium EPC (7.05 mg/kg) is slightly

higher than the non-cancer Public Recreational Visitor RBSL. The wet sediment iron and manganese EPCs (44,152 mg/kg and 1,678 mg/kg respectively) exceed RBSLs for the Public Recreational Visitor. The nearshore surface water arsenic EPC (1.83 µg/L) is slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L).

- **Cheamkwet Park (S009):** For lead, dry sediment at DU02 (367 mg/kg) exceeds the bioavailability-adjusted Outdoor Worker RBSL of 335 mg/kg lead, based on P3.5; however, it is less than the Outdoor Worker RBSL based on P5. IEUBK modeling for Public Recreational Visitor indicates P5 values are 6.6% and 8.5% for the minimum and average assumed baseline residential scenarios, respectively. The absolute bioavailability for DU02 is 26.6.%, which is slightly less than the default bioavailability used in the IEUBK model of 30%. Additional evaluation of this location is recommended to determine whether lead poses unacceptable risk. In addition, dry sediment cadmium at DU02 (6.74 mg/kg) is slightly above the Public Recreational Visitor non-cancer RBSL. Site arsenic EPCs in dry sediment and wet sediment (12.5 mg/kg to 15.3 mg/kg) exceed default and bioavailability-adjusted RBSLs as shown in Table 21. The nearshore surface water arsenic EPCs (2.33 and 2.54 µg/L) are slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L).

Five sites have arsenic and iron EPCs above RBSLs:

- **CONF07:** The dry sediment iron EPCs in both DUs (34,892 and 37,492 mg/kg) and the wet sediment iron EPC in DU07 (28,583 mg/kg) are higher than the Private Residential Recreator RBSL of 26,600 mg/kg. Upland soil, dry sediment, and wet sediment arsenic EPCs are above RBSLs. The dry sediment arsenic EPC in DU06 (29.7 mg/kg) exceeds the bioavailability-adjusted cancer and non-cancer Private Residential Recreator and Outdoor Worker RBSLs. Nearshore surface water arsenic EPCs (1.98 and 1.31 µg/L) are slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L).
- **Higgens Point Day Use (S020):** Dry and wet sediment iron EPCs (61,892 and 73,683 mg/kg, respectively) exceed the Public Recreational Visitor RBSL. In addition, the arsenic EPCs exceed RBSLs (21.9 and 24.0 mg/kg): wet sediment exceeds the bioavailability-adjusted Public Recreational Visitor and Outdoor Worker cancer RBSLs; and dry sediment exceeds the non-cancer and cancer Public Recreational Visitor and Outdoor Worker RBSLs. The nearshore surface water arsenic EPC (3.27 µg/L) is slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L) and the Public Recreational Visitor RBSL (3.01 µg/L).
- **Higgens Point Beach, Site 1 (S022):** The dry sediment iron EPC (40,092 mg/kg) is slightly higher than the Public Recreational Visitor RBSL of 39,900 mg/kg. The dry sediment arsenic EPC (11.1 mg/kg) exceeds the non-cancer and cancer RBSLs for Private Recreational Visitors and Outdoor Workers. The nearshore surface water arsenic EPC (1.52 µg/L) is slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L).
- **CONF02:** The dry sediment iron EPC (30,650 mg/kg) is higher than the Private Residential Recreator RBSL of 26,600 mg/kg. Upland soil, dry sediment, and wet sediment arsenic EPCs are above RBSLs. The upland soil arsenic EPC in DU01 (7.04 mg/kg) exceeds the non-cancer and cancer RBSLs for Private Recreational Visitors and exceeds the cancer RBSL for Outdoor Workers. The dry sediment soil arsenic EPC in DU02 (11.9 mg/kg) and wet sediment in DU03 (11.7 mg/kg) exceed non-cancer and cancer RBSLs for both Private Recreational Visitors and Outdoor Workers. The nearshore surface water arsenic EPC (2.41 µg/L) is slightly higher than the Outdoor

Worker cancer RBSL (1.19 µg/L) and the Private Residential Recreator RBSL (2.01 µg/L).

- **CONF11:** The dry sediment iron EPC (27,992 mg/kg) is higher than the Private Residential Recreator RBSL of 26,600 mg/kg. Upland soil, dry sediment, and wet sediment arsenic EPCs are above RBSLs. Soil arsenic EPCs exceed cancer and non-cancer RBSLs for Private Recreational Visitors as well as the cancer RBSL for Outdoor Workers in upland soil (5.77 mg/kg in DU01), dry sediment (9.47 mg/kg in DU02), and wet sediment (8.58 mg/kg in DU03). The nearshore surface water arsenic EPC (1.43 µg/L) is slightly higher than the Outdoor Worker cancer RBSL (1.19 µg/L).

Sites with one COPC EPC above RBSLs

Twenty-three sites have arsenic EPCs that exceed RBSLs as shown in Table 20 and Table 21. These 23 sites listed below, do not exceed RBSLs for any other metals.

- Q'Emiln Park (S003)
- Greensferry Park (S004)
- Atlas Waterfront Park (S007)
- Yap-Keehn-Um Beach (S010)
- Boardwalk Public Beach (S012)
- Tubbs Hill West Beach, Site 1 (S013)
- Tubbs Hill South Beach, Site 2 (S014)
- Tubbs Hill East Beach, Site 3 (S015)
- Sanders Beach West (S016)
- Sanders Beach Public (S017)
- Higgens Point Beaches, Site 2 (S021)
- Mica Bay Boater Park (S033)
- Loff's Bay (S036)
- Carlin Bay (S038)
- Rockford Bay Public Access (S041)
- Windy Bay (S044)
- Bell Bay Campground (S046)
- CONF03
- CONF04
- CONF06
- CONF08
- CONF09
- Rocky Point (S058)

.

3.6 Qualitative Risk Evaluation

As described in Section 2.1.5, certain exposure scenarios, including the Construction Worker and Tribal Recreational Resident, and exposure pathways such as drinking water ingestion are qualitatively evaluated in this SLRE.

3.6.1 Construction Worker

The Construction Worker receptor is evaluated qualitatively in the SLRE based on the comparison of Outdoor Worker RBSLs to EPCs. The Outdoor Worker scenario is expected to be protective of other occupational receptors (e.g., Construction/Utility Workers) because it is assumed that Outdoor Workers experience longer-term occupational exposures relative to other occupational receptors. Although construction workers might have more intensive contact with soils and sediments, their exposure durations are expected to be short-term or intermittent in nature. Typically, Construction Worker scenarios are viewed as subchronic exposures (occur for months to a year vs. many years), thus RBSLs tend to be higher than corresponding Outdoor Worker RBSLs[13]. Consequently, sites identified for further evaluation based on the Outdoor Worker exposure scenario may also need to be considered for Construction/Utility Workers.

3.6.2 Tribal Recreational Resident

Soil/sediment and surface water RBSLs for the Private Recreational Resident receptor are used as a baseline to discuss potential risks to the Tribal Recreational Resident associated with these exposure media because information is not available to quantify Tribal Recreational Resident exposures (e.g., exposure frequency, ingestion rates) differently than Private Recreational Resident exposures. Private Recreational Resident exposures assume longer contact time at these sites relative to the Public Recreational Visitor.

Two sites on the Tribe's reservation were quantitatively evaluated for the Public Recreational Visitor due to each site's use (CONF09 and Rocky Point [S058]). However, these two sites are qualitatively evaluated as Private Recreational Resident herein for the purpose of discussing potential risks to the Tribal Recreational Resident. If Tribal members use other sites for cultural purposes, then a similar comparison of that site's EPCs to the Private Recreational Resident RBSLs should be reviewed.

- For CONF09, soil and sediment EPCs were below the Private Recreational Resident RBSLs for all COPCs except iron in dry sediment (DU02) and arsenic in upland soil (DU01), dry sediment (DU02), and wet sediment (DU03). These findings are similar to when Public Recreational Visitor RBSLs with the additional COPC of iron.
- For Rocky Point (S058), soil and sediment EPCs were below the Private Recreational Resident RBSLs for all COPCs except arsenic in wet and dry sediment (DU02 and DU01), which are the same findings as when Public Recreational Visitor RBSLs are used.

In general, evaluating these two sites using the Private Recreational Resident RBSLs does not substantially change the screening outcomes. However, the additional exposures and pathways discussed below might change a site's screening outcomes if the additional exposures and pathways could be quantified. Additional potential health risks to the tribal population may exist due to greater potential exposure to potential contaminants through ingestion of biota (e.g.,

[13] See Section 5, Appendix C of the Work Plan for additional discussion the Construction Worker Scenario RBSLs and comparison to Outdoor Worker RBSLs.

water potatoes and fish) as well as sediments, soils, and surface water through cultural activities. Aquatic and terrestrial plants, animals, and birds (i.e., biota) may take up metals present in surface water, sediment, and soil (and through the food web). If these plants and animals are consumed by tribal (and non-tribal recreational) receptors, these receptors would have increased risks than currently quantified in this SLRE.

CDA Tribal members cultural practices likely result in spending additional time on the lake and its shoreline compared to the time evaluated for the Private Recreational Resident. For example, water potatoes "continue to be gathered each October by elders and the youth of the Tribe in the wetlands associated with Chatcolet and Benewah Lakes (southern parts of CDA Lake), providing cultural identity and educational linkage to their traditional foods and ways of life, and to CDA Lake" (https://www.sqigwts.org/background). Cultural activities are also undertaken collectively in family or tribal groups and involve children and women of reproductive age, the population at greatest risk[14]. Cultural activities, such as the water potato example, potentially result in elevated exposures and risks associated with consumption rates of resident fish and riparian vegetation, and soil and sediment contact rates associated with typical residence and harvest practices for both ingestion and dermal routes. Consequently, sites with greater than background concentrations have the potential to cause increased risk if all pathways are practiced on a regular basis by CDA Tribal members.

3.6.3 Drinking Water Ingestion

The drinking water pathway is potentially complete for both residential drinking water (at private residences along the lake) and ingestion of surface water at a public drinking water source.

Drinking water exposure pathways have been excluded from quantitative evaluation for a combination of reasons. DEQ's Drinking Water Bureau oversees the consumption of drinking water from public water systems including surface water intakes on CDA Lake (Idaho Rules for Public Drinking Water IDAPA 58.01.08). These systems are sampled and monitored for contaminants including but not limited to metals, such as lead, copper, arsenic, and cadmium according to designated schedules every three, six, or nine years. Additionally, the focus of the SLRE is on recreational and occupational exposures, not residential exposures (such as consumption of private well water). However, if a Private Recreational Resident acquires their drinking water from a private unregulated source, exposure and health risks are likely greater than indicated by this evaluation.

While recreators may bring their own drinking water from home or a store, they may also have access to drinking water from fountains and spigots at public parks, beaches, and campgrounds, if available. Not all these water sources are regulated by the State of Idaho and may not have a history of being sampled for inorganic chemicals such as heavy metals. Recreational users may be exposed to metals in drinking water through ingestion and by dermal contact[15] if the water is available for washing or taking showers. As noted in previous investigations, shallow wells can draw their drinking water supply from lake-recharged aquifers or lake water (URS Greiner, Inc. and CH2M Hill 1998; NAS 2022).

No public sites were identified during 2024 with unregulated drinking water sources; therefore, the drinking water ingestion pathway is considered incomplete at those sites at this time. However, unregulated drinking water sources are qualitatively evaluated herein by comparing

[14] For additional details on subsistence lifestyles at CDA Lake and the Spokane River, see the 2001 HHRA TerraGraphics et al. (2001).
[15] For inorganic metals such as lead and arsenic, the dermal exposure pathway is minor compared to the exposures quantified in this SLRE.

open water surface water results to maximum contaminant levels (MCLs). Results from nearshore surface water samples are not used because they are not representative of drinking water, as the nearshore water was intentionally disturbed prior to sampling to mimic conditions during wading, playing, or swimming.

Table 14 shows Open Water EPCs compared to primary and secondary MCLs for all COPCs in surface water except lead. All EPCs are less than the MCLs for antimony, arsenic, cadmium, copper, iron, manganese, mercury, and zinc. Lead EPCs are not calculated for surface water; however, Table 14 shows open surface water lead concentrations are all below the treatment technique action level for lead (0.010 mg/L). This suggests that water ingestion is not likely to pose unacceptable risk to recreators drinking surface water at a public drinking water source or to residences using surface water; however, these results are based on open water surface samples from the top 10 feet, which may not be representative of water at drinking water intakes that lie at the bottom and are nearer to shore.

3.6.4 Ingestion of Aquatic and Terrestrial Plants and Animals

It is possible that recreational receptors could be exposed to COPCs via the following pathways, resulting in additional potential risk:

- Ingestion of fish
- Ingestion of aquatic animals other than fish (e.g., crayfish), waterfowl, and aquatic plants (e.g., water potato)
- Ingestion of terrestrial plants and animals

The fish ingestion pathway is excluded from quantitative evaluation because of a relatively recent fish consumption advisory. In 2016, mercury was detected above the 0.4 mg/kg screening value in fish caught from the lake (IDHW 2020). Since the water quality numeric criterion exceeded the designated uses "primary contact recreation", "cold water aquatic life", and "salmonid spawning" due to excess mercury, CDA Lake was listed as impaired and a mercury fish consumption advisory[16] was issued for the lake (IDHW 2020). Other metals, including arsenic, lead, and cadmium, did not exceed fish consumption criteria in the fish tissue samples that resulted in the mercury fish consumption advisory. Health risks associated with exposure to metals through fish consumption are expected to be low if receptors follow the fish consumption advisory.

The ingestion of aquatic and terrestrial plants/animals are potentially complete for recreational and Tribal receptors that hunt and forage on and near CDA Lake and the Spokane River. Uptake of metals into plants and animals differs between species and is dependent on numerous biotic and abiotic factors. In the absence of animal and plant sampling, these pathways rely on extensive modeling to predict concentrations in animal and plant tissue based on concentrations found in soil, sediment, and water. Modeling also requires data and information about specific animal and plant species, locations where these species are harvested, hunting/foraging frequencies, and the average amount of each animal and plant ingested by a receptor[17]. Without this more detailed information, these pathways (although important to the CDA Tribal Recreational Resident exposure scenario), are not quantified in this

[16] https://healthandwelfare.idaho.gov/health-wellness/environmental-health/fish-advisories

[17] Additional information about the CDA Tribe's cultural sites and practices is too sensitive and was not obtained. DEQ respects the Tribe's decision to protect culturally sensitive information. Only publicly available information about water potato and cultural practices were used in this SLRE, in addition to all anonymous responses to the 2023 CDA Lake and Spokane River Recreational Use Questionnaire (in which CDA Tribal members may or may not have responded).

SLRE. COPCs were detected in wet and dry sediment, as well as nearshore surface water; therefore, receptors who consume terrestrial plants/animals or aquatic plants may have additional potential risk.

3.7 Comparison to 1999 SLRA-CUA Findings

Seventeen sites evaluated in the 1999 SLRA-CUA were sampled in 2024, allowing for a qualitative comparison of site data and findings. The 2024 investigation was not intended nor designed to quantitatively evaluate whether COPC concentrations have changed over time. Due to differing sampling techniques, sample locations, and data processing methods, results from the 1998 and 2024 sampling events are not directly comparable. In 2024, soils and sediment were sampled using ISM methodology, surface water samples were composited, and EPCs were calculated for individual DUs to evaluate risk. For the 1999 SLRA-CUA, grab samples were collected and site-wide EPCs were calculated to evaluate risk. Sample areas (DUs) also may have differed within sites between the two sampling efforts.

Despite these differences, the lead and arsenic data are qualitatively compared for the 17 sites that were sampled in 1998 and 2024. Lead and arsenic are compared because they are the main COPCs contributing to screening exceedances. For this comparison, site-wide average lead and arsenic results from Appendix C of the 1999 SLRA-CUA are used (URS Greiner, Inc. et al. 1999). For comparative purposes, the average result is used if multiple DUs of the same media type were sampled from a site in 2024. In addition, 2024 wet and dry sediment results are averaged within a site because the 1998 wet and dry sediment data were averaged. The 1998 and 2024 EPCs are compared in Table 22 and Table 23. For the purposes of a qualitative comparison, a difference of ±0.001 mg/L for water and ±10 mg/kg for soils/sediment is used for this discussion.

In general, the 2024 lead concentrations in nearshore surface water, sediment, and soil are somewhat lower or similar to those in 1998 (Table 22). A slight increase in lead concentration from 1998 to 2024 was observed in nearshore surface water at two sites, sediments at one site, and soils at three sites.

Sediment and soil arsenic concentrations in 2024 are generally similar to those in 1998 except two sites, where arsenic levels decreased by more than 10 mg/kg from 1998 to 2024. The 2024 nearshore surface water arsenic concentrations are generally lower than or similar to those in 1998, except for two sites with nearshore surface water arsenic concentration increases of more than 0.001 mg/L (Table 23).

Comparison of screening outcomes is challenging due to the updated arsenic and lead toxicity information, which lowers RBSLs. In addition, this SLRE utilizes lower background concentrations than the 1999 SLRA-CUA, described in Section 3.9.1.1. One site, Blackwell Island (CUA Site No. 21 in 1998 and S008 in 2024), is identified in both the 1999 SLRA-CUA and this expanded SLRE as having sediment arsenic concentrations that exceed both screening levels and background concentrations.

3.8 Uncertainties

The assumptions used in the SLRE have inherent uncertainty. Therefore, this expanded SLRE discusses site-specific and general uncertainties that may contribute to an over- or underestimation of potential health risks and the likelihood that sites are accurately excluded from further consideration.

3.8.1 Sample Collection/Analysis

Sampling and analytical methods have inherent uncertainties, discussed in this section.

3.8.1.1 Sampling Methods

It is not possible to sample every square inch of potentially impacted media at a site. Instead, a limited number of samples must be obtained to represent the contaminant characteristics of an environmental medium. This introduces uncertainty in the development of media concentrations. In addition, sample results used in this SLRE are available from only one point in time, increasing uncertainty due to potential temporal variability.

To reduce spatial uncertainty, composite samples were collected for surface water samples, and ISM sampling methodology was used for sediment/soil samples. Composite samples reduce the spatial uncertainty of sample results, as compared to grab samples. ISM sampling methodology results in a more accurate estimate of the true mean concentration. Subsample locations were randomly selected, and sample depths represent receptor exposures based on typical recreational or work-related activities.

These sampling strategies were, in general, designed to prevent underestimation of media concentrations, thus avoiding an underestimation of human health risks and increasing the confidence that sites are accurately excluded from further consideration (minimizing false negatives). However, two key uncertainties with sample collection/analysis have been identified: sediment recovery and lake level fluctuations.

As described in Appendix B, sediment recovery was less than anticipated at many sites. It is uncertain if the reduced sediment recovery affected the representativeness of the samples. Thus, there is the potential that sediment recovery contributes to unknown bias in EPCs and an over- or under-estimate of risk.

This SLRE considers exposures when lake levels are elevated (at summer levels), and some receptors may be exposed to the wet sediment locations in the winter. Evaluating each DU as an EU produces conclusions about individual wet sediment areas, which likely captures potential risk from these areas during times when they are not submerged. In addition, exposures to sediment during other seasons are likely to be less than those in the summer months due to less contact with sediments and less skin surface area in cooler months (there is less likelihood of swimming/building sandcastles during cold weather and hunters/fishers are likely to wear winter clothing to stay warm).

In addition, sample results used in this SLRE are available from only one point in time, increasing uncertainty due to potential temporal variability. Metals concentrations are expected to fluctuate to some extent over time depending on factors such as flooding (sediment transport), land-use changes (e.g., soil disturbance, clean fill), and changes in water chemistry (e.g., pH affecting precipitation and adsorption of metals).

3.8.1.2 Mercury Data

The quality assurance/quality control (QA/QC) evaluation of the data indicates there were several holding-time exceedances and higher temperature ranges than required for mercury analysis in water and sediment samples. This likely results in underestimating the mercury concentrations in these media; however, the mercury results were generally orders of magnitude lower than the RBSLs.

3.8.2 Exposure Units

This SLRE defines each recreational site as an individual EU. This approach is generally conservative and typically used for screening-level risk evaluations. Because Public Recreational Visitors and Outdoor Workers are likely to recreate and/or work at different lake and river locations over time, this approach could underestimate risk for sites low in metals concentrations and overestimate risk for sites having higher metals concentrations. Using the individual sites for the Private Recreational Resident is appropriate for that exposure scenario.

Furthermore, each DU at each recreational site is screened as an EU using the highest metals concentrations when replicate data are available. For situations where there are multiple DUs at each recreation site for a given media type (e.g., soil/sediment and surface water), this approach likely overestimates risks. The assumption that a recreator or worker spends all his/her non-residential time at one DU of one recreational site with the highest metals concentrations provides a 'worst-case-scenario,' thus, increasing the confidence that recreation sites are accurately excluded from further consideration (minimizing false negatives) if EPCs are less than RBSLs.

3.8.3 Exposure Point Concentration

The EPC is intended to be a conservative estimate of the mean concentration that the receptor contacts. As such, maximum concentrations (for surface water) and 95% UCLs (for sediment in soil) are used as EPCs in this SLRE to reduce the likelihood of underestimating risks, to address uncertainties with data representativeness, and to increase the confidence that sites are accurately excluded from further consideration (minimizing false negatives).

The use of 95% UCLs for soil and sediment EPCs, which are upper-bound estimates of the mean concentrations, likely overestimates risk. The use of maximum concentrations also tends to overestimate risks. Additionally, detection limits may contribute to bias in the EPC because the detection limit is used when a result is below detection. A detection limit greater than an RBSL may lead to an overestimation of risk and retaining a site for further consideration.

Information was obtained in the field that indicated the sediment and/or soil at four sites may differ from other sites (for example, sand may have been brought in to amend the beach, see Section 3.4.2.1). Because there is uncertainty about the source(s) of soil and sediments at these sites, it is unknown whether COPC concentrations at these sites are due to mining impacts upstream. Field replicate samples were not collected at these sites, and it is not appropriate to use data from replicate samples collected at other sites to estimate 95% UCLs for these four sites (i.e., extrapolation of pooled replications results). The EPCs for these sites are the sample results, which may increase uncertainty of whether these sites are accurately excluded from further consideration. However, the ISM approach is intended to better represent an average concentration and likely offsets the potential for underestimation of risk. The sites where this occurred are: Greensferry Park (S004), Atlas Waterfront Park (S007), CONF06, and CONF09.

3.8.4 Exposure Assumptions

This SLRE assumes receptors engage in contact intensive activities (for example, children digging in the sand and swimming in sediment-disturbed waters, etc.). This is a conservative assumption, as some recreational sites have limited fine sediments with more cobble and larger rock, which reduces exposure because larger cobbles and rocks are less likely to stick to skin, clothes, and toys. Because sediment samples were sieved to obtain the <250 μm particle size fraction, the sediment EPC likely represents that fraction of sediment that adheres to skin and is

available for incidental ingestion. Collectively, these exposure assumptions and sampling and analysis methodologies increase confidence that sites are accurately excluded from further consideration if the EPC does not exceed the RBSL (minimizing false negatives). Uncertainties related to additional exposure assumptions are discussed in Section 3.8.5.

3.8.5 RBSLs

The screening evaluation and RBSLs are designed to be conservative to address uncertainties with exposures and prevent the likelihood of underestimating risks. Screening levels in general are derived using conservative exposure factors, such as upper-bound soil ingestion rates). Exposure frequency and time are based on best professional judgement for reasonable, upper-end recreational assumptions. In addition, non-cancer RBSLs are based on an HQ of 0.1. Use of these conservative assumptions increases the confidence that sites are accurately excluded from further consideration (minimizing false negatives).

However, there are uncertainties as to whether the RBSLs accurately represent all possible receptors and exposure scenarios at CDA Lake and the Spokane River, as discussed below.

3.8.5.1 Sensitive or Susceptible Populations

Certain populations in the CDA Basin could be more sensitive to contamination or have greater exposure than the average individual in each of the receptor groups. These populations include infants and children and individuals that practice specific activities that result in increased exposures, including some members of the CDA Tribe.

Risks to children may differ qualitatively and quantitatively from those of adults for a variety of reasons including differences in behavior (i.e., frequent hand-to-mouth behavior), physiology, rapidly growing organs, high metabolism rate (i.e., burn more calories at rest and during activity), diet (e.g., consume more food in relation to their body weight), and exposure environment (e.g., spend more time outdoors).These differences are accounted for by using child-specific exposure factors when deriving RBSLs. Non-cancer RBSLs are based on exposures to young children[18]. RBSLs for lead are derived from pharmacokinetic models that predict BLLs in young children based on exposures to lead in soil, dust, air, water, and diet.

Because some chemicals, including heavy metals, can cross the placental barrier, pregnant women and women of child-bearing age are also considered a sensitive population. This is especially the case when evaluating exposures to lead. Pregnant women and women of child-bearing age are evaluated using the ALM, which accounts for exposures to pregnant women and risks to the developing fetus. By protecting the most sensitive receptor, the ALM results are protective of other adults.

Soil/sediment and surface water RBSLs for the Private Recreational Resident receptor are used as a baseline to evaluate potential risks to the Tribal Recreational Resident associated with these exposure media[19], summarized in Section 3.6.2. However, uncertainty regarding Tribal

[18] For exposures involving children and adults (e.g., such as exposure spanning childhood into adulthood), non-carcinogenic RBSLs are typically derived for children only, especially young children (0-6 years old) who have higher intake to body weight ratios. Based on the methods used to assess non-carcinogenic health hazards (e.g., average daily dose and application of chronic values to 6-year exposures), RBSLs are generally lower than they would be if older children and adult exposures are included.

[19] At this time, information is not available to quantify Tribal Recreational Resident exposures (e.g., exposure frequency, ingestion rates) different than Private Recreational Resident or Public Recreational Visitor exposures.

Recreational Resident exposures is higher than other receptors due to the lack of quantitative data for biota and associated exposure factors, which would likely result in more sites exceeding RBSLs and increase overall risk.

3.8.5.2 Multiple Exposure Scenarios

Individuals might fall into more than one receptor group and therefore be exposed to potentially affected media in more than one way. Some examples include the following:

- A Private Recreational Resident who also works at locations on the lake and river.
- A Public Recreational Visitor who also works at locations on the lake and river.
- A Tribal Recreational Resident who also works at locations on the lake and river.

Multiple exposure scenarios would increase overall exposure time and frequency at recreational sites; however, due to the range of site media COPC concentrations, it is unknown whether multiple exposure scenarios would increase or decrease potential exposures and overall risk. A Tribal Recreational Resident who practices a more subsistence lifestyle and is an outdoor or construction worker would likely increase their overall risk.

3.8.6 IEUBK Model Assumptions

This SLRE relies on the use of the IEUBK model to predict quasi-steady-state blood lead concentrations that will be achieved within the 16 weeks of elevated exposure, which is slightly greater than the minimum exposure period of three months that is recommended by guidance when using the model for short-term intermittent exposures. Because the IEUBK modeling assumes constant exposures during each age year (even for short-term intermittent exposures), it does not account for time between recreational seasons at the lake and river (i.e., remaining 8 months).This time is referred to as the "washout period" per EPA guidance (USEPA 2024b) and not accounting for it may overpredict mean blood lead concentrations for the year.

Two baseline residential scenarios are also utilized in the IEUBK evaluations to provide a wider spread of potential residential exposures and reduce the uncertainty in evaluating whether sites should be excluded from further consideration. It is uncertain if the baseline residential scenarios are representative of near-home property soils and indoor dust at residential dwellings on private properties located on the lake and river. This residential baseline uncertainty at private homes on the lake could lead to an under- or overestimation of lead EPCs and risks depending on whether actual concentrations in property soils and dust are greater or less than those used in this SLRE, respectively.

Finally, as discussed in Section 3.5.2.2.1.1, the maximum sediment DU concentration at each site was used to derive the time-weighted soil concentration for the IEUBK modeling because concurrent activities are most likely to occur in sediment/surface water as opposed to upland soils and surface water. Several sites have upland soil lead concentrations that are greater than the sediment concentrations used in the IEUBK modeling. At these sites, IEUBK modeled lead risk may be underestimated because lower sediment concentrations were used, not upland soil concentrations. However, the underestimation of risk may be offset because upland soils at these sites were compared to the conservative RBSLs.

3.8.7 Bioavailability

Where site-specific bioavailability data are available, the data are used to calculate bioavailability-adjusted RBSLs to reduce uncertainty (for arsenic and lead for the adult Outdoor Worker). If no bioavailability data are available, the recommended default RBA is used to calculate RBSLs.

The USEPA currently recommends a default RBA of 60 percent for ingestion of arsenic in soils ((USEPA 2012). As discussed in Section 3.1.2, site-specific arsenic RBA is much lower than 60 percent. Therefore, risk due to arsenic exposures via the soil ingestion pathway in this SLRE are likely overestimated for DUs where no site-specific bioavailability data are available. However, it is likely the same sites would be recommended for further evaluation even if there were site-specific arsenic bioavailability data for all sites and DUs. As discussed in Section 3.5.1, most EPCs exceed bioavailability-adjusted arsenic cancer RBSLs for DUs with site-specific arsenic bioavailability data. Most of the EPCs are less than bioavailability-adjusted, non-cancer RBSLs. These results suggest it is likely that most of the same sites/DUs would be identified for further evaluation due to arsenic even if site-specific bioavailability data were available for all sites and decision units.

The default soil lead AF_P in the IEUBK model (which is equivalent to ABA) is 30 percent, which was used to calculate P3.5 and P5 values. As discussed in Section 3.1.2, site-specific soil/sediment lead ABA is less than the default value for most of the DUs sampled/analyzed for lead bioavailability. Therefore, risk due to lead exposures via the soil ingestion pathway in this SLRE are likely overestimated for those DUs. Risk due to lead exposures via the soil ingestion pathway may be slightly underestimated for the one DU with lead ABA above 30 percent. Quantitatively evaluating the full impact of the site-specific lead ABA is beyond the scope of this expanded SLRE.

Samples with lead and arsenic results near or above RBSLs were selected for IVBA analysis, as described in Section 2. Use of bioavailability-adjusted RBSLs further reduces uncertainty in conclusions about sites with lead or arsenic concentrations near RBSLs. Other COPCs were evaluated assuming 100% bioavailability, which is conservative. Although bioavailability is expected to be less than 100%, adjustments to the bioavailability of other metals evaluated in this SLRE are not recommended because there is not yet a reliable method to analyze bioavailability for those metals. Therefore, RBSLs for those COPCs could be biased high because reduced bioavailability of these contaminants in site media as compared to the exposure medium in the toxicity study that served as the basis for the toxicity value is not considered in this SLRE.

3.9 Additional Risk Considerations and Findings

This section expands upon the SLRE findings presented in Section 3.5.3. This expanded SLRE discussion is not intended to eliminate metals from any potential future risk assessment; it is intended to better inform decision-making about the need for further risk evaluation or action at any particular site. After the SLRE indicated that all sites exceed arsenic RBSLs and many sites exceed RBSLs for other metals, Alta and DEQ agreed that a qualitative discussion of additional human health risk considerations could provide more context to those findings. While the uncertainties section highlights several approaches that were used to minimize false negatives (and potentially overestimate risks), there are additional technical considerations that further shape the findings and conclusions and could be factored into decision-making about next steps. General and site-specific considerations and findings are explained below.

3.9.1 General Considerations and Findings

The following considerations affect all recreation sites and provide greater context to the findings presented in Section 3.5.3. They include an evaluation of background concentrations and the contribution of background risks, the non-cancer risk endpoint (HQ of 0.1), the application of MCLs, lead health risk, and a comparison to action levels established for OU 3 of

the BHSS. The effects of these considerations on individual recreation site findings, along with their own site-specific considerations, are explained further in Section 3.9.2.

3.9.1.1 Background Concentrations

This section qualitatively discusses the results of the SLRE in the context of background COPC concentrations. Given that metals are naturally occurring and are found in a variety of environmental media, it is helpful to understand if measured metals concentrations are above background and whether background levels approach or exceed RBSLs. This approach expands upon a typical screening evaluation and is consistent with EPA policy on evaluating background concentrations in baseline risk assessments (USEPA 2002a). Because background levels of metals can arise from anthropogenic sources (man-made), it is also important to account for this input when considering and evaluating background data.

All open water surface water results are below RBSLs; therefore, they are not compared with background surface water concentrations. Nearshore surface water results are also not compared with background surface water concentrations because the sediments were intentionally disturbed prior to sample collection to mimic water-play activities. Comparing suspended sediment surface water data to undisturbed surface water background data is not appropriate.

3.9.1.1.1 Sediment and Soil Background Concentrations

Table 24 summarizes available local background values for sediment and soils. It includes background values used in the 1999 SLRA-CUA, the 2001 Basin HHRA, and the 2001 Basin RI/FS (URS Greiner, Inc. et al. 1999; TerraGraphics et al. 2001; URS Greiner, Inc. and CH2M Hill 2001). Additional information about background values is as follows:

- The background values derived in the 1999 SLRA-CUA are based on unimpacted sediment samples collected in the CDA Basin (CDA River, lateral lakes, and CDA River floodplain). The 1999 SLRA-CUA provides the rationale for deriving and using these values (URS Greiner, Inc. et al. 1999). These values are considered more representative and applicable than some other available background datasets because they are based on sediment samples collected from areas upstream of CDA Lake and the Spokane River and represent a relatively large data set (> 100 samples). These values were also used to screen sediment and upland soils samples in the 1999 SLRA-CUA. For more detailed information about these and other background data, see the 1999 SLRA-CUA report (URS Greiner, Inc. et al. 1999).
- Upper-bound values used in the 2001 Basin HHRA were derived from a USGS study that collected thousands of soil samples from the CDA mining district (Gott and Cathrall 1980). The 1980 USGS data were considered representative of undisturbed pre-mining soils in the entire CDA Basin, in particular the Upper CDA River Basin. These values are consistent with the background values used in the 1999 SLRA-CUA but were considered more representative of the mining district than the lake itself.
- The RI/FS data provides estimates of background metal concentration ranges for sediments in the Lower CDA River Basin and CDA Lake (USEPA 2001). Background concentrations were developed and used in the CDA Basin RI/FS, where Upper Basin soil and sediment background ranges were assumed to not be representative of Lower Basin sediment background. Data were derived from a relatively large data set (> 100 core and surface samples) (USEPA 2001). For the derivation of background sediment concentrations, soils were considered "to be the naturally deposited materials, typically found in upland areas, that have not been transported and deposited by fluvial

processes. Sediments are naturally deposited materials found in floodplains, riparian areas, and aquatic environments that have been transported by fluvial erosional processes." For every metal except iron, Lower Basin background sediment concentrations are less than the estimated background Upper Basin Sediment concentrations.

- Other available background data were also considered, including background levels for Kootenai and Benewah counties as reported by USGS (USGS 2008); however, these other data are less robust than the CDA Basin background datasets described above and are likely not representative of CDA Lake and Spokane River sediments (Alta 2024a).

Based on available information, the Lower Basin sediment 90th percentile background values used in the RI/FS are the most appropriate to compare against sediment and upland soils COPC concentrations in this expanded SLRE. These background values reflect the naturally occurring conditions immediately upgradient of CDA Lake prior to upgradient mining impacts. At the recreation sites sampled for this SLRE, upland soils were collected from low elevation areas that are subject to inundation from high water levels or past extreme flood events and therefore fit the definition of sediment used in the derivation of RI/FS background concentrations.

3.9.1.1.2 Soil and Sediment RBSLs and DU EPC Comparisons to Background

Tables 25 and 26 compare RBSLs with background concentrations. As shown in these tables, only arsenic and iron background concentrations exceed RBSLs. The RI/FS 90th percentile background arsenic sediment concentration is greater than all of the arsenic RBSLs based on default bioavailability (which range from 1.56 to 10.7 mg/kg, see Table 25), and many of the bioavailability-adjusted arsenic RBSLs using the measured bioavailability (see Table 26). The background iron sediment concentration (27,600 mg/kg) is about 4% greater than the Private Recreational Resident RBSL (26,600 mg/kg), as shown in Table 25.

Table 27 compares DU EPCs (based on 95% UCLs unless otherwise noted) for upland soil, dry sediment, and wet sediment to the RI/FS 90th percentile sediment background levels. As shown, levels of cadmium, copper, manganese, mercury, lead, and zinc at multiple DUs/sites exceed upper-bound background levels that are most applicable to CDA Lake and Spokane River for sediment. DU EPCs for antimony appear to be higher than the 90% background concentration of 1.63 mg/kg; however, this is due to the detection limit of 8.0 mg/kg used in 2024. Most antimony results were not detected, and those that were, were detected at concentrations greater than background.

Recreational sites where upland soil, dry sediment, and/or wet sediment DU EPCs exceed their respective RBSLs and 90th percentile background sediment concentrations are as follows (see Table 27 for site names):

- Arsenic - S003 (DU02), CONF05 (DU01), CONF07 (DU06), S001 (DU01 and DU02), S007 (DU01 through DU04), S008 (DU01 and DU02), S009 (DU02, DU04, and DU05), S010 (DU01), S012 (DU01 and DU03), S016 (DU01), and S020 (DU01 AND DU02).
- Iron – CONF02 (DU02), CONF05 (DU01 and DU02), CONF07 (DU04, DU06, and DU07), CONF08 (DU01), CONF11 (DU02), S008 (DU02), S020 (DU1 and DU2), and S022 (DU01).
- Cadmium – CONF05 (DU01), S001 (DU01), S008 (DU01), and S009 (DU02).
- Lead – S003 (DU03), CONF05 (DU01), CONF06 (DU01), CONF08 (DU02), S001 (DU01 through DU03), S008 (DU01), S009 (DU01 through DU03), S010 (DU01 and DU02), S038 (DU01), and S046 (DU01).
- Manganese – CONF05 (DU01), S008 (DU02).

3.9.1.1.3 Background Comparison Summary

EPCs are compared to background concentrations (not the sample results presented in Appendix B). Therefore, this background discussion is considered conservative because measured metals concentrations will generally be lower than EPCs (except for lead and the four sites with imported soil/sediment [see Section 3.8.3]). Based on this simple background comparison, certain metals, including antimony, cadmium, copper, manganese, mercury, lead, and zinc, are above background at some recreational sites. Thus, it is likely that these locations have been affected by metal-laden sediment from upstream mining activities. However, because the samples were collected with the intent of evaluating human health risks and not for performing an in-depth background analysis (e.g., statistical comparison of means), definitive conclusions regarding the contributing source(s) of metals at recreational sites should be approached with caution.

The 90th percentile sediment arsenic background concentration is greater than all of the default arsenic RBSLs, and the 90th percentile sediment iron background concentration is greater than the Public Resident Recreator RBSL. While sediments at most sites have arsenic concentrations that exceed arsenic RBSLs, eleven of those sites have arsenic concentrations that may be above background concentrations.

3.9.1.1.4 Uncertainties Related to Background

Although an in-depth background analysis was not within the scope of this expanded SLRE, the simple comparison of DU EPCs to the available background values indicates metal concentrations are consistent with background in some locations of the lake and river. While background levels for any given metal may vary to some degree across the same media, background can contribute to a significant portion of risk, especially for more toxic metals such as arsenic. However, the exact contribution of background levels to the detected levels of metals in soils, sediments, and surface water, and subsequent risk is uncertain.

If the true background concentration of metals is higher than the background concentrations used for comparison in this expanded SLRE, then it is possible that sites are identified for further evaluation when they are actually within background concentrations. Alternatively, if the true background concentration of metals is lower than the background concentrations used for comparison in this expanded SLRE, then it is possible that sites may be excluded from further consideration when they be carried forward. To reduce this uncertainty, the most representative, robust, regional background dataset was selected for comparison in this expanded SLRE. This reduces the likelihood that a site is excluded from further consideration when it should be carried forward.

3.9.1.1.5 Background Contribution to Risks and Arsenic

Background levels of metals can contribute to the exceedances of EPCs to RBSLs, and a significant portion of the overall risk. While background concentrations do not appear to be a significant issue for most metals because they are found below RBSLs, this is a critical consideration for arsenic. As shown in Table 25, upper-bound estimates of background arsenic in sediment exceed RBSLs, meaning, background substantially contributes to the number of sites exceeding arsenic RBSLs. Additionally, the 50th percentile background arsenic concentration in sediment (6.48 mg/kg)[20] also exceeds RBSLs.

[20] This value is based on the same data set used to derive the 90th percentile background arsenic concentration, i.e., Lower Basin (see Section 3.8.1).

3.9.1.2 Non-cancer risk endpoints

The use of an HQ of 0.1 is typical for screening level risk evaluations where there are multiple COPCs and assumes that the COPCs have the same target organ or organ system (or critical effect systems). With some exceptions, the metals evaluated in this expanded SLRE do not share the same critical effects systems. A listing of critical effects systems for each metal[21], except lead (evaluated separately), is presented below:

- Arsenic: cardiovascular and endocrine (USEPA 2025a)
- Antimony: hematologic (USEPA 2025a)
- Cadmium: renal (ATSDR Division of Health Studies 2025)
- Copper: gastrointestinal (USEPA 1997)
- Iron: gastrointestinal (USEPA 2025b)
- Manganese: central nervous system (USEPA 2025a)
- Mercury: nervous and autoimmune (USEPA 2025a)
- Zinc: Hematologic and immune (USEPA 2025a)

Screening with RBSLs based on an HQ of 0.1 is conservative and is performed to conclude with confidence that a COPC will likely not present health risks, particularly when evaluating a cumulative hazard index (∑HQs) with COPCs sharing the same target organ/critical effect. When considering critical effect systems, RBSLs could be derived using an HQ greater than 0.1 (e.g., 1 as used during a baseline risk evaluation). If HQs accounting for critical effects systems (e.g., 1) were used to screen or evaluate health risks, all DU EPCs would be below non-cancer RBSLs for all non-lead COPCs. Consequently, that would leave two COPCs that exceed RBSLs: arsenic (cancer RBSLs) and lead (RBSLs derived from the IEUBK and ALM).

3.9.1.3 Drinking Water Standards

The drinking water pathway was not quantitatively evaluated in this expanded SLRE because no unregulated drinking water supplies were identified at the 32 sites during sampling. The qualitative evaluation of the drinking water pathway is presented in Section 3.6.3.

Drinking water standards (primary and secondary MCLs) are not directly applicable to the nearshore surface water samples collected because the water samples reflect sediment disturbance typical of water play activities and would not represent typical drinking water that is filtered to remove suspended sediment. Thus, comparing nearshore surface water to MCLs is considered conservative. Even so, metals levels in nearshore samples are below drinking water standards (MCLs) for all COPCs, except for lead. Although arsenic nearshore surface water EPCs exceed recreational and occupational RBSLs at some sites, the EPCs are below the arsenic MCL. Lead and copper do not have primary MCLs but are instead regulated by treatment technique[22]. Only lead in nearshore surface water exceeds its treatment technique action level of 10 µg/L at 13 sites (see Appendix B for nearshore results).

[21] The listed critical effects systems are the toxicological endpoints for the toxicity values used to calculate RBSLs.
[22] Lead and copper are regulated by a treatment technique that requires systems to control the corrosiveness of their water.

3.9.1.4 Residential Baseline Lead Levels and Lead Screening

The matrix approach results in several ways in which a site could exceed lead screening. However, the EPA screening values of 100 and 200 mg/kg are provided for reference because the lead screening accomplished in this SLRE using the IEUBK model and site-specific information is more applicable to the lake and river exposures being evaluated. Thus, site recommendations should be based on P5 exceedances of IEUBK model results (or P5 IEUBK-derived RBSLs for upland soils) for the following reason.

Residential baseline lead levels in soil contribute to a significant portion of health risks from exposure to lead. Alone, without factoring time at recreational sites, the minimum residential baseline levels of lead contribute to exceedances of P3.5 and the high-end residential baseline levels result in an exceedance of P5. This is most evident when comparing residential soil baseline values (80, 150 and 250 mg/kg) to EPA's residential soil screening levels (100 and 200 mg/kg)[23]. Consequently, P3.5 does not allow for site-specific RBSLs for the public and private recreational receptors. Although the ALM can calculate P3.5 RBSLs for the Outdoor Worker receptors, recommendations about sites with RBSL exceedances will remain consistent with the recreational receptors and consider only P5 exceedances.

3.9.1.5 BHSS OU 3 Thresholds

Although the lake was not selected for remedial actions in the 2002 OU 3 Interim ROD, CDA Lake and the Spokane River is spatially located within the BHSS. The OU 3 recreational soil/sediment action levels for arsenic and lead are 100 mg/kg and 700 mg/kg, respectively (USEPA 2002b). Sites in OU 3 with arsenic or lead concentrations greater than these action levels are recommended for remedial actions such as capping or removal in order to be protective of human health (USEPA 2002b). Note that cleanup levels developed in the OU 3 baseline risk assessment used the lead guidance and arsenic toxicity values published at that time, prior to the lowered 2024 and 2025 values, respectively (TerraGraphics et al. 2001).

Assuming a remedy had been selected for the lake using the OU 3 ROD recreational action levels, then all sites assessed in this expanded SLRE have arsenic and lead concentrations less than the OU 3 remediation action levels. The maximum soil/sediment arsenic and lead EPCs from the 2024 dataset are 32.7 mg/kg and 467 mg/kg, respectively. Furthermore, all arsenic EPCs in the 2024 dataset meet the criteria for "clean replacement material" for remedial actions in OU 3 (concentrations less than 35 mg/kg arsenic).

3.9.2 Site-Specific Considerations and Findings

After accounting for background metals concentrations as described above, 14 sites have sediment or soil EPCs that exceed RBSLs and background concentrations in at least one DU for at least one of the quantified exposure scenarios (Table 20 and Table 21). When considering critical effects systems (per Section 3.9.1.2), three of those sites would no longer exceed soil or sediment RBSLs. These sites include Higgens Point Beaches, Site 1 (S022); CONF02; and CONF11 where the only COPC that exceeded both the RBSL (HQ = 0.1) and background concentrations was iron.

When considering MCLs, no sites exceed drinking water standards except for lead, which exceeds its treatment technique action level at 13 sites. However, as discussed in Section 3.5.2.2, lead in surface water is evaluated in a secondary screening step using the IEUBK

[23] As a reminder, recreational RBSLs and IEUBK modeling account for indoor dust ingestion. Indoor dust values were also based on regional and site-specific residential baseline levels (track-in of sediment was not accounted for in this SLRE).

model. After secondary screening, only one site results in a P5 value above 5%. This site, Cheamkwet Park (S009), also exceeds soil and sediment RBSLs and background.

Consequently, after accounting for background, critical effects systems, and MCL considerations, 11 sites continue to exceed RBSLs and background. Additional context to the exceedances at each of these 11 sites is provided below. Risks for arsenic and lead are the focus because the other COPCs likely do not pose unacceptable non-cancer risks after considering critical effects systems per Section 3.9.1. Lead is discussed when it exceeds recreational RBSLs (P5), occupational RBSLs (P5), or when IEUBK modeling calculated P5 values above 5%. Where applicable, site conditions or characteristics for specific recreation sites that shape findings are also included to provide additional context.

- **Corbin Park (S001)**: Arsenic and lead exceed their cancer and IEUBK-derived RBSLs, respectively, for soils/sediment. Lead exceeds RBSLs in the upland soil DU and arsenic slightly exceeds the Public Recreational Visitor and/or Outdoor Worker carcinogenic site-specific RBSLs for all soil/sediment DUs. Because arsenic EPCs in sediments and upland soil range from below (wet sediment) to approximately equal to or slightly above the 90% background concentration (dry sediment and upland soil, respectively), background likely contributes to most of the arsenic risk at Corbin Park.
- **Q'Emiln Park (S003):** Arsenic exceeds its carcinogenic RBSLs for sediment, soil, and surface water. However, the nearshore surface water arsenic EPC is below arsenic's MCL and the soil/sediment EPCs are slightly above or below the 90% background.
- **Atlas Waterfront Park (S007):** Arsenic exceeds cancer RBSLs for soil/sediment and surface water. The arsenic nearshore surface water concentration is below the MCL. While the measured arsenic concentrations in sediment and soil exceed background, the site's upland soil and dry sediment may have been derived from source materials other than lake and river sediment (see Section 3.4.2.1).
- **Blackwell Island (S008)**: Arsenic exceeds carcinogenic RBSLs for sediments/soil and surface water. The arsenic EPCs for upland soil and wet sediment are greater than 90% background concentration. The arsenic nearshore surface water concentration is below the MCL.
- **Cheamkwet Park (S009)**: Arsenic exceeds cancer RBSLs and lead exceeds P5 for the Public Recreational Visitor for sediments/soil and surface water. Arsenic EPCs in sediments and upland soils are slightly greater than or less than the 90th percentile background concentration. The arsenic nearshore surface water concentrations measured in the two nearshore surface water DUs are below the MCL. Because lead concentrations do not exceed recreational sediment/soil RBSLs but lead modeling results in exceedances of P5 for the combined recreational exposure to sediment/soil and surface water, a sensitivity analysis was conducted to determine the overall contribution of these media to the P5 exceedances for the minimum and average residential baseline exposure scenarios. When IEUBK modeling is completed using only sediment (no surface water contribution), P5 for these scenarios is below 5% (3.3% for the minimum residential baseline scenario and 4.6% for the average baseline scenario). Thus, surface water does contribute to the predicted BLLs at this recreation site. Nearshore surface water samples were collected after agitating sediments; therefore, this indicates the combination of nearshore surface water and sediment lead concentrations contributes to the lead health risk at this site.

- **Yap-Keehn-Um Beach (S010)**: Arsenic exceeds cancer RBSLs for sediments/soil and surface water. Arsenic EPCs in dry and wet sediments are slightly below and slightly above the 90% background concentration, respectively. The arsenic nearshore surface water concentration is below the MCL. Background likely contributes to a majority of the risks from exposure to arsenic at this recreation site.
- **Boardwalk Park Public Beach (S012)**: Arsenic exceeds cancer RBSLs for sediment/soil. Arsenic EPCs in dry and wet sediments are above and slightly below the 90% background concentration, respectively.
- **Sanders Beach West (S016)**: Arsenic exceeds cancer RBSLs for sediment/soil. Arsenic EPCs in dry and wet sediments are above and slightly below the 90% background concentration, respectively.
- **Higgens Point Day Use (S020)**: Arsenic exceeds cancer RBSLs for sediment/soil and surface water. Arsenic EPCs in dry and wet sediments are above the 90% background concentration. The arsenic nearshore surface water concentration is below the MCL.
- **CONF05**: Arsenic exceeds carcinogenic RBSLs for sediment/soil and surface water. Arsenic EPC for upland soil is slightly greater than 90% background concentrations and the dry and wet sediments are slightly below. The arsenic nearshore surface water concentration is below the MCL. Background likely contributes to a majority of the risks from exposure to arsenic at this recreation site.
- **CONF07**: Arsenic exceeds carcinogenic RBSLs for sediment/soil and surface water. Except for one dry sediment DU, arsenic concentrations in all other sediment/soil DUs are equal to or less than the 90% background value. The arsenic nearshore surface water concentrations are below the MCL. Background likely contributes to a majority of the risks from exposure to arsenic at this recreation site.

All arsenic and lead EPCs at these 11 sites are less than the BHSS OU 3 action levels of 100 mg/kg and 700 mg/kg, respectively. Furthermore, all arsenic EPCs meet the criteria for "clean replacement material" for remedial actions in OU 3 (concentrations less than 35 mg/kg arsenic).

Section 4 Conclusions and Recommendations

Overall, this expanded SLRE shows that metals are present in sediment, soil, and surface water samples collected from private and public recreation sites located across CDA Lake and the Spokane River. Data also show concentrations of metals vary across the lake and river and that they exceed conservative RBSLs at some recreation sites and DUs. While there are exceedances of RBSLs, this expanded SLRE also indicates that many of these exceedances may be attributed, in part, to background levels or using conservative screening levels (e.g., non-cancer HQ of 0.1). The following sections summarize conclusions of this expanded SLRE and provide recommendations for the sites that were evaluated.

4.1 Conclusions

The following conclusions are based on the expanded SLRE findings that include the additional risk considerations.

- **Bioavailability:** Data support that site-specific bioavailability for lead and arsenic sediment and upland soils tend to be lower than default values used in the IEUBK model and EPA RSL calculator.

- **Surface Water:** Data show that COPC levels in surface water are unlikely to pose unacceptable health risks while recreating or working in surficial waters.
    - Open water EPCs are below all RBSLs and MCLs for all COPCs for all exposure scenarios.
    - Nearshore surface water EPCs for all non-lead COPCs are below RBSLs, except for arsenic. Several sites have nearshore surface water EPCs that exceed arsenic cancer RBSLs based on a target of 1×10^{-5}. However, the arsenic concentrations at these sites are below the MCL. For lead, nearshore surface water and sediment contribute to the exceedance of P5 at Cheamkwet Park.
- **Primary Risk Drivers:** Arsenic and lead are the primary reasons for upland soil, dry sediment, and wet sediment screening exceedances.
    - Arsenic and lead exceed screening levels based on a target risk of 1×10^{-5}, HQ = 0.1, or P5. These include DUs with arsenic bioavailability data, despite results that are far less than default values. When considering critical effects systems for noncarcinogenic health effects, arsenic is not expected to contribute to unacceptable non-cancer health risks. While other metals (cadmium, iron, and manganese) exceed their respective non-cancer RBSLs at some sites, these exceedances are fewer (cadmium was not detected above its cancer RBSLs and the two other metals are not evaluated as carcinogens). When considering critical effects systems for noncarcinogenic health effects, these metals are not expected to contribute to unacceptable non-cancer health risks.
- **Concentration Trends:** Although direct comparisons between these 2024 metals concentrations and the 1999 SLRA-CUA are not advised due to differences in sample collection and analysis methods, the concentrations overall did not greatly differ. The data indicate similar or slightly decreased levels of metals between 2024 and the 1999 SLRA-CUA.
- **Impacts above Background:** Data indicate that levels of some metals, especially antimony, cadmium, copper, manganese, mercury, lead, and zinc, are likely above background at some recreational sites, indicating impacts from metals contamination likely from the BHSS.
- **Contribution of Background to Site Risks:** Data indicate that background levels of metals, especially arsenic, could contribute to a significant portion, if not all, of the overall cancer and non-cancer risk (depending on the recreation site). The upper-bound regional sediment arsenic background concentration is higher than all of the arsenic cancer and non-cancer RBSLs, and many of the bioavailability-adjusted arsenic RBSLs.
- **Sites above RBSLs and Background, Factoring in Additional Risk Considerations:** Eleven (11) sites have EPCs that exceed arsenic cancer RBSLs and arsenic background levels, or exceed P5 for lead screening. The lead and arsenic concentrations at these 11 sites are all less than the OU 3 action levels of 700 mg/kg and 100 mg/kg, respectively, and the arsenic concentrations are within criteria for clean replacement material for OU 3. The 11 recreation sites are:
    - Corbin Park (S001)

  - Q'Emiln Park (S003)
  - Atlas Waterfront Park (S007)
  - Blackwell Island (S008)
  - Cheamkwet Park (S009)
  - Yap-Keehn-Um Beach (S010)
  - Boardwalk Public Beach (S012)
  - Sanders Beach West (S016)
  - Higgens Point Day Use (S020)
  - 2 privately owned sites (CONF05 and CONF07)

- **Sites Below Non-Arsenic RBSLs and Background, Factoring in Additional Risk Considerations:** Twenty-one (21) sites are unlikely to pose unacceptable health risks to recreators and outdoor workers. DU EPCs do not exceed RBSLs or if they exceed RBSLs, they are within local background concentrations (e.g., arsenic). Although three sites included in this list have DU EPCs above RBSLs, consideration of target organ toxicity (or critical effects systems) and drinking water standards results in the conclusion that they are unlikely to pose unacceptable risk. The 21 recreation sites are:
  - Greensferry Park (S004)
  - Tubbs Hill West Beach, Site 1 (S013)
  - Tubbs Hill South Beach, Site 2 (S014)
  - Tubbs Hill East Beach, Site 3 (S015)
  - Sanders Beach Public (S017)
  - Higgens Point Beaches, Site 2 (S021)
  - Higgens Point Beaches, Site 1 (S022)
  - Mica Bay Boater Park (S033)
  - Loff's Bay (S036)
  - Carlin Bay (S038)
  - Rockford Bay Public Access (S041)
  - Windy Bay (S044)
  - Bell Bay Campground (S046)
  - Rocky Point (S058)
  - 7 privately owned sites (CONF02, CONF03, CONF04, CONF06, CONF08, CONF09, CONF11).
- **Lead and Arsenic Concentrations and BHSS OU 3 Action Levels:** All sites assessed in this SLRE have lead and arsenic soil/sediment EPCs below the OU 3 action levels for remedial action. In addition, arsenic EPCs meet the OU 3 criteria for "clean replacement material."

- **Qualitative Evaluations:** A Tribal Recreational Resident receptor, as well as other public or private recreational receptors that regularly engage in soil/sediment intensive activities such as harvesting aquatic plants and/or consume aquatic and nearshore terrestrial plants and animals, likely have higher exposures to metals than those quantified in this SLRE. Tribal members practicing cultural activities that involve these types of exposures are potentially at higher risk. However, the magnitude is uncertain until complex modeling or plant and animal tissue sampling occurs.
- **Arsenic**: The 2025 lowered arsenic toxicity values mean lower screening concentrations (regardless of low site-specific bioavailability). Lower screening concentrations will likely be nearer background concentrations in multiple areas of the United States. Consequently, arsenic cancer risk becomes a challenge that is not unique to recreating and working on CDA Lake and the Spokane River. Additionally, remediation strategies for soil and sediment with arsenic concentrations that are near background levels create technical and economic feasibility challenges.

4.2 Recommendations

Based on the expanded SLRE outcomes, 11 sites warrant future consideration when or if the new arsenic and lead guidance is evaluated site-wide for the BHSS. Risk management decisions should be consistent within a Superfund site, even if remedial actions were deferred for CDA Lake.

The following recommendations are provided should future or additional data evaluation occur:

- Refine the CSM for further evaluation of health risks (such as a baseline risk evaluation), including:
  - Evaluate exposure on an EU basis, not DU-by-DU basis (as is done for a screening level risk evaluation). Site EPCs based on EUs may better reflect actual exposures at a site and may further refine the number of sites with a potential human health risk.
  - Evaluate the Construction Worker scenario.
  - Semi-quantitatively evaluate the Tribal Recreational Resident scenario.
- Evaluate the feasibility of remediating soils/sediment with arsenic concentrations that are near background levels to understand the technical, logistical, and economic factors associated with various remedial alternatives.

References

[Alta] Alta Science and Engineering, Inc. 2024a. Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River – Work Plan [Final]. Moscow, Idaho. 302 p.

[Alta] Alta Science and Engineering, Inc. 2024b. Sampling and Analysis Plan (SAP)/ Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River [Revision 0]. Kellogg, Idaho. 95 p.

ATSDR Division of Health Studies. 2025. Minimum Risk Levels. [place unknown]. https://www.atsdr.cdc.gov/mrls/index.html.

Dufour AP, Evans O, Behymer, TD, Cantu, R. 2006. Water ingestion during swimming activities in a pool: a pilot study. Journal of Water and Health. 4(4):425–430. https://pubmed.ncbi.nlm.nih.gov/17176813/.

Freeman GB, Johnson JD, Killinger JM, Liao SC, Feder PI, Davis AO, Ruby MV, Chaney RL, Lovre SC, Bergstrom PD. 1992. Relative bioavailability of lead from mining waste soil in rats. Fundam Appl Toxicol. 19(3):388–398. eng. doi:10.1016/0272-0590(92)90178-k.

Gott GB, Cathrall JB. 1980. Geochemical-exploration studies in the Coeur d'Alene District, Idaho and Montana. [place unknown]. 69 p. Geological Survey Professional Paper 1116.

[IDHW] Idaho Department of Health and Welfare. 2020. Letter Health Consultation: Coeur d'Alene Basin Fish Tissue Analysis and Consumption Advisory. [place unknown]. https://healthandwelfare.idaho.gov/sites/default/files/2020-06/CDA_Basin_Fish_Advisory_LHC.pdf.

[ITRC] Interstate Technology & Regulatory Council. 2020. Incremental Sampling Methodology (ISM) Update (ISM-2). Washington, D.C.: Interstate Technology & Regulatory Council, ISM-2 Team. https://ism-2.itrcweb.org/.

Kootenai County. 2025. Is the water level of Lake Coeur d'Alene going to change. [place unknown]. https://kcgov.us/FAQ.aspx?QID=296.

[NAS] National Academies of Sciences, Engineering, and Medicine. 2022. The Future of Water Quality in Coeur d'Alene Lake (2022). Washington, DC: The National Academies. 387 p. https://doi.org/10.17226/26620.

[NRC] National Research Council. 2005. Superfund and Mining Megasites: Lessons from the Coeur d'Alene River Basin. Washington, D.C.: National Academies Press. 504 p. ISBN: 0-309-09712-4. https://www.nap.edu/catalog/11359/superfund-and-mining-megasites-lessons-from-the-coeur-dalene-river.

Petrosyan V, von Braun MC, Spalinger S, von Lindern IH. 2006 Jan. Seasonal variations of lead concentration and loading rates in residential house dust in northern Idaho. Journal of Hazardous Materials. 132(2006):68–79.

Rieuwerts JS, Thornton I, Farago ME, Ashmore MR. 2015. Factors influencing metal bioavailability in soils: Preliminary investigations for the development of a critical loads approach for metals. Chemical Speciation & Bioavailability. 10(2):61–75. doi:10.3184/095422998782775835.

Spalinger S, von Braun MC, Petrosyan V, von Lindern IH. 2007. Northern Idaho House Dust and Soil Lead Levels Compared to the Bunker Hill Superfund Site. Environ Monit Assess. 130:57–72.

[TerraGraphics] TerraGraphics Environmental Engineering, Inc., URS Greiner, [CH2M Hill] CH2M Hill, Inc. 2001. Human Health Risk Assessment (HHRA) for the Coeur d'Alene Basin extending from Harrison to Mullan on the Coeur d'Alene River and tributaries: Remedial Investigation/Feasibility Study (RI/FS) [Final]. [place unknown]. 2526 p.

URS Greiner, Inc., [CH2M Hill] CH2M Hill, Inc. 1998. Field sampling plan and Quality Assurance Project Plan addenda for the Bunker Hill basin-wide RI/FS: Common access areas: upland common use areas and lower basin recreational beaches; sediment/soil, surface water, and drinking water supply characterization [Addendum 05]. Seattle, Washington.

URS Greiner, Inc., [CH2M Hill] CH2M Hill, Inc. 2001. Remedial Investigation Report for the Coeur d'Alene Basin Remedial Investigation/Feasibility Study [Final (Revision 2)]. I. [place unknown]: U.S. Environmental Protection Agency. URSG DCN 4162500.6615.05.a. Prepared by URS Greiner, Inc. and CH2M Hill for U.S. Environmental Protection Agency Region 10.

URS Greiner, Inc., [CH2M Hill] CH2M Hill, Inc., Syracuse Research Corporation. 1999. Coeur d'Alene Basin RI/FS Expedited Screening Level Risk Assessment for Common Use Areas Coeur d'Alene Basin, Idaho [Draft Final]. [place unknown]. 291 p.

[USEPA] U.S. Environmental Protection Agency. 1989. Risk Assessment Guidance for Superfund Volume I-Human Health Evaluation Manual (Part A) [Interim Final]. I. [place unknown]: U.S. Environmental Protection Agency. https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.

[USEPA] U.S. Environmental Protection Agency. 1991. EPA Superfund Record of Decision: Bunker Hill Mining & Metallurgical Complex: OU1, Smelterville, ID [EPA ID: IDD048340921]. [place unknown]: U.S. Environmental Protection Agency. 42 p. EPA/ROD/R10-91/028.

[USEPA] U.S. Environmental Protection Agency. 1994a. Method 200.7: Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry [Revision 4.4]. Cincinnati, Ohio. https://www.epa.gov/sites/default/files/2015-06/documents/epa-200.7.pdf.

[USEPA] U.S. Environmental Protection Agency. 1994b. Method 200.8: Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry [Revision 5.4]. Cincinnati, Ohio. https://www.epa.gov/esam/method-2007-determination-metals-and-trace-elements-water-and-wastes-inductively-coupled.

[USEPA] U.S. Environmental Protection Agency. 1994c. Method 7470A: mercury in liquid waste (manual cold-vapor technique). 1st ed. [place unknown]: [publisher unknown]. September 1994; [updated September 1994].

[USEPA] U.S. Environmental Protection Agency. 1996. Method 3050B Acid Digestion of Sediments, Sludges, and Soils: SW-846 [Revision 2]. Washington D.C. https://www.epa.gov/sites/default/files/2015-06/documents/epa-3050b.pdf.

[USEPA] U.S. Environmental Protection Agency. 1997. Health Effects Assessment Summary Tables (HEAST). Washington, D.C.

[USEPA] U.S. Environmental Protection Agency. 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. [place unknown]. https://www.epa.gov/superfund/superfund-soil-screening-guidance.

[USEPA] U.S. Environmental Protection Agency. 2002b. The Bunker Hill Mining and Metallurgical Complex Operable Unit 3 Record of Decision. [place unknown]: U.S. Environmental Protection Agency.

[USEPA] U.S. Environmental Protection Agency. 2003. Assessing Intermittent or Variable Exposures at Lead Sites. Washington, D.C. EPA-540-R-03-008. https://semspub.epa.gov/work/HQ/176288.pdf.

[USEPA] U.S. Environmental Protection Agency. 2007a. Method 7471B Mercury in Solid or Semisolid Waste: SW-846 [Revision 2]. [place unknown]. https://www.epa.gov/sites/default/files/2015-12/documents/7471b.pdf.

[USEPA] U.S. Environmental Protection Agency. 2007b. Estimation of Relative Bioavailability of Lead in Soil and Soil-Like Materials Using *in Vivo* and *in Vitro* Methods [Technical Support Document; Memorandum]. Washington, D.C.: U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response. OSWER 9285.7-77. https://nepis.epa.gov/Exe/ZyPDF.cgi/93001C2U.PDF?Dockey=93001C2U.PDF.

[USEPA] U.S. Environmental Protection Agency. 2012. Compilation and Review of Data on Relative Bioavailability of Arsenic in Soil. Washington, D.C. OSWER 92001.1-113. https://semspub.epa.gov/work/HQ/175339.pdf.

[USEPA] U.S. Environmental Protection Agency. 2014. Method 6020B Inductively Coupled Plasma-Mass Spectrometry: SW-846 [Revision 2]. [place unknown]. https://www.epa.gov/sites/default/files/2015-12/documents/6020b.pdf.

[USEPA] U.S. Environmental Protection Agency. 2016a. Review of the National Ambient Air Quality Standards for Lead, Final Rule. Federal Register. 81(201):71906.

[USEPA] U.S. Environmental Protection Agency. 2016b. Recommendations for Sieving Soil and Dust Samples at Lead Sites for Assessment of Incidental Ingestion. [place unknown]. OLEM Directive 9200.1-128. https://semspub.epa.gov/work/HQ/100000133.pdf.

[USEPA] U.S. Environmental Protection Agency. 2017a. Update of the Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters and the Integrated Exposure Uptake Biokinetic Model's Default Maternal Blood Lead Concentration at Birth Variable. Washington, D.C.: U.S. Environmental Protection Agency Office of Land and Emergency Management. 12 p. OLEM Directive 9285.6-56; [accessed 2019 Oct 18]. https://semspub.epa.gov/work/HQ/196766.pdf.

[USEPA] U.S. Environmental Protection Agency. 2017b. Release of Standard Operating Procedure for an In Vitro Bioaccessibility Assay for Lead and Arsenic in Soil and Validation Assessment of the In Vitro Arsenic Bioaccessibility Assay for Predicting Relative Bioavailability of Arsenic in Soils and Soil-like Materials at Superfund Sites. Washington, D.C. https://clu-in.org/download/contaminantfocus/arsenic/arsenic-SOP-OLEM-9200.2-164.pdf.

[USEPA] U.S. Environmental Protection Agency. 2017c. Recommendations for Default Age Range in the lEUBK Model. Washington, D.C.: U.S. Environmental Protection Agency Office of Land and Emergency Management. OLEM Directive 9200.2-177. Prepared by the Technical Review Workgroup for Metals and Asbestos. https://semspub.epa.gov/work/HQ/100000689.pdf.

[USEPA] U.S. Environmental Protection Agency. 2018. Method 6010D Inductively Coupled Plasma-Atomic Emission Spectrometry: SW-846 [Revision 5]. Washington D.C. https://www.epa.gov/sites/default/files/2015-12/documents/6010d.pdf.

[USEPA] U.S. Environmental Protection Agency. 2019. Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids. Washington D.C.: National Center for Environmental Assessment Office of Research and Development. EPA/540/R/99/005. https://www.epa.gov/sites/default/files/2019-02/documents/efh_-_chapter_3_update.pdf.

[USEPA] U.S. Environmental Protection Agency. 2023. Regional Screening Levels (RSLs) User's Guide. [place unknown]. https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

[USEPA] U.S. Environmental Protection Agency. 2024a. Updated Residential Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. Washington, D.C. 10 p. https://www.epa.gov/system/files/documents/2024-01/olem-residential-lead-soil-guidance-2024_signed_508.pdf.

[USEPA] U.S. Environmental Protection Agency. 2024b. Assessing Intermittent or Variable Exposures at Lead Sites, Office of Superfund Remediation and Technology Innovation. Washington, D.C. https://www.epa.gov/system/files/documents/2024-08/assessing-intermittent-or-variable-exposures-at-lead-sites.pdf.

[USEPA] U.S. Environmental Protection Agency. 2025a. Integrated Risk Information System (IRIS). [place unknown].

[USEPA] U.S. Environmental Protection Agency. 2025b. Provisional Peer-Reviewed Toxicity Value (PPRTVs. [place unknown]. https://www.epa.gov/pprtv.

[USEPA] U.S. Environmental Protection Agency. 2025c. 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. [place unknown]. https://semspub.epa.gov/work/HQ/100003672.pdf.

[USEPA] U.S. Environmental Protection Agency Region 10. 2001. Technical Memorandum (Rev. 3) Estimation of Background Concentrations in Soil, Sediment, and Surface Water in the Coeur d'Alene and Spokane River Basins [Final]. [place unknown].

[USGS] U.S. Department of the Interior Geological Survey. 1998. Production And Disposal Of Mill Tailings In The Coeur d' Alene Mining Region, Shoshone County, Idaho; Preliminary Estimates. [place unknown]. Open-File Report 98-595. https://pubs.usgs.gov/of/1998/0595/report.pdf.

[USGS] U.S. Department of the Interior Geological Survey. 2008. NGS Geochemistry by County. [place unknown]. https://mrdata.usgs.gov/geochem/doc/averages/countydata.htm.

Tables

Table 6. Surface Water RBSLs

Analyte	Private Recreational Resident RBSLs (µg/L)		Public Recreational Visitor RBSLs (µg/L)		Outdoor Worker RBSLs (µg/L)	
	Cancer	Non-cancer	Cancer	Non-cancer	Cancer	Non-cancer
Antimony	-	28.1	-	42.1	-	44.9
Arsenic	2.01	5.42	3.01	8.12	1.19	8.15
Cadmium	-	4.6	-	6.9	-	8.0
Copper	-	3,610	-	5,420	-	5,430
Iron	-	63,200	-	94,800	-	95,100
Lead	-	-[2]	-	-[2]	-	-[3]
Manganese		981		1,470		1,730
Mercury	-	16.2	-	24.3	-	27.3
Zinc	-	27,600	-	41,500	-	41,400

Notes:

µg/L = micrograms per Liter

[1] Source: https://www3.epa.gov/region1/npdes/remediation/FinalAppendixVII.pdf

[2] Surface water RBSLs for recreational receptors are dependent on sediment lead concentrations. See Alta (2024).

[3] Methods to calculate RBSLs for occupational exposures to surface water are not currently available (Alta, 2024).

Non-cancer = noncarcinogenic, based on HQ=0.1

Cancer = carcinogenic, based on 10^{-5}

- not applicable

Alta Science & Engineering, Inc. (Alta), 2024. Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River - Work Plan. February 5, 2024.

Table 7. Sediment/Upland Soil Non-Lead COPCs RBSLs

Analyte	Private Recreational Resident RBSL (mg/kg)		Public Recreational Visitor RBSL (mg/kg)		Outdoor Worker RBSL (mg/kg)	
	Cancer	Non-cancer	Cancer	Non-cancer	Cancer	Non-cancer
Antimony	-	15.2	-	22.8	-	51.9
Arsenic*	1.74	3.52	2.6	5.28	1.56	10.7
Cadmium	4.64E+05	3.58	6.96E+05	5.4	1.00E+05	11.1
Copper	-	1,520	-	2,280	-	5,190
Iron	-	26,600	-	39,900	-	90,800
Manganese	-	907	-	1,360	-	2,850
Mercury	-	11.4	-	17.1	-	38.9
Zinc	-	11,400	-	17,100	-	38,900

Notes:

* For sites with no site-specific bioavailability data. Where bioavailability data are available, site-specific RBSLs are calculated and presented separately.

mg/kg = milligrams per kilogram

Non-cancer = noncarcinogenic, based on HQ=0.1

Cancer = carcinogenic, based on 10^{-5}

- not applicable

Table 8. Bioavailability-Adjusted Sediment/Upland Soil Arsenic RBSLs

Site Name	Site ID	DU	Type	Public/Private	RBSL - Recreational (mg/kg)		RBSL - Outdoor Worker (mg/kg)	
					Non-cancer	Cancer	Non-cancer	Cancer
Corbin Park	S001	DU01	US	Public	33.2	14.7	42.5	6.22
		DU02	DS	Public	27.2	12.3	37.8	5.53
		DU03	WS	Public	19.8	9.24	30.8	4.50
CONF01	CONF01	DU03	WS	Public	28.8	13.0	39.1	5.72
Atlas Waterfront Park	S007	DU01	DS	Public	28.8	13.0	39.1	5.72
		DU03	DS	Public	29.2	13.1	39.4	5.77
Blackwell Island	S008	DU01	US	Public	38.2	16.7	45.8	6.71
		DU02	WS	Public	48.4	20.4	51.6	7.56
Cheamkwet Park	S009	DU01	US	Public	27.2	12.3	37.8	5.53
		DU02	DS	Public	34.2	15.2	43.2	6.33
		DU03	WS	Public	27.7	12.5	38.2	5.59
Yap-Keehn-Um Beach	S010	DU01	DS	Public	28.8	13.0	39.1	5.72
		DU02	WS	Public	32.9	14.6	42.3	6.19
Higgens Point Day Use	S020	DU02	WS	Public	58.1	23.7	56.0	8.21
CONF05	CONF05	DU01	US	Private	15.8	7.27	34.7	5.08
CONF06	CONF06	DU01	DS	Private	22.8	10.1	43.2	6.33
Carlin Bay	S038	DU01	DS	Public	35.1	15.5	43.8	6.41
CONF07	CONF07	DU06	DS	Private	8.66	4.14	22.7	3.31
Bell Bay Campground	S046	DU01	US	Public	18.5	8.69	29.4	4.30
CONF08	CONF08	DU02	WS	Public	44.9	19.1	49.8	7.29

Notes:
Non-cancer = noncarcinogenic, based on HQ=0.1
Cancer = carcinogenic, based on 10^{-5}
US = upland soil, DS = dry sediment, WS = wet sediment
mg/kg = milligrams per kilogram

Table 9. Sediment/Upland Soil Lead RBSLs

Analyte	EPA Residential Screening Values*		Outdoor Worker RBSL (mg/kg) - Target BLLs**		Residential "Baseline" Property Lead Concentrations[1]	Private Recreational Resident RBSL (mg/kg)- Target BLLs[2]		Public Recreational Visitor RBSL (mg/kg) - Target BLLs[2]	
			P(5)	P(3.5)		P(5)	P(3.5)	P(5)	P(3.5)
Lead	100	200	511	297	Minimum: Soil = 80; Dust = 130	420	-[3]	590	-[3]
					Average: Soil = 150; Dust = 130	330	-[3]	410	-[3]
					Maximum: Soil = 250; Dust = 350	-[3]	-[3]	-[4]	-[3]

Notes:

All sediment/soil RBSLs are in mg/kg = milligrams per kilogram

* See USEPA (2024).

**Based on National Geometric Standard Deviation and Background Blood lead concentration (geometric mean), as recommended based on single national estimates from using data from NHANES 2007-2012 (USEPA, 2017a). In addition, site-specific P(3.5) RBSLs were calculated for Site S001 (DU01) and S009 (DU02) using bioavailability data and are 398 mg/kg and 335 mg/kg, respectively.

- not applicable

[1] Recreational RBSLs are based on a range of residential "Baseline" Property Lead Concentrations. See Alta (2024).

[2] Lead RBSLs shown at varying target blood lead levels. For additional information on target BLLs, see Alta (2024).

[3] Calculated RBSL is below residential baseline level. See Appendix C of the SLRE Work Plan (Alta, 2024).

[4] RBSL was not calculated. P3.5 or P5 value exceeds 5% at residential baseline concentration.

P5 and P3.5 = probability of exceeding a blood level of 5 or 3.5 µg/dL (micrograms per deciliter)

Alta Science & Engineering, Inc. (Alta), 2024. Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River - Work Plan. February 5, 2024.

Table 10. EPC Derivation Summary by Media and Sample Type

Media	Sample Type	EPC
Dry Beach/Shoreline Sediments (Above waterline)	ISM Samples	Follow ITRC guidance for calculating UCL using the ISM Calculator or Pooled Variance UCL[1]
Saturated Beach Sediments (Below waterline and under 3 feet of water or less)		
Upland Soils		
Nearshore Surface Water (at beaches; 3 feet of water or less)	Composite Samples	Sample result, or when a field duplicate is collected, the maximum of the original and field duplicate results
Deep or Open Water Surface Water		

Note: [1] (ITRC 2020)

Table 11. Estimated Lead Risks – Private and Public Recreators

Site Name	Site ID	Public/ Private	P5 (%)		P3.5 (%)	
			80/130*	150/130**	80/130*	150/130**
Corbin Park	S001	Public	2.9	4.2	**13**	**17**
Q'Emiln Park	S003	Public	2.3	3.5	**11**	**15**
Greensferry Park	S004	Public	1.6	2.5	**8.3**	**11**
Atlas Waterfront Park	S007	Public	1.6	2.4	**8.2**	**11**
Blackwell Island	S008	Public	1.7	2.6	**8.5**	**12**
Cheamkwet Park	S009	Public	**6.6**	**8.5**	**23**	**27**
Yap-Keehn-Um Beach	S010	Public	2.2	3.3	**10**	**14**
Boardwalk Public Beach	S012	Public	1.6	2.5	**8.5**	**12**
Tubbs Hill West, 1	S013	Public	1.5	2.3	**7.9**	**11**
Tubbs Hill South, 2	S014	Public	1.8	2.8	**9.1**	**12**
Tubbs Hill East, 3	S015	Public	1.6	2.5	**8.3**	**11**
Sanders Beach West	S016	Public	1.6	2.5	**8.4**	**12**
Sanders Beach Public	S017	Public	1.6	2.5	**8.2**	**11**
Higgens Point Day Use	S020	Public	1.6	2.4	**8.1**	**11**
Higgens Point Beach, 2	S021	Public	2.1	3.1	**10**	**13**
Higgens Point Beach, 1	S022	Public	1.5	2.3	**7.9**	**11**
CONF02	CONF02	Private	2.0	2.7	**9.6**	**12**
CONF03	CONF03	Private	1.6	2.3	**8.2**	**11**
CONF04	CONF04	Private	1.6	2.3	**8.3**	**11**
CONF05	CONF05	Private	2.3	3.1	**11**	**14**
Mica Bay Boater Park	S033	Public	1.7	2.6	**8.6**	**12**
Loff's Bay	S036	Public	1.6	2.5	**8.2**	**11**
CONF06	CONF06	Private	2.2	3.1	**11**	**13**
Carlin Bay	S038	Public	2.7	3.9	**12**	**16**
Rockford Bay	S041	Public	-	-	-	-
CONF07	CONF07	Private	2.2	3.0	**10**	**13**
Windy Bay	S044	Public	-	-	-	-
Bell Bay Campground	S046	Public	-	-	-	-
CONF08	CONF08	Public	2.4	3.5	**11**	**15**
CONF09	CONF09	Public	1.7	2.6	**8.5**	**12**
Rocky Point	S058	Public	1.4	2.2	**7.5**	**11**
CONF11	CONF11	Private	1.6	2.3	**8.4**	**11**

Notes:
P(5) and P(3.5) = probability of exceeding a blood level of 5 or 3.5 µg/dL (micrograms per deciliter) in IEUBK model

*Soil and dust inputs assume minimum baseline residential property lead concentration (soil = 80 mg/kg and dust = 130 mg/kg).

**Soil and dust inputs assume average baseline residential property lead concentration (soil = 150 mg/kg and dust = 130 mg/kg).
- Site does not have both nearshore surface water and sediment data; therefore, IEUBK modeling is not completed.

Bold, gray cells indicate an exceedance of either P3.5 (%) or P5 (%)

Table 12. Nearshore Surface Water EPCs – Private Recreational Resident and Outdoor Workers

		Analyte (µg/L)							
		Antimony	Arsenic	Cadmium	Copper	Iron	Manganese	Mercury	Zinc
Private Recreational RBSL** - NC		28.1	5.42	4.6	3,610	63,200	981	16.2	27,600
Private Recreational RBSL* - C			2.01						
Outdoor Worker RBSL** - NC		44.9	8.15	8.0	5,430	95,100	1,730	27.3	41,400
Outdoor Worker RBSL* - C			1.19						
Site ID	DU	EPC							
CONF02	DU03	1.00 U	**2.41**	1.50	5.84	4,790	121	0.20 U	230
CONF03	DU02	1.00 U	1.00 U	0.32	1.43	491	15.2 J	0.20 U	44.9 J-
CONF04	DU02	1.00 U	1.00 U	0.13	0.72	394	11.7	0.20 U	41.1
CONF05	DU03	1.00 U	**1.34**	1.13	2.60	2,180	54.0	0.20 U	141
CONF06	DU05	1.00 U	1.00 U	0.51	1.62	902	69.7	0.20 U	79.5
CONF06	DU02	1.00 U	1.00 U	0.33	1.64	480	37.4	0.20 U	47.6
CONF07	DU05	1.00 U	1.02	0.75	2.83	1,670	55.9	0.20 U	86.0
CONF07	DU03	1.00 U	**1.98**	0.79	7.21	8,640	105	0.20 U	123
CONF07	DU07	1.00 U	**1.31**	1.02	2.72	2,680	64.8	0.20 U	100
CONF11	DU03	1.00 U	**1.43**	1.07	4.47	4,290	82.3	0.20 U	119

Notes:

* C = cancer RBSLs based on 10^{-5}

** NC = noncancer RBSLs based on HQ=0.1.

Lead EPCs are not presented because surface water RBSLs for recreational receptors are dependent on sediment lead concentrations and methods to calculate RBSLs for occupational exposures to surface water are not available.

µg/L = micrograms per Liter

Bold, gray cells indicate an exceedance of the lowest RBSL.

U = The analyte was not detected below the limit of detection shown.

J = The result is an estimated quantity based on the data quality review.

J- = Estimate biased low.

Table 13. Nearshore Surface Water EPCs – Public Recreational Visitors and Outdoor Workers

			Analyte (µg/L)													
			Antimony		Arsenic		Cadmium	Copper	Iron	Manganese		Mercury		Zinc	
Public Recreational RBSL**- NC			42.1		8.12		6.9	5,420	94,800	1,470		24.3		41,500	
Public Recreational RBSL* - C					3.01										
Outdoor Worker RBSL** - NC			44.9		8.15		8.0	5,430	95,100	1,730		27.3		41,400	
Outdoor Worker RBSL* - C					1.19										
Site Name	**Site ID**	**DU**	**EPC (µg/L)**												
Corbin Park	S001	DU03	1.00	U	1.12		1.50	2.50	1,310	48.6		0.20	U	134	
CONF01	CONF01	DU03	1.00	U	**1.45**		0.86	4.12	3,250	68		0.20	U	248	
Greensferry Park	S004	DU03	1.00	U	1.00	U	0.17	1.76	489	27.5		0.20	U	46.9	
Atlas Waterfront Park	S007	DU02	1.00	U	1.00	U	0.14	1.18	887	30.6		0.20	U	29.1	
	S007	DU04	1.00	U	**1.80**		0.28	4.47	2,470	77.6		0.20	U	62.5	
Blackwell Island	S008	DU02	1.00	U	**1.83**		0.30	2.89	2,620	83.4		0.20	U	80.5	
Cheamkwet Park	S009	DU03	1.00	U	**2.33**		2.41	25.9	3,760	184	J-	0.31		296	J-
	S009	DU05	1.00	U	**2.54**		1.13	4.80	3,600	166	J-	0.20	U	338	J-
Yap-Keehn-Um Beach	S010	DU02	1.00	U	**1.52**		1.01	3.43	2,040	98.3	J-	0.20	U	233	J-
Boardwalk Public Beach	S012	DU02	1.00	U	1.00	U	0.25	1.11	761	25.5	J-	0.20	U	57.4	J-
	S012	DU04	1.00	U	1.00	U	0.23	0.94	432	13.2	J-	0.20	U	47.2	J-
Tubbs Hill West, 1	S013	DU02	1.00	U	1.00	U	0.46	1.62	853	19.0		0.20	U	62.1	
Tubbs Hill South, 2	S014	DU02	1.00	U	1.00	U	1.04	1.96	455	36.6		0.20	U	94.2	
Tubbs Hill East, 3	S015	DU02	1.00	U	1.00	U	0.32	1.75	431	16.9		0.20	U	45.3	
Sanders Beach West	S016	DU02	1.00	U	1.00	U	0.86	0.95	178	9.41	J+	0.20	U	56.8	
Sanders Beach Public	S017	DU02	1.00	U	1.00	U	0.38	1.77	812	18.9	J-	0.20	U	87.6	J-
Higgens Point Day Use	S020	DU02	1.00	U	**3.27**		0.21	4.75	5,500	45.6		0.20	U	57.9	
Higgens Point Beach, 2	S021	DU02	1.00	U	**1.63**		1.96	9.56	6,410	106		0.20	U	275	
Higgens Point Beach, 1	S022	DU02	1.00	U	**1.52**		0.89	4.88	3,850	64.9		0.20	U	123	
Mica Bay Boater Park	S033	DU03	1.00	U	**6.00**		1.85	13.9	9,080	227		0.20	U	269	
Loff's Bay	S036	DU02	1.00	U	1.00	U	0.53	2.71	2,540	36.4	J-	0.20	UJ	73.6	
Carlin Bay	S038	DU02	1.00	U	1.00	U	1.26	3.77	1,170	J	41.9		0.20	U	104	
Bell Bay Campground	S046	DU02	1.00	U	1.02		1.08	1.95	1,230		67.0		0.20	U	94.6	
CONF08	CONF08	DU02	1.00	U	**1.22**		1.00	2.18	1,790		88		0.20	U	103	
CONF09	CONF09	DU03	1.00	U	**1.27**		0.72	3.39	2,960		78		0.20	U	85.9	
CONF10	CONF10	DU02	1.00	U	**1.28**		0.10	U	2.27	2,080		66		0.20	U	6.8	

Notes:

*C = cancer RBSLs based on 10^{-5}, **NC = Noncancer RBSLs based on HQ=0.1, µg/L = micrograms per Liter

Bold, gray cells indicate an exceedance of the lowest RBSL.

Surface water RBSLs for recreational receptors are dependent on sediment lead concentrations; therefore, lead EPCs are not presented.

U = The analyte was not detected below the limit of detection shown.

J = The result is an estimated quantity based on the data quality review, J- = Estimate biased low, J+ = Estimate biased high.

Table 14. Open Water EPCs

			Analyte (µg/L)								
			Antimony	Arsenic*	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc
Private Recreational RBSL**			28.1	2.01	4.6	3,610	63,200	NA	981	16.2	27,600
Public Recreational RBSL**			42.1	3.01	6.9	5,420	94,800	NA	1,470	24.3	41,500
Outdoor Worker RBSL**			44.9	1.19	8.0	5,430	95,100	NA	1,730	27.3	41,400
MCL			6.0	10.0	5.0	1,300***	300***	10***	50***	2.0	5,000***
Site/Bay Name	Site ID	DU	EPC (µg/L)								
Q'Emiln Park	S003	NA	0.300 U	0.675 J	0.100 U	R	39.0	0.856	10.0 U	0.100 U	14.2
Atlas Waterfront Park	S007	NA	0.312	0.600 J	0.100 U	R	30.0 U	0.437	10.0 U	0.100 U	17.7
Blackwell Island	S008	NA	0.300 U	0.637 J	0.100 U	R	44.0 U	0.571	10.0 U	0.100 U	15.0
Cheamkwet Park	S009	NA	0.300 U	0.666 J	0.109	R	32.0	0.951	10.0 U	0.100 U	20.8
Sanders Beach West	S016	NA	0.300 U	0.655 J	0.103	R	36.0	0.245	10.0 U	0.100 U	19.3
Higgens Point Day Use	S020	NA	0.300 U	0.525 J	0.106	R	36.0	0.200 U	10.0 U	0.100 U	19.3
Gotham Bay	S031	NA	0.300 U	0.551 J	0.119	R	34.0	0.300	10.0 U	0.100 U	17.0
Loff's Bay	S036	NA	0.300 U	0.604 J	0.100 U	R	48.0	0.303	10.0 U	0.100 U	17.9
Carlin Bay	S038	NA	0.317	0.633 J	0.113	R	33.0	0.365	10.0 U	0.100 U	16.3
Windy Bay	S044	NA	0.368	0.658 J	0.100 U	R	47.0	0.581	10.0 J	0.100 U	15.8
Harlow Point	S048	NA	0.401	1.02 J	0.104	R	47.0	3.40	17.0	0.100 U	16.1
Rocky Point	S058	NA	0.300 U	0.711 J	0.100 U	R	174	0.200 U	33.0	0.100 U	0.8
Rockford Bay	S062	NA	0.322	0.741 J	0.100 U	R	36.0	0.701	10.0 U	0.100 U	15.5

Notes:

µg/L = micrograms per Liter

* Arsenic non-cancer RBSLs based on HQ=0.1 are 5.42, 8.12, and 8.15 µg/dL for Private Recreational Residents, Public Recreational Visitors, and Outdoor Workers, respectively.

** RBSLs are based on HQ=0.1 for all metals except arsenic, which are based on a cancer risk of 10^{-5}. For lead, surface water RBSLs are dependent on sediment concentrations (recreational) or not currently available (occupational). See Alta (2024).

*** Iron, manganese, zinc, copper, and lead do not have primary MCLs. Secondary MCLs are shown for iron, manganese, and zinc; lead and copper are regulated by treatment technique. Action levels based on treatment techniques are shown. Copper also has non-enforceable secondary MCL of 1,000 µg/L.

NA = not applicable

U = The analyte was not detected below the limit of detection shown.

J = The result is an estimated quantity based on the data quality review.

R = Rejected based on the data quality review.

Alta Science & Engineering, Inc. (Alta), 2024. *Risk-Based Evaluation of Selected Recreational Areas in Coeur d'Alene Lake and Spokane River - Work Plan*. February 5, 2024.

Table 15. Non-Lead COPCs Soil/Sediment EPCs for Private Recreational Residents and Outdoor Workers

			Analyte (mg/kg)						
			Antimony	Cadmium**	Copper	Iron	Manganese	Mercury	Zinc
Private Recreational Resident RBSL***			15.2	3.58	1,520	26,600	907	11.4	11,400
Outdoor Worker RBSL***			51.9	11.1	5,190	90,800	2,850	38.9	38,900
Site ID	DU	Type	EPC (mg/kg)						
CONF02	DU01	US	8.20	2.79	42.7	25,079	724	0.334	528
	DU02*	DS	8.00	1.22	21.3	**30,650**	647	0.526	212
	DU03	WS	8.00	2.06	227	24,383	475	0.048	487
CONF03	DU01	DS	8.00	2.74	13.3	20,612	412	0.428	386
	DU02	WS	8.00	1.47	219	13,673	298	0.048	318
CONF04	DU01	DS	4.00	2.41	20.6	26,492	497	0.428	460
	DU02	WS	4.00	1.07	222	17,583	336	0.048	414
CONF05	DU01	US	2.81	**7.46**	42.6	**27,979**	**950**	0.412	804
	DU02	DS	8.00	3.44	20.1	**31,692**	512	0.428	563
	DU03	WS	8.00	1.47	224	25,183	334	0.048	405
CONF06	DU01~	DS	8.00	2.97	31.2	**27,400**	807	0.063	483
	DU04~	DS	8.00	1.42	16.8	18,200	350	0.033	297
CONF07	DU01	US	4.20	2.02	32.9	25,279	761	0.334	437
	DU03*	WS	4.00	0.40	16.0	21,508	215	0.043	104
	DU04	DS	4.00	2.80	28.2	**34,892**	870	0.428	504
	DU05	WS	4.00	1.50	227	23,183	372	0.048	361
	DU06	DS	4.00	3.20	50.2	**37,492**	735	0.428	501
	DU07	WS	4.00	1.77	223	**28,583**	423	0.048	497
CONF11	DU01	US	2.20	2.65	31.8	20,079	525	0.356	450
	DU02	DS	8.00	2.74	20.8	**27,992**	495	0.428	373
	DU03	WS	8.00	1.47	224	25,883	430	0.048	340

			Analyte (mg/kg)						
			Antimony	Cadmium**	Copper	Iron	Manganese	Mercury	Zinc
Private Recreational Resident RBSL***			15.2	3.58	1,520	26,600	907	11.4	11,400
Outdoor Worker RBSL***			51.9	11.1	5,190	90,800	2,850	38.9	38,900
Site ID	DU	Type	EPC (mg/kg)						

Notes:

Arsenic EPCs are not included in this table, as they are summarized separately.

mg/kg = milligrams per kilogram, US = upland soil, DS = dry sediment, WS = wet sediment

* EPC was calculated using ISM replicate data. ITRC recommended Student's t 95% UCL for these EPCs except for mercury at CONF02-DU2 (for which Chebyshev 95% UCL was recommended).

~ EPC is the sample result.
** Cadmium cancer RBSLs based on 10^{-5} are 464,000 mg/kg and 100,000 mg/kg for private recreators and outdoor workers, respectively. There were no exceedances.

***Noncancer RBSLs based on HQ=0.1.

Bold, gray cells indicate an exceedance of the private recreator non-cancer RBSL.

There were no exceedances of the outdoor worker non-cancer RBSL.

Table 16. Non-Lead COPCs Soil/Sediment for Public Recreational Visitors and Outdoor Workers

				Analyte (mg/kg)						
				Antimony	Cadmium ~	Copper	Iron	Manganese	Mercury	Zinc
Public Recreational Visitor RBSL~~				22.8	5.4	2,280	39,900	1,360	17.1	17,100
Outdoor Worker RBSL~~				51.9	11.1	5,190	90,800	2,850	38.9	38,900
Site Name	Site ID	DU	Type	EPC (mg/kg)						
Corbin Park	S001	DU01	US	3.39	**8.62**	40.7	28,479	1,309	0.424	2,019
		DU02	DS	8.00	5.29	28.7	35,892	1,045	0.443	1,855
		DU03**	WS	8.00	3.83	279	23,552	589	0.042	1,006
Q'Emiln Park	S003	DU01***	US	8.00	0.80	21.5	19,695	490	0.037	152
		DU02	DS	8.00	3.77	30.6	34,792	907	0.438	599
		DU03	WS	8.00	4.35	231	26,683	693	0.059	1,073
Greensferry Park	S004	DU01+	US	2.00	0.30	20.4	16,000	464	0.033	79.5
		DU02+	DS	8.00	1.08	25.6	22,700	849	0.061	326
		DU03+	WS	8.00	0.80	11.6	24,000	407	0.033	378
Atlas Waterfront Park	S007	DU01+	DS	8.00	0.80	22.2	24,900	653	0.033	79.4
		DU02+	WS	8.00	0.92	21.1	31,300	638	0.033	252
		DU03+	DS	8.00	0.80	25.5	25,800	668	0.033	82.7
		DU04+	WS	8.00	1.04	18.4	25,700	1,020	0.033	310
Blackwell Island	S008	DU01	US	3.36	**7.05**	47.5	32,279	1,329	0.427	953
		DU02***	WS	8.00	1.99	31.1	**44,152**	**1,678**	0.033	614
Cheamkwet Park	S009	DU01***	US	2.14	3.99	47.2	19,254	809	0.822	648
		DU02	DS	8.00	**6.74**	60.0	39,392	1,323	1.39	1,120
		DU03	WS	8.00	3.41	242	26,983	767	0.205	998
		DU04	DS	8.00	3.86	20.7	32,292	721	0.441	838
		DU05	WS	8.00	2.02	230	25,683	645	0.048	953
Yap-Keehn-Um Beach	S010	DU01	DS	8.00	4.43	26.0	32,492	775	0.444	950
		DU02	WS	8.00	3.12	230	26,783	681	0.048	1,125
Boardwalk Public Beach	S012	DU01	DS	8.00	3.73	32.5	34,092	764	0.428	819

				Analyte (mg/kg)						
				Antimony	Cadmium ~	Copper	Iron	Manganese	Mercury	Zinc
Public Recreational Visitor RBSL~~				22.8	5.4	2,280	39,900	1,360	17.1	17,100
Outdoor Worker RBSL~~				51.9	11.1	5,190	90,800	2,850	38.9	38,900
Site Name	Site ID	DU	Type	EPC (mg/kg)						
		DU02	WS	8.00	1.88	227	26,983	534	0.048	798
		DU03	DS	8.00	2.74	31.0	31,992	715	0.428	444
		DU04	WS	8.00	1.47	225	21,983	410	0.048	491
Tubbs Hill West, 1	S013	DU01	DS	4.00	2.34	29.4	30,992	446	0.428	416
		DU02	WS	4.00	1.07	222	14,893	283	0.048	319
Tubbs Hill South, 2	S014	DU01	DS	4.00	4.63	31.3	30,692	664	0.430	716
Tubbs Hill East, 3	S015	DU01*	DS	4.00	3.40	14.2	25,964	406	0.033	740
		DU02	WS	4.00	1.07	218	11,623	272	0.055	373
Sanders Beach West	S016	DU01	DS	8.00	3.67	30.2	31,692	752	0.428	706
		DU02	WS	8.00	2.74	229	22,283	420	0.048	716
Sanders Beach Public	S017	DU01***	DS	8.00	2.21	10.5	16,568	313	0.053	328
		DU02	WS	8.00	1.47	243	19,983	352	0.048	706
Higgens Point Day Use	S020	DU01	DS	8.00	2.74	52.1	**61,892**	707	0.428	395
		DU02	WS	8.00	1.58	251	**73,683**	776	0.048	476
Higgens Point Beach, 2	S021	DU01	DS	8.00	3.17	37.8	39,292	699	0.439	546
		DU02	WS	8.00	2.78	242	36,483	547	0.048	880
Higgens Point Beach, 1	S022	DU01	DS	8.00	2.74	34.9	**40,092**	525	0.428	438
Mica Bay Boater Park	S033	DU01	US	8.20	2.76	33.8	21,079	548	0.335	458
		DU02	DS	8.00	2.74	27.4	28,192	588	0.428	394
		DU03	WS	8.00	1.47	229	21,383	417	0.048	336
Loff's Bay	S036	DU01	US	2.20	2.67	38.6	39,779	840	0.334	499
		DU02	WS	2.00	1.22	224	22,083	337	0.048	378
Carlin Bay	S038	DU01	DS	8.00	4.68	31.5	33,492	857	0.461	645
		DU02	WS	8.00	1.47	219	12,743	290	0.048	316

				Analyte (mg/kg)						
				Antimony	Cadmium ~	Copper	Iron	Manganese	Mercury	Zinc
Public Recreational Visitor RBSL~~				22.8	5.4	2,280	39,900	1,360	17.1	17,100
Outdoor Worker RBSL~~				51.9	11.1	5,190	90,800	2,850	38.9	38,900
Site Name	Site ID	DU	Type	EPC (mg/kg)						
Rockford Bay	S041	DU01	US	2.20	2.89	41.3	21,479	1,081	0.382	628
Windy Bay	S044	DU01	US	2.20	2.17	30.1	20,079	614	0.547	435
Bell Bay Campground	S046	DU01	US	2.20	4.71	39.7	29,879	1,014	0.347	742
CONF08	CONF08	DU01	DS	8.00	3.64	27.0	**46,292**	954	0.428	587
		DU02	WS	8.00	2.16	228	37,383	681	0.048	638
CONF09	CONF09	DU01+	US	2.00	0.64	14.9	15,300	308	0.033	102
		DU02+	DS	8.00	0.80	14.4	27,300	564	0.033	55.8
		DU03+	WS	8.00	1.15	9.89	20,300	564	0.033	199
Rocky Point	S058	DU01	DS	8.00	2.74	16.3	23,892	442	0.428	314
		DU02	WS	8.00	1.47	220	14,643	312	0.048	207

Notes:

Arsenic EPCs are not included in this table, as they are summarized separately.

mg/kg = milligrams per kilogram, US = upland soil, DS = dry sediment, WS = wet sediment

* EPC was calculated using ISM replicate data from the DU. ITRC recommended Chebyshev 95% UCL for all analytes, except antimony and mercury (for which Student's t 95% UCL was recommended).

