Final
Haines Fuel Terminal Dock Site Inspection Report
Haines, Alaska

U.S. Army Garrison Alaska

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ADEC Hazard ID 591

Contract W911KB22D0019
Task Order W911KB23F0122

JANUARY 2026

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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
µg/kg	micrograms per kilogram
ADEC	Alaska Department of Environmental Conservation
Brice	Brice Environmental Services Corporation
Bristol	Bristol Environmental Remediation Services, LLC
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	contaminant of potential concern
CS	contaminated sites
CSM	conceptual site model
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
ESV	ecological screening value
HFT	Haines Fuel Terminal
mg/kg	milligrams per kilogram
NE	not established
North Wind	North Wind, Inc.
NOAA	National Oceanic and Atmospheric Administration
PAH	polycyclic aromatic hydrocarbon
PFAS	per- and polyfluoroalkyl substances
POL	petroleum, oil, and lubricants
PSL	project screening level
QAPP	Uniform Federal Policy-Quality Assurance Project Plan
QC	quality control
RI	remedial investigation
SI	site inspection
SQuiRT	Screening Quick Reference Table
USACE	U.S. Army Corps of Engineers
UTL	upper tolerance limit
WEBCASS	Web Compliance Assessment and Sustainment System

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EXECUTIVE SUMMARY

This report was prepared by Brice Environmental Services Corporation (Brice) for the U.S. Army Corps of Engineers (USACE), Alaska District, to detail the project approach, methods, results, and recommendations of the site inspection (SI) conducted in June 2025 at the former Haines Fuel Terminal (HFT) Dock near Haines, Alaska (Figure 1). In previous documents, this site has been referred to as the Marine Dock, Lutak Dock, HFT Dock Area, and HFT Dock; for this report it will be referred to as the HFT Dock. This work was performed under USACE Contract W911KB22D0019, Task Order W911KB23F0122 (USACE 2023) and was completed concurrently with the HFT Per- and Polyfluoroalkyl Substances (PFAS) Remedial Investigation (RI). This report covers one Area of Concern – the HFT Dock Area which falls within the overall U.S. Army Haines Petroleum, Oil, and Lubricants (POL) Terminal site. The HFT Dock is regulated by the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites (CS) Program whose CS Database lists the facility under file number 1508.38.002 and hazard ID 591. The project was conducted in accordance with the ADEC-approved Work Plan/Uniform Federal Policy-Quality Assurance Project Plan (QAPP) (USACE 2025), and the Accident Prevention Plan (USACE 2024). The primary contaminant of potential concern (COPC) is lead from historical sand blasting activities.

On 17 June 2025, two scientists and one driller helper mobilized to Haines, Alaska from Fairbanks, Alaska along with all necessary sampling supplies. Between 22 and 25 June 2025, 20 primary sediment samples were collected from the investigation area around the HFT Dock (Figures 2 and 3), and 10 background sediment samples were collected from two unassociated areas (Figure 4). All sediment samples were analyzed for lead plus arsenic, barium, cadmium, chromium, nickel, selenium, silver, and mercury. Sediment results were compared to the project screening levels (PSLs) from the U.S. Environmental Protection Agency (EPA) Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018).

To evaluate background levels of metals in sediment, 95% upper tolerance limits (UTLs) of 19.05 milligrams per kilogram (mg/kg), 92.98 mg/kg, 4.63 mg/kg, and 54.87 mg/kg were calculated from the background sediment samples for arsenic, chromium, lead, and nickel, respectively. Concentrations of analytes from primary sample locations were compared to the 95% UTLs and the PSLs.

Concentrations of lead, the primary COPC, were all less than the PSL of 30.2 mg/kg; however, lead concentrations were greater than the background 95% UTL of 4.63 mg/kg at 10 of the 20 sample locations in the HFT Dock area ranging from 5.15 to 16.3 mg/kg. Arsenic, chromium, and nickel concentrations were greater than the PSLs, but less than the background 95% UTLs indicating these metals are naturally occurring.

Lead concentrations greater than the 95% UTL at the HFT Dock are indicative of past sandblasting activities; however, all lead concentrations are less than the PSL, indicating no unacceptable risk to ecological receptors. Based on these results no further action is recommended at the HFT Dock site.

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1.0 INTRODUCTION

This report was prepared by Brice Environmental Services Corporation (Brice) for the U.S. Army Corps of Engineers (USACE), Alaska District, to detail the project approach, methods, results, and recommendations of the site inspection (SI) conducted in June 2025 at the former Haines Fuel Terminal (HFT) Dock near Haines, Alaska (Figure 1). In previous documents, this site has been referred to as the Marine Dock, Lutak Dock, HFT Dock Area, and HFT Dock; for this report it will be referred to as the HFT Dock. This work was performed under USACE Contract W911KB22D0019, Task Order W911KB23F0122 (USACE 2023) and was completed concurrently with the HFT Per- and Polyfluoroalkyl Substances (PFAS) Remedial Investigation (RI). This report covers one Area of Concern – the HFT Dock Area which falls within the overall U.S. Army Haines Petroleum, Oil, and Lubricants (POL) Terminal site. The HFT Dock is managed by the Alaska Department of Environmental Conservation's (ADEC's) Contaminated Sites (CS) Program whose CS Database lists the facility under file number 1508.38.002 and hazard ID 591. The project was conducted in accordance with the ADEC-approved Work Plan/Uniform Federal Policy-Quality Assurance Project Plan (QAPP) (USACE 2025), and the Accident Prevention Plan (USACE 2024).

1.1 Project Objectives

The objective of this SI was to determine if marine sediment was impacted by previous sand blasting activities that were historically conducted as part of dock maintenance in order to make a recommendation for either no further action or additional investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Sampling of the marine sediment adjacent to and surrounding the HFT Dock had not been conducted since 1995, at which time only one sediment sample was collected. Analysis of the marine sediment surrounding the HFT Dock was necessary to characterize potential releases of metals (primarily lead) from historical sandblasting activities.

To meet the project objective, the SI was completed during a single mobilization concurrent with the HFT PFAS RI Mobilization 2. The definable features of work for the SI included:

- Collection of 20 discrete marine sediment samples from the HFT Dock area and between the North and South Dolphins extending from the shore seaward 50 feet past the edge of the dock.
- Collection of 10 additional sediment samples from locations outside the HFT Dock area and the North and South Dolphins to establish background concentrations.
- Evaluation of data collected from the HFT Dock area and between the North and South Dolphins and compare to screening levels and background levels to determine if historical sandblasting activities resulted in impacts to the marine sediment requiring further investigation under CERCLA.

1.2 Project Location

The former HFT is located 2.9 miles north of Haines, Alaska on Lutak Road at latitude 59.279832°, longitude -135.452627°. The city of Haines is in the southeast region of Alaska approximately 40 miles southeast of the Canadian border and 92 miles north of Juneau, Alaska. The HFT Dock lies along the north side of Lutak Road at the northern end of the former Tank Farm Area (Figure 2), approximately 3 miles north of Haines.

1.3 Site History and Background

The former HFT is located in southeastern Alaska at Tanani Point, approximately 2.9 miles north of the city of Haines (Figure 1). The former HFT is comprised of about 203 acres and was constructed in 1954 at the southern end of the Haines-Fairbanks Pipeline to provide facilities for tanker dockage, bulk fuel storage, and fuel pumping to deliver fuel to Fort Wainwright and Eielson Air Force Base near Fairbanks, Alaska. The former HFT was an active fuel storage and pumping facility from 1955 until 1971, when the use of the pipeline was discontinued (Bristol Environmental Remediation Services, LLC and North Wind, Inc. [Bristol and North Wind] 2020). Following termination of pipeline operations, the former HFT was used for fuel storage from 1971 through 1988. The HFT Dock is located on the northern portion of the HFT along Lutak Road. The HFT Dock is composed of a concrete surfaced steel primary dock, two supporting dolphins on either side of the primary dock, a dockmaster and Marine Dock Fire Hose Building located shoreside of the primary dock, a Saltwater Pump House on pilings on the end of the primary dock, and a POL pipeline that ran the length of the primary dock towards the Manifold Building south of the dock structure.

Most of the former HFT site infrastructure was removed beginning in the early 2000s. The fuel pipeline was removed in 1999 except for the portion beneath Lutak Road which was abandoned in place. The three supporting structures (the Saltwater Pump House [Building 1235, located on the dock], Dockmaster Building [Building 1234], and Marine Dock Fire Hose Building [Building 1236]), were demolished in 2004 (Bristol and North Wind 2020), and soil samples were analyzed for possible contaminant release at the two shoreside structures. The HFT Dock itself and the two dolphins remain in place. The HFT property is owned by the U.S. Army; however, the State of Alaska owns the Lutak Road right-of-way, which divides HFT into two non-contiguous areas.

1.4 Project Site and Source Area Tracking Numbers

The HFT source area is tracked by the U.S. Army in the Web Compliance Assessment and Sustainment System (WEBCASS) (formerly Headquarters Army Environmental System) for funding purposes. The source area is also tracked in the ADEC CS database, which is maintained by the ADEC Project Manager assigned to the site. The HFT Dock area is currently in the SI phase and is within the overall U.S. Army Haines POL Terminal site. The HFT Dock source area may be assigned a unique WEBCASS ID when and if it is determined eligible based on the results of the SI. Table 1 presents the current ADEC tracking numbers.

Table 1 ADEC Source Area Tracking Numbers

SITE NAME	ADEC HAZARD ID[1]	ADEC FILE ID[1]	INVESTIGATION PHASE
U.S. Army Haines POL Terminal	591	1508.38.002	SI and RI

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Available from the ADEC Contaminated Sites Database at https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/591

1.5 Regulatory Framework

The HFT Dock SI will be conducted in accordance with CERCLA as amended by the Superfund Amendments and Reauthorization Act; the Defense Environmental Restoration Program; the Resource Conservation and Recovery Act; National Oil and Hazardous Substances Contingency Plan requirements;

U.S. Environmental Protection Agency (EPA) regulations and guidance; and all other applicable federal, state, and local regulations.

The project screening levels (PSLs) used for this SI are the EPA Region 4 Ecological Risk Assessment Supplemental Guidance Table 2a Ecological Screening Values (ESVs) for marine sediment (EPA 2018). Worksheet 15 of the QAPP (USACE 2025, Appendix A) details the PSLs and laboratory-specific quantitation limits for sediment in Table 15-1. ESVs are based on chemical concentrations associated with a low probability of unacceptable risks to ecological receptors. Since the ESVs are based on conservative endpoints and sensitive ecological effects data, they represent a preliminary screening of site chemical concentrations to determine if there is a need to conduct further investigations at the site. ESVs are not recommended as remediation levels (EPA 2018).

The laboratory and analytical methods were selected to confirm contaminants of potential concern (COPCs) have sufficient limits of detection (LODs) to meet the PSLs for marine sediment.

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2.0 SITE INFORMATION

2.1 Physical Setting

2.1.1 Climate

The HFT Dock area is located in the maritime climate zone and has relatively mild winters and summers. The average snowfall is 164 inches per year with an average annual precipitation of 63 inches per year. The average July high is around 65 degrees Fahrenheit (°F), and the average January low is 18°F. Tanani Point has a mean tidal range of 14.16 feet above and below mean sea level (National Oceanic and Atmospheric Administration [NOAA] 2023).

2.1.2 Geology

The former HFT is situated on the Chilkat block of the Coastal Granite Plutonic Complex, in southeastern Alaska. Regional geology is controlled by the active plate boundary of the northern Pacific Basin (Redman et al. 1984). Major strike-slip right-later faults with near-horizontal displacement have caused large- and small-scale displacement (Peapple et al. 1999). The linear river valleys and marine inlets in the HFT region are controlled by these major faults (Bristol and North Wind 2020). The oldest rocks in the former HFT area are Early Cretaceous metabasalt of the Chilkat block. Exposed bedrock near the former HFT consists of metamorphic and hornblende diorite igneous rocks. The surficial deposits of the region predominantly consist of glacial and glacial-marine sediment. The till at the former HFT has an abundance of gravel and cobbles but also includes sand and silt with variable clay content. The gravel and cobble-size material reflects the local bedrock. The glacial till is generally poorly sorted, unstratified, and compact. Previous glaciation has scoured earlier sediment and the underlying bedrock. The former HFT also contains colluvium and artificial fill (Bristol and North Wind 2020).

A bedrock ridge composed of diorite is evident in the subsurface extending from Tanani Point to the area near the HFT Dock. A bedrock low, or trough, is present to the west of the bedrock ridge. The trough is either the result of glacial scour or from faulting. Several channels have been eroded through the bedrock ridge before the deposition of surficial sediment following the most recent glacial advance. These channels may offer preferential pathways for groundwater flow (Bristol and North Wind 2020). The beach surrounding the HFT Dock is composed of a narrow sand bar and a short wave-cut bank (i.e., an undercut cliff formed by wave action).

2.1.3 Surface Water

No permanent freshwater surface water features are present within the former HFT (Bristol and North Wind 2020). The former HFT is surrounded to the northeast, east, and southeast by the Lutak and Chilkoot Inlets. Several groundwater seeps are present along the coastline in the intertidal zone, including southeast of the site at Tanani Beach.

2.1.3.1 Lutak and Chilkoot Inlets

The HFT Dock extends from the southern beach of where the Chilkoot Inlet transitions into the Lutak Inlet. Several species of marine life occupy the area, including various shellfish, aquatic mammals including seals and sea lions, waterfowl, and various fish including trout, eulachon, herring, and all pacific species of anadromous salmon. Residents harvest fish, bivalves, crab, and shrimp for sport, commercial, and subsistence purposes. Seals and sea lions are harvested for traditional use of their meat, skin, and bones (Haines Borough 2007).

2.2 Previous Investigation Summary

This section presents a summary of previous investigations conducted at the HFT Dock. The previous results are compared to the PSLs based on the current EPA Region 4 Ecological Risk Assessment Supplemental Guidance, Table 2a ESVs (EPA 2018). Beginning in 1985, many SIs and treatability studies or interim actions have been conducted by numerous contractors at the former HFT; however, limited evaluation of the HFT Dock has occurred. These activities across the former HFT were typically governed by individual work plans, with the results documented in numerous task-specific reports. Some examples of these reports include:

- Geologic and hydrogeologic investigations
- Source area evaluations
- Removal actions
- Soil gas surveys
- Well drilling
- Tracer tests
- Permeable sparging trench system operations

These reports were compiled into a comprehensive summary presented in the *Former Haines Fuel Terminal* (HFT) *Data Gap Analysis Report* (North Wind, Inc. [North Wind] 2014). Additional investigation to address identified data gaps was conducted as part of an RI completed from 2015-2017 (Bristol and North Wind 2020). The COPCs that these investigations and evaluations focused on were primarily POL-related compounds, the exception being the Lutak Burn Pit (Bristol and North Wind 2020).

Prior investigations at the HFT Dock were limited to soil borings around the immediate vicinity of the former Dockmaster Building (Building 1234) and a single sediment sample taken northeast of the former Saltwater Pump House (Building 1235) in 1995 (North Wind 2014). No COPCs were detected greater than regulatory levels in soil at the HFT Dock. In sediment, barium was the only analyte identified greater than the PSLs used at the time.

2.2.1 1995 Former Saltwater Pump House (Building 1235) Sediment Sampling

The HFT Dock was sandblasted and repainted in 1968, and military records indicate sandblasting and repainting may have occurred twice prior to termination of facility operations (North Wind 2014). Eyewitnesses report sandbars forming from the sand and sandblasted paint between the mooring dolphins and the primary dock. In June 1995, a marine sediment sample (95HFT012SD) and duplicate (95HFT014SD) were collected northeast of the former Saltwater Pump House (Building 1235). The sample was collected with a Ponar Grab Sampler and analyzed for diesel range organics (DRO), gasoline range organics (GRO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals. The results were compared to the screening levels in the NOAA Screening Quick Reference Tables (SQuiRTs) published at the time. The barium concentration (672 milligrams per kilogram [mg/kg]) was greater than the NOAA SQuiRTs threshold effect level for marine sediment of 130.1 mg/kg (North Wind 2014). When compared to current PSLs the only metal with a concentration greater than the ESV (EPA 2018) is cadmium. The cadmium result is considered estimated because the detected concentration is less than the reporting limit, and cadmium was detected in the duplicate sample and was non-detect in the primary sample. Several polycyclic aromatic hydrocarbons (PAHs) and bis(2-ethylhexyl)phthalate were also detected at concentrations less than the reporting limits but greater than the ESVs (EPA 2018). PAHs and bis(2-ethylhexyl)phthalate are not related to sandblasting activities. Table 2 presented the analytes

detected in sediment from the primary and duplicate sediment samples collected in 1995 (Harding Lawson Associates 1996).