** EPC was calculated using ISM replicate data from the DU. ITRC recommended Student's t 95% UCL for all analytes, except copper (for which Chebyshev's 95% UCL was recommended).

*** EPC was calculated using ISM replicate data from the DU. ITRC recommended Student's t 95% UCL for these EPCs.

~ Cadmium cancer RBSLs based on 10^{-5} are 696,000 mg/kg and 100,000 mg/kg for public recreators and outdoor workers, respectively. There were no exceedances.

~~Noncancer RBSLs based on HQ=0.1.

+ EPC is the sample result.

Bold, gray cells indicate an exceedance of the public recreator non-cancer RBSL.

There were no exceedances of the outdoor worker non-cancer RBSL.

Table 17. Arsenic Soil/Sediment EPCs for Private Recreational Residents and Outdoor Workers

			Arsenic (mg/kg)											
				Private Recreational Resident						Outdoor Worker					
				RBSLs		Bioavailability-Adjusted RBSLs				RBSLs		Bioavailability-Adjusted RBSLs			
Site ID	DU	Type	EPC	Cancer: EPC ≥ 1.74	Non-cancer: EPC ≥ 3.52	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer	Cancer: EPC ≥ 1.56	Non-cancer: EPC ≥ 10.7	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer
CONF02	DU01	US	7.04	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU02*	DS	11.9	Y	Y	-	-	-	-	Y	Y	-	-	-	-
	DU03	WS	11.7	Y	Y	-	-	-	-	Y	Y	-	-	-	-
CONF03	DU01	DS	9.47	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU02	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
CONF04	DU01	DS	7.77	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU02	WS	6.08	Y	Y	-	-	-	-	Y	N	-	-	-	-
CONF05	DU01	US	14.0	-	-	7.27	15.8	Y	N	-	-	5.08	34.7	Y	N
	DU02	DS	9.97	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU03	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
CONF06	DU01~	DS	10.3	-	-	10.1	22.8	Y	N	-	-	6.33	43.2	Y	N
	DU04~	DS	5.00	Y	Y	-	-	-	-	Y	N	-	-	-	-
CONF07	DU01	US	4.70	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU03*	WS	3.54	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU04	DS	12.5	Y	Y	-	-	-	-	Y	Y	-	-	-	-
	DU05	WS	6.69	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU06	DS	29.7	-	-	4.14	8.66	Y	Y	-	-	3.31	22.7	Y	Y
	DU07	WS	7.42	Y	Y	-	-	-	-	Y	N	-	-	-	-
CONF11	DU01	US	5.77	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU02	DS	9.47	Y	Y	-	-	-	-	Y	N	-	-	-	-
	DU03	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-

Notes:

mg/kg = milligrams per kilogram,

* EPC was calculated using ISM replicate data. ITRC recommended Student's t 95% UCL for these EPCs.

~ EPC is the sample result.

- not applicable

US = upland soil, DS = dry sediment, WS = wet sediment

Non-cancer = noncarcinogenic, based on HQ=0.1

Cancer = carcinogenic, based on 10^{-5}

Bioavailability-adjusted RBSLs are used to compare with the EPC when samples were analyzed for IVBA; otherwise, the site-wide RBSLs are used.

Table 18. Arsenic Soil/Sediment/EPCs for Public Recreational Visitors and Outdoor Workers

Site Name	Site ID	DU	Type	Arsenic (mg/kg)											
					Public Recreational Visitor						Outdoor Worker				
					RBSLs		Bioavailability-Adjusted RBSLs				RBSLs		Bioavailability-Adjusted RBSLs			
				EPC	Cancer: EPC ≥ 2.6	Non-cancer: EPC ≥ 5.28	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer	Cancer: EPC ≥ 1.56	Non-cancer: EPC ≥ 10.7	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer
Corbin Park	S001	DU01	US	15.9	-	-	14.7	33.2	Y	N	-	-	6.22	42.5	Y	N
		DU02	DS	12.9	-	-	12.3	27.2	Y	N	-	-	5.53	37.8	Y	N
		DU03**	WS	5.00	-	-	9.24	19.8	N	N	-	-	4.50	30.8	Y	N
Q'Emiln Park	S003	DU01*	US	8.16	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	DS	16.3	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU03	WS	11.6	-	-	13.0	28.8	N	N	-	-	5.72	39.1	Y	N
Greensferry Park	S004	DU01+	US	9.55	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02+	DS	7.13	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU03+	WS	5.37	Y	Y	-	-	-	-	Y	N	-	-	-	-
Atlas Waterfront Park	S007	DU01+	DS	23.1	-	-	13.0	28.8	Y	N	-	-	5.72	39.1	Y	N
		DU02+	WS	14.9	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU03+	DS	25.7	-	-	13.1	29.2	Y	N	-	-	5.77	39.4	Y	N
		DU04+	WS	16.5	Y	Y	-	-	-	-	Y	Y	-	-	-	-
Blackwell Island	S008	DU01	US	17.6	-	-	16.7	38.2	Y	N	-	-	6.71	45.8	Y	N
		DU02***	WS	32.7	-	-	20.4	48.4	Y	N	-	-	7.56	51.6	Y	N
Cheamkwet Park	S009	DU01***	US	10.8	-	-	12.3	27.2	N	N	-	-	5.53	37.8	Y	N
		DU02	DS	15.3	-	-	15.2	34.2	Y	N	-	-	6.33	43.2	Y	N
		DU03	WS	12.5	-	-	12.5	27.7	Y	N	-	-	5.59	38.2	Y	N
		DU04	DS	13.2	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU05	WS	13.7	Y	Y	-	-	-	-	Y	Y	-	-	-	-
Yap-Keehn-Um Beach	S010	DU01	DS	13.6	-	-	13.0	28.8	Y	N	-	-	5.72	39.1	Y	N
		DU02	WS	12.2	-	-	14.6	32.9	N	N	-	-	6.19	42.3	Y	N
Boardwalk Public Beach	S012	DU01	DS	19.1	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU02	WS	12.0	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU03	DS	18.9	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU04	WS	11.0	Y	Y	-	-	-	-	Y	Y	-	-	-	-
Tubbs Hill West, 1	S013	DU01	DS	7.20	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	6.08	Y	Y	-	-	-	-	Y	N	-	-	-	-
Tubbs Hill South, 2	S014	DU01	DS	9.95	Y	Y	-	-	-	-	Y	N	-	-	-	-
Tubbs Hill East, 3	S015	DU01*	DS	9.64	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	6.08	Y	Y	-	-	-	-	Y	N	-	-	-	-
Sanders Beach West	S016	DU01	DS	19.4	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU02	WS	10.7	Y	Y	-	-	-	-	Y	N	-	-	-	-
Sanders Beach Public	S017	DU01***	DS	6.67	Y	Y	-	-	-	-	Y	N	-	-	-	-

Site Name	Site ID	DU	Type	Arsenic (mg/kg)											
					Public Recreational Visitor						Outdoor Worker				
					RBSLs		Bioavailability-Adjusted RBSLs				RBSLs		Bioavailability-Adjusted RBSLs			
				EPC	Cancer: EPC ≥ 2.6	Non-cancer: EPC ≥ 5.28	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer	Cancer: EPC ≥ 1.56	Non-cancer: EPC ≥ 10.7	Cancer	Non-cancer	EPC ≥ Cancer	EPC ≥ Non-cancer
		DU02	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
Higgens Point Day Use	S020	DU01	DS	21.9	Y	Y	-	-	-	-	Y	Y	-	-	-	-
		DU02	WS	24.0	-	-	23.7	58.1	Y	N	-	-	8.21	56.0	Y	N
Higgens Point Beach, 2	S021	DU01	DS	9.47	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
Higgens Point Beach, 1	S022	DU01	DS	11.1	Y	Y	-	-	-	-	Y	Y	-	-	-	-
Mica Bay Boater Park	S033	DU01	US	7.04	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	DS	9.70	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU03	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
Loff's Bay	S036	DU01	US	7.08	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	5.77	Y	Y	-	-	-	-	Y	N	-	-	-	-
Carlin Bay	S038	DU01	DS	9.47	-	-	15.5	35.1	N	N	-	-	6.41	43.8	Y	N
		DU02	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-
Rockford Bay	S041	DU01	US	8.54	Y	Y	-	-	-	-	Y	N	-	-	-	-
Windy Bay	S044	DU01	US	5.91	Y	Y	-	-	-	-	Y	N	-	-	-	-
Bell Bay Campground	S046	DU01	US	9.40	-	-	8.69	18.5	Y	N	-	-	4.30	29.4	Y	N
CONF08	CONF08	DU01	DS	9.47	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	8.58	-	-	19.1	44.9	N	N	-	-	7.29	49.8	Y	N
CONF09	CONF09	DU01+	US	3.20	Y	N	-	-	-	-	Y	N	-	-	-	-
		DU02+	DS	5.00	Y	N	-	-	-	-	Y	N	-	-	-	-
		DU03+	WS	5.00	Y	N	-	-	-	-	Y	N	-	-	-	-
Rocky Point	S058	DU01	DS	9.47	Y	Y	-	-	-	-	Y	N	-	-	-	-
		DU02	WS	8.58	Y	Y	-	-	-	-	Y	N	-	-	-	-

Notes:

mg/kg = milligrams per kilogram

* EPC was calculated using ISM replicate data from the DU. ITRC recommended Chebyshev 95% UCL for all analytes, except antimony and mercury (for which Student's t 95% UCL was recommended).

** EPC was calculated using ISM replicate data from the DU. ITRC recommended Student's t 95% UCL for all analytes, except copper (for which Chebyshev's 95% UCL was recommended).

*** EPC was calculated using ISM replicate data from the DU. ITRC recommended Student's t 95% UCL for these EPCs.

+ EPC is the sample result.

- not applicable

US = upland soil, DS = dry sediment, WS = wet sediment

Bioavailability-adjusted RBSLs are used to compare with the EPC when samples were analyzed for IVBA; otherwise, the site-wide RBSLs are used.

Non-cancer = noncarcinogenic, based on HQ=0.1

Cancer = carcinogenic, based on 10^{-5}

Table 19. Initial Lead Screening Results

Site Name	Site ID	Type	DU	Lead EPC (mg/kg)	EPA Residential Screening Level (mg/kg)		Private Recreational Resident RBSL = P(5)		Public Recreational Visitor RBSL = P(5)		Outdoor Worker RBSL = P(5)	Outdoor Worker RBSL = P(3.5)
					EPC ≥ 100 mg/kg*	EPC ≥ 200 mg/kg**	EPC ≥ 420 mg/kg~	EPC ≥ 330 mg/kg†	EPC ≥ 590 mg/kg~	EPC ≥ 410 mg/kg†	EPC ≥ 511 mg/kg	EPC ≥ 297 mg/kg
Corbin Park	S001	DS	DU02	242	Y	Y	-	-	N	N	N	N
		US	DU01	476	Y	Y	-	-	N	Y	N	Y
		WS	DU03	178	Y	N	-	-	N	N	N	N
Q'Emiln Park	S003	DS	DU02	82.2	N	N	-	-	N	N	N	N
		US	DU01	32.1	N	N	-	-	N	N	N	N
		WS	DU03	151	Y	N	-	-	N	N	N	N
Greensferry Park	S004	DS	DU02	54.0	N	N	-	-	N	N	N	N
		US	DU01	21.6	N	N	-	-	N	N	N	N
		WS	DU03	26.1	N	N	-	-	N	N	N	N
Atlas Waterfront Park	S007	DS	DU01	31.4	N	N	-	-	N	N	N	N
		DS	DU03	31.8	N	N	-	-	N	N	N	N
		WS	DU02	25.3	N	N	-	-	N	N	N	N
		WS	DU04	33.9	N	N	-	-	N	N	N	N
Blackwell Island	S008	US	DU01	274	Y	Y	-	-	N	N	N	N
		WS	DU02	63.6	N	N	-	-	N	N	N	N
Cheamkwet Park	S009	DS	DU02	367	Y	Y	-	-	N	N	N	Y
		DS	DU04	92.5	N	N	-	-	N	N	N	N
		US	DU01	232	Y	Y	-	-	N	N	N	N
		WS	DU03	134	Y	N	-	-	N	N	N	N
		WS	DU05	97.3	N	N	-	-	N	N	N	N
Yap-Keehn-Um Beach	S010	DS	DU01	118	Y	N	-	-	N	N	N	N
		WS	DU02	104	Y	N	-	-	N	N	N	N
Boardwalk Public Beach	S012	DS	DU01	66.7	N	N	-	-	N	N	N	N
		DS	DU03	60.4	N	N	-	-	N	N	N	N
		WS	DU02	43.8	N	N	-	-	N	N	N	N
		WS	DU04	19.3	N	N	-	-	N	N	N	N
Tubbs Hill West, 1	S013	DS	DU01	21.0	N	N	-	-	N	N	N	N
		WS	DU02	17.9	N	N	-	-	N	N	N	N
Tubbs Hill South, 2	S014	DS	DU01	93.2	N	N	-	-	N	N	N	N
Tubbs Hill East, 3	S015	DS	DU01	56.6	N	N	-	-	N	N	N	N
		WS	DU02	13.0	N	N	-	-	N	N	N	N
Sanders Beach West	S016	DS	DU01	63.0	N	N	-	-	N	N	N	N
		WS	DU02	56.7	N	N	-	-	N	N	N	N

Site Name	Site ID	Type	DU	Lead EPC (mg/kg)	EPA Residential Screening Level (mg/kg)		Private Recreational Resident RBSL = P(5)		Public Recreational Visitor RBSL = P(5)		Outdoor Worker RBSL = P(5)	Outdoor Worker RBSL = P(3.5)
					EPC ≥ 100 mg/kg*	EPC ≥ 200 mg/kg**	EPC ≥ 420 mg/kg~	EPC ≥ 330 mg/kg†	EPC ≥ 590 mg/kg~	EPC ≥ 410 mg/kg†	EPC ≥ 511 mg/kg	EPC ≥ 297 mg/kg
Sanders Beach Public	S017	DS	DU01	53.4	N	N	-	-	N	N	N	N
		WS	DU02	34.5	N	N	-	-	N	N	N	N
Higgens Point Day Use	S020	DS	DU01	40.1	N	N	-	-	N	N	N	N
		WS	DU02	36.4	N	N	-	-	N	N	N	N
Higgens Point Beach, 2	S021	DS	DU01	42.3	N	N	-	-	N	N	N	N
		WS	DU02	74.0	N	N	-	-	N	N	N	N
Higgens Point Beach, 1	S022	DS	DU01	26.3	N	N	-	-	N	N	N	N
CONF02	CONF02	DS	DU02	51.2	N	N	N	N	-	-	N	N
		US	DU01	58.1	N	N	N	N	-	-	N	N
		WS	DU03	38.3	N	N	N	N	-	-	N	N
CONF03	CONF03	DS	DU01	33.3	N	N	N	N	-	-	N	N
		WS	DU02	46.5	N	N	N	N	-	-	N	N
CONF04	CONF04	DS	DU01	66.2	N	N	N	N	-	-	N	N
		WS	DU02	28.8	N	N	N	N	-	-	N	N
CONF05	CONF05	DS	DU02	85.5	N	N	N	N	-	-	N	N
		US	DU01	214	Y	Y	N	N	-	-	N	N
		WS	DU03	58.7	N	N	N	N	-	-	N	N
Mica Bay Boater Park	S033	DS	DU02	16.5	N	N	-	-	N	N	N	N
		US	DU01	60.9	N	N	-	-	N	N	N	N
		WS	DU03	19.2	N	N	-	-	N	N	N	N
Loff's Bay	S036	US	DU01	49.1	N	N	-	-	N	N	N	N
		WS	DU02	35	N	N	-	-	N	N	N	N
CONF06	CONF06	DS	DU01	122	Y	N	N	N	-	-	N	N
		DS	DU04	72.3	N	N	N	N	-	-	N	N
Carlin Bay	S038	DS	DU01	180	Y	N	-	-	N	N	N	N
		WS	DU02	60.3	N	N	-	-	N	N	N	N
Rockford Bay	S041	US	DU01	48.2	N	N	-	-	N	N	N	N
CONF07	CONF07	DS	DU04	47.3	N	N	N	N	-	-	N	N
		DS	DU06	55.6	N	N	N	N	-	-	N	N
		US	DU01	32.5	N	N	N	N	-	-	N	N
		WS	DU03	37.1	N	N	N	N	-	-	N	N
		WS	DU05	70.8	N	N	N	N	-	-	N	N
		WS	DU07	62.5	N	N	N	N	-	-	N	N
Windy Bay	S044	US	DU01	28.9	N	N	-	-	N	N	N	N

Site Name	Site ID	Type	DU	Lead EPC (mg/kg)	EPA Residential Screening Level (mg/kg)		Private Recreational Resident RBSL = P(5)		Public Recreational Visitor RBSL = P(5)		Outdoor Worker RBSL = P(5)	Outdoor Worker RBSL = P(3.5)
					EPC ≥ 100 mg/kg*	EPC ≥ 200 mg/kg**	EPC ≥ 420 mg/kg~	EPC ≥ 330 mg/kg†	EPC ≥ 590 mg/kg~	EPC ≥ 410 mg/kg†	EPC ≥ 511 mg/kg	EPC ≥ 297 mg/kg
Bell Bay Campground	S046	US	DU01	171	Y	N	-	-	N	N	N	N
CONF08	CONF08	DS	DU01	88.4	N	N	-	-	N	N	N	N
		WS	DU02	144	Y	N	-	-	N	N	N	N
CONF09	CONF09	DS	DU02	8.25	N	N	-	-	N	N	N	N
		US	DU01	41.8	N	N	-	-	N	N	N	N
		WS	DU03	37.8	N	N	-	-	N	N	N	N
Rocky Point	S058	DS	DU01	9.88	N	N	-	-	N	N	N	N
		WS	DU02	6.80	N	N	-	-	N	N	N	N
CONF11	CONF11	DS	DU02	28.3	N	N	N	N	-	-	N	N
		US	DU01	99.2	N	N	N	N	-	-	N	N
		WS	DU03	31.2	N	N	N	N	-	-	N	N

Notes:

mg/kg = milligrams per kilogram

US = upland soil, DS = dry sediment, WS = wet sediment

* USEPA residential soil screening level (USEPA 2024)

** USEPA residential soil screening level when there are multiple lead sources (USEPA 2024)

~ RBSL derived with an assumed minimum baseline residential property lead concentration (soil = 80 mg/kg and dust = 130 mg/kg).

†RBSL derived with an assumed average baseline residential property lead concentration (soil = 150 mg/kg and dust = 130 mg/kg).

- not applicable

The maximum concentration is used for the lead EPC where field replicate samples were collected.

Table 20. Summary of EPCs that Exceed Screening Levels – Private Recreational Resident

Site ID	Receptor	Media	Antimony	Arsenic	Cadmium	Copper	Lead	Iron	Manganese	Mercury	Zinc
CONF02	Recreator	SW		X							
		Sediment/Soil		X				**X**			
	Outdoor Worker	SW		X							
		Sediment/Soil		X							
CONF03	Recreator	SW									
		Sediment/Soil		X							
	Outdoor Worker	SW									
		Sediment/Soil		X							
CONF04	Recreator	SW									
		Sediment/Soil		X							
	Outdoor Worker	SW									
		Sediment/Soil		X							
CONF05	Recreator	SW									
		Sediment/Soil		**X**	**X**			**X**	**X**		
	Outdoor Worker	SW		X							
		Sediment/Soil		**X**							
CONF06	Recreator	SW									
		Sediment/Soil		X				X			
	Outdoor Worker	SW									
		Sediment/Soil		X							
CONF07	Recreator	SW									
		Sediment/Soil		**X**				**X**			
	Outdoor Worker	SW		X							
		Sediment/Soil		**X**							
CONF11	Recreator	SW									
		Sediment/Soil		X				**X**			
	Outdoor Worker	SW		X							
		Sediment/Soil		X							

Notes:
Bold, gray cells indicate the EPC is higher than the RBSL and background concentrations.
SW = Surface water

Table 21. Summary of EPCs that Exceed Screening Levels – Public Recreational Visitor

Site Name	Site ID	Receptor	Media	Antimony	Arsenic	Cadmium	Copper	Lead	Iron	Manganese	Mercury	Zinc
Corbin Park	S001	Recreator	SW									
			Sediment/Soil		**X**	**X**		**X**				
		Outdoor Worker	SW									
			Sediment/Soil		**X**			**X**				
Q'Emiln Park	S003	Recreator	SW									
			Sediment/Soil		**X**							
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**							
Greensferry Park	S004	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Atlas Waterfront Park	S007	Recreator	SW									
			Sediment/Soil		**X**							
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**							
Blackwell Island	S008	Recreator	SW									
			Sediment/Soil		**X**	**X**			**X**	**X**		
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**							
Cheamkwet Park	S009	Recreator	SW									
			Sediment/Soil		**X**	**X**		**X**				
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**			**X**				
Yap-Keehn-Um Beach	S010	Recreator	SW									
			Sediment/Soil		**X**							
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**							
Boardwalk Public Beach	S012	Recreator	SW									
			Sediment/Soil		**X**							
		Outdoor Worker	SW									
			Sediment/Soil		**X**							
Tubbs Hill West, 1	S013	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Tubbs Hill South, 2	S014	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									

Site Name	Site ID	Receptor	Media	Antimony	Arsenic	Cadmium	Copper	Lead	Iron	Manganese	Mercury	Zinc
			Sediment/Soil		X							
Tubbs Hill East, 3	S015	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Sanders Beach West	S016	Recreator	SW									
			Sediment/Soil		**X**							
		Outdoor Worker	SW									
			Sediment/Soil		**X**							
Sanders Beach Public	S017	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Higgens Point Day Use	S020	Recreator	SW		X							
			Sediment/Soil		**X**				**X**			
		Outdoor Worker	SW		X							
			Sediment/Soil		**X**							
Higgens Point Beach, 2	S021	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW		X							
			Sediment/Soil		X							
Higgens Point Beach, 1	S022	Recreator	SW									
			Sediment/Soil		X				**X**			
		Outdoor Worker	SW		X							
			Sediment/Soil		X							
Mica Bay Boater Park	S033	Recreator	SW		X							
			Sediment/Soil		X							
		Outdoor Worker	SW		X							
			Sediment/Soil		X							
Loff's Bay	S036	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Carlin Bay	S038	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Rockford Bay	S041	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									

Site Name	Site ID	Receptor	Media	Antimony	Arsenic	Cadmium	Copper	Lead	Iron	Manganese	Mercury	Zinc
			Sediment/Soil		X							
Windy Bay	S044	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
Bell Bay Campground	S046	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW									
			Sediment/Soil		X							
CONF08	CONF08	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW		X							
			Sediment/Soil		X							
CONF09	CONF09	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW		X							
			Sediment/Soil		X							
Rocky Point	S058	Recreator	SW									
			Sediment/Soil		X							
		Outdoor Worker	SW		X							
			Sediment/Soil		X							

Notes:

Bold, gray cells indicate the EPC is higher than the RBSL and background concentrations.

SW = Surface water

Table 22. Comparison of 1998 and 2024 Lead Concentrations

Site Name	Site ID	Lead Concentration								
		Surface Water (mg/L)			Sediment (mg/kg)			Soil (mg/kg)		
		1998	2024	Change**	1998	2024	Change**	1998	2024	Change**
Corbin Park	S001	0.135	0.0278	↓	412	210	↓	-	476	
Q'Emiln Park	S003	0.0927	0.0286	↓	85.2	117	↑	27.6	32.1	=
Greensferry Park	S004	0.0117	0.00431	↓	104	40.1	↓	78.5	21.6	↓
Blackwell Island	S008	0.417	0.00628 J+	↓	397	63.6	↓	356	274	↓
Cheamkwet Park	S009	0.131	0.102	↓	323	173	↓	220	232	↑
Yap-Keehn-Um Beach	S010	0.0422	0.0277	↓	149	111	↓	-	-	
Boardwalk Public Beach	S012	0.0306	0.00313	↓	128	47.6	↓	-	-	
Tubbs Hill West, 1	S013	0.00993	0.00711	↓	49.5	19.5	↓	-	-	
Tubbs Hill South, 2	S014	0.00384	0.00847	↑	96.3	93.2	=	-	-	
Tubbs Hill East, 3	S015	0.00826	0.00310	↓	44.1	34.8	=	-	-	
Higgens Point Beach, 2	S021	0.0266	0.0347	↑	90.4	58.2	↓	-	-	
Higgens Point Beach, 1	S022	0.0114	0.00594	↓	63.8	26.3	↓	-	-	
Mica Bay Boater Park	S033	0.0213	0.0250	=	30.7	17.9	↓	47.1	60.9	↑
Loff's Bay	S036	0.0443	0.0109	↓	52.9	35.0	↓	102	49.1	↓
Bell Bay Campground	S046	0.0294	0.0216	=	96.3	-		197	171	↓
Rockford Bay	S041	-	-		-	-		66.9	48.2	↓
Windy Bay	S044	0.00418	-		23.0	-		18.1	28.9	↑

Notes:
mg/L = milligrams per Liter, mg/kg = milligrams per kilogram
*Change is based on whether there is a ± 0.001 mg/L difference in the surface water concentration.
**Change is based on whether there is a ± 10.0 mg/kg difference in the sediment/soil concentration.
2024 results shown are average concentrations of wet and dry sediment concentrations and if multiple decision units were sampled.
1998 results shown are the average concentrations provided in Appendix C of the 1999 SLRA-CUA.
- Not measured
J+ = The result is an estimate biased high

Table 23. Comparison of 1998 and 2024 Arsenic Concentrations

Site Name	Site ID	Arsenic Concentration								
		Surface Water (mg/L)			Sediment (mg/kg)			Soil (mg/kg)		
		1998	2024	Change	1998	2024	Change	1998	2024	Change
Corbin Park	S001	0.00166	0.00112	=	19.5	6.70	↓	-	13.9	
Q'Emiln Park	S003	0.00423	0.00145	↓	12.8	9.92	=	10.9	7.72 J-	=
Greensferry Park	S004	-	0.001 U		12.1	6.25	=	7.84	9.55	=
Blackwell Island	S008	0.0106	0.00183	↓	54.3	31.9	↓	14.5	15.6	=
Cheamkwet Park	S009	0.00208	0.00244	=	10.9	9.62	=	10.4	10.5	=
Yap-Keehn-Um Beach	S010	-	0.00152	↓	7.95	8.86	=	-	-	
Boardwalk Public Beach	S012	0.00263	0.001 U	↓	13	11.2	=	-	-	
Tubbs Hill West, 1	S013	-	0.001 U		4.69	2.62	=	-	-	
Tubbs Hill South, 2	S014	-	0.001 U		5.43	5.48	=	-	-	
Tubbs Hill East, 3	S015	0.000784	0.001 U	=	4.7	4.92	=	-	-	
Higgens Point Beach, 2	S021	0.00221	0.00163	↓	6.08	5.00 U	=	-	-	
Higgens Point Beach, 1	S022	0.000839	0.00152	↑	7.41	6.61	=	-	-	
Mica Bay Boater Park	S033	0.00282	0.006	↑	14.8	5.12	=	6.09	5.00 UJ	=
Loff's Bay	S036	0.00117	0.001 U	↓	4.98	2.19	=	13	5.04	=
Bell Bay Campground	S046	0.00167	0.00102	=	4.55	-		9.03	7.36	=
Rockford Bay	S041	-	-		-	-		5.2	6.5	=
Windy Bay	S044	0.00123	-		5.00	-		2.87	3.87	=

Notes:
mg/L = milligrams per Liter, mg/kg = milligrams per kilogram
Change is based on whether there is a ± 0.001 mg/L difference in the surface water concentration.
Change is based on whether there is a ± 10.0 mg/kg difference in the sediment/soil concentration.
2024 results shown are average concentrations of wet and dry sediment concentrations and if multiple decision units were sampled.
1999 results shown are the average concentrations provided in Appendix C of the 1999 SLRE.
- Not measured
U = The analyte was not detected below the limit of detection shown; UJ = Concentration was not detected and is qualified as an estimate.
J- = The result is an estimate biased low

Table 24. Soil/Sediment Background Concentrations

Chemical	Soil/Sediment Background Concentrations		
	1999 SLRA-CUA[a]	2001 OU3 HHRA[b]	2001 RI/FS[c]
Antimony	5	5.8	1.63
Arsenic	35	22	12.6
Cadmium	8	2.86	0.678
Copper	45	53	25.2
Lead	150	175	47.3
Iron	-	65,000	27,600
Manganese	-	3,600	325
Mercury	1	0.3	0.179
Zinc	220	280	97.1

Notes:

All soil and sediment concentrations in milligrams per kilogram (mg/kg).

[a] 95th percentiles estimated using URSG 1998 data (Table 2-5 of URS Greiner, Inc. et al. 1999).

[b] Potential background concentrations for soil, based on 90th percentile values from Gott and Cathrall 1980, except for lead and cadmium, which are 95th percentile values from Le Jeune and Cacela 1999 (Table 2-3 of TerraGraphics et al., 2001). Soil background concentrations were used for sediment.

[c] Lower Basin Sediment 90th percentiles estimated from RI/FS data (URS Greiner, Inc. et al. 2001). Presented in Table 3.2-1 of URSG and CH2M Hill 2001.

- not measured

Table 25. Sediment/Upland Soils RBSLs Compared to Background Concentrations

Analyte	2001 RI/FS Background [a]	Private Recreational Resident RBSL		Public Recreational Visitor RBSL		Outdoor Worker RBSL	
		Cancer (10^{-5})	Non-cancer (HQ=0.1)	Cancer (10^{-5})	Non-cancer (HQ=0.1)	Cancer (10^{-5})	Non-cancer (HQ=0.1)
Antimony	1.63	-	15.2	-	22.8	-	51.9
Arsenic*	12.6	**1.74**	**3.52**	**2.6**	**5.28**	**1.56**	**10.7**
Cadmium	0.678	4.64E+05	3.58	6.96E+05	5.4	1.00E+05	11.1
Copper	25.2	-	1,520	-	2,280	-	5,190
Iron	27,600	-	**26,600**	-	39,900	-	90,800
Manganese	325	-	907	-	1,360	-	2,850
Mercury	0.179	0	11.4	0	17.1	-	38.9
Zinc	97.1	-	11,400	-	17,100	-	38,900

Notes:

All concentrations are in milligrams per kilogram (mg/kg).

Cancer RBSLs are based on a Target Risk Level of 1 x 10^{-5}. Noncancer RBSLs are based on HQ=0.1.

[a] Lower Basin Sediment 90th percentiles estimated from RI/FS data (URS Greiner, Inc. et al. 2001). Presented in Table 3.2-1 of URSG and CH2M Hill 2001.

* For sites with no site-specific bioavailability data. Where bioavailability data are available, bioavailability-adjusted RBSLs are calculated and presented separately.

- not applicable

Bold, gray cells indicate the background concentration is higher than the RBSL.

Table 26. Bioavailability-Adjusted Sediment/Upland Soils Arsenic RBSLs Compared to Background Concentrations

Site Name	Site ID	DU	Type	Public/Private	RBSL - Recreational		RBSL - Outdoor Worker	
					Non-cancer	Cancer	Non-cancer	Cancer
Corbin Park	S001	DU01	US	Public	33.2	14.7	42.5	**6.22**
		DU02	DS	Public	27.2	**12.3**	37.8	**5.53**
		DU03	WS	Public	19.8	**9.24**	30.8	**4.50**
Q'Emiln Park	S003	DU03	WS	Public	28.8	13.0	39.1	**5.72**
Atlas Waterfront Park	S007	DU01	DS	Public	28.8	13.0	39.1	**5.72**
		DU03	DS	Public	29.2	13.1	39.4	**5.77**
Blackwell Island	S008	DU01	US	Public	38.2	16.7	45.8	**6.71**
		DU02	WS	Public	48.4	20.4	51.6	**7.56**
Cheamkwet Park	S009	DU01	US	Public	27.2	**12.3**	37.8	**5.53**
		DU02	DS	Public	34.2	15.2	43.2	**6.33**
		DU03	WS	Public	27.7	**12.5**	38.2	**5.59**
Yap-Keehn-Um Beach	S010	DU01	DS	Public	28.8	13.0	39.1	**5.72**
		DU02	WS	Public	32.9	14.6	42.3	**6.19**
Higgens Point Day Use	S020	DU02	WS	Public	58.1	23.7	56.0	**8.21**
CONF05	CONF05	DU01	US	Private	15.8	**7.27**	34.7	**5.08**
CONF06	CONF06	DU01	DS	Private	22.8	**10.1**	43.2	**6.33**
Carlin Bay	S038	DU01	DS	Public	35.1	15.5	43.8	**6.41**
CONF07	CONF07	DU06	DS	Private	**8.66**	**4.14**	22.7	**3.31**
Bell Bay Campground	S046	DU01	US	Public	18.5	**8.69**	29.4	**4.30**
CONF08	CONF08	DU02	WS	Public	44.9	19.1	49.8	**7.29**

Notes:

All concentrations are in milligrams per kilogram (mg/kg).

US = upland soil, DS = dry sediment, WS = wet sediment

Non-cancer = noncarcinogenic, based on HQ=0.1

Cancer = carcinogenic, based on 10-5.

Bold, gray cells indicate the background concentration of 12.6 mg/kg is higher than the RBSL.

Table 27. Sediment/Upland Soil DU EPCs Compared to Background Concentrations

				Analyte (mg/kg)								
				Antimony	Arsenic	Cadmium	Copper	Iron	Lead+	Manganese	Mercury	Zinc
Background Concentration[a]				1.63	12.6	0.678	25.2	27,600	47.3	325	0.179	97.1
Site Name	Site ID	DU	Type	EPC (mg/kg)								
Q'Emiln Park	S003	DU01*	US	8.00	***8.16***	0.80	21.5	19,695	32.1	490	0.037	152
		DU02	DS	8.00	***16.3***	3.77	30.6	34,792	82.2	907	0.438	599
		DU03	WS	8.00	***11.6***	4.35	231	26,683	***151***	693	0.059	1,073
CONF02	CONF02	DU01	US	8.20	***7.04***	2.79	42.7	25,079	58.1	724	0.334	528
		DU02*	DS	8.00	***11.9***	1.22	21.3	***30,650***	51.2	647	0.526	212
		DU03	WS	8.00	***11.7***	2.06	227	24,383	38.3	475	0.048	487
CONF03	CONF03	DU01	DS	8.00	***9.47***	2.74	13.3	20,612	33.3	412	0.428	386
		DU02	WS	8.00	***8.58***	1.47	219	13,673	46.5	298	0.048	318
CONF04	CONF04	DU01	DS	4.00	***7.77***	2.41	20.6	26,492	66.2	497	0.428	460
		DU02	WS	4.00	***6.08***	1.07	222	17,583	28.8	336	0.048	414
CONF05	CONF05	DU01	US	2.81	***14.0***	***7.46***	42.6	***27,979***	***214***	***950***	0.412	804
		DU02	DS	8.00	***9.97***	3.44	20.1	***31,692***	85.5	512	0.428	563
		DU03	WS	8.00	***8.58***	1.47	224	25,183	58.7	334	0.048	405
CONF06	CONF06	DU01+	DS	8.00	***10.3***	2.97	31.2	***27,400***	***122***	807	0.063	483
		DU04+	DS	8.00	***5.00***	1.42	16.8	18,200	72.3	350	0.033	297
CONF07	CONF07	DU01	US	4.20	***4.70***	2.02	32.9	25,279	32.5	761	0.334	437
		DU03*	WS	4.00	***3.54***	0.40	16.0	21,508	37.1	215	0.043	104
		DU04	DS	4.00	***12.5***	2.80	28.2	***34,892***	47.3	870	0.428	504
		DU05	WS	4.00	***6.69***	1.50	227	23,183	70.8	372	0.048	361
		DU06	DS	4.00	***29.7***	3.20	50.2	***37,492***	55.6	735	0.428	501
		DU07	WS	4.00	***7.42***	1.77	223	***28,583***	62.5	423	0.048	497
CONF08	CONF08	DU01	DS	8.00	***9.47***	3.64	27.0	***46,292***	88.4	954	0.428	587
		DU02	WS	8.00	***8.58***	2.16	228	37,383	***144***	681	0.048	638
CONF09	CONF09	DU01+	US	2.00	***3.20***	0.64	14.9	15,300	41.8	308	0.033	102
		DU02+	DS	8.00	***5.00***	0.80	14.4	27,300	8.25	564	0.033	55.8
		DU03+	WS	8.00	***5.00***	1.15	9.89	20,300	37.8	564	0.033	199
Rocky Point	S058	DU01	DS	8.00	***9.47***	2.74	16.3	23,892	9.88	442	0.428	314
		DU02	WS	8.00	***8.58***	1.47	220	14,643	6.80	312	0.048	207
CONF11	CONF11	DU01	US	2.20	***5.77***	2.65	31.8	20,079	99.2	525	0.356	450
		DU02	DS	8.00	***9.47***	2.74	20.8	***27,992***	28.3	495	0.428	373
		DU03	WS	8.00	***8.58***	1.47	224	25,883	31.2	430	0.048	340
Corbin Park	S001	DU01	US	3.39	***15.9***	***8.62***	40.7	28,479	***476***	1,309	0.424	2,019
		DU02	DS	8.00	***12.9***	5.29	28.7	35,892	***242***	1,045	0.443	1,855
		DU03*	WS	8.00	***5.00***	3.83	279	23,552	***178***	589	0.042	1,006

Greensferry Park	S004	DU01+	US	2.00	***9.55***	0.30	20.4	16,000	21.6	464	0.033	79.5
		DU02+	DS	8.00	***7.13***	1.08	25.6	22,700	54.0	849	0.061	326
		DU03+	WS	8.00	***5.37***	0.80	11.6	24,000	26.1	407	0.033	378
Atlas Waterfront Park	S007	DU01+	DS	8.00	***23.1***	0.80	22.2	24,900	31.4	653	0.033	79.4
		DU02+	WS	8.00	***14.9***	0.92	21.1	31,300	25.3	638	0.033	252
		DU03+	DS	8.00	***25.7***	0.80	25.5	25,800	31.8	668	0.033	82.7
		DU04+	WS	8.00	***16.5***	1.04	18.4	25,700	33.9	1,020	0.033	310
Blackwell Island	S008	DU01	US	3.36	***17.6***	***7.05***	47.5	32,279	***274***	1,329	0.427	953
		DU02*	WS	8.00	***32.7***	1.99	31.1	***44,152***	63.6	***1,678***	0.033	614
Cheamkwet Park	S009	DU01*	US	2.14	***10.8***	3.99	47.2	19,254	***232***	809	0.822	648
		DU02	DS	8.00	***15.3***	***6.74***	60.0	39,392	***367***	1,323	1.39	1,120
		DU03	WS	8.00	***12.5***	3.41	242	26,983	***134***	767	0.205	998
		DU04	DS	8.00	***13.2***	3.86	20.7	32,292	92.5	721	0.441	838
		DU05	WS	8.00	***13.7***	2.02	230	25,683	97.3	645	0.048	953
Yap-Keehn-Um Beach	S010	DU01	DS	8.00	***13.6***	4.43	26.0	32,492	***118***	775	0.444	950
		DU02	WS	8.00	***12.2***	3.12	230	26,783	***104***	681	0.048	1,125
Boardwalk Public Beach	S012	DU01	DS	8.00	***19.1***	3.73	32.5	34,092	66.7	764	0.428	819
		DU02	WS	8.00	***12.0***	1.88	227	26,983	43.8	534	0.048	798
		DU03	DS	8.00	***18.9***	2.74	31.0	31,992	60.4	715	0.428	444
		DU04	WS	8.00	***11.0***	1.47	225	21,983	19.3	410	0.048	491
Tubbs Hill West, 1	S013	DU01	DS	4.00	***7.20***	2.34	29.4	30,992	21.0	446	0.428	416
		DU02	WS	4.00	***6.08***	1.07	222	14,893	17.9	283	0.048	319
Tubbs Hill South, 2	S014	DU01	DS	4.00	***9.95***	4.63	31.3	30,692	93.2	664	0.430	716
Tubbs Hill East, 3	S015	DU01*	DS	4.00	***9.64***	3.40	14.2	25,964	56.6	406	0.033	740
		DU02	WS	4.00	***6.08***	1.07	218	11,623	13.0	272	0.055	373
Sanders Beach West	S016	DU01	DS	8.00	***19.4***	3.67	30.2	31,692	63.0	752	0.428	706
		DU02	WS	8.00	***10.7***	2.74	229	22,283	56.7	420	0.048	716
Sanders Beach Public	S017	DU01*	DS	8.00	***6.67***	2.21	10.5	16,568	53.4	313	0.053	328
		DU02	WS	8.00	***8.58***	1.47	243	19,983	34.5	352	0.048	706
Higgens Point Day Use	S020	DU01	DS	8.00	***21.9***	2.74	52.1	***61,892***	40.1	707	0.428	395
		DU02	WS	8.00	***24.0***	1.58	251	***73,683***	36.4	776	0.048	476
Higgens Point Beach, 2	S021	DU01	DS	8.00	***9.47***	3.17	37.8	39,292	42.3	699	0.439	546
		DU02	WS	8.00	***8.58***	2.78	242	36,483	74.0	547	0.048	880
Higgens Point Beach, 1	S022	DU01	DS	8.00	***11.1***	2.74	34.9	***40,092***	26.3	525	0.428	438
Mica Bay Boater Park	S033	DU01	US	8.20	***7.04***	2.76	33.8	21,079	60.9	548	0.335	458
		DU02	DS	8.00	***9.70***	2.74	27.4	28,192	16.5	588	0.428	394
		DU03	WS	8.00	***8.58***	1.47	229	21,383	19.2	417	0.048	336
Loff's Bay	S036	DU01	US	2.20	***7.08***	2.67	38.6	39,779	49.1	840	0.334	499
		DU02	WS	2.00	***5.77***	1.22	224	22,083	35	337	0.048	378
Carlin Bay	S038	DU01	DS	8.00	***9.47***	4.68	31.5	33,492	***180***	857	0.461	645
		DU02	WS	8.00	***8.58***	1.47	219	12,743	60.3	290	0.048	316

Rockford Bay	S041	DU01	US	2.20	***8.54***	2.89	41.3	21,479	48.2	1,081	0.382	628
Windy Bay	S044	DU01	US	2.20	***5.91***	2.17	30.1	20,079	28.9	614	0.547	435
Bell Bay Campground	S046	DU01	US	2.20	***9.40***	4.71	39.7	29,879	***171***	1,014	0.347	742

Notes:

mg/kg = milligrams per kilogram

* EPC was calculated using ISM replicate data from the DU.

+ EPC is the sample result.

[a] Lower Basin Sediment 90th percentiles estimated from RI/FS data (URS Greiner, Inc. et al. 2001). Presented in Table 3.2-1 of URSG and CH2M Hill 2001.

US = upland soil, DS = dry sediment, WS = wet sediment

Bold, italic text indicates the EPC exceeds an RBSL as shown in previous tables.

Gray cells indicate the EPC is greater than the background value.

Bold, italic, green cells indicate the EPC is greater than the background value and exceed an RBSL as shown in previous tables.

Lead EPCs are the actual sample results.

Appendix A
Site Figures, Descriptions, Sampling Details and Photographs

S001: Corbin Park
Site Priority: High
Site Visit and Sampling: August 14, 2024



Main dry sediment sample area (DU02).



Smaller section of dry sediment sample area (DU02).



Upland soil sample area (DU01).



Wet sediment and nearshore surface water sample area (DU03).

The site is owned by the City of Post Falls and is a developed public park and boat launch located on the Spokane River downstream of the Post Falls Dam.

Observed recreation activities included: picnicking, swimming, wading, cliff diving, kayaking, fishing, sunbathing, dog walking, and off-road vehicle beach access.

Receptors (observed): Public recreational visitors including children and outdoor workers. Outdoor workers were conducting site trash pickup, restroom cleaning, and emptying trash cans. Children were observed swimming, wading, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, river water, and potable water; dermal contact with soils, sediment, and river water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: Site located in riverside forested/shrub habitat with open/maintained lawn areas and gentle/moderate sloped shoreline area. Developed Park includes picnic areas with tables and some covered group shelters, sport courts/fields (baseball, volleyball, disc golf), paved access road and gravel parking areas, restroom facilities, boat launch, and beach areas.

Drinking water is municipal supplied and was not sampled.

Sample areas included beach/shoreline area along river (DU02), shallow-water areas adjacent to beach (DU03), and an upland soil area (DU01) between beach and forested area.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One sample area approximately 250'x75' between beach and wooded area east of boat launch. ▪ Mixture of cobble, gravel, and sand with some organics and patches of vegetation. Good recovery of fines. ▪ 30-point ISM sample composite. ▪ Used trowel with 2-ounce cup from 0-3 inches due to presence of tire track ruts (deeper exposure potential).
Dry Sediment (DU02):	▪ One shoreline sample area consisting of two separate beaches (225'x60' east of boat launch and 100'x25' west of boat launch). ▪ Mixture of cobble, gravel, and sand. Some loss of fines, poor recovery, and depth refusals due to extensive cobbles and large gravel. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU03):	▪ One sample area is combined from separated shallow water areas adjacent to dry sediment area. Area separated by heavily vegetated point that restricts water access. ▪ Rocky with interstitial sands with limited fines. ▪ 30-point ISM sample composite. ▪ Used a stainless-steel scoop and soil screen from 0-3 inches.
Nearshore Surface Water (DU03):	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No.8: Corbin Park. No known changes to site conditions since 1998 sampling. Prior sampling did not include an upland soil area. However, Alta delineated an upland soil area to sample based on current site conditions. The upper portion of the beach was considered an upland soil area because of its relative elevation to the river, soil differences (less cobble/gravel), and presence of ground cover vegetation.

S003: Q'Emiln Park
Site Priority: Medium
Site Visit and Sampling: August 21, 2024

The site is privately owned and is a developed park, boat launch, and swim area open to public use.

Observed recreation activities included: The area experiences high recreational traffic, especially during the summer months. Recreation activities include heavily utilized boat launches, public beaches, protected swimming area, fishing, playground, and watersports.

Receptors (observed): public recreational visitors (including children). Children were observed swimming and wading, digging in beach sediments, playing and/or swimming with dogs, using adjacent playground, and engaging in beach play. Outdoor workers were not observed but are probable since this is a well-maintained park

Exposure potential (based on observed receptors and observed/probable activities):

- Recreational: Ingestion of soil, sediment, river water, and potable water; dermal contact with soils, sediment, or river water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; and inhalation of contaminants in dry soil that are released into air via wind or landscaping/digging activities.

Site Features/Setting: The developed park spans approximately 78.5 acres of publicly accessible recreational land. The park includes a 3-acre forested area with a playground, gazebos, picnic tables, a barbecue area, game zone, and an event center. The shoreline area supports a heavily utilized boat launch, public beach, protected swim area, fishing, and watersports. The park is equipped with a public parking lot, trails, a rock-climbing wall, and a hydroelectric dam.

Drinking water is municipal supplied and was not sampled.

Sample areas included a sloping beach area (DU02), the protected swim area (DU03), and upland soil from the park's forested picnic area (DU01).

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One sample collected from a 3-acre area in grass and forested area of the park (picnic/day use area). ▪ Soil consists of dark brown silts and sands. ▪ 40-point ISM sample composite. ▪ Used trowel with 2-ounce cup from 0-1 inches below the sod layer.
Dry Sediment (DU02):	▪ One shoreline sample area consisting of long, narrow beach (25'x900'). ▪ Dry sediment ranges from gray to light brown sandy gravels. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU03):	▪ One sample from shallow water areas adjacent to dry sediment area. ▪ Wet sediment ranges from light brown to brown silty gravel. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.

Sample Area (DU)	Sample Description
Nearshore Surface Water (DU03):	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, previously sampled.

S004: Greensferry Park
Priority: Medium
Site Visit and Sampling: August 13, 2024



Upland soil sample from open grassy area (DU01).



Dry sediment sample area (DU02).



Example of wet sediment from swim area.



Wet sediment and nearshore surface water sample area in protected swim zone (DU03).

The site is owned by Kootenai County and is a developed public park located on the Spokane River.

Observed recreation activities included: The area experiences high recreational traffic, especially during the summer months, with recreational uses observed throughout the sample area such as children and adults swimming, picnicking, and children playing in the beach area.

Receptors (observed): public recreational visitors (including children). Children were observed swimming and wading, digging in beach sediments, playing and/or swimming with dogs, using

adjacent playground, and engaging in beach play. Outdoor workers were not observed but are probable since this is a well-maintained park

Exposure potential (based on observed receptors and observed/probable activities):

- Recreational: Ingestion of soil, sediment, river water, and potable water; dermal contact with soils, sediment, or river water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; and inhalation of contaminants in dry soil that are released into air via wind or landscaping/digging activities.

Site Features/Setting: The developed park spans approximately 5 acres of publicly accessible recreational land. The park features a 0.23-acre grassy area with a sloping beach, protected swimming area, picnic tables and barbecue area, a gravel parking lot, and one portable toilet.

During the sampling event, local residents informed Alta that the upland soils were not native sediments, estimating that the upland area was approximately 70%-80% fill material imported from off-site.

Drinking water was not observed at this location.

Sample areas included small beach (DU02), protected swim area (DU03), and upland soil area (DU01).

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One sample area approximately 150'x75' in grassy and woody area between parking lot and beach. ▪ Soil consists of dark brown silts and sands. ▪ 30-point ISM sample composite. ▪ Used trowel with 2-ounce cup from 0-1 inches beneath sod/organic layer.
Dry Sediment (DU02):	▪ One shoreline sample area at edge of forested area (25'x75'). ▪ Dry sediment consists of gray to light brown sandy gravels. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches. Refusal at 6-inches at approximately 50% of locations due to hard packed silts and sands.
Wet Sediment (DU03):	▪ One sample area from shallow water area adjacent to dry sediment area. ▪ Wet sediment consists of light brown to brown silty gravel. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches then switched to stainless-steel scoop, soil sieve, and 2-ounce cup because of poor recovery with sediment probe.
Nearshore Surface Water (DU03):	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 5: Green Ferry Bay County Park. No known changes to site conditions since the 1998 sampling. Current sample areas are consistent with previous sampled areas.

S007: Atlas Waterfront Park
Site Priority: High
Site Visit and Sampling: August 5 and 7, 2024



Dog park beach and swim area: sediment and surface water sample locations (DU01 and DU03).



Typical dry sediment conditions of hard packed gravely sand.



Small beach and swim area: sediment and surface water sample locations (DU03 and DU04).



Protected swim area: wet sediment and surface water sample location (DU04).

The site is owned by the City of Coeur d'Alene and is a developed public park on the Spokane River.

Recreation Activities: Observed recreation activities included: boating (kayaks/inflatables) in swim areas, power boats on river (including towable watercraft), kite boards and similar on river, swimming and wading in protected areas, sunbathing, dog-walking, playground activities in adjacent playground, picnicking, active dog park including dog swim area (with kids and adults in water).

Receptors (observed): public recreational visitors (including children), private recreational residents, construction workers (adjacent road/residential area construction). Outdoor workers were not observed but are probable since this is a well-maintained park. Children were observed swimming and wading, playing and/or swimming with dogs (dog park area), using adjacent playground, and engaging in beach play.

Exposure potential (based on observed receptors and observed/probable activities):

- Recreational: Ingestion of soil, sediment, river water, and potable water; dermal contact with soils, sediment, or river water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soil, sediment, and potable water; dermal contact with soils and sediment; and inhalation of contaminants in dry soil that are released into air via wind or landscaping/digging activities.

Site Features/Setting: Site is a developed and well-maintained park adjacent to residential neighborhoods. Gentle shoreline area along the Spokane River with manicured lawns, landscaped vegetation, and paved paths. Developed park includes a paved parking area, walking and biking paths, covered picnic area, playground, restroom facilities, food trucks, multiple beach areas with protected swimming areas, docks, a dog park, and accessibility dock with wheelchair ramp for water access.

Drinking water is municipal supplied and was not sampled.

Sample areas included a series of small public beaches (DU03) with associated protected swim areas (DU04), a fenced dog park (DU01), and a protected dog park swimming area (DU02).

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ Shoreline area fenced off for a dog park (350'x75') at east end of park. ▪ Hard packed gravel and sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Dry Sediment (DU03)	▪ Shoreline area consists of three separated public beaches (350'x35' next to dog park, 55'x10' center beach nearest parking area, and 50'x20' at west end of park). ▪ Hard packed gravel and sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU02)	▪ Shallow water area corresponds to dog park beach. ▪ Gravely sand with cobbles and boulders. Poor recovery of fines (40%). ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU04)	▪ Shallow water area corresponding to three separated public beaches. ▪ Cobble with gravel and coarse sand, very poor recovery of fines (10-20%). ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02 and DU04)	▪ Two samples were collected from each wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

S008: Blackwell Island
Site Priority: High
Site Visit and Sampling: August 8, 2024



Upland soil area adjacent to side channel (DU01).



Upland soil area by boat launch (DU01).



Side channel used for boating and swimming (DU02).



Small, shallow inlet on side channel next to picnic area (DU02).

The site is owned by the U.S. Department of the Interior Bureau of Land Management and is a developed public park and boat launch located on the Spokane River near its headwaters on CDA Lake.

Recreation Activities: Observed recreation activities included: boating, paddle boarding, swimming (including rope swing use), wading, sunbathing, dog-walking, hiking (boardwalk trail), picnicking, and fishing.

Receptors (observed): public recreation visitors (including children). Children were observed swimming and wading. Outdoor workers were not observed but are probable because this is a

well-maintained park. Private recreational residents are assumed based on proximity to residential neighborhood.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, and river water; dermal contact with soils, sediment, and river water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soils and sediment; dermal contact with soil and sediment; inhalation of contaminants in dry soil or sediment that is released into air via maintenance activities or wind.

Site Features/Setting: Relatively level forested/shrub area with marginal wetlands/marsh located on Spokane River and side river channel. Developed park with extensive paved parking (car and boat trailer areas), four-lane boat launch with multiple docks, numerous picnic areas with tables on concrete pads, a group picnic pavilion, boardwalk trail through marsh/wetlands, and restroom facilities. Informal/unmaintained features include several rope swings over the side channel near picnic areas.

Drinking water was not observed at this location.

Sample areas included upland soil area adjacent to side river channel near boat launch (DU01) and adjacent shallow-water areas on the river side channel (DU02). Note that there is no intermediate dry sediment (beach area) between the upland soils and the water.

Sample Area (DU)	Sample Description
Upland Soil (DU01)	▪ One sample consisting of two separated areas (25'x20' on side channel and 20'x20' on side channel by boat launch). ▪ Fine, organic soil generally covered by leaves, pine needles, and vegetation except where soil is exposed by recreation activities. ▪ 30-point ISM sample composite. ▪ Used trowel with 2-ounce cup from 0-1 inches.
Wet Sediment (DU02)	▪ One sample area from shallow water adjacent to upland soil areas. ▪ Fine silt and mud. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site 21: Blackwell Island. There has been significant change to this site since the 1998 sampling. The site is now extensively developed. Sites originally sampled in 1998 are no longer present or have been greatly altered. Current sampling roughly corresponds to 1998 sample area labeled as "subsite 21B".

S009: Cheamkwet Park
Site Priority: High
Site Visit and Sampling: July 31 and August 1, 2024



Dry sediment sample location from beach and picnic area (DU02).



View of beach, picnic area, and trail showing moderate slope from water to upland soils.



Upland soil sample location from trail above beach areas (DU01).



Larger beach area dry sediment sample location (DU04).

The site is owned by North Idaho College and is a developed public park associated with the college campus located on the Spokane River at its headwaters at CDA Lake.

Recreation Activities: Observed recreation activities included: boating (kayaks/paddle boards), floating (inflatables), power boats in main river channel, swimming, wading, beach play, sunbathing, dog walking, hiking, and picnicking.

Receptors (observed): public recreational visitors (including children) and outdoor workers (lawn care, setting up event tents). Children were observed wading, swimming, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or river water; dermal contact with soils, sediment, and river water; and inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soils or sediment; dermal contact with soils or sediment; and inhalation of contaminants in dry soil or sediment that is released into air via maintenance activities or wind.

Site Features/Setting: Shoreline area along Spokane River source consisting of open beach areas with isolated stands of shrubs and trees. This is a developed area associated with North Idaho College and is open to the public. North Idaho College campus is located immediately north of the site across a paved road and nearby campus features include maintained lawns and restrooms. Parking is available along the road and a bike path parallels the road between the road and beach. Developed beach areas include access paths (stairs or gravel walkways) leading from higher elevation parking/road to beach level, walking path, kayak/paddle board launch area, picnic tables on concrete pads, and charcoal grills.

Drinking water was not observed at this location.

Sample areas included upland soil in area with walking path (DU01), several separated public beaches that were grouped into different sample locations based on predominant material type (DU02 and DU04), and shallow-water recreation areas adjacent to beaches (DU03 and DU05).

Sample Area (DU)	Sample Description
Upland Soil (DU01)	▪ One sample area of 1,000'x20' between paved road and public beaches incorporating the walking path and picnic areas. ▪ Hard-packed sandy soil. ▪ 30-point ISM sample composite. ▪ Used trowel with 2-ounce cup from 0-1 inch.
Dry Sediment (DU02)	▪ Sample area of two separated narrow public beach located along the riverbank north of and farthest from the lake source (135'x15' and 245'x15'). ▪ Gravelly coarse sand. Appears to be in an area with less river/lake mixing and sedimentation is mostly river influenced. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches. Some refusals along beach edges furthest from the water due to extremely packed substrate.
Dry Sediment (DU04)	▪ Sample area of two separate beaches located at river/lake interface (115'x35' and 415'x120'). ▪ Fine to coarse sand. Within river/lake mixing zone and sedimentation is influenced by lake wave action. ▪ 40-point ISM sample composite. ▪ Used sediment probe from 0-12 inches. Some refusals along beach edges furthest from the water due to extremely packed substrate.
Wet Sediment (DU03)	▪ Shallow water area corresponding to two separated narrow beaches in river influenced zone. ▪ Gravelly coarse sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.

Sample Area (DU)	Sample Description
Wet Sediment (DU05)	▪ Shallow water area corresponds to two separated beaches at river/lake interface. ▪ Fine to coarse sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU03 and DU05)	▪ Two samples were collected from each wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 1: N. Idaho College Beach – Along Spokane River. No known changes to site conditions since 1998 sampling. Current sample areas are consistent with previous sampled areas.

S010: Yap-Keehn-Um Beach
Priority: High
Site Visit and Sampling: August 1, 2024



Beach and shallow water area (DU01 and DU02).



Example of wet sediment type.

The site is owned by North Idaho College and is a developed public park associated with the college campus located on the Spokane River at its headwaters at CDA Lake.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, volleyball courts, swimming, wading, sail boating, kayaking, fishing, sunbathing, dog walking, beach play activities including digging and making sandcastles, walkers/runners, and watersport rental businesses for paddle boarding/sailing/kayaking/rafts.

Receptors (observed): public recreational visitors (including children) and outdoor workers (empty trash cans, restroom cleaning, site trash pickup). Children were observed swimming, wading, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, river water, and potable water; dermal contact with soils, sediment, and river water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soil, sediment, and potable water; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: High traffic beach area along the northwestern portion of CDA Lake south of North Idaho College and adjacent to the major roadway E. Rosenberry Drive. The roadway is a primary parking area for many recreators and allows the beach to be easily accessible, with highly observed foot traffic along paved trails along the roadway. The paved trail along the roadway leads to a developed slightly forested and grassy dirt path to shallow sloping shoreline beaches. No upland area was observed. Developed park includes picnic areas with tables, volleyball courts/fields, areas, restroom facilities, boat launch, and beach areas.

Drinking water is municipal supplied and was not sampled.

Sample areas included beach/shoreline areas along the lake (DU01) and shallow-water areas adjacent to the beach (DU02).

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One shoreline sample area consisting of two separate beaches (500'x45' west of boat launch and 1,000'x60' east of boat launch). ▪ Gravelly sand with cobbles. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Wet Sediment (DU02):	▪ One combined sample area consists of two separate shallow water areas adjacent to dry sediment area. Area separated by boat launch. ▪ Gravel to cobble sand mixture. ▪ Low recovery (20%-40%), due to larger cobbles. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02):	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 2: North Idaho College Beach – Along Lake. No known changes to site conditions since the 1998 sampling. Current sample areas are consistent with previous sampled areas.

S012: Boardwalk Public Beach
Site Priority: High
Site Visit and Sampling: July 29 and 30, 2024


View of smaller beach (DU03 and DU04).


Photograph 2: View of public boardwalk.

The site is owned by the City of Coeur d'Alene and is a public beach and boardwalk located on the north end of CDA Lake in the city's downtown area.

Recreation Activities: Observed recreation activities included: kayaking, floating, swimming, wading, beach play, sunbathing, walking, dog walking, picnicking, fishing, metal detecting, and scuba diving.

Receptors (observed): public recreation visitors (including children). Children were observed swimming, wading, and engaging in beach play. Private recreational residents are assumed to be receptors based on proximity to nearby residential neighborhood.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground; and ingestion of fish.

Site Features/Setting: Gently sloped shoreline area adjacent to well-developed park and greenbelt that includes manicured lawns and landscaping. Developed park, greenbelt, and public beaches include paved bike/walking paths, sport courts, benches, water features, bathroom facilities, public dock/pier, food truck, float plane and tour boat services, paved parking area, and concrete steps and other designated paths to beaches.

Drinking water is municipal supplied and was not sampled.

Sample areas included a small public beach (DU03) and shallow-water area (DU04) east of the boardwalk, and the larger public beach (DU01) and adjacent shallow-water area (DU02) located west of the boardwalk. No sampling was conducted in the adjacent park or greenbelt area because these areas appear not to flood and are protected by a concrete retaining wall.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ Large public beach west of pier (785'x40') ▪ Sandy with some gravel and hard packed substrate. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Dry Sediment (DU03)	▪ Smaller public beach east of pier (250'x50') ▪ Sandy with some gravel and hard packed substrate. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Wet Sediment (DU02)	▪ Shallow water area adjacent to large public beach area west of pier. ▪ Sandy with some gravel. Poor recovery (30-50%) due to gravel component. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU04)	▪ Shallow water area adjacent to smaller public beach area east of pier. ▪ Sandy with some gravel. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02 and DU04)	▪ Two samples were collected from each wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 9: Coeur d'Alene Beach at City Park. No known changes to site conditions since 1998 sampling. The 1998 sample area only sampled the larger beach west of the pier and extended farther west than the current sampling areas of the west beach. The section of the west beach that is immediately adjacent to a residential road is now considered a private beach and was not included in the current sampling effort.

S013: Tubbs Hill West Beach, Site 1
Priority: Medium
Site Visit and Sampling: August 28, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU01 (dry sediment) rocky area



Photograph 3: DU02 (wet sediment) sample area



Photograph 4: DU02 (wet sediment) showing material type

The site is owned by the City of Coeur d'Alene and is a small, undeveloped beach on the west side of the greater Tubbs Hill recreation area near downtown Coeur d'Alene on the north end of the lake.

Recreation Activities: Observed recreation activities included: swimming and cliff jumping, boating (kayaks and power boats), sunbathing, dog walking, walking, fishing, education, and outreach such as the Junior Friends of Tubbs Hill Activity Book created for the area and education interpretive signs that discuss nature and landscape. The Site is heavily used for swimming and hiking.

Receptors (observed): Public recreational visitors. Outdoor workers were not observed but the recreation site has been an area for Habitat Restoration through the Urban Forestry Committee. In July 2022 the Parks Department installed an eco-camera to count the number of visitors to Tubbs Hill. From January 2023 to July 2023, the entire Tubbs Hill area received a total of 364,259 visitors, with a daily average of 998 visitors.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, or lake water; inhalation of contaminants in dry soil or sediment that is released into the air via wind; and ingestion of fish.
- Occupational: Incidental ingestion of soils and sediment; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Tubbs Hill Recreational Area is 165 acres of natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. The west beach is a narrow shoreline area with elevated/steep bedrock adjacent to the shoreline. The area is generally forested, and hilly, with crag outcrops adjacent to the beach area.

Drinking water was not observed at this location.

Sample areas include beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach. The sample area is split between a rocky outcrop to the south and a forested social trail.

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One sample consisting of two separated areas (1,400 ft^2) on the north beach area and (480 ft^2) southern beach area approximately 200 feet to the south and separated by a rock outcrop and social trail. ▪ Hard-packed gravelly sand with cobbles, exposed bedrock within sampling DU. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-3 inches.
Wet Sediment (DU02):	▪ One sample consisting of two separated areas separated by a rock outcrop and social trail. ▪ Rocky/gravely with interstitial fines, generally poor recovery of fines. Rock is very angular (eroded bedrock). ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02):	▪ One sample was collected from the two separate corresponding wet sediment areas. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using a churn splitter.

1998 CUA Site: Yes, CUA Site No. 10: Tubbs Hill (Site 1). 14 sub-sample composites were taken during the 1998 sampling event, generally corresponding to the northern beach area sampled in 2024. From site maps and photos within the 1998 CUA sample site, it appears that

the southern beach area separated by a rock outcrop was not characterized. No known changes to site conditions since 1998 sampling.

S014: Tubbs Hill South Beach, Site 2
Priority: Medium
Site Visit and Sampling: August 28, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU02 unsampled wet sediment due to lack of fines

The site is owned by the City of Coeur d'Alene and is a small, undeveloped beach on the south side of the greater Tubbs Hill recreation area near downtown Coeur d'Alene on the north end of the lake.

Recreation Activities: Observed recreation activities included: swimming and cliff jumping, boating (kayaks and power boats), sunbathing, dog walking, walking, fishing, education, and outreach such as the Junior Friends of Tubbs Hill Activity Book created for the area and education interpretive sign discussing nature and the landscape surrounding Tubbs Hill. The Site is heavily used for swimming and hiking.

Receptors (observed): Public recreational visitors. Outdoor workers were not observed but the recreation site has been an area for Habitat Restoration through the Urban Forestry Committee. In July 2022 the Parks Department installed an eco-camera to count the number of visitors to Tubbs Hill. From January 2023 to July 2023, the entire Tubbs Hill area received a total of 364,259 visitors, with a daily average of 998 visitors.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, or lake water; dermal contact with soils, sediment, or lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind; and ingestion of fish.
- Occupational: Incidental ingestion of soils and sediment; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Tubbs Hill Recreational Area is 165 acres of natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. Tubbs Hill South Beach is a narrow shoreline area with elevated/steep bedrock adjacent to the shoreline. Tubbs Hill South Beach, Site 2 is located approximately 400 feet to

the east of Tubbs Hill West Beach, Site 1. The area is generally forested, and hilly, with crag outcrops adjacent to the beach area.

Drinking water was not observed at this location.

Sample areas include beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One shoreline sample area consisting of approximately 5,000 ft^2 beach. ▪ Hard-packed gravelly sand with cobbles, exposed bedrock within sampling DU. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU02)	▪ No sample was collected from wet sediment because there was insufficient fine material recovered. Samplers used stainless-steel scoop and soil sieve with less than 10% recovery of fines.
Nearshore Surface Water (DU02):	▪ One sample was collected from the proposed wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using a churn splitter.

1998 CUA Site: Yes, CUA Site No. 11: Tubbs Hill (Site 2). No known changes have been observed to sampling area since 1998. Current sample areas are consistent with previous sampled areas.

S015: Tubbs Hill East Beach, Site 3
Priority: Medium
Site Visit and Sampling: August 28, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU01 (dry sediment) beach area



Photograph 3: DU02 (wet sediment) sample area



Photograph 4: DU02 (wet sediment) sample area

The site is owned by the City of Coeur d'Alene and is a small, undeveloped beach on the east side of the greater Tubbs Hill recreation area near downtown Coeur d'Alene on the north end of the lake.

Recreation Activities: Observed recreation activities included: swimming and cliff jumping, boating (kayaks and power boats), sunbathing, dog walking, walking, fishing, education, and outreach such as the Junior Friends of Tubbs Hill Activity Book created for the area and education interpretive signs that discuss nature and the landscape surrounding Tubbs Hill. The Site is also heavily used for swimming and hiking.

Receptors (observed): Public recreational visitors. Outdoor workers were not observed but the recreation site has been an area for Habitat Restoration through the Urban Forestry Committee.

In July 2022 the Parks Department installed an eco-camera to count the number of visitors to Tubbs Hill. From January 2023 to July 2023, the entire Tubbs Hill area received a total of 364,259 visitors, with a daily average of 998 visitors.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, or lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind; and ingestion of fish.
- Occupational: Incidental ingestion of soils and sediment; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Tubbs Hill Recreational Area is 165 acres of natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. Tubbs Hill East Beach, Site 3 is a narrow shoreline area with elevated/steep bedrock adjacent to the shoreline. The area is generally forested, and hilly, with crag outcrops adjacent to the beach area. The trailhead area is approximately 0.25 miles north and contains paved road access and paved parking, a dirt trail with educational signs, restrooms, and a boating dock area.

Drinking water was not observed at this location.

Sample areas include beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach. Exposed bedrock and walking path in forested areas adjacent to the dry sediment sample area to the northwest.

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One sample area (200 ft^2) consists of a beach with adjacent rock outcrop. ▪ Hard-packed gravelly sand with cobbles, exposed bedrock within sampling DU. ▪ 30-point ISM sample composite. ▪ Used stainless-steel hand trowel, soil sieve, and 2-ounce cup to collect samples from 0-6 inches.
Wet Sediment (DU02):	▪ Shallow water area adjacent to beach. ▪ Rocky/gravely with interstitial fines, generally poor recovery of fines. Rock is very angular (eroded bedrock). ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02):	▪ One sample was collected from the two separate corresponding wet sediment areas. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using a churn splitter.

1998 CUA Site: Yes, CUA Site No. 12: Tubbs Hill (Site 3). No known changes were observed to sampling area since 1998. Current sample areas are consistent with previous sampled areas.

S016: Sanders Beach West
Site Priority: High
Site Visit and Sampling: August 7, 2024



Photograph 1: DU01 (dry sediment) beach area looking west



Photograph 2: View of upper beach showing storm water discharge infrastructure and road



Photograph 3: DU01 (dry sediment) beach area looking east



Photograph 4: DU02 (wet sediment) view of typical sediment type

The site is owned by the City of Coeur d'Alene and is a public beach located on the north end of CDA Lake east of the Tubbs Hill recreation area.

Recreation Activities: Observed recreation activities included: kayaking and paddle boarding, floating, swimming, wading, beach play, sunbathing, dog walking, and picnicking. Onsite workers were observed repainting parking area lines/signage next to the site.

Receptors (observed): public recreational visitors (including children) and outdoor workers. Children were observed swimming, wading, floating, and engaging in beach play. Private recreational resident receptors are assumed based on proximity to nearby residential

neighborhood. Other outdoor workers and construction workers are assumed because there is a city stormwater outlet that crosses the site to the lake.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, and lake water; dermal contact with soils, sediment, and lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, or lake water; and inhalation of contaminants in dry soil or sediment that is released into air via construction, digging, or wind.

Site Features/Setting: Gently sloping beach set between residential homes/properties. Marginal shrubs and trees on site. Development includes concrete retaining wall between beach and adjacent road, paved road with streetside parking, and city stormwater outlets are buried beneath the beach (outfall to the lake). Fences separate the private residences from the beach and neighboring private beach areas are marked with signs.

Drinking water was not observed at this location.

Sample areas included a public beach and nearshore area.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One sample area approximately 100'x70' within fenced boundary. ▪ Sandy beach. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches. One refusal at 3-inch depth due to buried storm water outfall infrastructure.
Wet Sediment (DU02)	▪ One sample area from shallow water adjacent to dry sediment area. ▪ Sandy. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02)	▪ Collected from wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S017: Sanders Beach Public
Priority: Medium
Site Visit and Sampling: August 6, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU02 (wet sediment) sample area

The site is owned by the City of Coeur d'Alene and is a public beach located on the north end of CDA Lake east of the Tubbs Hill recreation area.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, swimming in designated swimming areas, wading, sail boating, kayaking, fishing, sunbathing, dog walking, beach play activities including digging and making sandcastles, and walkers/runners.

Receptors (observed): public recreational visitors (including children). Children observed swimming, wading, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: Highly traffic beach area along the northwestern portion of CDA Lake, east of the Tubb Hill Recreational Area. The roadway is a primary parking area for many recreators and allows the beach to be easily accessible, with highly observed foot traffic along paved trails along the roadway. The beach area is south of a residential neighborhood and less than a mile south of downtown Coeur d'Alene. The roadway leads to a paved trail to access the beach. The beach area is shallow, sloping less than 2 %. From the beach there is no upland area for recreation, but a retaining wall with a gated fence to private residences. East of the beach area is a fenced-in wall to restrict access to a private beach area.

Drinking water was not observed at this location.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One shoreline sample area approximately 500 ft^2. ▪ Gravelly sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Wet Sediment (DU02):	▪ One combined sample area consists of shallow water areas adjacent to dry sediment areas. ▪ Gravel to cobble sand mixture. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02):	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S020: Higgens Point Day Use Area
Site Priority: High
Site Visit and Sampling: August 20, 2024



Photograph 1: DU01 (dry sediment) narrow beach area



Photograph 2: View of narrow beach area and impacts from eroding slope



Photograph 3: DU02 (wet sediment) shallow water area along beach



Photograph 4: Typical wet sediment from site

The site is owned by the Idaho Department of Parks and Recreation and is a developed park and boat launch with some undeveloped shoreline areas located in the northeast corner of CDA Lake.

Recreation Activities: Observed recreation activities included: boating (kayaks and power boats), sunbathing, dog walking, walking, and fishing. Site is heavily used for fishing.

Receptors (observed): Public recreational visitors. Outdoor workers were observed conducting park maintenance activities (servicing restrooms).

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, or lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind; and ingestion of fish.
- Occupational: Incidental ingestion of soils and sediment; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Narrow shoreline area with elevated/steep bedrock adjacent to shoreline. The area is generally forested and hilly. The day use area contains paved road access and paved parking, paved bike path, a boat launch, a dirt trail with educational signs, and restroom.

Drinking water was not observed at this location.

Sample areas include a narrow shoreline area in an undeveloped margin of the park that is accessible by a number of informal social trails following steep and rocky embankment. Dry sediment is strongly influenced by erosion of steep bank and bedrock immediately adjacent to the site.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One sample area from informal beach area along edge of steep embankment (275'x10') east of boat launch and parking area. ▪ Hard packed, rocky soils and exposed bedrock with some gravel accumulating along the water's edge from wave action. ▪ 30-point ISM sample composite. ▪ Used trowel, soil sieve, and 2-ounce cup to collect samples from 0-1 inch.
Wet Sediment (DU02)	▪ One sample area corresponding with dry sediment area. ▪ Rocky/gravely with interstitial fines, generally poor recovery of fines. Rock is very angular (eroded bedrock). ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S021: Higgens Point Beaches, Site 2
Site Priority: High
Site Visit and Sampling: August 19, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU01 (dry sediment) beach area



Photograph 3: DU02 (wet sediment) area



Photograph 4: Typical wet sediment from site

The site is owned by the Idaho Department of Parks and Recreation and is a developed park and boat launch with some undeveloped shoreline areas located in the northeast corner of CDA Lake.

Recreation Activities: Observed recreation activities included: boating, swimming, wading, dog-walking, walking, and picnicking.

Receptors (observed): public recreational visitors.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, and lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Gently sloped shoreline area at the base of a steep, forested hillside (rocky point that protrudes into the lake). On southeast side of point. There is a developed park area at the top of the hill that includes a group use picnic area, volleyball court, horseshoe pits, picnic tables, restrooms, and a paved bike path (opened to vehicles for group use area access by reservation). There are two beach areas accessed by a maintained hiking trail down the hillside from the group use area. There is a picnic table on one beach.

Drinking water was not observed at this location.

Sample areas include two small beaches separated by a wooded area. No sampling at the developed group use area because this area is well above water and any potential flooding.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One sample area consisting of two separate beaches (200'x10' and 75'x10'). ▪ Beach areas are compacted silts and gravel. Gravel percentage increases closer to water. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Wet Sediment (DU02)	▪ One sample area corresponding to dry sediment areas. ▪ The sediment type was gravel with interstitial sand. Generally poor recovery. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to sample from 0-3 inches. Several points had zero recovery of fine material.
Nearshore Surface Water (DU02)	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 16: Higgan's Point (Site 2). The site has generally remained the same since the 1998 sampling. Current sample areas are consistent with previous sample areas.

S022: Higgens Point Beaches, Site 1
Site Priority: High
Site Visit and Sampling: August 19, 2024



Photograph 1: DU01 (dry sediment) beach and picnic area



Photograph 2: DU01 (dry sediment) beach and picnic area



Photograph 3: boat-in docks



Photograph 4: boat-in docks

The site is owned by the Idaho Department of Parks and Recreation and is a developed park and boat launch with some undeveloped shoreline areas located in the northeast corner of CDA Lake.

Recreation Activities: Observed recreation activities included: boating (boat dock use and offshore power boats), swimming, wading, dog walking, hiking, picnicking, and fishing.

Receptors (observed): public recreational visitors.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, or lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind; and ingestion of fish.

Site Features/Setting: Gently sloped beach at base of steep, forested hillside (rocky point that protrudes into the lake). Located on the west side of point. The site is accessed by a maintained hiking trail from the nearby paved bike path. Beach area development includes maintained hiking/ access trail, picnic tables, and two boat docks.

Drinking water was not observed at this location.

Sample areas include a public beach between two boating docks. No sampling was performed on the access trail which does not appear to be impacted by flooding.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One sample area is approximately 175'x20'. ▪ Beach area is compacted silts/soil and gravel. Gravel percentage increases closer to water. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Wet Sediment (DU02)	▪ No sample was collected from wet sediment because there was insufficient fine material recovered. Samplers used stainless-steel trowel and soil sieve at 10% of subsample locations with no recovery of fines so sampling attempt was aborted.
Nearshore Surface Water (DU02)	▪ Collected from the proposed wet sediment area parallel to the sampled beach area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 15: Higgan's Point (Site 1). The site has generally remained the same since the 1998 sampling. A dock noted at the north end of the beach in 1998 was not present during the 2024 sampling. Current sample areas are consistent with previous sample areas.

CONF02
Priority: High
Site Visit and Sampling: August 20, 2024

The site is a privately owned property on the northeast side of CDA Lake.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, swimming in designated swimming areas, wading, sail boating, kayaking, fishing, sunbathing, dog walking, beach play activities including digging and making sandcastles, and walkers/runners. A private resort area has dining and condominiums.

Receptors (observed): private recreational visitors (including children). Children observed swimming, wading, digging and engaging in beach play. Resort employees observed grooming beach sands.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: High traffic area along the northern portion of CDA Lake. Site has designated areas for swimming and play areas for children, boat and watercraft access, and fishing. Paved parking, beach access, and boat docks are present at site. The beach area is moderately sloped with a grassy upland area south of the dry sediments area, separated by a boating dock.

Private location, no public drinking water available at this site. Private drinking water sources were not sampled under this investigation.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One grassy upland sample area located south of the dry sediment area. ▪ 30-point ISM sample composites. ▪ Dark brown silts with organics ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-1 inches.
Dry Sediment (DU02):	▪ One shoreline sample area approximately 750 ft^2. ▪ Gravelly silty sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches.
Wet Sediment (DU03):	▪ One combined sample area consists of shallow water areas adjacent to dry sediment areas to the east. ▪ Gravel to cobble sand mixture. ▪ 30-point ISM sample composite.

Sample Area (DU)	Sample Description
	▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU03):	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

CONF03
Priority: High
Site Visit and Sampling: August 5, 2024

The site is a privately owned property on the northwest side of CDA Lake.

Recreation Activities: Very high recreational usage was observed. Recreation activities included swimming, wading, fishing, sunbathing, dogs playing on beach, and beach play activities including digging and making sandcastles.

Receptors (observed): private recreational visitors (including children). Children observed swimming, wading, and engaging in beach play.

Exposure potential(based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: Private beach area along the east-central portion of CDA Lake, east of Swede Bay. Situated within residential homes, the sample area is divided between two private beaches, between one private beach that was not characterized due to consent. The private beach consists of two boating docks and observations of local residents swimming and play areas for children, boats, sun tanning, and fishing. The private beach area is accessed through a private road. The area is not accessible to the public.

Private location, no public drinking water is available at this site. Private drinking water sources were not sampled under this investigation.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One shoreline sample area consisting of two private beaches split between one private beach that was not characterized due to consent. The western private beach area is approximately 520 ft^2 and the eastern private beach is approximately 360 ft^2. ▪ Poorly graded gravelly sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Wet Sediment (DU02)	▪ One combined sample area consists of shallow water areas adjacent to dry sediment areas sampled. ▪ Poorly graded gravelly sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Nearshore Surface Water (DU02)	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

CONF04
Priority: High
Site Visit and Sampling: August 26, 2024

The site is a privately owned property in Swede Bay on the west side of CDA Lake.

Recreation Activities: Low recreational usage was observed, with primary recreation users being private residents and visitors. Recreation activities observed during sampling include evidence of swimming, wading, kayaks, paddleboard, beach play activities including digging and making sandcastles, as well as inflatable children's beach toys.

Receptors (observed): evidence of private recreational visitors (including children).

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: Private beach area along the east-central portion of CDA Lake. Situated near residential homes and private roadways. The sample area includes a gentle sloping private beach adjacent to steep and forested hillside. The beach area consists of two boating docks and observational evidence of local residents swimming and play areas for children and boating. Sport courts and outdoor sitting areas were adjacent to beach areas. The private beach area is accessed through a private road. The area is not accessible to the public.

Private location, no public drinking water is available at this site. Private drinking water sources were not sampled under this investigation.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One shoreline sample area consists of a private beach approximately 5,000 ft^2. ▪ Loose poorly graded sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches. ▪ Recovery 60%-70%
Wet Sediment (DU02)	▪ One combined sample area consists of shallow water areas adjacent to dry sediment areas. ▪ Loose poorly graded sand. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-6 inches. ▪ Recovery 30%-50%
Nearshore Surface Water (DU02)	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

CONF05
Priority: Medium
Site Visit and Sampling: August 12, 2024

The site is a privately owned property in Gotham Bay on the east side of CDA Lake.

Recreation Activities: Moderate recreational usage is assumed by observations made during the site visit. Assumed recreation activities during camping season may include swimming, shooting sports, disc golf, axe throwing, fishing, wading, kayaking, hiking, volleyball courts, fishing, and beach play activities.

Receptors (observed): Evidence of recreational visitors (including children). Workers include staff and maintenance personnel.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, river water, and potable water; dermal contact with soils, sediment, and river water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturbs the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: Private beach area along the east perimeter of CDA Lake located in Gotham Bay. Situated near residential homes and private roadways. The sample area includes a gentle sloping private beach adjacent to the grassy uplands area. The beach area consists of two boating docks, a designated swimming area, rustic wooden structures, restrooms, social trails, volleyball, disc golf, firepits on beach, canoes/kayaks/boats, and axe throwing targets. The uplands area is primarily used as a designated camping area for children. The private beach area is accessed through a private road and the area is not accessible to the public.

Drinking water is supplied by domestic groundwater well. Private drinking water sources were not sampled under this investigation.

Sample areas include uplands, beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One sample area approximately 15,600 ft^2 grassy area. ▪ Dark brown silts/clays with organics. ▪ 30-point ISM sample composites. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Dry Sediment (DU02):	▪ One shoreline sample area consists of a beach area approximately 3,500 ft^2. ▪ Sandy gravel. ▪ 30-point ISM sample composite. • Used sediment probe from 0-12 inches.
Wet Sediment (DU03):	▪ One combined sample area consists of shallow water areas adjacent to dry sediment areas. ▪ Loose, poorly graded sand.

Sample Area (DU)	Sample Description
	▪ 30-point ISM sample composite. • Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU03):	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. • Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S033: Mica Bay Boater Park
Site Priority: Medium
Site Visit and Sampling: August 21, 2024



Photograph 1: DU01 (upland soils) grassy area with raised swing set



Photograph 2: DU01 (upland soils) grassy area and trail to beach



Photograph 3: DU02 (dry sediment) beach and picnic area



Photograph 4: DU03 (wet sediment) protected swim area by beach and picnic area

The site is owned by the U.S. Bureau of Land Management and is a developed boat-in campground in Mica Bay on the west side of CDA Lake.

Recreation Activities: Observed recreation activities included: kayaking, boating (power boat at dock), and camping. Although not directly observed, there was evidence of beach play activities (shallow digging) and picnicking (trash by picnic tables). A protected swimming area indicates swimming and wading are likely site activities.

Receptors (observed): public recreational visitors (including children). Children were observed in the campground. An outdoor worker was observed on site (camp host) performing site maintenance activities (restroom cleaning).

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind or maintenance activities.

Site Features/Setting: Gently sloped shoreline and grassy upland area at base of steep, forested hillside. Narrow beach with protected swim area is adjacent to steep, forested hillside. This is a boat-in site but does have a dirt access road for maintenance vehicle access or foot access from nearby (1/4 mile away) paved road. Developed boat-in campground includes two playgrounds (swing sets in raised boxes filled with gravel/sand), picnic tables with charcoal grills, group shelter, two docks, protected swimming area, restrooms (vault toilets), walking paths, camp sites (including tables and fire rings), information signage, camp host, and water drinking fountains.

Drinking water is available from fountains/spigots and irrigation water are sourced from an onsite well that is routinely tested by site owner/operator.

Sample areas include upland soil located within a low-lying grassy area that shows evidence of flooding. The upland soil area is separated from the upper portion of campground by elevated footpaths that serve as a flood barrier, beach day use area (east side of park), and protected swim area adjacent to beach and east of docks. No wet sediment or surface water was collected from the shoreline between or west of the docks because these areas did not appear to be used for swimming or wading (boat launching only).

Sample Area (DU)	Sample Description
Upland Soil (DU01)	▪ One sample composed of four separated, low-lying grassy areas and a dirt path within areas that appear to flood. Areas are separated by elevated foot paths that form flood barriers and provide walking access to docks. Total area covered approximately 300'x100'. ▪ Sample area is mowed grass and weeds. Samples collected from below the sod layer and were comprised of fine soils/sands. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup from 0-1 inches.
Dry Sediment (DU02)	▪ One sample from day use area beach (300'x30'). ▪ Beach consists of packed gravely sand with hardpacked substrate. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Wet Sediment (DU03)	▪ One sample area from within protected swim area adjacent to dry sediment area (beach). ▪ Wet sediment is coarse sand with small gravel. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.

Sample Area (DU)	Sample Description
Nearshore Surface Water (DU03)	▪ One sample collected from wet sediment sample area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 24: Mica Bay. Field observation show changes to site since sampling events in 1998. These changes include new docks (within the same general layout) as well as the addition of available drinking water. Beyond these changes the site generally remains the same. Current sample areas are consistent with 1998 sampling, with the exception of the upland soil area. The current sampling of upland soil did not extend as far up the slope as sampling performed in 1998 due to the upper slope (camp site and group shelter area) appearing to be above the high-water line.

S036: Loff's Bay
Site Priority: High
Site Visit and Sampling: August 12, 2024



Photograph 1: DU01 (upland soil) small picnic area



Photograph 2: DU01 (upland soil) small area on across boat launch ramp from small picnic area



Photograph 3: DU02 (wet sediment) shallow water area along picnic area



Photograph 4: view of dock next to boat launch

The site is owned by the Idaho Department of Fish and Game and is a developed boat launch in Loff's Bay on the west side of Coeur d'Alene Lake.

Recreation Activities: Observed recreation activities included: boating, wading, and dog walking. Sampling crew observed the site being used by private organization for package/supply delivery loading boat from semi-truck.

Receptors (observed): public recreational visitors

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, or lake water; dermal contact with soils, sediment, or lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind.

Site Features/Setting: Flat shoreline area adjacent to forest and shrub covered hillside area. Area is part of a developed boat launch that includes gravel parking area, restroom (vault toilet), signage, and boat launch ramp/dock.

Drinking water was not observed at this location.

Sample areas include upland soil area is grassy area by boat launch ramp that has an abrupt edge/drop to the water level. There is no beach transition between the lake and this upland grassy area. Other areas of the site (parking and restrooms) are on a rise above the site and do not flood.

Sample Area (DU)	Sample Description
Upland Soil (DU01)	▪ One sample area approximately 125'x20' includes flat grassy area and gravel area by boat launch. ▪ Packed gravel/soils and sandy/soil (in grassy area). ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup to collect samples from 0-1 inch.
Wet Sediment (DU02)	▪ One sample area (100'x15') adjacent to upland soil area. ▪ Rocky/gravelly sand. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil screen, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 26: Loff's Bay. During the 1998 sampling it was noted that a drinking water source was present at the site (a pipe running from the hillside with posted signage warning of likely fecal coliform bacterial in the water). This drinking water source was not observed during the current sampling event.

CONF06
Priority: High
Site Visit and Sampling: August 7, 2024

The site is located on privately owned property within Loff's Bay on the west side of CDA Lake.

Recreation Activities: Very high recreational usage. The recreation observed includes boating, floating, watersports, swimming/wading/diving, sunbathing, walking/hiking, many various sport activities on and near beach, canoe and kayaking, and beach play activities including digging.

Receptors (observed): Recreation users, visitors, and workers.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soil, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: The site is only accessible via boat access. The property consists of approximately 100 acres of forested land. There are two main beach areas for recreational users. Beach areas consist of two boating docks, canoes, and fire pits along the beach. The shoreline area consists of a gently sloping beach, with a slight drop near the water's edge. The area is not accessible to the public.

Additional Information: (DU01) beach sediments consisting of primarily gravel and cobbles were imported in the early 2000s. The imported sediment was designed to match the native sediment from other site beaches (DU04).

Private location, no public drinking water is available at this site. Private drinking water sources were not sampled under this investigation.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One shoreline sample area approximately 7,000 ft^2 of private beach. ▪ Sand and gravel with silt. Recovery of 60-90%. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-6 inches.
Wet Sediment (DU02):	▪ Not sampled due to insufficient recovery of fines.
Dry Sediment (DU04):	▪ One shoreline sample area consists of a private beach. ▪ Sandy and gravel with silt. ▪ 30-point ISM sample composite. Four subsample locations had no recovery, and one subsample met refusal at 3-inches. ▪ Alta field crew performed ISM sample delineation in field 31.5'x19.5'. Random direction is chosen via baggie method (southeast corner).

Sample Area (DU)	Sample Description
	▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-6 inches.
Wet Sediment (DU05):	▪ Not sampled due to insufficient recovery of fines.
Nearshore Surface Water (DU02 and DU05):	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S038: Carlin Bay
Priority: High
Site Visit and Sampling: August 14, 2024



Photograph 1: DU01 (dry sediment) beach area



Photograph 2: DU01 (dry sediment) material type



Photograph 3: DU02 (wet sediment) sample area



Photograph 4: DU02 disturbance during nearshore surface water sample collection

The site is owned by Kootenai County and is a public beach located in Carlin Bay on the east side of CDA Lake.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, swimming in designated swimming areas, wading, boating, sunbathing, dog walking, beach play activities including digging and making sandcastles, walkers/runners.

Receptors (observed): public recreational visitors (including children). Children observed swimming, wading, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, river water, and potable water; dermal contact with soils, sediment, and river water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: Carlin Bay is located off Highway 97 on the western perimeter of CDA Lake. The public-use recreation area is situated by residential properties and south of a private restaurant and dock which is highly trafficked with outdoor dining seating. The beach area consists of two boat docks and shoreline for recreation. It also consists of a grassy engineered upland area for picnicking and barbeque, which is separated by the beach area by a 4-foot high retaining wall. The area also has restrooms for visitors. The park has a gravel parking area for many recreators and allows the beach to be easily accessible, as well as a boat launch area. The beach area is moderately sloped.

Drinking water was not observed at this location.

Sample areas included beach/shoreline areas along the lake, and shallow-water areas adjacent to the beach.

Sample Area (DU)	Sample Description
Dry Sediment (DU01):	▪ One shoreline sample area of approximately 2,000 ft^2. ▪ Gravelly silty sand. Gravel 70%, silts 20%, and sands 10%. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-6 inches.
Wet Sediment (DU02):	▪ One shoreline sample area adjacent to dry sediment area. ▪ Gravel with cobble and sand. Gravels range from 75% to 85%. ▪ 30-point ISM sample composite. Refusal of 4 sub-samples due to low volume. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02):	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No

S041: Rockford Bay Public Access
Priority: High
Site Visit and Sampling: August 15, 2024



Photograph 1: Picnic area and shoreline



Photograph 2: DU01 (upland soil) sample area

The site is owned by Kootenai County and is a developed public boat launch and day use area located in Rockford Bay on the west side of CDA Lake.

Recreation Activities: Low recreational usage was observed. Recreation activities included picnicking with tables located in the park. The area is not conducive for swimming and is primarily flat and grassy. It appears that the area is primarily used as a public boat launch.

Receptors (observed): private recreational visitors. Recreation observed boating and possible picnicking.

Exposure potential(based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities.

Site Features/Setting: Lightly trafficked uplands area along the western portion of CDA Lake. No beach areas were observed during site visit. This public recreation appears to be primarily used for its public boat launch. It is adjacent from the highly traveled and popular private Blackrock Marina, as well as the popular lake side restaurant (Shooters Bar and Grill) and general store. The grassy uplands are flat and contain picnic tables.

Drinking water was not observed at this location.

Sample area included grassy upland soils along the lake.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	• One grassy upland sample area adjacent to the shoreline. • 30-point ISM sample composites. • Dark brown silts with organics • Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-1 inches.

1998 CUA Site: Yes, CUA Site No. 25: Rockford Bay. No known changes to site conditions since 1998 sampling. Current sample areas are consistent with previous sample areas.

CONF07
Site Priority: High
Site Visit and Sampling: August 27, 2024

The site is a privately owned property in Windy Bay on the west side of CDA Lake.

Recreation Activities: This site is used for private recreation activities. There were no activities at the time of the site visit and sampling. Although not observed, there are signs of the following activities within the site: kayaking, paddle boarding, sailing, swimming, wading, beach play, sports activities, camping, and hiking.

Receptors: public recreation visitors (including children)

Exposure potential (based on presumed activities):

- Recreational: Ingestion of soils, sediment, lake water, or potable water; dermal contact with soils, sediment, and lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind or during play activities that disturb the ground.

Site Features/Setting: Forested/shrub hillsides with several beach and marginal grassy areas. Multiple buildings on site.. Other site features include several boat docks and a protected swimming area. The site has several separated beach areas interconnected by hiking trails and dirt roads.

Drinking water is available inside buildings. The source is unknow and not sampled because this is private property.

The site was divided into three sampling areas that are all separated from each other. Area 1 sample areas include an upland soil (lawn) area and shallow water area with boat launch and dock near the main facility. There is no beach transition between upland soil and shallow water area (there is a strip of vegetation – tall grass and shrubs – between these areas). Area 2 sample area includes a small beach with two docks and a protected swim area connected by a short trail from Area 1. Area 3 sample area is a small beach and dock approximately ½ mile from the main facility.

Sample Area (DU)	Sample Description
Area 1	
Upland Soil (DU01)	▪ Grassy area that floods below main facility building (105'x35'). ▪ Sandy soil beneath sod layer. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup to collect samples from 0-1 inch.
Dry Sediment (DU02)	▪ No sample collected. There was no transition/beach area between the upland soil and wet sediment area – only a strip of vegetation separated these areas.
Wet Sediment (DU03)	▪ One area adjacent to upland soil area (130'x15'). ▪ Fine sand and clay with some rocky areas. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Nearshore Surface Water (DU03)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample.

Sample Area (DU)	Sample Description
	▪ Collected water from mid water depth at each subsample location and combined using churn splitter.
Area 2	
Dry Sediment (DU04)	▪ Beach area approximately 50'x25'. ▪ Coarse sand with pea sized gravel with hardpacked substrate. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Wet Sediment (DU05)	▪ One sample from within protected swim area adjacent to beach (50'x20'). ▪ Sand and clay. ▪ 30-point ISM sample composite. ▪ Used sediment probe to sample from 0-6 inches.
Nearshore Surface Water (DU05)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.
Area 3	
Dry Sediment (DU06)	▪ Beach area below camping cabins approximately 50'x35' ▪ Packed gravel and coarse sand. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup to collect samples from 0-3 inches.
Wet Sediment (DU07)	▪ One sample collected from shallow area between beach and L-shaped dock (25'x45'). ▪ Rocky with interstitial sand. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU07)	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No.

S044: Windy Bay
Priority: High
Site Visit and Sampling: August 15, 2024



Photograph 1: DU01 (upland soil) camping sites



Photograph 2: DU01 (upland soil) camping sites

The site is owned by the U.S. Bureau of Land Management and is a developed boat-in campground in Windy Bay on the west side of CDA Lake.

Recreation Activities: Low recreational usage was observed, though it appears that this is a popular recreation area for boat accessible camping. The area is not conducive for swimming and is primarily flat and grassy uplands with steep banks to access the shoreline. It is possible recreation user may utilize the 7-boat dock for swimming access, though this was not observed during the site visit. It appears that the area is primarily used as a public boat launch. Possibly fishing from boating dock, though this was also not observed during Alta's site visit.

Receptors (observed): Public recreational visitors. Recreation observed boating and possible picnicking. The site is primarily used for camping.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: Site is mostly a strip of upland area situated on topographical bench on steep banks above the shoreline. The shoreline below the steep banks consists of boulders and cobbles. This area is primarily used for camping and is only assessable via boat-in access. The site consists of 13 established campsites with fire pits and picnic tables for each site. Restrooms are available on each of the 7 boating docks. It appears that the site sees consistent camping activities, though no campers were observed during the site visit. It appears fishing may also be a recreation activity for visitors. A Kiosks sign is present with a pay station for BLM camping and includes a map that outlines other recreational areas located on CDA Lake.

Drinking water was not observed at this location.

Sample area includes upland soil along the lake.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One grassy upland sample area adjacent to the shoreline. ▪ Dark brown silts with organics. ▪ 30-point ISM sample composites. • Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-1 inches.
Wet Sediment:	▪ Due to site conditions primarily boulders and cobbles, wet sediment was not sampled at this site.

1998 CUA Site: Yes, CUA Site No. 27: Windy Bay. No known changes to site conditions since 1998 sampling. Current sample areas are consistent with previous sampled areas.

S046: Bell Bay Campground
Site Priority: High
Site Visit and Sampling: August 13, 2024



Photograph 1: DU01 (upland soil) sample area



Photograph 2: DU01 (upland soil) picnic area



Photograph 3: DU02 (wet sediment) material type



Photograph 4: DU02 (wet sediment) sample area between docks

The site is owned by the U.S. Forest Service and is a developed campground and day use area located on the east side of CDA Lake.