Table 2 Detected Analytes in Sediment

ANALYTE	1995 SEDIMENT RESULT[1]	SCREENING LEVEL[2]	UNITS
DRO	38 AN,CM,J	NE	mg/kg
1,2,3-Trichlorobenzene	1.44 J,B	71	µg/kg
2-Butanone	51.1 J	*22,707*	µg/kg
Acetone	220 B	*38,133*	µg/kg
Carbon Disulfide	19	131	µg/kg
Naphthalene	2.48 J,B	35	µg/kg
Toluene	0.57 J	568	µg/kg
p-Isopropyltoluene	1.33 J	*242*	µg/kg
Anthracene	**100 J**	47	µg/kg
Benzo(a)anthracene	**200 J**	75	µg/kg
Benzo(a)pyrene	**100 J**	89	µg/kg
Benzo(b)lfuoranthene	100 J	NE	µg/kg
Bis(2-ethylhexyl)phthalate	**700 J**	182	µg/kg
Chrysene	**200 J**	108	µg/kg
Di-n-butyl phthalate	200 J	*319*	µg/kg
Fluoranthene	**600 J**	113	µg/kg
Phenanthrene	**400 J**	87	µg/kg
Pyrene	**400 J**	153	µg/kg
Arsenic	3	7.24	mg/kg
Barium	672	NE	mg/kg
Cadmium	**0.7 J**	0.68	mg/kg
Chromium	36	52.3	mg/kg
Lead	10	30.2	mg/kg

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Sediment results presented are the highest result between the primary (95HFT012SD) and duplicate (95HFT014SD) samples.
[2] Region 4 Ecological Risk Assessment Supplemental Guidance, Tables 2a and 2b, Marine/Estuarine Sediment ESV (EPA 2018).
Italics – Indicates that an ESV was not published and the refinement screening value was used.
Bold – 1995 results exceed the current ESV (EPA 2018)
AN – unknown hydrocarbons with several peaks
B – analyte detected in method blank. Detected concentration in the sample should be considered due to laboratory contamination, unless otherwise noted.
CM – reporting limits elevated due to low percent solids.
J – value should be considered an estimate due to unacceptable internal QC criteria

2.2.2 2014 Data Gap Analysis

A data gap analysis was performed to evaluate and compile data from previously conducted individual investigations and remedial actions at the former HFT to determine which individual site features required additional characterization activities. The data gap analysis identified that additional samples were necessary to characterize metals (specifically lead) in marine sediment at the HFT Dock. Sandblast media was reported to have formed a sandbar between the dolphins and the primary dock during sandblasting activities and this material may have contained residual chips or fragments of lead-based paint (North Wind 2014).

3.0 FIELD ACTIVITES

This section summarizes the activities performed during the SI conducted at the HFT Dock in June 2025. Work was conducted in accordance with the ADEC-approved Work Plan. All analytical samples were sent to Pace National in Mt. Juliet, Tennessee. Appendix A provides the project photograph log; Appendix B provides the field forms, including logbooks and forms for sample documentation.

3.1 Mobilization

On 17 June 2025, two scientists and a drillers helper mobilized from Fairbanks, Alaska to Haines, Alaska, via the roadway system for the Haines PFAS RI and the HFT Dock SI. All equipment and supplies were mobilized from Fairbanks, Alaska to Haines, Alaska with the crewmembers.

3.2 Fuel Terminal Dock Sediment Sampling

On 22 June 2025, the Brice crew met with a local boat charter company (Never Monday Charters) to collect samples from locations that required boat access due to depth or other access issues. The decision was made to collect samples from the boat prior to collecting samples from land due to crew availability and calm seas on 22 June 2025. Twelve sediment samples were collected using a Ponar sampler. The samples were homogenized and transferred to an appropriate container using a stainless-steel trowel and stainless-steel spoon. The Ponar sampler was deployed multiple times at most sample locations to retrieve sediment suitable for sampling. Multiple retrieves were required due to kelp, rocks, mussels, and low recovery due to sea floor conditions. The Ponar sampler was decontaminated between sample locations. Sea floor depth was recorded at each sample location using the charter boat's equipped depth finder – depths ranged from 15 to 105 feet. Each sample location was navigated to using ESRI field maps and a Trimble R1 antenna with sub-foot accuracy. Following sample collection, the location was stored in a Trimble Geo-7X Global Positioning System. No evidence of sand blast material was identified in the sediment samples collected using the Ponar sampler.

On 25 June 2025, the second day of negative low tides, two scientists collected the remaining eight sediment samples at the HFT Dock area. A thorough inspection of the dock and dolphin areas revealed no evidence of sand blast material. Samples were collected from 0 to 0.5 feet below ground surface using a stainless-steel trowel and stainless-steel spoons, homogenized, and containerized for laboratory analysis. Low tide was sufficient to collect all remaining samples via shoreline access. Sediment sample locations from the HFT Dock area are presented on Figures 2 and 3.

3.3 Background Sediment Sampling

On 22 June 2025, Brice conducted sediment sampling within the two background areas on the same day and following the same procedures as Section 3.2. In the east background area, one sediment sample was collected from the charter boat as specified in the Work Plan. Upon inspection of the west background area, the Brice crew decided to collect all samples from the boat due to depth of water near the shore (15 feet or greater) and unsafe conditions due to kelp-covered rocks.

On 24 June 2025, the first day of negative low tides, two scientists collected the remaining four background sediment samples from land using a stainless-steel trowel and stainless-steel spoons. Background sediment sample locations are present on Figure 4.

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4.0 RESULTS AND FINDINGS

This section summarizes results from the SI. The complete set of analytical results compared to screening levels are shown in the analytical data summary tables, provided in Appendix C. The Chemical Data Quality Report (CDQR) and laboratory data reports are also in Appendix C.

4.1 Background Metals Evaluation

Metals in sediment and soil are naturally occurring throughout Alaska and are sometimes found in concentrations that are greater than the applicable PSLs. Sediment and soil at the HFT Dock are derived locally from slope creep, glacial scour, and deposition, as well as marine and beach sedimentation of locally derived materials. Therefore, the concentrations of background metals at the site are the result of erosion of local geologic bedrock chemistry. Samples collected from two background areas were used to evaluate the naturally occurring concentrations of metals in marine sediment near the HFT Dock.

Ten primary samples and one duplicate sample were collected from two background areas and analyzed for arsenic, barium, cadmium, chromium, lead, nickel, selenium, silver, and mercury. Concentrations of arsenic exceeded the PSL of 7.24 mg/kg in two samples, 25HFT-SO-SDBG08-0.5 (12.4 mg/kg) and 25HFT-SO-SDBG10-0.5 (16.2 mg/kg). The chromium concentration was greater than the PSL of 52.3 mg/kg in a single background sample, 25HFT-SO-SDBG08-0.5 (78.6 mg/kg). None of the chromium results in the HFT Dock area were greater than the PSL. Concentrations of nickel exceeded the PSL of 15.9 mg/kg in four primary samples and the field duplicate: 25HFT-SO-SDBG02-0.5 (28.0 mg/kg), 25HFT-SO-SDBG07-0.5 (16.7 mg/kg), 25HFT-SO-SDBG08-0.5 (40.0 mg/kg), 25HFT-SO-SDBG11-0.5 (26.8 mg/kg), and 25HFT-SO-SDBG10-0.5 (34.3 mg/kg). All other metals concentrations were less than the PSLs.

To evaluate background levels of metals in sediment, 95% upper tolerance limits (UTLs) with 95% coverage were calculated for arsenic, chromium, lead, and nickel using EPA's ProUCL Calculator (version 5.2). Outlier tests were conducted first and identified a single lead result as an outlier, which was excluded from the 95% UTL calculation. Table 3 presents the results of the background metals evaluation and Appendix E contains the ProUCL outputs.

Table 3 Background Metals Evaluation in Sediment

ANALYTE	BACKGROUND CONCENTRATION RANGE[1]	BACKGROUND 95% UTL	SCREENING LEVEL[2]	UNITS
Arsenic	0.59 – 16.2	19.05	7.24	mg/kg
Chromium	3.05 – 78.6	92.98	52.3	mg/kg
Lead	0.217 – 3.66	4.63	30.2	mg/kg
Nickel	3.51 – 40.0	54.87	15.9	mg/kg

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Excludes one outlier for lead from sample location 25HFT-SDBG10 with a concentration of 8.53 mg/kg.
[2] Region 4 Ecological Risk Assessment Supplemental Guidance, Table 2a, Marine/Estuarine Sediment ESV (EPA 2018).

The background calculations indicate that naturally occurring arsenic, chromium, and nickel are present at concentrations greater than the respective PSLs. Naturally occurring lead concentrations are less than the PSL.

4.2 Haines Fuel Terminal Dock Area Analytical Results

Lead, the primary COPC, did not exceed the PSL of 30.2 mg/kg in any of the samples collected from the HFT Dock area. However, lead concentrations were greater than the background 95% UTL of 4.63 mg/kg at 10 of the 20 sample locations. The highest lead concentration detected was 16.3 mg/kg from sample location 25HFT-SD04, which was located directly adjacent to the eastern edge of the dock (Figure 3).

Although arsenic, chromium, and nickel were detected at concentrations greater than the PSLs, the maximum detected concentrations for each of these three metals were less than the background concentrations, indicating the results are consistent with naturally occurring levels. Sample locations with arsenic and nickel concentrations greater than the PSLs are presented on Figure 2. Table 4 presents the maximum detected concentrations of arsenic, chromium, lead, and nickel compared to the PSL and the background 95% UTL. The complete analytical results are presented in Appendix C and the 95% UTL calculations are presented in Appendix E.

Table 4 Maximum Detected Concentrations in Sediment Compared to PSLs and Background Levels

ANALYTE	SAMPLE LOCATION	MAXIMUM DETECTED CONCENTRATION	SCREENING LEVEL[1]	BACKGROUND 95% UTL[2]	UNITS
Arsenic	25HFT-SDBG10[3]	16.2	7.24	19.05	mg/kg
Chromium	25HFT-SDBG08[3]	78.6	52.3	92.98	mg/kg
Lead	25HFT-SD04	16.3	30.2	4.63	mg/kg
Nickel	25HFT-SDBG08[3]	40.0	15.9	54.87	mg/kg

Notes:
For definitions, refer to the Acronyms and Abbreviations section.
[1] Region 4 Ecological Risk Assessment Supplemental Guidance, Table 2a, Marine/Estuarine Sediment ESV (EPA 2018).
[2] Excludes one outlier for lead from sample location 25HFT-SDBG10 with a concentration of 8.53 mg/kg.
[3] Maximum detected concentration was reported from a background sample location.

4.3 Conceptual Site Model Update

The details from the site background and physical setting and the previous investigation results in Section 2.0, and the results from this SI were used to update the conceptual site model (CSM) as presented in Worksheet 10 of the QAPP (USACE 2025). The current CSM graphic and scoping forms are presented in Appendix D.

5.0 CONCLUSIONS AND RECOMMENDATIONS

An SI was conducted at the HFT Dock in Haines, Alaska between 22 and 26 June 2025. Sediment samples were collected from around the HFT Dock site and two background areas to evaluate metals contamination, particularly lead resulting from historical sandblasting activities. Concentrations of metals in HFT Dock sediment was compared to the PSLs and the 95% UTLs for arsenic, chromium, lead, and nickel calculated from the background locations.

Lead, the primary COPC, did not exceed the PSL in any of the samples. However, lead did exceed the background 95% UTL of 4.63 mg/kg at 10 of the 20 sample locations in the HFT Dock area. Although arsenic, chromium, and nickel were detected at concentrations greater than the PSLs, the maximum detected concentrations for each of these three metals were less than the background concentrations, indicating the results are consistent with naturally occurring levels.

Lead concentrations greater than the 95% UTL at the HFT Dock area are indicative of past sandblasting activities at the HFT Dock; however, all lead concentrations are less than the PSL, indicating that lead concentrations at the site do not represent an unacceptable risk to ecological receptors. Because lead concentrations are less than the PSL, and arsenic, chromium, and nickel levels are less than the background 95% UTL levels, no further action is recommended for the HFT Dock site.

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FIGURES

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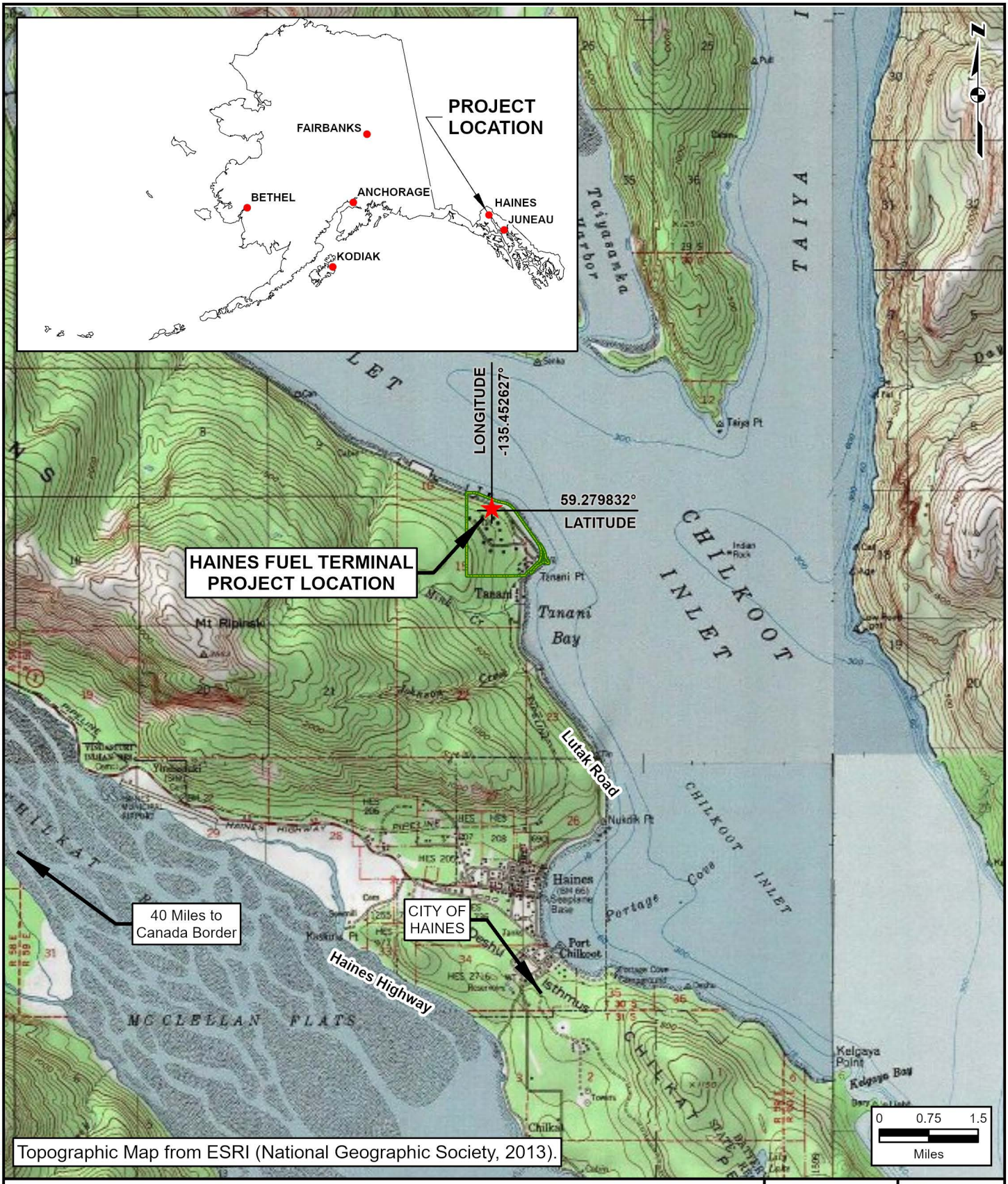
1 INCH



Topographic Map from ESRI (National Geographic Society, 2013).

HAINES FUEL TERMINAL DOCK SITE INSPECTION REPORT
HAINES, ALASKA
U.S. ARMY GARRISON ALASKA

LOCATION AND VICINITY MAP

DATE:	1/8/2026
PROJECT No.:	450202
PM / DRAWN:	G.R. / C.B.

FIGURE: **1**

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1 INCH

ANALYTE	BACKGROUND CONCENTRATION	BACKGROUND 95% UTL	SCREENING LEVEL
Units in mg/kg			
Arsenic	0.59 - 16.2	19.05	7.24
Nickel	3.51 - 40.0	54.87	15.9

N

North Dolphin

25HFT-SD08

25HFT-SD09

25HFT-SD07

25HFT-SD06

25HFT-SD10

25HFT-SD11

25HFT-SD05

Lutak Inlet

Haines Fuel Terminal Dock

25HFT-SD04	
Depth	0 - 0.5
Arsenic	8.93
Nickel	19.0

25HFT-SD03	
Depth	0 - 0.5
Nickel	22.4

25HFT-SD14

25HFT-SD13

25HFT-SD20

25HFT-SD04

12SD

25HFT-SD19

25HFT-SD03

Building 1235

25HFT-SD12

25HFT-SD02

25HFT-SD01

25HFT-SD15

Dockmaster Building 1234

South Dolphin

25HFT-SD18

25HFT-SD16

25HFT-SD17

25HFT-SD14	
Depth	0 - 0.5
Nickel	21.1

25HFT-SD12	
Depth	0 - 0.5
Nickel	26.1

25HFT-SD16	
Depth	0 - 0.5
Nickel	20.9

Marine Dock Fire House Building 1236

Lutak Road

Former POL Pipeline

0 40 80
Feet

HAINES FUEL TERMINAL DOCK
SITE INSPECTION REPORT
HAINES, ALASKA

U.S. ARMY GARRISON ALASKA

SAMPLE LOCATIONS AND SAMPLE RESULTS EXCEEDING PROJECT SCREENING LEVELS

Legend

- Sediment Sample - with Exceedances
- Sediment Sample - no Exceedances
- 1995 Sediment Sample
- Former POL Pipeline
- Extreme Low Water Line
- Mean Low Water Line
- Wave Cut Bank
- Former Building

Notes:

1. Arsenic and nickel concentrations are greater than the PSLs but less than the background 95% UTLs indicating the levels are naturally occurring.
2. **Bold red** indicates that the detected result meets or exceeds the PSL.
3. Results presented in mg/kg.
4. Sample depths presented in feet below ground surface.
5. For definitions, refer to the Acronyms and Abbreviations section.
6. Coordinate Systems: Horizontal - World Geodetic System of 1984 (WGS84), Universal Transverse Mercator (UTM), Zone 8N

Sources:

1. GIS data digitized from: Bristol Environmental Remediation Services, LLC and North Wind, Inc. (Bristol and North Wind). 2020. Final Report, *Former Haines Fuel Terminal Remedial Investigation*. June.
2. Aerial imagery (02/19/1961) obtained from Bristol and North Wind, 2022.

PROJECT No.:	DATE:	FIGURE:
450202	1/8/2026	2
P.M.: G.R.	DRAWN: C.B.	

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1 INCH

25HFT-SD08	
Depth	0 - 0.5
Lead	6.44

25HFT-SD10	
Depth	0 - 0.5
Lead	2.95

25HFT-SD11	
Depth	0 - 0.5
Lead	4.15

25HFT-SD07	
Depth	0 - 0.5
Lead	6.6

25HFT-SD06	
Depth	0 - 0.5
Lead	4.39

25HFT-SD05	
Depth	0 - 0.5
Lead	10.9 J-

25HFT-SD19	
Depth	0 - 0.5
Lead	7.35

25HFT-SD04	
Depth	0 - 0.5
Lead	16.3

25HFT-SD03	
Depth	0 - 0.5
Lead	12.4

25HFT-SD02	
Depth	0 - 0.5
Lead	5.35

25HFT-SD01	
Depth	0 - 0.5
Lead	6.75

25HFT-SD09	
Depth	0 - 0.5
Lead	4.39

25HFT-SD20	
Depth	0 - 0.5
Lead	5.15

25HFT-SD14	
Depth	0 - 0.5
Lead	1.46 J

25HFT-SD13	
Depth	0 - 0.5
Lead	2.78

25HFT-SD12	
Depth	0 - 0.5
Lead	1.86 J

25HFT-SD15	
Depth	0 - 0.5
Lead	1.84 J

25HFT-SD16	
Depth	0 - 0.5
Lead	1.79 J

25HFT-SD17	
Depth	0 - 0.5
Lead	1.09 J

25HFT-SD18	
Depth	0 - 0.5
Lead	1.53 J

ANALYTE	BACKGROUND CONCENTRATION	BACKGROUND 95% UTL	SCREENING LEVEL
Units in mg/kg			
Lead	0.217 - 3.66	4.63	30.2

North Dolphin
Lutak Inlet
Haines Fuel Terminal Dock
12SD
Building 1235
Dockmaster Building 1234
Marine Dock Fire House Building 1236
South Dolphin
Former POL Pipeline

0 40 80
Feet

HAINES FUEL TERMINAL DOCK
SITE INSPECTION REPORT
HAINES, ALASKA

U.S. ARMY GARRISON ALASKA

LEAD SAMPLE RESULTS AT THE FUEL TERMINAL DOCK AREA

Legend:

- Sediment Sample - no Exceedance
- 1995 Sediment Sample
- Former POL Pipeline
- Extreme Low Water Line
- Mean Low Water Line
- Wave Cut Bank
- Former Building

Notes:

1. Lead concentrations are greater than the background 95% UTL indicating anthropogenic influence; however, the concentrations are less than the PSL indicating no unacceptable risk to ecological receptors.
2. Results presented in mg/kg.
3. Sample depths presented in feet below ground surface.
4. For definitions, refer to the Acronyms and Abbreviations section.
5. Coordinate Systems: Horizontal - World Geodetic System of 1984 (WGS84), Universal Transverse Mercator (UTM), Zone 8N

Sources:

1. GIS data digitized from: Bristol Environmental Remediation Services, LLC and North Wind, Inc. (Bristol and North Wind). 2020. Final Report, *Former Haines Fuel Terminal Remedial Investigation*. June.
2. Aerial imagery (02/19/1961) obtained from Bristol and North Wind, 2022.

PROJECT No.:	DATE:	FIGURE:
450202	1/8/2026	3
P.M.: G.R.	DRAWN: C.B.	

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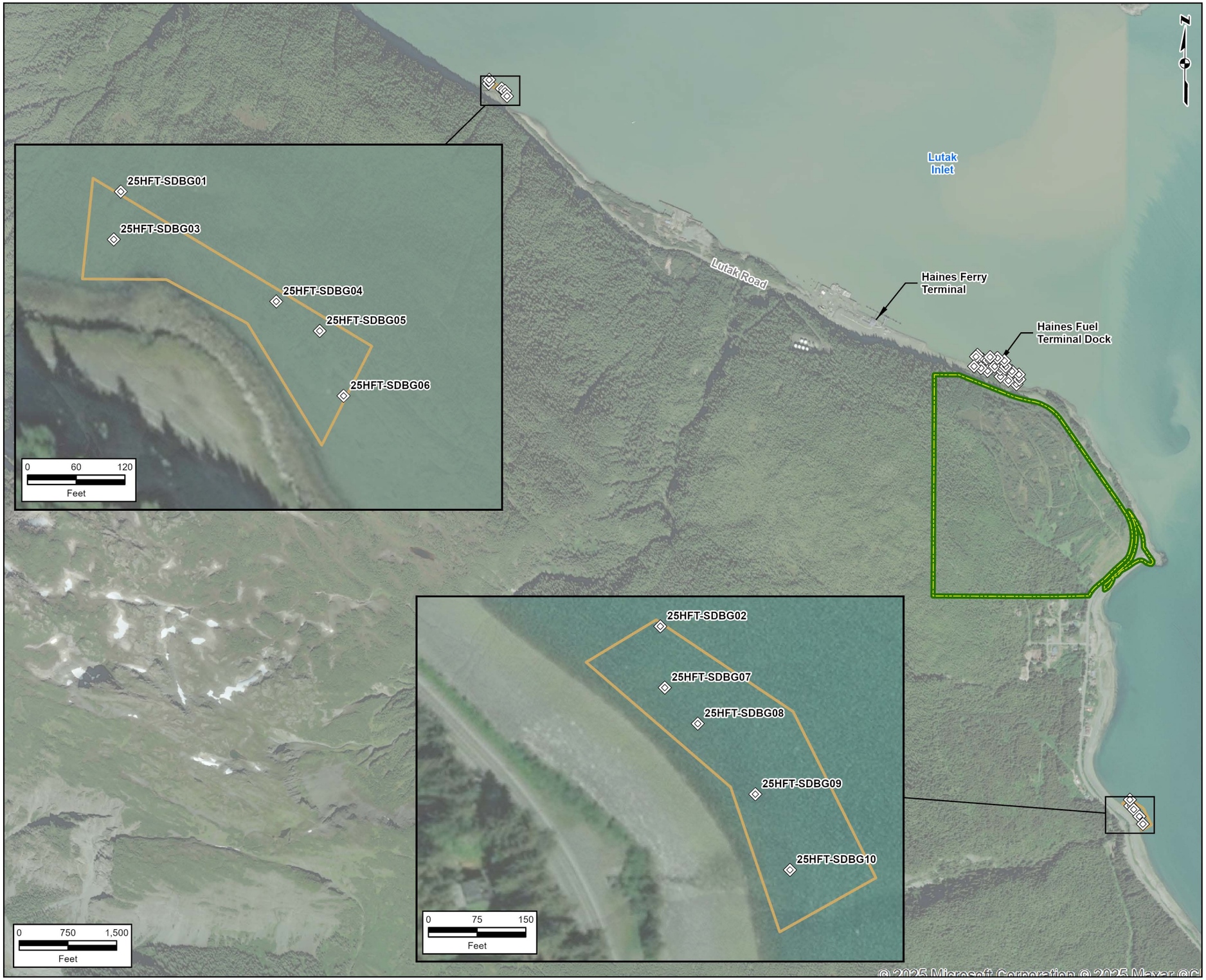
1 INCH



HAINES FUEL TERMINAL DOCK
SITE INSPECTION REPORT
HAINES, ALASKA

U.S. ARMY GARRISON ALASKA

BACKGROUND SAMPLING LOCATIONS

Legend

- Sediment Sample Location
- Proposed Background Sample Area
- Installation_Area

Note:

1. Coordinate Systems: Horizontal - World Geodetic System of 1984 (WGS84), Universal Transverse Mercator (UTM), Zone 8N

Sources:

1. Aerial imagery obtained from ESRI ArcGIS Online

PROJECT No.:	DATE:	FIGURE:
450202	1/8/2026	4
P.M.: G.R.	DRAWN: C.B.	

Document Path: \\ad.bilista.net\brico\Anchorage\Environmental\Shared\BES\5 PROJECTS\DoD\USACE Alaska UR ERS MATOC\Task Orders\4502_Haines\PFAS_R1\07_Reporting\02_HFT_Dock_SI_Rpt\03_Final\Supplemental\GIS_GIS\1_APRX\HFT_Dock_SI_Report\HFT_Dock_SI_Report.aprx

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APPENDIX A
PHOTOGRAPH LOG

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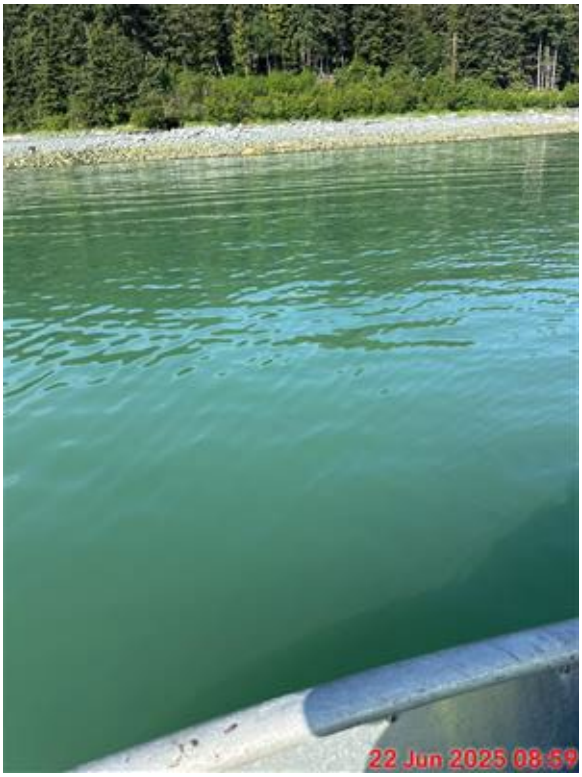
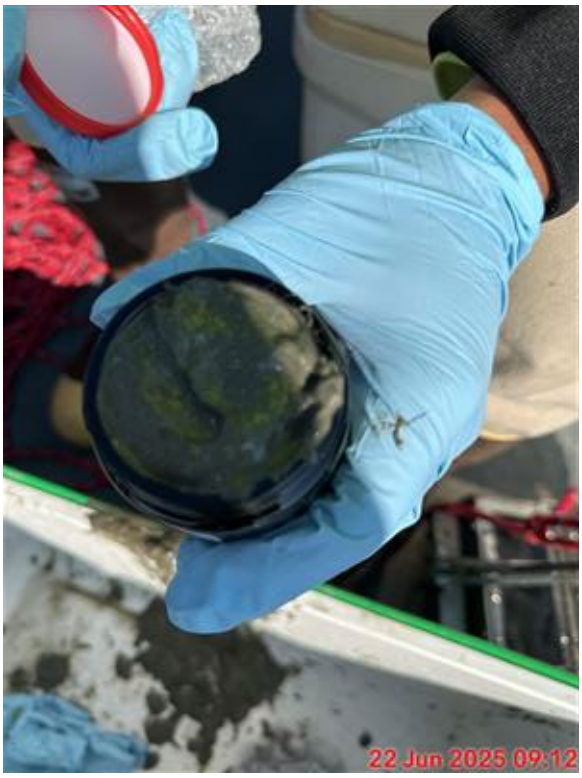
Photograph 5: View of shore from east background area. View South. 6/22/2025.



Photograph 6: West background area facing shore. View South. 6/22/2025.



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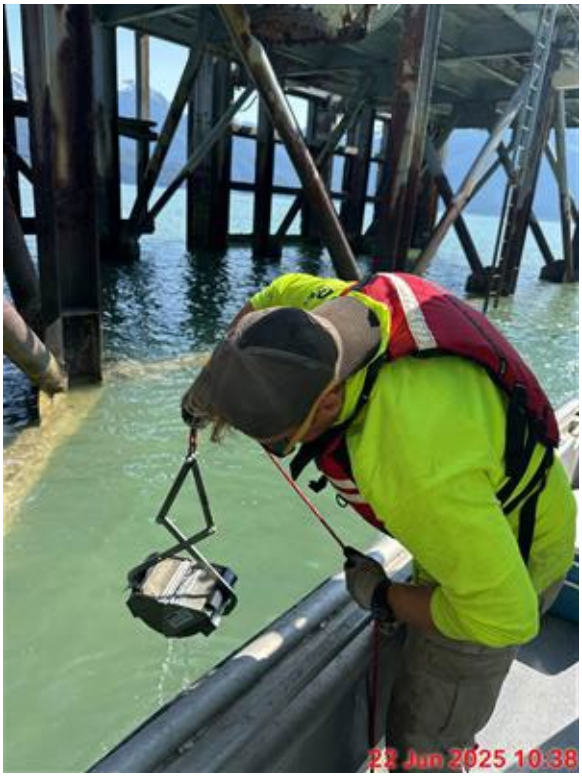

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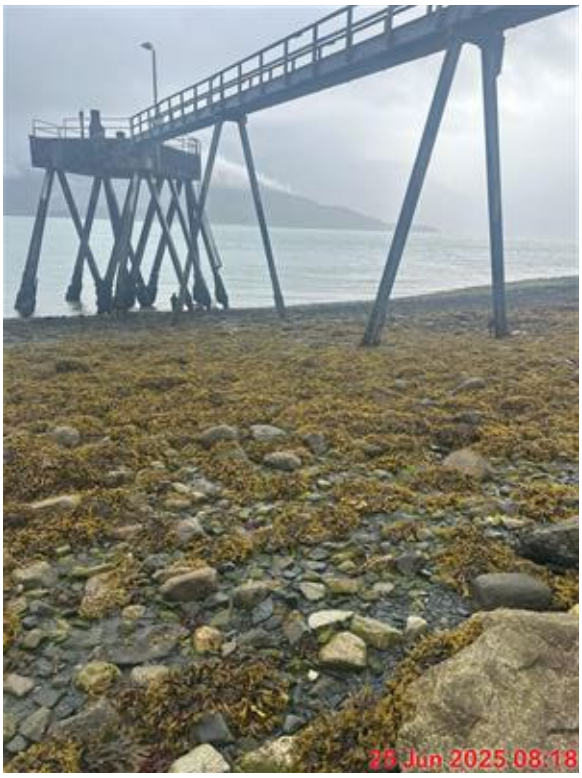

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APPENDIX B
FIELD DOCUMENTATION AND SURVEY DATA

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Appendix B Survey Data Table
HFT Dock Site Inspection Report