Recreation Activities: Observed recreation activities included: boating, hiking, and dog-walking. Camping is present at the nearby developed campground (above and away from the sampled areas).

Receptors (observed): public recreational visitors and outdoor workers. Primary recreational visitors are campsite occupants and boat in visitors. The campsite has an onsite camp host who performs site maintenance such as trash pickup and restroom cleaning.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, lake water, and potable water; dermal contact with soils, sediment, and lake water; and inhalation of contaminants in dry soil or sediment that is released into air via wind.
- Occupational: Incidental ingestion of soils, sediment, and potable water; dermal contact with soils and sediment; and inhalation of contaminants in dry soil or sediment that is released into air via wind or maintenance activities.

Site Features/Setting: Shoreline/upland area at base of steep, forested hillside accessed by steep hiking trail from nearby campground. Campground has paved campground loop road, established campsites, restrooms, drinking water, and an onsite camp host. The shoreline area below the campsite has two docks for boat-in access, picnic tables, hiking trail, and an outhouse on one of the floating docks.

Drinking water is available in the campground but was not sampled because it is monitored by the U.S. Forest Service.

Sample areas include upland soil in picnic areas by boat docks below the campground. The upland area is separated from water by vegetation and driftwood piles (no transitional beach). Shallow water area between floating docks.

Sample Area (DU)	Sample Description
Upland Soil (SU01)	▪ Picnic area next to floating docks (160'x20'). ▪ Gravels, with hardpacked soil. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup to collect sample from 0-1 inch.
Wet Sediment (DU02)	▪ No wet sediment sample could be collected due to the rocky nature of lake bottom.
Nearshore Surface Water (DU02)	▪ Collected from shallow water area between docks. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: Yes, CUA Site No. 23: Bell Bay. The site has generally remained the same since the 1998 sampling event. Three docks were noted during the 1998 sample event, currently there are two docks present on-site. Current sample areas are consistent with previous sample areas.

CONF08
Site Priority: High
Site Visit and Sampling: August 13, 2024

The site is privately owned and is a developed boat launch located on the east side of CDA Lake.

Recreation Activities: Observed recreation activities included boating (boat launching and loading), fishing (from boats), dog walking (along adjacent dirt road), and picnicking.

Receptors (observed): Public recreational visitors. Private recreational residents are assumed based on proximity to nearby residential neighborhood.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil and sediment that is released into air via wind or recreational activities; and ingestion of fish.

Site Features/Setting: Moderate sloping shoreline into water. Steep forested hillside opposite the road leading to the boat launch. There is a small picnic area adjacent to boat launch with one picnic table. Boat launch includes a dock and signage with boat launch regulations. A portable toilet is present on site.

Drinking water was not observed at this location.

The sample area includes a shoreline area with boat launch ramp and a picnic area, with a shallow water area off of boat launch and picnic area.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One sample from boat launch and picnic area (75'x40'). ▪ Mostly hard packed sand/soil with some areas of gravel along waterline. Lots of organic material and driftwood covering much of the beach area. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup to collect sample from 0-1 inch.
Wet Sediment (DU02)	▪ One sample collected from shallow water area adjacent to dry sediment area (boat launch and picnic area). ▪ Wet sediment area is rocky. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU02)	▪ One sample collected from wet sediment sample area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No.

CONF09
Priority: High
Site Visit and Sampling: August 8, 2024

The site is a privately owned property in Cottonwood Bay on the southwest side of CDA Lake.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, swimming in designated swimming areas, wading, boating, sunbathing, dog walking, beach play activities including digging and making sandcastles, walkers/runners.

Receptors (observed): public recreational visitors (including children). Children observed swimming, wading, and engaging in beach play.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.

Site Features/Setting: The beach area consists of one boating dock and shoreline area for recreation. It also consists of a grassy upland area for picnicking, barbeque, basketball courts, and community events. The site has a paved parking area for many recreators and allows the beach to be easily accessible. The beach area is low to moderately sloped. The checklist indicated materials were imported.

Drinking water was not observed at this location. A groundwater well was observed and is clearly labeled as non-potable.

Sample areas include upland soil picnic area, shoreline/beach area, and shallow water area adjacent to beach.

Sample Area (DU)	Sample Description
Upland Soil (DU01):	▪ One 44,867 ft^2 grassy upland sample area adjacent to the shoreline. ▪ Dark brown silts & clays with organics, very moist. ▪ 40-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-1 inches.
Dry Sediment (DU02):	▪ One shoreline sample area approximately 6,098 ft^2. ▪ Sandy gravel that has been imported from a Palouse area supplier several times since the early 2000s. Liner fabric was encountered at approximately 8-10-inches depth. ▪ 30-point ISM sample composite. ▪ Used sediment probe from 0-12 inches.
Wet Sediment (DU03):	▪ One combined sample area consists of shallow water areas adjacent to dry sediment area. ▪ Gravel to cobble sand/silt/clay mixture. ▪ 30-point ISM sample composite. ▪ Field crew started sampling via soil probe. Due to clay content the soil probe was not suitable for sampling efforts. Field crew switched to stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU03):	▪ One sample collected from the wet sediment area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No.

S058: Rocky Point
Priority: High
Site Visit and Sampling: August 22, 2024

The site is located in the Coeur d'Alene Tribe of Indians Reservation on the south end of CDA Lake and is part of a developed park.

Recreation Activities: Very high recreational usage was observed. Recreation activities included picnicking, swimming in designated swimming areas, wading, boating, sunbathing, dog walking, beach play activities including digging and making sandcastles, walkers/runners.

Receptors (observed): Public recreational visitors (including children). Children observed swimming, wading, and engaging in beach play. Workers were not observed but are presumed because this is a well-maintained park.

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air via wind, during play activities, or vehicle use that disturb the ground; and ingestion of fish.
- Occupational: Incidental ingestion of soil and sediment; dermal contact with soils and sediment; inhalation of contaminants in dry soil or sediment that is released into air via soil disturbance activities or wind.

Site Features/Setting: This is a high use recreational area. Near the site there are cabins, campsites, boat launches, trail systems for hiking, boat rentals, and biking trails. The public beach area consists of a moderately sloped shoreline area. There are public restrooms for visitors and picnic tables as well as information signs. The park has a paved parking area for many recreators and allows the beach to be easily accessible. Site includes a boat launch area.

Drinking water was not observed at this location.

Sample areas include shoreline/beach area and protected (shallow water) swim area.

Sample Area (DU)	Sample Description
Dry Sediment (DU01)	▪ One shoreline sample area approximately 10,000 ft^2. ▪ Sandy gravel with silt. ▪ 30-point ISM sample composite. • Used sediment probe from 0-12 inches.
Wet Sediment (DU02)	▪ One sample area consists of shallow water area adjacent to dry sediment area. ▪ Sandy gravel with cobbles and trace fines. ▪ 30-point ISM sample composite • Used sediment probe from 0-6 inches.
Nearshore Surface Water (DU02)	▪ One sample was collected from the wet sediment area. ▪ 7-point composite sample. • Collected water from mid-water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No.

CONF11
Site Priority: High
Site Visit and Sampling: August 15, 2024

The site is a privately owned property in Rockford Bay on the west side of CDA Lake.

Recreation Activities: Observed recreation activities included: watersports, swimming/wading, beach play, walking, and picnicking.

Receptors (observed): Private recreational residents (seasonal residents).

Exposure potential (based on observed receptors and activities):

- Recreational: Ingestion of soils, sediment, and lake water; dermal contact with soils, sediment, and lake water; inhalation of contaminants in dry soil or sediment that is released into air during play activities that disturb the ground.

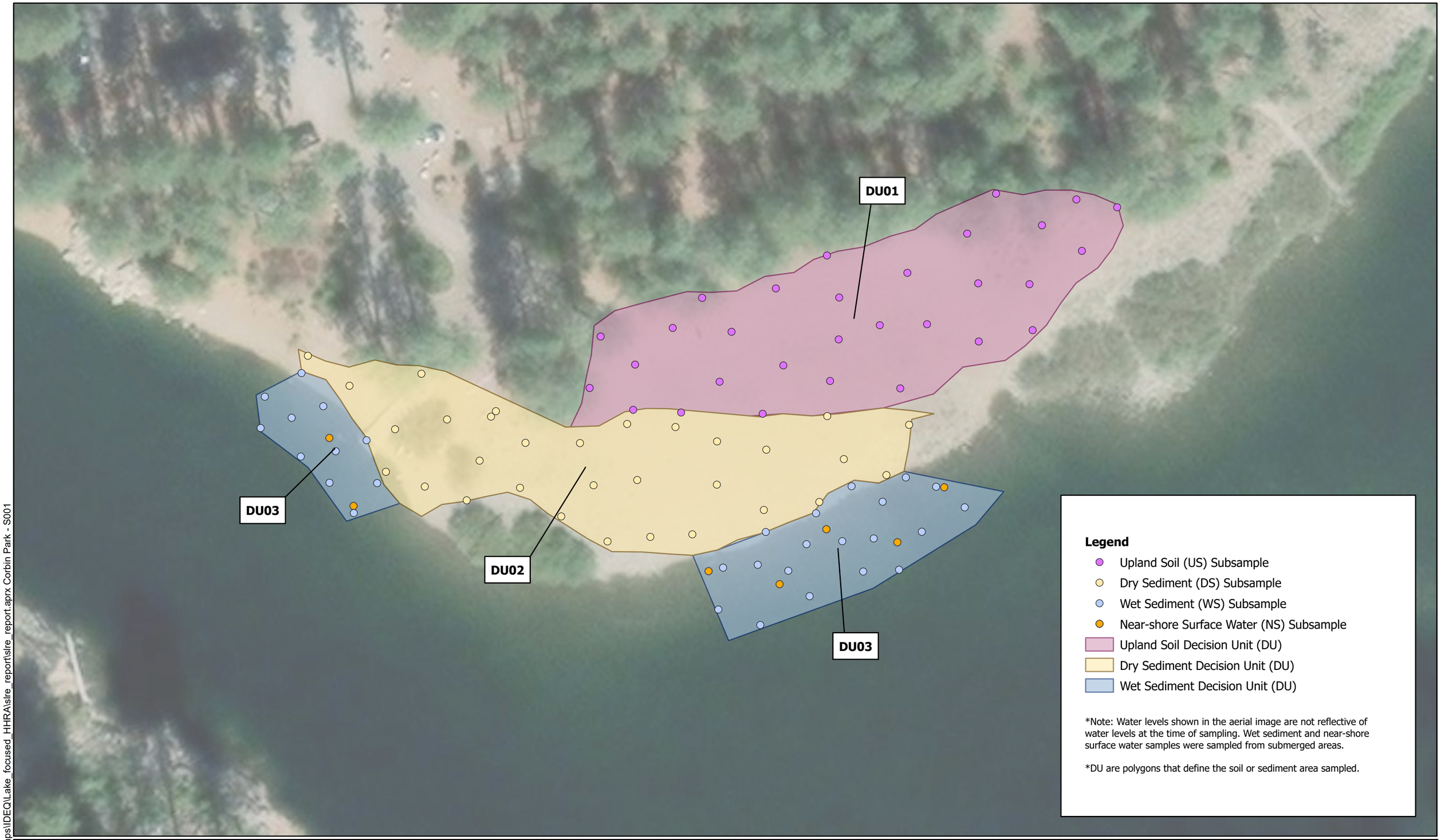
Site Features/Setting: Small beach area with moderate slope. Relatively flat, grassy shoreline. There is a small jetty out to a dock and a wooden, floating platform. A gazebo with picnic table is located in the grassy area above possible flood area. There are multiple nearby houses with a dirt road and gravel parking area to access the site. Nearby homes have trails to the beach. Portable toilet on site.

Drinking water is available at private residences. Private drinking water was not sampled during this investigation.

Sample areas include upland soil from low-lying, grassy areas with observations of occasional flooding; dry sediment from small beach area; and shallow water adjacent to upland and dry sediment areas. The upland area has an abrupt edge at the waterline with a limited beach transitional area.

Sample Area (DU)	Sample Description
Upland Soil (DU01)	▪ One sample from grassy area (25'x60'). ▪ Sample area is mowed grass. Samples collected from below the sod layer. ▪ 30-point ISM sample composite. ▪ Used trowel and 2-ounce cup from 0-1 inches.
Dry Sediment (DU02)	▪ One sample collected from small beach (20'x20'). ▪ Fine to medium grain sand. ▪ 30-point ISM sample composite. ▪ Used shovel and 2-ounce cup from 0-12 inches. Holes were hand dug because there were buried utilities (water line and electrical/communication) crossing the site.
Wet Sediment (DU03)	▪ One sample area separated by dock. Sample area includes shallow water area adjacent to grassy uplands and small beach. ▪ Rocky sand. ▪ 30-point ISM sample composite. ▪ Used stainless-steel scoop, soil sieve, and 2-ounce cup to collect samples from 0-3 inches.
Nearshore Surface Water (DU03)	▪ One sample collected from wet sediment sample area. ▪ 7-point composite sample. ▪ Collected water from mid water depth at each subsample location and combined using churn splitter.

1998 CUA Site: No.



G:\Project_Maps\IDEQ\Lake_focused_HHRA\lsre_report\lsre_report.aprx Corbin Park - S001

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:480
1 in = 40 ft
0 40 US Feet

N

Corbin Park - S001



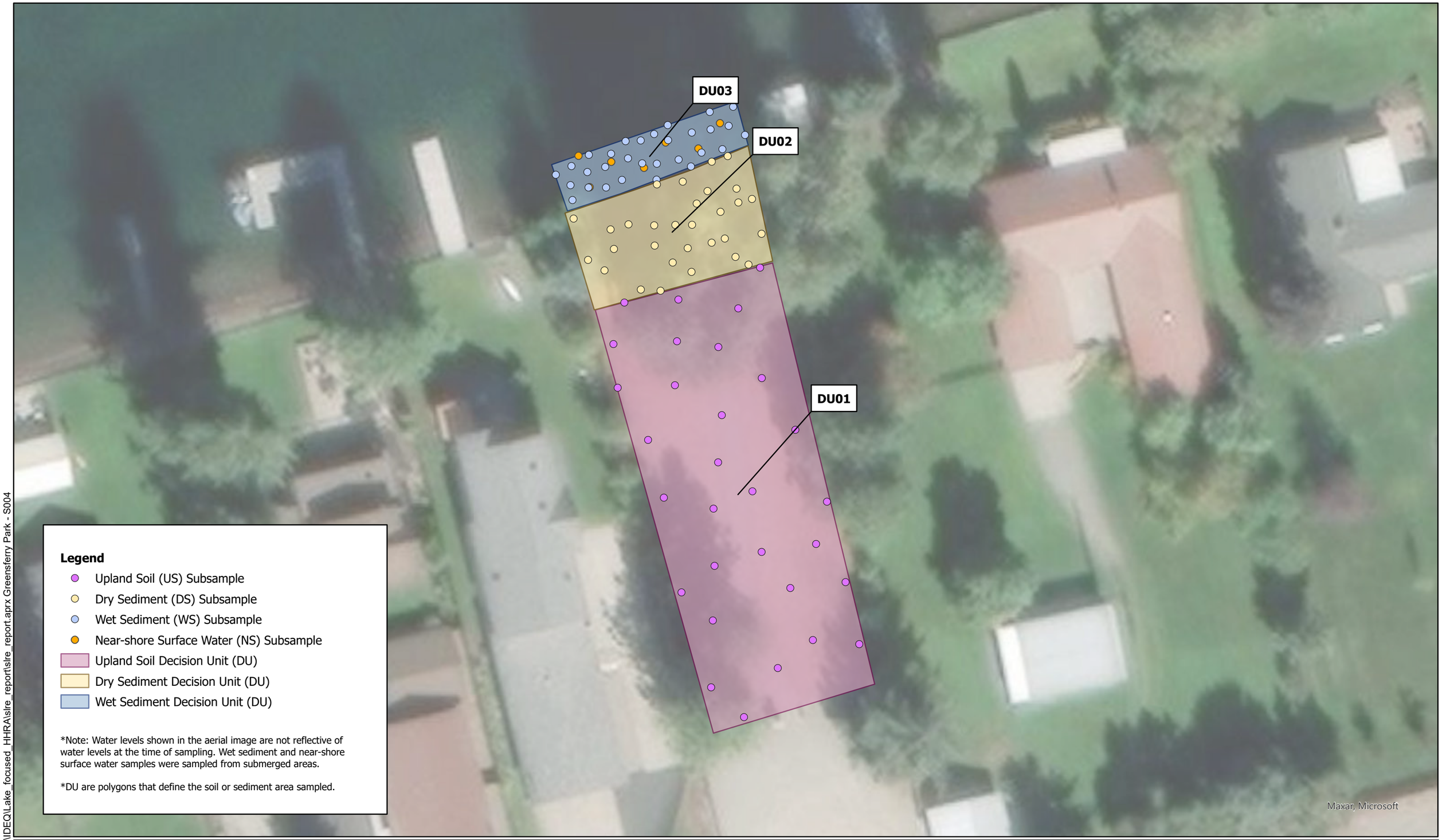
C:\Project_Maps\IDEQ\Lake_focused_HHRA\lsre_report\lsre_report.aprx Q'emiln Park - S003

Alta Science & Engineering, Inc.

Print Date	Nov 06, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:1,200
1 in = 100 ft
0 100 US Feet

Q'Emiln Park - S003



G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Greensferry Park - S004

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:360
1 in = 30 ft
0 30 US Feet

Greensferry Park - S004



Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Off-Shore Surface Water Sample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

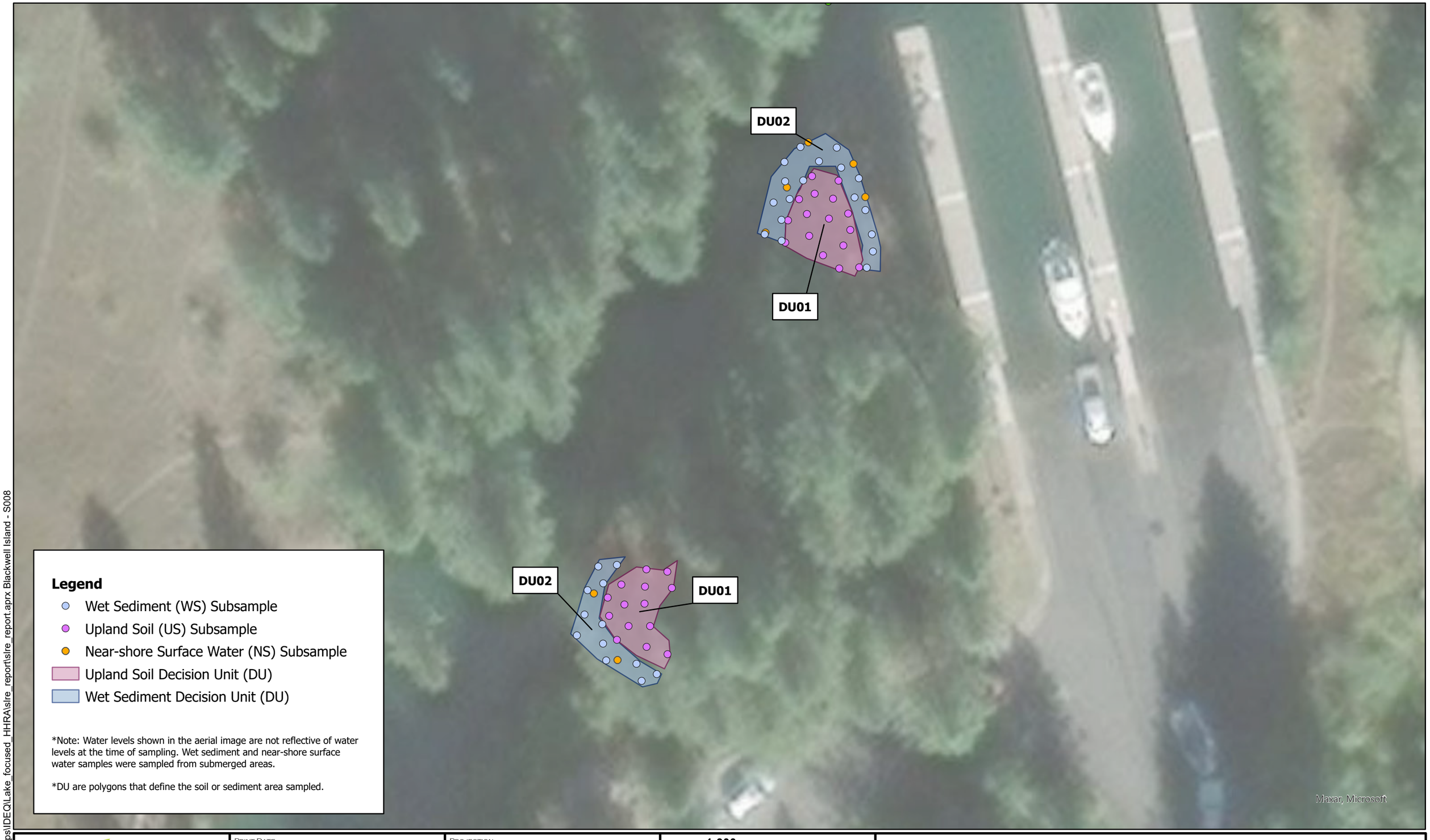
G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Atlas Water Front Park - S007

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:1,500
1 in = 125 ft
0 125 US Feet

Atlas Water Front Park - S007



Legend

- Wet Sediment (WS) Subsample
- Upland Soil (US) Subsample
- Near-shore Surface Water (NS) Subsample
- Upland Soil Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:300
1 in = 25 ft
0 25 US Feet

Blackwell Island - S008

G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Blackwell Island - S008

DU03
DU02
DU03
DU02
DU01
DU05
DU04
DU05
DEQ Surface Water Sample
DU04

Legend

- Upland Soil (US) Subsample
- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Off-Shore Surface Water Sample
- Upland Soil Decision Unit (DU)
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

Maxar, Microsoft

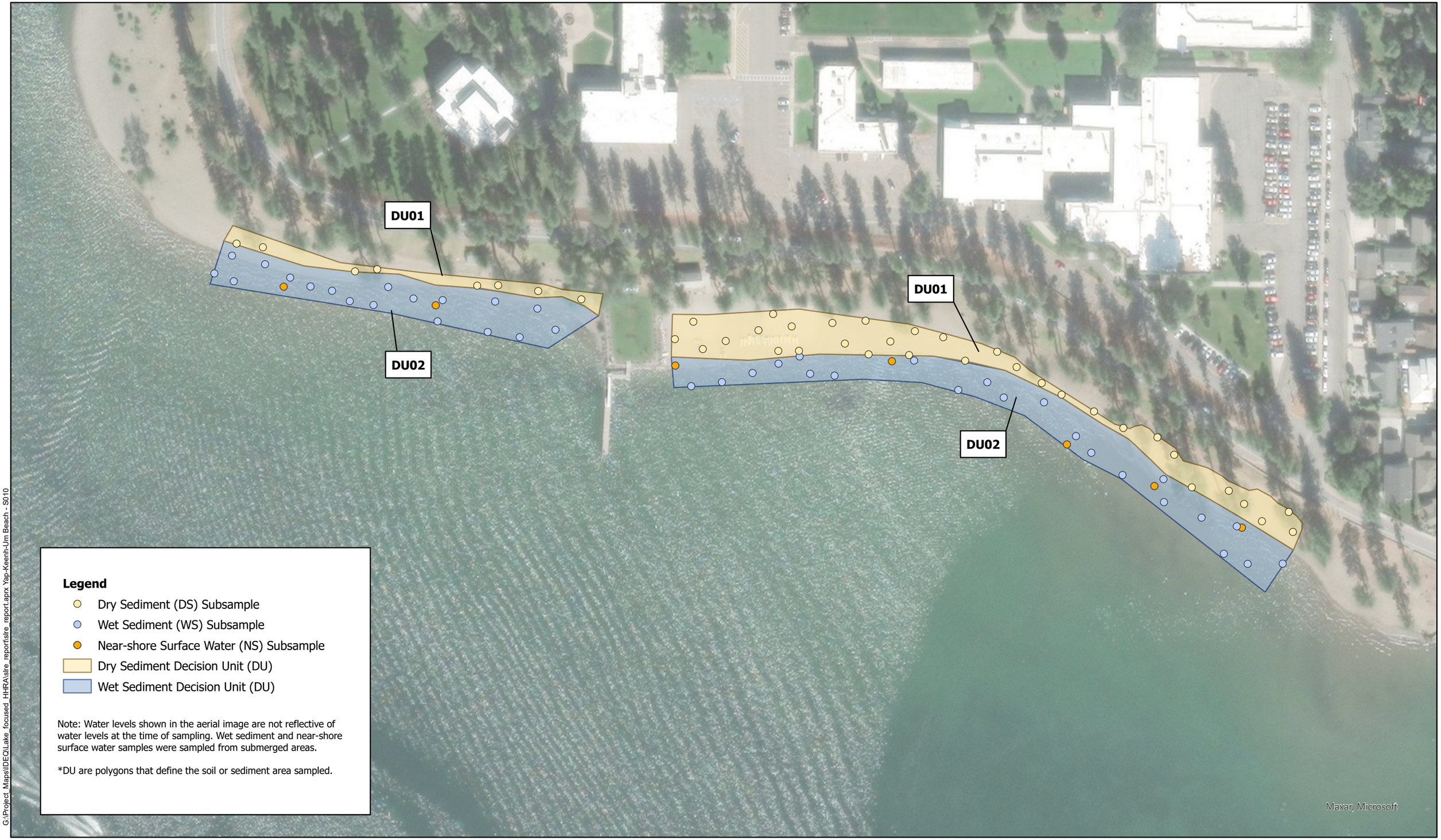
G:\Project_Maps\IDEQ\Lake_focused_HHRA\lsre_report\lsre_report.aprx Cheamkwet Park - S009

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:2,100
1 in = 175 ft
0 175 US Feet

Cheamkwet Park - S009



G:\Project Maps\IDEQ\Lake focused HHRA\sire reportsire report.aprx Yap-Keenh-Um Beach - S010

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:1,500
1 in = 125 ft
0 125 US Feet

Yap-Keenh-Um Beach - S010



Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_reports\sire_report.aprx Boardwalk Public Beach - S012

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:1,200
1 in = 100 ft
0 100 US Feet

Boardwalk Public Beach - S012



Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\site_reportsite_report.aprx Tubbs Hill West - S013

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:360
1 in = 30 ft
0 30 US Feet

Tubbs Hill West - S013

DU01

DU02

Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\site_report\site_report.aprx Tubbs Hill South - S014

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:240
1 in = 20 ft
0 20 US Feet

Tubbs Hill South - S014



G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_report\sire_report.aprx Tubbs Hill East Beach (Site 3) - S015

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:180
1 in = 15 ft
0 15 US Feet

Tubbs Hill East Beach (Site 3) - S015



G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_reportlsire_report.aprx Sanders Beach West - S016

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:180
1 in = 15 ft
0 15 US Feet

Sanders Beach West - S016



Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\lsre_report\lsre_report.aprx Sanders Public Beach - S017

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:360
1 in = 30 ft
0 30 US Feet

Sanders Public Beach - S017



Legend

- Dry Sediment (DS) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Off-Shore Surface Water Sample
- Dry Sediment Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_reportsire_report.aprx Higgins Point Day Use Area - S020

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:240
1 in = 20 ft
0 20 US Feet

Higgins Point Day Use Area - S020



G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_report\sire_report.aprx Higgins Point Beach (Site 1) - S021

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:362
1 in = 30 ft
0 30 US Feet

Higgins Point Beach (Site 1) - S021



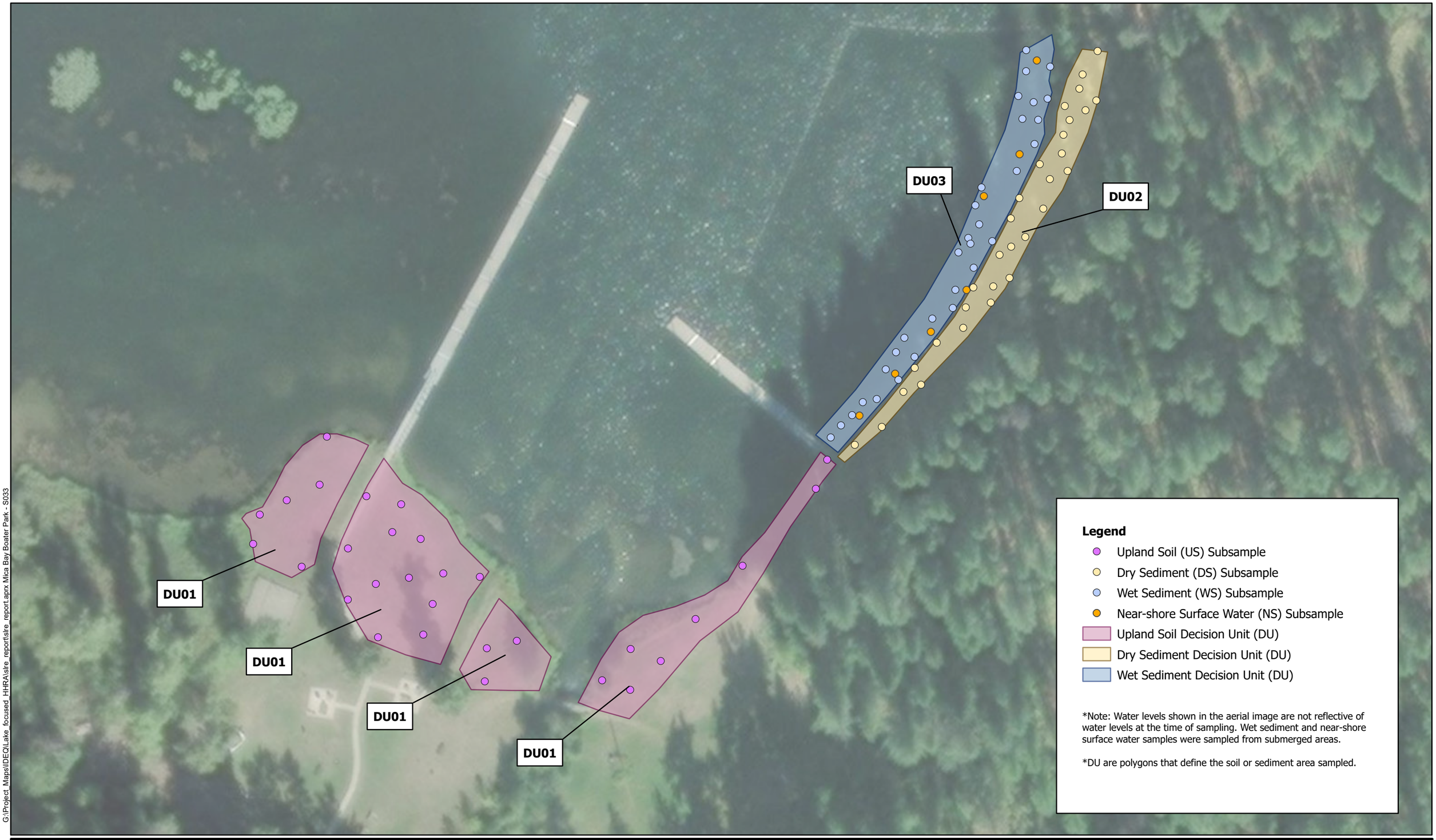
G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Higgins Point Beach (Site 2) - S022

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:300
1 in = 25 ft
0 25 US Feet

Higgins Point Beach (Site 2) - S022



G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_report\sire_report.aprx Mica Bay Boater Park - S033

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:720
1 in = 60 ft
0 60 US Feet

Mica Bay Boater Park - S033



G:\Project_Maps\DEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Loffs Bay - S036

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:180
1 in = 15 ft
0 15 US Feet

Loffs Bay - S036



G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Carlin Bay - S038

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:300
1 in = 25 ft
0 25 US Feet

Carlin Bay - S038



Legend

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_report\sire_report.aprx Rockford Bay Public - S041

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:180
1 in = 15 ft
0 15 US Feet

Rockford Bay Public - S041

DEQ Surface
Water Sample

DU02

DU01

Legend

- Upland Soil (US) Subsample
- Wet Sediment (WS) Subsample
- Near-shore Surface Water (NS) Subsample
- Off-Shore Surface Water Sample
- Upland Soil Decision Unit (DU)
- Wet Sediment Decision Unit (DU)

*Note: Water levels shown in the aerial image are not reflective of water levels at the time of sampling. Wet sediment and near-shore surface water samples were sampled from submerged areas.

*DU are polygons that define the soil or sediment area sampled.

G:\Project_Maps\IDEQ\Lake_focused_HHRA\sire_report\sire_report.aprx Windy Bay - S044

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:1,380
1 in = 115 ft
0 115 US Feet

Windy Bay - S044



G:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Bell Bay Campground - S046

Alta Science & Engineering, Inc.

Print Date	May 05, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:360
1 in = 30 ft
0 30 US Feet

Bell Bay Campground - S046



C:\Project_Maps\IDEQ\Lake_focused_HHRA\slre_report\slre_report.aprx Rocky Point - S058

Alta Science & Engineering, Inc.

Print Date	Nov 06, 2025
Project Number	23077
Projection	NAD83
Project Manager	J. Johnson
Cartographer	M.Wood

1:900
1 in = 75 ft
0 75 US Feet

Rocky Point - S058

Appendix B

2024 Field Sampling and Analytical Results

Contents

Section 1 Recreational Site Selection and Sampling Methods 1
1.1 Sites Selected and Sampled 1
1.2 Sampling and Analysis Procedures 5
1.2.1 Field Methods 5
1.2.2 Laboratory Methods 7
1.2.3 SAP/QAPP Deviations and Modifications 9
1.2.4 In Vitro Bioaccessibility (IVBA) Analysis 11
Section 2 Sampling Data Results 12
2.1 Data Review, Verification, and Validation 12
2.2 Data Processing 13
2.2.1 Private Properties 13
2.2.2 Replicate Sample Results 14
2.2.3 Bioavailability 14
2.3 Site Results 14
2.3.1 Soil/Sediment Results 16
2.3.2 Surface Water Sampling Results 25
2.4 Bioavailability Results 32
2.5 Findings 35

Tables

Table 1. Summary of Sampling Methods 6
Table 2. Summary of SAP/QAPP Laboratory Methods 8
Table 3. Summary of SAP/QAPP Modifications or Deviations by Site 9
Table 4. Sample Summary 15
Table 5. Soil and Sediment Sample Results 17
Table 6. Summary Statistics for Upland Soil 20
Table 7. Summary Statistics for Dry Sediment 22
Table 8. Summary Statistics for Wet Sediment 24
Table 9. Surface Water Sample Results 26
Table 10. Summary Statistics for Nearshore Surface Water 29
Table 11. Summary Statistics for Open Water Surface Water 31
Table 12. Arsenic and Lead IVBA Results 33

Section 1 Recreational Site Selection and Sampling Methods

As discussed in the SLRE Work Plan, sampling was performed during the summer months to best represent when most human exposures occur. Field work and sampling were conducted from late July through September 2024 to support data collection for the SLRE and included the collection of soil, sediment, and surface water samples from 32 sites around CDA Lake and along the Spokane River.

1.1 Sites Selected and Sampled

Field crews sampled a total of 32 recreational sites following methods described in the Work Plan and SAP/QAPP (Alta 2024a and Alta 2024b).

Recreational areas included swimming and beach areas, campgrounds, boat launches, developed parks, picnic areas, playgrounds and sport courts, and private use areas and ranged in level of development from primitive sites to sites with well maintained and extensive infrastructure. Sediment and soil conditions ranged from sandy to gravel sand mixes to mostly cobble beaches and upland soils ranged from silty to rocky. A brief summary of each site sampled is provided below (CUA Site numbers refer to the sites sampled in 1998 for the BHSS RI/FS). Full site descriptions, sampling details, and select photographs are included in Appendix A.

S001 Corbin Park (CUA Site No. 8): Developed public park and boat launch located on the Spokane River downstream of the Post Falls Dam. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is gravely sand. Dry and wet sediment is comprised of cobble/rock, gravel, and sand. Picnic areas, sport courts, and other park infrastructure are outside of flood areas and were not sampled.

S003 Q'Emiln Park (CUA Site No. 3) : Privately owned property that is developed for public use. The park, located on the Spokane River, includes a picnic area, beach, protected swim area, sport courts, boat launch, hiking trails, and rock-climbing area. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil is silt and sand. Sediments are comprised of silty to sandy gravels. Upland soils have been imported from off site and may not represent native soils.

S004 Greensferry Park (CUA Site No. 5): Developed public park on the Spokane River. Park features include a small beach with a protected swim area, picnic area, and gravel parking lot. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is silt and sand. Sediments are comprised of silty to sandy gravels.

S007 Atlas Waterfront Park: Well-maintained public park on the Spokane River. Park includes a paved parking area, walking and biking paths, covered picnic area, playground, restroom facilities, food trucks, multiple beach areas with protected swim areas, docks, a dog park, and accessibility dock with wheelchair ramp for water access. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediments were primarily gravel and sand with increased cobbles and boulders in shallow water areas. The fenced in dog park beach was sampled as a separate dry and wet sediment DU from the open public beach areas because of the different user types for these areas. The playground is outside of flood areas and was not sampled.

S008 Blackwell Island (CUA Site No. 21): Developed park with extensive paved parking (car and boat trailer areas), four-lane boat launch with multiple docks, numerous picnic areas with tables on concrete pads, a group picnic pavilion, boardwalk trail through marsh/wetlands, and restroom facilities. Upland soil, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil was silty with intermixed organics. Sediment was silt and mud. The area sampled was an undeveloped picnic area. Developed picnic areas had concrete pads that separate recreators from area soils.

S009 Cheamkwet Park (CUA Site No. 1): Developed beach areas include access paths (stairs or gravel walkways) leading from higher elevation parking/road to beach level, walking path, kayak/paddle board launch area, and picnic tables with charcoal grills on concrete pads. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil was hard packed sand. Sediment was fine to coarse sand with gravel. Dry and wet sediment areas were divided into multiple DUs because of the size of the beach areas and because there was a distinct difference in sediment type between beaches along the Spokane River and the beach at the lake/river interface. Elevated areas such as maintained lawn that are associated with the North Idaho College Campus were not sampled.

S010 Yap-Keehn-Um Beach (CUA Site No. 2): Developed park that includes picnic areas with tables, volleyball courts/fields, restroom facilities, boat launch, and beach areas. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediment was gravelly sand with cobbles. Elevated areas that contain parking and walking trails were not sampled.

S012 Boardwalk Public Beach (CUA Site No. 9): Developed park, greenbelt, and public beaches include paved bike/walking paths, sport courts, benches, water features, bathroom facilities, public dock/pier, food truck, float plane and tour boat services, paved parking area, and concrete steps and other designated paths to beaches. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediment is sandy with some gravel. Only beach areas were sampled. Two beaches separated by the pier and developed park areas were each sampled as separate DUs because of the distance between the sites. Other park and greenbelt areas are outside of flood areas and were not sampled.

S013 Tubbs Hill West Beach, Site 1 (CUA Site No. 10): The west beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides and crag outcrops adjacent to the beach area. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is sand with cobble and gravel and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S014 Tubbs Hill South Beach, Site 2 (CUA Site No. 11): The south beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides and crag outcrops adjacent to the beach area. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediment is sand with cobble and gravel and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S015 Tubbs Hill East Beach, Site 3 (CUA Site No. 12): The east beach site is located in Tubbs Hill Recreational Area, a 165 acres natural park with popular established hiking trails, undeveloped beaches, and rock outcrops which are popular for cliff jumping. Beach areas are narrow with steep, forested hillsides and crag outcrops adjacent to the beach area. Dry

sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is sand with cobble and gravel and wet sediment is cobble and gravel with interstitial fines. Trails and hillside areas are outside of flood areas and were not sampled.

S016 Sanders Beach West: The site is a gently sloping beach set between residential properties. Development at the site includes a concrete retaining wall between beach and adjacent road, paved road with streetside parking, and city stormwater outlets buried beneath the beach. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediments were fine to coarse sands. No private property was sampled at this site.

S017 Sanders Beach Public: The site is a gently sloping beach set between residential properties. Development at the site includes a concrete retaining wall between beach and adjacent road, fencing separating beach from private properties, and paved road with streetside parking. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments were gravely sands with some cobble in shallow water areas. No private property was sampled at this site.

S020 Higgens Point Day Use: The day use area contains paved road access and paved parking, a paved bike path, a boat launch, a dirt trail with educational signs, and restroom. A narrow, undeveloped shoreline is accessible from multiple social trails down a steep, rocky embankment and is used for fishing, boating, and lake access. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Sediment was primarily rock and gravel with interstitial fines. No sampling was conducted at the boat launch or on elevated trails/paths outside of flood areas.

S021 Higgens Point Beaches, Site 2 (CUA Site No. 16): The site is a beach area accessed by a maintained hiking trail down the hillside from a developed group use area. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Dry sediment is compacted silt and gravel, and wet sediment is gravel with interstitial sand. No sampling was conducted at the developed group use area on top of the hill because it is outside of any flood areas.

S022 Higgens Point Beaches, Site 1 (CUA Site No. 15): The site is a gently sloped beach at the base of a steep, forested hillside (rocky point that protrudes into the lake). The site is accessed by a maintained hiking trail from the nearby paved bike path. Beach area development includes maintained hiking/ access trail, picnic tables, and two boat docks. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediment was compacted silts and gravel.

CONF02: This site is private property. Upland soil, dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil was silty with organic material. Sediment was gravelly silt and sand with increased cobble in the shallow water areas.

CONF03: This site is private property. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments are gravelly sand.

CONF04: This site is private property. Dry sediment, wet sediment, and nearshore surface water were sampled at this site. Sediments are loose, poorly graded sand.

CONF05: This site is private property. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water (in Gotham Bay) were sampled at this site. Soil is silt and clay with organics. Sediment is sand and sandy gravels.

S033 Mica Bay Boater Park (CUA Site No. 24): This site is a developed boat-in campground that includes two playgrounds (swing sets in raised boxes filled with gravel/sand), picnic tables with charcoal grills, group shelter, two docks, beach with protected swim area, restrooms (vault toilets), walking paths, camp sites (including tables and fire rings), information signage, camp host, and water drinking fountains. Upland soil (from low lying areas only), dry sediment, wet sediment, and nearshore surface water were sampled at this site. Soil is silt/fine sand. Sediments are gravely sands. No samples were collected from playgrounds or campsites because these areas appear to be outside of flood areas.

S036 Loff's Bay (CUA Site No. 26): Site is a developed boat launch that includes gravel parking area, restroom (vault toilet), signage, and boat launch ramp/dock. Upland soil, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Soil is hard packed with gravel and sand in grassy areas. Sediment is rocky/gravelly sand.

CONF06: The site is private property. Dry sediment and nearshore surface water were sampled at this site. No wet sediment sample was collected because of insufficient recovery of fine sediments. Dry sediments were sandy gravels with silt. Some beach sediments have been imported from off-site. Two beaches on site (approximately 350 feet apart) were separated by a headland and had different recreational uses and were therefore sampled as separate DUs.

S038 Carlin Bay: The site is a public-use recreation area situated between private residential properties. The public portion of the site includes a beach area, a boat launch, and an elevated grassy area for picnicking. Dry sediment, wet sediment, nearshore surface water, and open water surface water were sampled at this site. Dry sediment was gravelly, silty sand, and wet sediment was gravel and cobble with intermixed sand. No samples were collected from the grassy picnic area because it is elevated above the flood area.

S041 Rockford Bay Public Access (CUA Site No. 25): The site is a developed public boat launch and day use area with picnic tables, boat launch ramp, and docks. Upland soil was sampled at this site. Soil is primarily silt with organics.

CONF07: The site is private property. Upland soil, dry sediment, wet sediment, and nearshore surface water were collected at this site. Soil was sandy beneath a sod layer. Dry sediments were gravel with coarse sand. Wet sediments ranged from fine sand with clay to rocky with interstitial sands. The site was divided into three separate areas based on recreational use and location on the property. Areas were separated by topographic features and distances ranging from 400 feet to 0.5 miles. Each of the three areas were sampled as separate DUs.

S044 Windy Bay (CUA Site No. 27): The site is a public boat-in campground containing campsites, picnic tables, fire rings, portable/vault toilets, and docks. Upland soil and open water surface water were sampled at this site. Soil was primarily silt with organics.

S046 Bell Bay Campground (CUA Site No. 23): The site is a developed National Forest campground with a paved campground loop road, established campsites, restrooms, drinking water, and an onsite camp host. A day use area on the shoreline below the campsite has two docks for boat-in access, picnic tables, hiking trail, and an outhouse on one of the floating docks. Upland soil and nearshore surface water were collected from the day use area. No wet sediment sample was collected because of insufficient recovery of fine sediments. Soil was rocky and hard packed. No samples were collected from the campground because the area is elevated well above lake level.

CONF08: Privately owned property that is developed for public use. The site is a boat launch with a small picnic area and portable toilet. Dry sediment, wet sediment, nearshore surface

water, and open water surface water (near Harlow Point) were collected at this site. Dry sediment was hard packed sand and soil, and the wet sediment was rocky with interstitial sand.

CONF09: The site is private property used by the public. Upland soil, dry sediment, wet sediment, and nearshore surface water were collected at this site. Silty/clay soils were collected from beneath a sod layer. Dry sediment is sandy gravel imported to the site. Wet sediment is gravel and cobble with intermixed silt, sand, and clay.

S058 Rocky Point: The site is a developed park containing cabins, a marina, paved parking, restrooms, picnic area, playground, beach, and protected swim area. Dry sediment, wet sediment, nearshore surface water, and open water surface water were collected at this site. Sediment is sandy gravel with some cobble in wet sediment.

CONF11: The site is private property. Upland soil, dry sediment, wet sediment, nearshore surface water, and open water surface water (in Rockford Bay) were collected at this site. Soil was collected from beneath a sod layer. Sediment was fine to medium grain sand and wet sediment areas were rocky.

1.2 Sampling and Analysis Procedures

A detailed description of the field sampling, handling, documentation, and analytical procedures is provided in the *Sampling and Analysis Plan (SAP)/ Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River* (Alta 2024b)

1.2.1 Field Methods

Up to three soil and sediment types were collected from recreational sites in the project area including:

- Upland soils from low elevation areas that are subject to inundation from high water levels or past extreme flood events.
- Dry sediment from shoreline areas above the water line.
- Saturated (wet) sediment from submerged (less than three feet water) shoreline areas.

Each soil/sediment type was sampled as a unique decision unit (DU) within each recreational site. Multiple DUs per soil/sediment type were sampled at some recreational sites when areas within the recreational site were separated by long distances or topographic/physical features (not likely to be accessed by the same users during the same visit), had distinctly different recreation use types (i.e., boat launch versus beach play area), and/or consisted of distinctly different soil/sediment types (i.e., dry beach sediment that was primarily sand in one location and more gravel and cobble in another beach location).

Two types of surface water samples were collected:

- Nearshore surface water in shallow water less than three feet deep at recreation sites where nearshore water-play activities occur. Nearshore surface water was collected from the same spatial footprint as the wet sediment DU.
- Open water surface water was collected at select locations near the recreational sites sampled for this project.

A summary of field sampling methods is listed in Table 1.

Table 1. Summary of Sampling Methods

Sample Type	Depth	Method
Upland Soil	0-1" or 0-3"	• Incremental Sampling Methodology (ISM) sampling method with 30-40 subsample locations pre-defined using GIS*. • Sample collection used a flat-bottomed trowel with perpendicular sides. • A 2-ounce plastic cup was used to measure equal volumes of soil from each subsample location.
Dry Sediment	0-12"	• ISM sampling method with 30-40 subsample locations pre-defined using GIS*. • Sample collection used a 1-inch diameter coring tool to required depth.
Wet Sediment	0-6"	• ISM sampling method with 30 subsample location pre-defined using GIS. • Sample collection used a 1-inch diameter coring tool to required depth.
Nearshore Surface Water	Mid-depth	• Composite sample with 7 subsample locations evenly spaced throughout the wet sediment DU. • Field crew disturbed the bottom sediment for 2 minutes at each subsample location prior to sampling. • A non-metallic sampler was used to collect a sample from the mid-depth point at each subsample location. • Subsamples were combined in a churn splitter prior to filling sample bottles. • Collected field measurements of temperature and turbidity.
Open Water Surface Water	0-10 feet	• Composite sample of 7 random depths (from 0 to 10 feet) from a single location. • A van Dorn bottle or Kemmerer sampler was used to collect each sample. • Samples were combined in a churn splitter prior to filling sample bottles. • Collected field measurements of temperature and turbidity.

* For ISM sampling, 40 subsample locations were collected for areas greater than 1-acre.

In some cases, field crews modified the field procedure due to soil and sediment characteristics or site conditions that prevented sample collection according to the SAP/QAPP procedures. Modified procedures are summarized below.

- ISM subsample locations at some sites were designated by field personnel on site instead of using pre-generated points using ArcGIS software because: some sites had poor GPS coverage where there was no access to the electronic files containing pre-generated point; the field crew observed discrepancies with the location of pre-generated points to actual site features; or the field crew identified additional sample locations where pre-generated points were not available. Field-generated points were selected using systematic random sampling consistent with ISM guidance (ITRC 2020) and consisted of the field crew dividing the site into 30 equal grid cells, selecting a random point in one grid cell, and then repeating the random location in all remaining grid cells. The initial random point was determined by selecting a directional marker (north, south, east, or west) from a bag and then tossing an object over the sampler's shoulder in the selected direction.
- Field crews collected 40 ISM subsamples in DUs greater than about 1-acre instead of the ITRC recommendation of 0.5 acres identified in the SAP/QAPP.
- The sample depth was modified at some locations because of hard, packed ground conditions or the presence of excess rock, cobble, and/or gravel that interfered with sampling tools.
- A modified sampling method was developed and used at some sites because the 1-inch diameter sediment probe did not work at locations that were primarily rock, cobble, and gravel with trace interstitial fines. The modified sampling method consisted of using a square-sided, stainless-steel scoop to dig material to the desired depth. The scooped sediment was passed through a coarse (1/4-1/2 inch) soil sieve into a small plastic bucket and then a 2-ounce plastic cup was used to measure equal volumes of sediment before being placed into a sample container. The process was repeated for each subsample location.
- Open water surface water sampling followed both the SAP/QAPP (Alta 2024b) and Lake Management Plan (IDEQ and Coeur d'Alene Tribe 2009) protocols.

Other SAP/QAPP deviations are discussed in Section 1.2.3.

1.2.2 Laboratory Methods

A summary of laboratory methods is listed in Table 2 below. All laboratory procedures were conducted according to the SAP/QAPP except for the deviations discussed in Section 1.2.3.

Table 2. Summary of SAP/QAPP Laboratory Methods

Sample Type	Method
Upland Soil	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 100 mesh (<149 micrometer [µm]) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996), EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Dry Sediment	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 60 mesh (<250 µm) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996), EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Wet Sediment	• Preparation and analysis by SVL Analytical (Kellogg, ID). • Dry, homogenize, and sieve samples. • Sieve soil with a no. 60 mesh (<250 µm) sieve. • ISM 2-D Japanese slabcake subsampling following ITRC guidance (ITRC 2020). • Analyze for metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 3050B (USEPA 1996) , EPA 6010D (USEPA 2018), EPA 6020B (USEPA 2014), and EPA 7471B (USEPA 2007a).
Nearshore Surface Water	• Analysis by SVL Analytical (Kellogg, ID). • Analyze for total metals (antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc) by methods EPA 200.7 (USEPA 1994a), EPA 200.8 (USEPA 1994b), and EPA 7470A (USEPA 1994c).
Open Water Surface Water	• Analysis by Tshimakain Creek Laboratories (TCL) in Spokane, WA or Am Test Laboratories (AmTest) in Kirkland, WA. • Analyze for total metals (antimony, arsenic, cadmium, calcium, copper, iron, lead, magnesium, manganese, mercury, and zinc) by methods EPA 200.7 (USEPA 1994a) and EPA 200.8 (USEPA 1994b). • Analyze for total phosphorous by method EPA 365.3 (USEPA 1978) / SM 4500-P-E. • Analyze for nitrogen by method SM D-5176 or EPA 351.2 (USEPA 1993). • Calculate hardness by method SM 2340B.

1.2.3 SAP/QAPP Deviations and Modifications

Sediment material types at recreational sites varied greatly and ranged from sandy with varying amounts of gravel and cobble, to mostly gravel and cobble with no fines. Beach sediments were often compacted at shallow depths (3 to 6 inches). Soil ranged from silty to rocky and were generally hard packed. Varying sediment and soil types, presence of rocks and cobble, and compacted soil and sediment at some location resulted in poor sample recovery or refusals at depth. Field crews adjusted and made modifications to sampling methods and changes to sample collection tools based on the sediment and soil conditions at each site in order to collect a sample. Field crews also adjusted the sample depth at 18 sites and used modified sample collection methods/tools at 13 sites. SAP/QAPP deviations and modified methods by site location are summarized in Table 3. Modified field methods shown in this table are detailed in Section 1.2.1.

Table 3. Summary of SAP/QAPP Modifications or Deviations by Site

Site ID	SAP/QAPP Deviation(s)
S001	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because of the cobble/gravel nature of beach material and no evidence of beach digging activities below 6 inches. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky condition limits exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
S003	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because the silts/sands were hard packed and there was no evidence of digging activities deeper than 6 inches.
S004	▪ Used a modified sample collection method for wet sediment because of poor recovery using the sediment probe (high gravel and cobble component).
S007	▪ Sampled dry sediment to 6 inches instead of 12 inches because the sand/gravel was hard packed and there was no evidence of digging activities deeper than 3-4 inches.
S013	▪ Sampled dry sediment from 0-3 inches instead of 0-12 inches because the ground was hard packed with areas of exposed bedrock and there was no evidence of digging. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky condition limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
S014	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches due to refusal in rocky conditions. ▪ Did not collect a wet sediment sample adjacent to beach (dry sediment sample area) because there was not enough recovery of fine sediment.
S015	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because the ground was hard packed with areas of exposed bedrock and there was no evidence of digging.

Site ID	SAP/QAPP Deviation(s)
	▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky condition limited exposure to deeper sediments. ▪ Used a modified sample collection method for both dry and wet sediment areas because of rocky conditions.
S020	▪ Sampled dry sediment from 0-1 inch instead of 0-12 inch because the ground was hard packed with areas of exposed bedrock. No evidence of digging. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky condition limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
S021	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because the beach area was relatively hard packed with no evidence of digging activities. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the gravel/cobble sediment limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of gravelly/cobbly conditions.
S022	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because the beach area was relatively hard packed with no evidence of digging activities. ▪ Did not collect a wet sediment sample adjacent to beach (dry sediment sample area) because there was not enough recovery of fine sediment.
CONF02	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches due to hard-packed sands. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the gravel/cobble sediment limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of gravelly/cobbly conditions.
S033	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because the beach area had a hardpacked substrate and there was no evidence of deeper digging activities (only evidence of minor, shallow digging was observed).
S036	▪ Collected wet sediment sample from 0-3 inches instead of 0-6 inches because the rocky/gravelly sediment limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
CONF06	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches because of rocky ground. ▪ Used a modified sample collection method for dry sediment because of rocky conditions and poor sediment recovery in the sediment probe. ▪ Did not collect wet sediment samples adjacent to beach (dry sediment sample areas) because there was not enough recovery of fine sediment.
S038	▪ Sampled dry sediment from 0-6 inches instead of 0-12 inches due to abundance of gravel.

Site ID	SAP/QAPP Deviation(s)
	▪ Collected wet sediment sample from 0-3 inches instead of 0-6 inches because the gravel conditions limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of poor recovery with sediment probe due to gravel.
CONF07	▪ Sampled dry sediment in Area 3 from 0-3 inches instead of 0-12 inches because the beach area was hard packed and there was no evidence of digging activities. The area appeared to be primarily a sitting/staging area. ▪ Collected wet sediment sample from 0-3 inches instead of 0-6 inches because the rocky sediment limited exposure to deeper sediments.
S046	▪ Did not collect a wet sediment sample adjacent to shoreline (upland area) because there was no fine sediment in the rocky bottomed shallow water area.
CONF08	▪ Sampled dry sediment from 0-1 inches instead of 0-12 inches because the ground was hard packed sand/soil with no evidence of deeper digging activities. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky sediment limited exposure to deeper sediments. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
CONF09	▪ Used a modified sample collection method for wet sediment because of low recovery with the sediment probe. ▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because of gravel and cobble conditions.
CONF11	▪ Sampled wet sediment from 0-3 inches instead of 0-6 inches because the rocky sediment limited exposure to deeper sediments and some areas could not be excavated deeper due to buried utilities. ▪ Used a modified sample collection method for wet sediment because of rocky conditions.
All Open Water Sites	▪ Turbidity was not measured in the field.
All ISM Samples	▪ SVL Analytical performed sample preparation (drying, sieving, homogenizing) following ITRC guidance (ITRC 2020). In general, the laboratory used the 2-D Japanese slabcake process as this is the preferred subsampling method in the ITRC guidance. However, due to small sample volume from some locations because of poor sediment recovery, the laboratory used the 1-D Japanese slabcake process which is also an accepted subsampling method in ITRC guidance. This is discussed further in the data validation memorandum in Appendix C.

1.2.4 In Vitro Bioaccessibility (IVBA) Analysis

DEQ and Alta selected the soil/sediment samples analyzed for arsenic and lead IVBA after all concentration data were received and verified. All soil/sediment samples where either arsenic or

lead (or both) concentrations exceeded the lowest RBSL (as of December 2024) were analyzed for arsenic and lead IVBA. The RBSLs used to select samples for IVBA analysis were the non-cancer RBSL for arsenic of 17.6 milligram per kilogram (mg/kg) (recreational resident) and the EPA screening level of 100 mg/kg for lead.

A total of 26 samples from 13 recreational sites were analyzed for IVBA. These include three sets of ISM field replicate samples. Samples were analyzed at ALS Environmental following the EPA Standard Operating Procedures (USEPA 2017b); (ITRC 2020).

After samples were identified and analyzed for IVBA, the data were reviewed and used to calculate site-specific bioavailability, as described in Sections 2.1 and 2.2.3, respectively.

Section 2 Sampling Data Results

The following section discusses data review, validation, and verification (Section 2.1), data processing (Section 2.2), site results (Section 2.3), bioavailability results (Section 2.4) and a discussion of findings (Section 2.5).

2.1 Data Review, Verification, and Validation

This section summarizes the quality assurance/quality control (QA/QC) review of the surface water, soil, and sediment data. The complete review is provided in Appendix C as three memorandums and/or checklists: 1) soil, sediment, and nearshore surface water; 2) open water surface water; and 3) IVBA analysis.

QA/QC review of the results included evaluation of precision, accuracy, sensitivity, representativeness, comparability, and completeness as described in the SAP/QAPP (Alta 2024b). Alta completed Stage 2B data verification and validation on 100% of the Sample Delivery Groups (SDGs) for nearshore surface water, sediment, and soil data. DEQ completed Stage 2A data verification and validation on 100% of the SDGs for open water surface water data. Although stage 2B data validation was specified in the SAP/QAPP, the data are still usable for this SLRE based on the DQOs.

Data validators reviewed the field documentation, rinsate and field blank results, field replicates (duplicates for surface water; ISM replicates for soil/sediment), and laboratory precision and accuracy, including laboratory blanks, processed and unprocessed silica sand blanks, instrument calibration checks, laboratory control samples (LCS) and LCS duplicate (LCSD) samples, matrix spike (MS) and matrix spike duplicate (MSD) samples, and laboratory replicate samples for soil/sediment. Sampling and analytical procedures and the QA/QC reviews followed guidelines in the SAP/QAPP, with the exceptions noted in the QA/QC memoranda (Appendix C).

In general, soil and sediment mercury results were qualified as estimates due to temperature and holding-time exceedances. As discussed in Appendix C, non-detect mercury results were qualified as estimates as opposed to being rejected and are considered usable for this project since the mercury reporting limit (RL) (0.033 mg/kg) is orders of magnitude lower than the lowest RBSL (11.4 mg/kg, Section 2). In addition, certain soil and sediment data were qualified as estimates as follows:

- Certain arsenic results due to method blank results.
- Certain antimony results due to continuing calibration blank results.

Alta evaluated ISM field and laboratory replicate samples following ITRC guidance and all total metals percent relative standard deviations (RSDs) met the SAP/QAPP guidance of ≤35% except for certain results for copper, mercury, cadmium, and lead in field replicates, and certain results for mercury in laboratory replicates. The RSD results >35% (noted in Appendix C) suggest a high degree of heterogeneity in concentrations in the DUs where those replicate samples were collected. However, the RSDs, or coefficients of variation (CVs), are generally considered reasonable for field conditions, and therefore, no data were qualified based on field or laboratory replicate results.

Some nearshore surface water data were qualified as estimates as follows:

- Certain mercury results due to a holding time exceedance.
- Certain manganese results due to method blank results.
- Certain manganese and lead results based on field blank results.
- Certain manganese and zinc results due to matrix spike percent recovery.
- Certain iron results due to field duplicate results.

Certain open water surface water results were qualified as follows:

- All open water surface water copper results were rejected due to field blank results and are considered unusable for this project.
- All open water surface water phosphorus results were qualified as estimates due to laboratory blank results. Phosphorus was a requested analysis by DEQ, however, this analyte is not part of the risk assessment and is not addressed further under this report.
- Open water surface water arsenic results were qualified as estimates due to the field duplicate results.

No IVBA results were qualified as estimates.

Based on the data quality review, the data are determined to be of acceptable quality and meet the data quality objectives. The final completeness for open water surface water was assessed at 93%, according to the method in the SAP/QAPP (Alta 2024b). The final completeness for nearshore surface water, sediment, and soil data was assessed at 100%, according to the method in the SAP/QAPP (Alta 2024b).

2.2 Data Processing

This section summarizes the data processing completed to protect data confidentiality for private properties, to manage replicate sample data, and to calculate site-specific bioavailability from lead and arsenic IVBA results. Data processing for EPC calculations is described in Section 4.

2.2.1 Private Properties

For privately-owned recreational sites, including those that are used by the public and those that are tribally owned, generic site identification numbers are used instead of the Site ID to protect participant confidentiality.

2.2.2 Replicate Sample Results

When field replicate samples were collected (duplicates for surface water and triplicates for ISM soil and sediment samples), the higher of the results is used in data summaries. Laboratory ISM replicates were also analyzed from two different samples, which were field triplicate samples. The arithmetic mean of the laboratory ISM replicate results was calculated and used as the result for that field triplicate. In these two situations, if the average was the highest of the field triplicate results, it was used in data summaries.

2.2.3 Bioavailability

Site-specific bioavailability values for samples selected for IVBA analysis (described in Section 1.2.4) were estimated using the laboratory-derived IVBA results. The laboratory-derived IVBA results were converted to estimates of relative bioavailability (RBA) using the equations below (USEPA 2017b).

$$RBA_{Arsenic} = (0.79 \times IVBA) + 0.03 \quad (1)$$

$$RBA_{Lead} = (0.88 \times IVBA) - 0.028 \quad (2)$$

Where:

RBA = Relative bioavailability of lead or arsenic in soil (%).

IVBA = *In vitro* bioaccessibility of lead or arsenic (i.e., laboratory result).

RBA_{Lead} was then converted to absolute bioavailability $(ABA)_{soil}$ because ABA is used in the IEUBK model and lead RBSL development. The conversion is as follows (USEPA 2007b):

$$ABA_{soil} = ABA_{soluble} \times RBA_{lead} \quad (3)$$

Where:

ABA_{soil} = Absolute bioavailability of lead in soil.

$ABA_{soluble}$ = ABA value for reference material (IEUBK lead acetate = 50%; ALM lead acetate = 20%).

2.3 Site Results

Recreational site sampling was designed to support a SLRE. This section provides a general data summary of the laboratory analytical results for soil, sediment, and surface water, with a focus on arsenic and lead.

Table 4 presents a summary of the total number and type of samples collected at each site. Sampling locations are shown on individual site figures available in Appendix A.

All sites visited during the 2024 sampling effort were evaluated for unregulated drinking water sources. No eligible drinking water sources were identified; therefore, no drinking water samples were collected.

Table 4. Sample Summary

Site Name	Site ID	Dry Sediment	Wet Sediment	Upland Soil	Nearshore Water	Off Shore Water	Drinking Water	QC Replicates	Notes
Corbin Park	S001	1	1	1	1	0	0	replicate (WS)	replicate on wet sediment is cobble/gravel with interstitial sands
Q'Emiln Park	S003	1	1	1	1	1	0	replicate (US)	replicate on upland soils (soils beneath grass/sod layer)
Greensferry Park	S004	1	1	1	1	0	0		per local resident: soil brought into site from unknown source in 2016 and dispersed in upland area
Atlas Waterfront Park	S007	2	2	0	2	1	0		
Blackwell Island	S008	0	1	1	1	1	0	replicate (WS)	replicate on wet sediment
Cheamkwet Park	S009	2	2	1	2	1	0	replicate (US)	replicate on upland soils (gravelly soils)
Yap-Keehn-Um Beach	S010	1	1	0	1	0	0		
Boardwalk Public Beach	S012	2	2	0	2	0	0		
Tubbs Hill West, 1	S013	1	1	0	1	0	0		
Tubbs Hill South, 2	S014	1	0	0	1	0	0		
Tubbs Hill East, 3	S015	1	1	0	1	0	0	replicate (DS)	replicate on dry sediment (gravelly sand)
Sanders Beach West	S016	1	1	0	1	1	0		
Sanders Beach Public	S017	1	1	0	1	0	0	replicate (DS)	replicate on dry sediment (sand)
Higgens Point Day Use	S020	1	1	0	1	1	0		Dry sediment is strongly influenced by erosion of steep bank/bedrock immediately adjacent to site.
Higgens Point Beach, 2	S021	1	1	0	1	0	0		
Higgens Point Beach, 1	S022	1	0	0	1	0	0		
CONF02	CONF02	1	1	1	1	0	0	replicate (DS)	replicate on dry sediment (hard packed silts)
CONF03	CONF03	1	1	0	1	0	0		
CONF04	CONF04	1	1	0	1	0	0		
CONF05	CONF05	1	1	1	1	1[a]	0		
Mica Bay Boater Park	S033	1	1	1	1	0	0		
Loff's Bay	S036	0	1	1	1	1	0		
CONF06	CONF06	2	0	0	2	0	0		The beach sediments were imported to the site in the early 2000s. The imported sediments were designed to match native sediments from another beach area on the property. Unknown what volume of sediments were imported.
Carlin Bay	S038	1	1	0	1	1	0		
Rockford Bay	S041	0	0	1	0	0	0		
CONF07	CONF07	2	3	1	3	0	0	replicate (WS)	replicate on wet sediment (fine sand/clay with rocky areas)
Windy Bay	S044	0	0	1	0	1	0		
Bell Bay Campground	S046	0	0	1	1	0	0		
CONF08	CONF08	1	1	0	1	1[b]	0		
CONF09	CONF09	1	1	1	1		0		Beach sediment has been imported several times since the early 2000s. Imported sand is from a Palouse area supplier. Lawn is watered with lake water. Original beach sand import has been augmented (2017, 2018, 2019, 2021, and 2023). 2023 was last time sand was imported.
Rocky Point	S058	1	1	0	1	1	0		
CONF11	CONF11	1	1	1	1	1[c]	0		Local creek dumps into lake at the site and may contribute silts and clays to lake deposits.

Notes:
US = upland soil, DS = dry sediment, WS = wet sediment
[a] Collected in Gotham Bay; [b] collected in Harlow Point; [c] collected in Rockford Bay.

2.3.1 Soil/Sediment Results

Field crews collected a total of 78 soil/sediment samples (excluding QA/QC) from 32 recreational sites, including: 15 upland soil samples; 32 dry sediment samples; and 31 wet sediment samples.

Soil and sediment characteristics ranged widely from silt and sand with varying amounts of gravel, cobble, and rock to predominately gravel, cobble, and rock with interstitial fines (silt and sand). Sample depth varied from 1 to 3 inches total depth for upland soils, from 3 to 6 inches total depth for wet sediment, and from 1 to 12 inches total depth for dry sediment.

Soil and sediment metals data are presented in Table 5.

2.3.1.1 Upland Soil

Upland soil samples were collected from 15 sites, including 5 locations on the Spokane River and 10 locations around CDA Lake. Arsenic concentrations in upland soil samples ranged from 2.66 mg/kg to 15.6 mg/kg, with the maximum concentration observed at Blackwell Island (S008) on the Spokane River (see Table 5 and Table 6). Lead concentrations ranged from 21.6 mg/kg to 476 mg/kg, with the maximum concentration observed at Corbin Park (S001) on the Spokane River. Corbin Park (S001) had the maximum concentrations of antimony, cadmium, and zinc (3.19, 7.02, and 1,690 mg/kg, respectively). Blackwell Island (S008) had the maximum concentration of manganese (1,070 mg/kg), and Cheamkwet Park (S009) had the maximum concentration of copper (44.3 mg/kg, see Table 5).

The average concentration for arsenic was 7.44 mg/kg and for lead was 122 mg/kg. The Spokane River contains higher average metals concentrations compared to the lake for all metals, except for iron (see Table 6).

Table 5. Soil and Sediment Sample Results

Site Name	Site ID	Decision Unit	Type	Depth (inches)	Sample Date	Analyte (mg/kg)								
						Antimony	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc
Corbin Park	S001	DU01	US	3	8/14/2024	3.19	13.9	7.02	24.7	26,000	476	1,050	0.123 J-	1,690
		DU02	DS	6	8/14/2024	8.00 U	8.40	3.35	19.8	23,800	242	762	0.048 J-	1,560
		DU03	WS	3	8/14/2024	8.00 U	5.00 U	3.57	163	23,000	178	546	0.040 J-	973
Q'Emiln Park	S003	DU01	US	1	8/21/2024	8.00 U	7.72 J-	0.80 U	21.3	19,300	32.1	481	0.036 J-	139
		DU02	DS	6	8/21/2024	8.00 U	11.8	1.83	21.7	22,700	82.2	624	0.043 J-	304
		DU03	WS	6	8/21/2024	8.00 U	8.03	3.68	16.5	20,700	151	484	0.044 J-	881
Greensferry Park	S004	DU01	US	1	8/13/2024	2.00 U	9.55	0.30	20.4	16,000	21.6	464	0.033 UJ	79.5
		DU02	DS	12	8/13/2024	8.00 U	7.13	1.08	25.6	22,700	54.0	849	0.061 J-	326
		DU03	WS	6	8/13/2024	8.00 U	5.37	0.80	11.6	24,000	26.1	407	0.033 UJ	378
Atlas Waterfront Park	S007	DU01	DS	6	8/5/2024	8.00 UJ	23.1	0.80 U	22.2	24,900	31.4	653	0.033 UJ	79.4
		DU02	WS	6	8/5/2024	8.00 UJ	14.9	0.92	21.1	31,300	25.3	638	0.033 UJ	252
		DU03	DS	6	8/5/2024	8.00 UJ	25.7	0.80 U	25.5	25,800	31.8	668	0.033 UJ	82.7
		DU04	WS	6	8/7/2024	8.00 UJ	16.5	1.04	18.4	25,700	33.9	1,020	0.033 UJ	310
Blackwell Island	S008	DU01	US	1	8/8/2024	3.16	15.6	5.45	31.5	29,800	274	1,070	0.126 J-	624
		DU02	WS	6	8/8/2024	8.00 UJ	31.9	1.88	29.9	42,800	63.6	1,660	0.033 UJ	585
Cheamkwet Park	S009	DU01	US	1	7/31/2024	2.11	10.5	3.71	44.3	18,700	232	765	0.768 J-	592
		DU02	DS	12	7/31/2024	8.00 U	10.8	4.80	51.1	27,300	367	1,040	0.996 J-	825
		DU03	WS	6	7/31/2024	8.00 U	8.90	2.74	27.2	21,000	134	558	0.190 J-	806
		DU04	DS	12	7/31/2024	8.00 U	8.69	1.92	11.8	20,200	92.5	438	0.046 J-	543
		DU05	WS	6	8/1/2024	8.00 U	10.1	1.35	15.0	19,700	97.3	436	0.033 UJ	761
Yap-Keehn-Um Beach	S010	DU01	DS	12	8/1/2024	8.00 U	9.13	2.49	17.1	20,400	118	492	0.049 J-	655
		DU02	WS	6	8/1/2024	8.00 U	8.59	2.45	15.1	20,800	104	472	0.033 UJ	933
Boardwalk Public Beach	S012	DU01	DS	12	7/29/2024	8.00 U	14.6	1.79	23.6	22,000	66.7	481	0.033 UJ	524
		DU02	WS	6	7/29/2024	8.00 U	8.47	1.21	12.0	21,000	43.8	325	0.033 UJ	606
		DU03	DS	12	7/30/2024	8.00 U	14.4	0.80 U	22.1	19,900	60.4	432	0.033 UJ	149
		DU04	WS	6	7/30/2024	8.00 U	7.38	0.80 U	9.96	16,000	19.3	201	0.033 UJ	299
Tubbs Hill West, 1	S013	DU01	DS	3	8/28/2024	4.00 U	2.73	0.40 U	20.5	18,900	21.0	163	0.033 UJ	121
		DU02	WS	3	8/28/2024	4.00 U	2.50 U	0.40 U	7.32	8,910	17.9	73.6	0.033 UJ	127
Tubbs Hill South, 2	S014	DU01	DS	6	8/28/2024	4.00 U	5.48	2.69	22.4	18,600	93.2	381	0.035 J-	421
Tubbs Hill East, 3	S015	DU01	DS	6	8/28/2024	4.00 U	7.34	2.44	11.1	20,200	56.6	310	0.033 UJ	576
		DU02	WS	3	8/28/2024	4.00 U	2.50 U	0.40 U	3.32	5,640	13.0	62.8	0.040 J-	181
Sanders Beach West	S016	DU01	DS	12	8/7/2024	8.00 UJ	14.9	1.73	21.3	19,600	63.0	469	0.033 UJ	411
		DU02	WS	6	8/7/2024	8.00 UJ	7.10	2.07	13.7	16,300	56.7	211	0.033 UJ	524
Sanders Beach Public	S017	DU01	DS	12	8/6/2024	8.00 U	6.29	1.93	9.57	16,500	53.4	287	0.048 J-	316
		DU02	WS	6	8/6/2024	8.00 U	5.00 U	0.80 U	28.2	14,000	34.5	143	0.033 UJ	514
Higgens Point Day Use	S020	DU01	DS	1	8/20/2024	8.00 U	17.4	0.80 U	43.2	49,800	40.1	424	0.033 UJ	100
		DU02	WS	3	8/20/2024	8.00 U	20.4	0.91	36.5	67,700	36.4	567	0.033 UJ	284

Site Name	Site ID	Decision Unit	Type	Depth (inches)	Sample Date	Analyte (mg/kg)								
						Antimony	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc
Higgens Point Beach, 2	S021	DU01	DS	6	8/19/2024	8.00 U	5.00 U	1.23	28.9	27,200	42.3	416	0.044 J-	251
		DU02	WS	3	8/19/2024	8.00 U	5.00 U	2.11	26.6	30,500	74.0	338	0.033 UJ	688
Higgens Point Beach, 1	S022	DU01	DS	6	8/19/2024	8.00 U	6.61	0.80 U	26.0	28,000	26.3	242	0.033 UJ	143
CONF02	CONF02	DU01	US	1	8/20/2024	8.00 U	5.00 UJ	1.19	26.7	22,600	58.1	465	0.033 J-	199
		DU02	DS	6	8/20/2024	8.00 U	11.7	1.08	19.6	28,500	51.2	565	0.312 J-	203
		DU03	WS	3	8/20/2024	8.00 U	8.15	1.39	11.8	18,400	38.3	266	0.033 UJ	295
CONF03	CONF03	DU01	DS	12	8/5/2024	8.00 U	5.00 U	0.80 U	4.46	8,520	33.3	129	0.033 UJ	91
		DU02	WS	6	8/5/2024	8.00 U	5.00 U	0.80 U	4.29	7,690	46.5	88.8	0.033 UJ	126
CONF04	CONF04	DU01	DS	12	8/26/2024	4.00 U	3.30	0.47	11.7	14,400	66.2	214	0.033 UJ	165
		DU02	WS	6	8/26/2024	4.00 U	2.50 U	0.40 U	7.56	11,600	28.8	127	0.033 UJ	222
CONF05	CONF05	DU01	US	3	8/12/2024	2.61	12.0	5.86	26.6	25,500	214	691	0.111 J-	475
		DU02	DS	12	8/12/2024	8.00 U	5.50	1.50	11.2	19,600	85.5	229	0.033 UJ	268
		DU03	WS	6	8/12/2024	8.00 U	5.00 U	0.80 U	9.02	19,200	58.7	125	0.033 UJ	213
Mica Bay Boater Park	S033	DU01	US	1	8/21/2024	8.00 U	5.00 UJ	1.16	17.8	18,600	60.9	289	0.034 J-	129
		DU02	DS	6	8/21/2024	8.00 U	5.23	0.80 U	18.5	16,100	16.5	305	0.033 UJ	99
		DU03	WS	6	8/21/2024	8.00 U	5.00 U	0.80 U	14.0	15,400	19.2	208	0.033 UJ	144
Loff's Bay	S036	DU01	US	1	8/12/2024	2.00 U	5.04	1.07	22.6	37,300	49.1	581	0.033 UJ	170
		DU02	WS	3	8/12/2024	2.00 U	2.19	0.55	9.26	16,100	35.0	128	0.033 UJ	186
CONF06	CONF06	DU01	DS	6	8/7/2024	8.00 UJ	10.3	2.97	31.2	27,400	122	807	0.063 J-	483
		DU04	DS	6	8/7/2024	8.00 UJ	5.00 U	1.42	16.8	18,200	72.3	350	0.033 UJ	297
Carlin Bay	S038	DU01	DS	6	8/14/2024	8.00 U	5.00 U	2.74	22.6	21,400	180	574	0.066 J-	350
		DU02	WS	3	8/14/2024	8.00 U	5.00 U	0.80 U	4.23	6,760	60.3	80.9	0.033 UJ	124
Rockford Bay	S041	DU01	US	1	8/15/2024	2.00 U	6.50	1.29	25.3	19,000	48.2	822	0.081 J-	299
CONF07	CONF07	DU01	US	1	8/27/2024	4.00 U	2.66	0.42	16.9	22,800	32.5	502	0.033 UJ	108
		DU03	WS	6	8/27/2024	4.00 U	3.29	0.40 U	15.8	21,200	37.1	206	0.041 J-	96
		DU04	DS	6	8/27/2024	4.00 U	7.99	0.86	19.3	22,800	47.3	587	0.033 UJ	209
		DU05	WS	6	8/27/2024	4.00 U	3.11	0.83	11.6	17,200	70.8	163	0.033 UJ	169
		DU06	DS	3	8/27/2024	4.00 U	25.2	1.26	41.3	25,400	55.6	452	0.033 UJ	206
		DU07	WS	3	8/27/2024	4.00 U	3.84	1.10	8.50	22,600	62.5	214	0.033 UJ	305
Windy Bay	S044	DU01	US	1	8/15/2024	2.00 U	3.87	0.57	14.1	17,600	28.9	355	0.246 J-	106
Bell Bay Campground	S046	DU01	US	1	8/13/2024	2.00 U	7.36	3.11	23.7	27,400	171	755	0.046 J-	413
CONF08	CONF08	DU01	DS	1	8/13/2024	8.00 U	5.00 U	1.70	18.1	34,200	88.4	671	0.033 UJ	292
		DU02	WS	3	8/13/2024	8.00 U	5.00 U	1.49	12.8	31,400	144	472	0.033 UJ	446
CONF09	CONF09	DU01	US	1	8/8/2024	2.00 U	3.20	0.64	14.9	15,300	41.8	308	0.033 UJ	102
		DU02	DS	12	8/8/2024	8.00 UJ	5.00 U	0.80 U	14.4	27,300	8.25	564	0.033 UJ	55.8
		DU03	WS	3	8/8/2024	8.00 UJ	5.00 U	1.15	9.89	20,300	37.8	564	0.033 UJ	199
Rocky Point	S058	DU01	DS	12	8/22/2024	8.00 U	5.00 U	0.80 U	7.43	11,800	9.88	159	0.033 UJ	19.1
		DU02	WS	6	8/22/2024	8.00 U	5.00 U	0.80 U	5.06	8,660	6.80	103	0.033 UJ	15.1
CONF11	CONF11	DU01	US	1	8/15/2024	2.00 U	3.73	1.05	15.8	17,600	99.2	266	0.055 J-	121

Site Name	Site ID	Decision Unit	Type	Depth (inches)	Sample Date	Analyte (mg/kg)								
						Antimony	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc
		DU02	DS	12	8/15/2024	8.00 U	5.00 U	0.80 U	11.9	15,900	28.3	212	0.033 UJ	78.5
		DU03	WS	3	8/15/2024	8.00 U	5.00 U	0.80 U	9.41	19,900	31.2	221	0.033 UJ	148

Notes:

mg/kg = milligrams per kilogram

US = upland soil, DS = dry sediment, WS = wet sediment

U = The analyte was not detected below the limit of detection shown.

UJ = Concentration was not detected and is qualified as an estimate.

J = The result is an estimated quantity based on the data quality review.

J- = The result is an estimate biased low.

J+ = The result is an estimate biased high.

Table 6. Summary Statistics for Upland Soil

Location	N	Statistic	Antimony[1,2] (mg/kg)	Arsenic[3] (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)	Mercury[3] (mg/kg)	Zinc (mg/kg)
All Sites	15	Minimum	2.00 U	2.66	0.30	14.1	15,300	21.6	266	0.033 UJ	79.5
		Maximum	3.19	15.6	7.02	44.3	37,300	476	1,070	0.768 J-	1,690
		Average	**3.54**	**7.44**	**2.24**	**23.1**	**22,233**	**122**	**591**	**0.119**	**350**
		Std Dev	**2.39**	**4.04**	**2.23**	**7.71**	**6,041**	**129**	**260**	**0.189**	**414**
Spokane River	5	Minimum	2.00 U	7.72 J-	0.30	20.4	16,000	21.6	464	0.033 UJ	79.5
		Maximum	3.19	15.6	7.02	44.3	29,800	476	1,070	0.768 J-	1,690
		Average	**3.69**	**11.5**	**3.46**	**28.4**	**21,960**	**207**	**766**	**0.217**	**625**
		Std Dev	**2.47**	**3.23**	**2.91**	**9.88**	**5,723**	**189**	**294**	**0.311**	**646**
CDA Lake	10	Minimum	2.00 U	2.66	0.42	14.1	15,300	28.9	266	0.033 UJ	102
		Maximum	2.61	12.0	5.86	26.7	37,300	214	822	0.246 J-	475
		Average	**3.46**	**5.44**	**1.64**	**20.4**	**22,370**	**80.4**	**503**	**0.071**	**212**
		Std Dev	**2.47**	**2.72**	**1.66**	**5.03**	**6,492**	**63.0**	**203**	**0.067**	**137**

Notes:

mg/kg = milligrams per kilogram

U = Not detected below the limit of detection shown, UJ = Concentration was not detected and is qualified as an estimate, J- = Estimate biased low.

N = Number of samples

[1] The maximum concentration shown is based on detected results. There are some non-detect (U qualified) results that have a limit of detection greater than the Maximum detected concentration shown.

[2] For average calculations, the limit of detection was used for a non-detect (U qualified) result. For antimony results, the limit of detection for select samples was higher than the Maximum detected concentration. This resulted in an average value being greater than the Maximum value. There were 11 non-detect results out of 15 samples for upland soil antimony data.

[3] The average concentration uses estimated (J qualified) data.

2.3.1.2 Dry Sediment

A total of 32 dry sediment samples were collected from 27 sites including 7 samples from 5 locations on the Spokane River and 25 samples from 22 sites around CDA Lake. All antimony results were below detection (Table 7). Arsenic concentrations in dry sediment ranged from 2.73 mg/kg to 25.7 mg/kg, averaging 9.49 mg/kg, with the maximum concentration observed at Atlas Waterfront Park (S007) on the Spokane River (Table 7 and Table 5). Lead concentrations ranged from 8.25 mg/kg to 367 mg/kg, averaging 75.2 mg/kg, with the maximum concentration observed at Cheamkwet Park (S009) on the Spokane River. The maximum cadmium, copper, magnesium, and mercury results were also at Cheamkwet Park (S009), while the maximum zinc concentration was at Corbin Park (S001) (see Table 5). The Spokane River contains higher average metals concentrations compared to the lake (Table 7).

Table 7. Summary Statistics for Dry Sediment

Location	N	Statistic	Antimony[1] (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)	Mercury[1] (mg/kg)	Zinc (mg/kg)
All Sites	32	Minimum	4.00 U	2.73	0.4 U	4.46	8,520	8.25	129	0.033 UJ	19.1
		Maximum	8.00 UJ	25.7	4.8	51.1	49,800	367	1040	0.996 J-	1560
		Average	**7.25**	**9.49**	**1.55**	**21.0**	**22,500**	**75.2**	**467**	**0.077**	**319**
		Std Dev	**1.59**	**6.16**	**0.98**	**10.1**	**7,296**	**71.9**	**221**	**0.175**	**299**
Spokane River	7	Minimum	8.00 U	7.13	0.8 U	11.8	20,200	31.4	438	0.033 UJ	79.4
		Maximum	8.00 U	25.7	4.8	51.1	27,300	367	1040	0.996 J-	1560
		Average	**8.00**	**13.7**	**2.08**	**25.4**	**23,914**	**129**	**719**	**0.18**	**531**
		Std Dev	**0.00**	**7.54**	**1.49**	**12.3**	**2,336**	**127**	**190**	**0.360**	**523**
CDA Lake	25	Minimum	4.00 U	2.73	0.4 U	4.46	8,520	8.25	129	0.033 UJ	19.1
		Maximum	8.00 U	25.2	2.97	43.2	49,800	180	807	0.312 J-	655
		Average	**7.04**	**8.32**	**1.40**	**19.8**	**22,105**	**60.2**	**397**	**0.048**	**259**
		Std Dev	**1.74**	**5.33**	**0.76**	**9.40**	**8,164**	**39.2**	**174**	**0.056**	**172**

Notes:

mg/kg = milligrams per kilogram, U = The analyte was not detected below the limit of detection shown,

UJ = Concentration was not detected and is qualified as an estimate, J = The result is an estimated quantity based on the data quality review, J- = Estimate biased low.

N = Number of samples

[1] The average concentration uses estimated (J qualified) data.

2.3.1.3 Wet Sediment

A total of 31 wet sediment samples were collected from 26 sites including 8 samples from 6 locations on the Spokane River and 23 samples from 20 sites around CDA Lake. All antimony results were below detection (Table 8). Arsenic concentrations in wet sediment ranged from 2.19 mg/kg to 31.9 mg/kg, averaging 7.44 mg/kg, with the maximum concentration observed at Blackwell Island (S008) on the Spokane River (Table 8 and Table 5). Lead concentrations ranged from 6.8 mg/kg to 178 mg/kg, averaging 57.6 mg/kg, with the maximum concentration observed at Corbin Park (S001) on the Spokane River. The maximum concentrations of copper and zinc (163 and 973 mg/kg, respectively) were also observed at Corbin Park (S001). The maximum manganese concentration (1,660 mg/kg) was observed at Blackwell Island (S008); and the maximum mercury concentration (0.190 mg/kg) was at Cheamkwet Park (S009). The Spokane River contains higher average metals concentrations compared to the lake (Table 8).

Table 8. Summary Statistics for Wet Sediment

Location	N	Statistic	Antimony[1] (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Copper (mg/kg)	Iron (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)	Mercury[1] (mg/kg)	Zinc (mg/kg)
All Sites	31	Minimum	2.00 U	2.19	0.40 U	3.32	5,640	6.80	62.8	0.033 UJ	15.1
		Maximum	8.00 U	31.9	3.68	163	67,700	178	1660	0.19 J-	973
		Average	**7.03**	**7.44**	**1.27**	**19.0**	**20,821**	**57.6**	**358**	**0.039**	**380**
		Std Dev	**1.85**	**6.15**	**0.87**	**27.9**	**11,803**	**43.6**	**326**	**0.028**	**273**
Spokane River	8	Minimum	8.00 U	5.00 U	0.8	11.6	19,700	25.3	407	0.033 UJ	252
		Maximum	8.00 U	31.9	3.68	163	42,800	178	1660	0.19 J-	973
		Average	**8.00**	**12.6**	**2.00**	**37.8**	**26,025**	**88.7**	**719**	**0.055**	**618**
		Std Dev	**0.00**	**8.81**	**1.18**	**50.9**	**7,711**	**60.4**	**426**	**0.055**	**277**
CDA Lake	23	Minimum	2.00 U	2.19	0.40 U	3.32	5,640	6.8	62.8	0.033 UJ	15.1
		Maximum	8.00 U	20.4	2.45	36.5	67,700	144	567	0.041 J-	933
		Average	**6.70**	**5.65**	**1.01**	**12.4**	**19,011**	**46.8**	**233**	**0.034**	**298**
		Std Dev	**2.05**	**3.73**	**0.56**	**8.1**	**12,561**	**30.9**	**154**	**0.002**	**223**

Notes:

mg/kg = milligrams per kilogram, U = The analyte was not detected below the limit of detection shown,

N = Number of samples

UJ = Concentration was not detected and is qualified as an estimate, J = The result is an estimated quantity based on the data quality review, J- = Estimate biased low.

[1] The average concentration uses estimated (J qualified) data.

2.3.2 Surface Water Sampling Results

A total of 36 nearshore surface water samples, excluding QA/QC samples, were collected from 30 recreational sites including 8 samples from 6 recreational sites on the Spokane River and 28 samples from 24 sites around CDA Lake. A total of 14 open water surface water samples, excluding QA/QC samples were collected near 13 recreational sites including four samples adjacent to Spokane River sites and nine samples on CDA Lake. DEQ collected two open water samples at Blackwell Island (S008): one from near the side channel and boat launch and one from the middle of the Spokane River near the site. The sample collected from near the side channel and boat launch correlates best to the upland soil and wet sediment sample areas and is the one selected for evaluation in this report. Surface water data are presented in Table 9 and discussed in Sections 2.3.2.1 and 2.3.2.2.

Table 9. Surface Water Sample Results

Site Name	Site ID	Decision Unit	Type	Sample Date	Analyte (mg/L)									Parameter	
					Antimony	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc	Temp (˚C)	Turbidity (NTU)
Corbin Park	S001	DU03	NS	8/14/2024	0.00100 U	0.00112	0.0015	0.00250	1.31	0.0278	0.0486	0.000200 U	0.134	24.8	60.51
Q'Emiln Park	S003	DU03	NS	8/21/2024	0.00100 U	0.00145	0.000855	0.00412	3.25	0.0286	0.0679	0.000200 U	0.248	25.0	37.3
		NA	OW	8/29/2024	0.000300 U	0.000675 J	0.000100 U	R	0.039	0.000856	0.010 U	0.000100 U	0.01416	NM	NM
Greensferry Park	S004	DU03	NS	8/13/2024	0.00100 U	0.00100 U	0.000167	0.00176	0.489	0.00431	0.0275	0.000200 U	0.0469	24.7	4.30
Atlas Waterfront Park	S007	DU02	NS	8/5/2024	0.00100 U	0.00100 U	0.000135	0.00118	0.887	0.00181 J+	0.0306	0.000200 U	0.0291	26.0	4.30
		DU04	NS	8/7/2024	0.00100 U	0.00180	0.000278	0.00447	2.47	0.00937 J+	0.0776	0.000200 U	0.0625	24.9	1.18
		NA	OW	8/28/2024	0.000312	0.000600 J	0.000100 U	R	0.030 U	0.000437	0.010 U	0.000100 U	0.01768	NM	NM
Blackwell Island	S008	DU02	NS	8/8/2024	0.00100 U	0.00183	0.000303	0.00289	2.62	0.00628 J+	0.0834	0.000200 U	0.0805	25.3	8.30
		NA	OW	8/28/2024	0.000300 U	0.000637 J	0.000100 U	R	0.044	0.000571	0.010 U	0.000100 U	0.01502	NM	NM
Cheamkwet Park	S009	DU03	NS	7/31/2024	0.00100 U	0.00233	0.00241	0.0259	3.76	0.157	0.184 J-	0.000313	0.296 J-	24.4	1.38
		DU05	NS	8/1/2024	0.00100 U	0.00254	0.00113	0.00480	3.60	0.0478	0.166 J-	0.000200 U	0.338 J-	27.2	245
		NA	OW	8/28/2024	0.000300 U	0.000666 J	0.000109	R	0.032	0.000951	0.010 U	0.000100 U	0.02075	NM	NM
Yap-Keehn-Um Beach	S010	DU02	NS	8/1/2024	0.00100 U	0.00152	0.00101	0.00343	2.04	0.0277	0.0983 J-	0.000200 U	0.233 J-	25.6	18.79
Boardwalk Public Beach	S012	DU02	NS	7/29/2024	0.00100 U	0.001 U	0.000249	0.00111	0.761	0.00370	0.0255 J-	0.000200 U	0.0574 J-	24.4	3.13
		DU04	NS	7/30/2024	0.00100 U	0.001 U	0.000226	0.00094	0.432	0.00256	0.0132 J-	0.000200 U	0.0472 J-	22.6	1.70
Tubbs Hill West, 1	S013	DU02	NS	8/28/2024	0.00100 U	0.001 U	0.000463	0.00162	0.853	0.00711	0.0190	0.000200 U	0.0621	21.0	4.63
Tubbs Hill South, 2	S014	DU02	NS	8/28/2024	0.00100 U	0.001 U	0.00104	0.00196	0.455	0.00847	0.0366	0.000200 U	0.0942	20.6	22.3
Tubbs Hill East, 3	S015	DU02	NS	8/28/2024	0.00100 U	0.001 U	0.000322	0.00175	0.431	0.00310	0.0169	0.000200 U	0.0453	20.6	5.80
Sanders Beach West	S016	DU02	NS	8/7/2024	0.00100 U	0.001 U	0.000860	0.00095	0.178	0.00316 J+	0.00941 J+	0.000200 U	0.0568	23.0	2.01
		NA	OW	8/28/2024	0.000300 U	0.000655 J	0.000103	R	0.036	0.000245	0.010 U	0.000100 U	0.01928	NM	NM
Sanders Beach Public	S017	DU02	NS	8/6/2024	0.00100 U	0.001 U	0.000384	0.00177	0.812	0.00383 J+	0.0189 J-	0.000200 U	0.0876 J-	25.4	4.34
Higgens Point Day Use	S020	DU02	NS	8/20/2024	0.00100 U	0.00327	0.000211	0.00475	5.50	0.00593	0.0456	0.000200 U	0.0579	22.4	13.57
		NA	OW	8/28/2024	0.000300 U	0.000525 J	0.000106	R	0.036	0.000200 U	0.010 U	0.000100 U	0.01933	NM	NM
Higgens Point Beach, 2	S021	DU02	NS	8/19/2024	0.00100 U	0.00163	0.00196	0.00956	6.41	0.0347	0.106	0.000200 U	0.275	23.6	7.56
Higgens Point Beach, 1	S022	DU02	NS	8/19/2024	0.00100 U	0.00152	0.000885	0.00488	3.85	0.00594	0.0649	0.000200 U	0.123	22.8	2.07
CONF02	CONF02	DU03	NS	8/20/2024	0.00100 U	0.00241	0.00150	0.00584	4.79	0.0280	0.121	0.000200 U	0.230	23.5	137
CONF03	CONF03	DU02	NS	8/5/2024	0.00100 U	0.001 U	0.000324	0.00143	0.491	0.00856 J+	0.0152 J	0.000200 U	0.0449 J-	26.3	3.66
CONF04	CONF04	DU02	NS	8/26/2024	0.00100 U	0.001 U	0.000134	0.00072	0.394	0.00250	0.0117	0.000200 U	0.0411	21.7	0.99
CONF05	CONF05	DU03	NS	8/12/2024	0.00100 U	0.00134	0.00113	0.00260	2.18	0.0312	0.0540	0.000200 U	0.141	26.0	2.29
Gotham Bay	CONF05	NA	OW	8/28/2024	0.000300 U	0.000551 J	0.000119	R	0.034	0.000300	0.010 U	0.000100 U	0.01700	NM	NM
Mica Bay Boater Park	S033	DU03	NS	8/21/2024	0.00100 U	0.006	0.00185	0.0139	9.08	0.0250	0.227	0.000200 U	0.269	22.8	21.78
Loff's Bay	S036	DU02	NS	8/12/2024	0.00100 U	0.001 U	0.000532	0.00271	2.54	0.0109	0.0364 J-	0.000200 UJ	0.0736	24.3	17.65
		NA	OW	8/27/2024	0.000300 U	0.000604 J	0.000100 U	R	0.048	0.000303	0.010 U	0.000100 U	0.01789	NM	NM
CONF06	CONF06	DU02	NS	8/7/2024	0.00100 U	0.001 U	0.000329	0.00164	0.480	0.00788	0.0374	0.000200 U	0.0476	23.7	5.12
		DU05	NS	8/7/2024	0.00100 U	0.001 U	0.000508	0.00162	0.902	0.0144	0.0697	0.000200 U	0.0795	25.4	0.03
Carlin Bay	S038	DU02	NS	8/14/2024	0.00100 U	0.001 U	0.00126	0.00377	1.17 J	0.0388	0.0419	0.000200 U	0.104	24.6	12.95

Site Name	Site ID	Decision Unit	Type	Sample Date	Analyte (mg/L)									Parameter	
					Antimony	Arsenic	Cadmium	Copper	Iron	Lead	Manganese	Mercury	Zinc	Temp (˚C)	Turbidity (NTU)
		NA	OW	8/27/2024	0.000317	0.000633 J	0.000113	R	0.033	0.000365	0.010 U	0.000100 U	0.0163	NM	NM
CONF07	CONF07	DU03	NS	8/27/2024	0.00100 U	0.00198	0.000793	0.00721	8.64	0.0323	0.105	0.000200 U	0.123	20.8	67.2
		DU05	NS	8/27/2024	0.00100 U	0.00102	0.000754	0.00283	1.67	0.0163	0.0559	0.000200 U	0.086	20.9	76.9
		DU07	NS	8/27/2024	0.00100 U	0.00131	0.00102	0.00272	2.68	0.0164	0.0648	0.000200 U	0.100	20.7	12.51
Windy Bay	S044	NA	OW	8/27/2024	0.000368	0.000658 J	0.000100 U	R	0.047	0.000581	0.010 J	0.000100 U	0.01579	NM	NM
Bell Bay Campground	S046	DU02	NS	8/13/2024	0.00100 U	0.00102	0.00108	0.00195	1.23	0.0216	0.0670	0.000200 U	0.0946	23.3	15.35
CONF08	CONF08	DU02	NS	8/13/2024	0.00100 U	0.00122	0.000999	0.00218	1.79	0.0321	0.0875	0.000200 U	0.103	22.2	44.50
Harlow Point	CONF08	NA	OW	8/27/2024	0.000401	0.001019 J	0.000104	R	0.047	0.003400	0.017	0.000100 U	0.01614	NM	NM
CONF09	CONF09	DU03	NS	8/8/2024	0.00100 U	0.00127	0.000722	0.00339	2.96	0.0156 J+	0.0780	0.000200 U	0.0859	26.3	5.38
Rocky Point	S058	DU02	NS	8/22/2024	0.00100 U	0.00128	0.000100 U	0.00227	2.08	0.00258	0.0658	0.000200 U	0.0068	23.6	70.0
		NA	OW	8/27/2024	0.000300 U	0.000711 J	0.000100 U	R	0.174	0.000200 U	0.033	0.000100 U	0.000824	NM	NM
CONF11	CONF11	DU03	NS	8/15/2024	0.00100 U	0.00143	0.00107	0.00447	4.29	0.0165	0.0823	0.000200 U	0.119	24.7	34.5
Rockford Bay	CONF11	NA	OW	8/27/2024	0.000322	0.000741 J	0.000100 U	R	0.036	0.000701	0.010 U	0.000100 U	0.01548	NM	NM

Notes: mg/L = milligrams per liter, Temp = Temperature, ˚C = degrees Celsius, NTU = nephelometric turbidity units, NS = nearshore, OW = open water

NM = not measured, NA = not applicable, R = The result was rejected based on the data quality review, U = The analyte was not detected below the limit of detection shown

J = The result is an estimated quantity based on the data quality review, J- = Estimate biased low, J+ = Estimate biased high

2.3.2.1 Nearshore Water Sampling

As shown in Table 9, metals were detected in nearshore water samples collected in the Spokane River and CDA Lake. Arsenic concentrations ranged from not detected (0.00100 milligrams per liter [mg/L] detection limit) to 0.00600 mg/L, averaging 0.00151 mg/L. Lead concentrations ranged from 0.00181 mg/L to 0.157 mg/L, averaging 0.0197 mg/L. The maximum concentrations of arsenic (0.00600 mg/L), iron (9.08 mg/L), and manganese (0.227 mg/L) were observed at Mica Bay Boater Park (S033) on CDA Lake. The maximum concentrations for cadmium (0.00241 mg/L), copper (0.0259 mg/L), lead (0.157 mg/L), mercury (0.000313 mg/L; the only detected concentration), and zinc (0.338 mg/L) were observed at Cheamkwet Park (S009) on the Spokane River. For most metals, the Spokane River contains higher average metals concentrations compared to the lake (Table 10).