Location	Easting NAD83 AK State Plane Zone 5	Northing NAD83 AK State Plane Zone 5	Coordinate Unit	Vertical NAVD 88	Elevation UOM	Survey Method	Max PDOP	Max HDOP	Correction Type	GPS Date	GPS Time	Update Station	Feature Type	Vertical Precision	Horizontal Precision
25HFT-SD01	474301.3228	6571258.366	meter	10.9	meter	Geo7X GPS	1	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	10:00:03am	New	Sediment soil sample	0.1	0.1
25HFT-SD02	474268.5787	6571274.17	meter	14.2	meter	Geo7X GPS	1	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	10:13:12am	New	Sediment soil sample	0.1	0.1
25HFT-SD03	474235.8973	6571286.277	meter	16.3	meter	Geo7X GPS	4	2.5999999	L1L2 Postprocessed Carrier Float	6/22/2025	10:33:19am	New	Sediment soil sample	0.1	0.1
25HFT-SD04	474239.4699	6571296.497	meter	8.1	meter	Geo7X GPS	1	0.6	L1L2 Postprocessed Carrier Float	6/22/2025	10:51:56am	New	Sediment soil sample	0.1	0
25HFT-SD05	474232.7767	6571323.365	meter	3.3	meter	Geo7X GPS	1	0.6	L1L2 Postprocessed Carrier Float	6/22/2025	11:11:47am	New	Sediment soil sample	0.1	0
25HFT-SD06	474200.3826	6571336.087	meter	2.6	meter	Geo7X GPS	0.9	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	11:33:01am	New	Sediment soil sample	0.1	0
25HFT-SD07	474166.3128	6571340.5	meter	7.2	meter	Geo7X GPS	2.4000001	1.2	L1L2 Postprocessed Carrier Float	6/22/2025	11:48:58am	New	Sediment soil sample	0.1	0
25HFT-SD08	474106.1145	6571350.978	meter	15.6	meter	Geo7X GPS	1	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	12:54:39pm	New	Sediment soil sample	0.1	0
25HFT-SD09	474099.6094	6571342.279	meter	18.1	meter	Geo7X GPS	4	1.8	L1L2 Postprocessed Carrier Float	6/22/2025	12:57:33pm	New	Sediment soil sample	0.1	0
25HFT-SD10	474132.0317	6571328.487	meter	19.1	meter	Geo7X GPS	4	1.8	L1L2 Postprocessed Carrier Float	6/22/2025	12:49:55pm	New	Sediment soil sample	0.1	0
25HFT-SD11	474158.6434	6571324.031	meter	13.3	meter	Geo7X GPS	0.9	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	01:11:13pm	New	Sediment soil sample	0.1	0
25HFT-SD12	474153.8455	6571275.391	meter	18.1	meter	Geo7X GPS	4.6999998	1.9	L1L2 Postprocessed Carrier Float	6/25/2025	09:12:58am	New	Sediment soil sample	0.9	0.4
25HFT-SD13	474123.072	6571288.812	meter	18.8	meter	Geo7X GPS	1.2	0.6	L1L2 Postprocessed Carrier Float	6/25/2025	09:14:34am	New	Sediment soil sample	0.9	0.4
25HFT-SD14	474090.4524	6571297.029	meter	20.4	meter	Geo7X GPS	5.0999999	2.0999999	L1L2 Postprocessed Carrier Float	6/25/2025	09:16:24am	New	Sediment soil sample	0.2	0.1
25HFT-SD15	474214.7609	6571249.233	meter	24	meter	Geo7X GPS	4.1999998	1.7	L1L2 Postprocessed Carrier Float	6/25/2025	09:06:13am	New	Sediment soil sample	0.5	0.4
25HFT-SD16	474251.6587	6571229.692	meter	19.4	meter	Geo7X GPS	0.9	0.5	L1L2 Postprocessed Carrier Float	6/25/2025	09:04:34am	New	Sediment soil sample	0.2	0.1
25HFT-SD17	474289.6604	6571212.93	meter	18.9	meter	Geo7X GPS	1	0.5	L1L2 Postprocessed Carrier Float	6/25/2025	09:00:44am	New	Sediment soil sample	0.2	0.1
25HFT-SD18	474303.195	6571235.175	meter	7.1	meter	Geo7X GPS	1	0.5	L1L2 Postprocessed Carrier Float	6/26/2025	08:38:07am	New	Sediment soil sample	0.1	0
25HFT-SD19	474213.078	6571284.216	meter	28.9	meter	Geo7X GPS	2.8	1.1	L1L2 Postprocessed Carrier Float	6/26/2025	08:49:38am	New	Sediment soil sample	0.2	0.1
25HFT-SD20	474187.5141	6571296.62	meter	26.2	meter	Geo7X GPS	1.1	0.5	L1L2 Postprocessed Carrier Float	6/26/2025	08:52:45am	New	Sediment soil sample	0.7	0.4
25HFT-SDBG01	471814.8558	6572642.086	meter	3.4	meter	Geo7X GPS	1.2	0.7	L1L2 Postprocessed Carrier Float	6/22/2025	02:40:29pm	New	Sediment soil sample	0.1	0
25HFT-SDBG02	474822.2261	6569262.411	meter	10.8	meter	Geo7X GPS	0.9	0.5	L1L2 Postprocessed Carrier Float	6/22/2025	09:14:01am	New	Sediment soil sample	0.1	0.1
25HFT-SDBG03	471812.228	6572624.124	meter	14.2	meter	Geo7X GPS	3.4000001	1.8	L1L2 Postprocessed Carrier Float	6/22/2025	01:40:24pm	New	Sediment soil sample	0.1	0
25HFT-SDBG04	471873.2443	6572600.835	meter	15.4	meter	Geo7X GPS	3.4000001	1.8	L1L2 Postprocessed Carrier Float	6/22/2025	01:54:17pm	New	Sediment soil sample	0.1	0
25HFT-SDBG05	471889.5286	6572589.773	meter	10.6	meter	Geo7X GPS	2.7	1.2	L1L2 Postprocessed Carrier Float	6/22/2025	02:18:58pm	New	Sediment soil sample	0.1	0
25HFT-SDBG06	471898.506	6572565.38	meter	14.5	meter	Geo7X GPS	1.2	0.6	L1L2 Postprocessed Carrier Float	6/22/2025	02:28:33pm	New	Sediment soil sample	0.1	0
25HFT-SDBG07	474824.3039	6569233.609	meter	7.6	meter	Geo7X GPS	3.0999999	1.3	L1L2 Postprocessed Carrier Float	6/24/2025	07:20:32am	New	Sediment soil sample	0.2	0.1
25HFT-SDBG08	474839.7981	6569216.709	meter	7.1	meter	Geo7X GPS	3.0999999	1.3	L1L2 Postprocessed Carrier Float	6/24/2025	07:23:41am	New	Sediment soil sample	0.2	0.1
25HFT-SDBG09	474866.8141	6569183.583	meter	7.6	meter	Geo7X GPS	3.0999999	1.3	L1L2 Postprocessed Carrier Float	6/24/2025	07:25:46am	New	Sediment soil sample	0.3	0.1
25HFT-SDBG10	474883.056	6569148.025	meter	7.9	meter	Geo7X GPS	1.1	0.6	L1L2 Postprocessed Carrier Float	6/24/2025	07:33:46am	New	Sediment soil sample	0.2	0.1

Notes:
GPS – Global Positioning System
HDOP – horizontal dilution of precision
NAD83 – North American Datum of 1983
PDOP – position dilution of precision
UOM – unit of measure

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SEDIMENT 1 OF 2 NEED 2 MS/MSD

SOIL SAMPLE SUMMARY LOG

PROJECT: Haines PFAS RI Haines, Alaska

No.	Sample ID	Location ID	Depth	Sample Type	Date	Time	Sampler	Analyses	PID (ppmv)
1	25HFT-SO-SDBG01-0.5	25HFT-SDBG01	54 ~~72~~	SD	6/22/25	~~1440~~ 1437	EB/LB	~~PFAS~~ RCRA Metals +Ni+Hg	
2	25HFT-SO-SDBG02-0.5	25HFT-SDBG02	34	SD	6/22/25	0910	EB/LB	~~PFAS~~	
3	25HFT-SO-SD01-0.5	25HFT-SD01	41	SD	6/22/25	0952	EB/LB	~~PFAS~~	
4	25HFT-SO-SD02-0.5	25HFT-SD02	32	SD	6/22/25	1009	EB/LB	~~PFAS~~	
5	25HFT-SO-SD03-0.5	25HFT-SD03	27	SD	6/22/25	1027	EB/LB	~~PFAS~~ DUP	
6	25HFT-SO-SD21-0.5	25HFT-SD21	27	SD	6/22/25	0927	EB/LB	~~PFAS~~	
7	25HFT-SO-SD04-0.5	25HFT-SD04	55	SD	6/22/25	1050	EB/LB	~~PFAS~~	
8	25HFT-SO-SD05-0.5	25HFT-SD05	92	SD	6/22/25	1105	EB/LB	~~PFAS~~ MS/MSD - 3 JARS	
9	25HFT-SO-SD06-0.5	25HFT-SD06	72	SD	6/22/25	1120	EB/LB	~~PFAS~~ High Shell content	
10	25HFT-SO-SD07-0.5	25HFT-SD07	52	SD	6/22/25	1140	EB/LB	~~PFAS~~	
11	25HFT-SO-SD08-0.5	25HFT-SD08	~~42~~ 26	SD	6/22/25	1212	EB/LB	~~PFAS~~	
12	25HFT-SO-SD09-0.5	25HFT-SD09	~~20~~ 18	SD	6/22/25	1223	EB/LB	~~PFAS~~	
13	25HFT-SO-SD10-0.5	25HFT-SD10	15	SD	6/22/25	1240	EB/LB	~~PFAS~~	
14	25HFT-SO-SD11-0.5	25HFT-SD11	32	SD	6/22/25	1303	EB/LB	PFAS	
15	25HFT-SO-SD12-0.5	25HFT-SD12	6	SD	6/25/25	0805	EB/LB	~~PFAS~~	
16	25HFT-SO-SDBG03-0.5	25HFT-SDBG03	27	SD	6/22/25	1337	EB/LB	PFAS	
17	25HFT-SO-SDBG04-0.5	25HFT-SDBG04	21	SD	6/22/25	1350	EB/LB	PFAS	
18	25HFT-SO-SDBG05-0.5	25HFT-SDBG05	34	SD	6/22/25	1415	EB/LB	PFAS	
19	25HFT-SO-SDBG06-0.5	25HFT-SDBG06	20	SD	6/22/25	1424	EB/LB	MS/MSD - 1 JAR	
20	25HFT-SO-SDBG07-0.5	25HFT-SDBG07	0	SD	6/24/25	0710	EB/LB		

Notes:
MeOH shipping limitation: 500mL per cooler -- 12 samples, 1 MS/MSD, 1 TB (14 "samples" total) @ 35mL MeOH each.
MS/MSD volume: collect 1 extra container for VOC, GRO, and non-volatile analyses (primary + MS/MSD = 2 containers).

SEDIMENT 2 OF 2

SOIL SAMPLE SUMMARY LOG

PROJECT: Haines PFAS RI Haines, Alaska

No.	Sample ID	Location ID	Depth	Sample Type	Date	Time	Sampler	Analyses	PID (ppmv)
1	25HFT-SO-SD0608	25HFT-SD0608	0.5	SD	6/24/25	0720	RB/CB	PFAS	
2	25HFT-SO-SD0609	25HFT-SD0609	0.5	SD	6/24/25	0727	RB/LB	PFAS DUP	
3	25HFT-SO-SD0611	25HFT-SD0611	0.5	SD	6/24/25	0627	RB/LB	PFAS	
4	25HFT-SO-SD0610	25HFT-SD0610	0.5	SD	6/24/25	0735	RB/LB	PFAS	
5	25HFT-SO-SD13-0.5	25HFT-SD13	0.5	SD	6/25/25	0812	RB/LB	PFAS	
6	25HFT-SO-SD14-0.5	25HFT-SD14	0.5	SD	6/25/25	0816	RB/LB	PFAS	
7	25HFT-SO-SD15-0.5	25HFT-SD15	0.5	SD	6/25/25	0824	RB/LB	PFAS	
8	25HFT-SO-SD16-0.5	25HFT-SD16	0.5	SD	6/25/25	0830	RB/LB	PFAS	
9	25HFT-SO-SD17-0.5	25HFT-SD17	0.5	SD	6/25/25	0857	RB/LB	PFAS DUP	
10	25HFT-SO-SD22-0.5	25HFT-SD22	0.5	SD	6/24/25	0737	RB/LB	PFAS	
11	25HFT-SO-SD18-0.5	25HFT-SD18	0.5	SD	6/26/25	0837	RB/LB	PFAS	
12	25HFT-SO-SD19-0.5	25HFT-SD19	0.5	SD	6/26/25	0848	RB/LB	PFAS	
13	25HFT-SO-SD20-0.5	25HFT-SD20	0.5	SD	6/26/25	0852	RB/LB	PFAS	
14								PFAS	
15								PFAS	
16								PFAS	
17								PFAS	
18								PFAS	
19									
20									

Notes:
MeOH shipping limitation: 500mL per cooler -- 12 samples, 1 MS/MSD, 1 TB (14 "samples" total) @ 35mL MeOH each.
MS/MSD volume: collect 1 extra container for VOC, GRO, and non-volatile analyses (primary + MS/MSD = 2 containers).

HAINES FUEL TERMINAL
PFAS REMEDIAL INVESTIGATION

CONTRACT W911KB22D0019

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ALL-WEATHER
JOURNAL
№ 391FX

HAINES, ALASKA

BOOK 1 OF 1

CHRIS BOESE

7/6/24 - 0430 - LEAVE FAIRBANKS. 1845 - ARRIVE AT TANK FARM/ HAINES FUEL TERMINAL - DROP TRAILER AT SITE. 1930 - CHECK IN AT HOTEL - END OF DAY

Chr Bolse

7/7/24 - 0830 - ARRIVE AT HFT IDENTIFY SEEPS AT LOW TIDE + CLEAR TRAIL TO AP-148 AREA (NOTE AREA OVERGROWN) AND ORGANIZE FIELD GEAR 1240 - LEAVE SITE. PURCHASE BEAR SPRAY, SET UP ICE FREEZER, DISCUSS PROJECT WITH SHANNON FITZSIMMONS 1430 - RETURN TO SITE - GATHER GEAR FOR SEEP SAMPLING ON 7/8/24 + LAYOUT BORING/WELL (PROPOSED) LOCATIONS. NOTE

2 WESTERN BORINGS/WELLS ARE ON THIRD TIER - DISCUSS LOCATIONS WITH GREG RUTKOWSKI. 1700 - LEAVE SITE. MOVE TO HOTEL - PREP FOR SAFETY MEETING ON 7/8/24. 1730 - END OF DAY. NOTE: CALL FROM ALAN JONES - HE WILL BE ONSITE FOR SEEP SAMPLING CALL AT 2130

Chr Bolse

7/8/24 - 0730 - PREP FOR SEEP SAMPLING 0750 - ON SITE. DISCUSS PROJECT WITH SHANNON FITZSIMMONS ~ 0830 - ANN MARIE P. (DEC) ON SITE - DISCUSS PROJECT ALAN JONES (CHILKAT-GOV) ON SITE. CONDUCT HEALTH AND SAFETY MEETING / PROJECT MEETING. SAMPLE WS/SE SEEP SAMPLES → SEE PHOTOS. GPS SEEP SAMPLES. SET UP TO GROUND -

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WATER SAMPLE. FIND AP-137 SETUP TO SAMPLE BUT DECIDE TO WAIT TO USE STAINLESS STEEL PUMP. MOVE TO AP-207 - SAMPLE WELL → WELL DRAWS DOWN AT VERY SLOW FLOW RATES - SEE FORM. HIKE GEAR OUT OF AP-207. MOVE TO JOB TRAILER - CLEAN UP - MOVE TO MOTEL - CLEAN UP / DAILY REPORT. 1930 - END OF DAY

Chr Bass

7/9/24 0800 - MOVE TO HARDWARE STORES TO PICK UP CONCRETE AND PEA GRAVEL FOR DRILLING. SHANNON MOVE TO SITE TO CALIBRATE INSTRUMENTS AND START GROUNDWATER SAMPLING - SEE FORMS 1100 - MOVE TO AP-137 - NOTE GOT APPROVAL TO

USE PROACTIVE SUB PUMP - HAVE PFAS FREE DOCUMENTATION NOTE SAMPLED NW-005, AP-148 + DUP, ↳ TMS MSD AP-137, AP-145, AND AP-102 JOHN NOWINSKI ARRIVE ONSITE AT 1400 - FIND REMAINING EXISTING WELLS AND LAYOUT BORING LOCATIONS. 1830 - LEAVE SITE. CLEAN UP / DAILY REPORT 1900 - END OF DAY

Chr Bass

7/10/24 - 0730 - PREP FOR GROUNDWATER SAMPLING - CALIBRATE INSTRUMENTS MOVE TO SET UP TRAFFIC SIGNS, TO SAMPLE AP-605 AP-192 AND AP-605 ONLY HAD 0.10' OF WATER AND DID NOT RECHARGE → SEE FORM ABLE TO COLLECT SOME

Rite in the Rain

VOLUME FROM AP-536
1130 - MOVE TO SAMPLE AP-013 & 011 - SEE FORMS SHANNON SAMPLE AP-009 / AP-114 + DUP.
1420 - CALL 811 TO GET UTILITY LOCATES + SEND TITEN COORDINATES AND MAPS. WAS TOLD THAT 811 DOES NOT PARTNER WITH ANY LOCAL UTILITIES IN THE AREA BUT THAT THERE MAY BE UTILITIES IN THE AREA. CONTACTED AP&T AND INSIDE PASSAGE ELECTRIC UTILITIES FOR LOCATES. MOVE TO AP-515 -> SET UP TRAFFIC CONTROL SIGNS AND CONES - DUE - WELL WENT DRY AND RECHARGED VERY SLOW - DID NOT COLLECT SAMPLE. MOVE TO TIAWAN POINT LOCS TO SEE IF WATER IS HIGHER IN TIDAL WELLS. NOTE - AP&T CALLED AND

INFORMED ME THAT THEY WERE THE ONLY UTILITY IN THE AREA. SHANNON START SAMPLE MANAGEMENT → QC FORMS VS SAMPLES WRITE COCS FOR SHIPMENT ON 7/12/24. ALL 3 TIDAL WELLS ARE STILL DRY - AT HIGH TIDE (1704) MOVE TO JOB TRAILER - CLEAN UP. MOVE TO MOTEL - DAILY REPORT 1800 - END OF DAY. NOTE PAUL AND KENNY ARRIVED IN TOWN AT 2130 - MOVE RIG TO SITE.