Table 10. Summary Statistics for Nearshore Surface Water

Location	N	Statistic	Antimony (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Iron[1] (mg/L)	Lead[1] (mg/L)	Manganese[1] (mg/L)	Mercury (mg/L)	Zinc[1] (mg/L)
All Sites	36	Minimum	0.00100 U	0.00100 U	0.000100 U	0.000720	0.18	0.00181 J+	0.00941 J+	0.000200 U	0.00680
		Maximum	0.00100 U	0.00600	0.00241	0.0259	9.08	0.157	0.227	0.000313	0.338 J-
		Average	**0.00100**	**0.00151**	**0.000791**	**0.00393**	**2.43**	**0.0197**	**0.0656**	**0.000203**	**0.115**
		Std Dev	**0.00000**	**0.000942**	**0.000566**	**0.00458**	**2.23**	**0.0266**	**0.0493**	**0.0000188**	**0.0844**
Spokane River	8	Minimum	0.00100 U	0.00100 U	0.000135	0.00118	0.49	0.00181 J+	0.0275	0.000200 U	0.0291
		Maximum	0.00100 U	0.00254	0.00241	0.0259	3.76	0.157	0.184 J-	0.000313	0.338 J-
		Average	**0.00100**	**0.00163**	**0.000847**	**0.00595**	**2.30**	**0.0354**	**0.0857**	**0.000214**	**0.154**
		Std Dev	**0.00000**	**0.000594**	**0.000805**	**0.00816**	**1.26**	**0.0516**	**0.0589**	**0.0000400**	**0.122**
CDA Lake	28	Minimum	0.00100 U	0.00100 U	0.000100 U	0.000720	0.18	0.0025	0.00941 J+	0.000200 U	0.00680
		Maximum	0.00100 U	0.00600	0.00196	0.0139	9.08	0.0388	0.227	0.000200 U	0.275
		Average	**0.00100**	**0.00147**	**0.000776**	**0.00336**	**2.47**	**0.0152**	**0.0598**	**0.000200**	**0.103**
		Std Dev	**0.000**	**0.00103**	**0.000496**	**0.00289**	**2.45**	**0.0117**	**0.0458**	**0.00**	**0.0691**

Notes:

mg/L = milligrams per Liter, U = Not detected below the limit of detection shown

J = Estimated quantity based on the data quality review, J- = Estimate biased low, J+ Estimate biased high.

N = Number of samples

[1] The average concentration uses some estimated (J qualified) data.

2.3.2.2 Open Water Sampling

A total of 13 open water surface water samples, excluding QA/QC samples and one open water sample, were collected. Table 11 summarizes the data presented in Table 9. For all open water sampling locations, arsenic concentrations ranged from 0.000525 mg/L to 0.00102 mg/L, averaging 0.000667 mg/L, and lead concentrations ranged from not detected (0.000200 mg/L detection limit) to 0.00340 mg/L, averaging 0.000701 mg/L. Sites on CDA Lake had maximum concentrations of antimony (0.000401 mg/L), arsenic (0.00102 mg/L), and lead (0.00340 mg/L) at Harlow Point ; the maximum concentration of cadmium (0.000119 mg/L) at Gotham Bay; and the maximum concentrations of iron (0.174 mg/L) and manganese (0.0330 mg/L) at Rocky Point (S058). The maximum zinc concentration was at Cheamkwet Park (S009) on the Spokane River. Mercury was not detected at any of the open water sample locations.

The lake contains higher average metals concentrations compared to the Spokane River for most metals, except lead and zinc (Table 11).

Open water metals concentrations are always lower than paired, nearshore surface water concentrations (Table 9). The site-wide average concentration of all metals in open water samples is consistently lower than those in site-wide nearshore surface water samples (Table 10 and Table 11). This is expected, as the sampling methodology for nearshore surface water samples included intentional disturbance of the sediment to mimic water-play activities.

Open water sample results were not evaluated for copper because the data were rejected after the data quality review.

Table 11. Summary Statistics for Open Water Surface Water

Location	N	Statistic	Antimony (mg/L)	Arsenic[1] (mg/L)	Cadmium (mg/L)	Copper (mg/L)	Iron (mg/L)	Lead (mg/L)	Manganese[1] (mg/L)	Mercury (mg/L)	Zinc (mg/L)
All Sites	13	Minimum	0.000300 U	0.000525 J	0.000100 U	R	0.0300 U	0.000200 U	0.0100 U	0.000100 U	0.000824
		Maximum	0.000401	0.00102 J	0.000119	R	0.174	0.00340	0.0330	0.000100 U	0.0208
		Average	**0.000317**	**0.000667**	**0.000104**	**R**	**0.0490**	**0.000701**	**0.0120**	**0.000100**	**0.0158**
		Std Dev	**0.0000316**	**0.000121**	**0.000006**	**R**	**0.0381**	**0.000847**	**0.00651**	**0.000**	**0.00489**
Spokane River	4	Minimum	0.000300 U	0.000600 J	0.000100 U	R	0.0300 U	0.000437	0.0100 U	0.000100 U	0.0142
		Maximum	0.000312	0.000675 J	0.000109	R	0.0440	0.000951	0.0100 U	0.000100 U	0.0208
		Average	**0.000303**	**0.000645**	**0.000102**	**R**	**0.0360**	**0.000704**	**0.0100**	**0.000100**	**0.0169**
		Std Dev	**0.0000060**	**0.000034**	**0.000004**	**R**	**0.0064**	**0.000240**	**0.000**	**0.000**	**0.00297**
CDA Lake	9	Minimum	0.000300 U	0.000525 J	0.000100 U	R	0.0330	0.000200 U	0.0100 U	0.000100 U	0.000824
		Maximum	0.000401	0.00102 J	0.000119	R	0.174	0.00340	0.0330	0.000100 U	0.0193
		Average	**0.000323**	**0.000677**	**0.000105**	**R**	**0.0550**	**0.000699**	**0.0130**	**0.000100**	**0.0153**
		Std Dev	**0.0000367**	**0.000145**	**0.000007**	**R**	**0.0452**	**0.00103**	**0.00773**	**0.000**	**0.00563**

Notes:

mg/L = milligrams per Liter

U = Not detected below the limit of detection shown, J = Estimated quantity based on the data quality review, R = Rejected based on the data quality review.

N = Number of samples

[1] The average concentration uses some estimated (J qualified) data.

2.4 Bioavailability Results

Table 12 summarizes the arsenic RBA and lead ABA results.

Arsenic RBA ranged from 1.1% to 21.6%, with an average of 7.32% (including replicate samples). For all samples, arsenic RBA was well below 60% (the default used to derive the arsenic RBSLs).

Lead ABA ranged from 6.8% to 31.3%, with an average of 23.8% (including replicate samples). Only one lead ABA result (31.3%) is greater than the IEUBK model ABA value of 30%, and one result (30.1%) is equivalent. All other lead ABA values are lower than the IEUBK model default value of 30%.

Table 12. Arsenic and Lead IVBA Results

Site Location	Site ID	DU	Type	Sample Date	Arsenic			Lead			
					mg/kg	IVBA (%)	RBA (%)	mg/kg	IVBA (%)	RBA (%)	ABA (%)
Corbin Park	S001	DU01	US	8/14/2024	15.7	7.0	5.6	503	50.9	44.8	22.4
	S001	DU02	DS	8/14/2024	13.4	9.9	7.9	278	61.5	54.1	27.0
	S001	DU03	WS	8/14/2024	6.34	15.8	12.5	164	71.7	62.5	31.3
Q'Emiln Park	S003	DU03	WS	8/21/2024	12.3	9.0	7.1	168	60.7	53.4	26.7
Atlas Waterfront Park	S007	DU01	DS	8/5/2024	25.6	9.0	7.1	34.3	38.8	34.1	17.1
	S007	DU03	DS	8/5/2024	26.4	8.8	7.0	35.2	68.5	60.3	30.1
Blackwell Island	S008	DU01	US	8/8/2024	18.9	5.3	4.2	333	59.8	52.6	26.3
	S008	DU02	WS	8/8/2024	33.6	2.9	2.3	71.0	39.0	34.3	17.1
Cheamkwet Park	S009	DU01	US	7/31/2024	13.7	9.9	7.9	238	56.6	49.8	24.9
	S009	DU02	DS	7/31/2024	14.3	6.6	5.2	392	60.5	53.2	26.6
	S009	DU03	WS	7/31/2024	10.8	9.6	7.6	137	60.7	53.4	26.7
Yap-Keehn-Um Beach	S010	DU01	DS	8/1/2024	1.07	11.9	7.1	123	61.5	54.1	27.0
	S010	DU02	WS	8/1/2024	10.4	7.1	5.6	115	56.3	49.5	24.8
Higgens Point Day Use	S020	DU02	WS	8/20/2024	32.4	1.4	1.1	47.6	15.4	13.5	6.76
CONF05	CONF05	DU01	US	8/12/2024	13.9	12.2	9.67	254	58.7	51.6	25.8
CONF06	CONF06	DU01	DS	8/7/2024	10.7	6.6	5.2	128	53.3	46.9	23.4
Carlin Bay	S038	DU01	DS	8/14/2024	7.78	6.3	5.0	207	54.6	48.0	24.0
CONF07	CONF07	DU06	DS	8/27/2024	32.1	27.3	21.6	65.1	43.8	38.5	19.3
Bell Bay Campground	S046	DU01	US	8/13/2024	8.61	17.3	13.7	205	58.5	51.5	25.7

Site Location	Site ID	DU	Type	Sample Date	Arsenic			Lead			
					mg/kg	IVBA (%)	RBA (%)	mg/kg	IVBA (%)	RBA (%)	ABA (%)
CONF08	CONF08	DU02	WS	8/13/2024	22.4	3.6	2.9	166	54.3	47.8	23.9
Average*							7.3				23.8

Notes:

mg/kg = milligrams per kilogram. Concentrations reported in this table as analyzed by ALS; results differ slightly from those analyzed by SVL.

RBA = Relative Bioavailability, ABA = Absolute Bioavailability, IVBA = In Vitro Bioaccessibility

US = upland soil, DS = dry sediment, WS = wet sediment

* Average is based on all results, including three sets of ISM replicate samples.

2.5 Findings

The key observations from the review of laboratory analytical results discussed in Sections 2.3 and 2.4 are summarized as follows:

- Dry sediment tends to show higher metals concentrations compared to wet sediment for sites where both dry and wet sediment samples were collected.
- Sites with both upland soil and dry sediment sample locations show no consistent trend between those DUs. At some sites, upland soils metals concentrations are higher than dry sediment and at some sites the upland soils metals concentrations are lower, or variable compared to dry sediment.
- When comparing the three soil and sediment types, average metals concentrations are: highest for cadmium, copper, lead, manganese, and mercury in upland soils; highest for antimony, arsenic, and iron in dry sediment; and highest for zinc in wet sediment.
- The maximum results for arsenic and lead in all soil/sediment types are observed at Spokane River sites.
- The maximum value and highest average concentration for all metals in soil, sediments and nearshore surface water except for iron (upland soil and nearshore surface water) are located on the Spokane River. The maximum and highest average concentration for all metals in open water surface water except for lead (average concentration only) and zinc are located on CDA Lake.
- Arsenic RBA ranged from 1.1% to 21.6% and for all samples, well below 60% (the default used to derive the arsenic RBSLs). Lead ABA ranged from 6.8% to 31.3%, and for all but one sample is greater than the default 30% ABA used in the IEUBK model.

Appendix C
QA/QC Memorandum

Alta Science & Engineering, Inc.

alta-se.com

220 East 5th Street, Suite 325
Moscow, Idaho 83843
Ph: (208) 882-7858; Fax: (208) 883-3785

INTERNAL MEMORANDUM

To: Jeremy Johnson, Project Manager

From: Mara Thorhaug, Quality Assurance Officer
Rachel Gibeault, and Allison Marshall, Data Validators

Date: December 19, 2024

Revision Date: January 7, 2025

Contract No./Title: K305, TO #56

Alta Project No.: 23077.030

Subject: **Revised QA/QC Review of Sampling for the Screening Level Risk Evaluation for Coeur d'Alene Lake and the Spokane River in Coeur d'Alene, Idaho**

1 Introduction

This memorandum provides a summary of the data validation and data quality assessment performed for the sampling efforts that occurred in 2024 at the Coeur d'Alene Lake (CDA Lake) and the Spokane River near Coeur d'Alene, Idaho in support of the Screening Level Risk Evaluation. This memo summarizes the review of the surface water (near shore), sediment (wet and dry), and soil (upland) samples collected from July 29 through August 28, 2024.

Alta Science & Engineering, Inc.'s (Alta's) quality assurance/quality control (QA/QC) review followed guidelines set forth in the following documents:

- *Sampling and Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River* (Alta 2024) – hereinafter referred to as the SAP/QAPP.
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA 2020) – hereinafter referred to as the NFG-Inorganic.
- *Incremental Sampling Methodology (ISM) Update ISM-2* (ITRC 2020) – hereinafter referred to as the ISM-2.
- *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).
- *Guidance on Environmental Data Verification and Data Validation EPA QA/G-8* (EPA 2002).

This memorandum discusses the data validation and quality assessment performed for the Sample Delivery Groups (SDGs) listed in Table 1. Chain of Custody records are included in Attachment A. Data qualifiers used in this review are defined by EPA (2020). Final qualified data are presented in Attachment B. Analytical results are reported and discussed in this memo using laboratory identification in order to maintain confidentiality of data collected from privately owned properties.

Table 1. Sample Delivery Groups (SDGs) Reviewed

SDG [a]	Field Sample Matrix	QC samples	Analyses	Data Review Method [b]
X4H0149	Surface Water	Rinsate blanks and Field blanks for Dry/Wet Sediment and Surface Water	Total metals [c]	MS and Mercury
X4H0195	Surface Water	Rinsate blanks and Field blanks for Wet Sediment, Upland Soil, and Surface Water	Total metals [c]	MS and Mercury
X4H0331	Surface Water	Rinsate blanks and Field blanks for Dry Sediment and Surface Water	Total metals [c]	MS and Mercury
X4H0457	Surface Water	Rinsate blanks and Field blanks for Dry Sediment and Surface Water	Total metals [c]	MS and Mercury
X4I0006	Surface Water	Rinsate blanks and Field blanks for Dry Sediment, Upland Soil, and Surface Water	Total metals [c]	MS and Mercury
X4I0477	Surface Water	Rinsate blank for Upland Soil	Total metals [c]	MS and Mercury
X4H0139	Dry/Wet Sediment		Total metals [d]	AES and Mercury
X4H0257	Dry/Wet Sediment		Total metals [d]	AES and Mercury
X4H0339	Dry/Wet Sediment	Processed and Un-processed Silica Sand blank	Total metals [d]	AES and Mercury
X4H0467	Dry/Wet Sediment		Total metals [d]	AES and Mercury
X4H0468	Upland Soil		Total metals [d]	AES and Mercury
X4I0008	Upland Soil		Total metals [d]	AES and Mercury
X4I0009	Dry/Wet Sediment		Total metals [d]	AES and Mercury
X4I0493	Upland Soil		Total metals [d]	AES and Mercury
X4I0495	Wet Sediment		Total metals [d]	AES and Mercury
X4J0340	Upland Soil		Total metals [d]	AES and Mercury

Footnotes:

Data validation level (Stage 2B) based on EPA 2009.

[a] Sample Delivery Groups (SDG) analyzed by SVL Analytical in Kellogg, Idaho.

[b] AES = Atomic Emission Spectrometry, MS = Mass Spectrometry, and Mercury for the NFG-Inorganic.

[c] Total metals in surface water and water QC samples include antimony, arsenic, cadmium, copper, iron, lead, manganese, mercury, and zinc analyzed using EPA Methods 200.8 and 245.1 (EPA 1994a, 1994b).

[d] Total metals in sediment and soil include antimony, arsenic, cadmium, copper, iron, lead, manganese, and zinc analyzed using EPA Method 6010D (EPA 2018) and mercury using EPA Method 7471B (EPA 2007).

2 Data Validation and Quality Assessment Summary of Surface Water and Water Quality Control Samples

Alta's Stage 2B validation of the surface water analytical data and the water QC data (for surface water, sediment, and soil) and review of the surface water field data are summarized in Table 2. Procedures/checks that require further discussion are explained below the table, as necessary.

Table 2. Data Quality Review Summary for Surface Water and Water QC Samples

Data Validation Procedure or Check	Acceptable Frequency? [a]	Acceptable Performance? [b]	Data Qualified?	Discussion Item Number
General Data Review				
Sample condition upon receipt at laboratory	--	Y	N	1
Preservation (temperature)	--	N	N	2
Laboratory followed specified analytical methods, preparatory methods, and shows analysis dates	--	Y	N	
Requested target analyte results are reported with lab qualifiers and units	--	Y	N	
Sensitivity Assessment				
Requested reporting limits are present	--	Y	N	
Instrument Tunes	Y	Y	N	
Representativeness Assessment				
Holding times	--	N	Y	3
Method blanks	Y	N	Y	4
Field blanks (Table 3)	Y	N	Y	5
Rinsate blanks (Table 4)	Y	Y	N	
Accuracy Assessment				
Laboratory Control Samples (LCS)	Y	Y	N	
Matrix Spikes (MS)	Y	N	N	6
Initial Calibration data (ICV/ICB)	Y	Y	N	
Continuing Calibration data (CCV/CCB)	Y	Y	N	
Precision Assessment				
Matrix Spike Duplicates (MSD)	Y	N	N	6
Field Duplicates (Table 5)	Y	N	Y	7

[a] Frequencies as defined in the SAP/QAPP (Alta 2024).

[b] As defined in the SAP/QAPP (Alta 2024), or based on professional judgment of the data validator.

-- = not applicable

Discussion Items:

1. **Sample condition upon receipt at laboratory:** Surface water and water QC samples were properly preserved in the field as specified in the SAP/QAPP. The case narrative from the laboratory lists a qualifier of "Q5" in SDGs X4H0195 and X4I0006, indicating certain samples were received with inadequate preservation but were preserved by the laboratory. However, this qualifier was not assigned to any reported sample results, and the laboratory confirmed this qualifier should not appear in the report. No qualifiers are necessary.
2. **Preservation:** Surface water and water QC samples were received by the laboratory within the temperature range (0°C-6°C) as specified in the SAP/QAPP except for samples in SDGs X4H0149, X4I0006, and X4I0477, which were received by the laboratory with temperatures above 6°C (8.4°C, 6.3°C, and 6.2°C, respectively; see Attachment A). The samples in these SDGs were handled and transported in accordance with the SAP/QAPP. Based on the NFG-Inorganic for MS and mercury data review (EPA 2020), no data were qualified because the aqueous samples were properly preserved.
3. **Holding times:** Surface water and water QC samples were prepared and/or analyzed as specified in the SAP/QAPP except for total mercury samples in SDG X4I0477. These field samples were collected on 8/12/2024, but held until a sampling consent question was resolved. The samples were shipped to and received by the laboratory on 9/30/2024 and prepped/analyzed on 10/4/2024. The mercury results in SDG X4I0477 were below the reporting limit (RL) of 0.0002 milligram per liter (mg/L). The lowest Risk-Based Screening Level (RBSL) presented in the SAP/QAPP for mercury in surface water is 0.0162 mg/L, which is orders of magnitude greater than the RL; therefore, based on professional judgment of the data validator and Quality Assurance Officer (QAO), the data are qualified as non-detected estimates (UJ).
4. **Method blanks:** Method blank sample results were non-detect, except for total manganese in SDG X4I0477, which was detected with a concentration of -0.00054 mg/L. Based on the NFG-Inorganic: MS, the following actions were applied to the total manganese field sample results in SDG X4I0477:
    a. The detected total manganese concentration was qualified as an estimate, biased low (J-).
    b. The non-detected total manganese concentration was qualified as non-detect estimate (UJ).
5. **Field blanks:** Field blank sample results were non-detect, except for total manganese and total lead, which were detected in the field blank collected on August 7, 2024 (0.00167 mg/L and 0.000420 mg/L, respectively, see Table 3). These concentrations were above the RLs (0.000400 mg/L and 0.000200 mg/L, respectively); therefore, based on the guidelines in the NFG-Inorganic: MS, the following actions were applied to the total manganese and/or total lead results for field samples collected during the second week of sampling (August 5-8, 2024):
    a. Sample results greater than 10 times the blank concentrations were not qualified.
    b. Sample results with concentrations above the RL and less than 10 times the blank concentration were qualified as estimates, biased high (J+).
    c. Non-detect sample results were not qualified.

d. There were no sample results with detected concentrations less than the RL.

6. **Matrix Spike/Matrix Spike Duplicate (MS/MSD):** The laboratory analyzed site-specific MS/MSD sample pairs at a ratio of 1:20 as specified in the SAP/QAPP. Percent recoveries (%Rs) were within their analyte-specific acceptance limits for the site-specific MS/MSD sample pairs except for the following analytes:

    a. Total iron in MS/MSD surface water samples in SDGs X4I0149, X4H0195, X4H0331, and X4H0457 had unusable spike recovery values because the analyte concentration in the sample is disproportionate to the spike level. The Laboratory Control Samples (LCS) %Rs for total iron in those SDGs were acceptable; therefore, no data were qualified due to MS/MSD results.

    b. In SDG X4H0149, total manganese and total zinc had %Rs (73.5% and 71.7%, respectively) below the SAP/QAPP data quality indicator for accuracy (80%). Based on the NFG-Inorganic: MS, the following actions were applied to the total manganese and total zinc results in SDG X4H0149:

        i. Detected total manganese and total zinc concentrations were qualified as estimates, biased low (J-).

        ii. Non-detected total manganese and total zinc concentrations were qualified as non-detect estimates (UJ).

        iii. The manganese result for S029-NS-DU02-Z-01 was qualified as an estimate (J) because it had previously been qualified as an estimate, biased high due to field blank results.

7. **Field Duplicates:** From 33 parent surface water samples collected for the project, the Alta field teams collected 4 field duplicate samples, which meets the 1:10 SAP/QAPP criteria. Table 5 shows the original and duplicate sample results and calculated relative percent differences (RPDs).

    For those samples with calculable RPDs, total iron from the sample pair X4H0331-06 and X4H0331-07 had a calculated RPD of 31.7%, which is greater than the SAP/QAPP data quality indicator of 20% for surface water. Total iron results for these samples were qualified as estimates (J). All other RPDs were within the acceptable range specified in the SAP/QAPP and/or precision is acceptable because the absolute difference between the sample and duplicate result is less than or equal to the RL.

Table 3. Surface Water Field Blank Analysis

SDG:	Sample Week:	Sample Date:	Lab Sample ID:	Analyte Concentrations (mg/L):								
				Arsenic	Cadmium	Copper	Iron	Manganese	Lead	Antimony	Zinc	Mercury
X4H0149	Week 1	8/1/2024	X4H0149-08	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 UJ	0.000200 U	0.00100 U	0.00400 UJ	0.000200 U
X4H0195	Week 2	8/7/2024	X4H0195-08	0.00100 U	0.000100 U	0.000400 U	0.0150 U	**0.00167**	**0.000420**	0.00100 U	0.00400 U	0.000200 U
X4H0331	Week 3	8/15/2024	X4H0331-11	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U
X4H0457	Week 4	8/22/2024	X4H0457-11	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U
X4I0006	Week 5	8/27/2024	X4I0006-08	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U

mg/L = milligrams per liter

U = Concentration was not detected above the reporting limit also listed in the SAP/QAPP (Alta 2024).

Table 4. Surface Water Rinsate Blank Analysis

SDG:	Sample Week:	Sample Date:	Lab Sample ID:	Analyte Concentrations (mg/L):								
				Arsenic	Cadmium	Copper	Iron	Manganese	Lead	Antimony	Zinc	Mercury
X4H0149	Week 1	7/31/2024	X4H0149-05	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 UJ	0.000200 U	0.00100 U	0.00400 UJ	0.000200 U
X4H0195	Week 2	8/5/2024	X4H0195-02	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U
X4H0331	Week 3	8/14/2024	X4H0331-08	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U
X4H0457	Week 4	8/21/2024	X4H0457-09	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U
X4I0006	Week 5	8/27/2024	X4I0006-05	0.00100 U	0.000100 U	0.000400 U	0.0150 U	0.000400 U	0.000200 U	0.00100 U	0.00400 U	0.000200 U

mg/L = milligrams per liter

U = Concentration was not detected above the reporting limit also listed in the SAP/QAPP (Alta 2024).

Table 5. Surface Water Field Duplicate Analysis

SDG	Lab Sample ID	Sample Date	Analyte	Original Concentration (mg/L)		Duplicate Concentration (mg/L)		RPD
X4H0149	X4H0149-01 & X4H0149-02	7/29/2024	Arsenic	0.00100	U	0.00100	U	NA
			Cadmium	0.000224		0.000249		NA
			Copper	0.00111		0.00101		NA
			Iron	0.761		0.658		14.5%
			Manganese	0.0255	J-	0.0245	J-	4.00%
			Lead	0.00334		0.00370		10.2%
			Antimony	0.00100	U	0.00100	U	NA
			Zinc	0.0574	J-	0.0574	J-	0.0%
			Mercury	0.000200	U	0.000200	U	NA
X4H0195	X4H0195-11 & X4H0195-12	8/8/2024	Arsenic	0.00183		0.00179		NA
			Cadmium	0.000279		0.000303		NA
			Copper	0.00289		0.00287		0.694%
			Iron	2.48		2.62		5.49%
			Manganese	0.0834		0.0820		1.69%
			Lead	0.00621	J+	0.00628	J+	1.12%
			Antimony	0.00100	U	0.00100	U	NA
			Zinc	0.08		0.0805		0.623%
			Mercury	0.000200	U	0.000200	U	NA
X4H0331	X4H0331-06 & X4H0331-07	8/14/2024	Arsenic	0.00100	U	0.00100	U	NA
			Cadmium	0.00126		0.00122		3.23%
			Copper	0.00377		0.00350		7.43%
			Iron	1.17		0.850		**31.7%**
			Manganese	0.0419		0.0384		8.72%
			Lead	0.0388		0.0363		6.66%
			Antimony	0.00100	U	0.00100	U	NA
			Zinc	0.104		0.100		3.92%
			Mercury	0.000200	U	0.000200	U	NA
X4I0006	X4I0006-06 & X4I0006-07	8/27/2024	Arsenic	0.00102		0.00100	U	NA
			Cadmium	0.000754		0.000752		0.266%
			Copper	0.00283		0.00273		3.60%
			Iron	1.67		1.49		11.4%
			Manganese	0.0559		0.0528		5.70%
			Lead	0.0163		0.0158		3.12%
			Antimony	0.00100	U	0.00100	U	NA
			Zinc	0.0860		0.0829		3.67%
			Mercury	0.000200	U	0.000200	U	NA

Relative Percent Difference (RPD) = (|X1-X2|/((X1+X2)/2))*100

X1 = Original Concentration

X2 = Duplicate Concentration

NA = RPD was not calculated because one or more of the results were not detected or were less than 5 x the RL. Precision is acceptable because the absolute difference between the sample and duplicate result is less than or equal to the RL.

U = concentration was not detected above the method reporting limit

mg/L = milligrams per liter

3 Sediment and Soil Results

Soil/sediment sample collection and analysis followed the procedures described in the SAP/QAPP, with the exceptions discussed below.

3.1 Sediment collection

The sediment coring tool did not have good recovery at some locations primarily due to the presence of gravel within finer sediments. Gravel would sometimes obstruct sediment from entering the core barrel or would become lodged within the core barrel. Based on conversations with field crews and logbook notes, sediment recovery was variable across a sample site, ranging from 20-60% of core barrel volume per subsample location. This impact was more common in wet sediment areas but also impacted some dry sediment sample areas.

In addition, certain sample locations had refusals at certain depths, reducing the number of subsample locations at those lower depths.

No data were qualified due to these field impacts.

3.2 Modified Sediment Collection

At certain sites, samplers collected sediment from designated decision units (DUs) using a modified sampling method because the material on site was primarily cobbles/rocks and gravel with limited fine sediment. The modified methods were agreed upon by the project manager and QAO and were used as follows:

- For wet sediments: Samplers used a square-nosed/sided scoop and pushed the scoop into the sediment up to the desired depth (3-6 inches). Large rocks or cobble were moved by hand if necessary. The scoop was then lifted from the bottom, while the sampler covered the top opening of the scoop with his/her hand to minimize loss of fines. Samplers handpicked or used a coarse (1/4-1/2-inch) soil screen to remove larger material such as gravel, sticks, and organic debris. Scooped/sieved sediment was then placed into a 2-ounce measuring cup before being placed into the sample bag. Water was also poured out of the scoop prior to transferring into the 2-ounce cup.
- For dry sediments: Samplers used a trowel or shovel to excavate a hole to the desired depth (1-12 inches). All material excavated from the hole was passed through a coarse (1/4-1/2-inch) soil screen to remove larger material such as gravel, sticks, and organic debris. A 2-ounce measuring cup was used to scoop equal volumes of sediment from the sieved material. Sediment was transferred to the sample bag.

A total of 12 wet sediment sample DUs (14 samples including QC) used a modified method for sample collections including: S001-WS-DU03-B-01 (and replicates), S004-WS-DU03-C-01, S015-WS-DU02-B-01, S014-WS-DU02-B-01, S020-WS-DU02-B-01, S021-WS-DU02-B-01, S036-WS-DU02-B-01, S038-WS-DU02-B-01, S043-WS-DU07-B-01, S048-WS-DU02-B-01, S049-WS-DU03-B-01, and S062-WS-DU03-B-01.

A total of seven dry sediment sample DUs (nine samples including QC) used a modified method for sample collection including: S015-DS-DU01-C-01 (and replicates), S037-DS-DU01-C-01, S037-DS-DU04-C-01, S038-DS-DU01-C-01, S043-DS-DU06-B-01, S048-DS-DU01-A-01, and S062-DS-DU02-D-01 (which used hand shovel method because of buried utilities).

No data were qualified due to this deviation.

3.3 ISM Preparation Method

After sieving, certain samples did not have enough sample mass to complete the 2D slabcake method identified in the SAP/QAPP. These samples were prepared using the 1D slabcake method, as discussed in Section 3.5.

3.4 Sample Identification

Sample S015-WS-DU02-B-01 in SDG X410009 was incorrectly reported by the laboratory as "S015-DS-DU02-B-01." The sample ID was manually corrected in the electronic laboratory data file and any resulting tables, but it will still show incorrectly as S015-DS-DU02-B-01 in the .pdf laboratory reports (delivered under separate cover).

3.5 Data Validation and Quality Assessment Summary

Alta's Stage 2B validation of the analytical data and review of the sediment and soil field data are summarized in Table 6. Procedures/checks that require further discussion are explained below the table, as necessary.

Table 6. Data Quality Review Summary for Sediment and Soil Results

Data Validation Procedure of Check	Acceptable Frequency? [a]	Acceptable Performance? [b]	Data Qualified?	Discussion Item Number
General Data Review				
Sample condition upon receipt at laboratory	--	Y	N	
Laboratory followed specified analytical methods, preparatory methods, and shows analysis dates	--	Y	N	1
Preservation (temperature and in-field preservative, if applicable)	--	N	Y	2
Requested target analyte results are reported with lab qualifiers and units	--	Y	N	
Sensitivity Assessment				
Requested reporting limits are present	--	Y	N	3
ISM Processed/Unprocessed silica sand blanks (Table 7)	Y	N	N	4
Serial dilution	Y	Y	N	5
Representativeness Assessment				
Holding times	--	N	Y	6
Method blanks	Y	N	Y	7
Field blanks (Table 8)	Y	Y	N	
Rinsate blanks (Table 9)	Y	N	N	8
Accuracy Assessment				

Table 6. Data Quality Review Summary for Sediment and Soil Results

Data Validation Procedure of Check	Acceptable Frequency? [a]	Acceptable Performance? [b]	Data Qualified?	Discussion Item Number
Site-specific Matrix Spike (MS) %Recoveries	Y	N	N	9
Laboratory Control Samples (LCS) %Recoveries	Y	Y	N	
Initial and Continuing Calibration Verification data (ICV/CCV)	Y	Y	N	
Initial and Continuing Calibration Blank data (ICB/CCB)	Y	Y	Y	10
Precision Assessment				
Laboratory Control Sample Duplicate (LCSD) RPDs	--	--	--	
Site-specific Matrix Spike Duplicate (MSD) RPDs	Y	Y	N	
ISM Field Replicates (Table 10)	Y	N	N	11
ISM Laboratory Replicates (Table 11)	Y	N	N	12

[a] Frequencies as defined in the SAP/QAPP (Alta 2024).
[b] As defined in the SAP/QAPP (Alta 2024) or based on professional judgment of the data validator.
-- = not applicable
RPD = relative percent difference

Discussion Items:

1. **Laboratory preparation methods:** The laboratory followed the sample preparation methods as specified in the SAP/QAPP, with the exceptions discussed below:
    a. For ISM sediment samples, samples were sieved with a #60- or #100-mesh sieve (depending on DU type), and then subsampled using the 2D slabcake process according to ISM-2. However, the laboratory informed Alta that certain samples had limited, and in some cases inadequate, mass for 2D subsampling after sieving because a significant amount of sample material was retained on the #60-mesh sieve due to coarse substrate materials. After consultation with Idaho Department of Environmental Quality (DEQ) and U.S. Environmental Protection Agency (EPA), Alta directed the laboratory to utilize the 1D slabcake sample preparation method for samples with low mass after sieving. The following samples were prepared utilizing the 1D slabcake method due to insufficient mass after sieving:
        i. SDG X4H0139: S012-WS-DU02-C-01, S012-WS-DU04-C-01, S009-WS-DU03-C-01, S010-WS-DU02-C-01, S009-WS-DU05-C-01, S017-DS-DU01-D-03 (which served as the laboratory ISM replicate sample), and S017-WS-DU02-C-01.
        ii. SDG X4H0257: S007-WS-DU02-C-01, S016-DS-DU01-D-01, S007-WS-DU04-C-01, S037-DS-DU04-C-01, S008-WS-DU02-C-01, S008-WS-DU02-C-02, and S008-WS-DU02-C-03.

Because these samples were collected using ISM sampling methods and sieving was completed, which reduces heterogeneity in sample analysis, the alternate preparation of these samples is unlikely to bias the analytical results and therefore, no qualifications were applied due to this preparation deviation.

b. The laboratory erroneously sieved certain upland soil field samples (SDGs X4H0156 and X4H0334) with a #60-mesh sieve instead of a #100-mesh sieve as specified in the QAPP and requested. After the error was identified, the laboratory subsequently sieved the samples using a #100-mesh sieve, analyzed the samples for total metals, and reported the results in SDG X4J0340. This memorandum reviews results from SDG X4J0340 instead of SDGs X4H0156 and X4H0334.

2. **Preservation:** All samples were properly preserved to meet method-specific pH requirements. Dry/wet sediment and upland soil samples were received by the laboratory within the temperature range (0°C-6°C) as specified in the SAP/QAPP except for samples in the following SDGs, which were received by the laboratory at varying temperatures as follows:

   - X4H0139: 13.6°C
   - X4H0156: 12.1°C (Sample results reported in SDG X4J0340 as noted in Discussion Item #1).
   - X4H0257: 13.8°C
   - X4H0334: 16.6°C (Sample results reported in SDG X4J0340 as noted in Discussion Item #1).
   - X4H0339: 13.6°C and 8.3°C
   - X4I0008: 8.9°C

   Based on the NFG-Inorganic: AES, no data qualifications are necessary for samples received outside temperature criteria. Based on the guidelines in the NFG-Inorganic: Mercury and professional judgment, the following actions were applied to the field sample mercury results from the SDGs that were received exceeding the temperature requirements:

   a. If sample temperature upon laboratory receipt was greater than 6°C but less than or equal to 10°C, results were qualified as estimates (J or UJ).

   b. If sample temperature upon laboratory receipt was greater than 10°C, detected results were qualified as estimates, biased low (J-). Non-detected results were qualified as estimates (UJ), as opposed to being rejected, because the RL (0.033 milligram per kilogram [mg/kg]) is orders of magnitude lower than the RBSL presented in the SAP/QAPP (11.4 mg/kg).

      Note that mercury results for certain field samples were further qualified based on holding times as noted in Discussion Item #6.

3. **Requested reporting limits are present:** In general, the RLs presented in the SDGs met those listed in the SAP/QAPP. For SDGs X4H0139, X4H0257, X4H0339, X4H0467, and X4H0468, the actual RLs for total metals arsenic, cadmium, copper, iron, manganese, lead, antimony, and zinc were higher than those in the SAP/QAPP. However, these RLs are well below the risk-based screening levels; therefore, this deviation is not a concern.

4. **ISM Processed/Unprocessed silica sand blanks:** The results for the processed and unprocessed silica sand blanks were not detected for all analytes, except total iron, which had detections of 129 mg/kg and 113 mg/kg, respectively (Table 7). All field sample total iron results are greater than 10 times the blank results; therefore, no qualifications are necessary.
5. **Serial dilution:** The laboratory assigned a D10 qualifier to three matrix spike duplicate samples (one each in SDGs X4H0339, X4I0008, and X4I0009) indicating the serial dilution failed, suspected matrix interference. As this only affects QC samples, no additional qualifications were assigned to field data due to serial dilution.
6. **Holding times:** Holding times were met for sediment/soil AES analysis. The holding time requirement for mercury was not met due to the delay in sample processing as Alta, EPA, and DEQ decided how to handle low volume samples and for upland soils, the delay in re-sieving and analyzing the samples. Based on the guidelines in the NFG-Inorganic: Mercury and professional judgement, the following actions were applied to the total mercury results:
    a. Detected mercury results were qualified as estimates, biased low (J-).
    b. Non-detected mercury results were qualified as non-detected estimates (UJ). Results were not rejected and are considered usable for this project since the RL (0.033 mg/kg) is orders of magnitude lower than the lowest RBSL (11.4 mg/kg) presented in the SAP/QAPP. In addition, a comparison of the re-sieved results for upland soils showed most results were similar, indicating there was little loss of mercury due to the holding time.

       Note that certain mercury results were already qualified due to preservation as noted in Discussion Item #2.
7. **Method blanks:** Method blank sample results were not detected except for the following total metals in the following SDGs:
    a. Total manganese was detected in the method blanks for SDGs X4H0467, X4I0008, and X4I0009; however, all total manganese concentrations in the associated field sample results are greater than 10 times the method blank detections. Therefore, no qualifications are necessary.
    b. Total arsenic was detected in the method blank for SDG X4H0468 <-Method Detection Limit (MDL) but >-RL. Results for field samples in this SDG where arsenic was not detected were qualified as non-detect estimated (UJ), while results where arsenic was detected were qualified as estimated, biased low (J-).
    c. Total lead was detected in the method blanks for SDGs X4I0493 and X4I0495 below the RL; however, all total lead concentrations in the associated field sample results are greater than 10 times the blank detection. Therefore, no qualifications are necessary.
8. **Rinsate blanks:** Five rinsate blanks were collected from non-dedicated sampling equipment throughout the course of the monitoring event, which meets the QAPP frequency of 1 per week. The laboratory detected certain analytes above the RLs in the rinsate blanks, summarized as follows and detailed in Table 9:
    a. Total manganese was detected in the rinsate blanks collected on 8/1/2024 and 8/7/2024 (0.00041 J- mg/L and 0.00073 J+ mg/L, respectively).

b. Total copper was detected in the rinsate blank collected on 8/20/2024 (0.00127 mg/L).

The field samples collected during these weeks had results greater than 10 times the rinsate blank concentrations and therefore, no qualifications are necessary per the NFG Inorganic: AES.

9. **Site-specific Matrix Spike (MS) %Recoveries:** The laboratory analyzed the following field samples for sediment and upland soil specifically collected for MS analysis:

   - From a total of 34 dry sediment samples, 5 site-specific MS/MSD sample pairs were collected and analyzed, which meets the SAP/QAPP frequency of 1 site-specific MS/MSD pair for every 20 field samples.
   - From a total 31 wet sediment samples, 1 site-specific MS/MSD sample pair was analyzed for total mercury only, which does not meet the SAP/QAPP frequency of 1 site-specific MS/MSD pair for every 20 field samples.
   - From a total of 15 upland soil samples, 3 site-specific MS/MSD sample pairs were analyzed, which meets the SAP/QAPP frequency of 1 site-specific MS/MSD pair for every 20 field samples.

   All %Recoveries met the SAP/QAPP requirements except for the following:

   a. In SDG X4J0340, total iron, manganese, and zinc are qualified by the laboratory as M3, which means the spike recovery values are unusable since the analyte concentrations in the field sample are disproportionate to spike levels. However, the LCS %Recoveries were acceptable. Therefore, no data are qualified.

   b. In SDGs X4H0139, X4H0257, X4H0339, X4H0467, X4H0468, X4I0008, X4I0009, X4I0493, and X4I0495, total iron is qualified by the laboratory as M3, which means the spike recovery value is unusable since the analyte concentration in the field sample is disproportionate to spike level. However, the LCS %Recovery was acceptable. Therefore, no data are qualified.

   c. In SDGs X4H0257, X4I0493, and X4I0495, total manganese is noted as having an analyte concentration in the field sample that is disproportionate to the spike level; nevertheless, all %Recoveries are within the SAP/QAPP limit of ±20%. Therefore, no qualifications are necessary.

   d. In SDG X4H0139, total manganese is noted as having an analyte concentration in the field sample that is disproportionate to the spike level; however, no qualifications are necessary.

   e. In SDGs X4H0139, X4I0008, and X4I0009, total zinc is also noted as having an analyte concentration in the field sample that is disproportionate to the spike level; nevertheless, all %Recoveries are within acceptable limits. Therefore, no data are qualified.

   f. In SDG X4H0139, total mercury is qualified by the laboratory as M2, indicating the %R is low in the matrix spike sample but the %R was acceptable in the LCS, which may indicate matrix interference. This sample was already qualified as noted in Discussion Items #2 and #6; therefore, no additional qualifiers are necessary.

10. **Initial and Continuing Calibration Blank (ICB/CCB) data:** The laboratory analyzed an initial calibration blank sample and the continuing calibration blank samples at the proper

frequency. All blank samples did not have detected concentrations of total metals except for the following instances:

a. In SDGs X4H0139, X4H0257, X4H0339, X4H0467, X4H0468, total mercury was found in the ICB sample (-0.011 mg/kg). Therefore, based on the guidelines in the NFG-Inorganic: Mercury, the following actions were applied to the total mercury results for field samples in the above listed SDGs:

    i. Detected concentrations of mercury greater than the RL are already qualified as estimates, biased low (J-) due to exceeded sample temperatures and/or exceeded holding times as mentioned in Discussion Items #1 and #2; therefore, no additional qualifiers are necessary.

    ii. Non-detected concentrations of mercury are already qualified as non-detected estimates (UJ) due to exceeded sample temperatures and/or exceeded holding times as mentioned in Discussion Items #1 and #2; therefore, no additional qualifiers are necessary.

b. In SDG X4H0257, total antimony was detected in CCB7 and CCB8 at concentrations ≤(-MDL) but >(-RL). Based on the analysis run log, antimony was not detected in any associated field samples and, therefore, all results were qualified as non-detect estimates (UJ). Total antimony was also detected in CCBA below the RL; however, no field samples were analyzed in association with this CCB and no qualifications are necessary.

c. In SDG X4H0257, total copper was detected in CCB3 and CCBC at concentrations ≤(-MDL) but >(-RL). Copper was detected at concentrations at least 10 times greater than the CCB detections in all associated field samples and, therefore, based on the NFG-Inorganic: AES and professional judgement, no data were qualified based on this CCB detection.

11. **ISM Field Replicates:** From a total of 32 dry sediment field samples, 3 replicate samples were collected, which meets the SAP/QAPP frequency of 1 replicate for every 10 field samples. From a total of 31 wet sediment field samples, 3 replicate samples were collected, which meets the SAP/QAPP frequency. From a total of 15 field upland soil samples, 2 ISM field replicates were collected, which meets the SAP/QAPP frequency.

    All total metals percent relative standard deviations (RSDs) met the SAP/QAPP guidance of ≤35% except for the following instances (Table 10 summarizes the calculated percent RSDs for the ISM field replicates):

    a. In the field replicate samples X4H0339-10, X4H0339-11, and X4H0339-12, the total copper RSD was calculated to be 132%.

    b. In the field replicate samples X4H0467-04, X4H0467-05, and X4H0467-06 the total mercury RSD was calculated to be 119%.

    c. In the field replicate samples X4I0009-10, X4I0009-11, and X4I0009-12 the total cadmium RSD was calculated to be 38.8% and the total lead RSD was calculated to be 39.5%.

    The percent RSDs, or coefficients of variation (CVs), are generally considered reasonable for field conditions. No data were qualified based on field replicate results; however, the RSDs for total copper, total mercury, total cadmium, and total lead noted above suggest a high degree of heterogeneity in concentrations in those DUs.

12. **ISM Laboratory Replicates:** The laboratory processed two sets of laboratory replicates from field replicate samples, which meets the SAP/QAPP requirements. Table 11 summarizes the calculated percent RSDs for the ISM laboratory replicate analysis.

    All total metals percent RSDs for the laboratory replicates met the SAP/QAPP guidance of ≤35% except for total mercury, which had calculated RSDs of 54.1% and 55.8%, respectively, which suggests a high degree of heterogeneity in mercury concentrations.

Table 7. Dry/Wet Sediment and Upland Soil ISM Silica Sand Blank Analysis

SDG:	Sample Week:	Sample Date:	Field Sample ID:	Analyte Concentrations (mg/kg):															
				Arsenic		Cadmium		Copper		Iron		Manganese		Lead		Antimony		Zinc		Mercury	
X4H0339	Week 4	8/19/2024	Processed Blank	5.00	U	0.80	U	2.00	U	**129**		2.4	U	3.00	U	8.00	U	2.00	U	0.0330	UJ
X4H0339	Week 4	8/19/2024	Un-Processed Blank	5.00	U	0.80	U	2.00	U	**113**		2.4	U	3.00	U	8.00	U	2.00	U	0.0330	UJ

mg/kg = milligrams per kilogram

UJ = Non-detected concentration is estimated.

U = Concentration was not detected above the reporting limit as listed in the SDG.

Table 8. Dry/Wet Sediment and Upland Soil Field Blank Analysis

SDG:	Sample Week:	Sample Date:	Lab Sample ID:	Analyte Concentrations (mg/L):															
				Arsenic		Cadmium		Copper		Iron		Manganese		Lead		Antimony		Zinc		Mercury	
X4H0149	Week 1	8/1/2024	X4H0149-12	0.00100	U	0.000100	U	0.000400	U	0.0150	U	0.000400	UJ	0.000200	U	0.00100	U	0.00400	UJ	0.000200	U
X4H0195	Week 2	8/8/2024	X4H0195-10	0.00100	U	0.000100	U	0.000400	U	0.0150	U	0.000400	U	0.000200	U	0.00100	U	0.00400	U	0.000200	U
X4H0331	Week 3	8/13/2024	X4H0331-03	0.00100	U	0.000100	U	0.000400	U	0.0150	U	0.000400	U	0.000200	U	0.00100	U	0.00400	U	0.000200	U
X4H0457	Week 4	8/19/2024	X4H0457-02	0.00100	U	0.000100	U	0.000400	U	0.0150	U	0.000400	U	0.000200	U	0.00100	U	0.00400	U	0.000200	U
X4I0006	Week 5	8/27/2024	X4I0006-03	0.00100	U	0.000100	U	0.000400	U	0.0150	U	0.000400	U	0.000200	U	0.00100	U	0.00400	U	0.000200	U

mg/L = milligrams per liter

U = Concentration was not detected above the reporting limit as listed in the SAP/QAPP (Alta 2024).

Table 9. Dry/Wet Sediment and Upland Soil Rinsate Blank Analysis

SDG:	Sample Week:	Sample Date:	Lab Sample ID:	Analyte Concentrations (mg/L):															
				Arsenic		Cadmium		Copper		Iron		Manganese		Lead		Antimony		Zinc		Mercury	
X4H0149	Week 1	8/1/2024	X4H0149-06	0.00100	U	0.000100	U	0.00040	U	0.015	U	**0.00041**	J-	0.00020	U	0.00100	U	0.0040	UJ	0.000200	U
X4H0195	Week 2	8/7/2024	X4H0195-03	0.00100	U	0.000100	U	0.00040	U	0.015	U	**0.00073**	J+	0.00020	U	0.00100	U	0.0040	U	0.000200	U
X4I0477	Week 3	8/12/2024	X4I0477-01	0.00100	U	0.000100	U	0.00040	U	0.015	U	0.00040	UJ	0.00020	U	0.00100	U	0.0040	U	0.000200	UJ
X4H0457	Week 4	8/20/2024	X4H0457-05	0.00100	U	0.000100	U	**0.00127**		0.015	U	0.00040	U	0.00020	U	0.00100	U	0.0040	U	0.000200	U
X4I0006	Week 5	8/26/2024	X4I0006-01	0.00100	U	0.000100	U	0.00040	U	0.015	U	0.00040	U	0.00020	U	0.00100	U	0.0040	U	0.000200	U

mg/L = milligrams per liter

U = Concentration was not detected above the reporting limit as listed in the SAP/QAPP (Alta 2024).

UJ = Non-detected concentration is estimated.

J+ = concentration is qualified as an estimate, biased high.

J- = concentration is qualified as an estimate, biased low.

Table 10. ISM Dry/Wet Sediment and Upland Soil Field Replicate Analysis

Lab Sample ID	SDG	Sample Date	Unit	Arsenic	Cadmium	Copper	Iron	Manganese	Lead	Antimony	Zinc	Mercury
Dry Sediment												
X4H0139-13	X4H0139	8/6/2024	mg/kg	5.00 U	1.93	8.30	16,300	269	53.4	8.00 U	316	0.0330 UJ
X4H0139-14	X4H0139	8/6/2024	mg/kg	6.29	1.69	9.57	16,500	287	49.3	8.00 U	309	0.0330 UJ
X4H0139-15**	X4H0139	8/6/2024	mg/kg	5.18	1.23	6.91	16,267	227	44.1	8.00 U	289	0.0480
		Mean	mg/kg	5.49	1.62	8.26	16,356	261	48.9	8.00	305	0.0380
	Standard Deviation		mg/kg	0.698	0.354	1.33	126.20	31.0	4.66	0.00	14.2	0.00866
	Relative Standard Deviation		mg/kg	12.7%	21.9%	16.1%	0.772%	11.9%	9.52%	0.00%	4.66%	22.8%
X4H0467-04	X4H0467	8/20/2024	mg/kg	11.5	1.04	17.2	27,400	534	50.5	8.00 U	203	0.0330 UJ
X4H0467-05	X4H0467	8/20/2024	mg/kg	11.7	1.08	19.6	28,500	565	51.2	8.00 U	194	0.312 J-
X4H0467-06**	X4H0467	8/20/2024	mg/kg	11.1	0.820	14.7	23,900	401	39.5	8.00 U	180	0.0487
		Mean	mg/kg	11.4	0.980	17.2	26,600	500	47.1	8.00	192	0.131
	Standard Deviation		mg/kg	0.306	0.140	2.43	2,402	86.9	6.56	0.00	11.4	0.157
	Relative Standard Deviation		mg/kg	2.67%	14.3%	14.2%	9.03%	17.4%	13.9%	0.00%	5.93%	**119%**
X4I0009-10	X4I0009	8/28/2024	mg/kg	5.29	1.60	8.39	14,000	241	34.1	4.00 U	420	0.0330 UJ
X4I0009-11	X4I0009	8/28/2024	mg/kg	7.34	2.44	11.1	20,200	310	56.6	4.00 U	576	0.0330 UJ
X4I0009-12	X4I0009	8/28/2024	mg/kg	4.18	1.12	6.82	12,300	182	26.9	4.00 U	350	0.0330 UJ
		Mean	mg/kg	5.60	1.72	8.77	15,500	244	39.2	4.00	449	0.0330
	Standard Deviation		mg/kg	1.60	0.668	2.17	4,158	64.1	15.5	0.00	116	0.000
	Relative Standard Deviation		mg/kg	28.6%	**38.8%**	24.7%	26.8%	26.2%	**39.5%**	0.00%	25.8%	0.00%
Wet Sediment												
X4H0257-11	X4H0257	8/8/2024	mg/kg	29.3	1.69	27.6	38,600	1,660	63.6	8.00 UJ	499	0.0330 UJ
X4H0257-12	X4H0257	8/8/2024	mg/kg	29.8	1.88	26.1	40,400	1,620	55.1	8.00 UJ	540	0.0330 UJ
X4H0257-13	X4H0257	8/8/2024	mg/kg	31.9	1.86	29.9	42,800	1,650	61.9	8.00 UJ	585	0.0330 UJ
		Mean	mg/kg	30.3	1.81	27.9	40,600	1,643	60.2	8.00	541	0.0330
	Standard Deviation		mg/kg	1.38	0.104	1.91	2,107	20.8	4.50	0.00	43.0	0.00
	Relative Standard Deviation		mg/kg	4.55%	5.77%	6.87%	5.19%	1.27%	7.47%	0.00%	7.95%	0.00%
X4H0339-10	X4H0339	8/14/2024	mg/kg	5.00 U	3.55	15.6	21,200	399	134	8.00 U	860	0.0330 UJ
X4H0339-11	X4H0339	8/14/2024	mg/kg	5.00 U	3.57	14.7	21,200	422	150	8.00 U	870	0.0330 UJ
X4H0339-12	X4H0339	8/14/2024	mg/kg	5.00 U	3.14	163	23,000	546	178	8.00 U	973	0.0400 J-
		Mean	mg/kg	5.00	3.42	64.4	21,800	456	154	8.00	901	0.0353
	Standard Deviation		mg/kg	0.00	0.243	85.4	1,039	79.1	22.3	0.00	62.6	0.00404
	Relative Standard Deviation		mg/kg	0.00%	7.10%	**132%**	4.77%	17.4%	14.5%	0.00%	6.94%	11.4%
X4I0009-03	X4I0009	8/27/2024	mg/kg	2.61	0.400 U	15.1	21,200	188	37.1	4.00 U	96.0	0.0410 J-
X4I0009-04	X4I0009	8/27/2024	mg/kg	2.99	0.400 U	15.1	20,500	206	34.1	4.00 U	93.9	0.0330 UJ
X4I0009-05	X4I0009	8/27/2024	mg/kg	3.29	0.400 U	15.8	21,000	178	30.0	4.00 U	80.8	0.0330 UJ
		Mean	mg/kg	2.963	0.400	15.3	20,900	191	33.7	4.00	90.2	0.0357
	Standard Deviation		mg/kg	0.341	0.00	0.404	361	14.2	3.56	0.00	8.24	0.00462
	Relative Standard Deviation		mg/kg	11.50%	0.00%	2.64%	1.73%	7.44%	10.57%	0.00%	9.13%	12.9%

Table 10. ISM Dry/Wet Sediment and Upland Soil Field Replicate Analysis

Lab Sample ID	SDG	Sample Date	Unit	Arsenic	Cadmium	Copper	Iron	Manganese	Lead	Antimony	Zinc	Mercury
Upland Soils												
X4J0340-01	X4J0340	7/31/2024	mg/kg	9.85	2.91	34.4	17,600	625	164	2.00 U	411	0.768 J-
X4J0340-02	X4J0340	7/31/2024	mg/kg	10.4	3.71	44.3	18,700	765	232	2.11	592	0.584 J-
X4J0340-03	X4J0340	7/31/2024	mg/kg	10.5	2.74	36.8	18,500	620	148	2.00 U	406	0.620 J-
		Mean	mg/kg	10.3	3.12	38.5	18,267	670	181	2.04	470	0.657
	Standard Deviation		mg/kg	0.350	0.518	5.16	586	82.3	44.6	0.0635	106	0.098
	Relative Standard Deviation		mg/kg	3.41%	16.6%	13.4%	3.21%	12.3%	24.6%	3.12%	22.6%	14.8%
X4H0468-02	X4H0468	8/21/2024	mg/kg	7.72 J-	0.800 U	21.3	18,200	481	28.1	8.00 U	139	0.0360 J-
X4H0468-03	X4H0468	8/21/2024	mg/kg	7.32 J-	0.800 U	20.8	18,800	449	32.1	8.00 U	119	0.0330 UJ
X4H0468-04	X4H0468	8/21/2024	mg/kg	6.61 J-	0.800 U	20.6	19,300	456	31.5	8.00 U	139	0.0330 UJ
		Mean	mg/kg	7.22	0.800	20.9	18,767	462	30.6	8.00	132	0.0340
	Standard Deviation		mg/kg	0.562	0.00	0.361	551	16.8	2.16	0.00	11.5	0.00173
	Relative Standard Deviation		mg/kg	7.79%	0.00%	1.73%	2.93%	3.64%	7.06%	0.00%	8.73%	5.09%

Relative standard deviation = (Standard Deviation of the sample/Mean Concentration)*100

** These values are the mean of the laboratory replicates of the corresponding sample.

U = concentration is not detected above the reporting limit shown. The mean, standard deviation, and relative standard deviation were calculated using the reporting limit shown.

J- = concentration is qualified as an estimate, biased low.

UJ = concentration is a non-detect estimate. The mean, standard deviation, and relative standard deviation were calculated using the reporting limit shown.

Table 11. ISM Dry Sediment Laboratory Replicate Analysis

Lab Sample ID	SDG	Sample Date	Unit	Arsenic	Cadmium	Copper	Iron	Manganese	Lead	Antimony	Zinc	Mercury
X4H0139-15	X4H0139	8/6/2024	mg/kg	5.00 U	1.23	7.17	16,500	232	43.1	8.00 U	290	0.0330 UJ
X4H0139-16	X4H0139	8/6/2024	mg/kg	5.19	1.19	6.55	15,900	225	44.5	8.00 U	285	0.0780 J-
X4H0139-17	X4H0139	8/6/2024	mg/kg	5.36	1.28	7.01	16,400	223	44.7	8.00 U	291	0.0330 UJ
		Mean	mg/kg	5.18	1.23	6.91	16,267	227	44.1	8.00	289	0.0480
		Standard Deviation	mg/kg	0.180	0.0451	0.322	321	4.73	0.872	0.000	3.21	0.0260
		Relative Standard Deviation	mg/kg	3.47%	3.66%	4.66%	1.98%	2.08%	1.98%	0.00%	1.11%	**54.1%**
X4H0467-06	X4H0467	8/20/2024	mg/kg	11.1	0.820	15.4	22,600	400	39.9	8.00 U	184	0.0330 UJ
X4H0467-07	X4H0467	8/20/2024	mg/kg	10.8	0.800	13.9	24,100	397	39.5	8.00 U	178	0.0800 J-
X4H0467-08	X4H0467	8/20/2024	mg/kg	11.4	0.840	14.9	25,000	407	39.1	8.00 U	179	0.0330 UJ
		Mean	mg/kg	11.1	0.820	14.7	23,900	401	39.5	8.0	180	0.0487
		Standard Deviation	mg/kg	0.300	0.0200	0.764	1,212.4	5.13	0.400	0.000	3.21	0.0271
		Relative Standard Deviation	mg/kg	2.70%	2.44%	5.18%	5.07%	1.28%	1.01%	0.00%	1.783%	**55.8%**

Relative standard deviation = (Standard Deviation fo the sample/Mean Concentration)*100

U = concentration is not detected above the reporting limit shown. The mean, standard deviation, and relative standard deviation were calculated using the reporting limit shown.

UJ = concentration is a non-detect estimate. The mean, standard deviation, and relative standard deviation were calculated using the reporting limit shown.

J- = concentration is qualified as an estimate, biased low.

4 Overall Assessment

Based on this data quality review, the Alta QAO has determined the laboratory and field data to be of acceptable quality and meets the data quality objectives for precision, accuracy, sensitivity, representativeness, and comparability, with the exceptions noted above. The Alta QAO did not reject any surface water data; therefore, the completeness for surface water is calculated at 100%, which meets the SAP/QAPP criteria. The Alta QAO did not reject any soil results based on this data quality review. Therefore, completeness for dry/wet sediment and upland soil is calculated at 100%, which meets the SAP/QAPP criteria. Attachment B includes the final laboratory data.

5 References and Resources Used

Alta Science & Engineering, Inc. (Alta), 2024. Sampling and Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River. Prepared for the Idaho Department of Environmental Quality. Revision 0, June 3.

U.S. Environmental Protection Agency (EPA),1994a. Method 200.8: Determination of Trace Elements in Waters and Wastes by Inductively Couple Plasma-Mass Spectrometry. Revision 5.4.

EPA,1994b. Method 245.1: Determination of Mercury in Water by Cold Vapor Atomic Absorption Spectrometry. Revision 3.

EPA, 2002. EPA Guidance on Environmental Data Verification and Data Validation. EPA QA/G-8; November.

EPA, 2007. Method 7471B (SW-846): Mercury in Solid or Semisolid Waste (Manual Cold-vapor Technique). Revision 2, February.

EPA, 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85, EPA 540-R-08-005 prepared by the Office of Solid Waste and Emergency Response; January.

EPA, 2018. Method 6010D (SW-846): Inductively Coupled Plasma-Optical Emission Spectrometry. Revision 5, July.

EPA, 2020. National Functional Guidelines for Inorganic Superfund Methods Data Review, (SFAM01.1), Office of Superfund Remediation and Technology Innovation (OSRTI). OLEM 9240.1-66, EPA-542-R-20-006; November.

Interstate Technology & Regulatory Council (ITRC), 2020. Incremental Sampling Methodology (ISM) Update ISM-2. October.

"RE: CDA Lake Project - Questions regarding findings in case narratives," 2024. Email correspondence between D. Tryon (SVL Project Manager) and J. Johnson (Alta Project Manager) in October 2024.

Attachment A
Chains-of-Custody Documentation
Submitted under separate cover

Attachment B
Final Qualified Data

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X433045	X4H0149	X4H0149-01	7/29/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-02	7/29/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-03	7/30/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-04	7/31/2024	EPA 245.1	7439976	Total	HG	0.000313					0.000313		mg/L
X433045	X4H0149	X4H0149-05	7/31/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-06	8/1/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-07	8/1/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-08	8/1/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-09	8/1/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-10	8/5/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-11	8/6/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433045	X4H0149	X4H0149-12	8/1/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7440439	Total	CD	0.000224					0.000224		mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7440508	Total	CU	0.00111					0.00111		mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7439896	Total	FE	0.761	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	0.761		mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7439965	Total	MN	0.0255			J-	Low MS %Recovery	0.0255	J-	mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7439921	Total	PB	0.00334					0.00334		mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-01	7/29/2024	EPA 200.8	7440666	Total	ZN	0.0574			J-	Low MS %Recovery	0.0574	J-	mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7440439	Total	CD	0.000249					0.000249		mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7440508	Total	CU	0.00101					0.00101		mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7439896	Total	FE	0.658					0.658		mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7439965	Total	MN	0.0245			J-	Low MS %Recovery	0.0245	J-	mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7439921	Total	PB	0.0037					0.0037		mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-02	7/29/2024	EPA 200.8	7440666	Total	ZN	0.0574			J-	Low MS %Recovery	0.0574	J-	mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7440439	Total	CD	0.000226					0.000226		mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7440508	Total	CU	0.00094					0.00094		mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7439896	Total	FE	0.432					0.432		mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7439965	Total	MN	0.0132			J-	Low MS %Recovery	0.0132	J-	mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7439921	Total	PB	0.00256					0.00256		mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-03	7/30/2024	EPA 200.8	7440666	Total	ZN	0.0472			J-	Low MS %Recovery	0.0472	J-	mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7440382	Total	AS	0.00233					0.00233		mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7440439	Total	CD	0.00241					0.00241		mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7440508	Total	CU	0.0259					0.0259		mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7439896	Total	FE	3.76					3.76		mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7439965	Total	MN	0.184			J-	Low MS %Recovery	0.184	J-	mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7439921	Total	PB	0.157					0.157		mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-04	7/31/2024	EPA 200.8	7440666	Total	ZN	0.296			J-	Low MS %Recovery	0.296	J-	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL	UJ	Low MS %Recovery	0.0004	UJ	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-05	7/31/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL	UJ	Low MS %Recovery	0.004	UJ	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7439965	Total	MN	0.00041			J-	Low MS %Recovery	0.00041	J-	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-06	8/1/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL	UJ	Low MS %Recovery	0.004	UJ	mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7440382	Total	AS	0.00152					0.00152		mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7440439	Total	CD	0.00101					0.00101		mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7440508	Total	CU	0.00343					0.00343		mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7439896	Total	FE	2.04					2.04		mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7439965	Total	MN	0.0983			J-	Low MS %Recovery	0.0983	J-	mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7439921	Total	PB	0.0277					0.0277		mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-07	8/1/2024	EPA 200.8	7440666	Total	ZN	0.233			J-	Low MS %Recovery	0.233	J-	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL	UJ	Low MS %Recovery	0.0004	UJ	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-08	8/1/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL	UJ	Low MS %Recovery	0.004	UJ	mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7440382	Total	AS	0.00254					0.00254		mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7440439	Total	CD	0.00113					0.00113		mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7440508	Total	CU	0.0048					0.0048		mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7439896	Total	FE	3.6					3.6		mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7439965	Total	MN	0.166			J-	Low MS %Recovery	0.166	J-	mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7439921	Total	PB	0.0478					0.0478		mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-09	8/1/2024	EPA 200.8	7440666	Total	ZN	0.338			J-	Low MS %Recovery	0.338	J-	mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7440439	Total	CD	0.000324					0.000324		mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7440508	Total	CU	0.00143					0.00143		mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7439896	Total	FE	0.491					0.491		mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7439965	Total	MN	0.0152			J	field blank detection, Low MS %Recovery	0.0152	J	mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7439921	Total	PB	0.00856			J+	field blank detection	0.00856	J+	mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-10	8/5/2024	EPA 200.8	7440666	Total	ZN	0.0449			J-	Low MS %Recovery	0.0449	J-	mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7440439	Total	CD	0.000384					0.000384		mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7440508	Total	CU	0.00177					0.00177		mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7439896	Total	FE	0.812	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	0.812		mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7439965	Total	MN	0.0189			J-	Low MS %Recovery	0.0189	J-	mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7439921	Total	PB	0.00383			J+	field blank detection	0.00383	J+	mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-11	8/6/2024	EPA 200.8	7440666	Total	ZN	0.0876			J-	Low MS %Recovery	0.0876	J-	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL	UJ	Low MS %Recovery	0.0004	UJ	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X433064	X4H0149	X4H0149-12	8/1/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL	UJ	Low MS %Recovery	0.004	UJ	mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7440439	Total	CD	0.000135					0.000135		mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7440508	Total	CU	0.00118					0.00118		mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7439896	Total	FE	0.887	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	0.887		mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7439965	Total	MN	0.0306					0.0306		mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7439921	Total	PB	0.00181			J+	field blank detection	0.00181	J+	mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-01	8/5/2024	EPA 200.8	7440666	Total	ZN	0.0291					0.0291		mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-02	8/5/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7439965	Total	MN	0.00073			J+	field blank detection	0.00073	J+	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-03	8/7/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7440439	Total	CD	0.00086					0.00086		mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7440508	Total	CU	0.00095					0.00095		mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7439896	Total	FE	0.178					0.178		mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7439965	Total	MN	0.00941			J+	field blank detection	0.00941	J+	mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7439921	Total	PB	0.00316			J+	field blank detection	0.00316	J+	mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-04	8/7/2024	EPA 200.8	7440666	Total	ZN	0.0568					0.0568		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7440382	Total	AS	0.0018					0.0018		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7440439	Total	CD	0.000278					0.000278		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7440508	Total	CU	0.00447					0.00447		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7439896	Total	FE	2.47					2.47		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7439965	Total	MN	0.0776					0.0776		mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7439921	Total	PB	0.00937			J+	field blank detection	0.00937	J+	mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-05	8/7/2024	EPA 200.8	7440666	Total	ZN	0.0625					0.0625		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7440439	Total	CD	0.000329					0.000329		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7440508	Total	CU	0.00164					0.00164		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7439896	Total	FE	0.48					0.48		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7439965	Total	MN	0.0374					0.0374		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7439921	Total	PB	0.00788					0.00788		mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-06	8/7/2024	EPA 200.8	7440666	Total	ZN	0.0476					0.0476		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7440439	Total	CD	0.000508					0.000508		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7440508	Total	CU	0.00162					0.00162		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7439896	Total	FE	0.902					0.902		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7439965	Total	MN	0.0697					0.0697		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7439921	Total	PB	0.0144					0.0144		mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-07	8/7/2024	EPA 200.8	7440666	Total	ZN	0.0795					0.0795		mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7439965	Total	MN	0.00167					0.00167		mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7439921	Total	PB	0.00042					0.00042		mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-08	8/7/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7440382	Total	AS	0.00127					0.00127		mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7440439	Total	CD	0.000722					0.000722		mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7440508	Total	CU	0.00339					0.00339		mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7439896	Total	FE	2.96					2.96		mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7439965	Total	MN	0.078					0.078		mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7439921	Total	PB	0.0156			J+	field blank detection	0.0156	J+	mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-09	8/8/2024	EPA 200.8	7440666	Total	ZN	0.0859					0.0859		mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-10	8/8/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7440382	Total	AS	0.00183					0.00183		mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7440439	Total	CD	0.000279					0.000279		mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7440508	Total	CU	0.00289					0.00289		mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7439896	Total	FE	2.48	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	2.48		mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7439965	Total	MN	0.0834					0.0834		mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7439921	Total	PB	0.00621			J+	field blank detection	0.00621	J+	mg/L
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X434029	X4H0195	X4H0195-11	8/8/2024	EPA 200.8	7440666	Total	ZN	0.08					0.08		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7440382	Total	AS	0.00179					0.00179		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7440439	Total	CD	0.000303					0.000303		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7440508	Total	CU	0.00287					0.00287		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7439896	Total	FE	2.62					2.62		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7439965	Total	MN	0.082					0.082		mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7439921	Total	PB	0.00628			J+	field blank detection	0.00628	J+	mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434029	X4H0195	X4H0195-12	8/8/2024	EPA 200.8	7440666	Total	ZN	0.0805					0.0805		mg/L
X434034	X4H0195	X4H0195-01	8/5/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-02	8/5/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-03	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-04	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-05	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-06	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-07	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-08	8/7/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-09	8/8/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-10	8/8/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-11	8/8/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0195	X4H0195-12	8/8/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-01	8/12/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-02	8/13/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-03	8/13/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-04	8/13/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-05	8/13/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-06	8/14/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-07	8/14/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434034	X4H0331	X4H0331-08	8/14/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7440382	Total	AS	0.00134					0.00134		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7440439	Total	CD	0.00113					0.00113		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7440508	Total	CU	0.0026					0.0026		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7439896	Total	FE	2.18					2.18		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7439965	Total	MN	0.054					0.054		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7439921	Total	PB	0.0312					0.0312		mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-01	8/12/2024	EPA 200.8	7440666	Total	ZN	0.141					0.141		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7440439	Total	CD	0.000167					0.000167		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7440508	Total	CU	0.00176					0.00176		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7439896	Total	FE	0.489					0.489		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7439965	Total	MN	0.0275					0.0275		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7439921	Total	PB	0.00431					0.00431		mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-02	8/13/2024	EPA 200.8	7440666	Total	ZN	0.0469					0.0469		mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-03	8/13/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7440382	Total	AS	0.00122					0.00122		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7440439	Total	CD	0.000999					0.000999		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7440508	Total	CU	0.00218					0.00218		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7439896	Total	FE	1.79					1.79		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7439965	Total	MN	0.0875					0.0875		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7439921	Total	PB	0.0321					0.0321		mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-04	8/13/2024	EPA 200.8	7440666	Total	ZN	0.103					0.103		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7440382	Total	AS	0.00102					0.00102		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7440439	Total	CD	0.00108					0.00108		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7440508	Total	CU	0.00195					0.00195		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7439896	Total	FE	1.23	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	1.23		mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7439965	Total	MN	0.067					0.067		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7439921	Total	PB	0.0216					0.0216		mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-05	8/13/2024	EPA 200.8	7440666	Total	ZN	0.0946					0.0946		mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7440439	Total	CD	0.00126					0.00126		mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7440508	Total	CU	0.00377					0.00377		mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7439896	Total	FE	1.17			J	field replicate	1.17	J	mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7439965	Total	MN	0.0419					0.0419		mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7439921	Total	PB	0.0388					0.0388		mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-06	8/14/2024	EPA 200.8	7440666	Total	ZN	0.104					0.104		mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7440439	Total	CD	0.00122					0.00122		mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7440508	Total	CU	0.0035					0.0035		mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7439896	Total	FE	0.85			J	field replicate	0.85	J	mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7439965	Total	MN	0.0384					0.0384		mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7439921	Total	PB	0.0363					0.0363		mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-07	8/14/2024	EPA 200.8	7440666	Total	ZN	0.1					0.1		mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-08	8/14/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7440382	Total	AS	0.00112					0.00112		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7440439	Total	CD	0.0015					0.0015		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7440508	Total	CU	0.0025					0.0025		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7439896	Total	FE	1.31					1.31		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7439965	Total	MN	0.0486					0.0486		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7439921	Total	PB	0.0278					0.0278		mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-09	8/14/2024	EPA 200.8	7440666	Total	ZN	0.134					0.134		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7440382	Total	AS	0.00143					0.00143		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7440439	Total	CD	0.00107					0.00107		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7440508	Total	CU	0.00447					0.00447		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7439896	Total	FE	4.29					4.29		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7439965	Total	MN	0.0823					0.0823		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7439921	Total	PB	0.0165					0.0165		mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-10	8/15/2024	EPA 200.8	7440666	Total	ZN	0.119					0.119		mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X434169	X4H0331	X4H0331-11	8/15/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X435028	X4H0331	X4H0331-09	8/14/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0331	X4H0331-10	8/15/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0331	X4H0331-11	8/15/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-01	8/19/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-02	8/19/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-03	8/19/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-04	8/20/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-05	8/20/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-06	8/20/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-07	8/21/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-08	8/21/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-09	8/21/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435028	X4H0457	X4H0457-10	8/22/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435028	X4H0457	X4H0457-11	8/22/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435043	X4H0139	X4H0139-01	7/29/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-02	7/29/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-03	7/30/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X435043	X4H0139	X4H0139-04	7/30/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X435043	X4H0139	X4H0139-05	7/31/2024	Percent Solids	NA	Total	% Solids	98.9					98.9		%
X435043	X4H0139	X4H0139-06	7/31/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X435043	X4H0139	X4H0139-07	7/31/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-08	8/1/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X435043	X4H0139	X4H0139-09	8/1/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X435043	X4H0139	X4H0139-10	8/1/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X435043	X4H0139	X4H0139-11	8/5/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X435043	X4H0139	X4H0139-12	8/5/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X435043	X4H0139	X4H0139-13	8/6/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-14	8/6/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-15	8/6/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-16	8/6/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435043	X4H0139	X4H0139-17	8/6/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X435043	X4H0139	X4H0139-18	8/6/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7440382	Total	AS	0.00152					0.00152		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7440439	Total	CD	0.000885					0.000885		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7440508	Total	CU	0.00488					0.00488		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7439896	Total	FE	3.85	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	3.85		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7439965	Total	MN	0.0649					0.0649		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7439921	Total	PB	0.00594					0.00594		mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-01	8/19/2024	EPA 200.8	7440666	Total	ZN	0.123					0.123		mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-02	8/19/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7440382	Total	AS	0.00163					0.00163		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7440439	Total	CD	0.00196					0.00196		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7440508	Total	CU	0.00956					0.00956		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7439896	Total	FE	6.41					6.41		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7439965	Total	MN	0.106					0.106		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7439921	Total	PB	0.0347					0.0347		mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-03	8/19/2024	EPA 200.8	7440666	Total	ZN	0.275					0.275		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7440382	Total	AS	0.00241					0.00241		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7440439	Total	CD	0.0015					0.0015		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7440508	Total	CU	0.00584					0.00584		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7439896	Total	FE	4.79					4.79		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7439965	Total	MN	0.121					0.121		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7439921	Total	PB	0.028					0.028		mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-04	8/20/2024	EPA 200.8	7440666	Total	ZN	0.23					0.23		mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7440508	Total	CU	0.00127					0.00127		mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-05	8/20/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7440382	Total	AS	0.00327					0.00327		mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7440439	Total	CD	0.000211					0.000211		mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7440508	Total	CU	0.00475					0.00475		mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7439896	Total	FE	5.5					5.5		mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7439965	Total	MN	0.0456					0.0456		mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7439921	Total	PB	0.00593					0.00593		mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-06	8/20/2024	EPA 200.8	7440666	Total	ZN	0.0579					0.0579		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7440382	Total	AS	0.00145					0.00145		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7440439	Total	CD	0.000855					0.000855		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7440508	Total	CU	0.00412					0.00412		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7439896	Total	FE	3.25					3.25		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7439965	Total	MN	0.0679					0.0679		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7439921	Total	PB	0.0286					0.0286		mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-07	8/21/2024	EPA 200.8	7440666	Total	ZN	0.248					0.248		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7440382	Total	AS	0.006					0.006		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7440439	Total	CD	0.00185					0.00185		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7440508	Total	CU	0.0139					0.0139		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7439896	Total	FE	9.08					9.08		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7439965	Total	MN	0.227					0.227		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7439921	Total	PB	0.025					0.025		mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-08	8/21/2024	EPA 200.8	7440666	Total	ZN	0.269					0.269		mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-09	8/21/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7440382	Total	AS	0.00128					0.00128		mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7440508	Total	CU	0.00227					0.00227		mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7439896	Total	FE	2.08					2.08		mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7439965	Total	MN	0.0658					0.0658		mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7439921	Total	PB	0.00258					0.00258		mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-10	8/22/2024	EPA 200.8	7440666	Total	ZN	0.0068					0.0068		mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X435064	X4H0457	X4H0457-11	8/22/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X435091	X4H0257	X4H0257-01	8/5/2024	Percent Solids	NA	Total	% Solids	99.3					99.3		%
X435091	X4H0257	X4H0257-02	8/5/2024	Percent Solids	NA	Total	% Solids	99.3					99.3		%
X435091	X4H0257	X4H0257-03	8/5/2024	Percent Solids	NA	Total	% Solids	99					99		%
X435091	X4H0257	X4H0257-04	8/7/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435091	X4H0257	X4H0257-05	8/7/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X435091	X4H0257	X4H0257-06	8/7/2024	Percent Solids	NA	Total	% Solids	99.3					99.3		%
X435091	X4H0257	X4H0257-07	8/7/2024	Percent Solids	NA	Total	% Solids	98.6					98.6		%
X435091	X4H0257	X4H0257-08	8/7/2024	Percent Solids	NA	Total	% Solids	99.1					99.1		%
X435091	X4H0257	X4H0257-09	8/8/2024	Percent Solids	NA	Total	% Solids	98.3					98.3		%
X435091	X4H0257	X4H0257-10	8/8/2024	Percent Solids	NA	Total	% Solids	98.8					98.8		%
X435091	X4H0257	X4H0257-11	8/8/2024	Percent Solids	NA	Total	% Solids	97.7					97.7		%
X435091	X4H0257	X4H0257-12	8/8/2024	Percent Solids	NA	Total	% Solids	98.1					98.1		%
X435091	X4H0257	X4H0257-13	8/8/2024	Percent Solids	NA	Total	% Solids	98.1					98.1		%
X435126	X4H0257	X4H0257-01	8/5/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-02	8/5/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-03	8/5/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-04	8/7/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-05	8/7/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-06	8/7/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-07	8/7/2024	EPA 7471B	7439976	Total	HG	0.063	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.063	J-	mg/kg
X435126	X4H0257	X4H0257-08	8/7/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-09	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-10	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435126	X4H0257	X4H0257-11	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-12	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435126	X4H0257	X4H0257-13	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-01	7/29/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-02	7/29/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-03	7/30/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-04	7/30/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-05	7/31/2024	EPA 7471B	7439976	Total	HG	0.996	H1, M2	Holding time exceeded, Low MS %R	J-	Sample temp exceeded 10°C; HT exceeded; Low MS %R	0.996	J-	mg/kg
X435128	X4H0139	X4H0139-06	7/31/2024	EPA 7471B	7439976	Total	HG	0.19	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.19	J-	mg/kg
X435128	X4H0139	X4H0139-07	7/31/2024	EPA 7471B	7439976	Total	HG	0.046	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.046	J-	mg/kg
X435128	X4H0139	X4H0139-08	8/1/2024	EPA 7471B	7439976	Total	HG	0.049	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.049	J-	mg/kg
X435128	X4H0139	X4H0139-09	8/1/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-10	8/1/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-11	8/5/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-12	8/5/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-13	8/6/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-14	8/6/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-15	8/6/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-16	8/6/2024	EPA 7471B	7439976	Total	HG	0.078	H1	Holding time exceeded	J-	Sample temp exceeded 10°C, HT exceeded	0.078	J-	mg/kg
X435128	X4H0139	X4H0139-17	8/6/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435128	X4H0139	X4H0139-18	8/6/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7440382	Total	AS	14.6					14.6		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7440439	Total	CD	1.79					1.79		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7440508	Total	CU	23.6					23.6		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7439896	Total	FE	22000					22000		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7439965	Total	MN	481					481		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7439921	Total	PB	66.7					66.7		mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-01	7/29/2024	EPA 6010D	7440666	Total	ZN	524					524		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7440382	Total	AS	8.47					8.47		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7440439	Total	CD	1.21					1.21		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7440508	Total	CU	12					12		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7439896	Total	FE	21000					21000		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7439965	Total	MN	325					325		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7439921	Total	PB	43.8					43.8		mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-02	7/29/2024	EPA 6010D	7440666	Total	ZN	606					606		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7440382	Total	AS	14.4					14.4		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7440508	Total	CU	22.1					22.1		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7439896	Total	FE	19900					19900		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7439965	Total	MN	432					432		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7439921	Total	PB	60.4					60.4		mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-03	7/30/2024	EPA 6010D	7440666	Total	ZN	149					149		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7440382	Total	AS	7.38					7.38		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7440508	Total	CU	9.96					9.96		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7439896	Total	FE	16000					16000		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7439965	Total	MN	201					201		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7439921	Total	PB	19.3					19.3		mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-04	7/30/2024	EPA 6010D	7440666	Total	ZN	299					299		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7440382	Total	AS	10.8					10.8		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7440439	Total	CD	4.8					4.8		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7440508	Total	CU	51.1					51.1		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7439896	Total	FE	27300	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	27300		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7439965	Total	MN	1040					1040		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7439921	Total	PB	367					367		mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-05	7/31/2024	EPA 6010D	7440666	Total	ZN	825					825		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7440382	Total	AS	8.9					8.9		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7440439	Total	CD	2.74					2.74		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7440508	Total	CU	27.2					27.2		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7439896	Total	FE	21000					21000		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7439965	Total	MN	558					558		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7439921	Total	PB	134					134		mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-06	7/31/2024	EPA 6010D	7440666	Total	ZN	806					806		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7440382	Total	AS	8.69					8.69		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7440439	Total	CD	1.92					1.92		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7440508	Total	CU	11.8					11.8		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7439896	Total	FE	20200					20200		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7439965	Total	MN	438					438		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7439921	Total	PB	92.5					92.5		mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-07	7/31/2024	EPA 6010D	7440666	Total	ZN	543					543		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7440382	Total	AS	9.13					9.13		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7440439	Total	CD	2.49					2.49		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7440508	Total	CU	17.1					17.1		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7439896	Total	FE	20400					20400		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7439965	Total	MN	492					492		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7439921	Total	PB	118					118		mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-08	8/1/2024	EPA 6010D	7440666	Total	ZN	655					655		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7440382	Total	AS	8.59					8.59		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7440439	Total	CD	2.45					2.45		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7440508	Total	CU	15.1					15.1		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7439896	Total	FE	20800					20800		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7439965	Total	MN	472					472		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7439921	Total	PB	104					104		mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-09	8/1/2024	EPA 6010D	7440666	Total	ZN	933					933		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7440382	Total	AS	10.1					10.1		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7440439	Total	CD	1.35					1.35		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7440508	Total	CU	15					15		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7439896	Total	FE	19700					19700		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7439965	Total	MN	436					436		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7439921	Total	PB	97.3					97.3		mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-10	8/1/2024	EPA 6010D	7440666	Total	ZN	761					761		mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7440508	Total	CU	4.46					4.46		mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7439896	Total	FE	8520					8520		mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7439965	Total	MN	129					129		mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7439921	Total	PB	33.3					33.3		mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-11	8/5/2024	EPA 6010D	7440666	Total	ZN	91					91		mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7440508	Total	CU	4.29					4.29		mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7439896	Total	FE	7690					7690		mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7439965	Total	MN	88.8					88.8		mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7439921	Total	PB	46.5					46.5		mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-12	8/5/2024	EPA 6010D	7440666	Total	ZN	126					126		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7440439	Total	CD	1.93					1.93		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7440508	Total	CU	8.3					8.3		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7439896	Total	FE	16300					16300		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7439965	Total	MN	269					269		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7439921	Total	PB	53.4					53.4		mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-13	8/6/2024	EPA 6010D	7440666	Total	ZN	316					316		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7440382	Total	AS	6.29					6.29		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7440439	Total	CD	1.69					1.69		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7440508	Total	CU	9.57					9.57		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7439896	Total	FE	16500					16500		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7439965	Total	MN	287					287		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7439921	Total	PB	49.3					49.3		mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-14	8/6/2024	EPA 6010D	7440666	Total	ZN	309					309		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7440439	Total	CD	1.23					1.23		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7440508	Total	CU	7.17					7.17		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7439896	Total	FE	16500					16500		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7439965	Total	MN	232					232		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7439921	Total	PB	43.1					43.1		mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-15	8/6/2024	EPA 6010D	7440666	Total	ZN	290					290		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7440382	Total	AS	5.19					5.19		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7440439	Total	CD	1.19					1.19		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7440508	Total	CU	6.55					6.55		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7439896	Total	FE	15900					15900		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7439965	Total	MN	225					225		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7439921	Total	PB	44.5					44.5		mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-16	8/6/2024	EPA 6010D	7440666	Total	ZN	285					285		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7440382	Total	AS	5.36					5.36		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7440439	Total	CD	1.28					1.28		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7440508	Total	CU	7.01					7.01		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7439896	Total	FE	16400					16400		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7439965	Total	MN	223					223		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7439921	Total	PB	44.7					44.7		mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-17	8/6/2024	EPA 6010D	7440666	Total	ZN	291					291		mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7440508	Total	CU	28.2					28.2		mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7439896	Total	FE	14000					14000		mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7439965	Total	MN	143					143		mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7439921	Total	PB	34.5					34.5		mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X435129	X4H0139	X4H0139-18	8/6/2024	EPA 6010D	7440666	Total	ZN	514					514		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7440382	Total	AS	23.1					23.1		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7440508	Total	CU	22.2					22.2		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7439896	Total	FE	24900					24900		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7439965	Total	MN	653					653		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7439921	Total	PB	31.4					31.4		mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-01	8/5/2024	EPA 6010D	7440666	Total	ZN	79.4					79.4		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7440382	Total	AS	25.7					25.7		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7440508	Total	CU	25.5					25.5		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7439896	Total	FE	25800	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	25800		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7439965	Total	MN	668					668		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7439921	Total	PB	31.8					31.8		mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-02	8/5/2024	EPA 6010D	7440666	Total	ZN	82.7					82.7		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7440382	Total	AS	14.9					14.9		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7440439	Total	CD	0.92					0.92		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7440508	Total	CU	21.1					21.1		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7439896	Total	FE	31300					31300		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7439965	Total	MN	638					638		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7439921	Total	PB	25.3					25.3		mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-03	8/5/2024	EPA 6010D	7440666	Total	ZN	252					252		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7440382	Total	AS	14.9					14.9		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7440439	Total	CD	1.73					1.73		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7440508	Total	CU	21.3					21.3		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7439896	Total	FE	19600					19600		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7439965	Total	MN	469					469		mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7439921	Total	PB	63					63		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-04	8/7/2024	EPA 6010D	7440666	Total	ZN	411					411		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7440382	Total	AS	7.1					7.1		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7440439	Total	CD	2.07					2.07		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7440508	Total	CU	13.7					13.7		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7439896	Total	FE	16300					16300		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7439965	Total	MN	211					211		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7439921	Total	PB	56.7					56.7		mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-05	8/7/2024	EPA 6010D	7440666	Total	ZN	524					524		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7440382	Total	AS	16.5					16.5		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7440439	Total	CD	1.04					1.04		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7440508	Total	CU	18.4					18.4		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7439896	Total	FE	25700					25700		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7439965	Total	MN	1020					1020		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7439921	Total	PB	33.9					33.9		mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-06	8/7/2024	EPA 6010D	7440666	Total	ZN	310					310		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7440382	Total	AS	10.3					10.3		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7440439	Total	CD	2.97					2.97		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7440508	Total	CU	31.2					31.2		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7439896	Total	FE	27400					27400		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7439965	Total	MN	807					807		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7439921	Total	PB	122					122		mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-07	8/7/2024	EPA 6010D	7440666	Total	ZN	483					483		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7440439	Total	CD	1.42					1.42		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7440508	Total	CU	16.8					16.8		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7439896	Total	FE	18200					18200		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7439965	Total	MN	350					350		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7439921	Total	PB	72.3					72.3		mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-08	8/7/2024	EPA 6010D	7440666	Total	ZN	297					297		mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7440508	Total	CU	14.4					14.4		mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7439896	Total	FE	27300					27300		mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7439965	Total	MN	564					564		mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7439921	Total	PB	8.25					8.25		mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-09	8/8/2024	EPA 6010D	7440666	Total	ZN	55.8					55.8		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7440439	Total	CD	1.15					1.15		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7440508	Total	CU	9.89					9.89		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7439896	Total	FE	20300					20300		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7439965	Total	MN	564					564		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7439921	Total	PB	37.8					37.8		mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-10	8/8/2024	EPA 6010D	7440666	Total	ZN	199					199		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7440382	Total	AS	29.3					29.3		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7440439	Total	CD	1.69					1.69		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7440508	Total	CU	27.6					27.6		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7439896	Total	FE	38600					38600		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7439965	Total	MN	1660					1660		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7439921	Total	PB	63.6					63.6		mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-11	8/8/2024	EPA 6010D	7440666	Total	ZN	499					499		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7440382	Total	AS	29.8					29.8		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7440439	Total	CD	1.88					1.88		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7440508	Total	CU	26.1					26.1		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7439896	Total	FE	40400					40400		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7439965	Total	MN	1620					1620		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7439921	Total	PB	55.1					55.1		mg/kg
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X435130	X4H0257	X4H0257-12	8/8/2024	EPA 6010D	7440666	Total	ZN	540					540		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7440382	Total	AS	31.9					31.9		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7440439	Total	CD	1.86					1.86		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7440508	Total	CU	29.9					29.9		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7439896	Total	FE	42800					42800		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7439965	Total	MN	1650					1650		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7439921	Total	PB	61.9					61.9		mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL	UJ	CCB detection	8	UJ	mg/kg
X435130	X4H0257	X4H0257-13	8/8/2024	EPA 6010D	7440666	Total	ZN	585					585		mg/kg
X436024	X4H0468	X4H0468-01	8/20/2024	Percent Solids	NA	Total	% Solids	96.5					96.5		%
X436024	X4H0468	X4H0468-02	8/21/2024	Percent Solids	NA	Total	% Solids	96.8					96.8		%
X436024	X4H0468	X4H0468-03	8/21/2024	Percent Solids	NA	Total	% Solids	95.6					95.6		%
X436024	X4H0468	X4H0468-04	8/21/2024	Percent Solids	NA	Total	% Solids	95.8					95.8		%
X436024	X4H0468	X4H0468-05	8/21/2024	Percent Solids	NA	Total	% Solids	98					98		%
X436025	X4H0468	X4H0468-01	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	H1	Holding time exceeded	J-	HT exceeded	0.033	J-	mg/kg
X436025	X4H0468	X4H0468-02	8/21/2024	EPA 7471B	7439976	Total	HG	0.036	H1	Holding time exceeded	J-	HT exceeded	0.036	J-	mg/kg
X436025	X4H0468	X4H0468-03	8/21/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X436025	X4H0468	X4H0468-04	8/21/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X436025	X4H0468	X4H0468-05	8/21/2024	EPA 7471B	7439976	Total	HG	0.034	H1	Holding time exceeded	J-	HT exceeded	0.034	J-	mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL	UJ	Method blank detection	5	UJ	mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7440439	Total	CD	1.19					1.19		mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7440508	Total	CU	26.7					26.7		mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7439896	Total	FE	22600					22600		mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7439965	Total	MN	465					465		mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7439921	Total	PB	58.1					58.1		mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436026	X4H0468	X4H0468-01	8/20/2024	EPA 6010D	7440666	Total	ZN	199					199		mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7440382	Total	AS	7.72			J-	Method blank detection	7.72	J-	mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7440508	Total	CU	21.3					21.3		mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7439896	Total	FE	18200					18200		mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7439965	Total	MN	481					481		mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7439921	Total	PB	28.1					28.1		mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436026	X4H0468	X4H0468-02	8/21/2024	EPA 6010D	7440666	Total	ZN	139					139		mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7440382	Total	AS	7.32			J-	Method blank detection	7.32	J-	mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7440508	Total	CU	20.8					20.8		mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7439896	Total	FE	18800					18800		mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7439965	Total	MN	449					449		mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7439921	Total	PB	32.1					32.1		mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436026	X4H0468	X4H0468-03	8/21/2024	EPA 6010D	7440666	Total	ZN	119					119		mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7440382	Total	AS	6.61			J-	Method blank detection	6.61	J-	mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7440508	Total	CU	20.6					20.6		mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7439896	Total	FE	19300					19300		mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7439965	Total	MN	456					456		mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7439921	Total	PB	31.5					31.5		mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436026	X4H0468	X4H0468-04	8/21/2024	EPA 6010D	7440666	Total	ZN	139					139		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL	UJ	Method blank detection	5	UJ	mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7440439	Total	CD	1.16					1.16		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7440508	Total	CU	17.8					17.8		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7439896	Total	FE	18600	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	18600		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7439965	Total	MN	289					289		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7439921	Total	PB	60.9					60.9		mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436026	X4H0468	X4H0468-05	8/21/2024	EPA 6010D	7440666	Total	ZN	129					129		mg/kg
X436146	X4H0339	X4H0339-01	8/12/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X436146	X4H0339	X4H0339-02	8/12/2024	Percent Solids	NA	Total	% Solids	99					99		%
X436146	X4H0339	X4H0339-03	8/13/2024	Percent Solids	NA	Total	% Solids	97.4					97.4		%
X436146	X4H0339	X4H0339-04	8/13/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X436146	X4H0339	X4H0339-05	8/13/2024	Percent Solids	NA	Total	% Solids	97.7					97.7		%
X436146	X4H0339	X4H0339-06	8/13/2024	Percent Solids	NA	Total	% Solids	98.6					98.6		%

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X436146	X4H0339	X4H0339-07	8/14/2024	Percent Solids	NA	Total	% Solids	99.1					99.1		%
X436146	X4H0339	X4H0339-08	8/14/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X436146	X4H0339	X4H0339-09	8/14/2024	Percent Solids	NA	Total	% Solids	99.4					99.4		%
X436146	X4H0339	X4H0339-10	8/14/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X436146	X4H0339	X4H0339-11	8/14/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X436146	X4H0339	X4H0339-12	8/14/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X436146	X4H0339	X4H0339-13	8/15/2024	Percent Solids	NA	Total	% Solids	99.4					99.4		%
X436146	X4H0339	X4H0339-14	8/15/2024	Percent Solids	NA	Total	% Solids	99.2					99.2		%
X436146	X4H0339	X4H0339-15	8/19/2024	Percent Solids	NA	Total	% Solids	100					100		%
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7440382	Total	AS	5.5					5.5		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7440439	Total	CD	1.5					1.5		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7440508	Total	CU	11.2					11.2		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7439896	Total	FE	19600	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	19600		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7439965	Total	MN	229					229		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7439921	Total	PB	85.5					85.5		mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-01	8/12/2024	EPA 6010D	7440666	Total	ZN	268					268		mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7440508	Total	CU	9.02					9.02		mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7439896	Total	FE	19200					19200		mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7439965	Total	MN	125					125		mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7439921	Total	PB	58.7					58.7		mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-02	8/12/2024	EPA 6010D	7440666	Total	ZN	213					213		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7440382	Total	AS	7.13					7.13		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7440439	Total	CD	1.08					1.08		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7440508	Total	CU	25.6					25.6		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7439896	Total	FE	22700					22700		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7439965	Total	MN	849					849		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7439921	Total	PB	54					54		mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-03	8/13/2024	EPA 6010D	7440666	Total	ZN	326					326		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7440382	Total	AS	5.37					5.37		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7440439	Total	CD	0.8					0.8		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7440508	Total	CU	11.6					11.6		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7439896	Total	FE	24000					24000		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7439965	Total	MN	407					407		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7439921	Total	PB	26.1					26.1		mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-04	8/13/2024	EPA 6010D	7440666	Total	ZN	378					378		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7440439	Total	CD	1.7					1.7		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7440508	Total	CU	18.1					18.1		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7439896	Total	FE	34200					34200		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7439965	Total	MN	671					671		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7439921	Total	PB	88.4					88.4		mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-05	8/13/2024	EPA 6010D	7440666	Total	ZN	292					292		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7440439	Total	CD	1.49					1.49		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7440508	Total	CU	12.8					12.8		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7439896	Total	FE	31400					31400		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7439965	Total	MN	472					472		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7439921	Total	PB	144					144		mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-06	8/13/2024	EPA 6010D	7440666	Total	ZN	446					446		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7440439	Total	CD	2.74					2.74		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7440508	Total	CU	22.6					22.6		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7439896	Total	FE	21400					21400		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7439965	Total	MN	574					574		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7439921	Total	PB	180					180		mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-07	8/14/2024	EPA 6010D	7440666	Total	ZN	350					350		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7440508	Total	CU	4.23					4.23		mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7439896	Total	FE	6760					6760		mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7439965	Total	MN	80.9					80.9		mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7439921	Total	PB	60.3					60.3		mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-08	8/14/2024	EPA 6010D	7440666	Total	ZN	124					124		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7440382	Total	AS	8.4					8.4		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7440439	Total	CD	3.35					3.35		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7440508	Total	CU	19.8					19.8		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7439896	Total	FE	23800					23800		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7439965	Total	MN	762					762		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7439921	Total	PB	242					242		mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-09	8/14/2024	EPA 6010D	7440666	Total	ZN	1560					1560		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7440439	Total	CD	3.55					3.55		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7440508	Total	CU	15.6					15.6		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7439896	Total	FE	21200					21200		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7439965	Total	MN	399					399		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7439921	Total	PB	134					134		mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-10	8/14/2024	EPA 6010D	7440666	Total	ZN	860					860		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7440439	Total	CD	3.57					3.57		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7440508	Total	CU	14.7					14.7		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7439896	Total	FE	21200					21200		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7439965	Total	MN	422					422		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7439921	Total	PB	150					150		mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-11	8/14/2024	EPA 6010D	7440666	Total	ZN	870					870		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7440439	Total	CD	3.14					3.14		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7440508	Total	CU	163					163		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7439896	Total	FE	23000					23000		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7439965	Total	MN	546					546		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7439921	Total	PB	178					178		mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-12	8/14/2024	EPA 6010D	7440666	Total	ZN	973					973		mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7440508	Total	CU	11.9					11.9		mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7439896	Total	FE	15900					15900		mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7439965	Total	MN	212					212		mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7439921	Total	PB	28.3					28.3		mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-13	8/15/2024	EPA 6010D	7440666	Total	ZN	78.5					78.5		mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7440508	Total	CU	9.41					9.41		mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7439896	Total	FE	19900					19900		mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7439965	Total	MN	221					221		mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7439921	Total	PB	31.2					31.2		mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-14	8/15/2024	EPA 6010D	7440666	Total	ZN	148					148		mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7440508	Total	CU	2	U	Not detected above RL			2	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7439896	Total	FE	129					129		mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7439965	Total	MN	2.4	U	Not detected above RL			2.4	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7439921	Total	PB	3	U	Not detected above RL			3	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-15	8/19/2024	EPA 6010D	7440666	Total	ZN	2	U	Not detected above RL			2	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7440508	Total	CU	2	U	Not detected above RL			2	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7439896	Total	FE	113					113		mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7439965	Total	MN	2.4	U	Not detected above RL			2.4	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7439921	Total	PB	3	U	Not detected above RL			3	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X436147	X4H0339	X4H0339-16	8/19/2024	EPA 6010D	7440666	Total	ZN	2	U	Not detected above RL			2	U	mg/kg
X436148	X4H0339	X4H0339-01	8/12/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-02	8/12/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-03	8/13/2024	EPA 7471B	7439976	Total	HG	0.061	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.061	J-	mg/kg
X436148	X4H0339	X4H0339-04	8/13/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-05	8/13/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-06	8/13/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-07	8/14/2024	EPA 7471B	7439976	Total	HG	0.066	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.066	J-	mg/kg
X436148	X4H0339	X4H0339-08	8/14/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-09	8/14/2024	EPA 7471B	7439976	Total	HG	0.048	H1	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.048	J-	mg/kg
X436148	X4H0339	X4H0339-10	8/14/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-11	8/14/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 6°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-12	8/14/2024	EPA 7471B	7439976	Total	HG	0.04	H1	Holding time exceeded	J-	Sample temp exceeded 6°C; HT exceeded	0.04	J-	mg/kg
X436148	X4H0339	X4H0339-13	8/15/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 6°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-14	8/15/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 6°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-15	8/19/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436148	X4H0339	X4H0339-16	8/19/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X436157	X4I0006	X4I0006-01	8/26/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-02	8/26/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-03	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-04	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-05	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-06	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-07	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-08	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-09	8/27/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-10	8/28/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-11	8/28/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X436157	X4I0006	X4I0006-12	8/28/2024	EPA 245.1	7439976	Total	HG	0.0002	U	Not detected above RL			0.0002	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-01	8/26/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7440439	Total	CD	0.000134					0.000134		mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7440508	Total	CU	0.00072					0.00072		mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7439896	Total	FE	0.394					0.394		mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7439965	Total	MN	0.0117					0.0117		mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7439921	Total	PB	0.0025					0.0025		mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-02	8/26/2024	EPA 200.8	7440666	Total	ZN	0.0411					0.0411		mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-03	8/27/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7440382	Total	AS	0.00198					0.00198		mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7440439	Total	CD	0.000793					0.000793		mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7440508	Total	CU	0.00721					0.00721		mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7439896	Total	FE	8.64					8.64		mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7439965	Total	MN	0.105					0.105		mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7439921	Total	PB	0.0323					0.0323		mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-04	8/27/2024	EPA 200.8	7440666	Total	ZN	0.123					0.123		mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-05	8/27/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7440382	Total	AS	0.00102					0.00102		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7440439	Total	CD	0.000754					0.000754		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7440508	Total	CU	0.00283					0.00283		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7439896	Total	FE	1.67					1.67		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7439965	Total	MN	0.0559					0.0559		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7439921	Total	PB	0.0163					0.0163		mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-06	8/27/2024	EPA 200.8	7440666	Total	ZN	0.086					0.086		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7440439	Total	CD	0.000752					0.000752		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7440508	Total	CU	0.00273					0.00273		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7439896	Total	FE	1.49					1.49		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7439965	Total	MN	0.0528					0.0528		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7439921	Total	PB	0.0158					0.0158		mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-07	8/27/2024	EPA 200.8	7440666	Total	ZN	0.0829					0.0829		mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL			0.0004	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-08	8/27/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7440382	Total	AS	0.00131					0.00131		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7440439	Total	CD	0.00102					0.00102		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7440508	Total	CU	0.00272					0.00272		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7439896	Total	FE	2.68					2.68		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7439965	Total	MN	0.0648					0.0648		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7439921	Total	PB	0.0164					0.0164		mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-09	8/27/2024	EPA 200.8	7440666	Total	ZN	0.1					0.1		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7440439	Total	CD	0.000322					0.000322		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7440508	Total	CU	0.00175					0.00175		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7439896	Total	FE	0.431					0.431		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7439965	Total	MN	0.0169					0.0169		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7439921	Total	PB	0.0031					0.0031		mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-10	8/28/2024	EPA 200.8	7440666	Total	ZN	0.0453					0.0453		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7440439	Total	CD	0.00104					0.00104		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7440508	Total	CU	0.00196					0.00196		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7439896	Total	FE	0.455					0.455		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7439965	Total	MN	0.0366					0.0366		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7439921	Total	PB	0.00847					0.00847		mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-11	8/28/2024	EPA 200.8	7440666	Total	ZN	0.0942					0.0942		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7440439	Total	CD	0.000463					0.000463		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7440508	Total	CU	0.00162					0.00162		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7439896	Total	FE	0.853					0.853		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7439965	Total	MN	0.019					0.019		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7439921	Total	PB	0.00711					0.00711		mg/L
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X437028	X4I0006	X4I0006-12	8/28/2024	EPA 200.8	7440666	Total	ZN	0.0621					0.0621		mg/L
X437112	X4H0467	X4H0467-01	8/19/2024	Percent Solids	NA	Total	% Solids	99.2					99.2		%
X437112	X4H0467	X4H0467-02	8/19/2024	Percent Solids	NA	Total	% Solids	99.2					99.2		%
X437112	X4H0467	X4H0467-03	8/19/2024	Percent Solids	NA	Total	% Solids	99.5					99.5		%
X437112	X4H0467	X4H0467-04	8/20/2024	Percent Solids	NA	Total	% Solids	99.3					99.3		%
X437112	X4H0467	X4H0467-05	8/20/2024	Percent Solids	NA	Total	% Solids	99.1					99.1		%
X437112	X4H0467	X4H0467-06	8/20/2024	Percent Solids	NA	Total	% Solids	99.4					99.4		%
X437112	X4H0467	X4H0467-07	8/20/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X437112	X4H0467	X4H0467-08	8/20/2024	Percent Solids	NA	Total	% Solids	99.5					99.5		%
X437112	X4H0467	X4H0467-09	8/20/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X437112	X4H0467	X4H0467-10	8/20/2024	Percent Solids	NA	Total	% Solids	99.5					99.5		%
X437112	X4H0467	X4H0467-11	8/20/2024	Percent Solids	NA	Total	% Solids	99.5					99.5		%
X437112	X4H0467	X4H0467-12	8/21/2024	Percent Solids	NA	Total	% Solids	99.5					99.5		%
X437112	X4H0467	X4H0467-13	8/21/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X437112	X4H0467	X4H0467-14	8/21/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X437112	X4H0467	X4H0467-15	8/21/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X437112	X4H0467	X4H0467-16	8/22/2024	Percent Solids	NA	Total	% Solids	99.7					99.7		%
X437112	X4H0467	X4H0467-17	8/22/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7440382	Total	AS	6.61					6.61		mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7440508	Total	CU	26					26		mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7439896	Total	FE	28000	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	28000		mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7439965	Total	MN	242	B7	Method blank detection		No qualifier necessary	242		mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7439921	Total	PB	26.3					26.3		mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-01	8/19/2024	EPA 6010D	7440666	Total	ZN	143					143		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7440439	Total	CD	1.23					1.23		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7440508	Total	CU	28.9					28.9		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7439896	Total	FE	27200					27200		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7439965	Total	MN	416	B7	Method blank detection		No qualifier necessary	416		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7439921	Total	PB	42.3					42.3		mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-02	8/19/2024	EPA 6010D	7440666	Total	ZN	251					251		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7440439	Total	CD	2.11					2.11		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7440508	Total	CU	26.6					26.6		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7439896	Total	FE	30500					30500		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7439965	Total	MN	338	B7	Method blank detection		No qualifier necessary	338		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7439921	Total	PB	74					74		mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-03	8/19/2024	EPA 6010D	7440666	Total	ZN	688					688		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7440382	Total	AS	11.5					11.5		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7440439	Total	CD	1.04					1.04		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7440508	Total	CU	17.2					17.2		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7439896	Total	FE	27400					27400		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7439965	Total	MN	534	B7	Method blank detection		No qualifier necessary	534		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7439921	Total	PB	50.5					50.5		mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-04	8/20/2024	EPA 6010D	7440666	Total	ZN	203					203		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7440382	Total	AS	11.7					11.7		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7440439	Total	CD	1.08					1.08		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7440508	Total	CU	19.6					19.6		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7439896	Total	FE	28500					28500		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7439965	Total	MN	565	B7	Method blank detection		No qualifier necessary	565		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7439921	Total	PB	51.2					51.2		mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-05	8/20/2024	EPA 6010D	7440666	Total	ZN	194					194		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7440382	Total	AS	11.1					11.1		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7440439	Total	CD	0.82					0.82		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7440508	Total	CU	15.4					15.4		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7439896	Total	FE	22600					22600		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7439965	Total	MN	400	B7	Method blank detection		No qualifier necessary	400		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7439921	Total	PB	39.9					39.9		mg/kg
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X437113	X4H0467	X4H0467-06	8/20/2024	EPA 6010D	7440666	Total	ZN	184					184		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7440382	Total	AS	10.8					10.8		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7440439	Total	CD	0.8					0.8		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7440508	Total	CU	13.9					13.9		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7439896	Total	FE	24100					24100		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7439965	Total	MN	397	B7	Method blank detection		No qualifier necessary	397		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7439921	Total	PB	39.5					39.5		mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-07	8/20/2024	EPA 6010D	7440666	Total	ZN	178					178		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7440382	Total	AS	11.4					11.4		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7440439	Total	CD	0.84					0.84		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7440508	Total	CU	14.9					14.9		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7439896	Total	FE	25000					25000		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7439965	Total	MN	407	B7	Method blank detection		No qualifier necessary	407		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7439921	Total	PB	39.1					39.1		mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-08	8/20/2024	EPA 6010D	7440666	Total	ZN	179					179		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7440382	Total	AS	8.15					8.15		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7440439	Total	CD	1.39					1.39		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7440508	Total	CU	11.8					11.8		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7439896	Total	FE	18400					18400		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7439965	Total	MN	266	B7	Method blank detection		No qualifier necessary	266		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7439921	Total	PB	38.3					38.3		mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-09	8/20/2024	EPA 6010D	7440666	Total	ZN	295					295		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7440382	Total	AS	17.4					17.4		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7440508	Total	CU	43.2					43.2		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7439896	Total	FE	49800					49800		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7439965	Total	MN	424	B7	Method blank detection		No qualifier necessary	424		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7439921	Total	PB	40.1					40.1		mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-10	8/20/2024	EPA 6010D	7440666	Total	ZN	100					100		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7440382	Total	AS	20.4					20.4		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7440439	Total	CD	0.91					0.91		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7440508	Total	CU	36.5					36.5		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7439896	Total	FE	67700					67700		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7439965	Total	MN	567	B7	Method blank detection		No qualifier necessary	567		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7439921	Total	PB	36.4					36.4		mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-11	8/20/2024	EPA 6010D	7440666	Total	ZN	284					284		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7440382	Total	AS	11.8					11.8		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7440439	Total	CD	1.83					1.83		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7440508	Total	CU	21.7					21.7		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7439896	Total	FE	22700					22700		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7439965	Total	MN	624	B7	Method blank detection		No qualifier necessary	624		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7439921	Total	PB	82.2					82.2		mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-12	8/21/2024	EPA 6010D	7440666	Total	ZN	304					304		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7440382	Total	AS	8.03					8.03		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7440439	Total	CD	3.68					3.68		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7440508	Total	CU	16.5					16.5		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7439896	Total	FE	20700					20700		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7439965	Total	MN	484	B7	Method blank detection		No qualifier necessary	484		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7439921	Total	PB	151					151		mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-13	8/21/2024	EPA 6010D	7440666	Total	ZN	881					881		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7440382	Total	AS	5.23					5.23		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7440508	Total	CU	18.5					18.5		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7439896	Total	FE	16100					16100		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7439965	Total	MN	305	B7	Method blank detection		No qualifier necessary	305		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7439921	Total	PB	16.5					16.5		mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-14	8/21/2024	EPA 6010D	7440666	Total	ZN	99					99		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7440508	Total	CU	14					14		mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7439896	Total	FE	15400					15400		mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7439965	Total	MN	208	B7	Method blank detection		No qualifier necessary	208		mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7439921	Total	PB	19.2					19.2		mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-15	8/21/2024	EPA 6010D	7440666	Total	ZN	144					144		mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7440508	Total	CU	7.43					7.43		mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7439896	Total	FE	11800					11800		mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7439965	Total	MN	159	B7	Method blank detection		No qualifier necessary	159		mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7439921	Total	PB	9.88					9.88		mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-16	8/22/2024	EPA 6010D	7440666	Total	ZN	19.1					19.1		mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7440382	Total	AS	5	U	Not detected above RL			5	U	mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7440439	Total	CD	0.8	U	Not detected above RL			0.8	U	mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7440508	Total	CU	5.06					5.06		mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7439896	Total	FE	8660					8660		mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7439965	Total	MN	103	B7	Method blank detection		No qualifier necessary	103		mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7439921	Total	PB	6.8					6.8		mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7440360	Total	SB	8	U	Not detected above RL			8	U	mg/kg
X437113	X4H0467	X4H0467-17	8/22/2024	EPA 6010D	7440666	Total	ZN	15.1					15.1		mg/kg
X437114	X4H0467	X4H0467-01	8/19/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-02	8/19/2024	EPA 7471B	7439976	Total	HG	0.044	H1	Holding time exceeded	J-	HT exceeded	0.044	J-	mg/kg
X437114	X4H0467	X4H0467-03	8/19/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-04	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-05	8/20/2024	EPA 7471B	7439976	Total	HG	0.312	H1	Holding time exceeded	J-	HT exceeded	0.312	J-	mg/kg
X437114	X4H0467	X4H0467-06	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-07	8/20/2024	EPA 7471B	7439976	Total	HG	0.08	H1	Holding time exceeded	J-	HT exceeded	0.08	J-	mg/kg
X437114	X4H0467	X4H0467-08	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-09	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-10	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-11	8/20/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-12	8/21/2024	EPA 7471B	7439976	Total	HG	0.043	H1	Holding time exceeded	J-	HT exceeded	0.043	J-	mg/kg
X437114	X4H0467	X4H0467-13	8/21/2024	EPA 7471B	7439976	Total	HG	0.044	H1	Holding time exceeded	J-	HT exceeded	0.044	J-	mg/kg
X437114	X4H0467	X4H0467-14	8/21/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-15	8/21/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-16	8/22/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X437114	X4H0467	X4H0467-17	8/22/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438062	X4I0008	X4I0008-01	8/27/2024	Percent Solids	NA	Total	% Solids	97.6					97.6		%
X438062	X4I0009	X4I0009-01	8/26/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X438062	X4I0009	X4I0009-02	8/26/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X438062	X4I0009	X4I0009-03	8/27/2024	Percent Solids	NA	Total	% Solids	98					98		%
X438062	X4I0009	X4I0009-04	8/27/2024	Percent Solids	NA	Total	% Solids	97					97		%
X438062	X4I0009	X4I0009-05	8/27/2024	Percent Solids	NA	Total	% Solids	96.7					96.7		%
X438062	X4I0009	X4I0009-06	8/27/2024	Percent Solids	NA	Total	% Solids	99.4					99.4		%
X438062	X4I0009	X4I0009-07	8/27/2024	Percent Solids	NA	Total	% Solids	98.7					98.7		%
X438062	X4I0009	X4I0009-08	8/27/2024	Percent Solids	NA	Total	% Solids	99					99		%
X438062	X4I0009	X4I0009-09	8/27/2024	Percent Solids	NA	Total	% Solids	98.7					98.7		%
X438062	X4I0009	X4I0009-10	8/28/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X438062	X4I0009	X4I0009-11	8/28/2024	Percent Solids	NA	Total	% Solids	99.8					99.8		%
X438062	X4I0009	X4I0009-12	8/28/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X438062	X4I0009	X4I0009-13	8/28/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X438062	X4I0009	X4I0009-14	8/28/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X438062	X4I0009	X4I0009-15	8/28/2024	Percent Solids	NA	Total	% Solids	99.6					99.6		%
X438062	X4I0009	X4I0009-16	8/28/2024	Percent Solids	NA	Total	% Solids	99.9					99.9		%
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7440382	Total	AS	2.66					2.66		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7440439	Total	CD	0.42					0.42		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7440508	Total	CU	16.9					16.9		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7439896	Total	FE	22800					22800		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7439965	Total	MN	502					502		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7439921	Total	PB	32.5					32.5		mg/kg
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X438063	X4I0008	X4I0008-01	8/27/2024	EPA 6010D	7440666	Total	ZN	108					108		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7440382	Total	AS	3.3					3.3		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7440439	Total	CD	0.47					0.47		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7440508	Total	CU	11.7					11.7		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7439896	Total	FE	14400					14400		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7439965	Total	MN	214					214		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7439921	Total	PB	66.2					66.2		mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-01	8/26/2024	EPA 6010D	7440666	Total	ZN	165					165		mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7440382	Total	AS	2.5	U	Not detected above RL			2.5	U	mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7440508	Total	CU	7.56					7.56		mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7439896	Total	FE	11600					11600		mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7439965	Total	MN	127					127		mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7439921	Total	PB	28.8					28.8		mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-02	8/26/2024	EPA 6010D	7440666	Total	ZN	222					222		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7440382	Total	AS	2.61					2.61		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7440508	Total	CU	15.1					15.1		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7439896	Total	FE	21200					21200		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7439965	Total	MN	188					188		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7439921	Total	PB	37.1					37.1		mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-03	8/27/2024	EPA 6010D	7440666	Total	ZN	96					96		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7440382	Total	AS	2.99					2.99		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7440508	Total	CU	15.1					15.1		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7439896	Total	FE	20500					20500		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7439965	Total	MN	206					206		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7439921	Total	PB	34.1					34.1		mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-04	8/27/2024	EPA 6010D	7440666	Total	ZN	93.9					93.9		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7440382	Total	AS	3.29					3.29		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7440508	Total	CU	15.8					15.8		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7439896	Total	FE	21000					21000		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7439965	Total	MN	178					178		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7439921	Total	PB	30					30		mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-05	8/27/2024	EPA 6010D	7440666	Total	ZN	80.8					80.8		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7440382	Total	AS	7.99					7.99		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7440439	Total	CD	0.86					0.86		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7440508	Total	CU	19.3					19.3		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7439896	Total	FE	22800					22800		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7439965	Total	MN	587					587		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7439921	Total	PB	47.3					47.3		mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-06	8/27/2024	EPA 6010D	7440666	Total	ZN	209					209		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7440382	Total	AS	3.11					3.11		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7440439	Total	CD	0.83					0.83		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7440508	Total	CU	11.6					11.6		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7439896	Total	FE	17200					17200		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7439965	Total	MN	163					163		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7439921	Total	PB	70.8					70.8		mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-07	8/27/2024	EPA 6010D	7440666	Total	ZN	169					169		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7440382	Total	AS	25.2					25.2		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7440439	Total	CD	1.26					1.26		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7440508	Total	CU	41.3					41.3		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7439896	Total	FE	25400					25400		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7439965	Total	MN	452					452		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7439921	Total	PB	55.6					55.6		mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-08	8/27/2024	EPA 6010D	7440666	Total	ZN	206					206		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7440382	Total	AS	3.84					3.84		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7440439	Total	CD	1.1					1.1		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7440508	Total	CU	8.5					8.5		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7439896	Total	FE	22600					22600		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7439965	Total	MN	214					214		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7439921	Total	PB	62.5					62.5		mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-09	8/27/2024	EPA 6010D	7440666	Total	ZN	305					305		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7440382	Total	AS	5.29					5.29		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7440439	Total	CD	1.6					1.6		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7440508	Total	CU	8.39					8.39		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7439896	Total	FE	14000					14000		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7439965	Total	MN	241					241		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7439921	Total	PB	34.1					34.1		mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-10	8/28/2024	EPA 6010D	7440666	Total	ZN	420					420		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7440382	Total	AS	7.34					7.34		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7440439	Total	CD	2.44					2.44		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7440508	Total	CU	11.1					11.1		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7439896	Total	FE	20200	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	20200		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7439965	Total	MN	310					310		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7439921	Total	PB	56.6					56.6		mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-11	8/28/2024	EPA 6010D	7440666	Total	ZN	576					576		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7440382	Total	AS	4.18					4.18		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7440439	Total	CD	1.12					1.12		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7440508	Total	CU	6.82					6.82		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7439896	Total	FE	12300					12300		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7439965	Total	MN	182					182		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7439921	Total	PB	26.9					26.9		mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-12	8/28/2024	EPA 6010D	7440666	Total	ZN	350					350		mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7440382	Total	AS	2.5	U	Not detected above RL			2.5	U	mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7440508	Total	CU	3.32					3.32		mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7439896	Total	FE	5640					5640		mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7439965	Total	MN	62.8					62.8		mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7439921	Total	PB	13					13		mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-13	8/28/2024	EPA 6010D	7440666	Total	ZN	181					181		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7440382	Total	AS	5.48					5.48		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7440439	Total	CD	2.69					2.69		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7440508	Total	CU	22.4					22.4		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7439896	Total	FE	18600					18600		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7439965	Total	MN	381					381		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7439921	Total	PB	93.2					93.2		mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-14	8/28/2024	EPA 6010D	7440666	Total	ZN	421					421		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7440382	Total	AS	2.73					2.73		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7440508	Total	CU	20.5					20.5		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7439896	Total	FE	18900					18900		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7439965	Total	MN	163					163		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7439921	Total	PB	21					21		mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-15	8/28/2024	EPA 6010D	7440666	Total	ZN	121					121		mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7440382	Total	AS	2.5	U	Not detected above RL			2.5	U	mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7440439	Total	CD	0.4	U	Not detected above RL			0.4	U	mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7440508	Total	CU	7.32					7.32		mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7439896	Total	FE	8910					8910		mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7439965	Total	MN	73.6					73.6		mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7439921	Total	PB	17.9					17.9		mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7440360	Total	SB	4	U	Not detected above RL			4	U	mg/kg
X438063	X4I0009	X4I0009-16	8/28/2024	EPA 6010D	7440666	Total	ZN	127					127		mg/kg
X438064	X4I0008	X4I0008-01	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 6°C; HT exceeded	0.033	UJ	mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X438064	X4I0009	X4I0009-01	8/26/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-02	8/26/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-03	8/27/2024	EPA 7471B	7439976	Total	HG	0.041	H1	Holding time exceeded	J-	HT exceeded	0.041	J-	mg/kg
X438064	X4I0009	X4I0009-04	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-05	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-06	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-07	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-08	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-09	8/27/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-10	8/28/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-11	8/28/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-12	8/28/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-13	8/28/2024	EPA 7471B	7439976	Total	HG	0.04	H1	Holding time exceeded	J-	HT exceeded	0.04	J-	mg/kg
X438064	X4I0009	X4I0009-14	8/28/2024	EPA 7471B	7439976	Total	HG	0.035	H1	Holding time exceeded	J-	HT exceeded	0.035	J-	mg/kg
X438064	X4I0009	X4I0009-15	8/28/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X438064	X4I0009	X4I0009-16	8/28/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X440078	X4I0477	X4I0477-01	8/12/2024	EPA 245.1	7439976	Total	HG	0.0002	U, H3	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.0002	UJ	mg/L
X440078	X4I0477	X4I0477-02	8/12/2024	EPA 245.1	7439976	Total	HG	0.0002	U, H3	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.0002	UJ	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7440439	Total	CD	0.0001	U	Not detected above RL			0.0001	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7440508	Total	CU	0.0004	U	Not detected above RL			0.0004	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7439896	Total	FE	0.015	U	Not detected above RL			0.015	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7439965	Total	MN	0.0004	U	Not detected above RL	UJ	Method blank detection	0.0004	UJ	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7439921	Total	PB	0.0002	U	Not detected above RL			0.0002	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X440205	X4I0477	X4I0477-01	8/12/2024	EPA 200.8	7440666	Total	ZN	0.004	U	Not detected above RL			0.004	U	mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7440382	Total	AS	0.001	U	Not detected above RL			0.001	U	mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7440439	Total	CD	0.000532					0.000532		mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7440508	Total	CU	0.00271					0.00271		mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7439896	Total	FE	2.54					2.54		mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7439965	Total	MN	0.0364			J-	Method blank detection	0.0364	J-	mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7439921	Total	PB	0.0109					0.0109		mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7440360	Total	SB	0.001	U	Not detected above RL			0.001	U	mg/L
X440205	X4I0477	X4I0477-02	8/12/2024	EPA 200.8	7440666	Total	ZN	0.0736					0.0736		mg/L
X441064	X4I0493	X4I0493-01	8/12/2024	Percent Solids	NA	Total	% Solids	98.4					98.4		%
X441064	X4I0495	X4I0495-01	8/12/2024	Percent Solids	NA	Total	% Solids	99.3					99.3		%
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7440382	Total	AS	5.04					5.04		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7440439	Total	CD	1.07					1.07		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7440508	Total	CU	22.6					22.6		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7439896	Total	FE	37300	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	37300		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7439965	Total	MN	581					581		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7439921	Total	PB	49.1					49.1		mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X441065	X4I0493	X4I0493-01	8/12/2024	EPA 6010D	7440666	Total	ZN	170					170		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7440382	Total	AS	2.19					2.19		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7440439	Total	CD	0.55					0.55		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7440508	Total	CU	9.26					9.26		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7439896	Total	FE	16100					16100		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7439965	Total	MN	128					128		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7439921	Total	PB	35					35		mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X441065	X4I0495	X4I0495-01	8/12/2024	EPA 6010D	7440666	Total	ZN	186					186		mg/kg
X441066	X4I0493	X4I0493-01	8/12/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X441066	X4I0495	X4I0495-01	8/12/2024	EPA 7471B	7439976	Total	HG	0.033	U, H1	Not detected above RL, Holding time exceeded	UJ	HT exceeded	0.033	UJ	mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7440382	Total	AS	9.85					9.85		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7440439	Total	CD	2.91					2.91		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7440508	Total	CU	34.4					34.4		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7439896	Total	FE	17600	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	17600		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7439965	Total	MN	625	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	625		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7439921	Total	PB	164					164		mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-01	7/31/2024	EPA 6010D	7440666	Total	ZN	411	M3	MS %R n/a due to disproportionate spike level for the analyte conc.		No qualifier necessary	411		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7440382	Total	AS	10.4					10.4		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7440439	Total	CD	3.71					3.71		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7440508	Total	CU	44.3					44.3		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7439896	Total	FE	18700					18700		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7439965	Total	MN	765					765		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7439921	Total	PB	232					232		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7440360	Total	SB	2.11					2.11		mg/kg
X443215	X4J0340	X4J0340-02	7/31/2024	EPA 6010D	7440666	Total	ZN	592					592		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7440382	Total	AS	10.5					10.5		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7440439	Total	CD	2.74					2.74		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7440508	Total	CU	36.8					36.8		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7439896	Total	FE	18500					18500		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7439965	Total	MN	620					620		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7439921	Total	PB	148					148		mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-03	7/31/2024	EPA 6010D	7440666	Total	ZN	406					406		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7440382	Total	AS	3.2					3.2		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7440439	Total	CD	0.64					0.64		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7440508	Total	CU	14.9					14.9		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7439896	Total	FE	15300					15300		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7439965	Total	MN	308					308		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7439921	Total	PB	41.8					41.8		mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-04	8/8/2024	EPA 6010D	7440666	Total	ZN	102					102		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7440382	Total	AS	15.6					15.6		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7440439	Total	CD	5.45					5.45		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7440508	Total	CU	31.5					31.5		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7439896	Total	FE	29800					29800		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7439965	Total	MN	1070					1070		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7439921	Total	PB	274					274		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7440360	Total	SB	3.16					3.16		mg/kg
X443215	X4J0340	X4J0340-05	8/8/2024	EPA 6010D	7440666	Total	ZN	624					624		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7440382	Total	AS	12					12		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7440439	Total	CD	5.86					5.86		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7440508	Total	CU	26.6					26.6		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7439896	Total	FE	25500					25500		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7439965	Total	MN	691					691		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7439921	Total	PB	214					214		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7440360	Total	SB	2.61					2.61		mg/kg
X443215	X4J0340	X4J0340-06	8/12/2024	EPA 6010D	7440666	Total	ZN	475					475		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7440382	Total	AS	9.55					9.55		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7440439	Total	CD	0.3					0.3		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7440508	Total	CU	20.4					20.4		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7439896	Total	FE	16000					16000		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7439965	Total	MN	464					464		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7439921	Total	PB	21.6					21.6		mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-07	8/13/2024	EPA 6010D	7440666	Total	ZN	79.5					79.5		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7440382	Total	AS	7.36					7.36		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7440439	Total	CD	3.11					3.11		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7440508	Total	CU	23.7					23.7		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7439896	Total	FE	27400					27400		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7439965	Total	MN	755					755		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7439921	Total	PB	171					171		mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-08	8/13/2024	EPA 6010D	7440666	Total	ZN	413					413		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7440382	Total	AS	13.9					13.9		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7440439	Total	CD	7.02					7.02		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7440508	Total	CU	24.7					24.7		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7439896	Total	FE	26000					26000		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7439965	Total	MN	1050					1050		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7439921	Total	PB	476					476		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7440360	Total	SB	3.19					3.19		mg/kg
X443215	X4J0340	X4J0340-09	8/14/2024	EPA 6010D	7440666	Total	ZN	1690					1690		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7440382	Total	AS	3.87					3.87		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7440439	Total	CD	0.57					0.57		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7440508	Total	CU	14.1					14.1		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7439896	Total	FE	17600					17600		mg/kg

Case Number	Sample Delivery Group	Lab Sample ID	Sample Date	METHOD	CAS Number	Sample Fraction	Analyte	Lab Result	Final Lab Qualifier	Lab Qualifier reason	IDEQ Qualifier	IDEQ Qualifier Reason	Combined Result	Combined Qualifier	Result Units
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7439965	Total	MN	355					355		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7439921	Total	PB	28.9					28.9		mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-10	8/15/2024	EPA 6010D	7440666	Total	ZN	106					106		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7440382	Total	AS	6.5					6.5		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7440439	Total	CD	1.29					1.29		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7440508	Total	CU	25.3					25.3		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7439896	Total	FE	19000					19000		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7439965	Total	MN	822					822		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7439921	Total	PB	48.2					48.2		mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-11	8/15/2024	EPA 6010D	7440666	Total	ZN	299					299		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7440382	Total	AS	3.73					3.73		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7440439	Total	CD	1.05					1.05		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7440508	Total	CU	15.8					15.8		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7439896	Total	FE	17600					17600		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7439965	Total	MN	266					266		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7439921	Total	PB	99.2					99.2		mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7440360	Total	SB	2	U	Not detected above RL			2	U	mg/kg
X443215	X4J0340	X4J0340-12	8/15/2024	EPA 6010D	7440666	Total	ZN	121					121		mg/kg
X443218	X4J0340	X4J0340-01	7/31/2024	EPA 7471B	7439976	Total	HG	0.768	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.768	J-	mg/kg
X443218	X4J0340	X4J0340-02	7/31/2024	EPA 7471B	7439976	Total	HG	0.584	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.584	J-	mg/kg
X443218	X4J0340	X4J0340-03	7/31/2024	EPA 7471B	7439976	Total	HG	0.62	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.620	J-	mg/kg
X443218	X4J0340	X4J0340-04	8/8/2024	EPA 7471B	7439976	Total	HG	0.033	U, H3	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X443218	X4J0340	X4J0340-05	8/8/2024	EPA 7471B	7439976	Total	HG	0.126	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.126	J-	mg/kg
X443218	X4J0340	X4J0340-06	8/12/2024	EPA 7471B	7439976	Total	HG	0.111	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.111	J-	mg/kg
X443218	X4J0340	X4J0340-07	8/13/2024	EPA 7471B	7439976	Total	HG	0.033	U, H3	Not detected above RL, Holding time exceeded	UJ	Sample temp exceeded 10°C; HT exceeded	0.033	UJ	mg/kg
X443218	X4J0340	X4J0340-08	8/13/2024	EPA 7471B	7439976	Total	HG	0.046	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.046	J-	mg/kg
X443218	X4J0340	X4J0340-09	8/14/2024	EPA 7471B	7439976	Total	HG	0.123	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.123	J-	mg/kg
X443218	X4J0340	X4J0340-10	8/15/2024	EPA 7471B	7439976	Total	HG	0.246	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.246	J-	mg/kg
X443218	X4J0340	X4J0340-11	8/15/2024	EPA 7471B	7439976	Total	HG	0.081	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.081	J-	mg/kg
X443218	X4J0340	X4J0340-12	8/15/2024	EPA 7471B	7439976	Total	HG	0.055	H3	Holding time exceeded	J-	Sample temp exceeded 10°C; HT exceeded	0.055	J-	mg/kg

Notes:
U = not detected above the reporting limit shown
UJ = estimated non-detect
J = result is an estimate
J+ = result is an estimate, biased high
J- = result is an estimate, biased low

Data Verification and Validation of Offshore Surface Water Data

Completed by DEQ

DEQ SLRE - CDA Lake and the Spokane River Quality Assessment *date:* 01/09/2025

AmTest: Total Metals
TCL: Nutrients

Completed by R. Steed

Assessment Report EDMS: 2025AKL6

QAPP/FSP EDMS Record #: 2024AKS1

To be completed by the DEQ project manager upon receipt of sample results from the laboratory for each batch of samples.

Batch Identifier (work order): A24I0154 (metals)
24I0502 (nutrients)

date(s) of monitoring event: 8/27/24 – 8/29/24

Delivery of Samples

COC EDMS: 2025AKL5 *Results EDMS:* 2025AKL5 (metals)
no 2025AKL7 (nutrients)

Yes	No	
☐	☑	Is Chain of Custody Record complete and on file? Q1
☑	☐	Did laboratory qualify data at time of receipt? (e.g. temperature, condition of sample) Q2

Laboratory Quality Control Assessment

Yes	No	
☐	☑	Are reporting limits of results consistent with those in QAPP? Tot-P Q3
☑	☐	Are laboratory blank concentrations all below reporting limits for each analyte?
☑	☐	Are laboratory control samples percent recovery more than 50% and less than 150%?
☑	☐	Are matrix spike samples percent recovery more than 80% less than 120%?
☑	☐	Are the matrix spike duplicate sample's RPD less than or equal to 20%?

Field Contamination Bias (Blank(s))

Yes ☑ No ☐ *number of field blanks:* 2 *number of samples:* 14
Were enough field blanks taken? (e.g. #field blanks/#samples ≥ 10%) 10%

Yes	No	
☐	☑	Are field blank(s) concentrations all below reporting limits for each analyte? Q4 + Q5

Yes	No	N/A	
☐	☐	☑	Are equipment blank(s) concentrations all below reporting limits for each analyte?
☐	☐	☑	Are preservation blank(s) concentrations all below reporting limits for each analyte?
☐	☐	☑	Are source blank(s) concentrations all below reporting limits for each analyte? (see following or the project's QA/QC Memo)

not required in QAPP for open water Table 9.

Approval

DEQ Project Manager

DEQ Quality Assurance Officer

DEQ SLRE - CDA Lake and the Spokane River Quality Assessment *date:* 1/10/2025

Completed by R. Steed

Field Blank Evaluation (Add additional sheets as necessary)	***Analyte***								
	Sb	As	Cd	Cu	Fe	Pb	Mn	Hg	Zn
Surface Water (Nearshore)									
Reporting Limits (mg/L)									
1st Field Blank									
2nd Field Blank									
3rd Field Blank									
4th Field Blank									
Surface Water (Deep/Open Water)									
Reporting Limits (mg/L)									
1st Field Blank	<RL	0.141	<RL	6.89	<RL	<RL	<RL	<RL	<RL
2nd Field Blank	<RL	<RL	<RL	11.0	<RL	<RL	<RL	<RL	<RL
3rd Field Blank									
4th Field Blank									
Soil/Sediment									
Reporting Limits (mg/kg)									
1st Field Blank									
2nd Field Blank									
3rd Field Blank									
4th Field Blank									

Tot-P/PSN

Below Reporting Limit ↓ Q5

0.025/0.002

<RL/<RL

See Q4

Field Precision (Duplicate(s))

Yes ☑ No ☐ *number of field duplicates:* 2 *number of samples:* 14

☑ ☐ Were enough field duplicates taken? (e.g. #field duplicates/#samples ≥ 10%)

☐ ☒ Did field duplicates meet DQI's for precision for each analyte? (see following or the project's QA/QC Memo) Q6

Approval

DEQ Project Manager

DEQ Quality Assurance Officer

DEQ SLRE - CDA Lake and the Spokane River Quality Assessment date: 1 / 10 / 2025

Completed by R. Steed

Field Duplicate Evaluation (Add additional sheets as necessary)		Analyte								
		Sb	As	Cd	Cu	Fe	Pb	Mn	Hg	Zn
Surface Water (Nearshore)										
1st	Original									
	Duplicate									
	RPD (%)									
2nd	Original									
	Duplicate									
	RPD (%)									
Surface Water (Deep/Open Water)										
1st	Original	<0.300	0.452	<0.100	9.940	0.048	0.303	<0.010	<0.100	17.89
	Duplicate	<0.300	0.604	<0.100	6.974	<0.030	0.277	<0.010	<0.100	16.40
	RPD (%)	—	28.8	—	35.1	—	9.00	—		8.7
2nd	Original	<0.300	0.597	0.103	7.047	0.036	0.245	<0.010	<0.100	19.28
	Duplicate	<0.300	0.655	<0.100	6.441	<0.030	0.215	<0.010	<0.100	18.44
	RPD (%)	—	9.3	—	9.0	—	13.0	—	—	4.5
Soil/Sediment										
1st	Original									
	Duplicate									
	Duplicate (2)									
	RPD (%)									
2nd	Original									
	Duplicate									
	Duplicate (2)									
	RPD (%)									
Drinking Water										
1st	Original									
	Duplicate									
	RPD (%)									
2nd	Original									
	Duplicate									
	RPD (%)									

Tot P/PSN

0.005/0.110
0.005/0.097
12.6
0.004/0.184/0.115
2.6

Approval

DEQ Project Manager

DEQ Quality Assurance Officer

DEQ SLRE - CDA Lake and the Spokane River Quality Assessment *date:* 1/10/2025

Completed by R. Steed

Corrective Actions

Q7

Yes No *Corrective Action Plan EDMS (if available)* _____

☒ ☐ Are correction actions necessary?

Brief description of corrective actions:

Q1 • CoC for Tshimakain Creek Lab Nutrients missing – make sure available and in content manager in future

Q2 • Tshimakain Creek Lab Nutrients Notes:

1.) Internal QC standards out of control. ~~Se~~ Re-analized and corrected by Lab - no addition action needed

2.) Lab control Sample not spiked – results accepted no action required

3.) Detected < RL, Lab gave J Flag

Q3 • Reporting Limits are not consistent with QAPP for Tot-Phos (Lab 0.003 – QAPP 0.001)

Q4 • Blanks for Cu were > RL. All Cu data R flagged. Follow up analysis showed that Bress messenger introducing Bias. No action Required – No Cu data.

Q5 • Blank Sample DEQAC482 has a >^{Lab}MDL hit but below ^{Lab}RL. A problem exists that the QAPP RL is 0.001 and the Lab RL is 0.003 for Tot-P. Tot-P should be J Flagged for batch.

Q6 • Field Duplicates exceeded Precision DQO for As and Cu. Cu allready "R" flagged. As results should be J flagged

Q7 • Craig Cooper needs to update QA spreadsheet and put EDMS number in Corrective Action Plan.

Approval

_____ _____

DEQ Project Manager *DEQ Quality Assurance Officer*

DEQ QAPP/FSP Checklist—Data Review

The DEQ individual(s) assigned in the project QAPP/FSP to perform this **data review** *shall complete and file this checklist in the appropriate project electronic document management system (EDMS) file.* Project personnel are encouraged to expand this standard list, as project conditions warrant.

Robert Steed
Printed Name of Staff Performing Data Review

1/10/2025
Date Completed

Risk Based Evaluation for CDA Lake
Project QAPP/FSP Title

2024AKS1
QAPP/FSP EDMS Record #

Check the following review boxes after completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Yes	No	
☑	☐	Verify that the approved current project quality assurance project plan (QAPP), including a copy of the signed approval signature page, is currently filed in the EDMS. Also, verify the project information has been entered into the quality assurance officer (QAO) project tracker found at EDMS # **2012AEB8**. If the QAPP is not filed in the EDMS, or the QAO tracker is not current, immediately inform the DEQ quality manager. QAPP is 2024AKS1
☑	☐	If the project utilizes a field sampling plan (FSP), verify that the approved project FSP, including a copy of the signed approval signature page, is currently filed in the EDMS. Also, verify the project information has been entered into the QAO project tracker found at EDMS # **2012AEB8**. If the FSP is not filed in the EDMS, or the QAO tracker is not current, immediately inform the DEQ quality manager. Field Sampling Plan is included with QAPP 2024AKS1
☑	☐	Examine and review the project QAPP (and FSP, if used) to determine if additional project-specific data *review* requirements apply. Update this checklist to include all such items. no updates needed 1/10/2025
☑	☐	Examine project data, identifying errors or undocumented changes in data entry, storage, calculation, reduction, transformation, or transcription.

Yes	No	
☑	☐	Ensure all required sample information is documented and available, in preparation for the verification, validation, and assessment processes. This includes pertinent project information concerning blanks, matrixes, temperature requirements, duplicates, preservatives, shipping dates, holding times, chain-of-custody records, etc. also in Datasight
☐	☐	Identify if all required external (non-direct measurement) data, information, *and supporting documentation*, as required by the QAPP (and FSP, if used), have been received and are available for the verification and validation processes. na
☑	☐	Determine if any data deficiencies exist, such as missing data or compromised data integrity, due to issues such as loss during acquisition, storage, editing, or processing. See DEQ SLRE - CDA Lake and Spokane River Quality assessment 2025 AKLG
☑	☐	Ensure all necessary analytical laboratory support documentation, as set forth and stipulated in the project QAPP (and FSP, if used), have been received from the applicable laboratories.
☐	☐	Identify programming, data entry, or software related errors, if applicable to the project. na
☑	☐	Ensure that all deficiencies or conditions adverse to quality determined during the data *review* process have been communicated to project management and are listed on this checklist or attached for inclusion in the EDMS.
☑	☐	Verify that a copy of this data review checklist has been provided to the project manager for deficiency resolution and placed in the project EDMS file. Note that additional administrative actions may be required based on the review findings, such as development of a corrective action plan, report, etc. The project manager shall consult the DEQ Quality Management Plan and proceed accordingly.

Please list any additional comments below. Attach additional sheets as necessary.

DEQ QAPP/FSP Checklist—Data Verification

The individual(s) assigned in the QAPP/FSP to perform **data verification** *shall complete and file this checklist in the appropriate project electronic data management system (EDMS) files.* Project personnel are encouraged to expand this standard list, as project conditions warrant.

Hawk Stone	1-14-25
Printed Name of Staff Performing Data Verification	Date Completed
Risk-Based Evaluation for CDA Lake	2024AKS1
Project QAPP-FSP Title	QAPP-FSP EDMS Record #

Check the following review boxes after completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Note this Data Verification form only applies to the 'DEQ 2024 Human Health Open Water Monitoring' work (appendix C of the QAPP).

Yes	No	
☒	☐	Examine and review the quality assurance project plan (QAPP) and field sampling plan (FSP) if used, to determine if additional project-specific data *verification* requirements apply. Update this checklist to include all such items. n/a
☒	☐	Verify that all data completeness criteria, as stated in the project QAPP (and FSP, if used), have been satisfied. This shall include items such as the number of samples, number of quality control samples such as spikes and duplicates, and chain-of-custody record continuity. Number of intended sample locations (actual/intended) = 14/13 Number of QC samples = 4/3 *No turbidity samples collected.* *No calcium, magnesium, or hardness results – not requested from lab.* Chain of custody for metals is complete (AmTest labs) Chain of custody for nutrients is complete (Tshimakain Creek lab)

Yes No

☒ ☐ Verify that the values of individual data points, and any comparison calculations such as relative percent difference, meet the QAPP (and FSP, if used) specifications.

See Event Quality Report (2025AKL6)
Copper had two large blank hits, comparable with the sampled values. **As such, all the copper results should be discarded.**
Arsenic had a single blank hit, about 1/3 of the lowest sampled value. The QAPP set a 10x threshold, **so all the arsenic results should be discarded, or at least J-flagged.**
(Arsenic and copper results also exceeded RPD, further reason to discard and/or flag them).
All other samples met RPD criteria.
Three of the field forms did not have the required location data (S003, S008B, S020). The field manager confirmed that the sites were sampled in the correct location and had minimal drift.
The field form for the second blank sample (#482, collected at Luffs Bay) was missing.

☒ ☐ Verify that the required analytical methods, as listed in the QAPP (and FSP, if used) correspond to the analytical methods employed by the laboratory, as recorded in laboratory reports.

Methods were correct.
The reporting limits for TP were supposed to be 0.001mg/l, but the lab used 0.003 mg/l. In addition, the lab reported the two blank values as 0.002mg/l – it's not clear why they would report a result below their reporting limit.
The only two samples that fell below the reporting limit were the two blank samples. As such, the TP data can be used.
To clarify the situation, consider contacting the lab and asking for a revised results sheet showing the result <0.003 mg/l.

All samples were originally intended to be analyzed at TCL, but the metals ended up going to AmTest. All other CoC was followed, so this is not a problem.

As mentioned above, Ca, Mg and hardness were not collected. The lab may still be able to provide the information, and use it to calculate hardness. This hardness result (as Ca and Mg) may be comparable to hardness (as $CaCO_3$), but if not a flag or note should be applied.

☒ ☐ Verify that QAPP (and FSP, if used) requirements relative to laboratory analytical support documentation have been satisfied by the reporting laboratory, including the correct application of data qualifiers.

The lab applied J flags where necessary. TCL failed an internal control, and took the appropriate action and re-analyzed the sample.
Internal lab QA is acceptable.

☒ ☐ Verify that all supporting information and documentation for external (non-direct measurement) data meet the requirements of the QAPP (and FSP, if used). If not, identify any limitations or restriction on the use of such data.

n/a

☒ ☐ Verify that data and sample collection practices adhered to procedural requirements, to include a review of project logs and field notes, as applicable.

Yes No

The field manager confirmed that the samples were collected according to the method in the QAPP. However, the field team did not collect turbidity data, nor note recreational use.

The field team worked off the standard LMP monitoring plan, and did not have a copy of the QAPP with them in the field.

The copper and arsenic blank hits should be investigated further, to avoid repetition. A Teflon-coated messenger might fix the problem.

☒ ☐ Verify that sample handling activities conform to QAPP (and FSP, if used) requirements. Examples include sample shipment timelines, sample holding times, preservatives, number of samples obtained, duplicate or split sample frequency, and chain-of-custody documentation.

Sample handling conformed to the requirements in the QAPP.

☒ ☐ Verify that data calculation and handling activities conform to QAPP (and FSP, if used) requirements. Examples include correct use of mathematical formulas and numerical methods, correct use of programs and programing, and correct application of database information transfers.

RPD was calculated correctly. No other calculations.

☒ ☐ Verify that any remaining or unique project QAPP (and FSP, if used) or procedural requirements have been met, and if not, determine the extent to which these requirements failed to be achieved.

The unique sample collection requirements in the HHRA QAPP were not followed. The data were collected using a sampling method more like the usual Lake Management Plan. As such, there is no turbidity or recreation data available.
A corrective action plan was included in the Event Quality Assessment (2025AKL6).

☒ ☐ Determine and document any limitations on the use of the project data.

Do not use the copper data.
Exercise caution with the arsenic and hardness data.

☒ ☐ Ensure that all deficiencies or conditions adverse to quality determined during the project data *verification* process have been communicated to project management and are listed on this checklist or attached for inclusion in the EDMS.

☒ ☐ Verify that a copy of this data verification checklist has been provided to the project manager for deficiency resolution and placed in the project EDMS file. Note that additional administrative actions may be required based on the verification findings, such as development of a corrective action plan, report, etc. The project QAO shall consult the DEQ Quality Management Plan and proceed accordingly.

_____
_____
_____

Please list any additional comments below. Attach additional sheets as necessary.

Staff changes and communication difficulties meant that some data were not collected as originally planned. For example, no turbidity was collected.

Although the samples were collected in an appropriate manner, it would have been better to follow the QAPP more exactly.

See the event quality assessment for further information.

DEQ QAPP/FSP Checklist—Data Validation

The individual(s) assigned in the QAPP/FSP to perform **data validation** *shall complete and file this checklist in the appropriate project electronic document management system (EDMS) file.* Project personnel are encouraged to expand this standard list as project conditions warrant.

Hawk Stone	1-14-25
Printed Name of Staff Performing Data Validation	Date Completed
Risk-Based Evaluation for CDA Lake	2025AKS1
Project QAPP/FSP Title	QAPP/FSP EDMS Record #

Check the following review boxes after completion of each listed task.

Check *yes* if the task was completed without any noted discrepancies. Otherwise, check *no* and include a description of the discrepancy in the space provided. Use additional sheets as necessary.

Yes No

☒ ☐ Verify that the approved current quality assurance project plan (QAPP), including a copy of the signed approval signature page, is currently filed in the EDMS. Also, verify the project information has been entered into the quality assurance officer (QAO) project tracker found at EDMS # **2012AEB8**. If the QAPP is not filed in the EDMS, or the QAO tracker is not current, immediately inform the DEQ quality manager.

☒ ☐ If the project utilizes a field sampling plan (FSP), verify that the approved project FSP, including a copy of the signed approval signature page, is currently filed in the EDMS. Also, verify the project information has been entered into the QAO project tracker found at EDMS # **2012AEB8**. If the FSP is not filed in the EDMS, or the QAO tracker is not current, immediately inform the DEQ quality manager.

☒ ☐ Examine and evaluate the project QAPP (and FSP, if used) to determine if additional project-specific data *validation* requirements apply. Update this checklist to include all such items.

n/a

☒ ☐ Examine and evaluate all (100%) of obtained field quality control sample results (i.e. duplicates, trip blanks, etc.) followed by assignment (if necessary) of appropriate data qualifiers to these data based on project criteria.

Discard copper data.
J-flag or discard arsenic data.
Depending on hardness method, this may need J-flagged too.

☒ ☐ Assess project analytical laboratory reports and data, including the assigned data qualifiers, to evaluate the data quality with respect to the project data quality objectives (DQOs). Assign and document data qualifiers to individual data values as necessary and appropriate.
The lab met their internal QA. No further flags are required.

Yes	No	
☒	☐	Evaluate the outcome of the data verification effort to assess the impact on data quality with respect to the DQOs. The data that were collected meet the DQOs. There were data that were supposed to be collected, but were not (Ca, Mg, hardness, turbidity, recreational use).
☒	☐	Determine, when necessary and where possible, the reasons for any failure to meet methodological, procedural, or contractual requirements and evaluate the impact of such failure on overall data quality. Staff changes and communication problems meant that the field team did not use the HHRA QAPP, and instead used their regular Lake Management Plan methods. These meet data quality objectives for the HHRA, but omit a few required components. The data are suitable to use for their original purpose.
☒	☐	Compare the project DQOs, as defined in the QAPP (and FSP, if used), to the data obtained to assess the adequacy of the data (new or external) in relation to their intended use. Provided the copper and arsenic data are discarded, the data are suitable for their intended use. If hardness or turbidity are required, the data may not be usable.
☒	☐	Determine the extent to which any external (non-direct measurement) data, and the accompanying supporting information and documentation, meet the requirements of the end user. Specifically, does the quality of the data adequately support the needs of the project and support its intended use? n/a
☒	☐	Determine and document any limitations on the use of the data. Discard copper. Discard or flag arsenic. Otherwise no limitations.
☒	☐	Determine the adequacy of the data to proceed on to the data-assessment and reconciliation-with-user-requirements phases. Ready to proceed. The end user should be made aware that no hardness or turbidity data were collected, but that the other results are suitable for use.
☒	☐	Ensure that all deficiencies or conditions adverse to quality determined during the data *validation* process have been communicated to project management and are listed on this checklist or attached for inclusion in the EDMS. Corrective action plan included with Event Quality Assessment.
☒	☐	Verify that a copy of this data validation checklist has been provided to the project manager for deficiency resolution and placed in the project EDMS file. Note that additional administrative actions may be required based on the validation findings, such as development of a corrective action plan, report, etc. The project QAO shall consult the DEQ Quality Management Plan and proceed accordingly. _____ _____ _____

Please list any additional comments below. Attach additional sheets as necessary.

_____

_____

_____

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Rocky Point-S058	8/27/2024	10:15:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-01	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 475	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	ACTIVITY_Sample_Description	S058	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	ACTIVITY_Sample_Event_Comments	Rocky Point	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Depth_station_m	5.8	Validated	good	DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Rocky Point-S058	8/27/2024	10:15:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Iron_total_ug/L	0.174	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Manganese_total_ug/L	0.033	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Arsenic_total_ug/L	0.711	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Copper_total_ug/L	15.33	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Lead_total_ug/L	<0.2	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Zinc_total_ug/L	0.824	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Nitrogen_total_persulfate_mgN/L	0.296	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Phosphorus_total_mgP/L	0.081	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Calcium_total_mg/L	7.67	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Magnesium_total_mg/L	1.79	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rocky Point-S058	8/27/2024	10:15:00 AM	Hardness_total_mg/L_as_CaCO3	26.5	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-02	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 476	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	ACTIVITY_Sample_Description	S048	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	ACTIVITY_Sample_Event_Comments	Harlow Point	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Depth_station_m	7.1	Validated	good	DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Harlow Point-S048	8/27/2024	11:30:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Iron_total_ug/L	0.047	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Manganese_total_ug/L	0.017	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Antimony_total_ug/L	0.401	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Arsenic_total_ug/L	1.019	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Cadmium_total_ug/L	0.104	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Copper_total_ug/L	8.945	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Lead_total_ug/L	3.4	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Zinc_total_ug/L	16.14	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Nitrogen_total_persulfate_mgN/L	0.183	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Phosphorus_total_mgP/L	0.005	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Calcium_total_mg/L	7.12	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Magnesium_total_mg/L	2.03	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Harlow Point-S048	8/27/2024	11:30:00 AM	Hardness_total_mg/L_as_CaCO3	26.1	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-03	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 477	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	ACTIVITY_Sample_Description	S044	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	ACTIVITY_Sample_Event_Comments	Windy Bay	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Depth_station_m	6.5	Validated	good	DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Windy Bay-S044	8/27/2024	12:15:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Windy Bay-S044	8/27/2024	12:15:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Iron_total_ug/L	0.047	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Manganese_total_ug/L	0.01	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Antimony_total_ug/L	0.368	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Arsenic_total_ug/L	0.658	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Copper_total_ug/L	14.25	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Lead_total_ug/L	0.581	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Zinc_total_ug/L	15.79	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Nitrogen_total_persulfate_mgN/L	0.093	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Phosphorus_total_mgP/L	0.006	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Calcium_total_mg/L	6.34	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Magnesium_total_mg/L	1.35	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Windy Bay-S044	8/27/2024	12:15:00 PM	Hardness_total_mg/L_as_CaCO3	23.4	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-04	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 478	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	ACTIVITY_Sample_Description	S062	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	ACTIVITY_Sample_Event_Comments	Rockford Bay	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Depth_station_m	12.5	Validated	good	DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Rockford Bay-S062	8/27/2024	1:30:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Iron_total_ug/L	0.036	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Antimony_total_ug/L	0.322	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Arsenic_total_ug/L	0.741	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Copper_total_ug/L	12.55	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Lead_total_ug/L	0.701	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Zinc_total_ug/L	15.48	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Nitrogen_total_persulfate_mgN/L	0.089	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Calcium_total_mg/L	6.21	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Magnesium_total_mg/L	1.82	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Rockford Bay-S062	8/27/2024	1:30:00 PM	Hardness_total_mg/L_as_CaCO3	23	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-05	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 479	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	ACTIVITY_Sample_Description	S038	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	ACTIVITY_Sample_Event_Comments	Carlin Bay	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Depth_station_m	9.5	Validated	good	DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Carlin Bay-S038	8/27/2024	2:15:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Iron_total_ug/L	0.033	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Antimony_total_ug/L	0.317	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Arsenic_total_ug/L	0.633	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Cadmium_total_ug/L	0.113	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Copper_total_ug/L	16.78	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Carlin Bay-S038	8/27/2024	2:15:00 PM	Lead_total_ug/L	0.365	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Zinc_total_ug/L	16.3	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Nitrogen_total_persulfate_mgN/L	0.156	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Calcium_total_mg/L	6.1	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Magnesium_total_mg/L	1.78	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Carlin Bay-S038	8/27/2024	2:15:00 PM	Hardness_total_mg/L_as_CaCO3	22.5	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-06	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 480	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	ACTIVITY_Sample_Description	S036	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	ACTIVITY_Sample_Event_Comments	Loffs Bay	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Depth_station_m	3.7	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:00:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Iron_total_ug/L	0.048	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Arsenic_total_ug/L	0.452	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Copper_total_ug/L	9.94	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Lead_total_ug/L	0.303	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Zinc_total_ug/L	17.89	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Nitrogen_total_persulfate_mgN/L	0.111	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Phosphorus_total_mgP/L	0.005	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Calcium_total_mg/L	6.06	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Magnesium_total_mg/L	1.8	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:00:00 PM	Hardness_total_mg/L_as_CaCO3	22.5	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-07	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 481	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	ACTIVITY_Sample_Description	Field Replicate at S036	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	ACTIVITY_Sample_Event_Comments	at Loffs Bay	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Quality Control Sample-Field Replicate	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Sample_depth_code_alpha	SFC	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Depth_station_m	3.7	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Loffs Bay-S036	8/27/2024	3:30:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Iron_total_ug/L	<0.03	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Arsenic_total_ug/L	0.604	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Copper_total_ug/L	6.974	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Lead_total_ug/L	0.277	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Zinc_total_ug/L	16.4	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Nitrogen_total_persulfate_mgN/L	0.097	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Phosphorus_total_mgP/L	0.005	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Calcium_total_mg/L	6.03	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Magnesium_total_mg/L	1.79	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Loffs Bay-S036	8/27/2024	3:30:00 PM	Hardness_total_mg/L_as_CaCO3	22.4	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-08	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 482	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	ACTIVITY_Sample_Description	Field Blank after S036	QC - Field Blank		DEQ CRO LMP Staff	Field Records

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
aa_QA Blanks	8/27/2024	4:30:00 PM	ACTIVITY_Sample_Event_Comments	--	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Quality Control Sample-Field Blank	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	Sample_depth_code_alpha	VEH	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	Sample_depth_m	0	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/27/2024	4:30:00 PM	Mercury_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Iron_total_ug/L	<0.03	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Manganese_total_ug/L	<0.01	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Antimony_total_ug/L	<0.3	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Arsenic_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Cadmium_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Copper_total_ug/L	6.669	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Lead_total_ug/L	<0.2	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Zinc_total_ug/L	<0.5	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Nitrogen_total_persulfate_mgN/L	<0.050	QC - Field Blank		DEQ CRO LMP Staff	Tshimakin Creek Laboratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Phosphorus_total_mgP/L	0.002	QC - Field Blank		DEQ CRO LMP Staff	Tshimakin Creek Laboratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Calcium_total_mg/L	<0.2	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Magnesium_total_mg/L	<0.05	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/27/2024	4:30:00 PM	Hardness_total_mg/L_as_CaCO3	<1.00	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-09	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 483	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	ACTIVITY_Sample_Description	S020	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	ACTIVITY_Sample_Event_Comments	Higgens Point	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Depth_station_m	23.5	Validated	good	DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Higgens Point-S020	8/28/2024	8:30:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Iron_total_ug/L	0.036	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Arsenic_total_ug/L	0.525	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Cadmium_total_ug/L	0.106	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Copper_total_ug/L	3.715	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Lead_total_ug/L	<0.2	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Zinc_total_ug/L	19.33	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Nitrogen_total_persulfate_mgN/L	0.114	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Calcium_total_mg/L	6.02	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Magnesium_total_mg/L	1.79	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Higgens Point-S020	8/28/2024	8:30:00 AM	Hardness_total_mg/L_as_CaCO3	22.4	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-10	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 484	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	ACTIVITY_Sample_Description	S007	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	ACTIVITY_Sample_Event_Comments	Atlas Waterfront	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Sample_depth_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Depth_station_m	4	Validated	good	DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Iron_total_ug/L	<0.03	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Antimony_total_ug/L	0.312	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Arsenic_total_ug/L	0.6	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Copper_total_ug/L	7.002	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Lead_total_ug/L	0.437	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Zinc_total_ug/L	17.68	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Nitrogen_total_persulfate_mgN/L	0.528	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Phosphorus_total_mgP/L	0.006	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Calcium_total_mg/L	6.42	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Magnesium_total_mg/L	2.01	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Atlas Waterfront-S007	8/28/2024	9:30:00 AM	Hardness_total_mg/L_as_CaCO3	24.3	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-11	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 485	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	ACTIVITY_Sample_Description	S008	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	ACTIVITY_Sample_Event_Comments	Blackwell Island	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Sample_depth_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Depth_station_m	2	Validated	good	DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Sample_depth_lower_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Blackwell Island-S008	8/28/2024	10:15:00 AM	Iron_total_ug/L	0.044	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Arsenic_total_ug/L	0.637	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Copper_total_ug/L	8.284	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Lead_total_ug/L	0.571	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Zinc_total_ug/L	15.02	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Nitrogen_total_persulfate_mgN/L	0.099	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Phosphorus_total_mgP/L	0.005	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Calcium_total_mg/L	5.98	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Magnesium_total_mg/L	1.79	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Blackwell Island-S008	8/28/2024	10:15:00 AM	Hardness_total_mg/L_as_CaCO3	22.3	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-13	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 487	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	ACTIVITY_Sample_Description	S008-b	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	ACTIVITY_Sample_Event_Comments	Spokane River @ Backwell Isl	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Sample_depth_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Depth_station_m	2.2	Validated	good	DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Sample_depth_lower_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Iron_total_ug/L	0.037	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Arsenic_total_ug/L	0.594	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Copper_total_ug/L	5.8	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Lead_total_ug/L	0.571	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Zinc_total_ug/L	16.59	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Nitrogen_total_persulfate_mgN/L	0.108	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Calcium_total_mg/L	5.86	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Magnesium_total_mg/L	1.76	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Spokane River @ Backwell Isl-S008-b	8/28/2024	11:00:00 AM	Hardness_total_mg/L_as_CaCO3	21.9	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-12	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 486	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	ACTIVITY_Sample_Description	S009	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	ACTIVITY_Sample_Event_Comments	Cheamkwet Park	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Sample_depth_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Depth_station_m	2.1	Validated	good	DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Sample_depth_lower_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Iron_total_ug/L	0.032	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Arsenic_total_ug/L	0.666	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Cadmium_total_ug/L	0.109	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Copper_total_ug/L	7.371	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Lead_total_ug/L	0.951	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Zinc_total_ug/L	20.75	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Nitrogen_total_persulfate_mgN/L	0.14	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Calcium_total_mg/L	5.96	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Magnesium_total_mg/L	1.76	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Cheamkwet Park-S009	8/28/2024	11:30:00 AM	Hardness_total_mg/L_as_CaCO3	22.1	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-14	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 488	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	ACTIVITY_Sample_Description	S016	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	ACTIVITY_Sample_Event_Comments	Sanders Beach West	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Sample_depth_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Depth_station_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Iron_total_ug/L	0.036	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Arsenic_total_ug/L	0.597	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Cadmium_total_ug/L	0.103	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Copper_total_ug/L	7.047	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Lead_total_ug/L	0.245	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Zinc_total_ug/L	19.28	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Nitrogen_total_persulfate_mgN/L	0.118	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Calcium_total_mg/L	5.9	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Magnesium_total_mg/L	1.77	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:15:00 PM	Hardness_total_mg/L_as_CaCO3	22	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-15	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 489	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	ACTIVITY_Sample_Description	Field Replicate at S016	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	ACTIVITY_Sample_Event_Comments	at Sanders Beach	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Quality Control Sample-Field Replicate	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Sample_depth_code_alpha	SFC	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Sample_depth_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Depth_station_m	3.5	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
Sanders Beach West-S016	8/28/2024	12:45:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Duplicate		DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Sample_depth_lower_m	3	Validated	good	DEQ CRO LMP Staff	Field Records
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Iron_total_ug/L	<0.03	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Arsenic_total_ug/L	0.655	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Copper_total_ug/L	6.441	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Lead_total_ug/L	0.215	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Zinc_total_ug/L	18.44	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Nitrogen_total_persulfate_mgN/L	0.115	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Calcium_total_mg/L	5.94	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Magnesium_total_mg/L	1.78	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Sanders Beach West-S016	8/28/2024	12:45:00 PM	Hardness_total_mg/L_as_CaCO3	22.1	QC - Field Duplicate		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-16	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 490	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	ACTIVITY_Sample_Description	S031	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	ACTIVITY_Sample_Event_Comments	Camp Easton	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Sample_depth_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Depth_station_m	2	Validated	good	DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Sample_depth_lower_m	1.75	Validated	good	DEQ CRO LMP Staff	Field Records
Camp Easton-S031	8/28/2024	1:15:00 PM	Iron_total_ug/L	0.034	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Arsenic_total_ug/L	0.551	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Cadmium_total_ug/L	0.119	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Copper_total_ug/L	9.238	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Lead_total_ug/L	0.3	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Zinc_total_ug/L	17	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Nitrogen_total_persulfate_mgN/L	0.087	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Phosphorus_total_mgP/L	0.004	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Calcium_total_mg/L	6.07	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Magnesium_total_mg/L	1.79	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Camp Easton-S031	8/28/2024	1:15:00 PM	Hardness_total_mg/L_as_CaCO3	22.5	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-17	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 491	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	ACTIVITY_Sample_Description	Field Blank after S031	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	ACTIVITY_Sample_Event_Comments	--	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Quality Control Sample-Field Blank	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	Sample_depth_code_alpha	VEH	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	Sample_depth_m	0	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Blank		DEQ CRO LMP Staff	Field Records
aa_QA Blanks	8/28/2024	1:45:00 PM	Iron_total_ug/L	<0.03	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Manganese_total_ug/L	<0.01	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Antimony_total_ug/L	<0.3	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Arsenic_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Cadmium_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Copper_total_ug/L	10.74	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Lead_total_ug/L	<0.2	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Zinc_total_ug/L	<0.5	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Mercury_total_ug/L	<0.1	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory

Level 3	Date	Time	Variable	Value	Flag	Quality	Person Name	Equipment Name
aa_QA Blanks	8/28/2024	1:45:00 PM	Nitrogen_total_persulfate_mgN/L	<0.050	QC - Field Blank		DEQ CRO LMP Staff	Tshimakin Creek Laboratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Phosphorus_total_mgP/L	0.002	QC - Field Blank		DEQ CRO LMP Staff	Tshimakin Creek Laboratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Calcium_total_mg/L	<0.2	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Magnesium_total_mg/L	<0.05	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
aa_QA Blanks	8/28/2024	1:45:00 PM	Hardness_total_mg/L_as_CaCO3	<1.00	QC - Field Blank		DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	XX_LEGACY_Sample Lab ID_AmTest (alpha)_USE METADATA	A24I0154-18	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	XX_LEGACY_ACTIVITY_Sample_DEQ_ID_SEE_METADATA	DEQAC 492	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	ACTIVITY_Sample_Description	S003	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	ACTIVITY_Sample_Event_Comments	Q'Emlin Park	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	ACTIVITY_SAMPLE_Collection Activity Type_CAN ALSO BE IN METADATA	Sample-Composite Without Parents	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Sample_depth_code_alpha	SFC	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Sample_depth_m	2	Validated	good	DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Depth_station_m	2.5	Validated	good	DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	ACTIVITY_Sample Collection Equipment_CAN ALSO BE IN METADATA	Water Bottle	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	XX_LEGACY_ACTIVITY_Sample_Matrix_SEE_METADATA	Water	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	ACTIVITY_EVENT Field Team_USE THIS	C Cooper_C Nelson_V Bennett	QC - Field Sample		DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Sample_depth_upper_m	0.5	Validated	good	DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Sample_depth_lower_m	2	Validated	good	DEQ CRO LMP Staff	Field Records
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Iron_total_ug/L	0.039	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Manganese_total_ug/L	<0.01	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Antimony_total_ug/L	<0.3	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Arsenic_total_ug/L	0.675	Validated - J flag	estimate	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Cadmium_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Copper_total_ug/L	0.715	Validated - R-flag	poor	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Lead_total_ug/L	0.856	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Zinc_total_ug/L	14.16	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Mercury_total_ug/L	<0.1	Validated - U flag	< RL	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Nitrogen_total_persulfate_mgN/L	0.313	Validated	good	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Phosphorus_total_mgP/L	0.005	Validated - J flag	estimate	DEQ CRO LMP Staff	Tshimakin Creek Laboratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Calcium_total_mg/L	6.09	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Magnesium_total_mg/L	1.85	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory
Q'Emlin Park-S003	8/29/2024	9:45:00 AM	Hardness_total_mg/L_as_CaCO3	22.8	Validated	good	DEQ CRO LMP Staff	AmTest Analytical Laoratory

Alta Science & Engineering, Inc.

alta-se.com

220 East 5th Street, Suite 325
Moscow, Idaho 83843
Ph: (208) 882-7858; Fax: (208) 883-3785

INTERNAL MEMORANDUM

To: Jeremy Johnson, Project Manager

From: Mara Thorhaug, Quality Assurance Officer
Rachel Gibeault, Data Validator

Date: February 20, 2025

Contract No./Title: K305, TO #56

Alta Project No.: 23077.030

Subject: **QA/QC Review of the *In-Vitro* Bioaccessibility Data for the Screening Level Risk Evaluation for Coeur d'Alene Lake and the Spokane River in Coeur d'Alene, Idaho**

1 Introduction

This internal memorandum provides a summary of the data validation performed and the resulting data quality for the *In-Vitro* Bioaccessibility (IVBA) analyses as part of the sampling efforts that occurred in 2024 at the Coeur d'Alene Lake (CDA Lake) and the Spokane River near Coeur d'Alene, Idaho, in support of the Screening Level Risk Evaluation. It is the second memorandum for the 2024 sampling and summarizes the review of the IVBA metals data analyzed from wet and dry sediment and upland soil samples collected from select recreational sites from July 31 through August 27, 2024. Alta Science & Engineering, Inc. (Alta) and the Idaho Department of Environmental Quality (IDEQ) agreed upon the selected samples for analysis (Jeremy Johnson, personal communication, December 18, 2024). The data review for other analyses of these samples, as well as collection methods and field and rinsate blanks, is summarized in: *Internal Memorandum: Revised [Quality Assurance/Quality Control] QA/QC Review of Sampling for the Screening Level Risk Evaluation for Coeur d'Alene Lake and the Spokane River in Coeur d'Alene, Idaho* (Alta 2024a).

Alta's QA/QC review of the IVBA analyses followed guidelines set forth in the following documents:

- *Sampling and Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the Spokane River* (Alta 2024b) – hereinafter referred to as the SAP/QAPP.
- *National Functional Guidelines for Inorganic Superfund Methods Data Review* (EPA 2020) – hereinafter referred to as the NFG-Inorganic.
- *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).
- *Guidance on Environmental Data Verification and Data Validation EPA QA/G-8* (EPA 2002).

This internal memorandum discusses the data validation and quality review performed for the Sample Delivery Group (SDG) listed in Table 1. The laboratory report, which is also the final

data, will be delivered to IDEQ under separate cover. Analytical results are reported and discussed in this internal memorandum using laboratory identification in order to maintain confidentiality of data collected from privately owned properties.

Table 1. Sample Delivery Group (SDG) Reviewed

SDG [a]	Field Sample Matrix	Analyses	NFG-Inorganic Data Review Method [b]
K2413596	Dry/wet sediment and upland soil	IVBA (arsenic and lead) [c]	MS

Footnotes:

Data validation level (Stage 2B) based on EPA 2009.

[a] Sample Delivery Group (SDG) analyzed by ALS Environmental in Kelso, Washington.

[b] MS = Mass Spectrometry for the NFG-Inorganic (EPA 2020).

[c] *In-vitro* bioaccessability (IVBA) of arsenic and lead analyzed using EPA Method 6020A (EPA 1998) and EPA Method 1340M (EPA 2017).

2 Data Validation and Quality Summary

Alta's Stage 2B validation and review of the IVBA analytical data and the field and laboratory QC data are summarized in Table 2. Procedures/checks that require further discussion are explained below the table, as necessary.

Table 2. Data Quality Review Summary for IVBA and Field/Laboratory QC Samples

Data Validation Procedure or Check	Acceptable Frequency? [a]	Acceptable Performance? [b]	Data Qualified?	Discussion Item Number
General Data Review				
Sample condition upon receipt at laboratory	--	Y	N	--
Preservation (temperature)	--	--	--	--
Laboratory followed specified analytical methods, preparatory methods, and shows analysis dates	--	Y	N	--
Requested target analyte results are reported with lab qualifiers and units	--	Y	N	--
Sensitivity Assessment				
Requested reporting limits are present	--	--	--	--
Instrument Tunes	Y	Y	N	--
Representativeness Assessment				
Holding times	--	Y	N	--
Method blanks	Y	Y	N	--
Field blanks	--	--	--	--
Rinsate blanks	--	--	--	--

Table 2. Data Quality Review Summary for IVBA and Field/Laboratory QC Samples

Data Validation Procedure or Check	Acceptable Frequency? [a]	Acceptable Performance? [b]	Data Qualified?	Discussion Item Number
Accuracy Assessment				
Laboratory Control Samples (LCS)	Y	Y	N	--
Matrix Spikes (MS)	Y	Y	N	--
Initial or Continuing Calibration Blanks (ICB/CCB)	Y	N	Y	1
Initial or Continuing Calibration Verifications (ICV/CCV)	Y	Y	N	--
Precision Assessment				
Matrix Spike Duplicates (MSD)	Y	Y	N	--
Laboratory Control Samples Duplicates (LCSD)	Y	Y	N	--
Laboratory Duplicates	Y	Y	N	--
Laboratory Replicates	--	--	--	--
Field Replicates (Table 3 and Table 4)	Y	Y	N	2

[a] Frequencies as defined in the SAP/QAPP (Alta 2024b).

[b] As defined in the SAP/QAPP (Alta 2024b), or based on professional judgment of the data validator.

-- = not applicable

Discussion Items:

1. **Initial Calibration Blank (ICB) and Continuing Calibration Blank (CCB) data:** The laboratory analyzed ICB samples and the CCB samples at the proper frequency. All ICB and CCB samples were non-detects for arsenic and lead except for the following:

    a. Lead was detected in three of the five CCBs with concentrations ranging from 0.05-0.07 micrograms per liter (µg/L), which is above the method detection limit (MDL) of 0.04 µg/L. Based on the analysis run log, lead results from field samples analyzed between 08:07 and 09:40 on 01/15/2025 would be affected. No data were qualified because the lead results were orders of magnitude higher than the CCB detections.

2. **Field Replicates:** The laboratory analyzed three sets of field replicate samples (one for upland soil and two for wet sediment samples). Tables 3 and 4 show the replicate sample results and calculated relative standard deviations (RSDs), which were all within the SAP/QAPP data quality indicator of 35%.

Table 3. Dry/Wet Sediment and Upland Soil Replicate Analyses

Field Sample ID	Laboratory ID Code	Sample Date	Unit	Arsenic, Total Metals IVBA [a]	Arsenic, IVBA [b]	Lead, Total Metals IVBA [a]	Lead, IVBA [b]
S009-US-DU01-A-01	KQ2500283-05	7/31/2024	mg/kg	13.7	1.08	238	133
	Duplicate Sample Result	7/31/2024	mg/kg	13.4	1.33	302	171
	Replicate Sample Result	7/31/2024	mg/kg	12.7	1.11	177	99.6
	Mean			13.3	1.17	239	135
	Standard Deviation			0.513	0.137	62.5	35.7
	Relative Standard Deviation			3.87%	11.6%	26.2%	26.6%
S001-WS-DU03-B-01	KQ2500283-07	8/14/2024	mg/kg	6.34	1.00	164	116
	Duplicate Sample Result	8/14/2024	mg/kg	7.15	1.04	169	121
	Replicate Sample Result	8/14/2024	mg/kg	7.93	1.01	191	137
	Mean			7.14	1.02	175	125
	Standard Deviation			0.795	0.0208	14.4	11.0
	Relative Standard Deviation			11.1%	2.05%	8.22%	8.80%
S008-WS-DU02-C-01	KQ2500283-09	8/8/2024	mg/kg	33.6	0.970	71.0	27.7
	Duplicate Sample Result	8/8/2024	mg/kg	33.2	0.910	60.7	19.1
	Replicate Sample Result	8/8/2024	mg/kg	36.9	0.860	70.00	24.2
	Mean			34.6	0.913	67.2	23.7
	Standard Deviation			2.03	0.0551	5.68	4.32
	Relative Standard Deviation			5.87%	6.03%	8.45%	18.3%

[a.] Prepared using EPA Method 3050B and analyzed using EPA Method 6020B (EPA 2014).

[b.] Prepared using EPA Method 1340 (EPA 2017) and analyzed using EPA Method 6020B (EPA 2014).

Relative standard deviation = (Standard Deviation of the sample/Mean Concentration)*100

Table 4. Field Replicate Bioaccessibility Results

Field Sample ID	Laboratory ID Code	Unit	Arsenic Bioaccessibility (%)	Lead Bioaccessibility (%)
S009-US-DU01-A-01	K2413596-003	%	7.9	55.9
	KQ2500283-04-KQ2500295-04	%	9.9	56.6
	KQ2500283-05-KQ2500295-05	%	8.7	56.3
	Mean		8.8	56.3
	Standard Deviation		1.0	0.351
	Relative Standard Deviation		11%	0.624%
S001-WS-DU03-B-01	K2413596-009	%	15.8	70.7
	KQ2500283-06-KQ2500295-06	%	14.5	71.6
	KQ2500283-07-KQ2500295-07	%	12.7	71.7
	Mean		14.3	71.3
	Standard Deviation		1.56	0.551
	Relative Standard Deviation		10.9%	0.772%
S008-WS-DU02-C-01	K2413596-022	%	2.90	39.0
	KQ2500283-08-KQ2500295-08	%	2.70	31.5
	KQ2500283-09-KQ2500295-09	%	2.30	34.6
	Mean		2.63	35.0
	Standard Deviation		0.306	3.77
	Relative Standard Deviation		11.6%	10.8%

Relative standard deviation = (Standard Deviation of the sample/Mean Concentration)*100

3 Overall Assessment

Based on this data quality review, the Alta QAO has determined the IVBA laboratory data to be of acceptable quality and meets the data quality objectives for precision, accuracy, sensitivity, representativeness, and comparability. The Alta QAO did not reject any IVBA data; therefore, the completeness for IVBA data is calculated at 100%, which meets the SAP/QAPP criteria. Attachment A includes the final laboratory data.

4 References and Resources Used

Alta Science & Engineering, Inc. (Alta), 2024a. "QA/QC Review of Sampling for the SLRE at CDA Lake and the Spokane River in CDA, Idaho". Internal Technical Memorandum, December.

Alta, 2024b. Sampling and Analysis Plan (SAP) / Quality Assurance Project Plan (QAPP) for the Risk-Based Evaluation for Selected Recreational Areas at Coeur d'Alene Lake and the

Spokane River. Prepared for the Idaho Department of Environmental Quality. Revision 0, June 3.

U.S. Environmental Protection Agency (EPA), 1998. Method 6020A: Inductively Coupled Plasma – Mass Spectrometry. Revision 1, January.

EPA, 2002. EPA Guidance on Environmental Data Verification and Data Validation. EPA QA/G-8; November.

EPA, 2009. Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use. OSWER No. 9200.1-85, EPA 540-R-08-005 prepared by the Office of Solid Waste and Emergency Response. January.

EPA, 2014. Method 6020B: Inductively Coupled Plasma – Mass Spectrometry. Revision 2, July.

EPA, 2017. Method 1340M: *In Vitro* Bioaccessibility Assay for Lead in Soil. Revision 1, February.

EPA, 2020. National Functional Guidelines for Inorganic Superfund Methods Data Review, (SFAM01.1), Office of Superfund Remediation and Technology Innovation (OSRTI). OLEM 9240.1-66, EPA-542-R-20-006; November.

Appendix D
Exposure Factors Used and Site-Specific Arsenic RBSLs

Table D-1: Private Recreational Resident - Exposure Factors for Non-Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source
AF_{rec-a}	skin adherence factor - adult recreator - soil	0.07	mg/cm^2		x	Best Professional Judgement[3].
AF_{rec-c}	skin adherence factor - child recreator - soil	0.2	mg/cm^2		x	Best Professional Judgement[4].
AT_{rec-a}	averaging time - adult recreator (non-cancer)	365 x ED_a	days	x		USEPA 1989 (pg. 6-23)
AT_{rec-c}	averaging time - child recreator (non-cancer)	365 x ED_c	days	x		USEPA 1989 (pg. 6-23)
AT_{rec}	averaging time - recreator (cancer)	365 x LT	days	x		USEPA 1989 (pg. 6-23)
BW_{rec-a}	body weight - adult recreator	80	kg	x		USEPA 2011 (Table 8-3)
BW_{rec-c}	body weight - child recreator	15	kg	x		USEPA 1991 (pg. 15)
$DFS_{rec-adj}$	age-adjusted soil dermal factor	14179.2	mg/kg	-		Calculated using the age adjusted intake factors equation.
ED_{rec}	exposure duration - recreator	26	years	x		USEPA 2011 (Table 16-108); 90th percentile for current residence time.
ED_{rec-a}	exposure duration - adult recreator	20	years	x		ED_{rec} (26 years) - ED_{rec-c} (6 years)
ED_{rec-c}	exposure duration - child recreator	6	years	x		USEPA 1991 (pg. 15)
EF_{rec}	exposure frequency - recreator	48	days/year		x	Best Professional Judgement[5].
$ET_{rec-soil}$	exposure time - recreator - soil	8	hours/day		x	Best Professional Judgement[6].
$ET_{rec-water}$	exposure time - recreator - surface water	1	hours/event		x	Best Professional Judgement[7].
$EV_{rec-water}$	events - recreator - surface water	1	event/day		x	Best Professional Judgement[7].
IFS_{soil}	age-adjusted soil ingestion factor	6960	mg/kg		x	Calculated using the age adjusted intake factors equation.
IFW_{water}	age-adjusted water intake rate	3.624	L/kg	x		Calculated using the age adjusted intake factors equation.
IRS_{rec-a}	soil/sediment ingestion rate - adult recreator	100	mg/day		x	Best Professional Judgement[8].
IRS_{rec-c}	soil/sediment ingestion rate - child recreator	300	mg/day		x	Best Professional Judgement[9].
$IRW_{a-water}$	surface water ingestion rate - adult recreator	0.11	L/hr	x		USEPA RSL recreator default value (USEPA 2023)[10].
$IRW_{c-water}$	surface water ingestion rate - child recreator	0.12	L/hr	x		USEPA RSL recreator default value for child (USEPA 2023)[11].
LT	lifetime	70	years	x		USEPA 1989 (pg. 6-22).
$SA_{rec-a-soil}$	skin surface area - adult recreator- soil	6032	cm^2/day		x	Best Professional Judgement[12].
$SA_{rec-a-water}$	skin surface area - adult recreator - surface water	19652	cm^2/day	x		EPA RSL recreator default value for adult (USEPA 2023). Based on weighted average of mean values for adults, male and female 21+ (USEPA 2014).
$SA_{rec-c-soil}$	skin surface area - child recreator - soil	2373	cm^2/day		x	Best Professional Judgement[13].
$SA_{rec-c-water}$	skin surface area - child recreator - surface water	6365	cm^2/day	x		EPA RSL recreator default value for child (USEPA 2023). Based on weighted average of mean values for children (USEPA 2014).
PEF	particulate emission factor	$1.36x10^9$	m^3/kg	x		USEPA 2002 (Appendix B). Default value for residential soils.

[1] Exposure factor is a default value provided and used in the USEPA recreator RSL calculator. The USEPA RSL Calculator output files list those values that are site-specific and default. Default values and their sources are listed in the EPA RSL calculator table titled "Default Values and Definitions" available at https://semspub.epa.gov/work/HQ/403620.pdf.

[2] Site-specific exposure factors were derived in circumstances where the USEPA recreator RSL calculator does not provide a default value or the default value was not used.

[3] Based on USEPA default soil adherence factor for adult residents (USEPA 2004).

[4] Based on USEPA default soil adherence factor for child residents (USEPA 2004).

[5] Assumes the private recreational resident will recreate at the lake or river 3 days/week during the warmest 16 weeks of the year.

[6] Assumes the private recreational resident will spend the entire day (8+ hrs) at the lake or river.

[7] Assumes the private recreational resident will spend 1 hour in the surface water per event.

[8] Based on USEPA default soil ingestion rate for adult residents (USEPA 1991) (pg. 15).

[9] Child soil ingestion rate is the upper bound (90th percentile) intake from a study by van Wijnen et al. (1990, as cited in USEPA 1997) where ingestion rates were measured in 78 children at campgrounds.

[10] Time weighted average was calculated based on the upper percentile from USEPA 2019, Table 3.7.

[11] Based on value in USEPA 2011.

[12] Based on USEPA default resident adult skin surface area for exposure to soils (USEPA 2011).

[13] Based on USEPA default resident child skin surface area for exposure to soils (USEPA 2011).

USEPA 1989. Risk Assessment Guidance for Superfund Volume I-Human Health Evaluation Manual (Part A). Interim Final. https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.

USEPA 1991. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance "Standard Default Exposure Factors" PB91-921314.

USEPA 1997. Health Effects Assessment Summary Tables (HEAST): FY 1997 Update. Washington D.C.

USEPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. https://www.epa.gov/superfund/superfund-soil-screening-guidance#supplemental.

USEPA 2011. Exposure Factors Handbook: 2011 Edition EPA/600/R-090/052F. https://www.epa.gov/expobox/about-exposure-factors-handbook.

USEPA 2014. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Https://semspub.epa.gov/work/HQ/190670.pdf.

Table D-1: Private Recreational Resident - Exposure Factors for Non-Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source

USEPA 2019. Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids EPA/540/R/99/005. National Center for Environmental Assessment Office of Research and Development. Washington D.C. https://www.epa.gov/sites/default/files/2019-02/documents/efh_-_chapter_3_update.pdf.
USEPA 2023. Regional Screening Levels (RSLs) User's Guide. Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables

Table D-2: Public Recreational Visitor Screening Level - Exposure Factors for Non-Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source
AF_{rec-a}	skin adherence factor - adult recreator - soil	0.07	mg/cm^2		x	Best Professional Judgement[3]
AF_{rec-c}	skin adherence factor - child recreator - soil	0.2	mg/cm^2		x	Best Professional Judgement[4].
AT_{rec-a}	averaging time - adult recreator (non-cancer)	365 x ED_a	days	x		USEPA 1989 (pg. 6-23)
AT_{rec-c}	averaging time - child recreator (non-cancer)	365 x ED_c	days	x		USEPA 1989 (pg. 6-23)
AT_{rec}	averaging time - recreator (cancer)	365 x LT	days	x		USEPA 1989 (pg. 6-23)
BW_{rec-a}	body weight - adult recreator	80	kg	x		USEPA 2011 (Table 8-3)
BW_{rec-c}	body weight - child recreator	15	kg	x		USEPA 1991 (pg. 15)
$DFS_{rec-adj}$	age-adjusted soil dermal factor	9452.8	mg/kg	-		Calculated using the age adjusted intake factors equation.
ED_{rec}	exposure duration - recreator	26	years	x		USEPA 2011 (Table 16-108); 90th percentile for current residence time.
ED_{rec-a}	exposure duration - adult recreator	20	years	x		ED_{rec} (26 years) - ED_{rec-c} (6 years)
ED_{rec-c}	exposure duration - child recreator	6	years	x		USEPA 1991 (pg. 15)
EF_{rec}	exposure frequency - recreator	32	days/year		x	Best Professional Judgement[5].
$ET_{rec-soil}$	exposure time - recreator - soil	8	hours/day		x	Best Professional Judgement[6].
$ET_{rec-water}$	exposure time - recreator - surface water	1	hours/event		x	Best Professional Judgement[7].
$EV_{rec-water}$	events - recreator - surface water	1	event/day		x	Best Professional Judgement[7].
IFS_{soil}	age-adjusted soil ingestion factor	4640	mg/kg		x	Calculated using the age adjusted intake factors equation.
IFW_{water}	age-adjusted water intake rate	2.416	L/kg	x		Calculated using the age adjusted intake factors equation.
IRS_{rec-a}	soil/sediment ingestion rate - adult recreator	100	mg/day		x	Best Professional Judgement[8].
IRS_{rec-c}	soil/sediment ingestion rate - child recreator	300	mg/day		x	Best Professional Judgement[9].
$IRW_{a-water}$	surface water ingestion rate - adult recreator	0.11	L/hr	x		USEPA RSL recreator default value (USEPA 2023)[10].
$IRW_{c-water}$	surface water ingestion rate - child recreator	0.12	L/hr	x		USEPA RSL recreator default value for child (USEPA 2023)[11].
LT	lifetime	70	years	x		USEPA 1989 (pg. 6-22).
$SA_{rec-a-soil}$	skin surface area - adult recreator- soil	6032	cm^2/day		x	Best Professional Judgement[12].
$SA_{rec-a-water}$	skin surface area - adult recreator - surface water	19652	cm^2/day	x		USEPA RSL recreator default value for adult (USEPA 2023). Based on weighted average of mean values for adults, male and female 21+ (USEPA 2014).
$SA_{rec-c-soil}$	skin surface area - child recreator - soil	2373	cm^2/day		x	Best Professional Judgement[13].
$SA_{rec-c-water}$	skin surface area - child recreator - surface water	6365	cm^2/day	x		USEPA RSL recreator default value for child (USEPA 2023). Based on weighted average of mean values for children (USEPA 2014).
PEF	particulate emission factor	$1.36x10^9$	m^3/kg	x		USEPA 2002 (Appendix B). Default value for residential soils.

[1] Exposure factor is a default value provided and used in the USEPA recreator RSL calculator. The USEPA RSL Calculator output files list those values that are site-specific and default. Default values and their sources are listed in the USEPA RSL calculator table entitled "Default Values and Definitions" available at https://semspub.epa.gov/work/HQ/403620.pdf.

[2] Site-specific exposure factors were derived in circumstances where the USEPA recreator RSL calculator does not provide a default value or the default value was not used.

[3] Based on USEPA default soil adherence factor for adult residents (USEPA 2004).

[4] Based on USEPA default soil adherence factor for child residents (USEPA 2004).

[5] Assumes the private recreational resident will recreate at the lake or river 3 days/week during the warmest 16 weeks of the year.

[6] Assumes the private recreational resident will spend the entire day (8+ hrs) at the lake or river.

[7] Assumes the private recreational resident will spend 1 hour in the surface water per event.

[8] Based on USEPA default soil ingestion rate for adult residents (USEPA 1991).

[9] Child soil ingestion rate is the upper bound (90th percentile) intake from a study by van Wijnen et al. (1990, as cited in USEPA 1997) where ingestion rates were measured in 78 children at campgrounds.

[10] Time weighted average was calculated based on the upper percentile from USEPA 2019, Table 3.7.

[11] Based on value in USEPA 2011.

[12] Based on EPA default resident adult skin surface area for exposure to soils (USEPA 2011).

[13] Based on USEPA default resident child skin surface area for exposure to soils (USEPA 2011).

USEPA 1989. Risk Assessment Guidance for Superfund Volume I-Human Health Evaluation Manual (Part A). Interim Final. https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.
USEPA 1991. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance "Standard Default Exposure Factors" PB91-921314.
USEPA 1997. Health Effects Assessment Summary Tables (HEAST): FY 1997 Update. Washington D.C.
USEPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. https://www.epa.gov/superfund/superfund-soil-screening-guidance#supplemental.

Table D-2: Public Recreational Visitor Screening Level - Exposure Factors for Non-Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source

USEPA 2011. Exposure Factors Handbook: 2011 Edition EPA/600/R-090/052F. https://www.epa.gov/expobox/about-exposure-factors-handbook.

USEPA 2014. Human Health Evaluation Manual, Supplemental Guidance: Update of Standard Default Exposure Factors. Https://semspub.epa.gov/work/HQ/190670.pdf.

USEPA 2019. Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids EPA/540/R/99/005. National Center for Environmental Assessment Office of Research and Development. Washington D.C. https://www.epa.gov/sites/default/files/2019-02/documents/efh_-_chapter_3_update.pdf.

USEPA 2023. Regional Screening Levels (RSLs) User's Guide. Available online at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables

Table D-3: Outdoor Worker Screening Level - Exposure Factors for Non-Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source
AF_{out}	skin adherence factor - outdoor worker	0.12	mg/cm^2	x		USEPA 2011
AT_C	averaging time - cancer	365 X LT	days	x		USEPA 1989 (pg. 6-23)
AT_N	averaging time - non-cancer	365 x ED	days	x		USEPA 1989 (pg. 6-23)
BW_{out}	body weight - outdoor worker	80	kg	x		USEPA 2011, Table 8-3
ED_{out}	exposure duration - outdoor worker	25	years	x		USEPA 1991 (pg. 15)
EF_{out}	exposure frequency - outdoor worker	225	days/year		x	USEPA 2002 (Exhibit 1-2)
ET_{out}	exposure time - outdoor worker	8	hours/day	x		The work day
Etoutsw	exposure time - outdoor worker - surface water	1	hours/day		x	Best Professional Judgement
IRS_{out}	soil/sediment ingestion rate - outdoor worker	100	mg/day	x		USEPA 2002
IRW_{out}	incidental water ingestion rate - outdoor worker	0.092	L/day		x	Best Professional Judgement[3]
LT	lifetime	70	years	x		USEPA 1989 (pg. 6-22)
$SA_{out\text{-}soil}$	skin surface area -outdoor worker - soil	3527	cm^2/day	x		USEPA 2011
$SA_{out\text{-}water}$	skin surface area -outdoor worker - surface water	3527	cm^2/day		x	Best Professional Judgement[4]
PEF	particulate emission factor	$1.36x10^9$	m^3/kg	x		USEPA 2002

[1] Exposure factor is a default value provided and used in the USEPA outdoor soil RSL calculator and is based on default exposure factors for outdoor workers provided in USEPA policy and guidance. The value is also used in the derivation of the surface water screening level derivation (using the tapwater RSL calculator), where applicable. Default values and their sources are listed in the USEPA RSL calculator table entitled "Default Values and Definitions" available at https://semspub.epa.gov/work/HQ/403620.pdf.

[2] Site-specific exposure factors were derived in circumstances where default values are not available.

[3] Based on upper percentile ingestion rate while swimming for adults (21+) provided in USEPA 2019.

[4] Based on USEPA default surface area for outdoor workers exposure to soil and is the weighted average of mean values for head, hands, and forearms (male and female, 21+years) (USEPA 2011). Assumes worker wil be wearing protective clothing while working in and around water.

USEPA 1989. Risk Assessment Guidance for Superfund Volume I-Human Health Evaluation Manual (Part A). Interim Final. https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part.
USEPA 1991. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance "Standard Default Exposure Factors" PB91-921314.
USEPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. https://www.epa.gov/superfund/superfund-soil-screening-guidance#supplemental.
USEPA 2011. Exposure Factors Handbook: 2011 Edition EPA/600/R-090/052F. https://www.epa.gov/expobox/about-exposure-factors-handbook.
USEPA 2019. Update for Chapter 3 of the Exposure Factors Handbook Ingestion of Water and Other Select Liquids EPA/540/R/99/005. National Center for Environmental Assessment Office of Research and Development. Washington D.C. https://www.epa.gov/sites/default/files/2019-02/documents/efh_-_chapter_3_update.pdf.

Table D-4: Exposure Factors for Recreational Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source
$IRS_{soil-adj}$	Adjusted Soil/Sediment Ingestion Rate: 1-2	0.136	g/day		x	Adjusted soil/sediment ingestion rate[3].
	Adjusted Soil/Sediment Ingestion Rate: 2-3	0.097	g/day		x	Adjusted soil/sediment ingestion rate[3].
	Adjusted Soil/Sediment Ingestion Rate: 3-4	0.091	g/day		x	Adjusted soil/sediment ingestion rate[3].
	Adjusted Soil/Sediment Ingestion Rate: 4-5	0.097	g/day		x	Adjusted soil/sediment ingestion rate[3].
	Adjusted Soil/Sediment Ingestion Rate: 5-6	0.075	g/day		x	Adjusted soil/sediment ingestion rate[3].
IRS_{soil}	Soil Ingestion Rate: 1-2	0.094	g/day	x		USEPA 2021
	Soil Ingestion Rate: 2-3	0.067	g/day	x		USEPA 2021
	Soil Ingestion Rate: 3-4	0.063	g/day	x		USEPA 2021
	Soil Ingestion Rate: 4-5	0.067	g/day	x		USEPA 2021
	Soil Ingestion Rate: 5-6	0.052	g/day	x		USEPA 2021
ABA_{soil}	Absolute Bioavailability - Soil and Dust	0.3	--	x		USEPA 1994
$ABA_{food/water}$	Absolute Bioavailability - Food and Water	0.5	--	x		USEPA 1994
GSDi	Geometric Standard Deviation Pb	1.6	--	x		USEPA 1994

[1] Exposure factor is a default value provided by USEPA IEUBK guidance.

[2] Site-specific exposure factors were derived in circumstances where the default value was not used.

[3] Given the potential for increased soil/sediment ingestion during days of recreation on the lake or river, the IEUBK default soil intake values were adjusted by a factor of 1.45. This is consistent with USEPA lead risk assessment guidance when adjusting soil ingestion rates to account for contact, intensive activities, and/or increased soil adherence (e.g., waterfront areas) (USEPA 2008).

USEPA 1994. Technical Support Document: Parameters and Equations Used in the Integrated Exposure Uptake Biokinetic Model for Lead in Children (V 0.99D). Draft. U.S. Environmental Protection Agency (USEPA) (EPA/540/R-94/040)
USEPA 2008. Assessing Intermittent or Variable Exposures at Lead Sites. Washington, D.C. (EPA-540-R-03-008). Available online at https://semspub.epa.gov/work/HQ/176288.pdf.
USEPA 2021. User's Guide for the Integrated Exposure Uptake Biokinetic Model for Lead in Children (IEUBK) Version 2.0. U.S. Environmental Protection Agency,Washington, D.C.