Chr Bass
0730
7/12/24 - FILL OUT ONLINE FORM FOR AP&T LOCATES. FINISH AND SEND DAILY REPORT. PRINT COC + HELP SHANNON GET SAMPLES READY FOR SHIPMENT. PREP FOR DRILLING ACTIVITIES

Rite in the Rain

1100 - SITE WALK WITH ANNE MARIE, ALAN, AND BRUCE CREW, CONDUCT HEALTH AND SAFETY MEETING. MOVE: PREP FOR DRILLING MOVE TO 24HFT-SB01 AT 1400, - SEE BORING LOG - SET WELL 24HFT-MW01 - SEE WELL LOG. 1545 - MOVE TO 24HFT-SB02 INSTALL WELL 24HFT-~~SB~~MW02 - SEE FORMS 1740 - MOVE TO SAMPLE AP-515 BUT WELL IS STILL DRY. MOVE TO MOTEL - CLEAN UP / DAILY REPORT 1830 - END OF DAY

Chr Bolte

7/12/24 - 0800 - PREP FOR DAY. CONDUCT HEALTH / SAFETY MEETING - SEE FORM, DRILL 24HFT-SB03, 24HFT-SB04, 24HFT-SB05, 24HFT-SB06 - SEE BORING

LOGS. INSTALL WELLS 24HFT-MW03, 24HFT-MW04, 24HFT-MW05 AND 24HFT-MW06 → SEE LOGS. 1900 - LEAVE SITE. MOVE TO MOTEL - CLEAN UP / DAILY REPORT 1930 - END OF DAY

Chr Bolte

7/13/24 - 0730 - PREP FOR DRILLING. MOVE TO HARD-WARE STORE - FIND FITTINGS FOR GAS SYSTEM. MOVE TO SITE - MOB GEOPROBE TO BEACH WELLS - DRILL BOREHOLE 24HFT-SB08 - SEE FORM. INSTALLED 24HFT-MW08 - THEN WELL GOT SAND LOCKED AND DRILL TEAM HAD TO REMOVE WELL, AND GET WELL OUT OF OUTER RODS. ~~AT~~ WENT BACK DOWN SAME HOLE WITH SOLID POINT, BUT COULDN'T GET PAST

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5'. 1830- LEAVE SITE. MOVE TO MOTEL - CLEAN UP / DAILY REPORT. 1900 - END OF DAY

Chr Bolse

7/14/24 - 0730 - PREP FOR DAY. 0800 - MOVE TO SITE - SETUP TO INSTALL 24HFT-MW08. CONDUCT HEALTH / SAFETY MEETING. DRILL ~~BORINGS 24HFT-SB~~ AND INSTALL 24HFT-MW08, SOIL BORINGS 24HFT-SB08, 24HFT-SB10. AND INSTALL 24HFT-MW09, 24HFT-MW10 → SEE LOGS. 1930 - LEAVE SITE - MOVE TO MOTEL - CLEAN UP + DAILY REPORT 2000 END OF DAY

Chr Bolse

7/15/24 - 0800 - PREP FOR DAY. ~0840 ON SITE. MOB DRILL RIG FROM BEACH

TO 24HFT-MW07 - DRILL SOIL BORING 24HFT-SB07 & INSTALL WELL 24HFT-MW07 → SEE LOGS. 1130 - KENNY GREEN LEAVE SITE FOR AIRPORT. INSTALL ALL OVER-CASINGS ON STICK UP WELLS. 1600 - END OF DAY

Chr Bolse

7/16/24 - 0730 - PREP FOR DAY. NOTE JILL STOCKBRIDGE (BEC) ARRIVE IN HAINES ON 7/15/24. 0810 - ON SITE - CONDUCT HEALTH / SAFETY MEETING. CALIBRATE YSI / TURB METER - SET UP TO DEVELOP WELLS AND SAMPLE - PAUL / JOHN WORK ON COMPLETING WELLS. JOHN LEFT SITE FOR AIRPORT AT 1130. WELLS 24-HFT-MW09 AND 24HFT-MW02 DRAW

Rite in the Rain

DOWN → SEE DEVELOPMENT FORMS. DEVELOP 24HFT-MW03, 24HFT-MW05 (BOTH DRAW DOWN). MOVE TO 24HFT-MW04 → DEVELOP AND SAMPLE - SEE FORMS. RUN COLLECTED PURGE WATER THROUGH GAC SYSTEM. MOVE TO 24HFT-MW06 - DEVELOP WELL - SEE FORM. CLEAN UP. 1830 - LEAVE SITE. 1840 - ARRIVE AT MOTEL - DAILY REPORT. 1900 - END OF DAY

Chr Bobo

7/16/24 0730 - PREP FOR DAY. 0800 - ON SITE. CALIBRATE YSI's / TURBIDITY METERS. CONDUCT HEALTH / SAFETY MEETING. GROUNDWATER SAMPLE 24HFT-MW01, MW02, MW03, MW05, MW06. COLLECT FIELD AGENT BLANK OVER 24HFT-MW06 AT 1320. - SEE FORMS

DEVELOP WELLS 24HFT-MW07/MW04 COLLECT COMPOSIT SOIL SAMPLE FROM IDW SOIL DRUM - SEE PICS. HELP PAUL MIX CONCRETE FOR STICK UP WELL COMPLETIONS → SEE PICS. LOAD GEO-PROBE 1520 - PAUL CARLSON LEAVE FOR FERRY TERMINAL → PREP TO SAMPLE BEACH WELLS AT LOW TIDE. NOTE AT 1445 - JILL REMOVE 1 CASING VOLUME FROM 24HFT-MW07. 1535 - REMOVED 1 CASING VOLUME FROM 24HFT-MW01 - SEE FORMS. MOVE TO GROUNDWATER SAMPLE 24HFT-MW08 & MW10 → SEE FORMS. CLEAN UP 1845 - LEAVE SITE. 1900 - MOTEL - DAILY REPORT 1915 - END OF DAY

Chr Bobo

Rite in the Rain

7/18/24 - 0730 - PREP FOR DAY. 0805 - ON SITE - CONDUCT HEALTH / SAFETY MEETING. JILL CALIBRATE AND SAMPLE 24HFT-MW04 AND MW07 - SEE FORMS. ALAN REMAINING PURGE WATER THROUGH GAC - COLLECTED WC SAMPLES OF GAC AND EFFLUENT WATER - SEE PICS. 1100 - MOVE TO COLLECT SITE WIDE WATER LEVELS

WL # 16		TUBING
AP-137	50.53	YES
AP-207	12.27	YES
AP-011	14.44	YES
AP-013	12.76	YES
AP-537	DRY	YES
AP-145	ARTESIAN	YES
SEE PIC - "1" -		
24HFT-MW10	14.38	NO
" " MW09	15.26	NO
" " MW08	13.61	NO
AP-605	DRY	YES

TUBING

AP-536	DRY	YES
AP-515	DRY	NO
NOTE - NO FLUSH MOUNT BOLTS		
AP-115	19.66	YES
AP-009	14.83	YES
AP-114	19.48	YES
24HFT-MW01	8.21	NO
- MW02	8.55	NO
MW03	9.05	NO
MW04	~~13.14~~ 12.92	NO
MW05	12.78	~~NO~~ YES
MW06	9.23	YES
MW07	14.38	NO
AP-148	17.26	YES
NW-005	11.32	YES

→ MOVE TO GPS ALL NEW BORINGS / WELLS 1530 - ANN MARIE AND ALAN JONES ON SITE - SHOW THEM NEW WELLS TO 1600. 1600 - CLEAN SITE / LOAD VAN & TRAILER 1800 - LEAVE SITE, MOVE TO MOTEL. DAILY REPORT 1830 - END OF DAY

Ann Boise

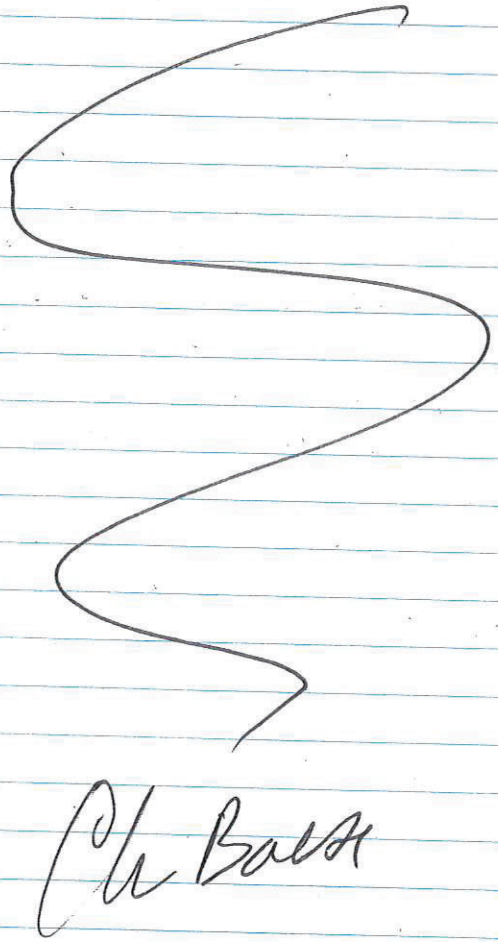
7/19/24 - 0600 - LEAVE HAINES
1930 - ARRIVE FAIRBANKS -
MOVE SAMPLES TO REFRIDGER
NATION - 2000 - END OF DAY

Chr Boese

Chr Boese

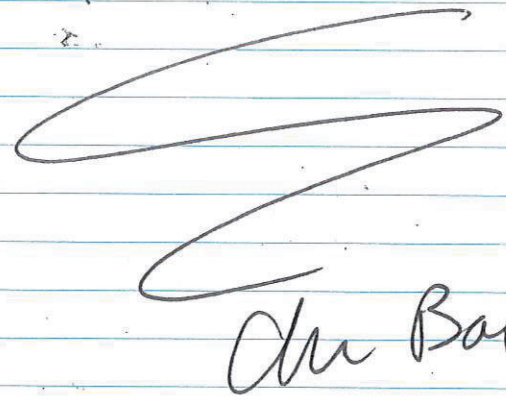
Rite in the Rain

6/16/25 - PACK VAN & TRAILER - PREP FOR FIELD WORK IN HAINES



Chr Bass

6/17/25 - 0500 - PACK REMAINING ITEMS + ICE.
0600 - DRIVE TO TOK WITH REID BROOK, KENNY GRIFFIN AND JOE KNAPIC
NOTE - PICKED UP DRILL RIG AND GEAR IN TOK.
1200 - MOVE TO HAINES
2215 - ARRIVE AT HAINES FUEL TERMINAL - DROPPED 2 TRAILERS AT SITE
NOTE HAD TO CUT/REPLACE LOCK ON GATE (RUST/SALT - COULD NOT MOVE COMBO). MOVE TO VRBO - 2245 - END OF DAY



Chr Bass

Rite in the Rain

6/18/25 - 0830 - CONDUCT SAFETY MEETING - SEE FORM. 0900 - REID / CHRIS MOVE TO TOWN TO BUY BEAR SPRAY. KENNY / JOE MOVE TO SITE - PREP FOR DRILLING NOTE: NEEDED TO CONTACT SII TO ADD ADDITIONAL BORING OUTSIDE TANK FARM FENCE - MARKED BEACH BORINGS + BORING NEAR BUILDING FOR UTILITY LOCATES. ALSO LAID OUT 25HFT-SB11 & SB12 WITH FIELD MAPS AND R1 TRIMBLE ANTENNA (1.9' ACCURACY) MOVE TO DRILL 25 HFT SB11 AT 1215 - SEE LOG - NOTE INSTALLED 25HFT-MW11 - SEE LOG 1435 - MOVE TO ~~&~~25HFT-SB12 THEN INSTALLED 25HFT-MW12 AT 1645. → SEE LOG

1635 - MOVE TO 25HFT-SB13 - SEE LOG, 1700 - MOVE TO 25HFT-SB14 - SEE LOG. 1730 - MOVE TO 25-HFTSB15 - SEE LOG. 1805 - FINISHED WITH BORINGS - CLEAN UP, LOAD GEAR 1840 - LEAVE SITE, MOVE TO VRBO - CLEAN UP. 1900 - END OF DAY

Chr Bolsh

Rite in the Rain

6/19/25 - 0700 - CONDUCT SAFETY MEETING - SEE FORM. PREP FOR DRILLING 0730 - MOVE TO SITE 0735 - ON SITE. 0808 RUSS FROM AP&T ARRIVE ON SITE AND INFORM US THAT ALL UTILITIES IN PROPOSED BORING LOCS ARE OVERHEAD - NOT UNDERGROUND - NO CONFLICT. 0805 - MOVE TO SB16 - SEE LOG 0935 - COLLECT SURFACE SOIL SAMPLES - SEE LOG 1100 - MOVE TO SB18 / MW14 SET WELL MW14 AT 1300 CLEAN UP - 1315 - 1345 LUNCH MOVE RIG ON BERM TO SB19 / MW14. NOTE HAD DIFFICULTY POUNDING IN OUTER ROD OF DUAL TUBE BUT EVENTUALLY ABLE TO SET WELL 1815 - CLEAN UP 1845 LEAVE SITE 1900 END OF DAY

6/20/25 - 0700 - CONDUCT SAFETY MEETING - SEE FORM 0735 - MOVET TO SITE. PREP FOR DRILLING. 0800 WALK RIG TO SB20 - DRILL BORING AND SET WELLS MW15 - SEE LOGS 1000 - MOVE DRILL RIG BACK INTO FENCED AREA KENNY / JOE PREP FOR SETTING WELLS IN CONCRETE. NEAD / CITRIS SET UP GAC FILTER & PUMP - MOVE TO DEVELOP MW11 - SEE FORM. MOVE TO DEVELOP MW12 - SEE FORM. JOE / KENNY CLEAN UP SITE AND LOAD GEAR DRILL RIG ON TRAILER 1855 - LEAVE SITE 1900 - ARRIVE AT MBS - END OF DAY

Rite in the Rain

6/21/25 - 0700 - CONDUCT SAFETY MEETING - SEE FORM. 0740 - MOVE TO SITE. NOTE KENNY GRIFFIN RETURNED TO ANCHORAGE REID GROUNDWATER SAMPLE MW12. JOE DEVELOPED MW19 THEN MW20 - SEE FORMS CHRIS / JOE SURVEY AND PURGE MW11 - SEE FORM REID DEVELOPED (STARTED) MW13 - NOTE WELL DRAWS DOWN THEN GROUNDWATER SAMPLE MW20. CHRIS GROUNDWATER SAMPLE AP-537 / AP-505 - SEE FORMS AND CUT LOCKS (RUSTED) IN PREP FOR SITE WIDE GW LEVEL GAUGING + PREP FOR DOCK SAMPLING ON 6/22/25. 1845 - CLEAN UP 1900 - END OF DAY, NOTE ALSO [illegible] LOW WATER THAN [illegible] GAC - SEE PHOTO

6/22/25 - 0630 - PREP GEAR FOR DOCK SAMPLING 0700 - LEAVE VARD - MOVE TO SMALL BOAT HARBOR - MEET BOAT CAPTAIN MARCO W/ NEVER MONDAYS ALWAYS FRIDAYS, BOAT CHARTERS, LOAD BOAT AND MOVE TO EAST BACKGROUND - TRIED SEVERAL TIMES (5) TO COLLECT SAMPLE WITH PONAR SAMPLER BUT UNSUCCESFUL MOVE → WOULD PULL UP SEAWEED. MOVE TO WEST BACKGROUND POLYGON AND TRY TO COLLECT SAMPLE BUT UNSUCCESSFUL - ONLY KELP. ABLE TO COLLECT SEDIMENT SAMPLE OUTSIDE OF POLYGON. MOVE BACK TO EAST BACKGROUN POLYGON AND HAD SUCCESS COLLECTING SAMPLE

Rite in the Rain

6/22 CONT

INSIDE THE POLYGON - MOVE TO DOLPHIN AND DOCK SAMPLE AREA - COLLECTED BOAT SEDIMENT SAMPLES → SEE MAP AND PHOTOS NOTE GPS'ED ALL LOCS AND NOTED @ SEA FLOOR DEPTHS WITH BOATS DEPTH FINDER DECIDED TO RETURN TO WEST BACKGROUND SAMPLE LOCATION AFTER MAKE EXPERIENCE WITH PONAR SAMPLER TO COLLECT SAMPLE WITHIN THE POLYGON. HAD SUCCESS - DECIDED TO COLLECT ALL 5 BACK-GROUND SAMPLES IN WEST BACKGROUND POLYGON FROM BOAT BECAUSE THE BEACH WAS COVERED WITH THICK KELP - SEE PHOTO AND THE WATER WAS DEEP (~15') WHERE WE WOULD

6/22 CONT.