Table D-5: Exposure Factors for Occupational Lead RBSLs

Exposure Factor	Definition	Value	Unit	Default[1]	Site-Specific[2]	Source
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	0.9	--	x		USEPA 2003
BKSF	Biokinetic Slope Factor	0.4	µg/dL per µg/day	x		USEPA 2003
GSD_i	Geometric standard deviation PbB	1.8	--	x		USEPA 2017
	Geometric standard deviation PbB (Box)	1.8	--		x	Site-specific[3]
	Geometric standard deviation PbB (Basin)	1.3	--		x	Site-specific[4]
PbB_0	Baseline PbB	0.6	µg/dL	x		USEPA 2017
	Baseline PbB (Box)	1.8	µg/dL		x	Site-specific[3]
	Baseline PbB (Basin)	1.6	µg/dL		x	Site-specific[4]
IR_S	Soil/Sediment ingestion rate (including soil-derived indoor dust)	0.1	g/day		x	Best Professional Judgement based on USEPA (USEPA 2002) for outdoor workers[5]
$AF_{S, D}$	Absorption fraction (same for soil and dust)	0.12	--	x		USEPA 2003
$EF_{S, D}$	Exposure frequency (same for soil and dust)	225	days/yr		x	Best Professional Judgement based on USEPA (USEPA 2002)[6]
$AT_{S, D}$	Averaging time (same for soil and dust)	365	days/yr	x		USEPA 2003

[1] Exposure factor is a default value provided by USEPA ALM guidance.

[2] Site-specific exposure factors were derived in circumstances where the default value was not used.

[3] Based on GSDi and PbBo reported by Panhandle Health District in 2019 for non-eligible BHSS Box participants (age 7 – 68 years, includes 3 pregnant women).

[4] Based on GSDi and PbBo reported by Panhandle Health District in 2019 for non-eligible BHSS Basin participants (age 7 – 68 years, includes 3 pregnant women)

[5] Based on default soil ingestion rate for outdoor workers provided in USEPA guidance (2002).

[6] Based on default value for outdoor workers provided in USEPA guidance (2002).

USEPA 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. https://www.epa.gov/superfund/superfund-soil-screening-guidance#supplemental.

USEPA 2003. Recommendations of the Technical Review Workgroup for Lead for an Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Final. U.S. Environmental Protection Agency (USEPA) (EPA-540-R-03-001). Available online at https://nepis.epa.gov/Exe/ZyPDF.cgi/P100A16H.PDF?Dockey=P100A16H.PDF

USEPA 2017. Update of the Adult Lead Methodology's Default Baseline Blood Lead Concentration and Geometric Standard Deviation Parameters and the Integrated Exposure Uptake Biokinetic Model's Default Maternal Blood Lead Concentration at Birth Variable. U.S. Environmental Protection Agency Office of Land and Emergency Management. Washington, D.C. (OLEM Directive 9285.6-56). Available online at https://semspub.epa.gov/work/HQ/196766.pdf, checked on 10/18/2019

Table D-6: Toxicity Values and Other Chemical-Specific Data[1]

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Sfo (mg/kg-day)$^{-1}$	Sfo Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	ABS_{GI}[2]	ABS_d[3]	RBA[4]	Kp[5] (cm/hr)
Antimony	7440-36-0	No	No	Inorganics	-	-	-	-	4.00E-04	I	3.00E-04	A	1.50E-01	-	1.00E+00	0.001
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	I	4.30E-03	I	6.00E-05	I	1.50E-05	C	1.00E+00	3.00E-02	6.00E-01	0.001
Cadmium (Diet)[6]	7440-43-9	No	No	Inorganics	-	-	1.80E-03	I	1.00E-04	A	1.00E-05	A	2.50E-02	1.00E-03	1.00E+00	-
Cadmium (Water)[6]	7440-43-9	No	No	Inorganics	-	-	1.80E-03	I	1.00E-04	A	1.00E-05	A	5.00E-02	-	-	0.001
Copper	7440-50-8	No	No	Inorganics	-	-	-	-	4.00E-02	H	-	-	1.00E+00	-	1.00E+00	0.001
Iron	7439-89-6	No	No	Inorganics	-	-	-	-	7.00E-01	P	-	-	1.00E+00	-	1.00E+00	0.001
Manganese (non-diet)	739-96-5	No	No	Inorganics	-	-	-	-	2.40E-02	I[7]	5.00E-05	I	4.00E-02	-	1.00E+00	0.001
Mercury [8]	7487-94-7	No	No	Inorganics	-	-	-	-	3.00E-04	I	3.00E-04	I[9]	7.00E-02	-	1.00E+00	0.001
Zinc and Compounds	7440-66-6	No	No	Inorganics	-	-	-	-	3.00E-01	I	-	-	1.00E+00	-	1.00E+00	0.0006

Key: I = Integrated Risk Information System (IRIS); P = Provisional Peer-Reviewed Toxicity Values (PPRTVs); A = Agency for Toxic Substances and Diseases Registry (ATSDR); C = California Environmental Protection Agency (Cal EPA); H = Health Effects Assessment Summary Table (HEAST) (USEPA 1997, 2023a,b; ATSDR 2023, CalEPA 2023)

Sfo= Oral Slope Factor; IUR= Inhalation Unit Risk Factor; RfD= Reference Dose; RfC = Reference Concentration; ABS_{GI} = Gastrointestinal Absorption Value; ABS_d= Dermal Absorption Fraction; RBA = Relative Bioavailability; Kp = Dermal Permeability Coefficient

[1] Toxicity values used in the USEPA RSL calculator were obtained according to USEPA's Superfund human health toxicity value hierarchy (2003). Chemical-specific data obtained from applicable USEPA guidance.

[2] ABS_{GI} or GIABS is the fraction of contaminant absorbed in the gastrointestinal tract (dimensionless) and is used to derive absorbed dose toxicity values (i.e., dermal) from oral toxicity values. Values obtained from RAGS Part E USEPA (2004).

[3] ABS_d is the fraction of the contaminant absorbed dermally (dimensionless) from soil contact. Values were obtained from RAGS Part E USEPA (USEPA 2004).

[4] RBA is assumed to be 1, unless chemical specific data is available (USEPA 1989). Arsenic's RBA value obtained from USEPA 2012.

[5] Kp is used to calculate dermal absorbed dose per event for inorganic compounds for water contact.

[6] IRIS provides an oral "water" RfD and an oral "food" RfD for cadmium. RBSLs will be based on the RfD applicable to the media.

[7] The RfD for manganese (non-diet) is based on the manganese RfD for all sources (including diet) and is adjusted by a modifying factor of three (3) (USEPA 2023a,c)

[8] For sediments/soils and surface water, the risk-based screening levels assume mercury is inorganic form. The toxicity values for mercury are based on mercuric chloride.

[9] Consistent with USEPA's RSLs User's Guide and RSL calculator, the RfC for elemental mercury is used as a surrogate RfC for mercuric chloride (USEPA 2023c).

ATSDR 2023. Minimum Risk Levels. https://www.atsdr.cdc.gov/mrls/index.html
CalEPA 2023. Office of Environmental Health Hazard Assessment Toxicity Criteria Database. https://oehha.ca.gov/chemicals
USEPA 1989. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part A). Interim Final EPA/540/1-89/002. Washington D.C.
USEPA 1997. Health Effects Assessment Summary Tables (HEAST). U.S. Environmental Protection Agency, Washington, D.C.
USEPA 2003. Human Health Toxicity Values in Superfund Risk Assessments. OSWER Directive 9285.7-53. Washington D.C. https://semspub.epa.gov/work/HQ/136.pdf
USEPA 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. OSWER 9285.7-02EP. Washington D.C.
USEPA 2012. Compilation and Review of Data on Relative Bioavailability of Arsenic in Soil. OSWER 92001.1-113. Washington D.C. https://semspub.epa.gov/work/HQ/175339.pdf
USEPA 2023a. Integrated Risk Information System (IRIS). U.S. Environmental Protection Agency. http://www.epa.gov/IRIS/
USEPA 2023b. Provisional Peer-Reviewed Toxicity Value (PPRTVs). U.S. Environmental Protection Agency. https://www.epa.gov/pprtv
USEPA 2023c. Regional Screening Levels (RSLs) User's Guide (November 2023). https://www.epa.gov/risk/regional-screening-levels-rsls

Site-specific
Outdoor Worker Soil Inputs

OW_AsRBSL_soil

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:13:47:50

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.6	-

S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref	Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09

Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	-	1.89E+00	8.94E+00	4.31E+04	1.56E+00	1.30E+01	6.13E+01	9.92E+03	1.07E+01	1.56E+00 ca**

Site-specific
Resident Tap Water Inputs

OW_AsRBSL_SW

Variable	Resident Tap Water Default Value	Site-Specific Value
BW_{0-2} (mutagenic body weight) kg	15	0
BW_{2-6} (mutagenic body weight) kg	15	0
BW_{6-16} (mutagenic body weight) kg	80	80
BW_{16-26} (mutagenic body weight) kg	80	80
BW_{res-a} (body weight - adult) kg	80	80
BW_{res-c} (body weight - child) kg	15	0
$DFW_{res-adj}$ (age-adjusted dermal factor) cm ^{2}-event/kg	2610650	247992.188
$DFWM_{res-adj}$ (mutagenic age-adjusted dermal factor) cm ^{2}-event/kg	8191633	247992.188
ED_{res} (exposure duration - resident) years	26	25
ED_{0-2} (mutagenic exposure duration first phase) years	2	0
ED_{2-6} (mutagenic exposure duration second phase) years	4	0
ED_{6-16} (mutagenic exposure duration third phase) years	10	0
ED_{16-26} (mutagenic exposure duration fourth phase) years	10	25
ED_{res-a} (exposure duration - adult) years	20	25
ED_{res-c} (exposure duration - child) years	6	0
EF_{res} (exposure frequency) days/year	350	225
EF_{0-2} (mutagenic exposure frequency first phase) days/year	350	0
EF_{2-6} (mutagenic exposure frequency second phase) days/year	350	0
EF_{6-16} (mutagenic exposure frequency third phase) days/year	350	0
EF_{16-26} (mutagenic exposure frequency fourth phase) days/year	350	225
EF_{res-a} (exposure frequency - adult) days/year	350	225
EF_{res-c} (exposure frequency - child) days/year	350	0
ET_{res} (exposure time) hours/day	24	1
$ET_{event-res-adj}$ (age-adjusted exposure time) hours/event	0.67077	1
$ET_{event-res-madj}$ (mutagenic age-adjusted exposure time) hours/event	0.67077	1
ET_{0-2} (mutagenic dermal exposure time first phase) hours/event	0.54	0
ET_{2-6} (mutagenic dermal exposure time second phase) hours/event	0.54	0
ET_{6-16} (mutagenic dermal exposure time third phase) hours/event	0.71	0

Output generated 21APR2025:16:16:35

Site-specific
Resident Tap Water Inputs

Variable	Resident Tap Water Default Value	Site-Specific Value
ET_{16-26} (mutagenic dermal exposure time fourth phase) hours/event	0.71	1
ET_{res-a} (dermal exposure time - adult) hours/event	0.71	1
ET_{res-c} (dermal exposure time - child) hours/event	0.54	0
ET_{0-2} (mutagenic inhalation exposure time first phase) hours/day	24	0
ET_{2-6} (mutagenic inhalation exposure time second phase) hours/day	24	0
ET_{6-16} (mutagenic inhalation exposure time third phase) hours/day	24	0
ET_{16-26} (mutagenic inhalation exposure time fourth phase) hours/day	24	1
ET_{res-a} (inhalation exposure time - adult) hours/day	24	1
ET_{res-c} (inhalation exposure time - child) hours/day	24	0
EV_{0-2} (mutagenic events) per day	1	0
EV_{2-6} (mutagenic events) per day	1	0
EV_{6-16} (mutagenic events) per day	1	0
EV_{16-26} (mutagenic events) per day	1	1
EV_{res-a} (events - adult) per day	1	1
EV_{res-c} (events - child) per day	1	0
THQ (target hazard quotient) unitless	0.1	0.1
$IFW_{res-adj}$ (adjusted intake factor) L/kg	327.95	6.469
$IFWM_{res-adj}$ (mutagenic adjusted intake factor) L/kg	1019.9	6.469
IRW_{0-2} (mutagenic water intake rate) L/day	0.78	0
IRW_{2-6} (mutagenic water intake rate) L/day	0.78	0
IRW_{6-16} (mutagenic water intake rate) L/day	2.5	0
IRW_{16-26} (mutagenic water intake rate) L/day	2.5	.092
IRW_{res-a} (water intake rate - adult) L/day	2.5	0.092
IRW_{res-c} (water intake rate - child) L/day	0.78	0
K (volatilization factor of Andelman) L/m^3	0.5	0.5
LT (lifetime) years	70	70
SA_{0-2} (mutagenic skin surface area) cm^2	6365	0
SA_{2-6} (mutagenic skin surface area) cm^2	6365	0

Output generated 21APR2025:16:16:35

Site-specific
Resident Tap Water Inputs

Variable	Resident Tap Water Default Value	Site-Specific Value
$SA_{6\text{-}16}$ (mutagenic skin surface area) cm^2	19652	3527
$SA_{16\text{-}26}$ (mutagenic skin surface area) cm^2	19652	3527
$SA_{res\text{-}a}$ (skin surface area - adult) cm^2	19652	3527
$SA_{res\text{-}c}$ (skin surface area - child) cm^2	6365	0
l_{sc} (apparent thickness of stratum corneum) cm	0.001	0.001
TR (target risk) unitless	1.0E-06	1.0E-05

Site-specific

Resident Risk-Based Regional Screening Levels (RSL) for Tap Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	K_p (cm/hr)	MW
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	1.00E-03	74.922

B (unitless)	t^* (hr)	τ_{event} (hr/event)	FA (unitless)	In EPD?	$DA_{event\ (ca)}$	DA_{event} (nc child)	DA_{event} (nc adult)	MCL (ug/L)	Ingestion SL TR=1E-05 (ug/L)	Dermal SL TR=1E-05 (ug/L)	Inhalation SL TR=1E-05 (ug/L)	Carcinogenic SL TR=1E-05 (ug/L)	Ingestion SL Child THQ=0.1 (ug/L)
3.33E-03	6.63E-01	2.76E-01	1	Yes	3.22E-05	-	2.21E-04	1.00E+01	1.23E+00	3.22E+01	-	1.19E+00	-

Dermal SL Child THQ=0.1 (ug/L)	Inhalation SL Child THQ=0.1 (ug/L)	Noncarcinogenic SL Child THI=0.1 (ug/L)	Ingestion SL Adult THQ=0.1 (ug/L)	Dermal SL Adult THQ=0.1 (ug/L)	Inhalation SL Adult THQ=0.1 (ug/L)	Noncarcinogenic SL Adult THI=0.1 (ug/L)	Screening Level (ug/L)
-	-	-	8.46E+00	2.21E+02	-	8.15E+00	1.19E+00 ca

Site-specific
Recreator Soil Inputs

Priv_AsRBSL_soil

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 21APR2025:15:53:11

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	14179.2
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	58732.8
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	48
EF_{0-2} (exposure frequency) days/year	.	48
EF_{2-6} (exposure frequency) days/year	.	48
EF_{6-16} (exposure frequency) days/year	.	48
EF_{16-26} (exposure frequency) days/year	.	48
EF_{rec-a} (exposure frequency - adult) days/year	.	48
EF_{rec-c} (exposure frequency - child) days/year	.	48
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	6960
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	33120
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.6	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	1.91E+00	1.88E+01	1.94E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.74E+00	3.80E+00	4.81E+01	4.65E+04	3.52E+00	6.08E+01	2.88E+02	4.65E+04	5.02E+01	1.74E+00 ca

Site-specific
Recreator Surface Water Inputs

Priv_AsRBSL_SW

Variable	Recreator Surface Water Default Value	Site-Specific Value
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-c} (body weight - adult) kg	15	15
BW_{rec-a} (body weight - adult) kg	80	80
$DFW_{rec-adj}$ (age-adjusted dermal factor) cm ^{2}-event/kg	.	358032
$DFWM_{rec-adj}$ (mutagenic age-adjusted dermal factor) cm ^{2}-event/kg	.	1123424
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) years	2	2
ED_{2-6} (exposure duration) years	4	4
ED_{6-16} (exposure duration) years	10	10
ED_{16-26} (exposure duration) years	10	10
ED_{rec-a} (exposure duration - adult) years	20	20
EF_{rec} (exposure frequency) days/year	.	48
EF_{2-6} (exposure frequency) days/year	.	48
EF_{6-16} (exposure frequency) days/year	.	48
EF_{16-26} (exposure frequency) days/year	.	48
EF_{rec-a} (adult exposure frequency) days/year	.	48
ET_{0-2} (exposure time) hours/event	.	1
ET_{2-6} (exposure time) hours/event	.	1
ET_{6-16} (exposure time) hours/event	.	1
ET_{16-26} (exposure time) hours/event	.	1
ET_{rec-a} (adult exposure time) hours/event	.	1
EV_{0-2} (events) events/day	.	1
EV_{2-6} (events) events/day	.	1
EV_{6-16} (events) events/day	.	1
EV_{16-26} (events) events/day	.	1

Output generated 21APR2025:16:08:45

Site-specific
Recreator Surface Water Inputs

Variable	Recreator Surface Water Default Value	Site-Specific Value
EV_{rec-a} (adult) events/day	.	1
THQ (target hazard quotient) unitless	0.1	0.1
$IFW_{rec-adj}$ (age-adjusted water intake rate) L/kg	.	3.624
$IFWM_{rec-adj}$ (mutagenic age-adjusted water intake rate) L/kg	.	15.111
IRW_{0-2} (water intake rate) L/hour	0.12	0.12
IRW_{2-6} (water intake rate) L/hour	0.12	0.12
IRW_{6-16} (water intake rate) L/hour	0.124	0.124
IRW_{16-26} (water intake rate) L/hour	0.0985	0.0985
IRW_{rec-a} (water intake rate - adult) L/hr	0.11	0.11
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2	6365	6365
SA_{2-6} (skin surface area) cm^2	6365	6365
SA_{6-16} (skin surface area) cm^2	19652	19652
SA_{16-26} (skin surface area) cm^2	19652	19652
SA_{rec} (skin surface area - adult) cm^2	19652	19652
SA_{rec-a} (skin surface area - adult) cm^2	19652	19652
Apparent thickness of stratum corneum (cm)	0.001	0.001
TR (target risk) unitless	1.0E-06	1.0E-05

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Surface Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	RAGSe GIABS (unitless)	K_p (cm/hr)	MW	FA (unitless)	In EPD?
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	Inorganics	3.20E+01	U	6.00E-05	U	1.50E-05	U	1	0.001	74.922	1	Yes

$DA_{event\ (ca)}$	$DA_{event\ (nc\ child)}$	$DA_{event\ (nc\ adult)}$	Ingestion SL TR=1E-05 (ug/L)	Dermal SL TR=1E-05 (ug/L)	Carcinogenic SL TR=1E-05 (ug/L)	Ingestion SL (Child) THQ=0.1 (ug/L)	Dermal SL (Child) THQ=0.1 (ug/L)	Noncarcinogenic SL (Child) THQ=0.1 (ug/L)	Ingestion SL (Adult) THQ=0.1 (ug/L)	Dermal SL (Adult) THQ=0.1 (ug/L)	Noncarcinogenic SL (Adult) THQ=0.1 (ug/L)	Screening Level (ug/L)
0.0000223	0.0001075	0.0001857	2.20E+00	2.23E+01	2.01E+00	5.70E+00	1.08E+02	5.42E+00	3.32E+01	1.86E+02	2.82E+01	2.01E+00 ca

Output generated 21APR2025:16:08:45

Site-specific
Recreator Soil Inputs

Pub_AsRBSL_soil

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 18APR2025:13:59:59

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.6	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.87E+00	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
2.60E+00	5.70E+00	7.21E+01	6.98E+04	5.28E+00	9.13E+01	4.32E+02	6.98E+04	7.53E+01	2.60E+00 ca

Site-specific
Recreator Surface Water Inputs

Pub_AsRBSL_SW

Variable	Recreator Surface Water Default Value	Site-Specific Value
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-c} (body weight - adult) kg	15	15
BW_{rec-a} (body weight - adult) kg	80	80
$DFW_{rec-adj}$ (age-adjusted dermal factor) cm^2-event/kg	.	238688
$DFWM_{rec-adj}$ (mutagenic age-adjusted dermal factor) cm^2-event/kg	.	748949.333
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) years	2	2
ED_{2-6} (exposure duration) years	4	4
ED_{6-16} (exposure duration) years	10	10
ED_{16-26} (exposure duration) years	10	10
ED_{rec-a} (exposure duration - adult) years	20	20
EF_{rec} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (adult exposure frequency) days/year	.	32
ET_{0-2} (exposure time) hours/event	.	1
ET_{2-6} (exposure time) hours/event	.	1
ET_{6-16} (exposure time) hours/event	.	1
ET_{16-26} (exposure time) hours/event	.	1
ET_{rec-a} (adult exposure time) hours/event	.	1
EV_{0-2} (events) events/day	.	1
EV_{2-6} (events) events/day	.	1
EV_{6-16} (events) events/day	.	1
EV_{16-26} (events) events/day	.	1

Output generated 18APR2025:14:38:30

Site-specific
Recreator Surface Water Inputs

Variable	Recreator Surface Water Default Value	Site-Specific Value
EV_{rec-a} (adult) events/day	.	1
THQ (target hazard quotient) unitless	0.1	0.1
$IFW_{rec-adj}$ (age-adjusted water intake rate) L/kg	.	2.416
$IFWM_{rec-adj}$ (mutagenic age-adjusted water intake rate) L/kg	.	9.952
IRW_{0-2} (water intake rate) L/hour	0.12	0.12
IRW_{2-6} (water intake rate) L/hour	0.12	0.12
IRW_{6-16} (water intake rate) L/hour	0.124	0.11
IRW_{16-26} (water intake rate) L/hour	0.0985	0.11
IRW_{rec-a} (water intake rate - adult) L/hr	0.11	0.11
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2	6365	6365
SA_{2-6} (skin surface area) cm^2	6365	6365
SA_{6-16} (skin surface area) cm^2	19652	19652
SA_{16-26} (skin surface area) cm^2	19652	19652
SA_{rec} (skin surface area - adult) cm^2	19652	19652
SA_{rec-a} (skin surface area - adult) cm^2	19652	19652
Apparent thickness of stratum corneum (cm)	0.001	0.001
TR (target risk) unitless	1.0E-06	1.0E-05

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Surface Water

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	RAGSe GIABS (unitless)	K_p (cm/hr)	MW	FA (unitless)	In EPD?
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	Inorganics	3.20E+01	U	6.00E-05	U	1.50E-05	U	1	0.001	74.922	1	Yes

$DA_{event\ (ca)}$	$DA_{event\ (nc\ child)}$	$DA_{event\ (nc\ adult)}$	Ingestion SL TR=1E-05 (ug/L)	Dermal SL TR=1E-05 (ug/L)	Carcinogenic SL TR=1E-05 (ug/L)	Ingestion SL (Child) THQ=0.1 (ug/L)	Dermal SL (Child) THQ=0.1 (ug/L)	Noncarcinogenic SL (Child) THQ=0.1 (ug/L)	Ingestion SL (Adult) THQ=0.1 (ug/L)	Dermal SL (Adult) THQ=0.1 (ug/L)	Noncarcinogenic SL (Adult) THQ=0.1 (ug/L)	Screening Level (ug/L)
0.0000335	0.0001613	0.0002786	3.30E+00	3.35E+01	3.01E+00	8.55E+00	1.61E+02	8.12E+00	4.98E+01	2.79E+02	4.22E+01	3.01E+00 ca

Output generated 18APR2025:14:38:30

Site-specific
Outdoor Worker Soil Inputs

S001_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:10:40

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.0556	-

S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref	Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.04E+01	8.94E+00	4.31E+04	6.22E+00	1.40E+02	6.13E+01	9.92E+03	4.25E+01	6.22E+00 ca**

Site-specific
Recreator Soil Inputs

S001_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:17:12:47

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.0556	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	3.09E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.47E+01	6.15E+01	7.21E+01	6.98E+04	3.32E+01	9.85E+02	4.32E+02	6.98E+04	2.99E+02	1.47E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S001_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:21:56

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.07851	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.45E+01	8.94E+00	4.31E+04	5.53E+00	9.92E+01	6.13E+01	9.92E+03	3.78E+01	5.53E+00 ca**

Site-specific
Recreator Soil Inputs

S001_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:17:36:25

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.07851	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.19E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.23E+01	4.36E+01	7.21E+01	6.98E+04	2.72E+01	6.97E+02	4.32E+02	6.98E+04	2.66E+02	1.23E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S001_DU03_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:25:14

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.12512	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	9.08E+00	8.94E+00	4.31E+04	4.50E+00	6.22E+01	6.13E+01	9.92E+03	3.08E+01	4.50E+00 ca**

Site-specific
Recreator Soil Inputs

S001_DU03_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:17:40:32

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.12512	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	1.38E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
9.24E+00	2.73E+01	7.21E+01	6.98E+04	1.98E+01	4.38E+02	4.32E+02	6.98E+04	2.17E+02	9.24E+00 ca

Output generated 17APR2025:17:40:32

Site-specific
Outdoor Worker Soil Inputs

S003_DU03_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:29:40

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.0714	-

S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref	Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.59E+01	8.94E+00	4.31E+04	5.72E+00	1.09E+02	6.13E+01	9.92E+03	3.91E+01	5.72E+00 ca**

Site-specific Recreator Soil Inputs

S003_DU03_PUB_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:17:45:36

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.0714	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.41E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.30E+01	4.79E+01	7.21E+01	6.98E+04	2.88E+01	7.67E+02	4.32E+02	6.98E+04	2.75E+02	1.30E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S007_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:35:03

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.0714	-

S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref	Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.59E+01	8.94E+00	4.31E+04	5.72E+00	1.09E+02	6.13E+01	9.92E+03	3.91E+01	5.72E+00 ca**

Site-specific
Recreator Soil Inputs

S007_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:03:27

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.0714	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.41E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.30E+01	4.79E+01	7.21E+01	6.98E+04	2.88E+01	7.67E+02	4.32E+02	6.98E+04	2.75E+02	1.30E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S007_DU03_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:38:36

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.06982	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.63E+01	8.94E+00	4.31E+04	5.77E+00	1.12E+02	6.13E+01	9.92E+03	3.94E+01	5.77E+00 ca**

Site-specific
Recreator Soil Inputs

S007_DU03_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:06:51

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.06982	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.46E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.31E+01	4.90E+01	7.21E+01	6.98E+04	2.92E+01	7.84E+02	4.32E+02	6.98E+04	2.78E+02	1.31E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S008_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:43:33

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.04217	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.69E+01	8.94E+00	4.31E+04	6.71E+00	1.85E+02	6.13E+01	9.92E+03	4.58E+01	6.71E+00 ca**

Site-specific Recreator Soil Inputs

S008_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:09:37

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.04217	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	4.08E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.67E+01	8.11E+01	7.21E+01	6.98E+04	3.82E+01	1.30E+03	4.32E+02	6.98E+04	3.23E+02	1.67E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S008_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:11:48:11

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.02321	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	4.89E+01	8.94E+00	4.31E+04	7.56E+00	3.35E+02	6.13E+01	9.92E+03	5.16E+01	7.56E+00 ca**

Output generated 18APR2025:11:48:11

Site-specific
Recreator Soil Inputs

S008_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:13:48

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.02321	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	7.41E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
2.04E+01	1.47E+02	7.21E+01	6.98E+04	4.84E+01	2.36E+03	4.32E+02	6.98E+04	3.63E+02	2.04E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S009_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:12:27

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.07851	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.45E+01	8.94E+00	4.31E+04	5.53E+00	9.92E+01	6.13E+01	9.92E+03	3.78E+01	5.53E+00 ca**

Site-specific Recreator Soil Inputs

S009_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:16:58

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.07851	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.19E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.23E+01	4.36E+01	7.21E+01	6.98E+04	2.72E+01	6.97E+02	4.32E+02	6.98E+04	2.66E+02	1.23E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S009_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:24:23

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.05244	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.17E+01	8.94E+00	4.31E+04	6.33E+00	1.48E+02	6.13E+01	9.92E+03	4.32E+01	6.33E+00 ca**

Site-specific Recreator Soil Inputs

S009_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:20:08

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.05244	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	3.28E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.52E+01	6.53E+01	7.21E+01	6.98E+04	3.42E+01	1.04E+03	4.32E+02	6.98E+04	3.04E+02	1.52E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S009_DU03_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:30:08

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.07614	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.49E+01	8.94E+00	4.31E+04	5.59E+00	1.02E+02	6.13E+01	9.92E+03	3.82E+01	5.59E+00 ca**

Site-specific
Recreator Soil Inputs

S009_DU03_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:26:07

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.07614	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.26E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.25E+01	4.49E+01	7.21E+01	6.98E+04	2.77E+01	7.19E+02	4.32E+02	6.98E+04	2.69E+02	1.25E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S010_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:34:51

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.0714	-

S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref	Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.59E+01	8.94E+00	4.31E+04	5.72E+00	1.09E+02	6.13E+01	9.92E+03	3.91E+01	5.72E+00 ca**

Site-specific Recreator Soil Inputs

S010_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:29:07

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.0714	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.41E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.30E+01	4.79E+01	7.21E+01	6.98E+04	2.88E+01	7.67E+02	4.32E+02	6.98E+04	2.75E+02	1.30E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S010_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:37:45

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.05639	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.01E+01	8.94E+00	4.31E+04	6.19E+00	1.38E+02	6.13E+01	9.92E+03	4.23E+01	6.19E+00 ca**

Output generated 18APR2025:12:37:45

Site-specific
Recreator Soil Inputs

S010_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:32:44

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.05639	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	3.05E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.46E+01	6.07E+01	7.21E+01	6.98E+04	3.29E+01	9.71E+02	4.32E+02	6.98E+04	2.98E+02	1.46E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S020_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:41:10

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.01136	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.00E+02	8.94E+00	4.31E+04	8.21E+00	6.85E+02	6.13E+01	9.92E+03	5.60E+01	8.21E+00 ca**

Site-specific Recreator Soil Inputs

S020_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:36:09

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.01136	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	1.51E+02	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
2.37E+01	3.01E+02	7.21E+01	6.98E+04	5.81E+01	4.82E+03	4.32E+02	6.98E+04	3.94E+02	2.37E+01 ca

Site-specific
Outdoor Worker Soil Inputs

CONF05_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:46:49

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.09668	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	1.17E+01	8.94E+00	4.31E+04	5.08E+00	8.05E+01	6.13E+01	9.92E+03	3.47E+01	5.08E+00 ca**

Site-specific Resident Soil Inputs

CONF05_DU01_priv_AsRBSL

Variable	Resident Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{2-6} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{6-16} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{16-26} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{res-a} (skin adherence factor - adult) mg/cm ^{2}	0.07	0.07

Output generated 18APR2025:10:26:54

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
AF_{res-c} (skin adherence factor - child) mg/cm ^{2}	0.2	0.2
AT_{res} (averaging time - resident carcinogenic)	365	365
BW_{0-2} (mutagenic body weight) kg	15	15
BW_{2-6} (mutagenic body weight) kg	15	15
BW_{6-16} (mutagenic body weight) kg	80	80
BW_{16-26} (mutagenic body weight) kg	80	80
BW_{res-a} (body weight - adult) kg	80	80
BW_{res-c} (body weight - child) kg	15	15
$DFS_{res-adj}$ (age-adjusted soil dermal factor) mg/kg	103390	14179.2
$DFSM_{res-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	428260	58732.8
ED_{res} (exposure duration) years	26	26
ED_{0-2} (mutagenic exposure duration) years	2	2
ED_{2-6} (mutagenic exposure duration) years	4	4
ED_{6-16} (mutagenic exposure duration) years	10	10
ED_{16-26} (mutagenic exposure duration) years	10	10
ED_{res-a} (exposure duration - adult) years	20	20
ED_{res-c} (exposure duration - child) years	6	6
EF_{res} (exposure frequency) days/year	350	48
EF_{0-2} (mutagenic exposure frequency) days/year	350	48
EF_{2-6} (mutagenic exposure frequency) days/year	350	48
EF_{6-16} (mutagenic exposure frequency) days/year	350	48
EF_{16-26} (mutagenic exposure frequency) days/year	350	48
EF_{res-a} (exposure frequency - adult) days/year	350	48
EF_{res-c} (exposure frequency - child) days/year	350	48
ET_{res} (exposure time) hours/day	24	8
ET_{0-2} (mutagenic exposure time) hours/day	24	8
ET_{2-6} (mutagenic exposure time) hours/day	24	8
ET_{6-16} (mutagenic exposure time) hours/day	24	8
ET_{16-26} (mutagenic exposure time) hours/day	24	8

Output generated 18APR2025:10:26:54

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
ET_{res-a} (adult exposure time) hours/day	24	8
ET_{res-c} (child exposure time) hours/day	24	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{res-adj}$ (age-adjusted soil ingestion factor) mg/kg	36750	6960
$IFSM_{res-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.3	33120
IRS_{0-2} (mutagenic soil intake rate) mg/day	200	300
IRS_{2-6} (mutagenic soil intake rate) mg/day	200	300
IRS_{6-16} (mutagenic soil intake rate) mg/day	100	100
IRS_{16-26} (mutagenic soil intake rate) mg/day	100	100
IRS_{res-a} (soil intake rate - adult) mg/day	100	100
IRS_{res-c} (soil intake rate - child) mg/day	200	300
LT (lifetime) years	70	70
SA_{0-2} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{2-6} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{6-16} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{16-26} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{res-a} (skin surface area - adult) cm^2/day	6032	6032
SA_{res-c} (skin surface area - child) cm^2/day	2373	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Resident Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.09668	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	1.19E+01	1.88E+01	1.94E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
7.27E+00	2.36E+01	4.81E+01	4.65E+04	1.58E+01	3.78E+02	2.88E+02	4.65E+04	1.63E+02	7.27E+00 ca

Site-specific
Outdoor Worker Soil Inputs

CONF06_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:50:44

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.05244	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.17E+01	8.94E+00	4.31E+04	6.33E+00	1.48E+02	6.13E+01	9.92E+03	4.32E+01	6.33E+00 ca**

Site-specific
Resident Soil Inputs

CONF06_DU01_priv_AsRBSL

Variable	Resident Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{2-6} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{6-16} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{16-26} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{res-a} (skin adherence factor - adult) mg/cm ^{2}	0.07	0.07

Output generated 18APR2025:10:31:54

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
AF_{res-c} (skin adherence factor - child) mg/cm ^{2}	0.2	0.2
AT_{res} (averaging time - resident carcinogenic)	365	365
BW_{0-2} (mutagenic body weight) kg	15	15
BW_{2-6} (mutagenic body weight) kg	15	15
BW_{6-16} (mutagenic body weight) kg	80	80
BW_{16-26} (mutagenic body weight) kg	80	80
BW_{res-a} (body weight - adult) kg	80	80
BW_{res-c} (body weight - child) kg	15	15
$DFS_{res-adj}$ (age-adjusted soil dermal factor) mg/kg	103390	14179.2
$DFSM_{res-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	428260	58732.8
ED_{res} (exposure duration) years	26	26
ED_{0-2} (mutagenic exposure duration) years	2	2
ED_{2-6} (mutagenic exposure duration) years	4	4
ED_{6-16} (mutagenic exposure duration) years	10	10
ED_{16-26} (mutagenic exposure duration) years	10	10
ED_{res-a} (exposure duration - adult) years	20	20
ED_{res-c} (exposure duration - child) years	6	6
EF_{res} (exposure frequency) days/year	350	48
EF_{0-2} (mutagenic exposure frequency) days/year	350	48
EF_{2-6} (mutagenic exposure frequency) days/year	350	48
EF_{6-16} (mutagenic exposure frequency) days/year	350	48
EF_{16-26} (mutagenic exposure frequency) days/year	350	48
EF_{res-a} (exposure frequency - adult) days/year	350	48
EF_{res-c} (exposure frequency - child) days/year	350	48
ET_{res} (exposure time) hours/day	24	8
ET_{0-2} (mutagenic exposure time) hours/day	24	8
ET_{2-6} (mutagenic exposure time) hours/day	24	8
ET_{6-16} (mutagenic exposure time) hours/day	24	8
ET_{16-26} (mutagenic exposure time) hours/day	24	8

Output generated 18APR2025:10:31:54

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
ET_{res-a} (adult exposure time) hours/day	24	8
ET_{res-c} (child exposure time) hours/day	24	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{res-adj}$ (age-adjusted soil ingestion factor) mg/kg	36750	6960
$IFSM_{res-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.3	33120
IRS_{0-2} (mutagenic soil intake rate) mg/day	200	300
IRS_{2-6} (mutagenic soil intake rate) mg/day	200	300
IRS_{6-16} (mutagenic soil intake rate) mg/day	100	100
IRS_{16-26} (mutagenic soil intake rate) mg/day	100	100
IRS_{res-a} (soil intake rate - adult) mg/day	100	100
IRS_{res-c} (soil intake rate - child) mg/day	200	300
LT (lifetime) years	70	70
SA_{0-2} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{2-6} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{6-16} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{16-26} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{res-a} (skin surface area - adult) cm^2/day	6032	6032
SA_{res-c} (skin surface area - child) cm^2/day	2373	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Resident Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.05244	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	2.19E+01	1.88E+01	1.94E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.01E+01	4.35E+01	4.81E+01	4.65E+04	2.28E+01	6.96E+02	2.88E+02	4.65E+04	2.03E+02	1.01E+01 ca

Site-specific
Outdoor Worker Soil Inputs

S038_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:55:06

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.05007	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	2.27E+01	8.94E+00	4.31E+04	6.41E+00	1.56E+02	6.13E+01	9.92E+03	4.38E+01	6.41E+00 ca**

Site-specific Recreator Soil Inputs

S038_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:39:04

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.05007	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	3.44E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.55E+01	6.83E+01	7.21E+01	6.98E+04	3.51E+01	1.09E+03	4.32E+02	6.98E+04	3.08E+02	1.55E+01 ca

Site-specific
Outdoor Worker Soil Inputs

CONF07_DU06_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:12:59:22

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.21597	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	5.26E+00	8.94E+00	4.31E+04	3.31E+00	3.61E+01	6.13E+01	9.92E+03	2.27E+01	3.31E+00 ca**

Site-specific Resident Soil Inputs

CONF07_DU06_priv_AsRBSL

Variable	Resident Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{2-6} (mutagenic skin adherence factor) mg/cm ^{2}	0.2	0.2
AF_{6-16} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{16-26} (mutagenic skin adherence factor) mg/cm ^{2}	0.07	0.07
AF_{res-a} (skin adherence factor - adult) mg/cm ^{2}	0.07	0.07

Output generated 18APR2025:10:37:40

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
AF_{res-c} (skin adherence factor - child) mg/cm ^{2}	0.2	0.2
AT_{res} (averaging time - resident carcinogenic)	365	365
BW_{0-2} (mutagenic body weight) kg	15	15
BW_{2-6} (mutagenic body weight) kg	15	15
BW_{6-16} (mutagenic body weight) kg	80	80
BW_{16-26} (mutagenic body weight) kg	80	80
BW_{res-a} (body weight - adult) kg	80	80
BW_{res-c} (body weight - child) kg	15	15
$DFS_{res-adj}$ (age-adjusted soil dermal factor) mg/kg	103390	14179.2
$DFSM_{res-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	428260	58732.8
ED_{res} (exposure duration) years	26	26
ED_{0-2} (mutagenic exposure duration) years	2	2
ED_{2-6} (mutagenic exposure duration) years	4	4
ED_{6-16} (mutagenic exposure duration) years	10	10
ED_{16-26} (mutagenic exposure duration) years	10	10
ED_{res-a} (exposure duration - adult) years	20	20
ED_{res-c} (exposure duration - child) years	6	6
EF_{res} (exposure frequency) days/year	350	48
EF_{0-2} (mutagenic exposure frequency) days/year	350	48
EF_{2-6} (mutagenic exposure frequency) days/year	350	48
EF_{6-16} (mutagenic exposure frequency) days/year	350	48
EF_{16-26} (mutagenic exposure frequency) days/year	350	48
EF_{res-a} (exposure frequency - adult) days/year	350	48
EF_{res-c} (exposure frequency - child) days/year	350	48
ET_{res} (exposure time) hours/day	24	8
ET_{0-2} (mutagenic exposure time) hours/day	24	8
ET_{2-6} (mutagenic exposure time) hours/day	24	8
ET_{6-16} (mutagenic exposure time) hours/day	24	8
ET_{16-26} (mutagenic exposure time) hours/day	24	8

Output generated 18APR2025:10:37:40

Site-specific
Resident Soil Inputs

Variable	Resident Soil Default Value	Site-Specific Value
ET_{res-a} (adult exposure time) hours/day	24	8
ET_{res-c} (child exposure time) hours/day	24	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{res-adj}$ (age-adjusted soil ingestion factor) mg/kg	36750	6960
$IFSM_{res-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	166833.3	33120
IRS_{0-2} (mutagenic soil intake rate) mg/day	200	300
IRS_{2-6} (mutagenic soil intake rate) mg/day	200	300
IRS_{6-16} (mutagenic soil intake rate) mg/day	100	100
IRS_{16-26} (mutagenic soil intake rate) mg/day	100	100
IRS_{res-a} (soil intake rate - adult) mg/day	100	100
IRS_{res-c} (soil intake rate - child) mg/day	200	300
LT (lifetime) years	70	70
SA_{0-2} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{2-6} (mutagenic skin surface area) cm^2/day	2373	2373
SA_{6-16} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{16-26} (mutagenic skin surface area) cm^2/day	6032	6032
SA_{res-a} (skin surface area - adult) cm^2/day	6032	6032
SA_{res-c} (skin surface area - child) cm^2/day	2373	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Resident Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.21597	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	5.31E+00	1.88E+01	1.94E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
4.14E+00	1.06E+01	4.81E+01	4.65E+04	8.66E+00	1.69E+02	2.88E+02	4.65E+04	1.06E+02	4.14E+00 ca

Output generated 18APR2025:10:37:40

Site-specific
Outdoor Worker Soil Inputs

S046_DU01_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:13:04:44

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.13697	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	8.29E+00	8.94E+00	4.31E+04	4.30E+00	5.68E+01	6.13E+01	9.92E+03	2.94E+01	4.30E+00 ca**

Output generated 18APR2025:13:04:44

Site-specific
Recreator Soil Inputs

S046_DU01_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:41:59

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.13697	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	1.26E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
8.69E+00	2.50E+01	7.21E+01	6.98E+04	1.85E+01	4.00E+02	4.32E+02	6.98E+04	2.07E+02	8.69E+00 ca

Site-specific
Outdoor Worker Soil Inputs

CONF08_DU02_OW_AsRBSL

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
ρ_b (dry soil bulk density) g/cm ^{3}	1.5	1.5
ρ_b (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
ρ_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{out} (skin adherence factor - outdoor worker) mg/cm ^{2}	0.12	0.12
AT_{out} (averaging time - outdoor worker)	365	365
BW_{out} (body weight - outdoor worker)	80	80
ED_{out} (exposure duration - outdoor worker) yr	25	25

Output generated 18APR2025:13:11:06

Site-specific
Outdoor Worker Soil Inputs

Variable	Outdoor Worker Soil Default Value	Site-Specific Value
EF_{out} (exposure frequency - outdoor worker) day/yr	225	225
ET_{out} (exposure time - outdoor worker) hr	8	8
THQ (target hazard quotient) unitless	0.1	0.1
IRS_{out} (soil ingestion rate - outdoor worker) mg/day	100	100
LT (lifetime) yr	70	70
SA_{out} (surface area - outdoor worker) cm^2/day	3527	3527
TR (target cancer risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Outdoor Worker Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS	ABS	RBA	Soil Saturation Concentration (mg/kg)
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1	0.03	0.02874	-

S (mg/L)	K_{oc} \ (cm^3/g)	K_d \ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C \ (K)	T_C \ Ref	Chemical Type	D_{ia} \ (cm^2/s)	D_{iw} \ (cm^2/s)	D_A \ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)
-	-	2.90E+01	-	-		888.15	U	1670	U	INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-

Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)	Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL THQ=0.1 (mg/kg)	Dermal SL THQ=0.1 (mg/kg)	Inhalation SL THQ=0.1 (mg/kg)	Noncarcinogenic SL THI=0.1 (mg/kg)	Screening Level (mg/kg)
-	-	3.95E+01	8.94E+00	4.31E+04	7.29E+00	2.71E+02	6.13E+01	9.92E+03	4.98E+01	7.29E+00 ca**

Site-specific Recreator Soil Inputs

CONF08_DU02_pub_AsRBSL

Variable	Recreator Soil Default Value	Site-Specific Value
A (PEF Dispersion Constant)	16.2302	16.2302
A (VF Dispersion Constant)	11.911	11.911
A (VF Dispersion Constant - mass limit)	11.911	11.911
B (PEF Dispersion Constant)	18.7762	18.7762
B (VF Dispersion Constant)	18.4385	18.4385
B (VF Dispersion Constant - mass limit)	18.4385	18.4385
City (PEF Climate Zone) Selection	Default	Default
City (VF Climate Zone) Selection	Default	Default
C (PEF Dispersion Constant)	216.108	216.108
C (VF Dispersion Constant)	209.7845	209.7845
C (VF Dispersion Constant - mass limit)	209.7845	209.7845
foc (fraction organic carbon in soil) g/g	0.006	0.006
F(x) (function dependent on U_m/U_t) unitless	0.194	0.194
n (total soil porosity) L_{pore}/L_{soil}	0.43396	0.43396
p_h (dry soil bulk density) g/cm ^{3}	1.5	1.5
p_h (dry soil bulk density - mass limit) Mg/m ^{3}	1.5	1.5
PEF (particulate emission factor) m ^{3}/kg	1359344438	1359344438
p_s (soil particle density) g/cm ^{3}	2.65	2.65
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	93.77
Q/C_{vol} (g/m^2-s per kg/m^3)	68.18	68.18
Q/C_{vol} (g/m^2-s per kg/m^3 - mass limit)	68.18	68.18
A_s (PEF acres)	0.5	0.5
A_s (VF acres)	0.5	0.5
A_s (VF mass-limit acres)	0.5	0.5
AF_{0-2} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{2-6} (skin adherence factor) mg/cm ^{2}	.	0.2
AF_{6-16} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{16-26} (skin adherence factor) mg/cm ^{2}	.	0.07
AF_{rec-a} (skin adherence factor - adult) mg/cm ^{2}	.	0.07

Output generated 17APR2025:18:44:49

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
AF_{rec-c} (skin adherence factor - child) mg/cm ^{2}	.	0.2
AT_{rec} (averaging time)	365	365
BW_{0-2} (body weight) kg	15	15
BW_{2-6} (body weight) kg	15	15
BW_{6-16} (body weight) kg	80	80
BW_{16-26} (body weight) kg	80	80
BW_{rec-a} (body weight - adult) kg	80	80
BW_{rec-c} (body weight - child) kg	15	15
$DFS_{rec-adj}$ (age-adjusted soil dermal factor) mg/kg	.	9452.8
$DFSM_{rec-adj}$ (mutagenic age-adjusted soil dermal factor) mg/kg	.	39155.2
ED_{rec} (exposure duration - recreator) years	26	26
ED_{0-2} (exposure duration) year	2	2
ED_{2-6} (exposure duration) year	4	4
ED_{6-16} (exposure duration) year	10	10
ED_{16-26} (exposure duration) year	10	10
ED_{rec-c} (exposure duration - child) years	6	6
EF_{rec} (exposure frequency) days/year	.	32
EF_{0-2} (exposure frequency) days/year	.	32
EF_{2-6} (exposure frequency) days/year	.	32
EF_{6-16} (exposure frequency) days/year	.	32
EF_{16-26} (exposure frequency) days/year	.	32
EF_{rec-a} (exposure frequency - adult) days/year	.	32
EF_{rec-c} (exposure frequency - child) days/year	.	32
ET_{rec} (exposure time - recreator) hours/day	.	8
ET_{0-2} (exposure time) hours/day	.	8
ET_{2-6} (exposure time) hours/day	.	8
ET_{6-16} (exposure time) hours/day	.	8
ET_{16-26} (exposure time) hours/day	.	8
ET_{rec-a} (adult exposure time) hours/day	.	8

Site-specific
Recreator Soil Inputs

Variable	Recreator Soil Default Value	Site-Specific Value
ET_{rec-c} (child exposure time) hours/day	.	8
THQ (target hazard quotient) unitless	0.1	0.1
$IFS_{rec-adj}$ (age-adjusted soil ingestion factor) mg/kg	.	4640
$IFSM_{rec-adj}$ (mutagenic age-adjusted soil ingestion factor) mg/kg	.	22080
IRS_{0-2} (soil intake rate) mg/day	.	300
IRS_{2-6} (soil intake rate) mg/day	.	300
IRS_{6-16} (soil intake rate) mg/day	.	100
IRS_{16-26} (soil intake rate) mg/day	.	100
IRS_{rec-a} (soil intake rate - adult) mg/day	.	100
IRS_{rec-c} (soil intake rate - child) mg/day	.	300
LT (lifetime - recreator) years	70	70
SA_{0-2} (skin surface area) cm^2/day	.	2373
SA_{2-6} (skin surface area) cm^2/day	.	2373
SA_{6-16} (skin surface area) cm^2/day	.	6032
SA_{16-26} (skin surface area) cm^2/day	.	6032
SA_{rec-a} (skin surface area - adult) cm^2/day	.	6032
SA_{rec-c} (skin surface area - child) cm^2/day	.	2373
TR (target risk) unitless	1.0E-06	1.0E-05
T_w (groundwater temperature) Celsius	25	25
$Theta_a$ (air-filled soil porosity) L_{air}/L_{soil}	0.28396	0.28396
$Theta_w$ (water-filled soil porosity) L_{water}/L_{soil}	0.15	0.15
T (exposure interval) s	819936000	819936000
T (exposure interval) yr	26	26
U_m (mean annual wind speed) m/s	4.69	4.69
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.5

Site-specific

Recreator Risk-Based Regional Screening Levels (RSL) for Soil

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; T = ATSDR DRAFT; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; D = OW; R = ORD; N = WI; W = TEF applied; E = RPF applied; G = see user guide; U = user provided; ca = cancer; nc = noncancer; * = where: nc SL < 100X ca SL; ** = where nc SL < 10X ca SL; SSL values are based on DAF=1; max = ceiling limit exceeded; sat = Csat exceeded.

Chemical	CAS Number	Mutagen?	Volatile?	Chemical Type	SF_o (mg/kg-day)$^{-1}$	SF_o Ref	IUR (ug/m^3)$^{-1}$	IUR Ref	RfD (mg/kg-day)	RfD Ref	RfC (mg/m^3)	RfC Ref	GIABS
Arsenic, Inorganic	7440-38-2	No	No	Inorganics	3.20E+01	U	4.30E-03	U	6.00E-05	U	1.50E-05	U	1

ABS	RBA	Soil Saturation Concentration (mg/kg)	S (mg/L)	K_{oc}\ (cm^3/g)	K_d\ (cm^3/g)	HLC (atm-m^3/mole)	Henry's Law Constant Used in Calcs (unitless)	H` and HLC Ref	Normal Boiling Point BP (K)	BP Ref	Critical Temperature T_C\ (K)	T_C\ Ref
0.03	0.02874	-	-	-	2.90E+01	-	-		888.15	U	1670	U

Chemical Type	D_{ia}\ (cm^2/s)	D_{iw}\ (cm^2/s)	D_A\ (cm^2/s)	Particulate Emission Factor (m^3/kg)	Volatilization Factor Unlimited Reservoir (m^3/kg)	Volatilization Factor Mass Limit (m^3/kg)	Volatilization Factor Selected (m^3/kg)	Ingestion SL TR=1E-05 (mg/kg)	Dermal SL TR=1E-05 (mg/kg)	Inhalation SL TR=1E-05 (mg/kg)
INORGANIC	1.79E-01	2.96E-05	-	1.36E+09	-	-	-	5.99E+01	2.82E+01	2.91E+05

Carcinogenic SL TR=1E-05 (mg/kg)	Ingestion SL Child THQ=0.1 (mg/kg)	Dermal SL Child THQ=0.1 (mg/kg)	Inhalation SL Child THQ=0.1 (mg/kg)	Noncarcinogenic SL Child THI=0.1 (mg/kg)	Ingestion SL Adult THQ=0.1 (mg/kg)	Dermal SL Adult THQ=0.1 (mg/kg)	Inhalation SL Adult THQ=0.1 (mg/kg)	Noncarcinogenic SL Adult THI=0.1 (mg/kg)	Screening Level (mg/kg)
1.91E+01	1.19E+02	7.21E+01	6.98E+04	4.49E+01	1.91E+03	4.32E+02	6.98E+04	3.51E+02	1.91E+01 ca

Output generated 17APR2025:18:44:49

Appendix E
ITRC Calculator Inputs and Outputs
Summary Results of Levene's Test
Summary of Pooled Standard Deviations
and
Pooled Variances and Standard Deviations

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	0.0330	0.0330	0.0400				3	1.00	0.0	0.00	0.02	0.63	1.14	0.03	0.71	0.00	0.0	0.0	Low	0.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.00	0.02	0.63	NA	0.03	0.71	0.00	0.0	0.0	Low	0.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	860	870	973				3	1.00	901.0	62.55	342.62	0.38	1.13	386.30	0.43	36.12	1006.5	1058.4	Low	1006.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	901.0	62.55	342.62	0.38	NA	386.30	0.43	36.12	1006.5	1058.4	Low	1006.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **1006.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	134	150	178				3	1.00	154.0	22.27	121.98	0.79	1.15	139.69	0.91	12.86	191.5	210.0	Low	191.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	154.0	22.27	121.98	0.79	NA	139.69	0.91	12.86	191.5	210.0	Low	191.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **191.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	399	422	546				3	1.00	455.7	79.07	433.09	0.95	1.16	501.43	1.10	45.65	589.0	654.7	Low	589.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	455.7	79.07	433.09	0.95	NA	501.43	1.10	45.65	589.0	654.7	Low	589.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **589.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	21,200	21,200	23,000				3	1.00	21800.0	1039.23	5692.10	0.26	1.13	6411.92	0.29	600.00	23552.0	24415.3	Low	23552.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	21800.0	1039.23	5692.10	0.26	NA	6411.92	0.29	600.00	23552.0	24415.3	Low	23552.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **23552.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	15.6	14.7	163				3	1.00	64.4	85.36	467.55	7.26	4.29	2005.56	31.13	49.28	208.3	279.3	High	279.3
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	64.4	85.36	467.55	7.26	NA	2005.56	31.13	49.28	208.3	279.3	High	279.3

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **279.3** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	3.55	3.57	3.14				3	1.00	3.4	0.24	1.33	0.39	1.13	1.50	0.44	0.14	3.8	4.0	Low	3.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	3.4	0.24	1.33	0.39	NA	1.50	0.44	0.14	3.8	4.0	Low	3.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **3.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0	5.0	5.0	5.0				3	1.00	5.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	5.0	5.0	Low	5.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	5.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	5.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S001-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S001-WS-DU03	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	0.0360	0.0330	0.0330				3	1.00	0.0	0.00	0.01	0.28	1.13	0.01	0.31	0.00	0.0	0.0	Low	0.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.00	0.01	0.28	NA	0.01	0.31	0.00	0.0	0.0	Low	0.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	139	119	139				3	1.00	132.3	11.55	73.03	0.55	1.13	82.68	0.62	6.67	151.8	161.4	Low	151.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	132.3	11.55	73.03	0.55	NA	82.68	0.62	6.67	151.8	161.4	Low	151.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **151.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	8.00	8.00	8.00				3	1.00	8.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	8.0	8.0	Low	8.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	8.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	28.1	32.1	31.5				3	1.00	30.6	2.16	13.64	0.45	1.13	15.40	0.50	1.25	34.2	36.0	Low	34.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	30.6	2.16	13.64	0.45	NA	15.40	0.50	1.25	34.2	36.0	Low	34.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **34.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	481	449	456				3	1.00	462.0	16.82	106.40	0.23	1.13	119.85	0.26	9.71	490.4	504.3	Low	490.4
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	462.0	16.82	106.40	0.23	NA	119.85	0.26	9.71	490.4	504.3	Low	490.4

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **490.4** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	18,200	18,800	19,300				3	1.00	18766.7	550.76	3483.29	0.19	1.13	3924.81	0.21	317.98	19695.2	20152.7	Low	19695.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	18766.7	550.76	3483.29	0.19	NA	3924.81	0.21	317.98	19695.2	20152.7	Low	19695.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **19695.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	21.3	20.8	20.6				3	1.00	20.9	0.36	2.28	0.11	1.13	2.57	0.12	0.21	21.5	21.8	Low	21.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	20.9	0.36	2.28	0.11	NA	2.57	0.12	0.21	21.5	21.8	Low	21.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **21.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	0.800	0.800	0.800				3	1.00	0.8	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.8	0.8	Low	0.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.8	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.8	0.8	Low	0.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0	7.72	7.32	6.61				3	1.00	7.2	0.56	3.56	0.49	1.13	4.02	0.56	0.32	8.2	8.6	Low	8.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	7.2	0.56	3.56	0.49	NA	4.02	0.56	0.32	8.2	8.6	Low	8.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **8.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S003-US-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 40

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S003-US-DU01	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	0.0330	0.0330	0.0330				3	1.00	0.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.0	0.0	Low	0.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	0.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	499	540	585				3	1.00	541.3	43.02	235.61	0.44	1.13	265.90	0.49	24.84	613.9	649.6	Low	613.9
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	541.3	43.02	235.61	0.44	NA	265.90	0.49	24.84	613.9	649.6	Low	613.9

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **613.9** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	8.00	8.00	8.00				3	1.00	8.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	8.0	8.0	Low	8.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	8.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	63.6	55.1	61.9				3	1.00	60.2	4.50	24.64	0.41	1.13	27.79	0.46	2.60	67.8	71.5	Low	67.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	60.2	4.50	24.64	0.41	NA	27.79	0.46	2.60	67.8	71.5	Low	67.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **67.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	1,660	1,620	1,650				3	1.00	1643.3	20.82	114.02	0.07	1.13	128.68	0.08	12.02	1678.4	1695.7	Low	1678.4
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	1643.3	20.82	114.02	0.07	NA	128.68	0.08	12.02	1678.4	1695.7	Low	1678.4

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **1678.4** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	38,600	40,400	42,800				3	1.00	40600.0	2107.13	11541.23	0.28	1.13	13001.39	0.32	1216.55	44152.3	45902.8	Low	44152.3
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	40600.0	2107.13	11541.23	0.28	NA	13001.39	0.32	######	44152.3	45902.8	Low	44152.3

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **44152.3** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	27.6	26.1	29.9				3	1.00	27.9	1.91	10.48	0.38	1.13	11.82	0.42	1.11	31.1	32.7	Low	31.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	27.9	1.91	10.48	0.38	NA	11.82	0.42	1.11	31.1	32.7	Low	31.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **31.1** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	1.69	1.88	1.86				3	1.00	1.8	0.10	0.57	0.32	1.13	0.64	0.36	0.06	2.0	2.1	Low	2.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	1.8	0.10	0.57	0.32	NA	0.64	0.36	0.06	2.0	2.1	Low	2.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **2.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0	29.3	29.8	31.9				3	1.00	30.3	1.38	7.56	0.25	1.13	8.51	0.28	0.80	32.7	33.8	Low	32.7
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	30.3	1.38	7.56	0.25	NA	8.51	0.28	0.80	32.7	33.8	Low	32.7

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **32.7** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S008-WS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S008-WS-DU02	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	0.768	0.584	0.620				3	1.00	0.7	0.10	0.53	0.81	1.15	0.61	0.93	0.06	0.8	0.9	Low	0.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.7	0.10	0.53	0.81	NA	0.61	0.93	0.06	0.8	0.9	Low	0.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	411	592	406				3	1.00	469.7	105.97	580.44	1.24	1.19	689.97	1.47	61.18	648.3	736.4	Low	648.3
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	469.7	105.97	580.44	1.24	NA	689.97	1.47	61.18	648.3	736.4	Low	648.3

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **648.3** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	2.00	2.11	2.00				3	1.00	2.0	0.06	0.35	0.17	1.13	0.39	0.19	0.04	2.1	2.2	Low	2.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	2.0	0.06	0.35	0.17	NA	0.39	0.19	0.04	2.1	2.2	Low	2.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **2.1** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	164	232	148				3	1.00	181.3	44.60	244.29	1.35	1.20	294.04	1.62	25.75	256.5	293.6	Med	293.6
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	181.3	44.60	244.29	1.35	NA	294.04	1.62	25.75	256.5	293.6	Med	293.6

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **293.6** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	625	765	620				3	1.00	670.0	82.31	450.83	0.67	1.14	512.96	0.77	47.52	808.8	877.1	Low	808.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	670.0	82.31	450.83	0.67	NA	512.96	0.77	47.52	808.8	877.1	Low	808.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **808.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	17,600	18,700	18,500				3	1.00	18266.7	585.95	3209.36	0.18	1.13	3616.46	0.20	338.30	19254.5	19741.3	Low	19254.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	18266.7	585.95	3209.36	0.18	NA	3616.46	0.20	338.30	19254.5	19741.3	Low	19254.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **19254.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	34.4	44.3	36.8				3	1.00	38.5	5.16	28.29	0.73	1.14	32.29	0.84	2.98	47.2	51.5	Low	47.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	38.5	5.16	28.29	0.73	NA	32.29	0.84	2.98	47.2	51.5	Low	47.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **47.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	2.91	3.71	2.74				3	1.00	3.1	0.52	2.84	0.91	1.15	3.27	1.05	0.30	4.0	4.4	Low	4.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	3.1	0.52	2.84	0.91	NA	3.27	1.05	0.30	4.0	4.4	Low	4.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **4.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0	9.85	10.4	10.5				3	1.00	10.3	0.35	1.92	0.19	1.13	2.16	0.21	0.20	10.8	11.1	Low	10.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	10.3	0.35	1.92	0.19	NA	2.16	0.21	0.20	10.8	11.1	Low	10.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **10.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S009-US-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S009-US-DU01	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	420	576	350				3	1.00	448.7	115.70	633.69	1.41	1.21	768.71	1.71	66.80	643.7	739.8	Med	739.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	448.7	115.70	633.69	1.41	NA	768.71	1.71	66.80	643.7	739.8	Med	739.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **739.8** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	4.00	4.00	4.00				3	1.00	4.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	4.0	4.0	Low	4.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	4.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	4.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	34.1	56.6	26.9				3	1.00	39.2	15.49	84.86	2.16	1.36	115.58	2.95	8.94	65.3	78.2	Med	78.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	39.2	15.49	84.86	2.16	NA	115.58	2.95	8.94	65.3	78.2	Med	78.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **78.2** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	241	310	182				3	1.00	244.3	64.07	350.90	1.44	1.22	426.93	1.75	36.99	352.3	405.6	Med	405.6
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	244.3	64.07	350.90	1.44	NA	426.93	1.75	36.99	352.3	405.6	Med	405.6

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **405.6** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	0.033	0.033	0.033				3	1.00	0.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.0	0.0	Low	0.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	0.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	14000	20200	12300				3	1.00	15500.0	4158.12	22774.99	1.47	1.22	27826.65	1.80	2400.69	22510.0	25964.4	Med	25964.4
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	15500.0	4158.12	22774.99	1.47	NA	27826.65	1.80	######	22510.0	25964.4	Med	25964.4

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **25964.4** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	8.39	11.1	6.82				3	1.00	8.8	2.17	11.86	1.35	1.20	14.28	1.63	1.25	12.4	14.2	Med	14.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.8	2.17	11.86	1.35	NA	14.28	1.63	1.25	12.4	14.2	Med	14.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **14.2** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	1.6	2.44	1.12				3	1.00	1.7	0.67	3.66	2.13	1.35	4.95	2.88	0.39	2.8	3.4	Med	3.4
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	1.7	0.67	3.66	2.13	NA	4.95	2.88	0.39	2.8	3.4	Med	3.4

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **3.4** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0	5.29	7.34	4.18				3	1.00	5.6	1.60	8.78	1.57	1.24	10.87	1.94	0.93	8.3	9.6	Med	9.6
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	5.6	1.60	8.78	1.57	NA	10.87	1.94	0.93	8.3	9.6	Med	9.6

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **9.6** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S015-DS-DU01
Date of calculations:	1/4/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S015-DS-DU01	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01	1.0	53.4	49.3	44.1				3	1.00	48.9	4.66	25.53	0.52	1.13	28.88	0.59	2.69	56.8	60.7	Low	56.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	48.9	4.66	25.53	0.52	NA	28.88	0.59	2.69	56.8	60.7	Low	56.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **56.791** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	0.0330	0.0330	0.0480				3	1.00	0.0	0.01	0.05	1.25	1.19	0.06	1.49	0.01	0.1	0.1	Low	0.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.01	0.05	1.25	NA	0.06	1.49	0.01	0.1	0.1	Low	0.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.053** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	316	309	289				3	1.00	304.6	14.20	77.77	0.26	1.13	87.60	0.29	8.20	328.5	340.3	Low	328.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	304.6	14.20	77.77	0.26	NA	87.60	0.29	8.20	328.5	340.3	Low	328.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **328.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	8.00	8.00	8.00				3	1.00	8.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	8.0	8.0	Low	8.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	8.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	269	287	227				3	1.00	260.9	30.97	169.65	0.65	1.14	192.83	0.74	17.88	313.1	338.8	Low	313.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	260.9	30.97	169.65	0.65	NA	192.83	0.74	17.88	313.1	338.8	Low	313.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **313.1** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	16,300	16,500	16,267				3	1.00	16355.6	126.20	691.21	0.04	1.13	780.61	0.05	72.86	16568.3	16673.1	Low	16568.3
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	16355.6	126.20	691.21	0.04	NA	780.61	0.05	72.86	16568.3	16673.1	Low	16568.3

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **16568.3** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	8.30	9.57	6.91				3	1.00	8.3	1.33	7.29	0.88	1.15	8.39	1.02	0.77	10.5	11.6	Low	10.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.3	1.33	7.29	0.88	NA	8.39	1.02	0.77	10.5	11.6	Low	10.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **10.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	1.93	1.69	1.23				3	1.00	1.6	0.35	1.94	1.20	1.18	2.30	1.42	0.20	2.2	2.5	Low	2.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	1.6	0.35	1.94	1.20	NA	2.30	1.42	0.20	2.2	2.5	Low	2.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **2.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: **Area**

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: **30**

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01-D	1.0	5.00	6.29	5.18				3	1.00	5.5	0.70	3.82	0.70	1.14	4.35	0.79	0.40	6.7	7.2	Low	6.7
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	5.5	0.70	3.82	0.70	NA	4.35	0.79	0.40	6.7	7.2	Low	6.7

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **6.7** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	S017-DS-DU01
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	S017-DS-DU01	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE! #VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	0.0330	0.312	0.0487				3	1.00	0.1	0.16	0.86	6.54	3.68	3.16	24.06	0.09	0.4	0.5	High	0.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.1	0.16	0.86	6.54	NA	3.16	24.06	0.09	0.4	0.5	High	0.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.5** **mg/kg** >> Chebyshev 95% UCL

Note: Chebychev 95% UCL is recommended because the dispersion of the data is elevated.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	203	194	180				3	1.00	192.4	11.41	62.51	0.32	1.13	70.44	0.37	6.59	211.7	221.2	Low	211.7
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	192.4	11.41	62.51	0.32	NA	70.44	0.37	6.59	211.7	221.2	Low	211.7

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **211.7** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	8.00	8.00	8.00				3	1.00	8.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	8.0	8.0	Low	8.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	8.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	8.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	50.5	51.2	39.5				3	1.00	47.1	6.56	35.94	0.76	1.14	41.09	0.87	3.79	58.1	63.6	Low	58.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	47.1	6.56	35.94	0.76	NA	41.09	0.87	3.79	58.1	63.6	Low	58.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **58.1** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	534	565	401				3	1.00	500.1	86.94	476.17	0.95	1.16	551.38	1.10	50.19	646.7	718.9	Low	646.7
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	500.1	86.94	476.17	0.95	NA	551.38	1.10	50.19	646.7	718.9	Low	646.7

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **646.7** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	27,400	28,500	23,900				3	1.00	26600.0	2402.08	13156.75	0.49	1.13	14869.83	0.56	1386.84	30649.6	32645.1	Low	30649.6
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	26600.0	2402.08	13156.75	0.49	NA	14869.83	0.56	######	30649.6	32645.1	Low	30649.6

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **30649.6** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	17.2	19.6	14.7				3	1.00	17.2	2.43	13.33	0.78	1.14	15.25	0.89	1.40	21.3	23.3	Low	21.3
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	17.2	2.43	13.33	0.78	NA	15.25	0.89	1.40	21.3	23.3	Low	21.3

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **21.3** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	1.04	1.08	0.820				3	1.00	1.0	0.14	0.77	0.78	1.14	0.88	0.90	0.08	1.2	1.3	Low	1.2
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	1.0	0.14	0.77	0.78	NA	0.88	0.90	0.08	1.2	1.3	Low	1.2

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **1.2** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0	11.5	11.7	11.1				3	1.00	11.4	0.31	1.67	0.15	1.13	1.89	0.16	0.18	11.9	12.2	Low	11.9
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	11.4	0.31	1.67	0.15	NA	1.89	0.16	0.18	11.9	12.2	Low	11.9

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **11.9** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF02-DS-DU02
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area ()	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF02-DS-DU02	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Mercury
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	0.0410	0.0330	0.0330				3	1.00	0.0	0.00	0.03	0.71	1.14	0.03	0.81	0.00	0.0	0.0	Low	0.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.0	0.00	0.03	0.71	NA	0.03	0.81	0.00	0.0	0.0	Low	0.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Zinc
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	96.0	93.9	80.8				3	1.00	90.2	8.24	45.11	0.50	1.13	51.00	0.57	4.76	104.1	111.0	Low	104.1
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	90.2	8.24	45.11	0.50	NA	51.00	0.57	4.76	104.1	111.0	Low	104.1

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: 104.1 mg/kg >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Antimony
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	4.00	4.00	4.00				3	1.00	4.0	0.00	0.00	0.00	1.13	0.00	0.00	0.00	4.0	4.0	Low	4.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	4.0	0.00	0.00	0.00	NA	0.00	0.00	0.00	#DIV/0!	4.0	Low	#DIV/0!

df by Welch-Satterthwaite approximation: **#DIV/0!**

Recommended UCL: **#DIV/0!** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Lead
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	37.1	34.1	30.0				3	1.00	33.7	3.56	19.52	0.58	1.13	22.12	0.66	2.06	39.7	42.7	Low	39.7
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	33.7	3.56	19.52	0.58	NA	22.12	0.66	2.06	39.7	42.7	Low	39.7

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **39.7** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Manganese
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	188	206	178				3	1.00	190.7	14.19	77.72	0.41	1.13	87.66	0.46	8.19	214.6	226.4	Low	214.6
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	190.7	14.19	77.72	0.41	NA	87.66	0.46	8.19	214.6	226.4	Low	214.6

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **214.6** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Iron
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	21,200	20,500	21,000				3	1.00	20900.0	360.56	1974.84	0.09	1.13	2227.79	0.11	208.17	21507.8	21807.4	Low	21507.8
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	20900.0	360.56	1974.84	0.09	NA	2227.79	0.11	208.17	21507.8	21807.4	Low	21507.8

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **21507.8** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Copper
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	15.1	15.1	15.8				3	1.00	15.3	0.40	2.21	0.14	1.13	2.50	0.16	0.23	16.0	16.4	Low	16.0
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	15.3	0.40	2.21	0.14	NA	2.50	0.16	0.23	16.0	16.4	Low	16.0

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **16.0** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Cadmium
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	0.400	0.400	0.400				3	1.00	0.4	0.00	0.00	0.00	1.13	0.00	0.00	0.00	0.4	0.4	Low	0.4
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	0.4	0.00	0.00	0.00	NA	0.00	0.00	0.00	0.4	0.4	Low	0.4

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **0.4** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	Arsenic
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0	2.61	2.99	3.29				3	1.00	3.0	0.34	1.87	0.63	1.14	2.12	0.72	0.20	3.5	3.8	Low	3.5
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--	3	1.00	3.0	0.34	1.87	0.63	NA	2.12	0.72	0.20	3.5	3.8	Low	3.5

df by Welch-Satterthwaite approximation: **2.0**

Recommended UCL: **3.5** **mg/kg** >> Student's t 95% UCL

Note: Student's-t or Chebychev 95% UCL may be appropriate.

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Calculation of Weighted 95% UCLs for a Combined Decision Unit (DU) from Several Smaller DUs Having Replicate Incremental Samples

Enter information in green highlighted cells. See the "Instructions" tab for detailed instructions.

Project ID:	IDEQ Lake CDA
Property/Sample ID:	CONF07-WS-DU03
Date of calculations:	1/3/2025
Calculator completed by:	Paul Burke
Analyte:	
Analyte units:	mg/kg
DU metric units:	Unweighted
Notes:	

Click in green cell below to select from drop-down menu

DU size metric: area, volume, or depth interval: Area

Note: Assumes all replicates have the same number of increments

Number of increments per replicate: 30

Row #	IDs/Names of the Smaller DUs	DU Area (Unweighted)	Replicate field sample concentrations						Number of Replicates	Weight	Arithmetic Mean	SD of Replicates	calc'd SD of Increments	calc'd CV for the DU	Adj Factor	adj'd SD of Increments	adj'd CV for DU	SE of DU	95% UCL			
			Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6											Student's-t	Chebychev	CV of Increments	95% UCL
1	CONF07-WS-DU03	1.0								1.00					#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
2															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
3															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
4															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
5															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
6															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
7															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
8															#N/A	#VALUE!	#VALUE!				#VALUE!	#VALUE!
9																						
10																						
	Sum:	1	--	--	--	--	--	--		1.00			0.00		NA	0.00	#VALUE!				#VALUE!	#VALUE!

df by Welch-Satterthwaite approximation:

Recommended UCL: **#VALUE!** **mg/kg** #VALUE!
#VALUE!

*Student's t UCL is acceptable if adj'd CV for DU is "Low" (e.g., CV ≤ 1.5). The User should consult the instructions for additional guidance on which 95% UCL is recommended for specific data sets.

Notes

adj'd	= adjusted	df	= degrees of freedom	SD	= arithmetic standard deviation
calc'd	= calculated	DU	= decision unit	SE	= standard error
CV	= coefficient of variation	RSD	= relative standard deviation	95% UCL	= 95% upper confidence limit for arithmetic mean

Summary of Results of Levene's Test for Homogeneity of Variance (center = median)

Type	Analyte	p value[1]
Dry Sediment	AS	0.361
	CD	0.374
	CU	0.754
	FE	0.393
	MN	0.679
	PB	0.533
	SB	NA
	ZN	0.197
	HG	0.385
Wet Sediment	AS	0.304
	CD	0.513
	CU	0.426
	FE	0.368
	MN	0.448
	PB	0.211
	SB	NA
	ZN	0.553
	HG	0.627
Upland Soil	AS	0.595
	CD	0.255
	CU	0.239
	FE	1.00
	MN	0.463
	PB	0.264
	SB	0.374
	ZN	0.408
	HG	0.247

[1] Levene's test for homogeneity of variances tests if two or more variances are significantly different from each other. The null hypothesis is that they are not significantly different from each other. Thus, a p value of <0.05 is necessary to conclude variances are significantly different. All tests run had p values higher than this, meaning there was insufficient evidence to conclude variances were different for any of the analytes. As a result we pooled variances for Type-Analyte.

Notes: AS = arsenic, CD = cadmium, CU = copper, FE = iron, MN = manganese, PB = lead, SB = antimony, ZN = zinc, HG = mercury, NA = not applicable

Summary of Pooled Standard Deviations

Analyte	Wet Sediment	Dry Sediment	Upland Soil
Arsenic	0.820	1.02	0.468
Cadmium	0.153	0.444	0.366
Copper	49.3	2.03	3.66
Iron	1.4E+03	2.8E+03	569
Manganese	47.9	64.9	59.4
Antimony	0.00	0.00	0.0449
Zinc	44.1	67.6	75.4
Mercury	0.00354	0.0906	0.0690

Pooled Variances and Standard Deviations

Site Name	Field Sample ID	Unit	Arsenic	Cadmium	Copper	Iron	Manganese	Antimony	Zinc	Mercury
Dry Sediment										
Sanders Beach Public	S017-DS-DU01-D-01	mg/kg	5.00	1.93	8.30	16,300	269	8.00	316	0.0330
	S017-DS-DU01-D-02	mg/kg	6.29	1.69	9.57	16,500	287	8.00	309	0.0330
	S017-DS-DU01-D-03	mg/kg	5.18	1.23	6.91	16,267	227	8.00	289	0.0480
	Variance	mg/kg	0.487	0.125	1.77	15926	959	0.00	202	0.0000750
CONF02	xxxx-DS-DU02-C-01	mg/kg	11.5	1.04	17.2	27,400	534	8.00	203	0.0330
	xxxx-DS-DU02-C-02	mg/kg	11.7	1.08	19.6	28,500	565	8.00	194	0.312
	xxxx-DS-DU02-C-03	mg/kg	11.1	0.820	14.7	23,900	401	8.00	180	0.0487
	Variance	mg/kg	0.0933	0.0196	5.92	5.77E+06	7.56E+03	0.00	130	0.0246
Tubbs Hill East, 3	S015-DS-DU01-C-01	mg/kg	5.29	1.60	8.39	14,000	241	4.00	420	0.0330
	S015-DS-DU01-C-02	mg/kg	7.34	2.44	11.1	20,200	310	4.00	576	0.0330
	S015-DS-DU01-C-03	mg/kg	4.18	1.12	6.82	12,300	182	4.00	350	0.0330
	Variance	mg/kg	2.57	0.446	4.69	1.7E+07	4.10E+03	0.00	1.34E+04	0.000
	Pooled Variance	mg/kg	1.05	0.197	4.13	7.7E+06	4.21E+03	0.00	4.57E+03	0.00822
	Pooled Standard Deviation	mg/kg	1.02	0.444	2.03	2.8E+03	64.9	0.00	67.6	0.0906
Wet Sediment										
Blackwell Island	S008-WS-DU02-C-01	mg/kg	29.3	1.69	27.6	38,600	1,660	8.00	499	0.0330
	S008-WS-DU02-C-02	mg/kg	29.8	1.88	26.1	40,400	1,620	8.00	540	0.0330
	S008-WS-DU02-C-03	mg/kg	31.9	1.86	29.9	42,800	1,650	8.00	585	0.0330
	Variance	mg/kg	1.90	0.0109	3.66	4.44E+06	433	0.00	1850	0.00
Corbin Park	S001-WS-DU03-B-01	mg/kg	5.00	3.55	15.6	21,200	399	8.00	860	0.0330
	S001-WS-DU03-B-02	mg/kg	5.00	3.57	14.7	21,200	422	8.00	870	0.0330
	S001-WS-DU03-B-03	mg/kg	5.00	3.14	163	23,000	546	8.00	973	0.0400
	Variance	mg/kg	0.00	0.0589	7.29E+03	1.1E+06	6.25E+03	0.00	3.9E+03	0.0000
CONF07	xxxx-WS-DU03-C-01	mg/kg	2.61	0.400	15.1	21,200	188	4.00	96.0	0.0410
	xxxx-WS-DU03-C-02	mg/kg	2.99	0.400	15.1	20,500	206	4.00	93.9	0.0330
	xxxx-WS-DU03-C-03	mg/kg	3.29	0.400	15.8	21,000	178	4.00	80.8	0.0330
	Variance	mg/kg	0.116	0.000	0.163	1.3E+05	201	0.00	67.8	0.000
	Pooled Variance	mg/kg	0.673	0.0233	2430	1.9E+06	2.30E+03	0.00	1.94E+03	0.0000126
	Pooled Standard Deviation	mg/kg	0.820	0.153	49.3	1.4E+03	47.9	0.00	44.1	0.00354
Upland Soils										
Cheamkwet Park	S009-US-DU01-A-01	mg/kg	9.85	2.91	34.4	17,600	625	2.00	411	0.768
	S009-US-DU01-A-02	mg/kg	10.4	3.71	44.3	18,700	765	2.11	592	0.584
	S009-US-DU01-A-03	mg/kg	10.5	2.74	36.8	18,500	620	2.00	406	0.620
	Variance	mg/kg	0.123	0.268	26.7	3.43E+05	6.8E+03	0.00403	1.12E+04	0.00951
Q'Emiln Park	S003-US-DU01-A-01	mg/kg	7.72	0.800	21.3	18,200	481	8.00	139	0.0360
	S003-US-DU01-A-02	mg/kg	7.32	0.800	20.8	18,800	449	8.00	119	0.0330
	S003-US-DU01-A-03	mg/kg	6.61	0.800	20.6	19,300	456	8.00	139	0.0330
	Variance	mg/kg	0.316	0.000	0.130	3.03E+05	283	0.00	133	0.000
	Pooled Variance	mg/kg	0.219	0.134	13.4	3.23E+05	3.53E+03	0.00202	5.68E+03	0.00
	Pooled Standard Deviation	mg/kg	0.468	0.366	3.66	569	59.4	0.0449	75.4	0.0690

Appendix F
IEUBK Inputs and Outputs

Table F-1. IEUBK Model Inputs

SiteID	Scenario	Soil Input (mg/kg) - Assumes 80 mg/kg background	Soil Input (mg/kg) - Assumes 150 mg/kg background	Alternate Source Input (mL/day)
S001	Public	126.29	176.29	0.3892
S003	Public	100.29	150.29	0.4004
S004	Public	72.571	122.57	0.0603
S007	Public	66.829	116.83	0.1312
S008	Public	75.314	125.31	0.0879
S009	Public	162.00	212.00	2.1980
S010	Public	90.857	140.86	0.3878
S012	Public	76.200	126.20	0.0518
S013	Public	63.143	113.14	0.0995
S014	Public	83.771	133.77	0.1186
S015	Public	73.314	123.31	0.0434
S016	Public	75.143	125.14	0.0442
S017	Public	72.400	122.40	0.0536
S020	Public	68.600	118.60	0.0830
S021	Public	78.286	128.29	0.4858
S022	Public	64.657	114.66	0.0832
CONF02	Private	67.657	107.66	0.5880
CONF03	Private	65.643	105.64	0.1798
CONF04	Private	74.086	114.09	0.0525
CONF05	Private	82.357	122.36	0.6552
S033	Public	62.629	112.63	0.3500
S036	Public	67.143	117.14	0.1526
CONF06	Private	98.000	138.00	0.3024
S038	Public	108.57	158.57	0.5432
CONF07	Private	76.057	116.06	0.6783
CONF08	Public	98.286	148.29	0.4494
CONF09	Public	67.943	117.94	0.2184
S058	Public	59.966	109.97	0.0361
CONF11	Private	59.086	99.086	0.3465

mg/kg = milligram per kilogram

mL/day = milliliter per day

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S001_pub_80130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S001_pub_80130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	126.290	130.000
12-24	126.290	130.000
24-36	126.290	130.000
36-48	126.290	130.000
48-60	126.290	130.000
60-72	126.290	130.000
72-84	126.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.389
12-24	0.389
24-36	0.389
36-48	0.389
48-60	0.389
60-72	0.389
72-84	0.389

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

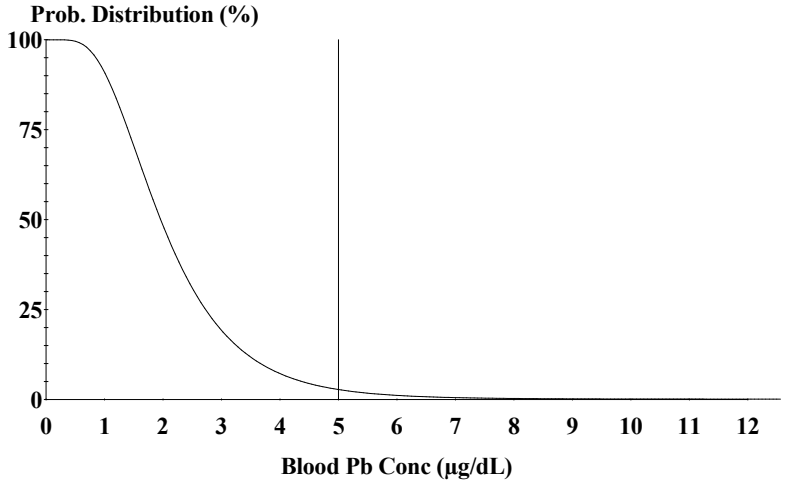
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.260	0.184	0.171
12-24	0.057	2.383	0.184	0.183
24-36	0.075	2.503	0.187	0.221
36-48	0.093	2.600	0.188	0.235
48-60	0.102	2.734	0.189	0.249
60-72	0.111	2.943	0.190	0.263
72-84	0.118	2.904	0.190	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.137	4.786	2.6
12-24	3.429	6.236	2.6
24-36	2.478	5.464	2.1
36-48	2.344	5.460	1.9
48-60	2.501	5.775	1.9
60-72	1.951	5.457	1.7
72-84	2.067	5.556	1.6

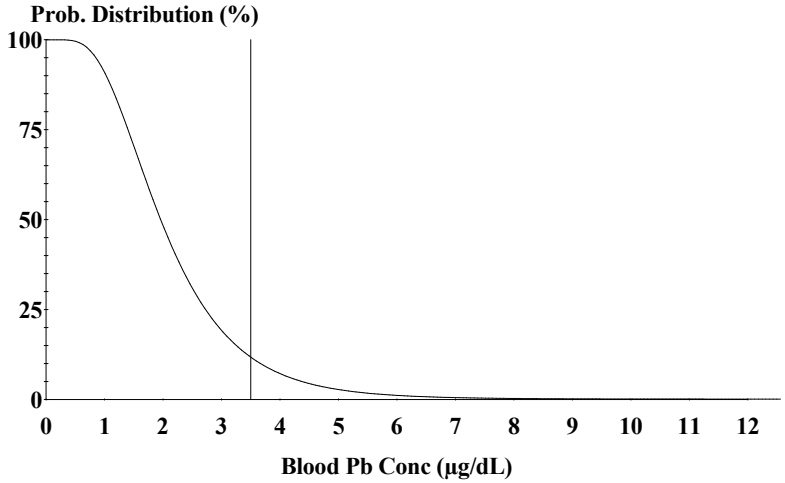


Cutoff = 5.000 µg/dl
Geo Mean = 2.054
GSD = 1.600
% Above = 2.920

Age Range = 12 to 72 months

Run Mode = Research
Comment = S001_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.054
GSD = 1.600
% Above = 12.845

Age Range = 12 to 72 months

Run Mode = Research
Comment = S001_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S001_pub_150130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S001_pub_150130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	176.290	130.000
12-24	176.290	130.000
24-36	176.290	130.000
36-48	176.290	130.000
48-60	176.290	130.000
60-72	176.290	130.000
72-84	176.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.389
12-24	0.389
24-36	0.389
36-48	0.389
48-60	0.389
60-72	0.389
72-84	0.389

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

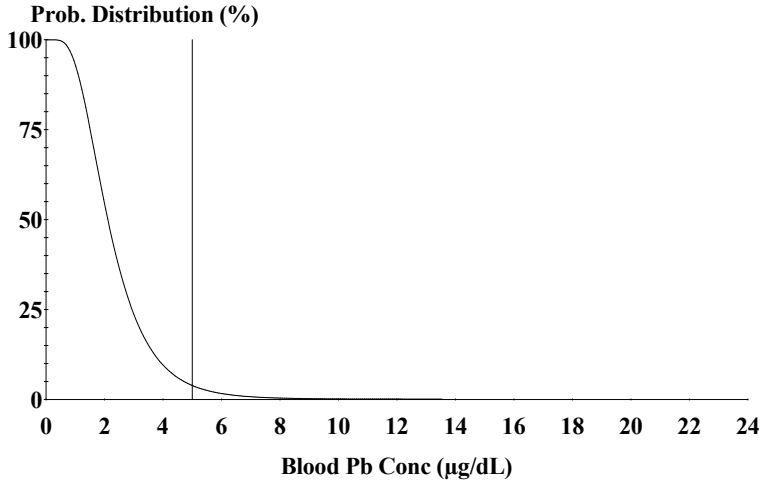
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.253	0.183	0.170
12-24	0.057	2.371	0.183	0.182
24-36	0.075	2.495	0.186	0.220
36-48	0.093	2.594	0.188	0.234
48-60	0.102	2.728	0.188	0.248
60-72	0.111	2.938	0.189	0.263
72-84	0.118	2.899	0.190	0.276

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.665	5.304	2.8
12-24	4.009	6.803	2.9
24-36	2.904	5.881	2.3
36-48	2.749	5.857	2.1
48-60	2.932	6.199	2.0
60-72	2.289	5.790	1.8
72-84	2.426	5.909	1.7

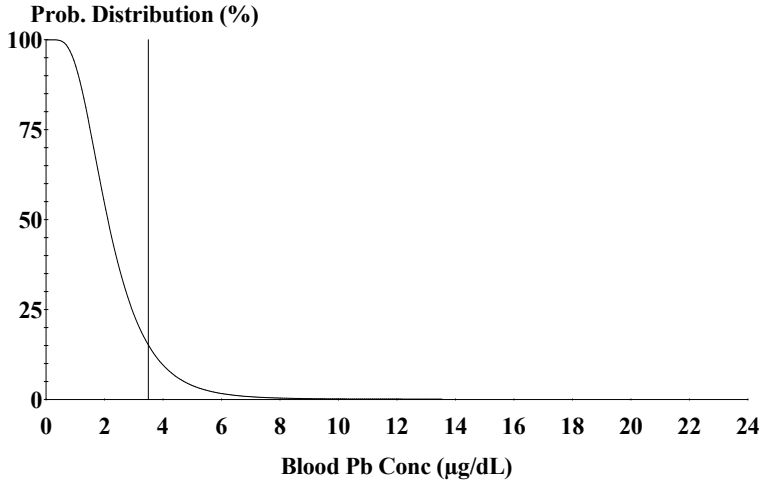


Cutoff = 5.000 µg/dl
Geo Mean = 2.216
GSD = 1.600
% Above = 4.166

Age Range = 12 to 72 months

Run Mode = Research
Comment = S001_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.216
GSD = 1.600
% Above = 16.531

Age Range = 12 to 72 months

Run Mode = Research
Comment = S001_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S003_pub_80130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S003_pub_80130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	100.290	130.000
12-24	100.290	130.000
24-36	100.290	130.000
36-48	100.290	130.000
48-60	100.290	130.000
60-72	100.290	130.000
72-84	100.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.400
12-24	0.400
24-36	0.400
36-48	0.400
48-60	0.400
60-72	0.400
72-84	0.400

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

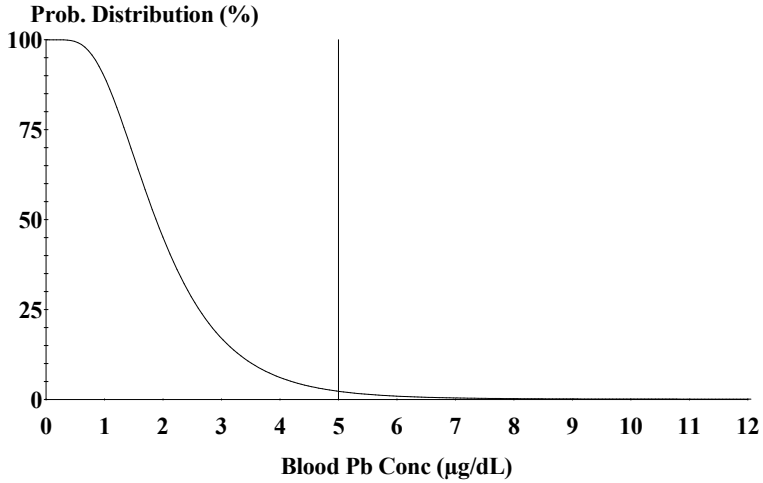
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.190	0.171
12-24	0.057	2.389	0.190	0.184
24-36	0.075	2.507	0.193	0.221
36-48	0.093	2.604	0.194	0.235
48-60	0.102	2.737	0.194	0.249
60-72	0.111	2.945	0.195	0.263
72-84	0.118	2.906	0.196	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.860	4.519	2.4
12-24	3.124	5.944	2.5
24-36	2.256	5.252	2.0
36-48	2.133	5.259	1.8
48-60	2.276	5.559	1.8
60-72	1.774	5.289	1.7
72-84	1.880	5.377	1.5

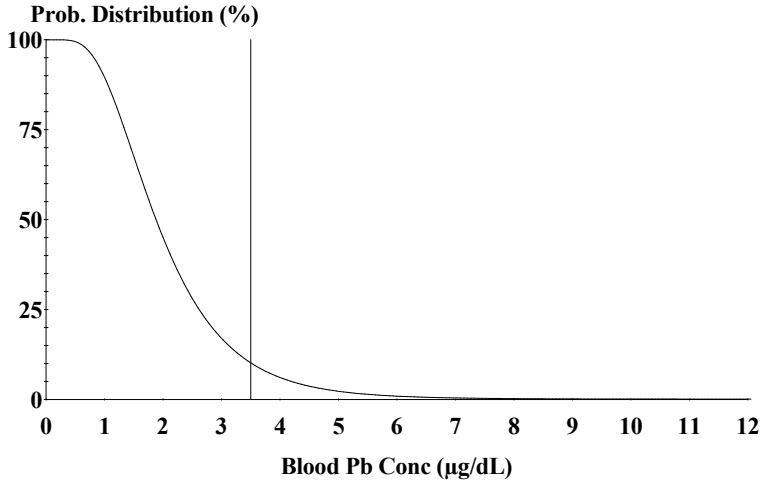


Cutoff = 5.000 µg/dl
Geo Mean = 1.972
GSD = 1.600
% Above = 2.386

Age Range = 12 to 72 months

Run Mode = Research
Comment = S003_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.972
GSD = 1.600
% Above = 11.104

Age Range = 12 to 72 months

Run Mode = Research
Comment = S003_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.

While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S003_pub_150130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S003_pub_150130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	150.290	130.000
12-24	150.290	130.000
24-36	150.290	130.000
36-48	150.290	130.000
48-60	150.290	130.000
60-72	150.290	130.000
72-84	150.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.400
12-24	0.400
24-36	0.400
36-48	0.400
48-60	0.400
60-72	0.400
72-84	0.400

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

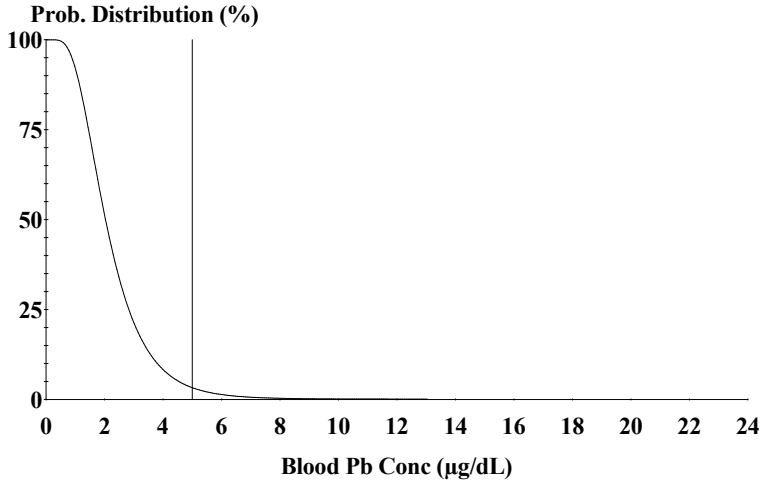
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.256	0.189	0.170
12-24	0.057	2.377	0.189	0.183
24-36	0.075	2.499	0.192	0.220
36-48	0.093	2.597	0.193	0.235
48-60	0.102	2.731	0.194	0.248
60-72	0.111	2.941	0.195	0.263
72-84	0.118	2.902	0.195	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.391	5.040	2.7
12-24	3.708	6.514	2.7
24-36	2.683	5.670	2.2
36-48	2.539	5.656	2.0
48-60	2.708	5.984	1.9
60-72	2.113	5.623	1.8
72-84	2.239	5.731	1.6

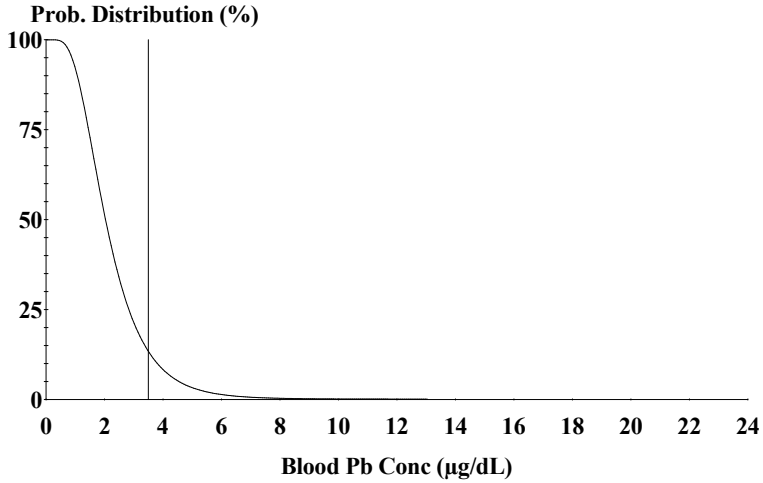


Cutoff = 5.000 µg/dl
Geo Mean = 2.134
GSD = 1.600
% Above = 3.500

Age Range = 12 to 72 months

Run Mode = Research
Comment = S003_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.134
GSD = 1.600
% Above = 14.617

Age Range = 12 to 72 months

Run Mode = Research
Comment = S003_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S004_pub_80130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S004_pub_80130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	72.571	130.000
12-24	72.571	130.000
24-36	72.571	130.000
36-48	72.571	130.000
48-60	72.571	130.000
60-72	72.571	130.000
72-84	72.571	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.060
12-24	0.060
24-36	0.060
36-48	0.060
48-60	0.060
60-72	0.060
72-84	0.060

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

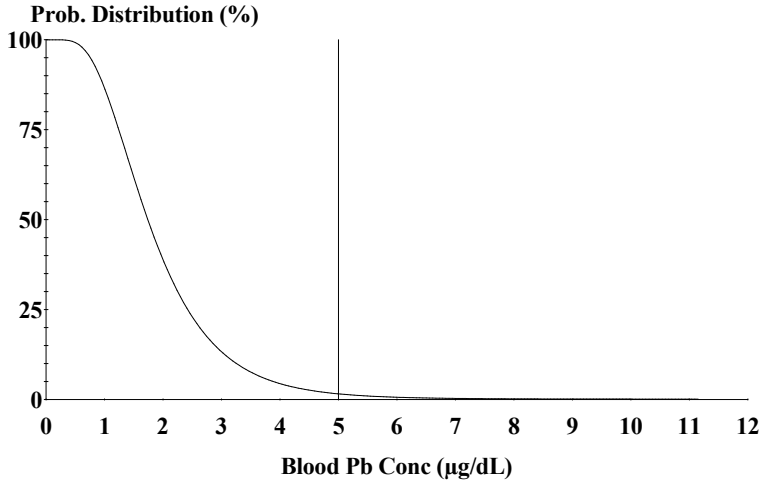
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.029	0.172
12-24	0.057	2.399	0.029	0.185
24-36	0.075	2.514	0.029	0.222
36-48	0.093	2.610	0.029	0.236
48-60	0.102	2.743	0.029	0.250
60-72	0.111	2.950	0.029	0.264
72-84	0.118	2.911	0.030	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.567	4.072	2.2
12-24	2.802	5.471	2.3
24-36	2.021	4.861	1.9
36-48	1.910	4.878	1.7
48-60	2.037	5.161	1.7
60-72	1.587	4.942	1.6
72-84	1.682	5.018	1.4

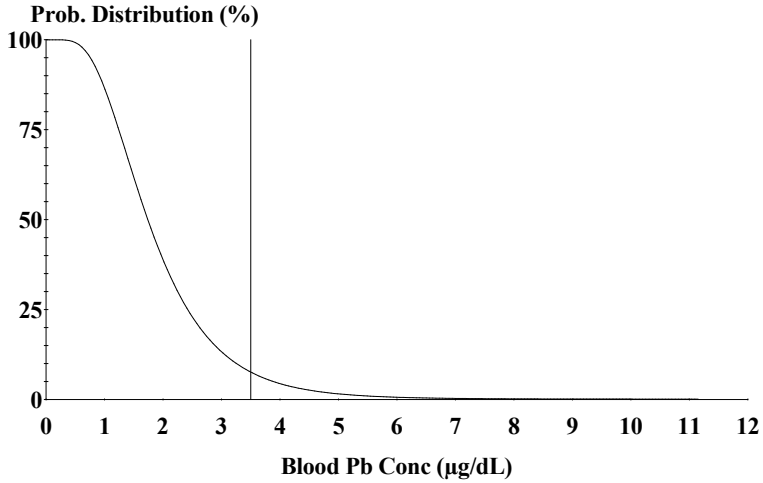


Cutoff = 5.000 µg/dl
Geo Mean = 1.824
GSD = 1.600
% Above = 1.596

Age Range = 12 to 72 months

Run Mode = Research
Comment = S004_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.824
GSD = 1.600
% Above = 8.279

Age Range = 12 to 72 months

Run Mode = Research
Comment = S004_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

LEAD MODEL FOR WINDOWS Version 2.0

S004_pub_150130

These IEUBK Model results are valid as long as they were produced with an official
unmodified version of the IEUBK Model with a software certificate.

While IEUBK Model output is generally written with three digits to the right of the
decimal point the true precision of the output is strongly influenced by least precise
input values.

==========

Model Version: 2.0 Build1
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Month	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
6-12	1.000	3.216	32.000	0.100
12-24	2.000	4.970	32.000	0.100
24-36	3.000	6.086	32.000	0.100
36-48	4.000	6.954	32.000	0.100
48-60	4.000	7.682	32.000	0.100
60-72	4.000	8.318	32.000	0.100
72-84	4.000	8.887	32.000	0.100

****** Diet ******

Month	Diet Intake(µg/day)
6-12	2.660
12-24	5.030
24-36	5.210
36-48	5.380
48-60	5.640
60-72	6.040
72-84	5.950

****** Drinking Water ******

Water Consumption:

Month	Water (L/day)
6-12	0.400
12-24	0.430
24-36	0.510
36-48	0.540
48-60	0.570
60-72	0.600
72-84	0.630

Drinking Water Concentration: 0.900 µg Pb/L

LEAD MODEL FOR WINDOWS Version 2.0

S004_pub_150130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	122.570	130.000
12-24	122.570	130.000
24-36	122.570	130.000
36-48	122.570	130.000
48-60	122.570	130.000
60-72	122.570	130.000
72-84	122.570	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.060
12-24	0.060
24-36	0.060
36-48	0.060
48-60	0.060
60-72	0.060
72-84	0.060

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

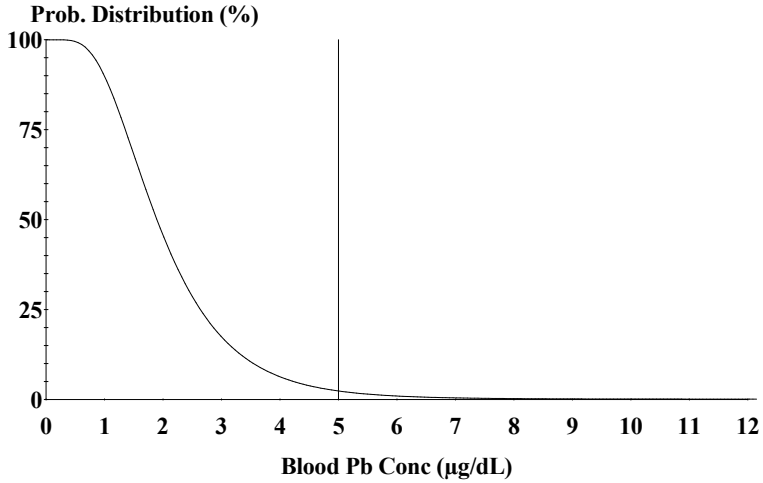
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.029	0.171
12-24	0.057	2.387	0.029	0.184
24-36	0.075	2.506	0.029	0.221
36-48	0.093	2.603	0.029	0.235
48-60	0.102	2.737	0.029	0.249
60-72	0.111	2.945	0.029	0.263
72-84	0.118	2.906	0.029	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.103	4.599	2.5
12-24	3.390	6.045	2.5
24-36	2.449	5.281	2.1
36-48	2.317	5.277	1.9
48-60	2.471	5.588	1.8
60-72	1.927	5.276	1.7
72-84	2.042	5.373	1.5

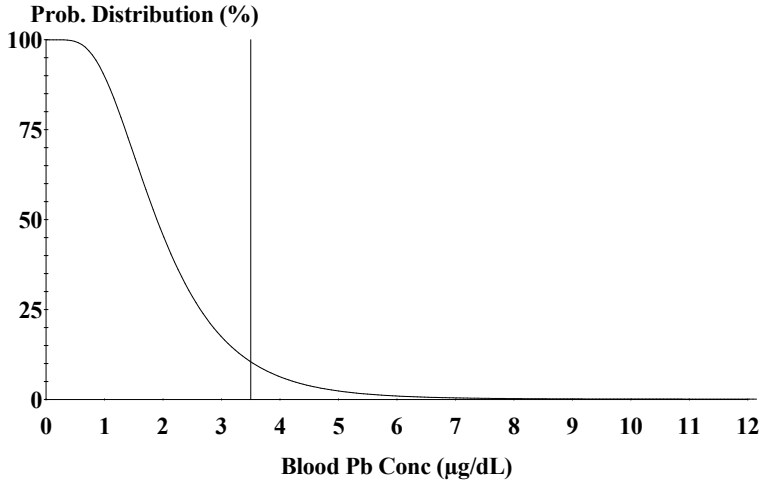


Cutoff = 5.000 µg/dl
Geo Mean = 1.987
GSD = 1.600
% Above = 2.481

Age Range = 12 to 72 months

Run Mode = Research
Comment = S004_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.987
GSD = 1.600
% Above = 11.424

Age Range = 12 to 72 months

Run Mode = Research
Comment = S004_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S007_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S007_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	66.829	130.000
12-24	66.829	130.000
24-36	66.829	130.000
36-48	66.829	130.000
48-60	66.829	130.000
60-72	66.829	130.000
72-84	66.829	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.131
12-24	0.131
24-36	0.131
36-48	0.131
48-60	0.131
60-72	0.131
72-84	0.131

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

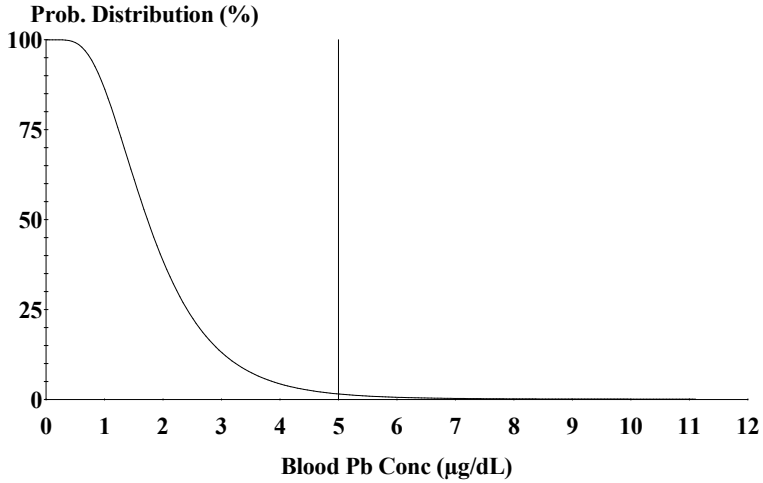
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.063	0.172
12-24	0.057	2.400	0.063	0.185
24-36	0.075	2.515	0.063	0.222
36-48	0.093	2.610	0.064	0.236
48-60	0.102	2.743	0.064	0.250
60-72	0.111	2.950	0.064	0.264
72-84	0.118	2.911	0.064	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.504	4.043	2.2
12-24	2.733	5.437	2.3
24-36	1.971	4.846	1.9
36-48	1.863	4.865	1.7
48-60	1.986	5.146	1.7
60-72	1.548	4.937	1.6
72-84	1.640	5.011	1.4

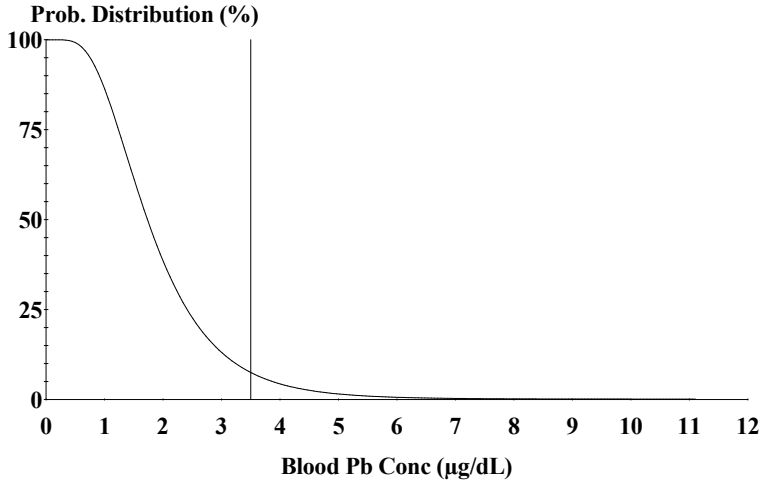


Cutoff = 5.000 µg/dl
Geo Mean = 1.817
GSD = 1.600
% Above = 1.564

Age Range = 12 to 72 months

Run Mode = Research
Comment = S007_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.817
GSD = 1.600
% Above = 8.158

Age Range = 12 to 72 months

Run Mode = Research
Comment = S007_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S007_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S007_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	116.830	130.000
12-24	116.830	130.000
24-36	116.830	130.000
36-48	116.830	130.000
48-60	116.830	130.000
60-72	116.830	130.000
72-84	116.830	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.131
12-24	0.131
24-36	0.131
36-48	0.131
48-60	0.131
60-72	0.131
72-84	0.131

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

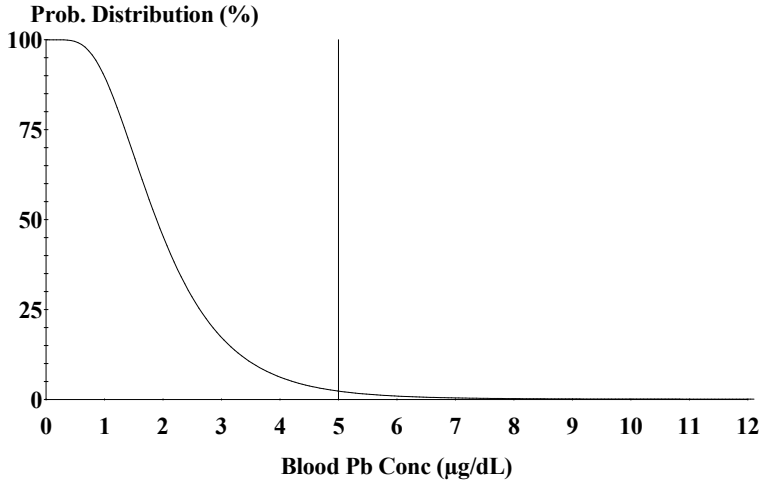
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.062	0.171
12-24	0.057	2.387	0.062	0.184
24-36	0.075	2.507	0.063	0.221
36-48	0.093	2.603	0.063	0.235
48-60	0.102	2.737	0.064	0.249
60-72	0.111	2.946	0.064	0.263
72-84	0.118	2.907	0.064	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.040	4.571	2.5
12-24	3.321	6.012	2.5
24-36	2.400	5.266	2.1
36-48	2.270	5.264	1.9
48-60	2.421	5.573	1.8
60-72	1.888	5.272	1.7
72-84	2.000	5.366	1.5

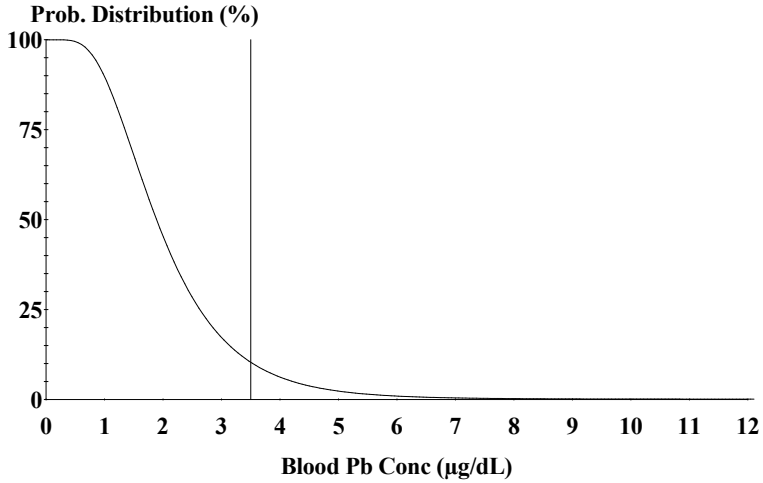


Cutoff = 5.000 µg/dl
Geo Mean = 1.980
GSD = 1.600
% Above = 2.439

Age Range = 12 to 72 months

Run Mode = Research
Comment = S007_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.980
GSD = 1.600
% Above = 11.284

Age Range = 12 to 72 months

Run Mode = Research
Comment = S007_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S008_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S008_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	75.314	130.000
12-24	75.314	130.000
24-36	75.314	130.000
36-48	75.314	130.000
48-60	75.314	130.000
60-72	75.314	130.000
72-84	75.314	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.088
12-24	0.088
24-36	0.088
36-48	0.088
48-60	0.088
60-72	0.088
72-84	0.088

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

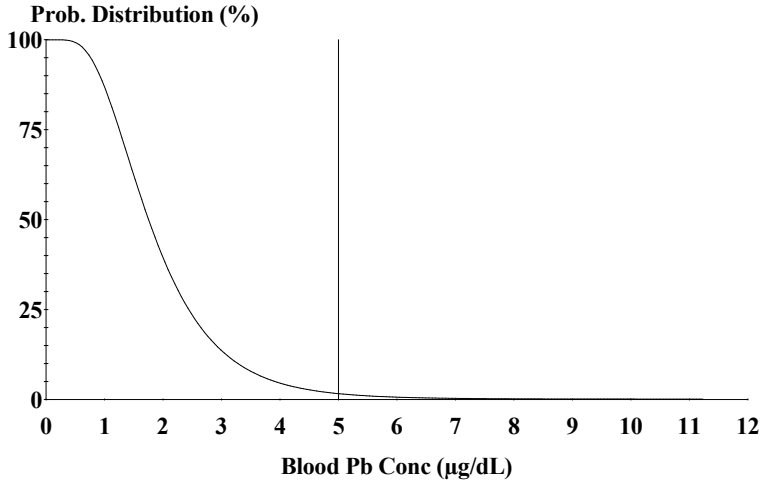
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.042	0.172
12-24	0.057	2.398	0.042	0.184
24-36	0.075	2.514	0.042	0.221
36-48	0.093	2.609	0.043	0.236
48-60	0.102	2.743	0.043	0.249
60-72	0.111	2.950	0.043	0.264
72-84	0.118	2.911	0.043	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.596	4.114	2.2
12-24	2.834	5.515	2.3
24-36	2.044	4.897	1.9
36-48	1.932	4.912	1.7
48-60	2.060	5.198	1.7
60-72	1.606	4.973	1.6
72-84	1.701	5.051	1.4

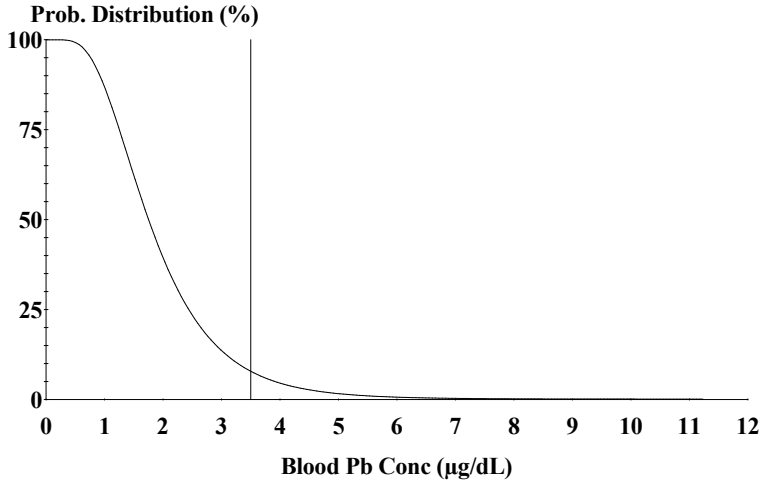


Cutoff = 5.000 µg/dl
Geo Mean = 1.838
GSD = 1.600
% Above = 1.660

Age Range = 12 to 72 months

Run Mode = Research
Comment = S008-pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.838
GSD = 1.600
% Above = 8.524

Age Range = 12 to 72 months

Run Mode = Research
Comment = S008-pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S008_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S008_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	125.310	130.000
12-24	125.310	130.000
24-36	125.310	130.000
36-48	125.310	130.000
48-60	125.310	130.000
60-72	125.310	130.000
72-84	125.310	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.088
12-24	0.088
24-36	0.088
36-48	0.088
48-60	0.088
60-72	0.088
72-84	0.088

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

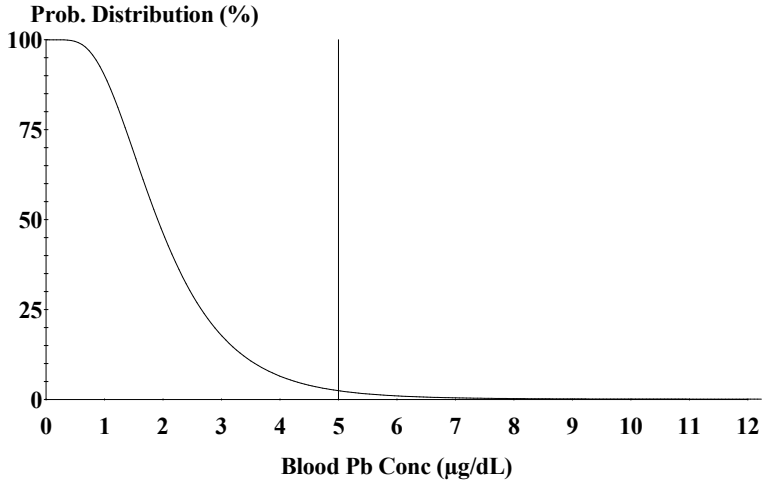
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.042	0.171
12-24	0.057	2.386	0.042	0.184
24-36	0.075	2.506	0.042	0.221
36-48	0.093	2.603	0.043	0.235
48-60	0.102	2.736	0.043	0.249
60-72	0.111	2.945	0.043	0.263
72-84	0.118	2.906	0.043	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.131	4.640	2.5
12-24	3.421	6.089	2.5
24-36	2.473	5.317	2.1
36-48	2.339	5.312	1.9
48-60	2.494	5.625	1.8
60-72	1.946	5.308	1.7
72-84	2.061	5.406	1.6

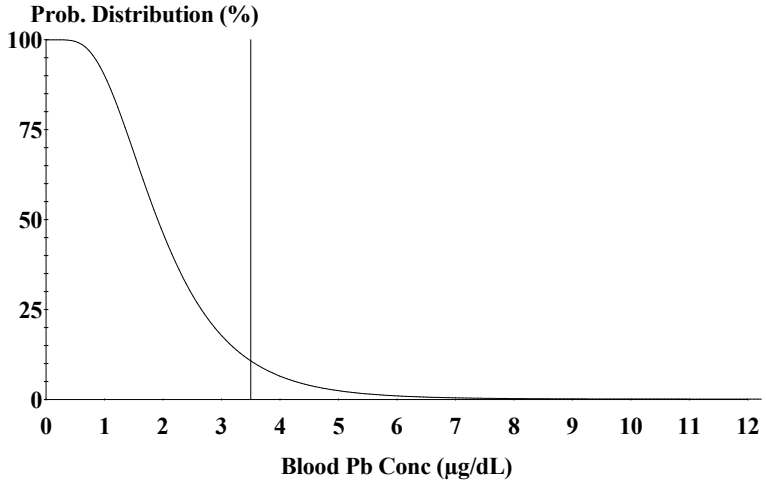


Cutoff = 5.000 µg/dl
Geo Mean = 2.001
GSD = 1.600
% Above = 2.566

Age Range = 12 to 72 months

Run Mode = Research
Comment = S008_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.001
GSD = 1.600
% Above = 11.705

Age Range = 12 to 72 months

Run Mode = Research
Comment = S008_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S009_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S009_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	162.000	130.000
12-24	162.000	130.000
24-36	162.000	130.000
36-48	162.000	130.000
48-60	162.000	130.000
60-72	162.000	130.000
72-84	162.000	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	2.198
12-24	2.198
24-36	2.198
36-48	2.198
48-60	2.198
60-72	2.198
72-84	2.198

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

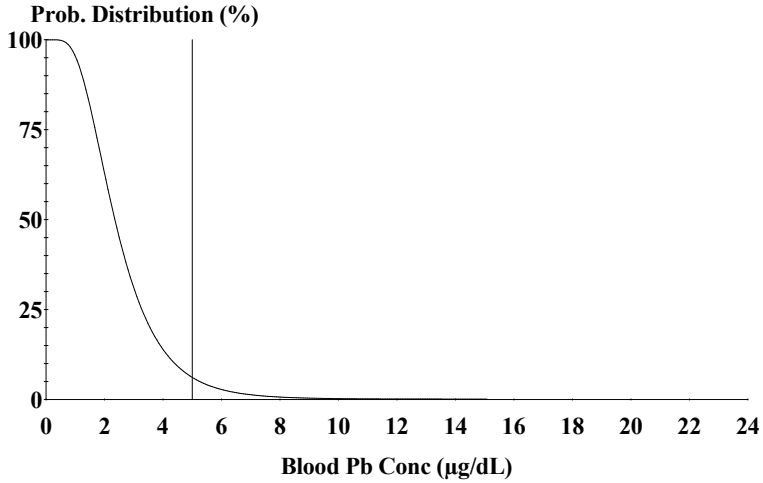
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.243	1.027	0.168
12-24	0.057	2.357	1.030	0.181
24-36	0.075	2.482	1.047	0.219
36-48	0.093	2.582	1.055	0.233
48-60	0.102	2.717	1.059	0.247
60-72	0.111	2.927	1.065	0.262
72-84	0.118	2.890	1.067	0.275

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.482	5.955	3.2
12-24	3.817	7.443	3.1
24-36	2.765	6.589	2.6
36-48	2.619	6.582	2.3
48-60	2.796	6.921	2.3
60-72	2.183	6.549	2.1
72-84	2.314	6.665	1.9

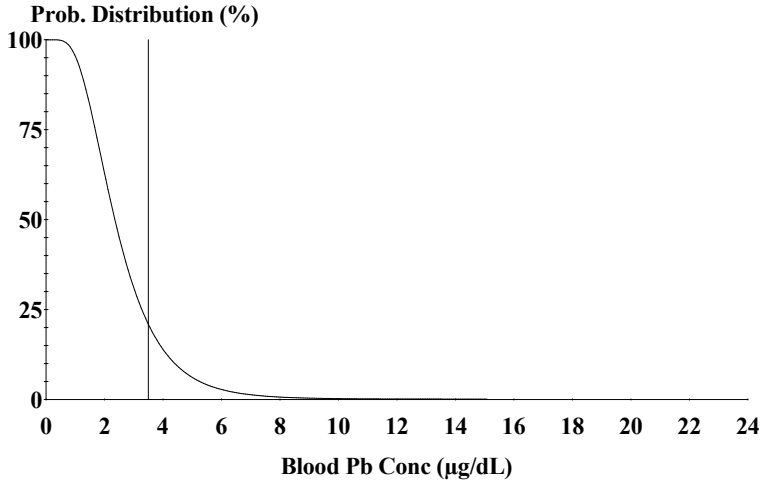


Cutoff = 5.000 µg/dl
Geo Mean = 2.468
GSD = 1.600
% Above = 6.648

Age Range = 12 to 72 months

Run Mode = Research
Comment = S009_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.468
GSD = 1.600
% Above = 22.854

Age Range = 12 to 72 months

Run Mode = Research
Comment = S009_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S009_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S009_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	212.000	130.000
12-24	212.000	130.000
24-36	212.000	130.000
36-48	212.000	130.000
48-60	212.000	130.000
60-72	212.000	130.000
72-84	212.000	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	2.198
12-24	2.198
24-36	2.198
36-48	2.198
48-60	2.198
60-72	2.198
72-84	2.198

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

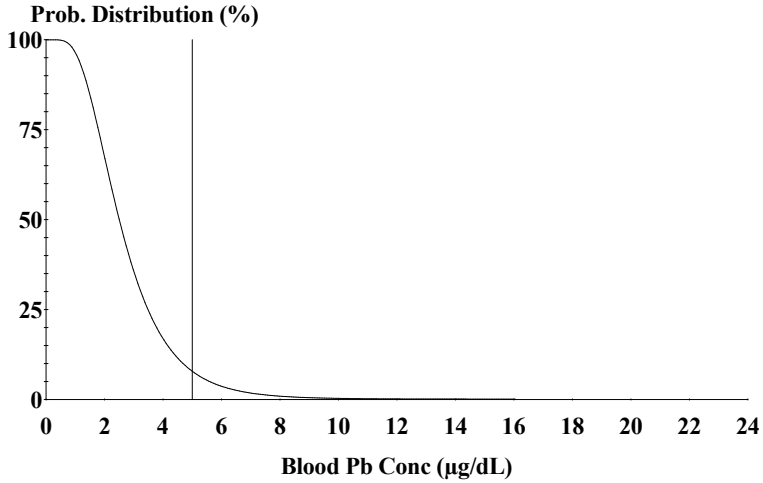
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.236	1.021	0.167
12-24	0.057	2.346	1.025	0.180
24-36	0.075	2.474	1.044	0.218
36-48	0.093	2.575	1.052	0.233
48-60	0.102	2.711	1.056	0.247
60-72	0.111	2.923	1.064	0.261
72-84	0.118	2.885	1.066	0.275

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	4.001	6.460	3.4
12-24	4.390	7.998	3.4
24-36	3.186	6.998	2.7
36-48	3.020	6.972	2.5
48-60	3.224	7.340	2.4
60-72	2.520	6.878	2.2
72-84	2.671	7.015	2.0

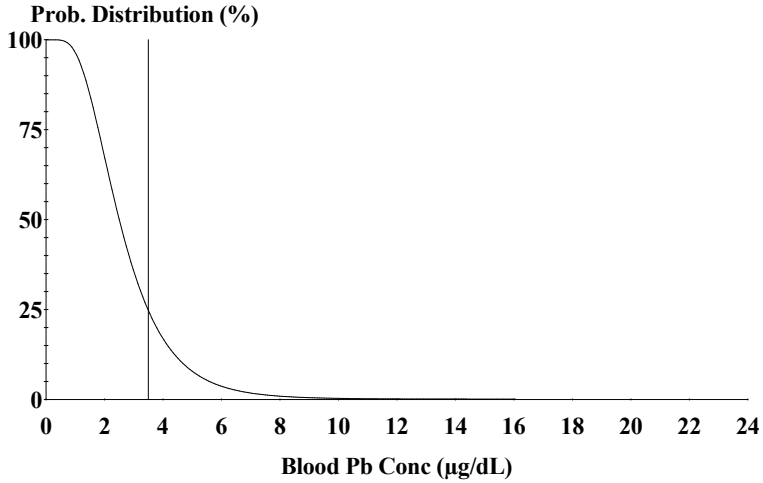


Cutoff = 5.000 µg/dl
Geo Mean = 2.626
GSD = 1.600
% Above = 8.531

Age Range = 12 to 72 months

Run Mode = Research
Comment = S009_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.626
GSD = 1.600
% Above = 27.049

Age Range = 12 to 72 months

Run Mode = Research
Comment = S009_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S010_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S010_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	90.857	130.000
12-24	90.857	130.000
24-36	90.857	130.000
36-48	90.857	130.000
48-60	90.857	130.000
60-72	90.857	130.000
72-84	90.857	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.388
12-24	0.388
24-36	0.388
36-48	0.388
48-60	0.388
60-72	0.388
72-84	0.388

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

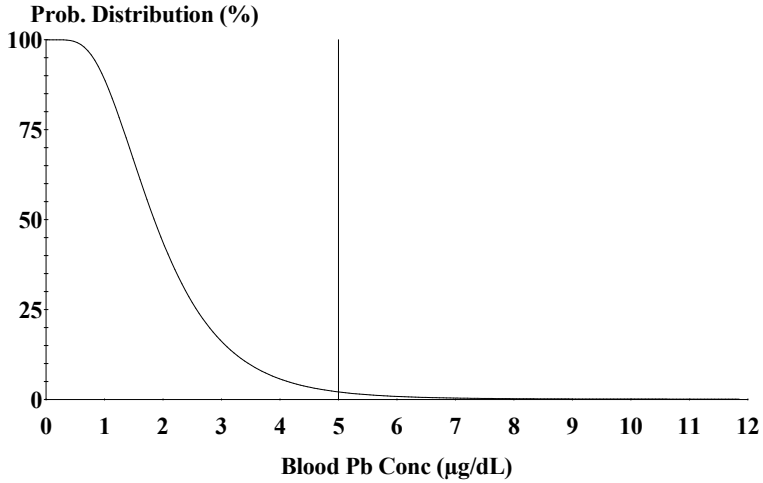
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.265	0.184	0.171
12-24	0.057	2.391	0.184	0.184
24-36	0.075	2.509	0.187	0.221
36-48	0.093	2.605	0.188	0.235
48-60	0.102	2.739	0.188	0.249
60-72	0.111	2.946	0.189	0.263
72-84	0.118	2.907	0.189	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.759	4.414	2.4
12-24	3.013	5.830	2.4
24-36	2.175	5.167	2.0
36-48	2.057	5.178	1.8
48-60	2.194	5.472	1.8
60-72	1.710	5.220	1.6
72-84	1.812	5.305	1.5

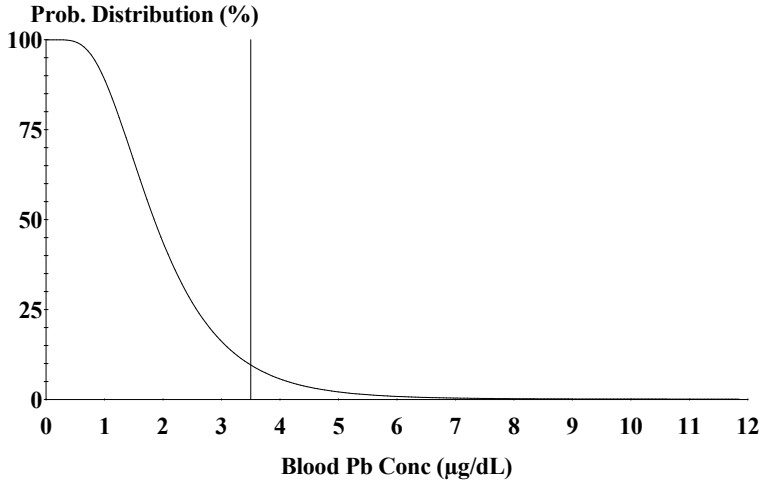


Cutoff = 5.000 µg/dl
Geo Mean = 1.939
GSD = 1.600
% Above = 2.192

Age Range = 12 to 72 months

Run Mode = Research
Comment = S010_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.939
GSD = 1.600
% Above = 10.443

Age Range = 12 to 72 months

Run Mode = Research
Comment = S010_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S010_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S010_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	140.860	130.000
12-24	140.860	130.000
24-36	140.860	130.000
36-48	140.860	130.000
48-60	140.860	130.000
60-72	140.860	130.000
72-84	140.860	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.388
12-24	0.388
24-36	0.388
36-48	0.388
48-60	0.388
60-72	0.388
72-84	0.388

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

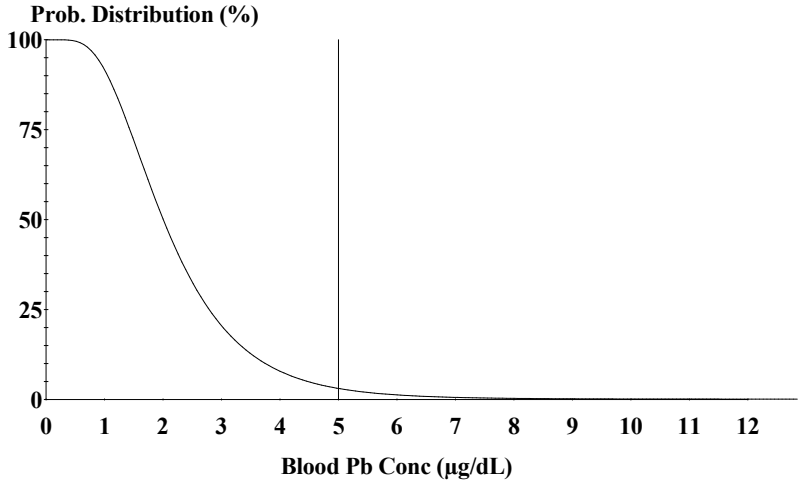
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.258	0.183	0.170
12-24	0.057	2.379	0.183	0.183
24-36	0.075	2.501	0.186	0.220
36-48	0.093	2.598	0.187	0.235
48-60	0.102	2.732	0.188	0.249
60-72	0.111	2.941	0.189	0.263
72-84	0.118	2.903	0.189	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.291	4.937	2.6
12-24	3.598	6.401	2.7
24-36	2.603	5.585	2.2
36-48	2.462	5.575	2.0
48-60	2.627	5.898	1.9
60-72	2.050	5.554	1.8
72-84	2.172	5.659	1.6

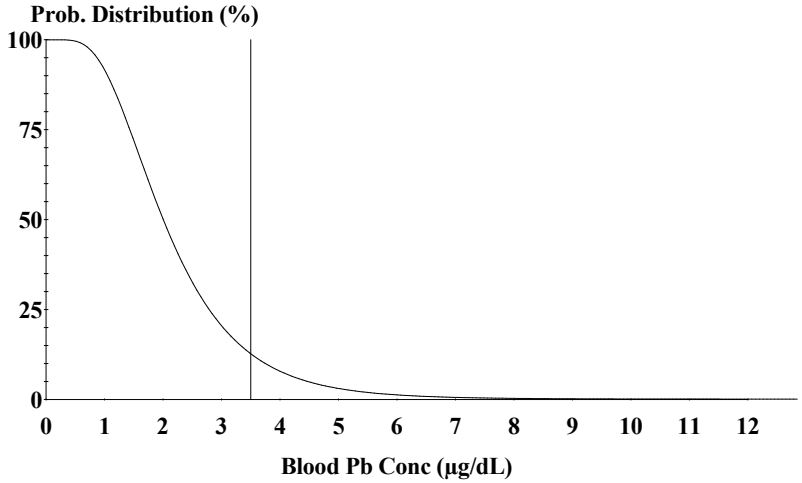


Cutoff = 5.000 µg/dl
Geo Mean = 2.101
GSD = 1.600
% Above = 3.255

Age Range = 12 to 72 months

Run Mode = Research
Comment = S010_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.101
GSD = 1.600
% Above = 13.881

Age Range = 12 to 72 months

Run Mode = Research
Comment = S010_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S012_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S012_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	76.200	130.000
12-24	76.200	130.000
24-36	76.200	130.000
36-48	76.200	130.000
48-60	76.200	130.000
60-72	76.200	130.000
72-84	76.200	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.052
12-24	0.052
24-36	0.052
36-48	0.052
48-60	0.052
60-72	0.052
72-84	0.052

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

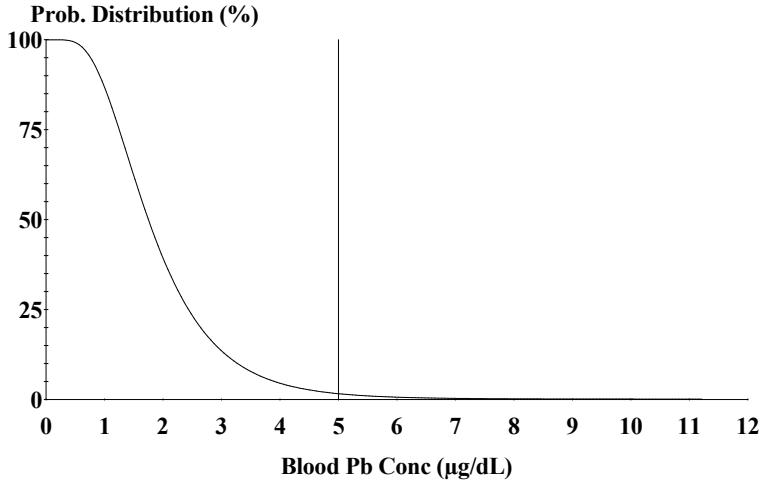
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.025	0.172
12-24	0.057	2.398	0.025	0.185
24-36	0.075	2.514	0.025	0.221
36-48	0.093	2.609	0.025	0.236
48-60	0.102	2.743	0.025	0.249
60-72	0.111	2.950	0.025	0.264
72-84	0.118	2.911	0.025	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.606	4.106	2.2
12-24	2.845	5.509	2.3
24-36	2.052	4.888	1.9
36-48	1.940	4.903	1.7
48-60	2.068	5.188	1.7
60-72	1.612	4.962	1.6
72-84	1.708	5.040	1.4

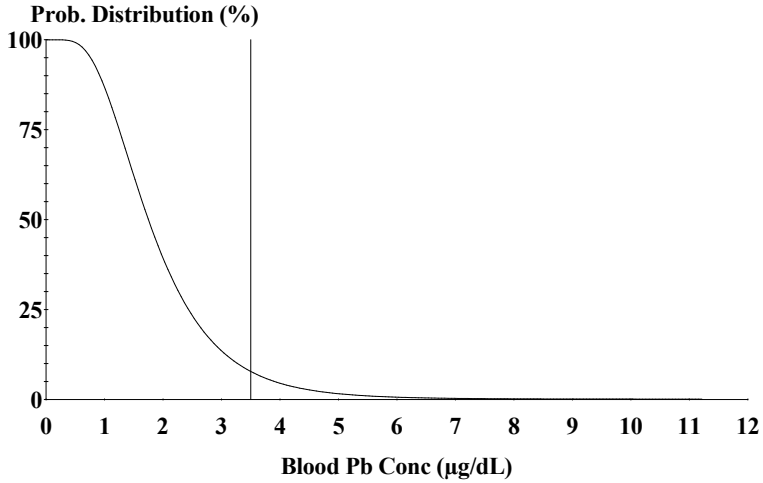


Cutoff = 5.000 µg/dl
Geo Mean = 1.835
GSD = 1.600
% Above = 1.645

Age Range = 12 to 72 months

Run Mode = Research
Comment = S012_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.835
GSD = 1.600
% Above = 8.466

Age Range = 12 to 72 months

Run Mode = Research
Comment = S012_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S012_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S012_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	126.200	130.000
12-24	126.200	130.000
24-36	126.200	130.000
36-48	126.200	130.000
48-60	126.200	130.000
60-72	126.200	130.000
72-84	126.200	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.052
12-24	0.052
24-36	0.052
36-48	0.052
48-60	0.052
60-72	0.052
72-84	0.052

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

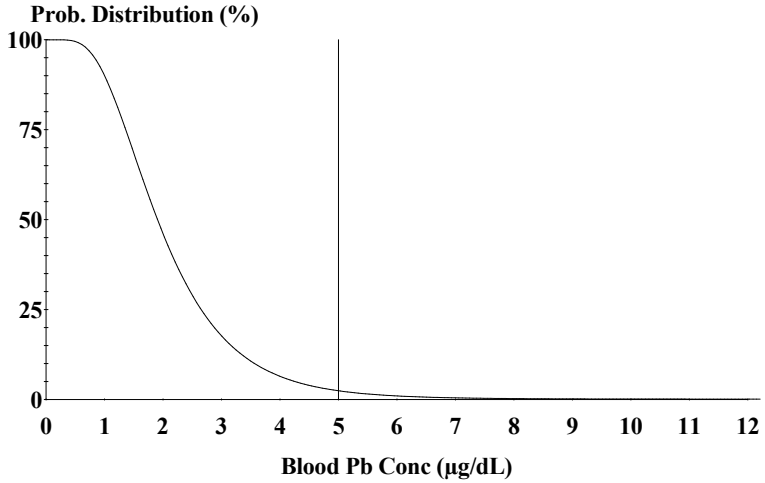
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.025	0.171
12-24	0.057	2.386	0.025	0.184
24-36	0.075	2.506	0.025	0.221
36-48	0.093	2.603	0.025	0.235
48-60	0.102	2.736	0.025	0.249
60-72	0.111	2.945	0.025	0.263
72-84	0.118	2.906	0.025	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.141	4.633	2.5
12-24	3.432	6.083	2.5
24-36	2.481	5.308	2.1
36-48	2.346	5.302	1.9
48-60	2.502	5.615	1.8
60-72	1.952	5.296	1.7
72-84	2.068	5.395	1.5

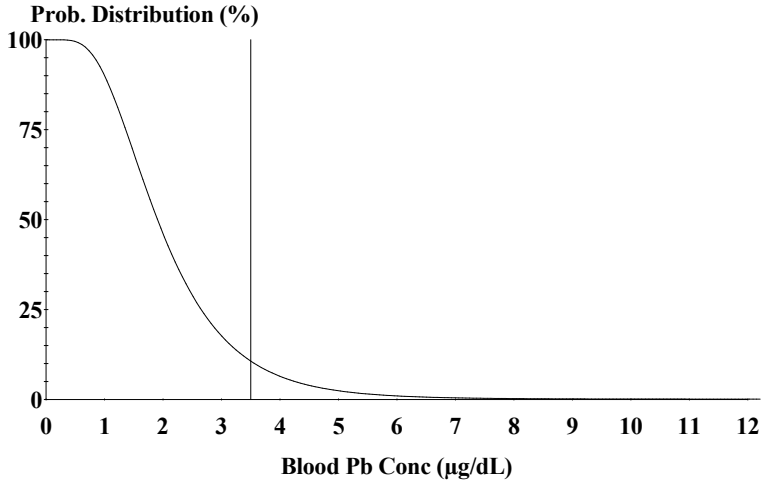


Cutoff = 5.000 µg/dl
Geo Mean = 1.998
GSD = 1.600
% Above = 2.546

Age Range = 12 to 72 months

Run Mode = Research
Comment = S012_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.998
GSD = 1.600
% Above = 11.640

Age Range = 12 to 72 months

Run Mode = Research
Comment = S012_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S013_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S013_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	63.143	130.000
12-24	63.143	130.000
24-36	63.143	130.000
36-48	63.143	130.000
48-60	63.143	130.000
60-72	63.143	130.000
72-84	63.143	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.100
12-24	0.100
24-36	0.100
36-48	0.100
48-60	0.100
60-72	0.100
72-84	0.100

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

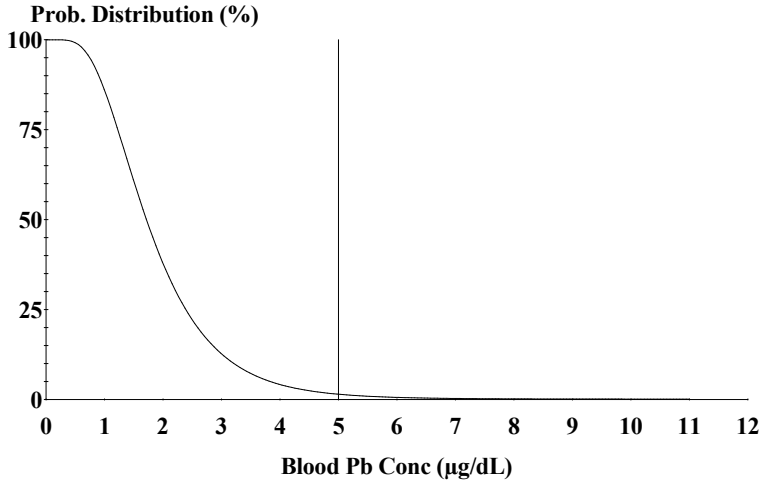
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.272	0.048	0.172
12-24	0.057	2.401	0.047	0.185
24-36	0.075	2.515	0.048	0.222
36-48	0.093	2.611	0.048	0.236
48-60	0.102	2.744	0.048	0.250
60-72	0.111	2.951	0.049	0.264
72-84	0.118	2.912	0.049	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.465	3.990	2.1
12-24	2.690	5.380	2.2
24-36	1.939	4.800	1.9
36-48	1.833	4.820	1.7
48-60	1.954	5.099	1.7
60-72	1.523	4.897	1.5
72-84	1.613	4.970	1.4

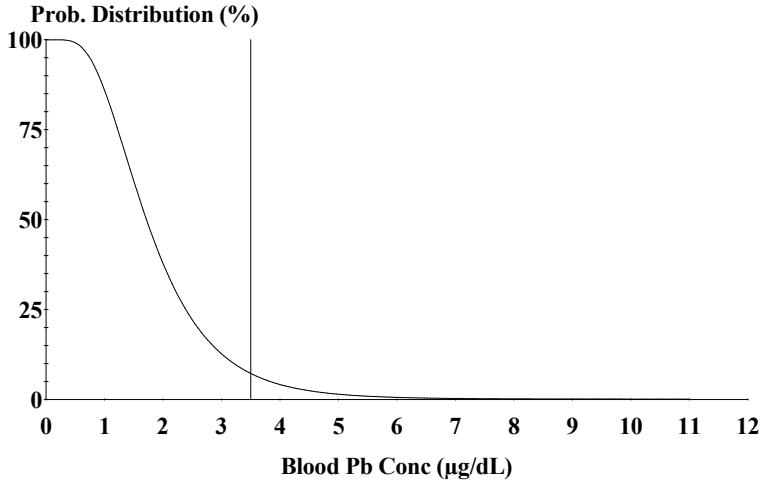


Cutoff = 5.000 µg/dl
Geo Mean = 1.800
GSD = 1.600
% Above = 1.486

Age Range = 12 to 72 months

Run Mode = Research
Comment = S013_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.800
GSD = 1.600
% Above = 7.853

Age Range = 12 to 72 months

Run Mode = Research
Comment = S013_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S013_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S013_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	113.140	130.000
12-24	113.140	130.000
24-36	113.140	130.000
36-48	113.140	130.000
48-60	113.140	130.000
60-72	113.140	130.000
72-84	113.140	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.100
12-24	0.100
24-36	0.100
36-48	0.100
48-60	0.100
60-72	0.100
72-84	0.100

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

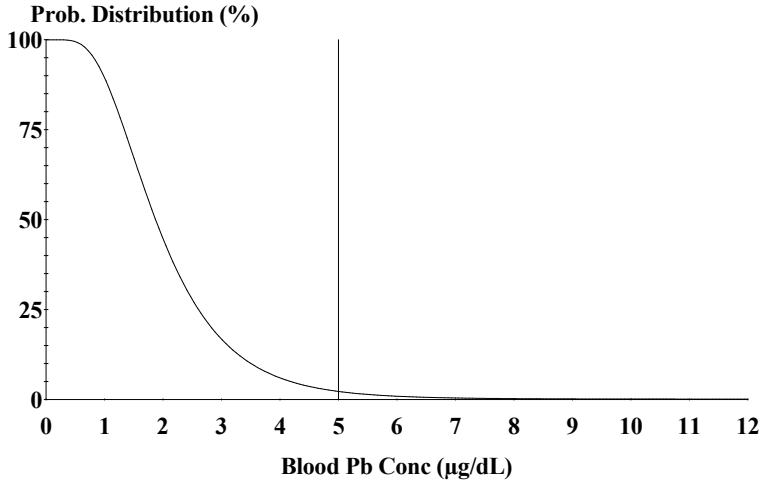
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.047	0.171
12-24	0.057	2.389	0.047	0.184
24-36	0.075	2.508	0.048	0.221
36-48	0.093	2.604	0.048	0.235
48-60	0.102	2.738	0.048	0.249
60-72	0.111	2.946	0.049	0.263
72-84	0.118	2.907	0.049	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.001	4.518	2.4
12-24	3.279	5.955	2.5
24-36	2.368	5.220	2.0
36-48	2.240	5.220	1.8
48-60	2.389	5.526	1.8
60-72	1.863	5.232	1.7
72-84	1.974	5.325	1.5

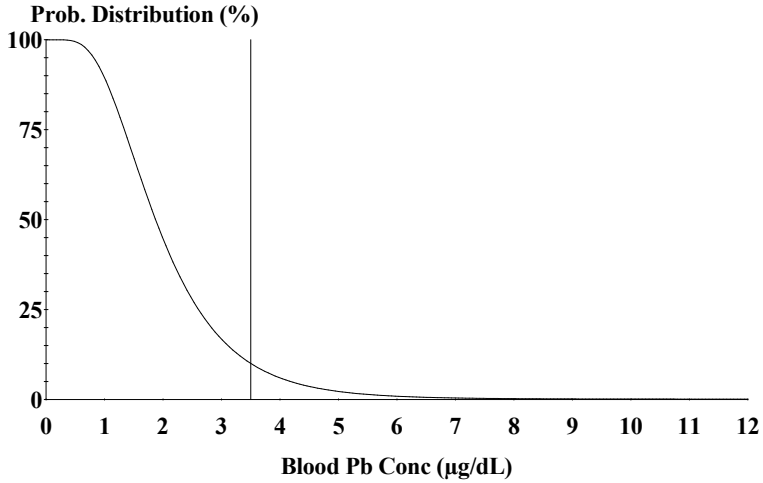


Cutoff = 5.000 µg/dl
Geo Mean = 1.963
GSD = 1.600
% Above = 2.334

Age Range = 12 to 72 months

Run Mode = Research
Comment = S013_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.963
GSD = 1.600
% Above = 10.930

Age Range = 12 to 72 months

Run Mode = Research
Comment = S013_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S014_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S014_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	83.771	130.000
12-24	83.771	130.000
24-36	83.771	130.000
36-48	83.771	130.000
48-60	83.771	130.000
60-72	83.771	130.000
72-84	83.771	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.119
12-24	0.119
24-36	0.119
36-48	0.119
48-60	0.119
60-72	0.119
72-84	0.119

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

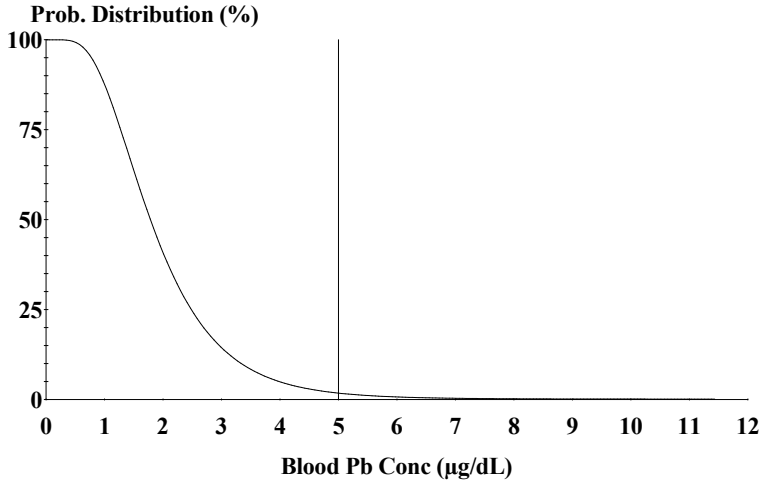
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.268	0.057	0.172
12-24	0.057	2.396	0.056	0.184
24-36	0.075	2.512	0.057	0.221
36-48	0.093	2.608	0.057	0.236
48-60	0.102	2.741	0.058	0.249
60-72	0.111	2.949	0.058	0.264
72-84	0.118	2.910	0.058	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.687	4.217	2.3
12-24	2.933	5.626	2.3
24-36	2.117	4.983	1.9
36-48	2.001	4.995	1.8
48-60	2.134	5.285	1.7
60-72	1.663	5.045	1.6
72-84	1.762	5.126	1.5

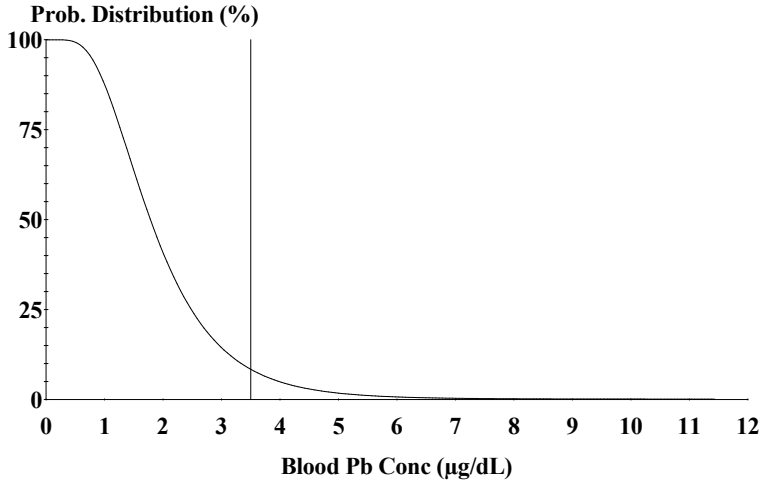


Cutoff = 5.000 µg/dl
Geo Mean = 1.871
GSD = 1.600
% Above = 1.822

Age Range = 12 to 72 months

Run Mode = Research
Comment = S014_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.871
GSD = 1.600
% Above = 9.126

Age Range = 12 to 72 months

Run Mode = Research
Comment = S014_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S014_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S014_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	133.770	130.000
12-24	133.770	130.000
24-36	133.770	130.000
36-48	133.770	130.000
48-60	133.770	130.000
60-72	133.770	130.000
72-84	133.770	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.119
12-24	0.119
24-36	0.119
36-48	0.119
48-60	0.119
60-72	0.119
72-84	0.119

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

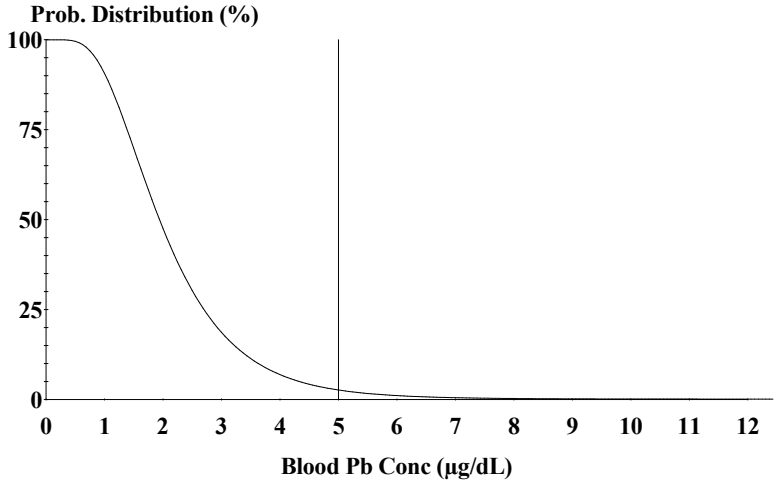
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.261	0.056	0.171
12-24	0.057	2.383	0.056	0.183
24-36	0.075	2.504	0.057	0.221
36-48	0.093	2.601	0.057	0.235
48-60	0.102	2.735	0.058	0.249
60-72	0.111	2.944	0.058	0.263
72-84	0.118	2.905	0.058	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.221	4.742	2.5
12-24	3.520	6.200	2.6
24-36	2.545	5.402	2.1
36-48	2.407	5.393	1.9
48-60	2.567	5.711	1.9
60-72	2.003	5.379	1.7
72-84	2.122	5.480	1.6

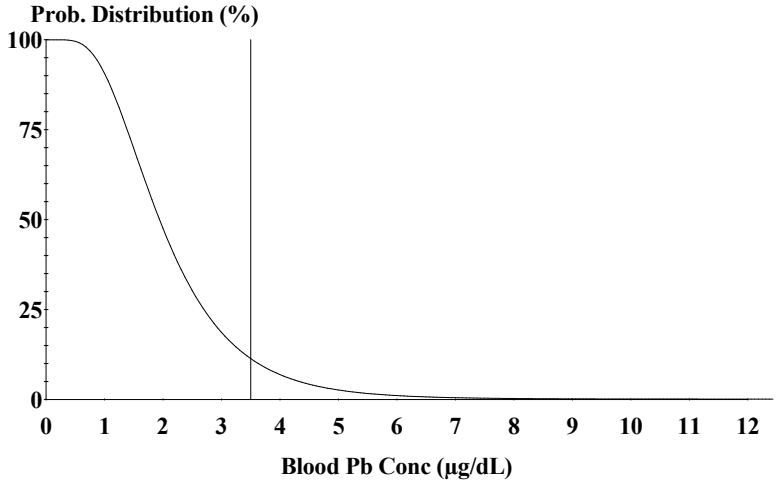


Cutoff = 5.000 µg/dl
Geo Mean = 2.033
GSD = 1.600
% Above = 2.779

Age Range = 12 to 72 months

Run Mode = Research
Comment = S014_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.033
GSD = 1.600
% Above = 12.394

Age Range = 12 to 72 months

Run Mode = Research
Comment = S014_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S015_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S015_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	73.314	130.000
12-24	73.314	130.000
24-36	73.314	130.000
36-48	73.314	130.000
48-60	73.314	130.000
60-72	73.314	130.000
72-84	73.314	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.043
12-24	0.043
24-36	0.043
36-48	0.043
48-60	0.043
60-72	0.043
72-84	0.043

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

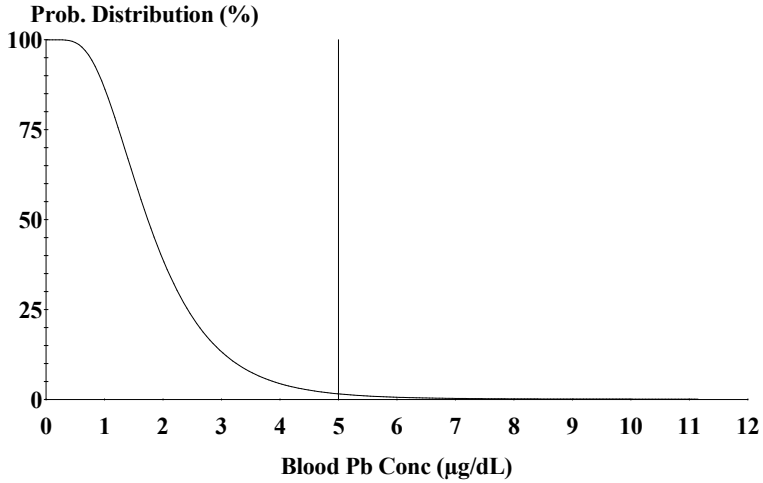
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.021	0.172
12-24	0.057	2.399	0.021	0.185
24-36	0.075	2.514	0.021	0.222
36-48	0.093	2.610	0.021	0.236
48-60	0.102	2.743	0.021	0.250
60-72	0.111	2.950	0.021	0.264
72-84	0.118	2.911	0.021	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.575	4.072	2.2
12-24	2.811	5.472	2.3
24-36	2.027	4.859	1.9
36-48	1.916	4.876	1.7
48-60	2.043	5.159	1.7
60-72	1.592	4.939	1.6
72-84	1.687	5.015	1.4

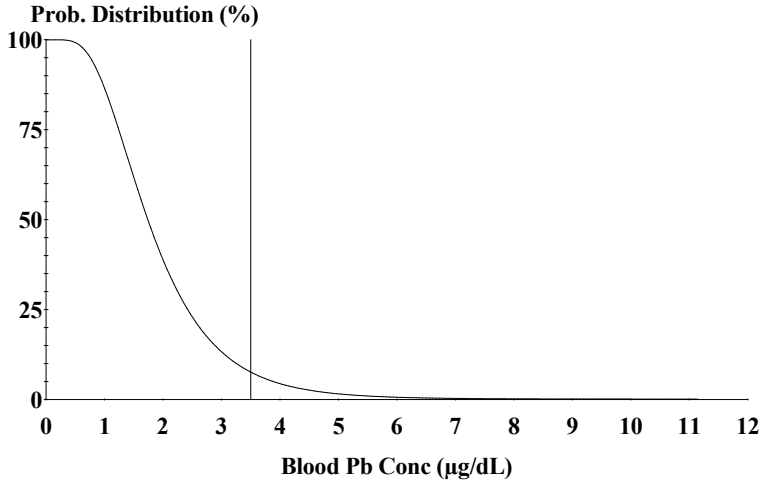


Cutoff = 5.000 µg/dl
Geo Mean = 1.824
GSD = 1.600
% Above = 1.594

Age Range = 12 to 72 months

Run Mode = Research
Comment = S015_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.824
GSD = 1.600
% Above = 8.272

Age Range = 12 to 72 months

Run Mode = Research
Comment = S015_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S015_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S015_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	123.310	130.000
12-24	123.310	130.000
24-36	123.310	130.000
36-48	123.310	130.000
48-60	123.310	130.000
60-72	123.310	130.000
72-84	123.310	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.043
12-24	0.043
24-36	0.043
36-48	0.043
48-60	0.043
60-72	0.043
72-84	0.043

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

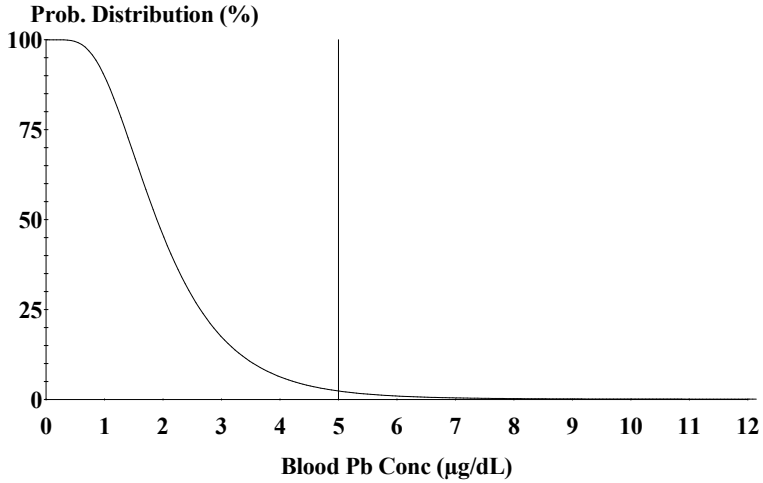
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.021	0.171
12-24	0.057	2.387	0.021	0.184
24-36	0.075	2.506	0.021	0.221
36-48	0.093	2.603	0.021	0.235
48-60	0.102	2.737	0.021	0.249
60-72	0.111	2.946	0.021	0.263
72-84	0.118	2.906	0.021	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.111	4.599	2.5
12-24	3.398	6.046	2.5
24-36	2.456	5.280	2.1
36-48	2.323	5.275	1.9
48-60	2.477	5.587	1.8
60-72	1.932	5.273	1.7
72-84	2.047	5.370	1.5

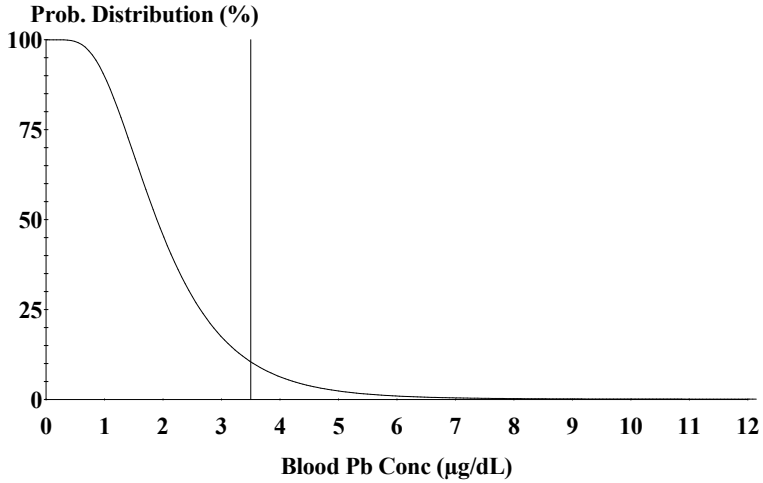


Cutoff = 5.000 µg/dl
Geo Mean = 1.987
GSD = 1.600
% Above = 2.479

Age Range = 12 to 72 months

Run Mode = Research
Comment = S015_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.987
GSD = 1.600
% Above = 11.415

Age Range = 12 to 72 months

Run Mode = Research
Comment = S015_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S016_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S016_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	75.143	130.000
12-24	75.143	130.000
24-36	75.143	130.000
36-48	75.143	130.000
48-60	75.143	130.000
60-72	75.143	130.000
72-84	75.143	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.044
12-24	0.044
24-36	0.044
36-48	0.044
48-60	0.044
60-72	0.044
72-84	0.044

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

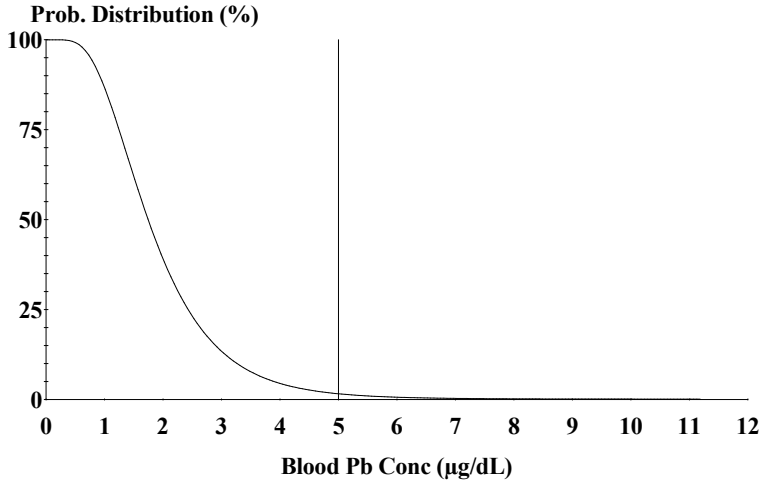
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.021	0.172
12-24	0.057	2.398	0.021	0.185
24-36	0.075	2.514	0.021	0.221
36-48	0.093	2.610	0.021	0.236
48-60	0.102	2.743	0.021	0.250
60-72	0.111	2.950	0.022	0.264
72-84	0.118	2.911	0.022	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.595	4.092	2.2
12-24	2.832	5.493	2.3
24-36	2.043	4.875	1.9
36-48	1.931	4.891	1.7
48-60	2.059	5.176	1.7
60-72	1.605	4.951	1.6
72-84	1.700	5.029	1.4

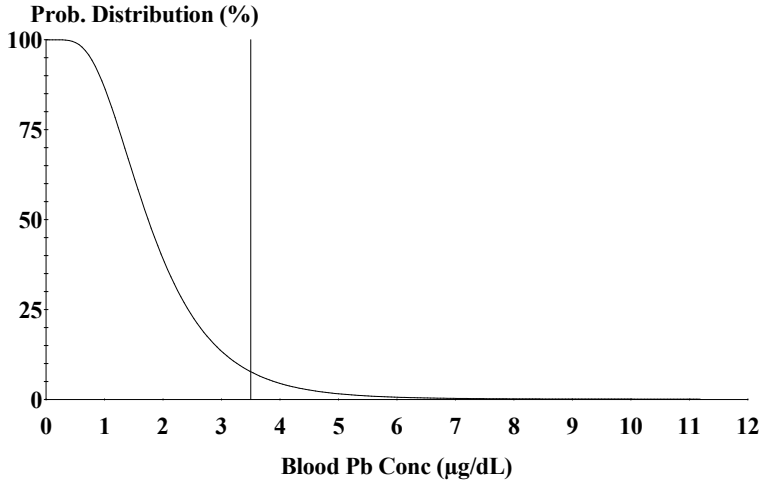


Cutoff = 5.000 µg/dl
Geo Mean = 1.830
GSD = 1.600
% Above = 1.623

Age Range = 12 to 72 months

Run Mode = Research
Comment = S016_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.830
GSD = 1.600
% Above = 8.381

Age Range = 12 to 72 months

Run Mode = Research
Comment = S016_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S016_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S016_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	125.140	130.000
12-24	125.140	130.000
24-36	125.140	130.000
36-48	125.140	130.000
48-60	125.140	130.000
60-72	125.140	130.000
72-84	125.140	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.044
12-24	0.044
24-36	0.044
36-48	0.044
48-60	0.044
60-72	0.044
72-84	0.044

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

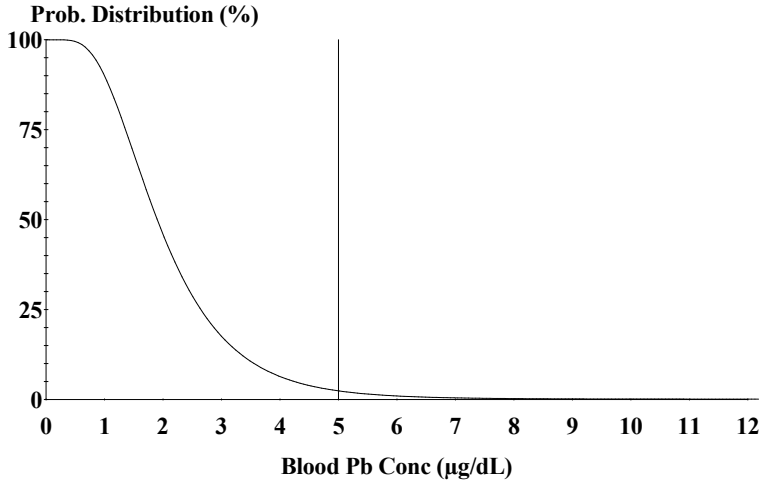
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.021	0.171
12-24	0.057	2.386	0.021	0.184
24-36	0.075	2.506	0.021	0.221
36-48	0.093	2.603	0.021	0.235
48-60	0.102	2.737	0.021	0.249
60-72	0.111	2.945	0.022	0.263
72-84	0.118	2.906	0.022	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.130	4.618	2.5
12-24	3.420	6.068	2.5
24-36	2.472	5.295	2.1
36-48	2.338	5.290	1.9
48-60	2.493	5.602	1.8
60-72	1.945	5.286	1.7
72-84	2.060	5.384	1.5

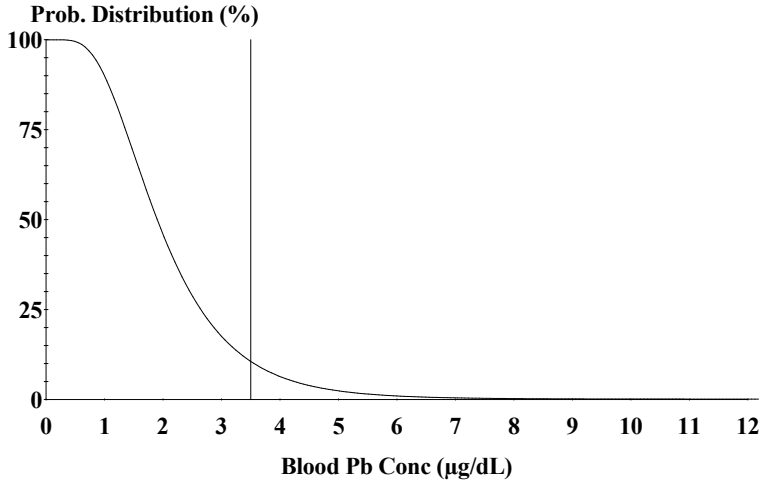


Cutoff = 5.000 µg/dl
Geo Mean = 1.993
GSD = 1.600
% Above = 2.517

Age Range = 12 to 72 months

Run Mode = Research
Comment = S016_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.993
GSD = 1.600
% Above = 11.541

Age Range = 12 to 72 months

Run Mode = Research
Comment = S016_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S017_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S017_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	72.400	130.000
12-24	72.400	130.000
24-36	72.400	130.000
36-48	72.400	130.000
48-60	72.400	130.000
60-72	72.400	130.000
72-84	72.400	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.054
12-24	0.054
24-36	0.054
36-48	0.054
48-60	0.054
60-72	0.054
72-84	0.054

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

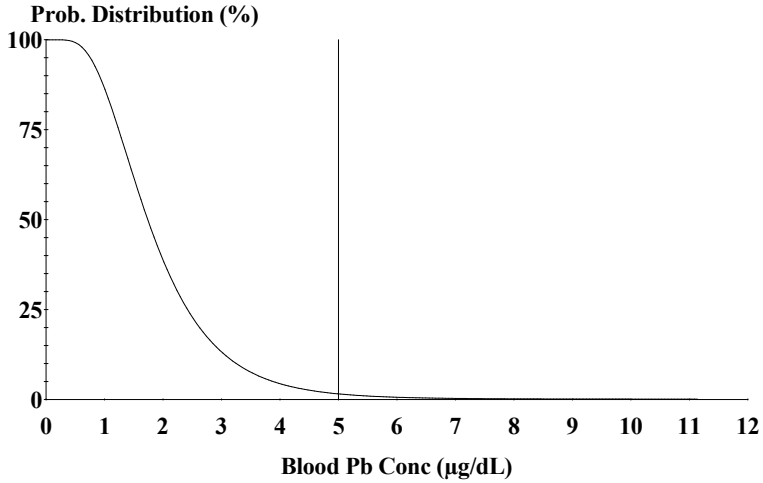
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.026	0.172
12-24	0.057	2.399	0.026	0.185
24-36	0.075	2.514	0.026	0.222
36-48	0.093	2.610	0.026	0.236
48-60	0.102	2.743	0.026	0.250
60-72	0.111	2.950	0.026	0.264
72-84	0.118	2.911	0.026	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.565	4.067	2.2
12-24	2.800	5.466	2.3
24-36	2.019	4.856	1.9
36-48	1.909	4.873	1.7
48-60	2.035	5.156	1.7
60-72	1.586	4.937	1.6
72-84	1.680	5.014	1.4

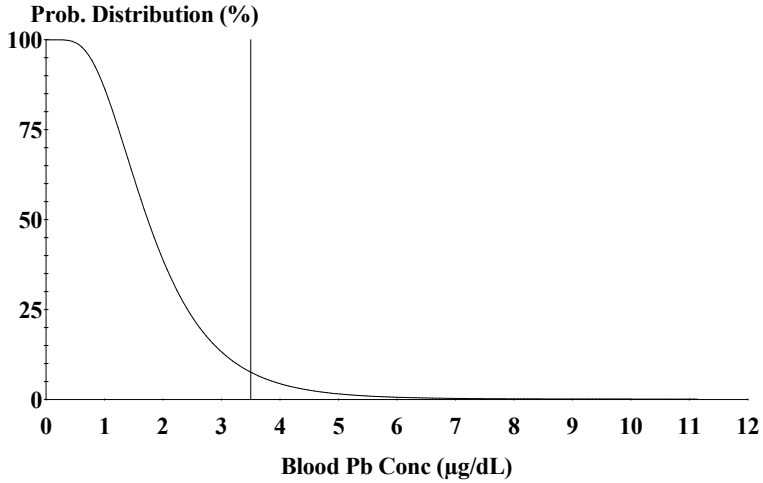


Cutoff = 5.000 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 1.588

Age Range = 12 to 72 months

Run Mode = Research
Comment = S017_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 8.249

Age Range = 12 to 72 months

Run Mode = Research
Comment = S017_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S017_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S017_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	122.400	130.000
12-24	122.400	130.000
24-36	122.400	130.000
36-48	122.400	130.000
48-60	122.400	130.000
60-72	122.400	130.000
72-84	122.400	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.054
12-24	0.054
24-36	0.054
36-48	0.054
48-60	0.054
60-72	0.054
72-84	0.054

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

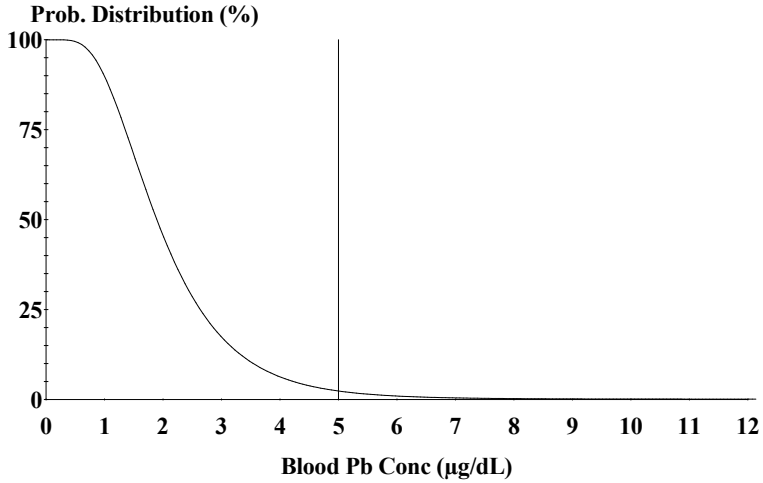
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.025	0.171
12-24	0.057	2.387	0.025	0.184
24-36	0.075	2.507	0.026	0.221
36-48	0.093	2.603	0.026	0.235
48-60	0.102	2.737	0.026	0.249
60-72	0.111	2.946	0.026	0.263
72-84	0.118	2.906	0.026	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.101	4.594	2.5
12-24	3.388	6.040	2.5
24-36	2.448	5.277	2.1
36-48	2.315	5.272	1.9
48-60	2.469	5.584	1.8
60-72	1.926	5.272	1.7
72-84	2.040	5.369	1.5

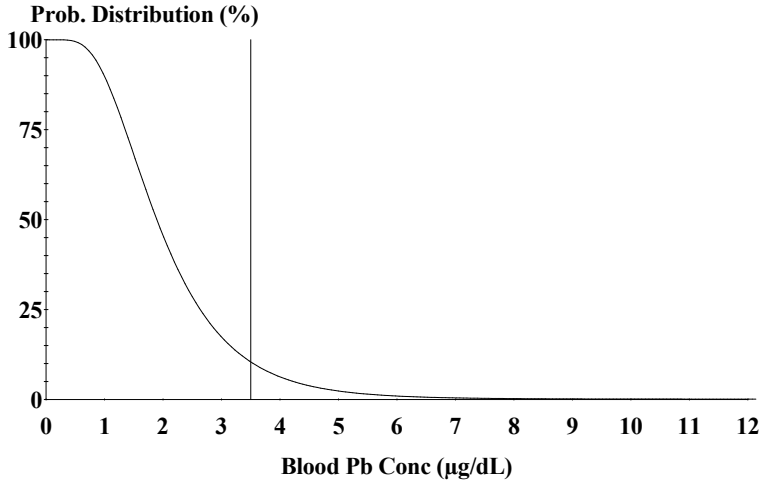


Cutoff = 5.000 µg/dl
Geo Mean = 1.986
GSD = 1.600
% Above = 2.471

Age Range = 12 to 72 months

Run Mode = Research
Comment = S017_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.986
GSD = 1.600
% Above = 11.389

Age Range = 12 to 72 months

Run Mode = Research
Comment = S017_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S020_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S020_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	68.600	130.000
12-24	68.600	130.000
24-36	68.600	130.000
36-48	68.600	130.000
48-60	68.600	130.000
60-72	68.600	130.000
72-84	68.600	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.083
12-24	0.083
24-36	0.083
36-48	0.083
48-60	0.083
60-72	0.083
72-84	0.083

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

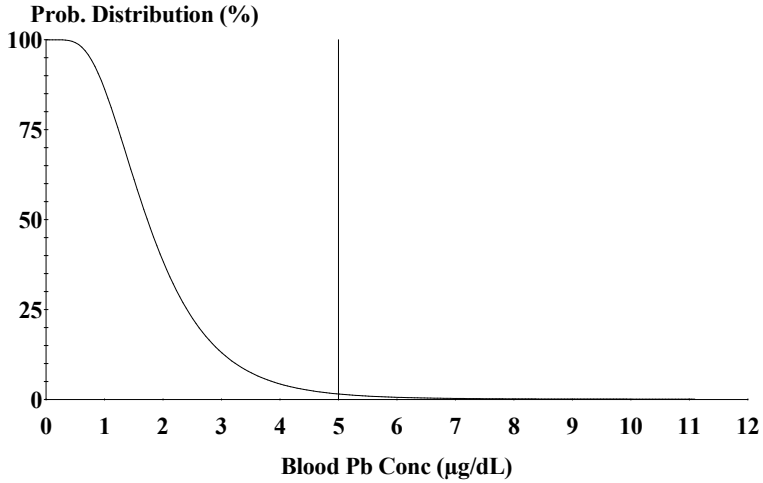
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.040	0.172
12-24	0.057	2.400	0.040	0.185
24-36	0.075	2.515	0.040	0.222
36-48	0.093	2.610	0.040	0.236
48-60	0.102	2.744	0.040	0.250
60-72	0.111	2.950	0.041	0.264
72-84	0.118	2.911	0.041	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.524	4.040	2.2
12-24	2.754	5.435	2.3
24-36	1.986	4.838	1.9
36-48	1.877	4.856	1.7
48-60	2.002	5.138	1.7
60-72	1.560	4.926	1.6
72-84	1.653	5.001	1.4

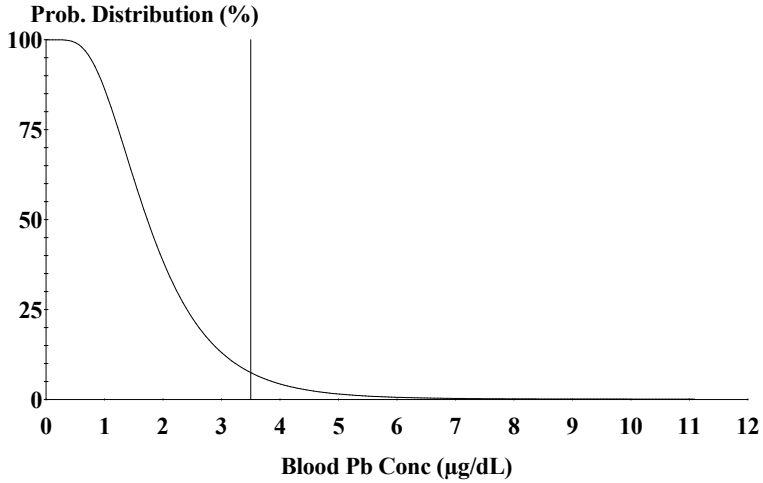


Cutoff = 5.000 µg/dl
Geo Mean = 1.815
GSD = 1.600
% Above = 1.554

Age Range = 12 to 72 months

Run Mode = Research
Comment = S020_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.815
GSD = 1.600
% Above = 8.117

Age Range = 12 to 72 months

Run Mode = Research
Comment = S020_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S020_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S020_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	118.600	130.000
12-24	118.600	130.000
24-36	118.600	130.000
36-48	118.600	130.000
48-60	118.600	130.000
60-72	118.600	130.000
72-84	118.600	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.083
12-24	0.083
24-36	0.083
36-48	0.083
48-60	0.083
60-72	0.083
72-84	0.083

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

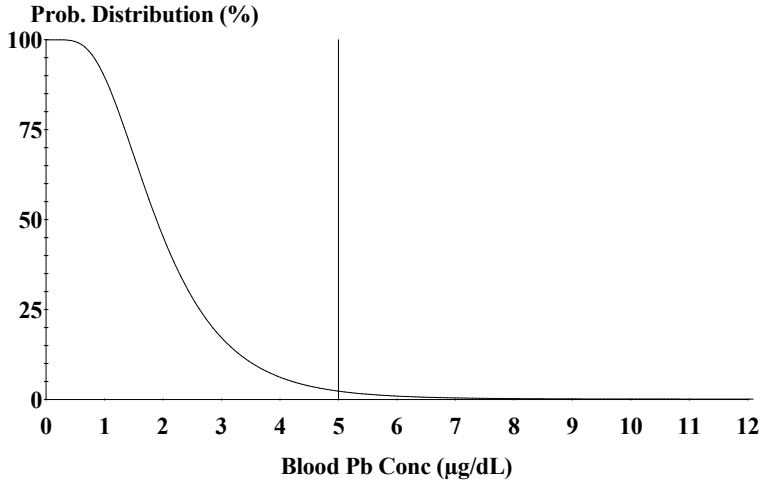
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.039	0.171
12-24	0.057	2.387	0.039	0.184
24-36	0.075	2.507	0.040	0.221
36-48	0.093	2.604	0.040	0.235
48-60	0.102	2.737	0.040	0.249
60-72	0.111	2.946	0.040	0.263
72-84	0.118	2.907	0.041	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.060	4.567	2.5
12-24	3.343	6.010	2.5
24-36	2.415	5.258	2.1
36-48	2.284	5.256	1.8
48-60	2.436	5.565	1.8
60-72	1.900	5.260	1.7
72-84	2.013	5.356	1.5

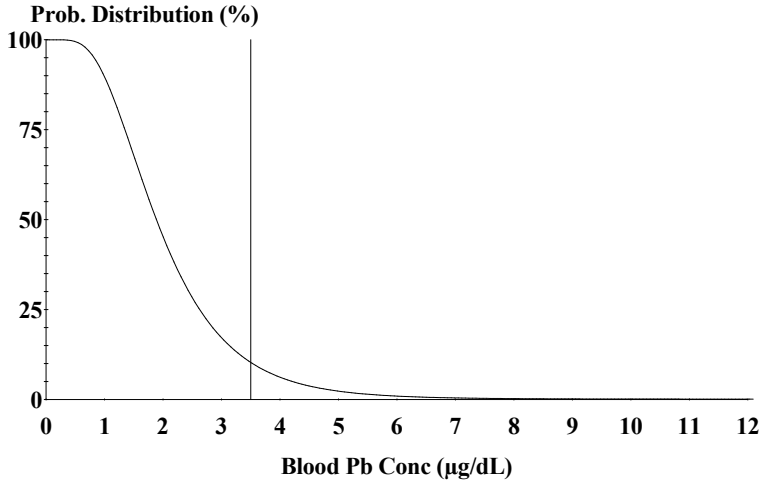


Cutoff = 5.000 µg/dl
Geo Mean = 1.978
GSD = 1.600
% Above = 2.425

Age Range = 12 to 72 months

Run Mode = Research
Comment = S020_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.978
GSD = 1.600
% Above = 11.236

Age Range = 12 to 72 months

Run Mode = Research
Comment = S020_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S021_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S021_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	78.286	130.000
12-24	78.286	130.000
24-36	78.286	130.000
36-48	78.286	130.000
48-60	78.286	130.000
60-72	78.286	130.000
72-84	78.286	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.486
12-24	0.486
24-36	0.486
36-48	0.486
48-60	0.486
60-72	0.486
72-84	0.486

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

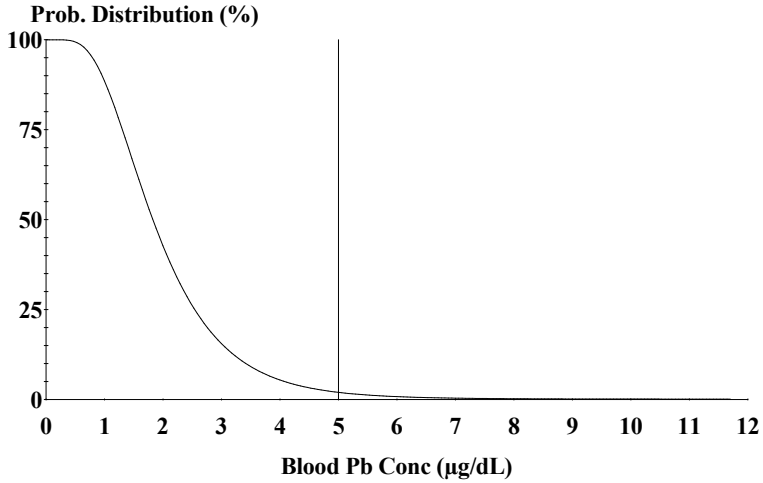
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.267	0.231	0.171
12-24	0.057	2.393	0.231	0.184
24-36	0.075	2.510	0.234	0.221
36-48	0.093	2.606	0.235	0.235
48-60	0.102	2.739	0.236	0.249
60-72	0.111	2.947	0.237	0.263
72-84	0.118	2.908	0.237	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.623	4.326	2.3
12-24	2.864	5.730	2.4
24-36	2.067	5.107	2.0
36-48	1.954	5.123	1.8
48-60	2.084	5.411	1.8
60-72	1.625	5.183	1.6
72-84	1.721	5.262	1.5

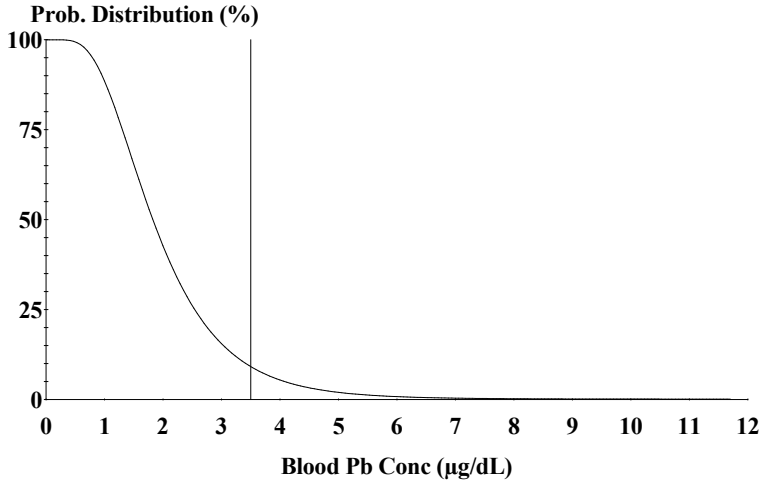


Cutoff = 5.000 µg/dl
Geo Mean = 1.914
GSD = 1.600
% Above = 2.054

Age Range = 12 to 72 months

Run Mode = Research
Comment = S021_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.914
GSD = 1.600
% Above = 9.960

Age Range = 12 to 72 months

Run Mode = Research
Comment = S021_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S021_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S021_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	128.290	130.000
12-24	128.290	130.000
24-36	128.290	130.000
36-48	128.290	130.000
48-60	128.290	130.000
60-72	128.290	130.000
72-84	128.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.486
12-24	0.486
24-36	0.486
36-48	0.486
48-60	0.486
60-72	0.486
72-84	0.486

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

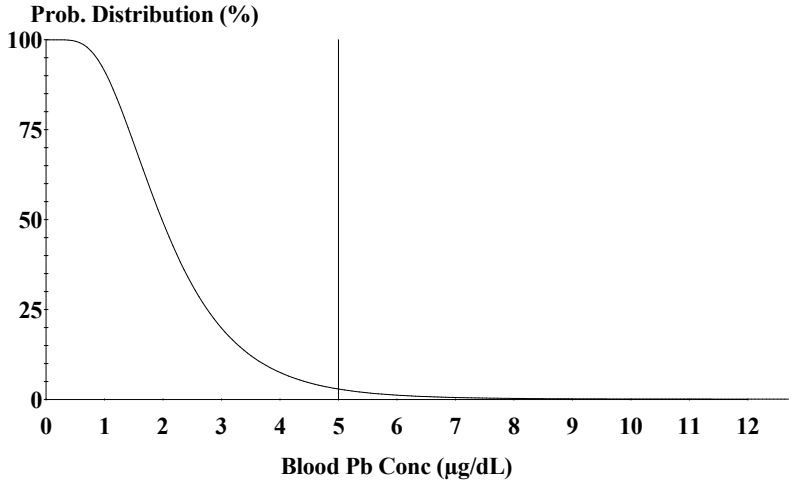
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.259	0.230	0.170
12-24	0.057	2.381	0.230	0.183
24-36	0.075	2.502	0.233	0.220
36-48	0.093	2.599	0.235	0.235
48-60	0.102	2.733	0.235	0.249
60-72	0.111	2.942	0.237	0.263
72-84	0.118	2.903	0.237	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.156	4.850	2.6
12-24	3.451	6.302	2.6
24-36	2.495	5.526	2.2
36-48	2.360	5.521	1.9
48-60	2.517	5.837	1.9
60-72	1.964	5.517	1.7
72-84	2.081	5.616	1.6

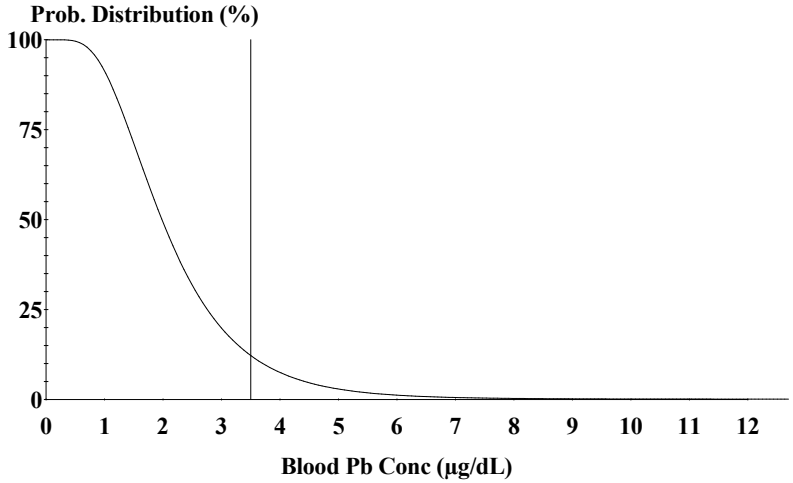


Cutoff = 5.000 µg/dl
Geo Mean = 2.077
GSD = 1.600
% Above = 3.079

Age Range = 12 to 72 months

Run Mode = Research
Comment = S021_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.077
GSD = 1.600
% Above = 13.339

Age Range = 12 to 72 months

Run Mode = Research
Comment = S021_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S022_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S022_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	64.657	130.000
12-24	64.657	130.000
24-36	64.657	130.000
36-48	64.657	130.000
48-60	64.657	130.000
60-72	64.657	130.000
72-84	64.657	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.083
12-24	0.083
24-36	0.083
36-48	0.083
48-60	0.083
60-72	0.083
72-84	0.083

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

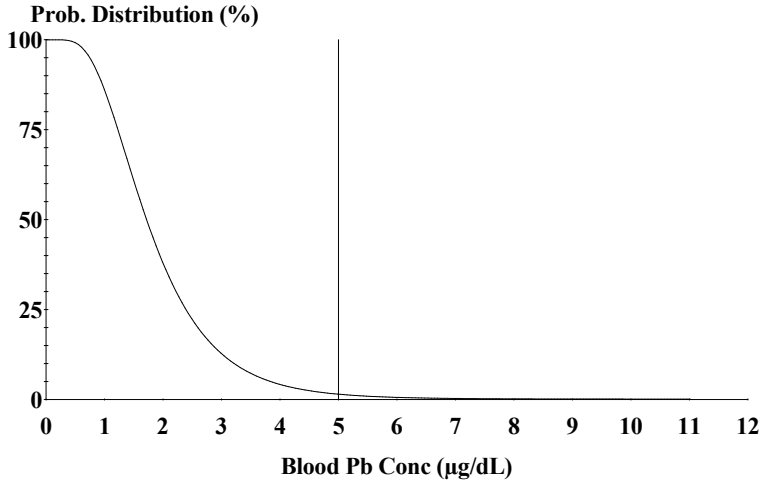
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.040	0.172
12-24	0.057	2.401	0.040	0.185
24-36	0.075	2.515	0.040	0.222
36-48	0.093	2.611	0.040	0.236
48-60	0.102	2.744	0.040	0.250
60-72	0.111	2.951	0.041	0.264
72-84	0.118	2.912	0.041	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.481	3.998	2.1
12-24	2.708	5.390	2.2
24-36	1.952	4.805	1.9
36-48	1.845	4.825	1.7
48-60	1.968	5.104	1.7
60-72	1.533	4.900	1.5
72-84	1.624	4.973	1.4

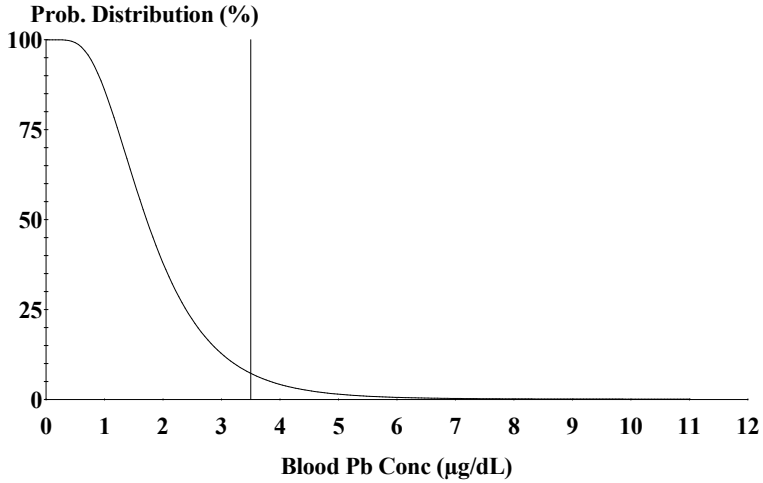


Cutoff = 5.000 µg/dl
Geo Mean = 1.802
GSD = 1.600
% Above = 1.495

Age Range = 12 to 72 months

Run Mode = Research
Comment = S022_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.802
GSD = 1.600
% Above = 7.891

Age Range = 12 to 72 months

Run Mode = Research
Comment = S022_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S022_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S022_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	114.660	130.000
12-24	114.660	130.000
24-36	114.660	130.000
36-48	114.660	130.000
48-60	114.660	130.000
60-72	114.660	130.000
72-84	114.660	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.083
12-24	0.083
24-36	0.083
36-48	0.083
48-60	0.083
60-72	0.083
72-84	0.083

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

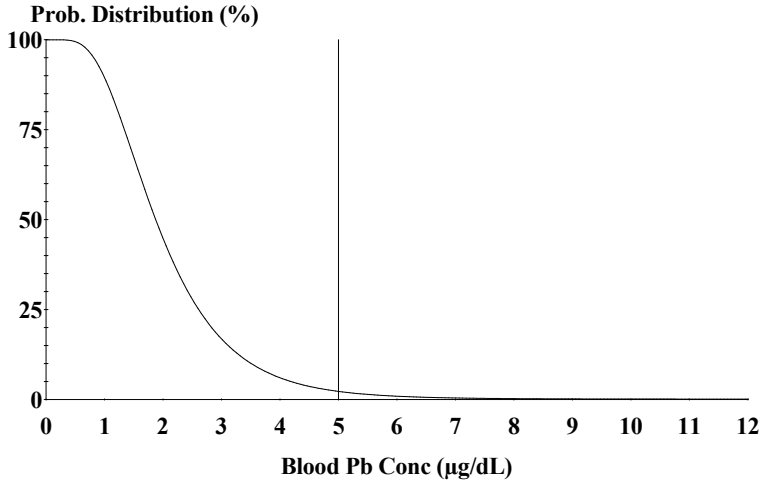
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.040	0.171
12-24	0.057	2.388	0.040	0.184
24-36	0.075	2.507	0.040	0.221
36-48	0.093	2.604	0.040	0.235
48-60	0.102	2.738	0.040	0.249
60-72	0.111	2.946	0.041	0.263
72-84	0.118	2.907	0.041	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.018	4.526	2.4
12-24	3.297	5.965	2.5
24-36	2.382	5.226	2.0
36-48	2.252	5.225	1.8
48-60	2.402	5.532	1.8
60-72	1.873	5.234	1.7
72-84	1.985	5.328	1.5