NEED TO COLLECT SAMPLES BY LAND - (DIDN'T KNOW IF AREA WOULD BE UN-COVERED DURING LOW TIDE). MOVE BACK TO SMALL BOAT HARBOR AND MOVE GEAR TO TRUCK. 1530 - 1630 LUNCH 1630 - MOVE TO HFT SITE RETD SURGE MWIS WITH SURGE BLOCK. CHRIS TRIED COLLECTING MORE VOLUME FROM AP515 BUT WELL WAS DRY - SEE FORM & MOVE SETTLED WATER THROUGH GAC. JOE PREP DRILL ~~TRAILER~~ TRAILER FOR TRANSPORT TO ANCH. / PALMER ON 6/23/25. CLEAN UP 1900 - LEAVE SITE. END OF DAY

Chr Boise

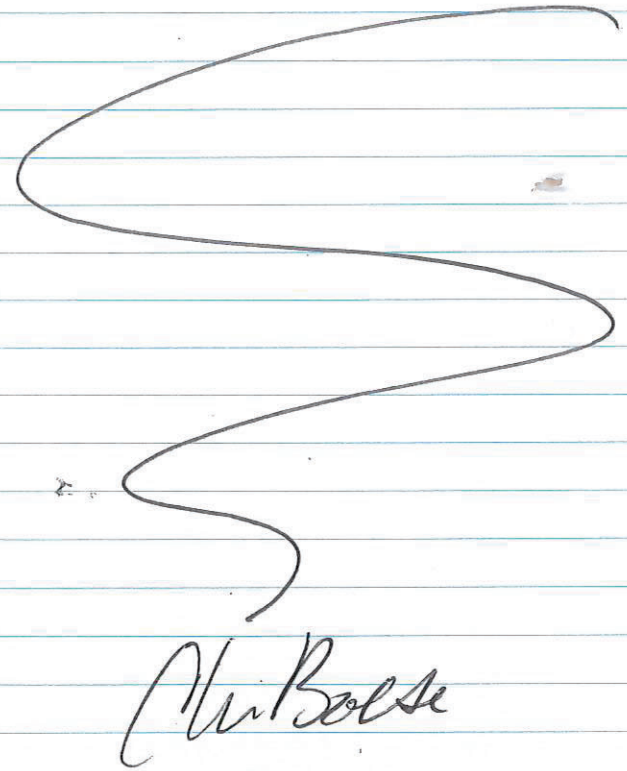
Rite in the Rain

6/23/25

0730 - CONDUCT SAFETY MEETING - SEE FORM. PREP FOR WELL DEVELOPMENT / GROUNDWATER SAMPLING - JOE / REID MOVE TO SITE. CHRIS MOVE TO AML TO SEE ABOUT SHIPPING WASTE - JOE / REID MOVE 55 G DRUM OF WASTE TO AML FOR TRANSPORT THEN MOVE BACK TO SITE TO LOAD DRILL RIG ON TRAILER - 1115 JOE KNAPIC LEAVE SITE - MOVE TO TOK FOR NIGHT REID CONTINUE TO SURGE PURGE MW13 - SEE FORM CHRIS CALIBRATE YSI AND MOVE TO SAMPLE 2SHFT - MW11 - SEE FORM NOTE: COLLECTED SOLID WASTE COMPOSITE SAMPLE FROM MOBS 1/2 AT 0928. SAMPLE MW11 -

6/23/25 CONT.

SEE FORM. CHRIS START SITE RESTORATION / ORGANIZE TRAILER / VAN / PAPERWORK REID RETURN TO MW13 TO SURGE / PURGE - SEE FORM. 1730 - END OF DAY



Rite in the Rain

6/24/25 - 0630. CONDUCT SAFETY MEETING - SEE FORM 0700 - MOVE TO EAST BACKGROUND POLYGON AND COLLECT REMAINING SEDIMENT SAMPLES - SEE PHOTOS / MAP - NOTE DID NOT SEE ANY EVIDENCE OF SAND BLASTING MATERIAL. @ 0800 - MOVE TO HFT. COLLECT GRAB SAMPLES FROM AP-536 AND AP-192 - SEE FORMS NOTE COULD NOT GET WATER OUT OF AP-605 - SEE FORM PUMP SILT/SAND (CONTINUE DEVELOPMENT) AT MW13. STAKE ALL 2024/2025 LOCATIONS FOR SURVEYOR + CUT LOCKS ON WELLS THAT WILL NEED TO BE MEASURED FOR WELL GAUGING (LOCKS RUSTED). NOTE! ABLE TO GET WELLS

6/24/25

TO FLOW USING 1.7" STEEL SURGE BLOCK. DECIDED TO RE-DEVELOP WELLS MW1,2, MW5 INSTALLED IN 2024, 1830 - LEAVE SITE. END OF DAY

Jon Baker

Rite in the Rain

6/25/25

0700 - PREP FOR SEDIMENT SAMPLING. 0730 - ARRIVE AT HFT DOCK. COLLECT SEDIMENT SAMPLES ACCESSABLE BY FOOT. PHOTO DOCUMENT SITE NOTE - DID NOT SEE ANY EVIDENCE OF SAND-BLASTING - SEE PHOTOS. GPS'ED SAMPLE LOCATIONS. 1000 - LEAVE SITE - MOVE TO TOWN - PURCHASE WADERS TO COLLECT REMAINING 3 SEDIMENT SAMPLES NEAR DOCK / DOLPHINS - NOTE CANT USE PONAR SAMPLER DUE TO THICK AMOUNTS OF CLAMS → TRIED ON 6/22/25 FROM BOAT. ~1200 - MOVE TO HFT AND RE-DEVELOP MW3/4/6/7 + CHECK IF LOCKS ARE RUSTED ON WELLS THAT

WILL BE CAPPED ON 6/26/25
1945 - MOVE TO SAMPLE MW8 AT LOW TIDE & MW14. AQUA COLLECTED RECHARGED WATER FROM AP-637, AP636 AP192 - SEE FORMS
2110 - LEAVE SITE. END OF DAY

CW Bolse

Rite in the Rain

6/26/25 - 0800 - CONDUCT SAFETY MEETING, 0815 PREP FO COLLECT REMAINING SEDIMENT SAMPLES AT LOW TIDE. 0830 - ARRIVE AT HFT DOCK SITE - AND COLLECT REMAINING SAMPLES. MOVE TO HFT AND COLLECT GAC EFFLUENT WASTE CHARACTERIZATION SAMPLE AND GAC SOLID WASTE SAMPLE → SEE PHOTO. 1020 - MOVE TO HFT DOCK TO MEET WITH ANNEMARIE (CADEC) AND HENRY LEASIA (CADEC). DISCUSS DOCK PROJECT THEN MOVE TO HFT AND SHOW BORING/WELL LOCATIONS 2025. COMPLETE RE-DEVELOPMENT AT MW3/4 AND PACK UP TRAILER. 1900 END OF DAY

Chi Bolse

6/27/25 - 0600 - PACK REMAINING GEAR FROM HOUSE INTO VAN. NOTE - ROTATED ICE IN COOLERS DAILY. MOVE TO SITE & PICK UP TRAILER. DRIVE FROM HAINES TO FAIRBANKS 2200 - END OF DAY.

Chi Bolse

Rite in the Rain

APPENDIX C
CHEMICAL DATA QUALITY REPORT

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TABLE OF CONTENTS

TABLES

ATTACHMENTS

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
ADEC	Alaska Department of Environmental Conservation
APHA	American Public Health Association
Brice	Brice Environmental Services Corporation
CDQR	Chemical Data Quality Report
CoC	chain-of-custody
DL	detection limit
DoD	Department of Defense
DQO	data quality objective
EPA	U.S. Environmental Protection Agency
FD	field duplicate
ICP-MS	inductively coupled plasma mass spectrometry
LCL	lower control limit
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
MB	method blank
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
ND	non-detect
Pace TN	Pace National, Mt. Juliet, Tennessee
PSL	project screening level
QA	quality assurance
QC	quality control
QSM	Quality Systems Manual
RPD	relative percent difference
RSD	relative standard deviation
SDG	sample delivery group
SOP	standard operating procedure
UST	underground storage tank

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1.0 INTRODUCTION

This Chemical Data Quality Report (CDQR) summarizes the quality assurance (QA)/quality control (QC) evaluation of laboratory data collected during sampling activities at the Haines Fuel Terminal Dock Site Inspection located in Haines, Alaska, during June 2025. These data have been reviewed to evaluate compliance with acceptance criteria based on data quality objectives (DQOs) specified in the approved *Final Haines Fuel Terminal Dock Site Inspection Work Plan, Haines, Alaska* (Brice Environmental Services Corporation [Brice] 2025), hereafter referred to as the Work Plan.

This CDQR includes the report narrative; a sample summary, including all samples collected and submitted to the laboratory for the associated sample delivery group (SDG) in Attachment C-1; complete analytical results presented in crosstab format in Attachment C-2; and the Alaska Department of Environmental Conservation (ADEC) Laboratory Data Review Checklists in Attachment C-3.

2.0 DATA VERIFICATION, DATA QUALITY REVIEW, AND QUALIFICATION

Pace National of Mount Juliet, Tennessee (Pace TN) was the primary laboratory for this project. The laboratory holds current ADEC laboratory approval and Department of Defense (DoD) Environmental Laboratory Accreditation Program certifications for all requested analyses, and chemical analyses for all parameters were performed in accordance with the *Quality Systems Manual for Environmental Laboratories* (QSM), Version 5.4 (DoD 2021). Samples were prepared and analyzed in accordance with analytical methods specified in *Test Methods for Evaluating Solid Waste SW-846* (U.S. Environmental Protection Agency [EPA] 2023); *Underground Storage Tanks* (USTs) *Procedures Manual* (ADEC 2017); *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association [APHA] et al. 2023); and laboratory standard operating procedures (SOPs).

The data quality review and assessment were performed by an experienced QA chemist independent of the analytical laboratory. This evaluation included completion of the ADEC Laboratory Data Review Checklists and review of analytical data including QC sample results, field and laboratory documentation, and all data submittals for each SDG.

Sediment analytical results were compared to the project screening levels (PSLs) for the purpose of this review, which were defined as the EPA Region 4 Ecological Risk Assessment Supplemental Guidance Table 2a Ecological Screening Values for marine sediment (EPA 2018). The screening levels used for each analyte are presented along with analytical results in the results table (Attachment C-2).

All project data were reviewed on an analytical-batch basis by assessing QC samples and associated field sample results. Data quality review and usability assessment were performed using the acceptance criteria defined in the QSM 5.4 (DoD 2021); DoD General Data Validation Guidelines (DoD 2019); *Data Validation Guidelines Module 5: Data Validation Procedure for Metals by ICP-MS* (DoD 2022); ADEC *Technical Memorandum 22-001, Guidelines for Data Reporting* (ADEC 2022); specific method guidance, such as the ADEC *Underground Storage Tanks Procedures Manual* (ADEC 2017); *Test Methods for Evaluating Solid Waste SW-846* (EPA 2023); and the laboratory SOPs, in that order.

The following information was reviewed as part of the data quality review and assessment:

- Sample handling and chain-of-custody (CoC)

- Sample preservation and holding time compliance
- Field QC samples, including field duplicates (FDs)
- Laboratory reporting limits, including limits of detection (LODs) and limits of quantitation (LOQs)
- Method blanks (MBs)
- Laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) recoveries
- Matrix spike (MS) and matrix spike duplicate (MSD) recoveries
- Initial and continuing calibration summary information
- Precision, including relative percent difference (RPD) values for duplicate analyses
- Case narrative review, laboratory flagging review, and other analytical method-specific criteria

The data quality review and assessment identified results requiring qualification and potential effects on data usability based on the acceptance criteria defined in the Work Plan. The following acceptance criteria were used for this data quality review and assessment:

- *Precision* is a measure of the reproducibility of measurements, which can be used to verify laboratory procedures, determine matrix effect, or sample homogeneity. Precision was measured by the RPD between LCS and LCSDs, MS and MSDs, or primary and FD results.
- *Accuracy* is a measure of the correctness or closeness to the true value. Accuracy was evaluated by reviewing the following elements: calibrations, surrogates, LCS, LCSD, MS, MSD, MBs, relative response factors and relative standard deviations (RSD), tune criteria, second column confirmations, and internal standards.
- *Representativeness* is a measure of the degree to which the samples reflect the site characteristics. Representativeness was measured by reviewing sampling design, sampling procedures, sample documentation, holding times, and preservations.
- *Completeness* is a measure of the amount of valid data obtained compared to the amount that was expected to be obtained under correct, normal conditions. For completeness requirements, valid results were all results not rejected and determined to be usable in the context of the DQOs. Completeness was evaluated for each analytical method for a particular sampling event with respect to each DQO or end data use. The completeness goal is 90% for this project.
- *Comparability* is a measure of the confidence with which one data set can be compared to another. The following were reviewed to confirm comparability: use of standard methods for sampling and analysis, reporting in standard units, operating instruments within calibrated ranges, and using standard and comprehensive reporting formats.
- *Sensitivity* is a measure of the ability of a method or instrument to detect the target analyte at the level of interest. The laboratory-specific limits were evaluated against the PSLs to determine whether the analytical methods and/or laboratory procedures were able to meet the project DQOs.

The qualifiers listed in Table C-1 were applied to the analytical data set, as appropriate.

Table C-1 Data Qualifiers

QUALIFIER	DESCRIPTION
U	The analyte was analyzed for but not detected, or the analyte in the sample was detected at a concentration less than or equal to five times the blank concentration.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
UJ	The analyte was not detected; however, the result is estimated because of discrepancies in meeting certain analyte-specific QC criteria.
X	The sample results (including ND) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and acceptance criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data will be decided by the project team (which will include a project chemist), but exclusion of the data is recommended.

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

Qualification may not be required in the following circumstances:

- Surrogate or MS recoveries were outside QC limits, and dilution of the sample resulted in surrogate or spike dilution to a level beyond quantitation.
- MS recoveries were outside QC limits, and the spiked concentration was less than that of the parent sample.
- An analyte was detected in the associated blank, but there was no detection in the associated sample.
- MS/MSD or LCS/LCSD recoveries exceeded upper control limits (UCLs) and there was no detection in the sample(s).

Data quality exceptions that do not result in qualifications are not discussed in this report and are addressed in the associated ADEC Laboratory Data Review Checklists (Attachment C-3).

3.0 CHEMICAL DATA QUALITY REVIEW

The data verification and CDQR were performed to assess the overall quality and usability of the data collected to support sampling activities for the Haines Fuel Terminal Dock Site Inspection.

Complete details for the review and evaluation of field samples and associated QC samples are included in this CDQR and in the ADEC Laboratory Data Review Checklists (Attachment C-3). During the data quality review, analytical results or recoveries that fell outside acceptance criteria were identified and qualifiers were applied to the results, where appropriate, in accordance with the project Work Plan. Qualified results are considered estimated, and whenever possible, direction of potential bias was assigned and effects on usability are discussed.