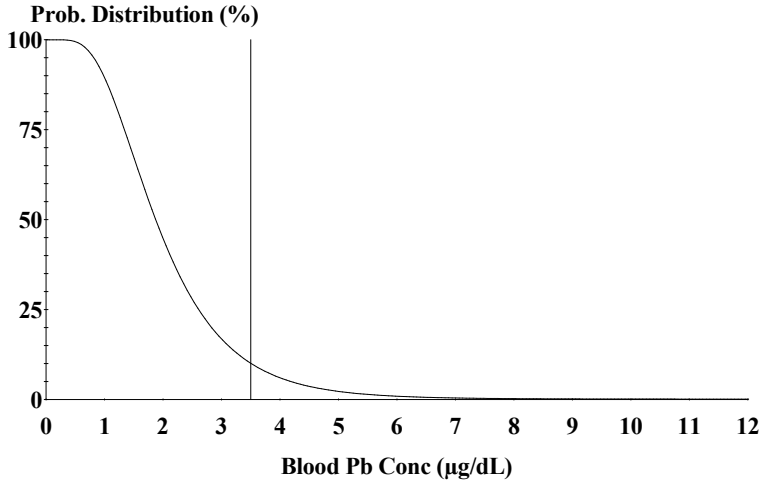


Cutoff = 5.000 µg/dl
Geo Mean = 1.965
GSD = 1.600
% Above = 2.348

Age Range = 12 to 72 months

Run Mode = Research
Comment = S022_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.965
GSD = 1.600
% Above = 10.975

Age Range = 12 to 72 months

Run Mode = Research
Comment = S022_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S027_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S027_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	67.657	130.000
12-24	67.657	130.000
24-36	67.657	130.000
36-48	67.657	130.000
48-60	67.657	130.000
60-72	67.657	130.000
72-84	67.657	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.588
12-24	0.588
24-36	0.588
36-48	0.588
48-60	0.588
60-72	0.588
72-84	0.588

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

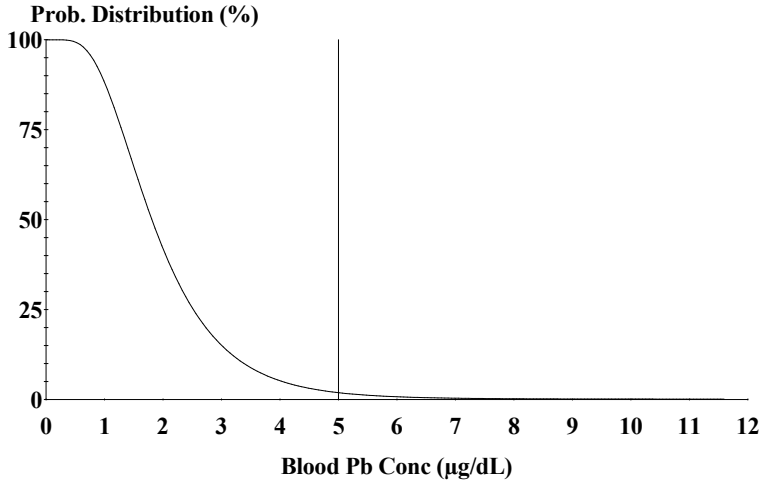
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.268	0.280	0.172
12-24	0.057	2.395	0.280	0.184
24-36	0.075	2.510	0.283	0.221
36-48	0.093	2.606	0.285	0.235
48-60	0.102	2.740	0.286	0.249
60-72	0.111	2.947	0.287	0.263
72-84	0.118	2.908	0.287	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.507	4.260	2.3
12-24	2.738	5.654	2.4
24-36	1.975	5.065	2.0
36-48	1.867	5.086	1.8
48-60	1.991	5.369	1.7
60-72	1.552	5.160	1.6
72-84	1.644	5.236	1.5

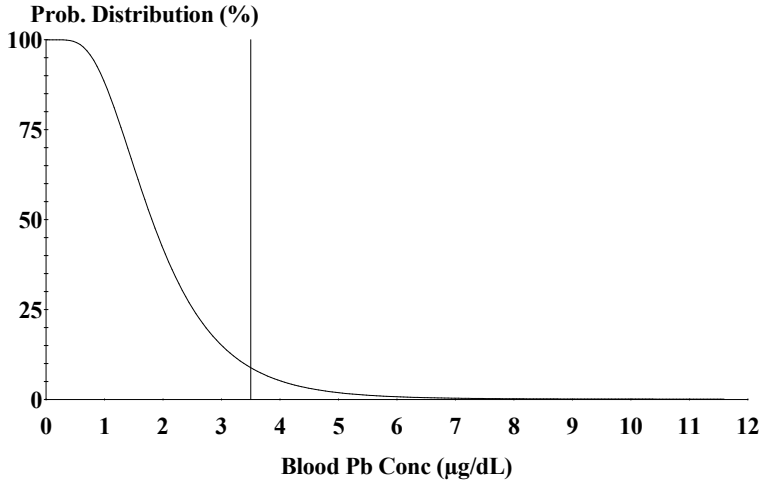


Cutoff = 5.000 µg/dl
Geo Mean = 1.897
GSD = 1.600
% Above = 1.959

Age Range = 12 to 72 months

Run Mode = Research
Comment = S027_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.897
GSD = 1.600
% Above = 9.622

Age Range = 12 to 72 months

Run Mode = Research
Comment = S027_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S027_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S027_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	107.660	130.000
12-24	107.660	130.000
24-36	107.660	130.000
36-48	107.660	130.000
48-60	107.660	130.000
60-72	107.660	130.000
72-84	107.660	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.588
12-24	0.588
24-36	0.588
36-48	0.588
48-60	0.588
60-72	0.588
72-84	0.588

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

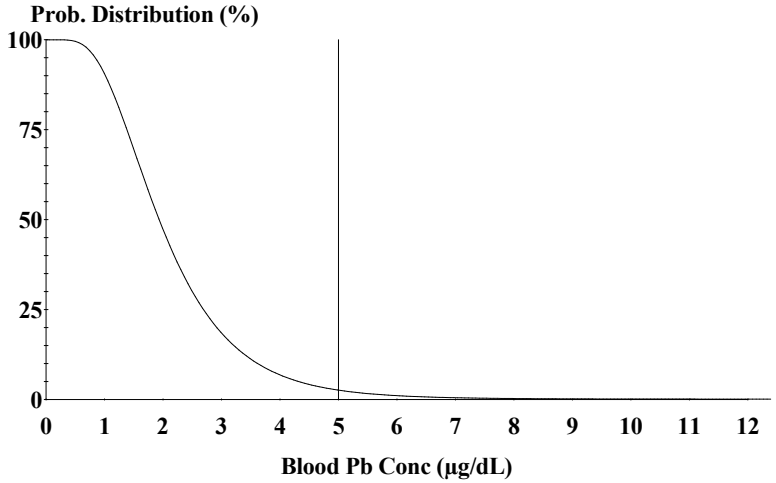
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.279	0.171
12-24	0.057	2.385	0.279	0.184
24-36	0.075	2.504	0.283	0.221
36-48	0.093	2.601	0.284	0.235
48-60	0.102	2.735	0.285	0.249
60-72	0.111	2.943	0.287	0.263
72-84	0.118	2.905	0.287	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.935	4.680	2.5
12-24	3.208	6.113	2.6
24-36	2.318	5.401	2.1
36-48	2.192	5.405	1.9
48-60	2.338	5.710	1.9
60-72	1.824	5.428	1.7
72-84	1.932	5.519	1.6

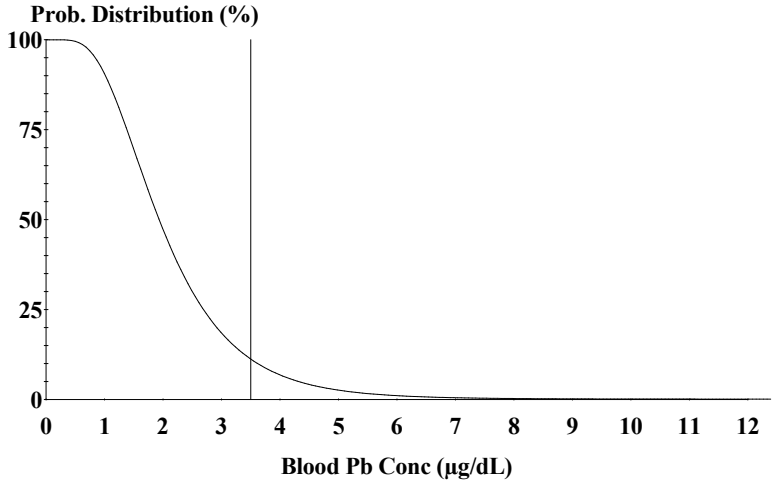


Cutoff = 5.000 µg/dl
Geo Mean = 2.027
GSD = 1.600
% Above = 2.736

Age Range = 12 to 72 months

Run Mode = Research
Comment = S027_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.027
GSD = 1.600
% Above = 12.259

Age Range = 12 to 72 months

Run Mode = Research
Comment = S027_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S029_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S029_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	65.643	130.000
12-24	65.643	130.000
24-36	65.643	130.000
36-48	65.643	130.000
48-60	65.643	130.000
60-72	65.643	130.000
72-84	65.643	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.180
12-24	0.180
24-36	0.180
36-48	0.180
48-60	0.180
60-72	0.180
72-84	0.180

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

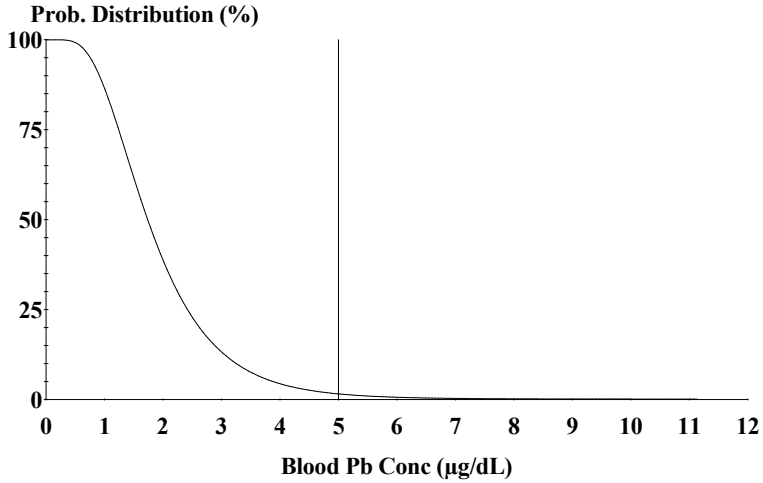
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.086	0.172
12-24	0.057	2.399	0.086	0.185
24-36	0.075	2.514	0.087	0.222
36-48	0.093	2.610	0.087	0.236
48-60	0.102	2.743	0.087	0.250
60-72	0.111	2.950	0.088	0.264
72-84	0.118	2.911	0.088	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.491	4.053	2.2
12-24	2.718	5.445	2.3
24-36	1.960	4.858	1.9
36-48	1.853	4.878	1.7
48-60	1.976	5.158	1.7
60-72	1.540	4.952	1.6
72-84	1.631	5.026	1.4

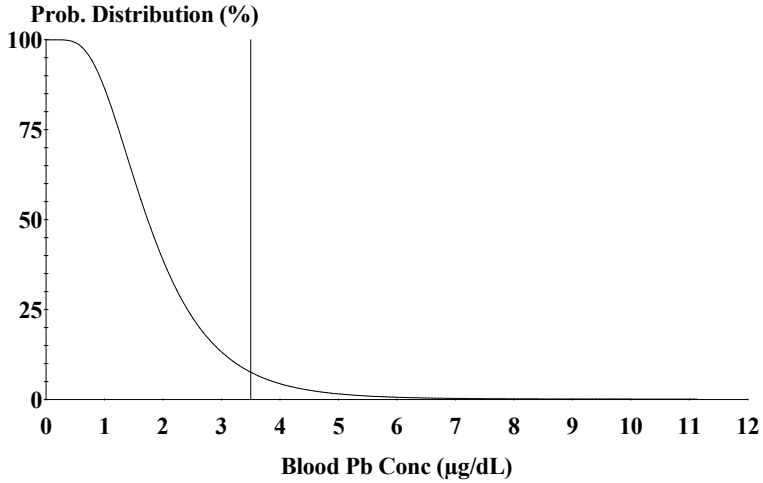


Cutoff = 5.000 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 1.584

Age Range = 12 to 72 months

Run Mode = Research
Comment = S029_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 8.234

Age Range = 12 to 72 months

Run Mode = Research
Comment = S029_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S029_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S029_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	105.640	130.000
12-24	105.640	130.000
24-36	105.640	130.000
36-48	105.640	130.000
48-60	105.640	130.000
60-72	105.640	130.000
72-84	105.640	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.180
12-24	0.180
24-36	0.180
36-48	0.180
48-60	0.180
60-72	0.180
72-84	0.180

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

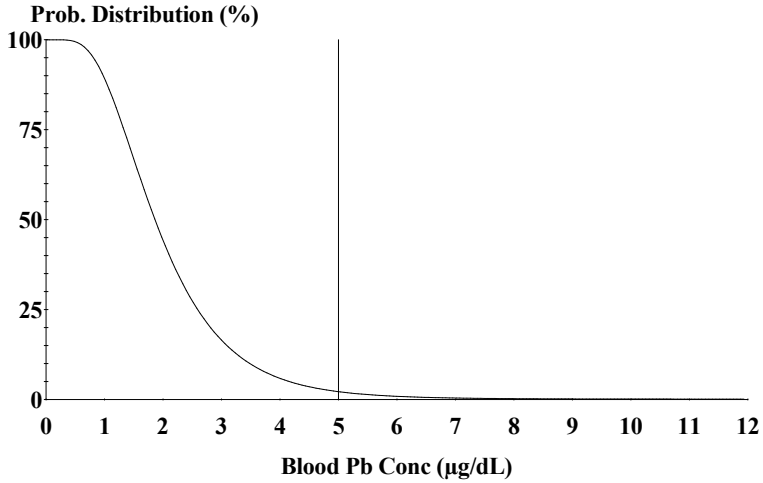
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.265	0.085	0.171
12-24	0.057	2.390	0.085	0.184
24-36	0.075	2.508	0.087	0.221
36-48	0.093	2.605	0.087	0.235
48-60	0.102	2.738	0.087	0.249
60-72	0.111	2.946	0.088	0.263
72-84	0.118	2.907	0.088	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.920	4.475	2.4
12-24	3.190	5.906	2.5
24-36	2.304	5.195	2.0
36-48	2.178	5.198	1.8
48-60	2.323	5.500	1.8
60-72	1.812	5.220	1.7
72-84	1.919	5.310	1.5

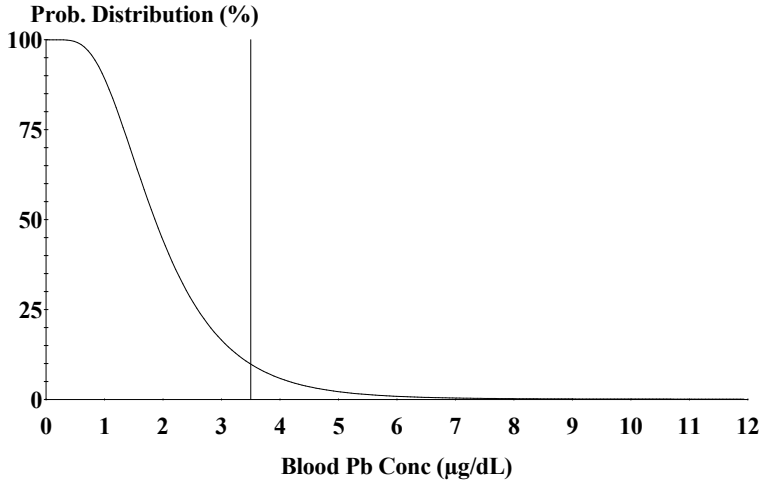


Cutoff = 5.000 µg/dl
Geo Mean = 1.952
GSD = 1.600
% Above = 2.269

Age Range = 12 to 72 months

Run Mode = Research
Comment = S029_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.952
GSD = 1.600
% Above = 10.709

Age Range = 12 to 72 months

Run Mode = Research
Comment = S029_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S030_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S030_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	74.086	130.000
12-24	74.086	130.000
24-36	74.086	130.000
36-48	74.086	130.000
48-60	74.086	130.000
60-72	74.086	130.000
72-84	74.086	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.052
12-24	0.052
24-36	0.052
36-48	0.052
48-60	0.052
60-72	0.052
72-84	0.052

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

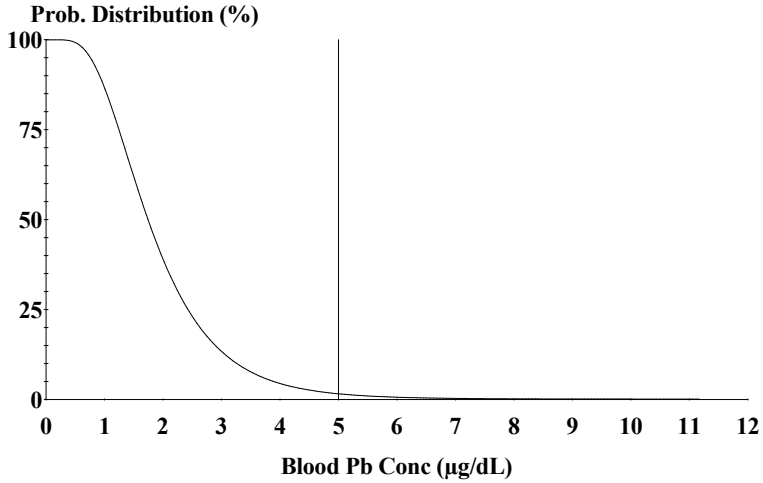
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.025	0.172
12-24	0.057	2.399	0.025	0.185
24-36	0.075	2.514	0.025	0.221
36-48	0.093	2.610	0.025	0.236
48-60	0.102	2.743	0.026	0.250
60-72	0.111	2.950	0.026	0.264
72-84	0.118	2.911	0.026	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.583	4.084	2.2
12-24	2.820	5.485	2.3
24-36	2.034	4.870	1.9
36-48	1.922	4.886	1.7
48-60	2.050	5.170	1.7
60-72	1.598	4.948	1.6
72-84	1.693	5.025	1.4

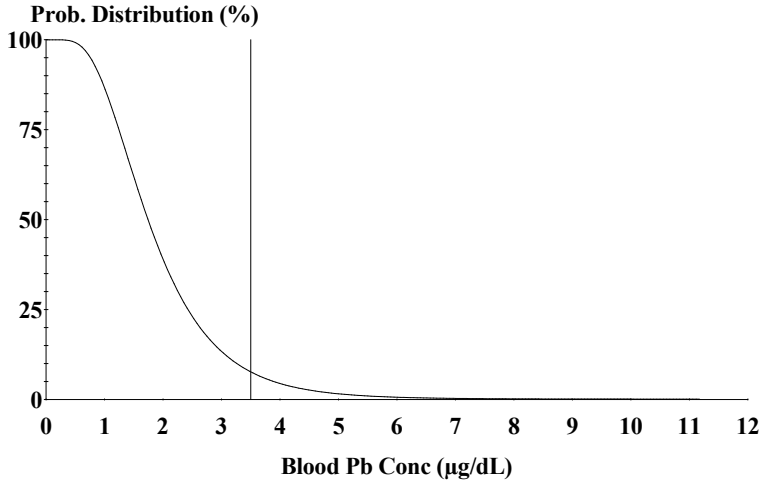


Cutoff = 5.000 µg/dl
Geo Mean = 1.828
GSD = 1.600
% Above = 1.613

Age Range = 12 to 72 months

Run Mode = Research
Comment = S030_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.828
GSD = 1.600
% Above = 8.344

Age Range = 12 to 72 months

Run Mode = Research
Comment = S030_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S030_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S030_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	114.090	130.000
12-24	114.090	130.000
24-36	114.090	130.000
36-48	114.090	130.000
48-60	114.090	130.000
60-72	114.090	130.000
72-84	114.090	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.052
12-24	0.052
24-36	0.052
36-48	0.052
48-60	0.052
60-72	0.052
72-84	0.052

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

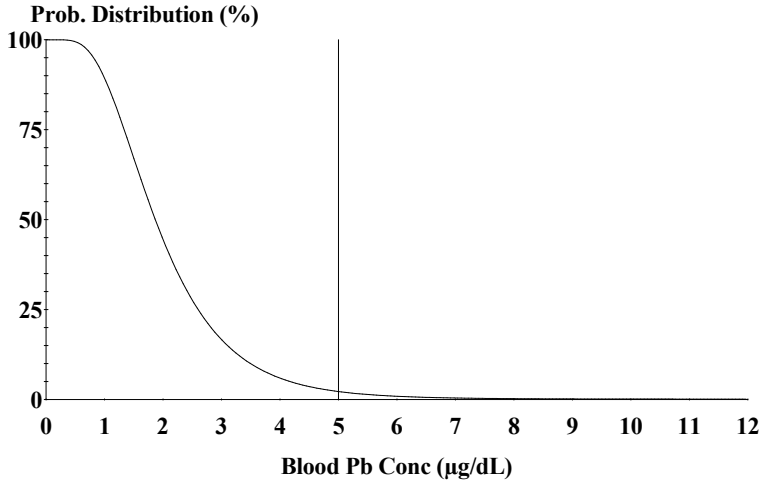
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.025	0.171
12-24	0.057	2.389	0.025	0.184
24-36	0.075	2.508	0.025	0.221
36-48	0.093	2.604	0.025	0.235
48-60	0.102	2.738	0.025	0.249
60-72	0.111	2.946	0.026	0.263
72-84	0.118	2.907	0.026	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.012	4.506	2.4
12-24	3.290	5.945	2.5
24-36	2.377	5.206	2.0
36-48	2.248	5.206	1.8
48-60	2.397	5.512	1.8
60-72	1.870	5.216	1.7
72-84	1.981	5.309	1.5

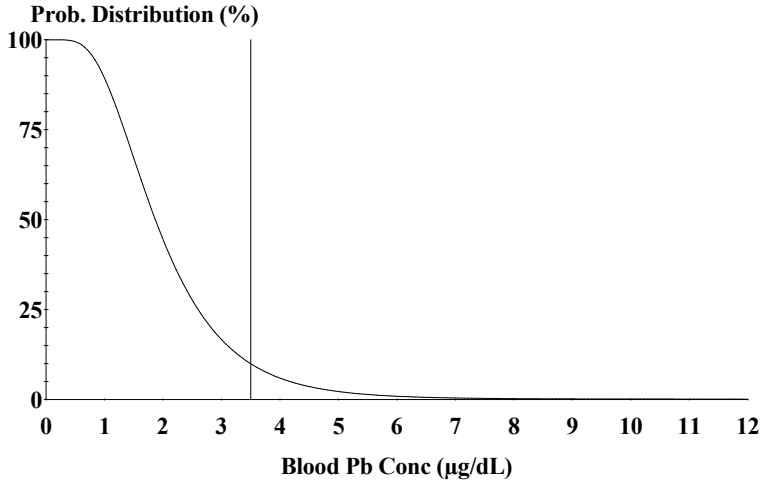


Cutoff = 5.000 µg/dl
Geo Mean = 1.958
GSD = 1.600
% Above = 2.306

Age Range = 12 to 72 months

Run Mode = Research
Comment = S030_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.958
GSD = 1.600
% Above = 10.834

Age Range = 12 to 72 months

Run Mode = Research
Comment = S030_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S031_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S031_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	82.357	130.000
12-24	82.357	130.000
24-36	82.357	130.000
36-48	82.357	130.000
48-60	82.357	130.000
60-72	82.357	130.000
72-84	82.357	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.655
12-24	0.655
24-36	0.655
36-48	0.655
48-60	0.655
60-72	0.655
72-84	0.655

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

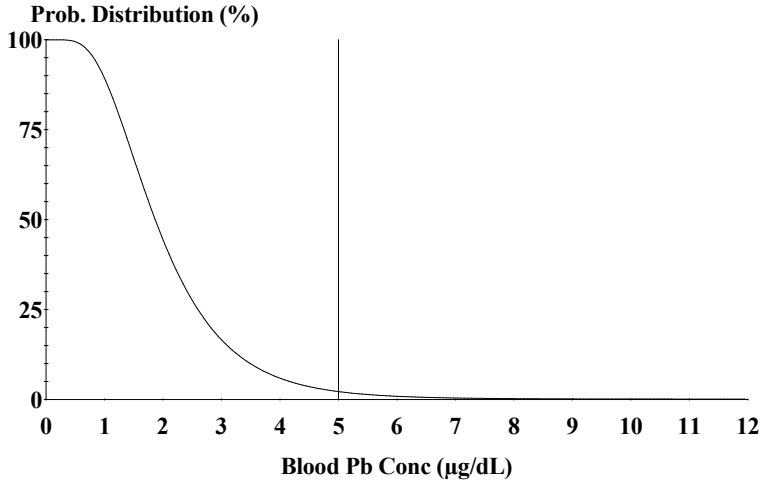
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.265	0.312	0.171
12-24	0.057	2.391	0.311	0.184
24-36	0.075	2.508	0.315	0.221
36-48	0.093	2.604	0.317	0.235
48-60	0.102	2.738	0.318	0.249
60-72	0.111	2.945	0.319	0.263
72-84	0.118	2.906	0.320	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.664	4.446	2.4
12-24	2.910	5.853	2.4
24-36	2.100	5.220	2.0
36-48	1.986	5.235	1.8
48-60	2.118	5.526	1.8
60-72	1.652	5.291	1.7
72-84	1.750	5.372	1.5

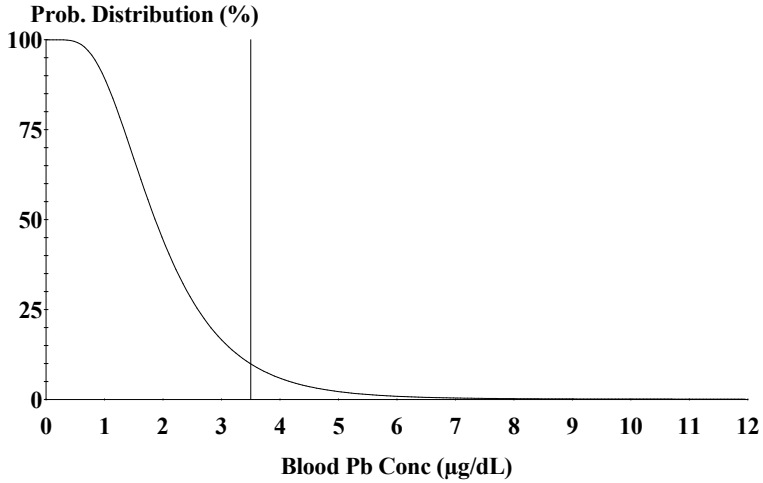


Cutoff = 5.000 µg/dl
Geo Mean = 1.956
GSD = 1.600
% Above = 2.292

Age Range = 12 to 72 months

Run Mode = Research
Comment = S031_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.956
GSD = 1.600
% Above = 10.786

Age Range = 12 to 72 months

Run Mode = Research
Comment = S031_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S031_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S031_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	122.360	130.000
12-24	122.360	130.000
24-36	122.360	130.000
36-48	122.360	130.000
48-60	122.360	130.000
60-72	122.360	130.000
72-84	122.360	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.655
12-24	0.655
24-36	0.655
36-48	0.655
48-60	0.655
60-72	0.655
72-84	0.655

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

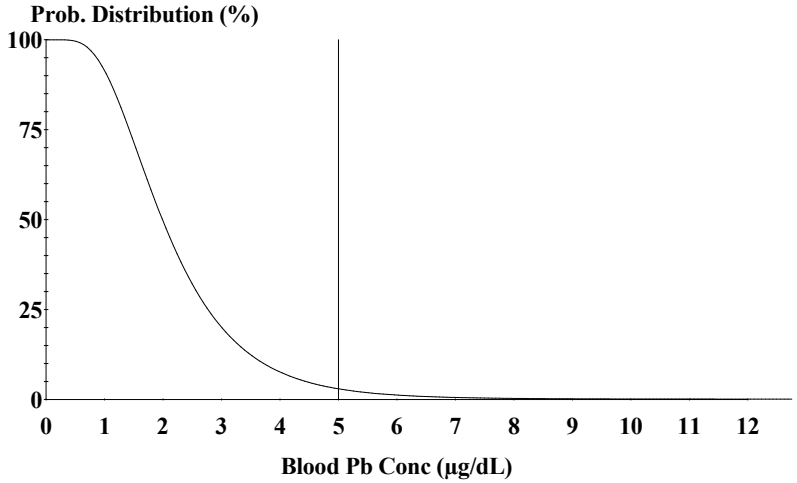
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.259	0.310	0.170
12-24	0.057	2.381	0.310	0.183
24-36	0.075	2.501	0.315	0.220
36-48	0.093	2.599	0.316	0.235
48-60	0.102	2.733	0.317	0.249
60-72	0.111	2.941	0.319	0.263
72-84	0.118	2.903	0.320	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.091	4.864	2.6
12-24	3.379	6.311	2.6
24-36	2.443	5.554	2.2
36-48	2.311	5.553	2.0
48-60	2.465	5.866	1.9
60-72	1.923	5.557	1.8
72-84	2.038	5.655	1.6

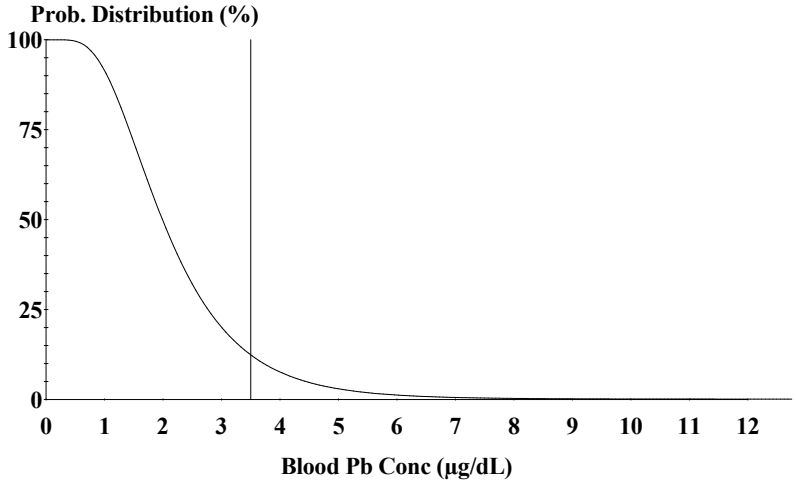


Cutoff = 5.000 µg/dl
Geo Mean = 2.086
GSD = 1.600
% Above = 3.143

Age Range = 12 to 72 months

Run Mode = Research
Comment = S031_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.086
GSD = 1.600
% Above = 13.539

Age Range = 12 to 72 months

Run Mode = Research
Comment = S031_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S033_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S033_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	62.629	130.000
12-24	62.629	130.000
24-36	62.629	130.000
36-48	62.629	130.000
48-60	62.629	130.000
60-72	62.629	130.000
72-84	62.629	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.350
12-24	0.350
24-36	0.350
36-48	0.350
48-60	0.350
60-72	0.350
72-84	0.350

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

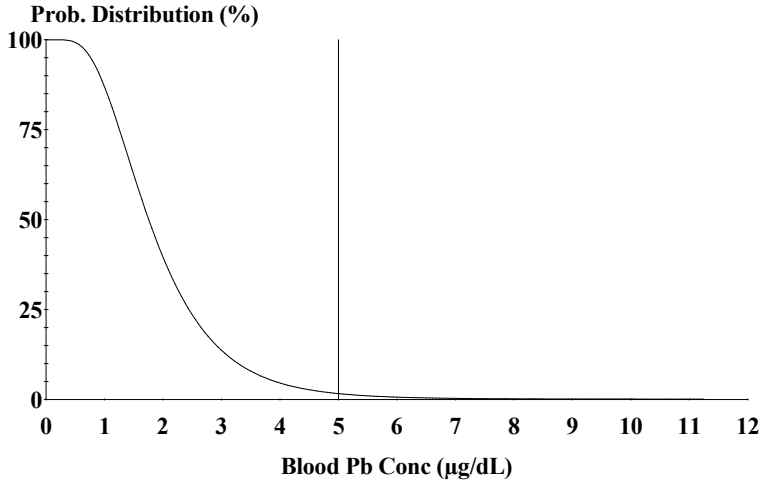
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.167	0.172
12-24	0.057	2.399	0.167	0.185
24-36	0.075	2.513	0.169	0.221
36-48	0.093	2.609	0.170	0.236
48-60	0.102	2.742	0.170	0.249
60-72	0.111	2.949	0.171	0.264
72-84	0.118	2.910	0.171	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.456	4.099	2.2
12-24	2.681	5.488	2.3
24-36	1.933	4.912	1.9
36-48	1.827	4.934	1.7
48-60	1.949	5.213	1.7
60-72	1.519	5.013	1.6
72-84	1.609	5.086	1.5

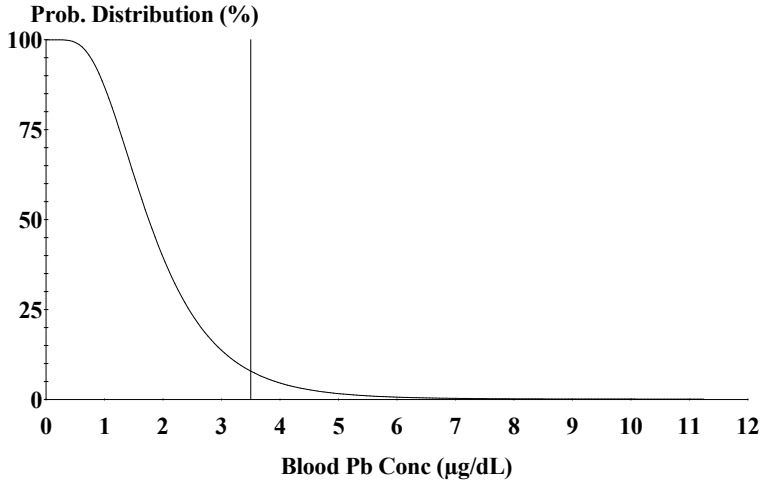


Cutoff = 5.000 µg/dl
Geo Mean = 1.840
GSD = 1.600
% Above = 1.673

Age Range = 12 to 72 months

Run Mode = Research
Comment = S033_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.840
GSD = 1.600
% Above = 8.571

Age Range = 12 to 72 months

Run Mode = Research
Comment = S033_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S033_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S033_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	112.630	130.000
12-24	112.630	130.000
24-36	112.630	130.000
36-48	112.630	130.000
48-60	112.630	130.000
60-72	112.630	130.000
72-84	112.630	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.350
12-24	0.350
24-36	0.350
36-48	0.350
48-60	0.350
60-72	0.350
72-84	0.350

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

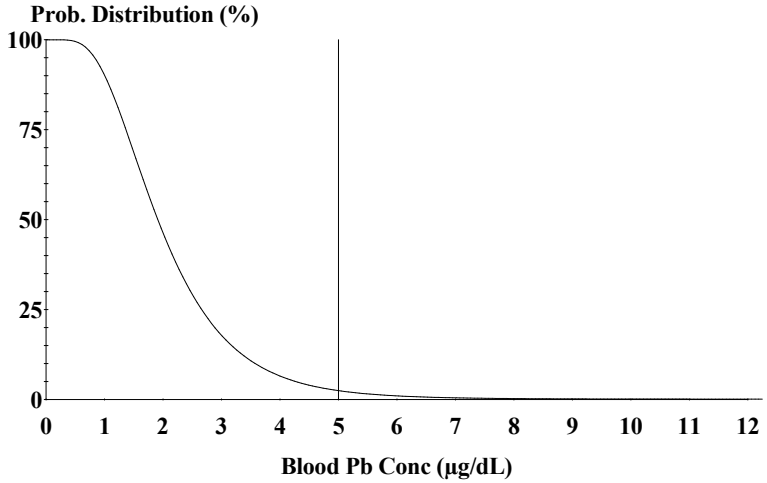
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.166	0.171
12-24	0.057	2.386	0.166	0.184
24-36	0.075	2.505	0.168	0.221
36-48	0.093	2.602	0.169	0.235
48-60	0.102	2.736	0.170	0.249
60-72	0.111	2.944	0.171	0.263
72-84	0.118	2.906	0.171	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.992	4.625	2.5
12-24	3.269	6.062	2.5
24-36	2.362	5.332	2.1
36-48	2.234	5.333	1.9
48-60	2.383	5.640	1.8
60-72	1.858	5.348	1.7
72-84	1.969	5.441	1.6

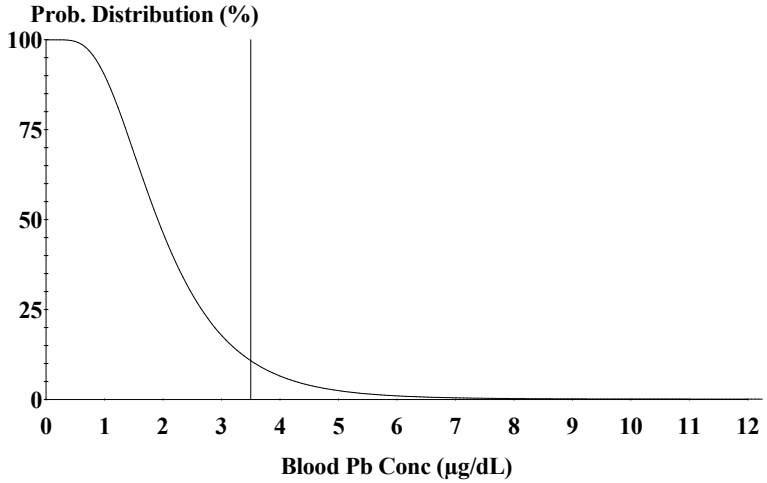


Cutoff = 5.000 µg/dl
Geo Mean = 2.003
GSD = 1.600
% Above = 2.583

Age Range = 12 to 72 months

Run Mode = Research
Comment = S033_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.003
GSD = 1.600
% Above = 11.760

Age Range = 12 to 72 months

Run Mode = Research
Comment = S033_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S036_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S036_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	67.143	130.000
12-24	67.143	130.000
24-36	67.143	130.000
36-48	67.143	130.000
48-60	67.143	130.000
60-72	67.143	130.000
72-84	67.143	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.153
12-24	0.153
24-36	0.153
36-48	0.153
48-60	0.153
60-72	0.153
72-84	0.153

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

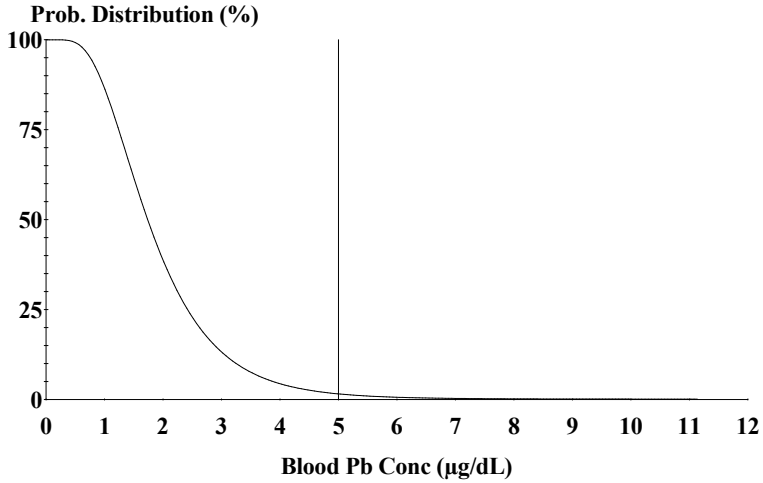
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.073	0.172
12-24	0.057	2.399	0.073	0.185
24-36	0.075	2.514	0.074	0.222
36-48	0.093	2.610	0.074	0.236
48-60	0.102	2.743	0.074	0.250
60-72	0.111	2.950	0.075	0.264
72-84	0.118	2.911	0.075	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.507	4.056	2.2
12-24	2.736	5.450	2.3
24-36	1.973	4.858	1.9
36-48	1.865	4.878	1.7
48-60	1.989	5.158	1.7
60-72	1.550	4.949	1.6
72-84	1.642	5.024	1.4

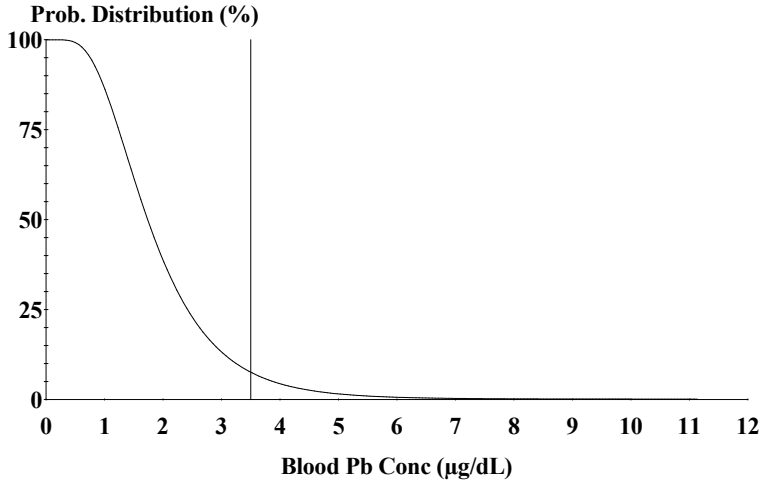


Cutoff = 5.000 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 1.586

Age Range = 12 to 72 months

Run Mode = Research
Comment = S036_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.822
GSD = 1.600
% Above = 8.240

Age Range = 12 to 72 months

Run Mode = Research
Comment = S036_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S036_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S036_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	117.140	130.000
12-24	117.140	130.000
24-36	117.140	130.000
36-48	117.140	130.000
48-60	117.140	130.000
60-72	117.140	130.000
72-84	117.140	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.153
12-24	0.153
24-36	0.153
36-48	0.153
48-60	0.153
60-72	0.153
72-84	0.153

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

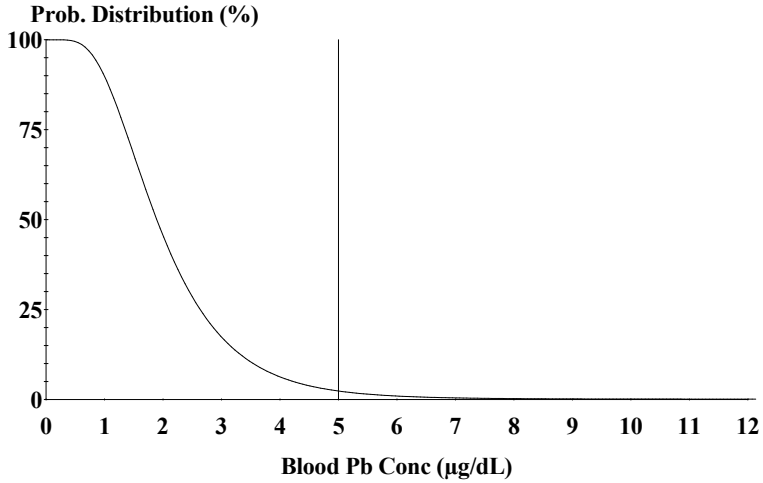
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.263	0.072	0.171
12-24	0.057	2.387	0.072	0.184
24-36	0.075	2.506	0.073	0.221
36-48	0.093	2.603	0.074	0.235
48-60	0.102	2.737	0.074	0.249
60-72	0.111	2.945	0.074	0.263
72-84	0.118	2.906	0.075	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.043	4.583	2.5
12-24	3.325	6.025	2.5
24-36	2.402	5.278	2.1
36-48	2.272	5.277	1.9
48-60	2.423	5.585	1.8
60-72	1.890	5.284	1.7
72-84	2.002	5.379	1.5

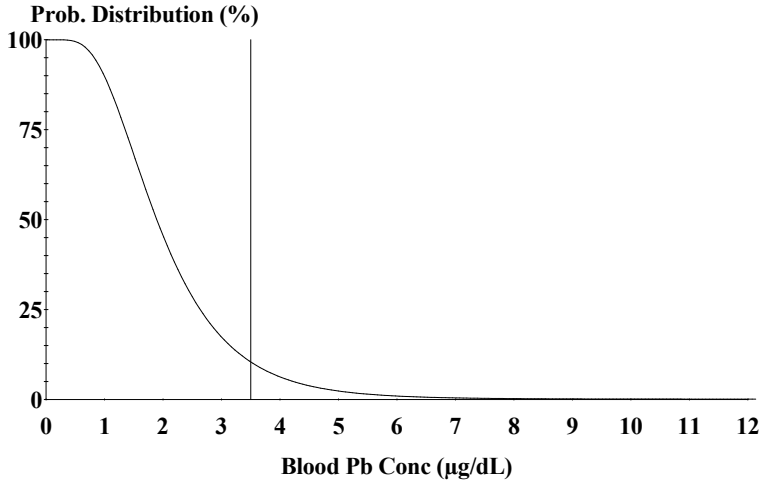


Cutoff = 5.000 µg/dl
Geo Mean = 1.985
GSD = 1.600
% Above = 2.468

Age Range = 12 to 72 months

Run Mode = Research
Comment = S036_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.985
GSD = 1.600
% Above = 11.378

Age Range = 12 to 72 months

Run Mode = Research
Comment = S036_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S037_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S037_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	98.000	130.000
12-24	98.000	130.000
24-36	98.000	130.000
36-48	98.000	130.000
48-60	98.000	130.000
60-72	98.000	130.000
72-84	98.000	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.302
12-24	0.302
24-36	0.302
36-48	0.302
48-60	0.302
60-72	0.302
72-84	0.302

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

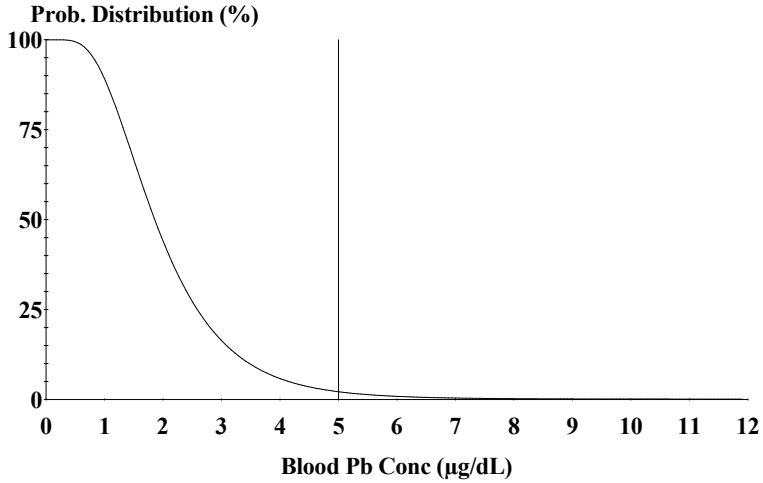
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.265	0.144	0.171
12-24	0.057	2.390	0.144	0.184
24-36	0.075	2.508	0.146	0.221
36-48	0.093	2.605	0.146	0.235
48-60	0.102	2.738	0.147	0.249
60-72	0.111	2.946	0.148	0.263
72-84	0.118	2.907	0.148	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.837	4.450	2.4
12-24	3.098	5.873	2.5
24-36	2.237	5.187	2.0
36-48	2.115	5.194	1.8
48-60	2.256	5.493	1.8
60-72	1.759	5.227	1.7
72-84	1.864	5.314	1.5

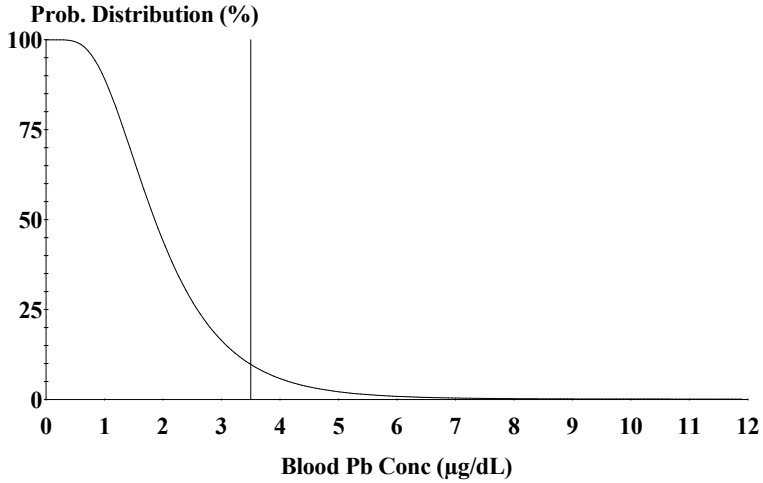


Cutoff = 5.000 µg/dl
Geo Mean = 1.948
GSD = 1.600
% Above = 2.244

Age Range = 12 to 72 months

Run Mode = Research
Comment = S037_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.948
GSD = 1.600
% Above = 10.622

Age Range = 12 to 72 months

Run Mode = Research
Comment = S037_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S037_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S037_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	138.000	130.000
12-24	138.000	130.000
24-36	138.000	130.000
36-48	138.000	130.000
48-60	138.000	130.000
60-72	138.000	130.000
72-84	138.000	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.302
12-24	0.302
24-36	0.302
36-48	0.302
48-60	0.302
60-72	0.302
72-84	0.302

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

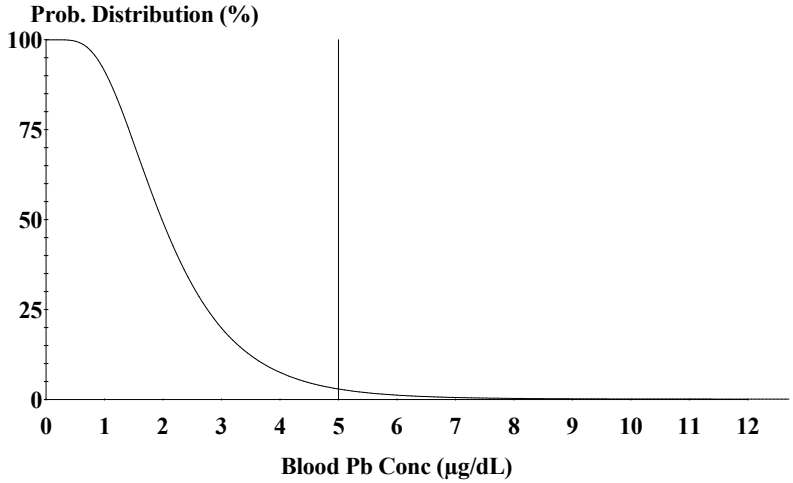
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.259	0.143	0.170
12-24	0.057	2.381	0.143	0.183
24-36	0.075	2.502	0.145	0.220
36-48	0.093	2.599	0.146	0.235
48-60	0.102	2.733	0.147	0.249
60-72	0.111	2.942	0.147	0.263
72-84	0.118	2.904	0.148	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.262	4.869	2.6
12-24	3.566	6.330	2.6
24-36	2.579	5.522	2.2
36-48	2.440	5.513	1.9
48-60	2.603	5.833	1.9
60-72	2.031	5.494	1.7
72-84	2.151	5.598	1.6

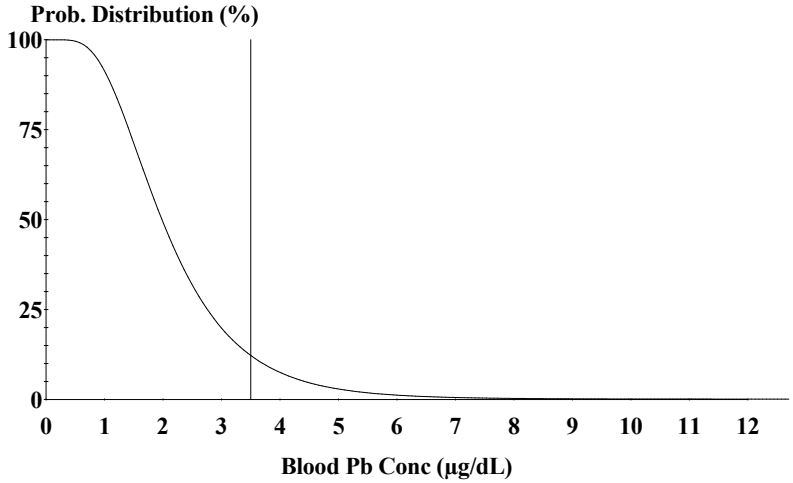


Cutoff = 5.000 µg/dl
Geo Mean = 2.078
GSD = 1.600
% Above = 3.085

Age Range = 12 to 72 months

Run Mode = Research
Comment = S037_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.078
GSD = 1.600
% Above = 13.359

Age Range = 12 to 72 months

Run Mode = Research
Comment = S037_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S038_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S038_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	108.570	130.000
12-24	108.570	130.000
24-36	108.570	130.000
36-48	108.570	130.000
48-60	108.570	130.000
60-72	108.570	130.000
72-84	108.570	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.543
12-24	0.543
24-36	0.543
36-48	0.543
48-60	0.543
60-72	0.543
72-84	0.543

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

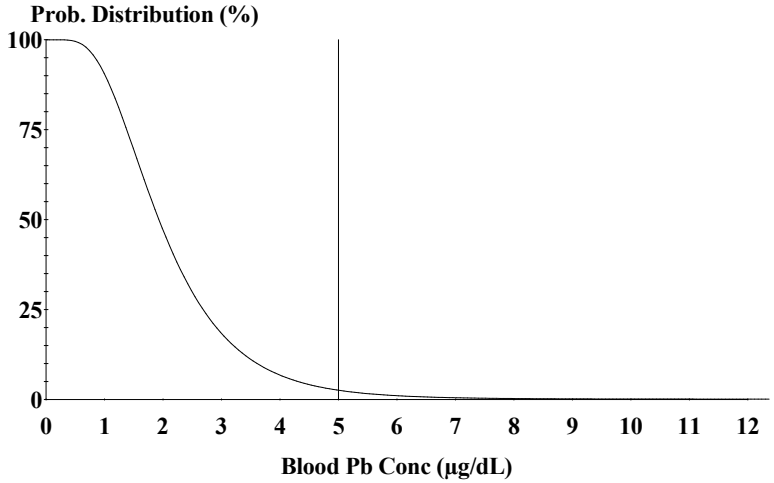
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.258	0.171
12-24	0.057	2.385	0.258	0.184
24-36	0.075	2.504	0.261	0.221
36-48	0.093	2.601	0.263	0.235
48-60	0.102	2.735	0.263	0.249
60-72	0.111	2.944	0.265	0.263
72-84	0.118	2.905	0.265	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.946	4.670	2.5
12-24	3.219	6.103	2.6
24-36	2.326	5.387	2.1
36-48	2.200	5.391	1.9
48-60	2.346	5.696	1.9
60-72	1.830	5.412	1.7
72-84	1.939	5.504	1.6

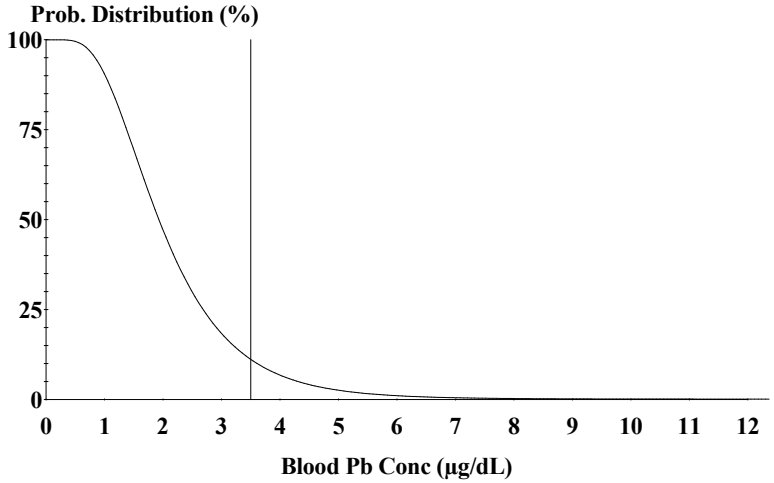


Cutoff = 5.000 µg/dl
Geo Mean = 2.022
GSD = 1.600
% Above = 2.707

Age Range = 12 to 72 months

Run Mode = Research
Comment = S038_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.022
GSD = 1.600
% Above = 12.162

Age Range = 12 to 72 months

Run Mode = Research
Comment = S038_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S038_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S038_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	158.570	130.000
12-24	158.570	130.000
24-36	158.570	130.000
36-48	158.570	130.000
48-60	158.570	130.000
60-72	158.570	130.000
72-84	158.570	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.543
12-24	0.543
24-36	0.543
36-48	0.543
48-60	0.543
60-72	0.543
72-84	0.543

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

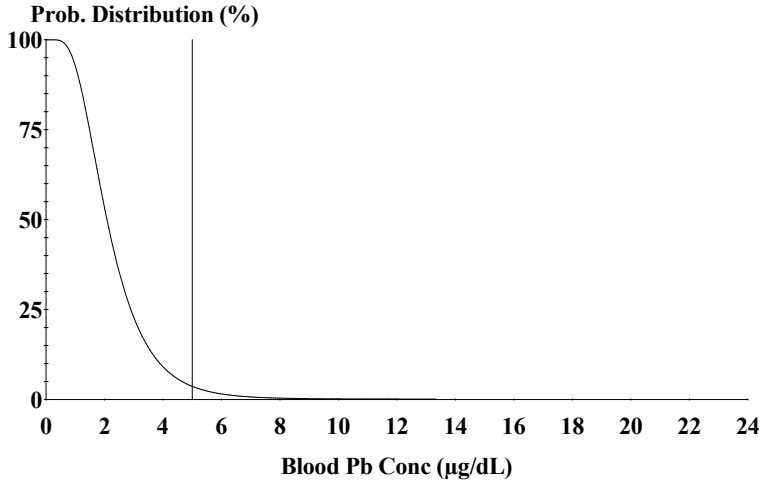
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.254	0.256	0.170
12-24	0.057	2.374	0.256	0.183
24-36	0.075	2.497	0.260	0.220
36-48	0.093	2.595	0.262	0.234
48-60	0.102	2.729	0.263	0.248
60-72	0.111	2.939	0.264	0.263
72-84	0.118	2.900	0.265	0.276

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.476	5.190	2.8
12-24	3.802	6.671	2.8
24-36	2.752	5.804	2.3
36-48	2.604	5.788	2.0
48-60	2.779	6.121	2.0
60-72	2.169	5.745	1.8
72-84	2.298	5.858	1.7

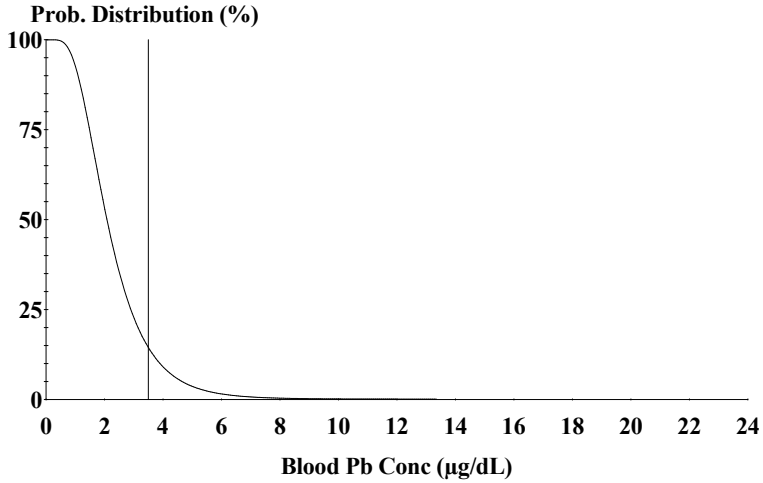


Cutoff = 5.000 µg/dl
Geo Mean = 2.184
GSD = 1.600
% Above = 3.902

Age Range = 12 to 72 months

Run Mode = Research
Comment = S038_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.184
GSD = 1.600
% Above = 15.785

Age Range = 12 to 72 months

Run Mode = Research
Comment = S038_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

LEAD MODEL FOR WINDOWS Version 2.0

S043_priv_80/130

These IEUBK Model results are valid as long as they were produced with an official unmodified version of the IEUBK Model with a software certificate.

While IEUBK Model output is generally written with three digits to the right of the decimal point the true precision of the output is strongly influenced by least precise input values.

==========

Model Version: 2.0 Build1
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Month	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
6-12	1.000	3.216	32.000	0.100
12-24	2.000	4.970	32.000	0.100
24-36	3.000	6.086	32.000	0.100
36-48	4.000	6.954	32.000	0.100
48-60	4.000	7.682	32.000	0.100
60-72	4.000	8.318	32.000	0.100
72-84	4.000	8.887	32.000	0.100

****** Diet ******

Month	Diet Intake(µg/day)
6-12	2.660
12-24	5.030
24-36	5.210
36-48	5.380
48-60	5.640
60-72	6.040
72-84	5.950

****** Drinking Water ******

Water Consumption:

Month	Water (L/day)
6-12	0.400
12-24	0.430
24-36	0.510
36-48	0.540
48-60	0.570
60-72	0.600
72-84	0.630

Drinking Water Concentration: 0.900 µg Pb/L

LEAD MODEL FOR WINDOWS Version 2.0

S043_priv_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	76.057	130.000
12-24	76.057	130.000
24-36	76.057	130.000
36-48	76.057	130.000
48-60	76.057	130.000
60-72	76.057	130.000
72-84	76.057	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.678
12-24	0.678
24-36	0.678
36-48	0.678
48-60	0.678
60-72	0.678
72-84	0.678

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

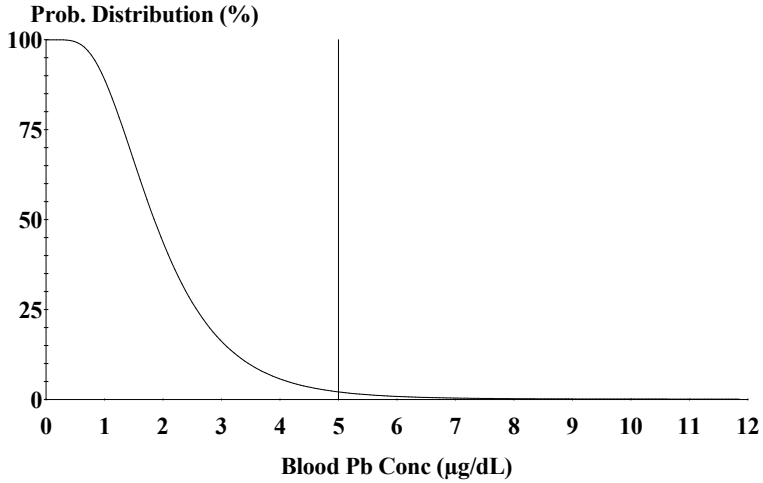
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.266	0.323	0.171
12-24	0.057	2.392	0.323	0.184
24-36	0.075	2.508	0.327	0.221
36-48	0.093	2.605	0.328	0.235
48-60	0.102	2.738	0.329	0.249
60-72	0.111	2.946	0.331	0.263
72-84	0.118	2.907	0.331	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.596	4.390	2.4
12-24	2.836	5.791	2.4
24-36	2.046	5.178	2.0
36-48	1.935	5.196	1.8
48-60	2.064	5.483	1.8
60-72	1.609	5.260	1.7
72-84	1.705	5.338	1.5

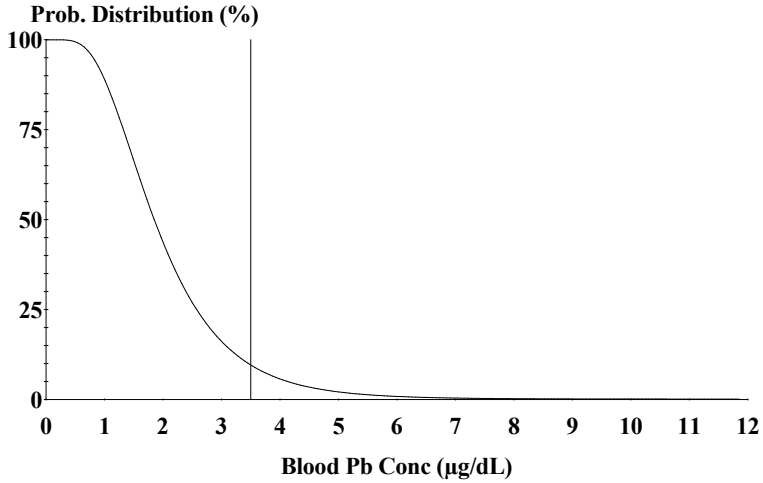


Cutoff = 5.000 µg/dl
Geo Mean = 1.939
GSD = 1.600
% Above = 2.195

Age Range = 12 to 72 months

Run Mode = Research
Comment = S043_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.939
GSD = 1.600
% Above = 10.452

Age Range = 12 to 72 months

Run Mode = Research
Comment = S043_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S043_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S043_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	116.060	130.000
12-24	116.060	130.000
24-36	116.060	130.000
36-48	116.060	130.000
48-60	116.060	130.000
60-72	116.060	130.000
72-84	116.060	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.678
12-24	0.678
24-36	0.678
36-48	0.678
48-60	0.678
60-72	0.678
72-84	0.678

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

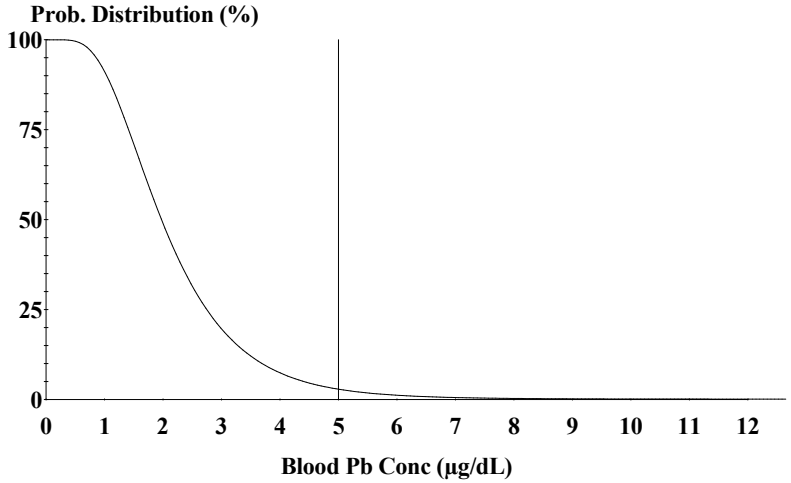
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.260	0.321	0.170
12-24	0.057	2.382	0.321	0.183
24-36	0.075	2.502	0.326	0.220
36-48	0.093	2.599	0.328	0.235
48-60	0.102	2.733	0.329	0.249
60-72	0.111	2.942	0.330	0.263
72-84	0.118	2.903	0.331	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.023	4.809	2.6
12-24	3.305	6.249	2.6
24-36	2.389	5.512	2.2
36-48	2.260	5.514	1.9
48-60	2.410	5.824	1.9
60-72	1.880	5.526	1.7
72-84	1.992	5.622	1.6

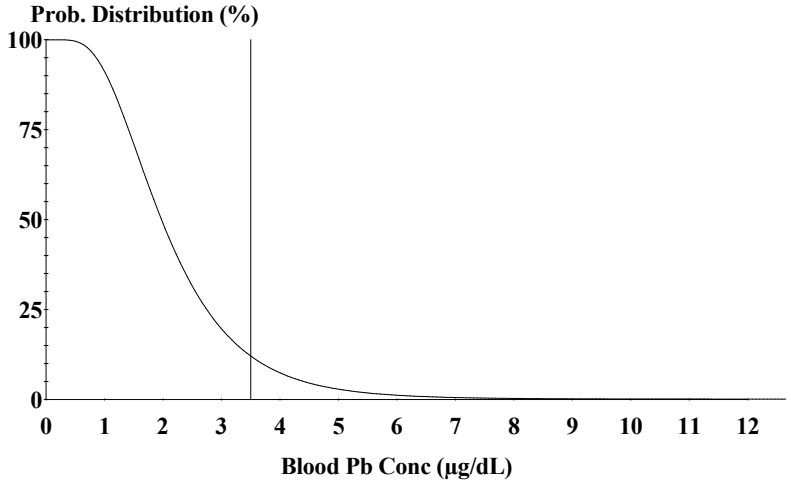


Cutoff = 5.000 µg/dl
Geo Mean = 2.069
GSD = 1.600
% Above = 3.025

Age Range = 12 to 72 months

Run Mode = Research
Comment = S043_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.069
GSD = 1.600
% Above = 13.174

Age Range = 12 to 72 months

Run Mode = Research
Comment = S043_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S048_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S048_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	98.286	130.000
12-24	98.286	130.000
24-36	98.286	130.000
36-48	98.286	130.000
48-60	98.286	130.000
60-72	98.286	130.000
72-84	98.286	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.449
12-24	0.449
24-36	0.449
36-48	0.449
48-60	0.449
60-72	0.449
72-84	0.449

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

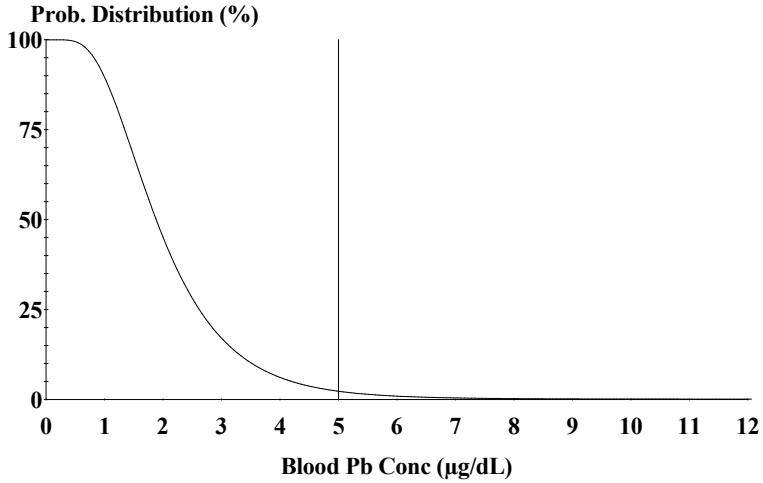
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.214	0.171
12-24	0.057	2.389	0.213	0.184
24-36	0.075	2.507	0.216	0.221
36-48	0.093	2.603	0.217	0.235
48-60	0.102	2.737	0.218	0.249
60-72	0.111	2.945	0.219	0.263
72-84	0.118	2.906	0.220	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.837	4.520	2.4
12-24	3.100	5.943	2.5
24-36	2.239	5.258	2.1
36-48	2.117	5.266	1.9
48-60	2.258	5.565	1.8
60-72	1.761	5.299	1.7
72-84	1.865	5.387	1.5

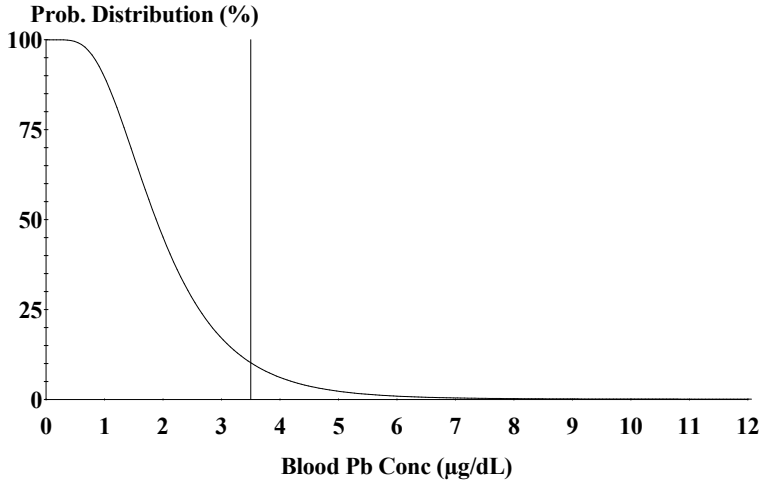


Cutoff = 5.000 µg/dl
Geo Mean = 1.973
GSD = 1.600
% Above = 2.396

Age Range = 12 to 72 months

Run Mode = Research
Comment = S048_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.973
GSD = 1.600
% Above = 11.139

Age Range = 12 to 72 months

Run Mode = Research
Comment = S048_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S048_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S048_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	148.290	130.000
12-24	148.290	130.000
24-36	148.290	130.000
36-48	148.290	130.000
48-60	148.290	130.000
60-72	148.290	130.000
72-84	148.290	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.449
12-24	0.449
24-36	0.449
36-48	0.449
48-60	0.449
60-72	0.449
72-84	0.449

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

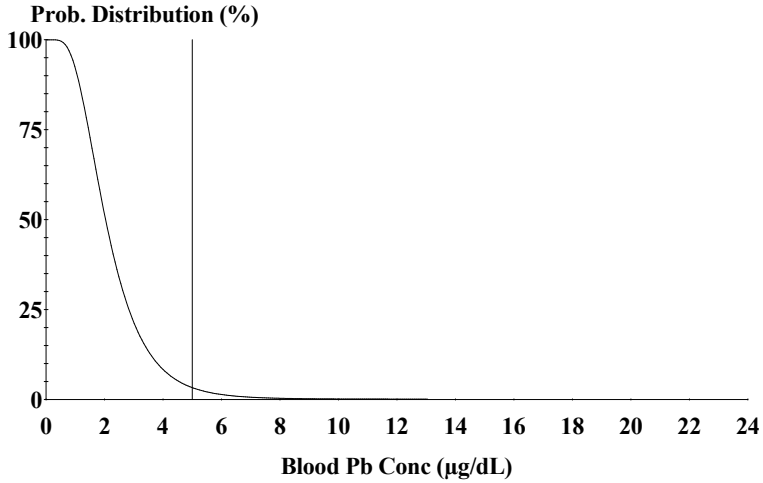
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.256	0.212	0.170
12-24	0.057	2.377	0.212	0.183
24-36	0.075	2.499	0.216	0.220
36-48	0.093	2.597	0.217	0.235
48-60	0.102	2.731	0.218	0.248
60-72	0.111	2.940	0.219	0.263
72-84	0.118	2.902	0.219	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.369	5.041	2.7
12-24	3.684	6.513	2.7
24-36	2.665	5.676	2.2
36-48	2.522	5.663	2.0
48-60	2.691	5.990	1.9
60-72	2.100	5.632	1.8
72-84	2.225	5.740	1.6

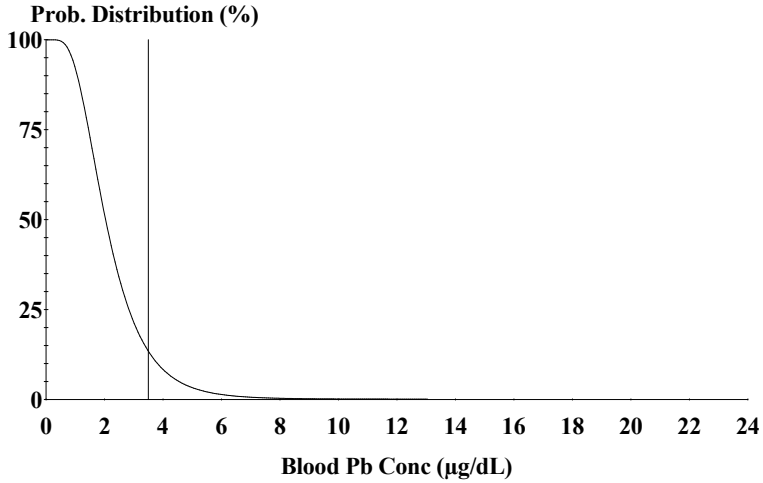


Cutoff = 5.000 µg/dl
Geo Mean = 2.135
GSD = 1.600
% Above = 3.513

Age Range = 12 to 72 months

Run Mode = Research
Comment = S048_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 2.135
GSD = 1.600
% Above = 14.656

Age Range = 12 to 72 months

Run Mode = Research
Comment = S048_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S049_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S049_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	67.943	130.000
12-24	67.943	130.000
24-36	67.943	130.000
36-48	67.943	130.000
48-60	67.943	130.000
60-72	67.943	130.000
72-84	67.943	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.218
12-24	0.218
24-36	0.218
36-48	0.218
48-60	0.218
60-72	0.218
72-84	0.218

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

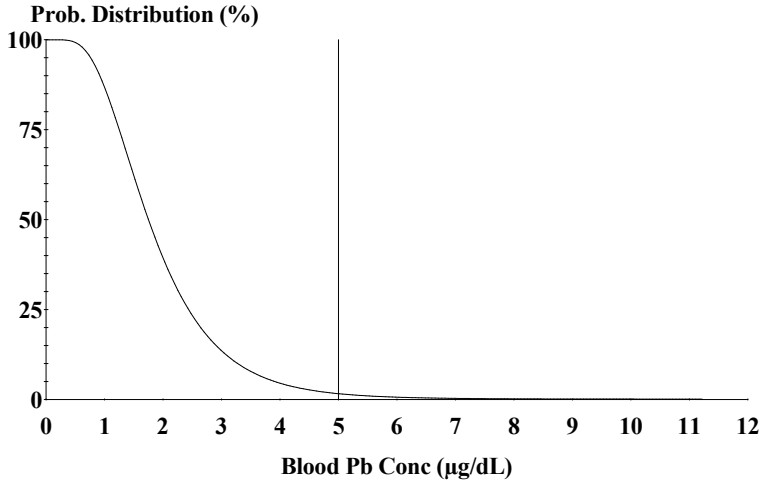
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.270	0.104	0.172
12-24	0.057	2.398	0.104	0.185
24-36	0.075	2.514	0.105	0.221
36-48	0.093	2.609	0.106	0.236
48-60	0.102	2.743	0.106	0.249
60-72	0.111	2.950	0.107	0.264
72-84	0.118	2.910	0.107	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.515	4.095	2.2
12-24	2.745	5.489	2.3
24-36	1.980	4.896	1.9
36-48	1.871	4.915	1.7
48-60	1.995	5.196	1.7
60-72	1.555	4.986	1.6
72-84	1.648	5.061	1.5

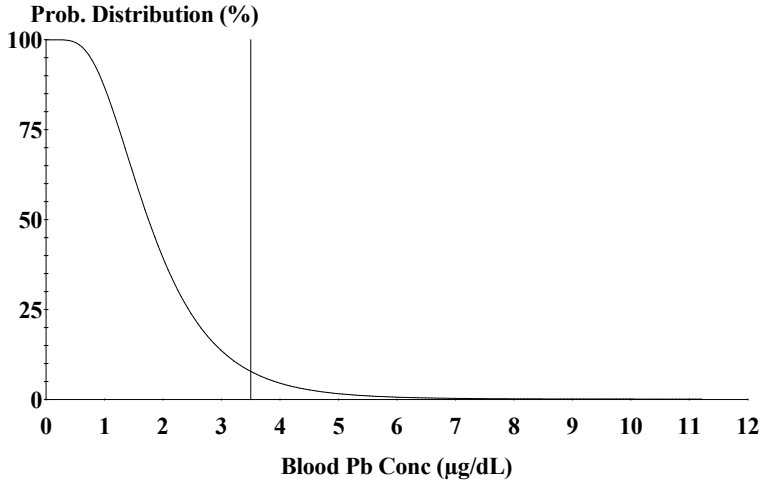


Cutoff = 5.000 µg/dl
Geo Mean = 1.836
GSD = 1.600
% Above = 1.650

Age Range = 12 to 72 months

Run Mode = Research
Comment = S049_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.836
GSD = 1.600
% Above = 8.485

Age Range = 12 to 72 months

Run Mode = Research
Comment = S049_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S049_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S049_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	117.940	130.000
12-24	117.940	130.000
24-36	117.940	130.000
36-48	117.940	130.000
48-60	117.940	130.000
60-72	117.940	130.000
72-84	117.940	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.218
12-24	0.218
24-36	0.218
36-48	0.218
48-60	0.218
60-72	0.218
72-84	0.218

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

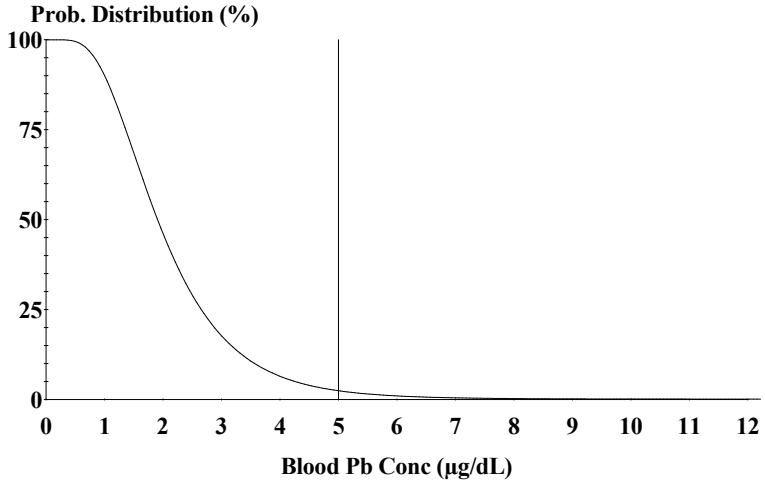
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.262	0.104	0.171
12-24	0.057	2.386	0.104	0.184
24-36	0.075	2.506	0.105	0.221
36-48	0.093	2.603	0.106	0.235
48-60	0.102	2.736	0.106	0.249
60-72	0.111	2.945	0.106	0.263
72-84	0.118	2.906	0.107	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	3.051	4.622	2.5
12-24	3.333	6.064	2.5
24-36	2.409	5.316	2.1
36-48	2.278	5.314	1.9
48-60	2.430	5.623	1.8
60-72	1.895	5.320	1.7
72-84	2.008	5.416	1.6

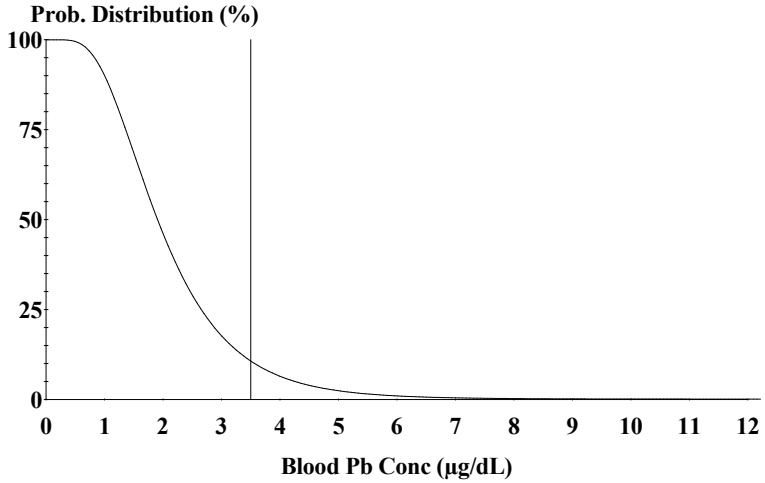


Cutoff = 5.000 µg/dl
Geo Mean = 1.999
GSD = 1.600
% Above = 2.553

Age Range = 12 to 72 months

Run Mode = Research
Comment = S049_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.999
GSD = 1.600
% Above = 11.661

Age Range = 12 to 72 months

Run Mode = Research
Comment = S049_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S058_pub_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S058_pub_80/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	59.966	130.000
12-24	59.966	130.000
24-36	59.966	130.000
36-48	59.966	130.000
48-60	59.966	130.000
60-72	59.966	130.000
72-84	59.966	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.036
12-24	0.036
24-36	0.036
36-48	0.036
48-60	0.036
60-72	0.036
72-84	0.036

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

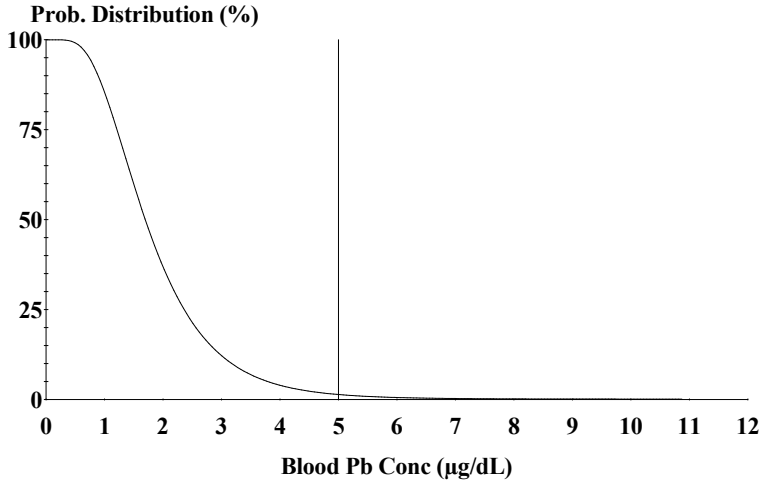
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.273	0.017	0.172
12-24	0.057	2.402	0.017	0.185
24-36	0.075	2.517	0.017	0.222
36-48	0.093	2.612	0.018	0.236
48-60	0.102	2.745	0.018	0.250
60-72	0.111	2.952	0.018	0.264
72-84	0.118	2.912	0.018	0.278

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.431	3.927	2.1
12-24	2.653	5.314	2.2
24-36	1.912	4.743	1.8
36-48	1.807	4.765	1.7
48-60	1.927	5.042	1.6
60-72	1.502	4.846	1.5
72-84	1.591	4.917	1.4

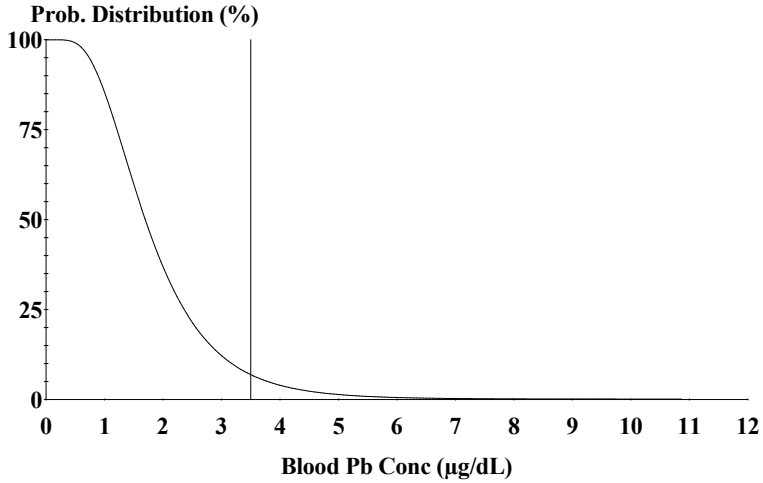


Cutoff = 5.000 µg/dl
Geo Mean = 1.779
GSD = 1.600
% Above = 1.394

Age Range = 12 to 72 months

Run Mode = Research
Comment = S058_pub_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.779
GSD = 1.600
% Above = 7.491

Age Range = 12 to 72 months

Run Mode = Research
Comment = S058_pub_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S058_pub_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S058_pub_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	109.970	130.000
12-24	109.970	130.000
24-36	109.970	130.000
36-48	109.970	130.000
48-60	109.970	130.000
60-72	109.970	130.000
72-84	109.970	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.036
12-24	0.036
24-36	0.036
36-48	0.036
48-60	0.036
60-72	0.036
72-84	0.036

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

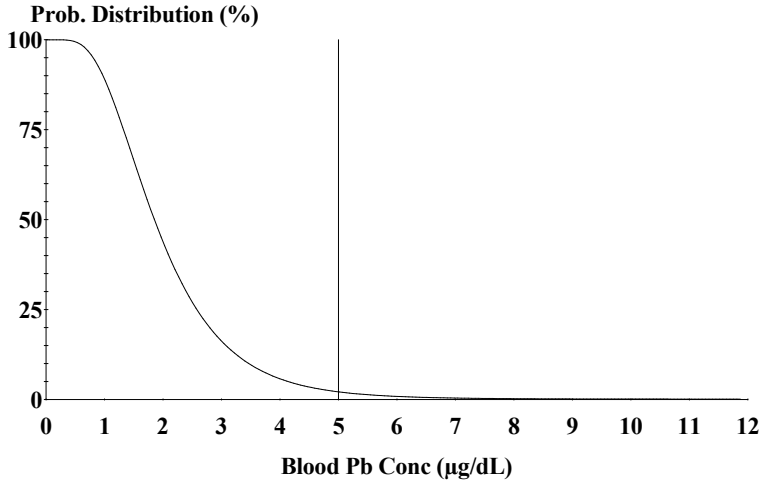
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.265	0.017	0.171
12-24	0.057	2.390	0.017	0.184
24-36	0.075	2.509	0.017	0.221
36-48	0.093	2.605	0.017	0.235
48-60	0.102	2.739	0.018	0.249
60-72	0.111	2.947	0.018	0.263
72-84	0.118	2.908	0.018	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.969	4.456	2.4
12-24	3.242	5.890	2.5
24-36	2.342	5.164	2.0
36-48	2.214	5.165	1.8
48-60	2.362	5.469	1.8
60-72	1.842	5.180	1.6
72-84	1.951	5.272	1.5

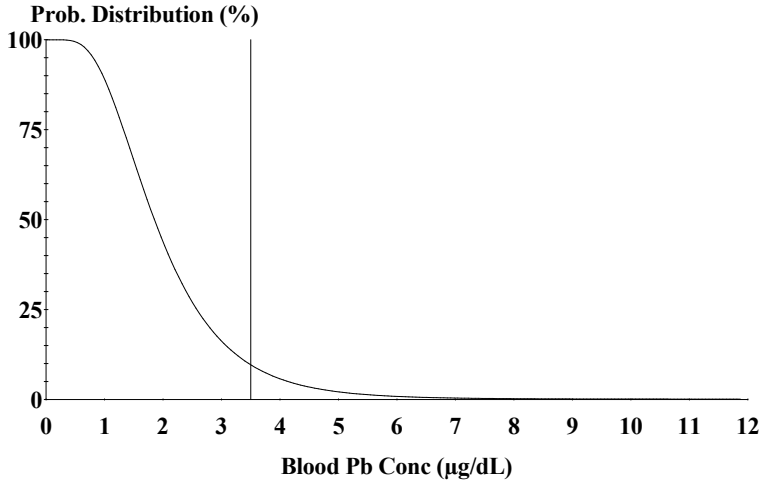


Cutoff = 5.000 µg/dl
Geo Mean = 1.942
GSD = 1.600
% Above = 2.211

Age Range = 12 to 72 months

Run Mode = Research
Comment = S058_pub_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.942
GSD = 1.600
% Above = 10.509

Age Range = 12 to 72 months

Run Mode = Research
Comment = S058_pub_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S062_priv_80/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	
****** Soil & Dust ******	

LEAD MODEL FOR WINDOWS Version 2.0

S062_priv_80/130

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	59.086	130.000
12-24	59.086	130.000
24-36	59.086	130.000
36-48	59.086	130.000
48-60	59.086	130.000
60-72	59.086	130.000
72-84	59.086	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.347
12-24	0.347
24-36	0.347
36-48	0.347
48-60	0.347
60-72	0.347
72-84	0.347

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

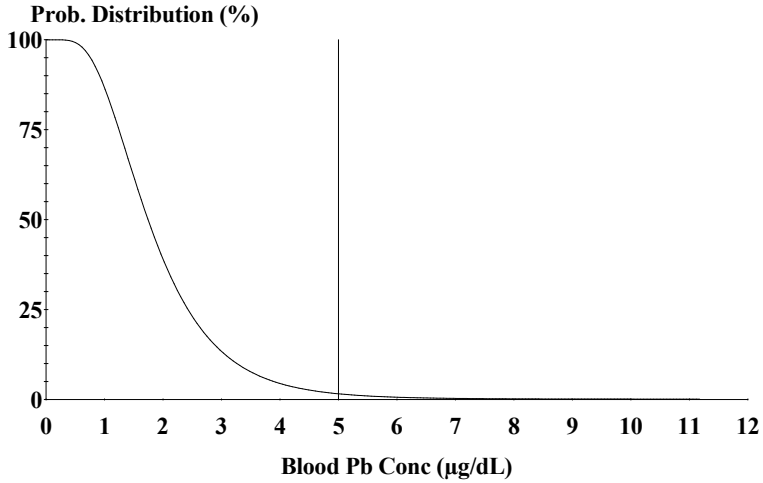
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.271	0.166	0.172
12-24	0.057	2.399	0.165	0.185
24-36	0.075	2.514	0.167	0.221
36-48	0.093	2.609	0.168	0.236
48-60	0.102	2.743	0.169	0.249
60-72	0.111	2.950	0.169	0.264
72-84	0.118	2.911	0.169	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.418	4.060	2.2
12-24	2.639	5.445	2.3
24-36	1.903	4.881	1.9
36-48	1.798	4.904	1.7
48-60	1.918	5.181	1.7
60-72	1.495	4.988	1.6
72-84	1.583	5.059	1.5

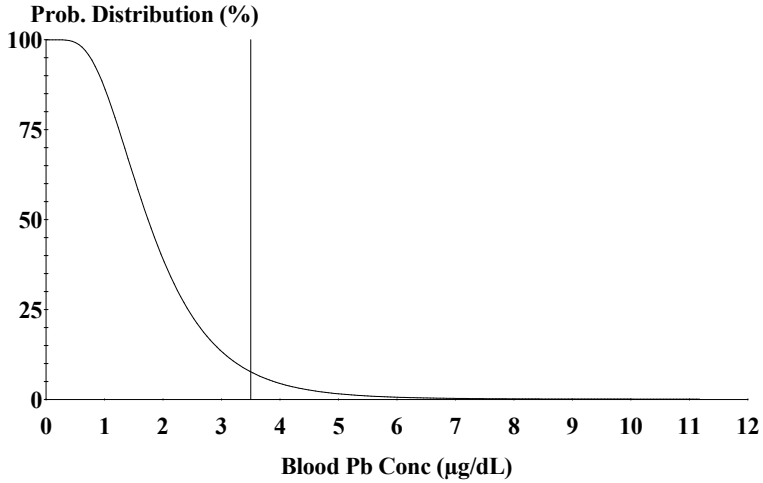


Cutoff = 5.000 µg/dl
Geo Mean = 1.828
GSD = 1.600
% Above = 1.615

Age Range = 12 to 72 months

Run Mode = Research
Comment = S062_priv_80130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.828
GSD = 1.600
% Above = 8.351

Age Range = 12 to 72 months

Run Mode = Research
Comment = S062_priv_80130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v

Column1	Column2
LEAD MODEL FOR WINDOWS Version 2.0	
S062_priv_150/130	
These IEUBK Model results are valid as long as they were produced with an official	
unmodified version of the IEUBK Model with a software certificate.	
While IEUBK Model output is generally written with three digits to the right of the	
decimal point	the true precision of the output is strongly influenced by least precise
input values.	
==========	
Model Version: 2.0 Build1	
User Name:	
Date:	
Site Name:	
Operable Unit:	
Run Mode: Research	
==========	
****** Air ******	
Indoor Air Pb Concentration: 30.000 percent of outdoor.	
Other Air Parameters:	
Month Time Ventilation Lung Outdoor Air	
Outdoors Rate Absorption Pb Conc	
(hours) (m^3/day) (%) (µg Pb/m^3)	

6-12 1.000 3.216 32.000 0.100	
12-24 2.000 4.970 32.000 0.100	
24-36 3.000 6.086 32.000 0.100	
36-48 4.000 6.954 32.000 0.100	
48-60 4.000 7.682 32.000 0.100	
60-72 4.000 8.318 32.000 0.100	
72-84 4.000 8.887 32.000 0.100	
****** Diet ******	
Month Diet Intake(µg/day)	

6-12 2.660	
12-24 5.030	
24-36 5.210	
36-48 5.380	
48-60 5.640	
60-72 6.040	
72-84 5.950	
****** Drinking Water ******	
Water Consumption:	
Month Water (L/day)	

6-12 0.400	
12-24 0.430	
24-36 0.510	
36-48 0.540	
48-60 0.570	
60-72 0.600	
72-84 0.630	
Drinking Water Concentration: 0.900 µg Pb/L	

LEAD MODEL FOR WINDOWS Version 2.0

S062_priv_150/130

****** Soil & Dust ******

Month	Soil (µg Pb/g)	House Dust (µg Pb/g)
6-12	99.086	130.000
12-24	99.086	130.000
24-36	99.086	130.000
36-48	99.086	130.000
48-60	99.086	130.000
60-72	99.086	130.000
72-84	99.086	130.000

****** Alternate Intake ******

Month	Alternate (µg Pb/day)
6-12	0.347
12-24	0.347
24-36	0.347
36-48	0.347
48-60	0.347
60-72	0.347
72-84	0.347

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 0.540 µg Pb/dL

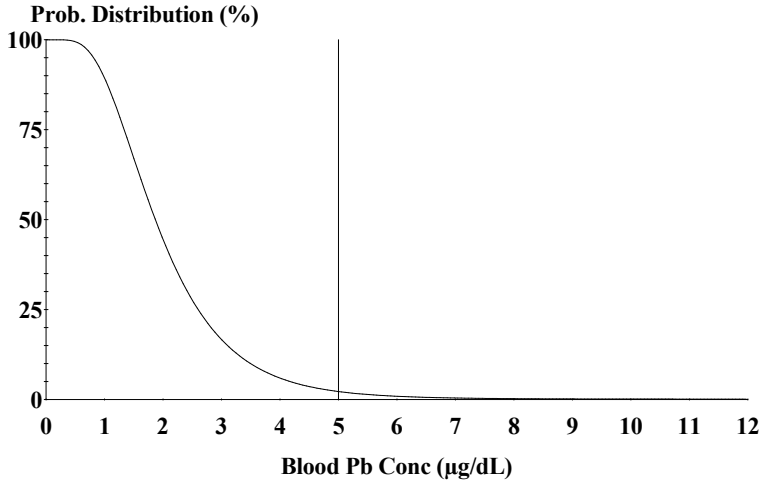
****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Month	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
6-12	0.034	1.264	0.165	0.171
12-24	0.057	2.390	0.165	0.184
24-36	0.075	2.508	0.167	0.221
36-48	0.093	2.604	0.168	0.235
48-60	0.102	2.738	0.168	0.249
60-72	0.111	2.946	0.169	0.263
72-84	0.118	2.907	0.169	0.277

Month	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
6-12	2.847	4.482	2.4
12-24	3.111	5.906	2.5
24-36	2.246	5.217	2.0
36-48	2.124	5.224	1.8
48-60	2.265	5.523	1.8
60-72	1.766	5.256	1.7
72-84	1.872	5.343	1.5

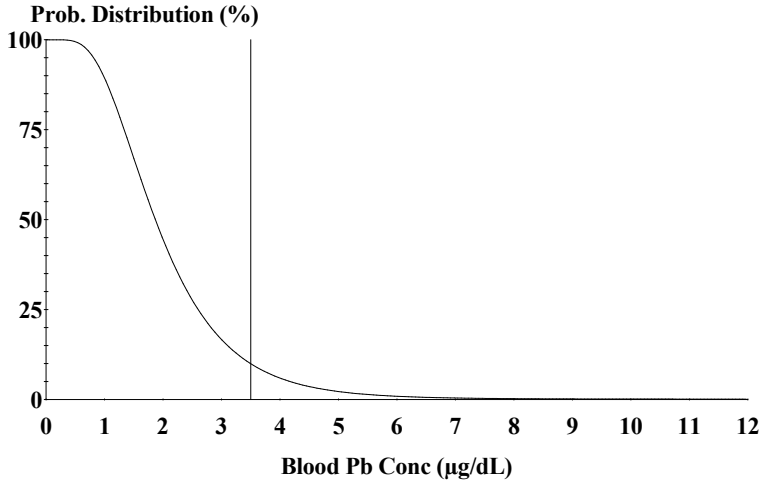


Cutoff = 5.000 µg/dl
Geo Mean = 1.959
GSD = 1.600
% Above = 2.308

Age Range = 12 to 72 months

Run Mode = Research
Comment = S062_priv_150130_p5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v



Cutoff = 3.500 µg/dl
Geo Mean = 1.959
GSD = 1.600
% Above = 10.841

Age Range = 12 to 72 months

Run Mode = Research
Comment = S062_priv_150130_p3.5

These IEUBK Model results are valid as long as they were produced with an official, unmodified version of the IEUBK Model with a software certificate.
While IEUBK Model output is generally written with three digits to the right of the decimal point, the true precision of the output is strongly influenced by least precise input v