The following sections describe the results of the review and assessment of data for each analytical method. QC parameters met QSM 5.4 criteria except where noted. A complete summary of qualified results is presented in Table C-3, located at the end of this report.

3.1 Analytical Sample and Field Quality Control Sample Summary

A total of 30 primary sediment samples and 3 FD sediment samples were collected and analyzed in support of project activities. The sample summary table in Attachment C-1 includes all field samples submitted to the analytical laboratory.

The overall project-required frequency of one FD for every 10 or fewer primary samples, per analyte, per matrix, was met.

MS/MSDs were collected and submitted to the laboratory at the project-required frequency of one set for every 20 or fewer project samples (5%) and one for every preparatory batch (designated MS/MSD samples were included with each shipment).

Equipment Blanks were not collected since all samples were collected with disposable equipment.

3.2 Sample Handling and Chain-of-Custody

CoC forms and laboratory case narratives were reviewed to assess sample handling procedures that may affect the integrity of the samples and quality of the resulting data. Copies of CoCs and cooler receipt forms are included in the final laboratory report. Samples were required to be maintained at 0 to 6 degrees Celsius (°C) following collection, during storage, and upon receipt at the laboratory.

Samples were packed with frozen gel packs in accordance with the Work Plan and the packaging and shipping SOP, BE-SOP-03 Labeling, Packaging, and Shipping Samples. Samples were shipped to Pace TN of Mount Juliet, Tennessee via FedEx. All sample coolers containing samples were received with temperature blank and ambient cooler temperatures between 0 and 6°C.

3.3 Sample Preservation and Holding Time Compliance

All samples were extracted and/or analyzed within the recommended holding times and were properly preserved for the analytical procedures used for this project.

3.4 Sample Limits of Detection and Limits of Quantitation

Sample LOQs and LODs for non-detects were compared to the PSLs to determine whether the laboratory data met the acceptance criteria for sensitivity. All reported LODs for non-detect results met project acceptance criteria for sensitivity, except as noted.

Non-detect LOD exceedances are highlighted yellow in the report table included in Attachment C-2.

The LODs for non-detect results for cadmium exceeded the PSL in samples 25HFT-SO-SD06-0.5 and 25HFT-SO-SDBG02-0.5 due to dilutions that were performed on the samples. The LODs were only marginally greater than the PSL (0.68 milligrams per kilogram [mg/kg]) for both 25HFT-SO-SD06-0.5 (LOD 0.75 mg/kg) and 25HFT-SO-SDBG02-0.5 (LOD 0.685 mg/kg).

These results cannot be used to verify the absence of these analytes less than the PSLs. Cadmium detections were less than the PSLs in all samples during this sampling event.

3.5 Blanks

MBs were reviewed to detect potential cross-contamination. MB detections are indicative of laboratory cross-contamination.

3.5.1 Method Blanks

An MB was included with each preparatory batch of 20 or fewer samples, as required.

No target analytes were detected in the soil MBs.

3.6 Laboratory Control Samples

An LCS or LCS/LCSD pair was included with each preparatory batch, as required. LCS and LCSD percent recovery (%R) and LCS/LCSD RPD were compared to the project acceptance criteria. All LCS/LCSD recoveries were within control limits and LCS/LCSD precision was within the RPD limit.

3.7 Matrix Spike Samples and Duplicates

Project-specific MS/MSD samples were collected and submitted at the project-required frequency of one for each preparatory batch and one MS/MSD per 20 or fewer samples; however, the laboratory split project samples into multiple batches, some of which did not include an MS/MSD. MS and MSD samples were prepared and analyzed for each laboratory batch.

MS/MSD recoveries and MS/MSD RPD were compared to project acceptance criteria and met the criteria, except as noted.

- **L1875388:** SW6020B analytes barium and lead recovered less than the lower control limit (LCL) in the MS and MSD performed for project sediment sample 25HFT-SO-SD05-0.5. Project sample 25HFT-SO-SD05-0.5 results for barium and lead were qualified J- for estimated potential low bias. Barium has no defined PSL and the affected lead result is significantly less than the PSL, so data usability was not affected.

3.8 Field Duplicate Precision

FD precision was evaluated by calculating the RPD between the parent sample result and the FD result when both results were greater than the LOQ, and when one result is greater than the LOQ and the other fell between the detection limit (DL) and the LOQ. Acceptance criteria were less than 50% for sediment results.

A total of 3 FD samples (25HFT-SO-SD03-0.5/25HFT-SO-SD21-0.5, 25HFT-SO-SD17-0.5/25HFT-SO-SD22-0.5, and 25HFT-SO-SDBG09-0.5/25HFT-SO-SDBG11-0.5) were submitted and analyzed for 30 primary sediment samples. FD pairs were analyzed for one or more of the following methods: SW6020B and SW7471B. The RPDs for the pairs were less than the recommended 50% for sediment, with the following exceptions:

- **L1875390:** SW6020B analytes barium, chromium, and nickel exceeded the RPD criteria between primary sample 25HFT-SO-SDBG09-0.5 and FD 25HFT-SO-SDBG11-0.5. The associated results in both samples were qualified J for indeterminate bias. The higher of the two chromium results is only slightly less than the PSL with an unknown bias, so the data usability of this result may be

affected. Barium does not have a defined PSL and the higher of the two nickel results is significantly greater than PSL, so data usability of these results was not affected.

Table C-2, located at the end of this report, summarizes the FD detections that were included in precision evaluations.

4.0 COMPLETENESS

Completeness is a measure of the amount of valid data obtained compared with the amount that was expected to be obtained under correct, normal conditions. For completeness requirements, valid results are all results not rejected and determined to be usable in the context of project DQOs.

Completeness was evaluated using the following formula. The goal for completeness was 90% for all methods and matrices.

$$\%\ Completeness\ =\ 100\ x\ (\frac{V}{n})$$

Where: V = number of measurements judged valid
n = total number of measurements

No results were rejected, and all results were considered usable. The completeness goal of 90% for all methods and matrices was met.

5.0 OVERALL DATA QUALITY AND USABILITY ASSESSMENT

In general, the overall quality of the project data was acceptable and completeness goals were met. Qualified data are considered acceptable for use, with the limitations discussed within this QA/QC report and the ADEC Laboratory Data Review Checklists regarding the qualifiers applied to the results.

Table C-3 includes all qualified results and reasons for qualification.

Numerous QC issues required qualification of project data, most significantly the LOD exceedances noted in Section 3.4. Analytical results for the affected analytes noted in Section 3.4 cannot be used to determine whether these analytes are present at a concentration greater than or less than the PSL.

The following QC issues required qualification:

- MS/MSD recovery failures
- FD imprecision

6.0 REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2017. *Underground Storage Tanks Procedures Manual, Guidance for Treatment of Petroleum-Contaminated Soil and Standard Sampling Procedures.* March.

ADEC. 2022. *Technical Memorandum 22-001, Guidelines for Data Reporting.* August.

ADEC. 2023. 18 Alaska Administrative Code (AAC) 75, *Oil and Other Hazardous Substances Pollution Control.* October.

ADEC. 2024. *Field Sampling Guidance.* August.

American Public Health Association (APHA), American Water Works Association, Water Environment Federation. 2023. Lipps, W.C., E.B. Braun-Howland, T.E. Baxter, eds. *Standard Methods for the Examination of Water and Wastewater*. 24th ed. Washington DC: APHA Press.

Brice Environmental Services Corporation (Brice). 2025. *Final Haines Fuel Terminal Dock Site Inspection Work Plan Haines, Alaska*. May.

Department of Defense (DoD). 2019. *General Data Validation Guidelines.* November.

DoD. 2021. *Quality Systems Manual for Environmental Laboratories, Version 5.4*. October.

DoD. 2022. *Data Validation Guidelines Module 5: Data Validation Procedure for Metals by ICP-MS*. November.

EPA. 2018. *Region 4 Ecological Risk Assessment Supplemental Guidance.* March.

EPA. 2023. *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods Compendium (SW-846), through Revision 7.* July.

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Table C-2 Field Duplicate Precision Evaluation

SDG	METHOD	ANALYTE	PRIMARY SAMPLE	RESULT	UNITS	FIELD DUPLICATE	RESULT	UNITS	RPD	QUALIFIER
L1875388	SW6020B	Arsenic	25HFT-SO-SD03-0.5	4.32	mg/kg	25HFT-SO-SD21-0.5	4.12	mg/kg	4.7%	--
L1875388	SW6020B	Barium	25HFT-SO-SD03-0.5	446	mg/kg	25HFT-SO-SD21-0.5	419	mg/kg	6.2%	--
L1875388	SW6020B	Chromium	25HFT-SO-SD03-0.5	34.3	mg/kg	25HFT-SO-SD21-0.5	32.5	mg/kg	5.4%	--
L1875388	SW6020B	Lead	25HFT-SO-SD03-0.5	12.4	mg/kg	25HFT-SO-SD21-0.5	9.93	mg/kg	22%	--
L1875388	SW6020B	Nickel	25HFT-SO-SD03-0.5	22.4	mg/kg	25HFT-SO-SD21-0.5	21.3	mg/kg	5.0%	--
L1875388	SW6020B	Arsenic	25HFT-SO-SD17-0.5	2.00	mg/kg	25HFT-SO-SD22-0.5	1.76	mg/kg	13%	--
L1875388	SW6020B	Barium	25HFT-SO-SD17-0.5	41.7	mg/kg	25HFT-SO-SD22-0.5	25.5	mg/kg	48%	--
L1875388	SW6020B	Chromium	25HFT-SO-SD17-0.5	19.5	mg/kg	25HFT-SO-SD22-0.5	21.0	mg/kg	7.4%	--
L1875388	SW6020B	Nickel	25HFT-SO-SD17-0.5	12.6	mg/kg	25HFT-SO-SD22-0.5	15.9	mg/kg	23%	--
L1875390	SW6020B	Arsenic	25HFT-SO-SDBG09-0.5	4.26	mg/kg	25HFT-SO-SDBG11-0.5	4.81	mg/kg	12%	--
L1875390	SW6020B	Barium	25HFT-SO-SDBG09-0.5	2.80	mg/kg	25HFT-SO-SDBG11-0.5	5.91	mg/kg	71%	J
L1875390	SW6020B	Chromium	25HFT-SO-SDBG09-0.5	12.3	mg/kg	25HFT-SO-SDBG11-0.5	44.4	mg/kg	113%	J
L1875390	SW6020B	Nickel	25HFT-SO-SDBG09-0.5	10.1	mg/kg	25HFT-SO-SDBG11-0.5	26.8	mg/kg	91%	J

Notes:
For definitions, refer to the Acronyms and Abbreviations section.

Table C-3 Qualified Results Summary

SDG	LOCATION ID	SAMPLE ID	MATRIX	METHOD	ANALYTE	RESULT	UNITS	QUALIFIER	REASON
L1875388	25HFT-SD05	25HFT-SO-SD05-0.5	Sediment	SW6020B	Barium	201	mg/kg	J-	MS<LCL, MSD<LCL
L1875388	25HFT-SD05	25HFT-SO-SD05-0.5	Sediment	SW6020B	Lead	10.9	mg/kg	J-	MS<LCL, MSD<LCL
L1875390	25HFT-SDBG09	25HFT-SO-SDBG09-0.5	Sediment	SW6020B	Barium	2.80	mg/kg	J	FD>RPD
L1875390	25HFT-SDBG09	25HFT-SO-SDBG09-0.5	Sediment	SW6020B	Chromium	12.3	mg/kg	J	FD>RPD
L1875390	25HFT-SDBG09	25HFT-SO-SDBG09-0.5	Sediment	SW6020B	Nickel	10.1	mg/kg	J	FD>RPD
L1875390	25HFT-SDBG09	25HFT-SO-SDBG11-0.5	Sediment	SW6020B	Barium	5.91	mg/kg	J	FD>RPD
L1875390	25HFT-SDBG09	25HFT-SO-SDBG11-0.5	Sediment	SW6020B	Chromium	44.4	mg/kg	J	FD>RPD
L1875390	25HFT-SDBG09	25HFT-SO-SDBG11-0.5	Sediment	SW6020B	Nickel	26.8	mg/kg	J	FD>RPD

Notes:

For definitions, refer to the Acronyms and Abbreviations section.

FD>RPD – Field duplicate relative percent difference criteria exceeded

J/J-/J+ – Result is an estimated value either because it is greater than or equal to the DL and less than the LOQ or as the result of a QC failure. When possible, direction of bias indicated.

MS<LCL – Matrix spike recovery less than the lower control limit

MSD<LCL – Matrix spike duplicate recovery less than the lower control limit

Attachment C-1
Sample Summary

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ATTACHMENT C-1 SAMPLE SUMMARY TABLE
2025 Haines Fuel Terminal Dock Inspection Site Investigation

SAMPLE ID	LOCATION ID	LAB ID	COLLECTION DATE	MATRIX	QC TYPE	SAMPLER	DEPTH	UNITS	SDG	LAB	COC	COOLER(S)	GRO (AK101)	DRO (AK102)	TOTAL SOLIDS (SM2540G)	METALS (SW6020B)	MERCURY (SW7471B)	TCLP VOCs (SW1311/ 8260D)	VOCs (SW8260D)	TCLP SVOCs (SW1311/ 8270E)	PAHs (SW8270ESIM)
25HFT-SO-SD01-0.5	25HFT-SD01	L1875388-01	06/22/25 09:52	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD02-0.5	25HFT-SD02	L1875388-02	06/22/25 10:09	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD03-0.5	25HFT-SD03	L1875388-03	06/22/25 10:27	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD21-0.5	25HFT-SD03	L1875388-04	06/22/25 09:27	Sediment	FD of 25HFT-SO-SD03-0.5	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD04-0.5	25HFT-SD04	L1875388-05	06/22/25 10:50	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD05-0.5	25HFT-SD05	L1875388-06	06/22/25 11:05	Sediment	N, MS/MSD	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD06-0.5	25HFT-SD06	L1875388-07	06/22/25 11:20	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD07-0.5	25HFT-SD07	L1875388-08	06/22/25 11:40	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD08-0.5	25HFT-SD08	L1875388-09	06/22/25 12:12	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD09-0.5	25HFT-SD09	L1875388-10	06/22/25 12:23	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD10-0.5	25HFT-SD10	L1875388-11	06/22/25 12:40	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD11-0.5	25HFT-SD11	L1875388-12	06/22/25 13:03	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD12-0.5	25HFT-SD12	L1875388-13	06/22/25 08:05	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD13-0.5	25HFT-SD13	L1875388-14	06/25/25 08:12	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD14-0.5	25HFT-SD14	L1875388-15	06/25/25 08:16	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD15-0.5	25HFT-SD15	L1875388-16	06/25/25 08:24	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD16-0.5	25HFT-SD16	L1875388-17	06/25/25 08:30	Sediment	N, MS/MSD	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD17-0.5	25HFT-SD17	L1875388-18	06/25/25 08:37	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD22-0.5	25HFT-SD17	L1875388-19	06/25/25 07:37	Sediment	FD of 25HFT-SO-SD17-0.5	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD18-0.5	25HFT-SD18	L1875388-20	06/26/25 08:37	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD19-0.5	25HFT-SD19	L1875388-21	06/26/25 08:48	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SD20-0.5	25HFT-SD20	L1875388-22	06/26/25 08:52	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875388	Pace	25HFT-01	070125-1			X	X	X				
25HFT-SO-SDBG01-0.5	25HFT-SDBG01	L1875390-01	06/22/25 14:37	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG02-0.5	25HFT-SDBG02	L1875390-02	06/22/25 09:10	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG03-0.5	25HFT-SDBG03	L1875390-03	06/22/25 13:37	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG04-0.5	25HFT-SDBG04	L1875390-04	06/22/25 13:50	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG05-0.5	25HFT-SDBG05	L1875390-05	06/22/25 14:15	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG06-0.5	25HFT-SDBG06	L1875390-06	06/22/25 14:24	Sediment	N, MS/MSD	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG07-0.5	25HFT-SDBG07	L1875390-07	06/24/25 07:10	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG08-0.5	25HFT-SDBG08	L1875390-08	06/24/25 07:20	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG09-0.5	25HFT-SDBG09	L1875390-09	06/24/25 07:27	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG11-0.5	25HFT-SDBG09	L1875390-10	06/24/25 06:27	Sediment	FD of 25HFT-SO-SDBG09-0.5	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				
25HFT-SO-SDBG10-0.5	25HFT-SDBG10	L1875390-11	06/24/25 07:35	Sediment	N	RB/CB	0 - 0.5	ft-bgs	L1875390	Pace	25HFT-02	070125-1			X	X	X				

Notes:
All samples for the Haines Fuel Terminal Dock Site Inspection were submitted under NPDL 25-057
All sample results were requested on standard turnaround time.

°C – degrees Celsius
CB – Chris Boese
DRO – diesel range organics
FD – field duplicate
ft-bgs – feet below ground surface
GAC – granular activated carbon
GRO – gasoline range organics
HCl – hydrochloric acid
ID – identification
MeOH – methanol
mL – milliliter
MS/MSD – matrix spike/matrix spike duplicate
N – normal environmental sample
NA – not applicable
NPDL – north pacific division laboratory
oz – ounce
Pace – Pace National, Mt. Juliet, TN
PAH – polycyclic aromatic hydrocarbons
QC – quality control
RB – Reid Brock
SDG – sample delivery group
SIM – selected ion monitoring
TCLP – toxicity characteristic leaching procedure
SVOCs – semi-volatile organic compounds
VOA – volatile organic analysis
VOCs – volatile organic compounds

Water Sample Collection (all samples were field-preserved at 0 to 6 °C)
DRO – two HCl-preserved, 100-mL amber glass bottles
GRO – three HCl-preserved, 40 mL VOA vials
PAHs – two unpreserved, 100-mL amber glass bottles
VOCs – three HCl-preserved, 40 mL VOA vials

Soil Sample Collection (all samples were field-preserved at 0 to 6 °C)
DRO – one unpreserved, 4-oz glass jar
GRO – one MeOH-preserved, 60 mL amber glass bottle
Metals/Mercury/Total Solids – one unpreserved, 4-oz glass jar
TCLP SVOCs – one unpreserved, 4-oz glass jar
TCLP VOCs – one unpreserved, 4-oz glass jar

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Attachment C-2
Sediment Data Summary Table

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ATTACHMENT C-2 SEDIMENT DATA SUMMARY TABLE
2025 Haines Fuel Terminal Dock Inspection Site Investigation

			SAMPLE ID LOCATION ID COLLECTION DATE DEPTH MATRIX QC TYPE	25HFT-SO-SD01-0.5 25HFT-SD01 06/22/25 09:52 0 - 0.5 Sediment Primary	25HFT-SO-SD02-0.5 25HFT-SD02 06/22/25 10:09 0 - 0.5 Sediment Primary	25HFT-SO-SD03-0.5 25HFT-SD03 06/22/25 10:27 0 - 0.5 Sediment Primary	25HFT-SO-SD21-0.5 25HFT-SD03 06/22/25 09:27 0 - 0.5 Sediment Duplicate	25HFT-SO-SD04-0.5 25HFT-SD04 06/22/25 10:50 0 - 0.5 Sediment Primary	25HFT-SO-SD05-0.5 25HFT-SD05 06/22/25 11:05 0 - 0.5 Sediment Primary	25HFT-SO-SD06-0.5 25HFT-SD06 06/22/25 11:20 0 - 0.5 Sediment Primary	25HFT-SO-SD07-0.5 25HFT-SD07 06/22/25 11:40 0 - 0.5 Sediment Primary	25HFT-SO-SD08-0.5 25HFT-SD08 06/22/25 12:12 0 - 0.5 Sediment Primary	25HFT-SO-SD09-0.5 25HFT-SD09 06/22/25 12:23 0 - 0.5 Sediment Primary	25HFT-SO-SD10-0.5 25HFT-SD10 06/22/25 12:40 0 - 0.5 Sediment Primary	25HFT-SO-SD11-0.5 25HFT-SD11 06/22/25 13:03 0 - 0.5 Sediment Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**												
SM2540G	Solids	NE	%	69.2 [0.200]	65.1 [0.200]	46.7 [0.200]	45.1 [0.200]	63.4 [0.200]	66.8 [0.200]	66.6 [0.200]	74.6 [0.200]	62.4 [0.200]	71.9 [0.200]	71.4 [0.200]	73.3 [0.200]
SW6020B	Arsenic	7.24	mg/kg	3.00 [0.722]	3.52 [0.768]	4.32 [1.07]	4.12 [1.11]	8.93 [0.788]	2.61 [0.749]	2.08 [0.750]	2.63 [0.670]	3.75 [0.801]	2.28 [0.695]	2.55 [0.700]	2.98 [0.682]
SW6020B	Barium	NE	mg/kg	104 [1.81]	184 [1.92]	446 [2.67]	419 [2.77]	107 [1.97]	201 [1.87] J-	100 [1.88]	74.2 [1.68]	196 [2.00]	146 [1.74]	96.0 [1.75]	74.3 [1.71]
SW6020B	Cadmium	0.68	mg/kg	0.262 [0.722] J	0.333 [0.768] J	0.617 [1.07] J	0.597 [1.11] J	0.277 [0.788] J	0.183 [0.749] J	ND [0.750]	ND [0.670]	0.182 [0.801] J	0.143 [0.695] J	0.133 [0.700] J	0.130 [0.682] J
SW6020B	Chromium	52.3	mg/kg	18.6 [3.61]	21.5 [3.84]	34.3 [5.35]	32.5 [5.55]	18.4 [3.94]	20.2 [3.74]	9.42 [3.75]	15.7 [3.35]	20.5 [4.01]	18.5 [3.48]	16.4 [3.50]	17.6 [3.41]
SW6020B	Lead	30.2	mg/kg	6.75 [1.44]	5.35 [1.54]	12.4 [2.14]	9.93 [2.22]	16.3 [1.58]	10.9 [1.50] J-	4.39 [1.50]	6.60 [1.34]	6.44 [1.60]	4.39 [1.39]	2.95 [1.40]	4.15 [1.36]
SW6020B	Nickel	15.9	mg/kg	11.2 [1.81]	15.6 [1.92]	22.4 [2.67]	21.3 [2.77]	19.0 [1.97]	13.8 [1.87]	6.61 [1.88]	10.2 [1.68]	12.7 [2.00]	11.7 [1.74]	10.7 [1.75]	12.3 [1.71]
SW6020B	Selenium	NE	mg/kg	0.321 [1.81] J	0.336 [1.92] J	0.558 [2.67] J	0.537 [2.77] J	ND [1.97]	0.378 [1.87] J	ND [1.88]	ND [1.68]	0.305 [2.00] J	ND [1.74]	ND [1.75]	ND [1.71]
SW6020B	Silver	0.73	mg/kg	ND [0.361]	ND [0.384]	ND [0.535]	ND [0.555]	ND [0.394]	ND [0.374]	ND [0.375]	ND [0.335]	ND [0.401]	ND [0.348]	ND [0.350]	ND [0.341]
SW7471B	Mercury	0.13	mg/kg	ND [0.0433]	ND [0.0461]	ND [0.0642]	ND [0.0666]	ND [0.0473]	ND [0.0449]	ND [0.0450]	ND [0.0402]	ND [0.0481]	ND [0.0417]	ND [0.0420]	ND [0.0409]

Notes:

[1] PSL is defined as the EPA Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018)

Blue highlight indicates that a detected result exceeds the PSL

Yellow highlight indicates the LOD for a non-detect result exceeds the PSL

DL – detection limit

EPA – U.S. Environmental Protection Agency

FD – field duplicate

J – the result is an estimated value greater than or equal to the DL and less than the LOQ or due to a QC failure

J-/J+ – the result is an estimated value, bias low/high, due to a QC failure

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

NE – not established

ND – not detected

PSL – project screening level

QC – quality control

ATTACHMENT C-2 SEDIMENT DATA SUMMARY TABLE
2025 Haines Fuel Terminal Dock Inspection Site Investigation

			SAMPLE ID LOCATION ID COLLECTION DATE DEPTH MATRIX QC TYPE	25HFT-SO-SD12-0.5 25HFT-SD12 06/22/25 08:05 0 - 0.5 Sediment Primary	25HFT-SO-SD13-0.5 25HFT-SD13 06/25/25 08:12 0 - 0.5 Sediment Primary	25HFT-SO-SD14-0.5 25HFT-SD14 06/25/25 08:16 0 - 0.5 Sediment Primary	25HFT-SO-SD15-0.5 25HFT-SD15 06/25/25 08:24 0 - 0.5 Sediment Primary	25HFT-SO-SD16-0.5 25HFT-SD16 06/25/25 08:30 0 - 0.5 Sediment Primary	25HFT-SO-SD17-0.5 25HFT-SD17 06/25/25 08:37 0 - 0.5 Sediment Primary	25HFT-SO-SD22-0.5 25HFT-SD17 06/25/25 07:37 0 - 0.5 Sediment Duplicate	25HFT-SO-SD18-0.5 25HFT-SD18 06/26/25 08:37 0 - 0.5 Sediment Primary	25HFT-SO-SD19-0.5 25HFT-SD19 06/26/25 08:48 0 - 0.5 Sediment Primary	25HFT-SO-SD20-0.5 25HFT-SD20 06/26/25 08:52 0 - 0.5 Sediment Primary	25HFT-SO-SDBG01-0.5 25HFT-SDBG01 06/22/25 14:37 0 - 0.5 Sediment Primary	25HFT-SO-SDBG02-0.5 25HFT-SDBG02 06/22/25 09:10 0 - 0.5 Sediment Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**											
SM2540G	Solids	NE	%	96.7 [0.200]	86.4 [0.200]	92.7 [0.200]	88.2 [0.200]	97.2 [0.200]	97.6 [0.200]	97.5 [0.200]	82.5 [0.200]	85.6 [0.200]	75.9 [0.200]	82.9 [0.200]	73.0 [0.200]
SW6020B	Arsenic	7.24	mg/kg	2.24 [0.517]	2.62 [0.578]	2.51 [0.539]	2.02 [0.567]	3.76 [0.514]	2.00 [0.512]	1.76 [0.513]	1.74 [0.606]	2.15 [0.584]	3.12 [0.588]	1.12 [0.603] J	5.79 [0.685]
SW6020B	Barium	NE	mg/kg	12.7 [1.29]	84.8 [1.45]	17.4 [1.35]	15.6 [1.42]	8.42 [1.29]	41.7 [1.28]	25.5 [1.28]	29.6 [1.51]	82.5 [1.46]	87.7 [1.48]	28.0 [1.51]	108 [1.71]
SW6020B	Cadmium	0.68	mg/kg	ND [0.517]	ND [0.578]	ND [0.539]	ND [0.567]	ND [0.514]	ND [0.512]	ND [0.513]	ND [0.606]	0.120 [0.584] J	0.133 [0.588] J	ND [0.603]	ND [0.685]
SW6020B	Chromium	52.3	mg/kg	37.4 [2.58]	17.6 [2.89]	43.4 [2.70]	21.3 [2.84]	28.9 [2.57]	19.5 [2.56]	21.0 [2.56]	9.86 [3.03]	19.9 [2.92]	17.6 [2.94]	4.58 [3.02] J	45.9 [3.42]
SW6020B	Lead	30.2	mg/kg	1.86 [1.03] J	2.78 [1.16]	1.46 [1.08] J	1.84 [1.13] J	1.79 [1.03] J	1.09 [1.02] J	1.07 [1.03] J	1.53 [1.21] J	7.35 [1.17]	5.15 [1.18]	1.33 [1.21] J	3.06 [1.37]
SW6020B	Nickel	15.9	mg/kg	26.1 [1.29]	13.1 [1.45]	21.1 [1.35]	13.9 [1.42]	20.9 [1.29]	12.6 [1.28]	15.9 [1.28]	8.71 [1.51]	13.0 [1.46]	11.9 [1.48]	3.83 [1.51]	28.0 [1.71]
SW6020B	Selenium	NE	mg/kg	ND [1.29]	ND [1.45]	ND [1.35]	ND [1.42]	ND [1.29]	ND [1.28]	ND [1.28]	ND [1.51]	ND [1.46]	ND [1.48]	ND [1.51]	0.425 [1.71] J
SW6020B	Silver	0.73	mg/kg	ND [0.258]	ND [0.289]	ND [0.270]	ND [0.284]	ND [0.257]	ND [0.256]	ND [0.256]	ND [0.303]	ND [0.292]	ND [0.294]	ND [0.302]	ND [0.342]
SW7471B	Mercury	0.13	mg/kg	ND [0.0310]	ND [0.0347]	ND [0.0324]	ND [0.0340]	ND [0.0309]	ND [0.0307]	ND [0.0308]	ND [0.0363]	ND [0.0350]	ND [0.0395]	0.0244 [0.0302] J	ND [0.0411]

Notes:

[1] PSL is defined as the EPA Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018)

Blue highlight indicates that a detected result exceeds the PSL

Yellow highlight indicates the LOD for a non-detect result exceeds the PSL

DL – detection limit

EPA – U.S. Environmental Protection Agency

FD – field duplicate

J – the result is an estimated value greater than or equal to the DL and less than the LOQ or due to a QC failure

J-/J+ – the result is an estimated value, bias low/high, due to a QC failure

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

NE – not established

ND – not detected

PSL – project screening level

QC – quality control

ATTACHMENT C-2 SEDIMENT DATA SUMMARY TABLE
2025 Haines Fuel Terminal Dock Inspection Site Investigation

				SAMPLE ID	25HFT-SO-SDBG03-0.5	25HFT-SO-SDBG04-0.5	25HFT-SO-SDBG05-0.5	25HFT-SO-SDBG06-0.5	25HFT-SO-SDBG07-0.5	25HFT-SO-SDBG08-0.5	25HFT-SO-SDBG09-0.5	25HFT-SO-SDBG11-0.5	25HFT-SO-SDBG10-0.5
				LOCATION ID	25HFT-SDBG03	25HFT-SDBG04	25HFT-SDBG05	25HFT-SDBG06	25HFT-SDBG07	25HFT-SDBG08	25HFT-SDBG09	25HFT-SDBG09	25HFT-SDBG10
				COLLECTION DATE	06/22/25 13:37	06/22/25 13:50	06/22/25 14:15	06/22/25 14:24	06/24/25 07:10	06/24/25 07:20	06/24/25 07:27	06/24/25 06:27	06/24/25 07:35
				DEPTH	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
				MATRIX	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
				QC TYPE	Primary	Primary	Primary	Primary	Primary	Primary	Primary	Duplicate	Primary
METHOD	**ANALYTE**	**PSL[1]**	**UNITS**										
SM2540G	Solids	NE	%		83.0 [0.200]	64.6 [0.200]	65.1 [0.200]	82.3 [0.200]	86.3 [0.200]	86.7 [0.200]	94.2 [0.200]	91.1 [0.200]	97.3 [0.200]
SW6020B	Arsenic	7.24	mg/kg		0.590 [0.602] J	2.10 [0.774]	2.97 [0.768]	0.757 [0.607] J	1.78 [0.580]	12.4 [0.577]	4.26 [0.531]	4.81 [0.549]	16.2 [0.514]
SW6020B	Barium	NE	mg/kg		27.4 [1.51]	159 [1.94]	41.1 [1.92]	19.3 [1.52]	2.69 [1.45] J	5.45 [1.44]	2.80 [1.33] J	5.91 [1.37] J	6.52 [1.28]
SW6020B	Cadmium	0.68	mg/kg		ND [0.602]	0.306 [0.774] J	0.255 [0.768] J	ND [0.607]	ND [0.580]	ND [0.577]	ND [0.531]	ND [0.549]	0.116 [0.514] J
SW6020B	Chromium	52.3	mg/kg		3.05 [3.01] J	14.2 [3.87]	3.55 [3.84] J	4.28 [3.04] J	28.1 [2.90]	78.6 [2.88]	12.3 [2.65] J	44.4 [2.75] J	34.6 [2.57]
SW6020B	Lead	30.2	mg/kg		0.861 [1.20] J	3.66 [1.55]	1.09 [1.54] J	0.852 [1.21] J	0.217 [1.16] J	0.537 [1.15] J	0.444 [1.06] J	0.684 [1.10] J	8.53 [1.03]
SW6020B	Nickel	15.9	mg/kg		2.34 [1.51] J	9.43 [1.94]	4.23 [1.92]	3.51 [1.52]	16.7 [1.45]	40.0 [1.44]	10.1 [1.33] J	26.8 [1.37] J	34.3 [1.28]
SW6020B	Selenium	NE	mg/kg		ND [1.51]	ND [1.94]	0.427 [1.92] J	ND [1.52]	ND [1.45]	0.355 [1.44] J	ND [1.33]	ND [1.37]	0.442 [1.28] J
SW6020B	Silver	0.73	mg/kg		ND [0.301]	ND [0.387]	ND [0.384]	ND [0.304]	ND [0.290]	ND [0.288]	ND [0.265]	ND [0.275]	0.699 [0.257]
SW7471B	Mercury	0.13	mg/kg		ND [0.0361]	ND [0.0465]	ND [0.0461]	ND [0.0364]	ND [0.0348]	ND [0.0346]	ND [0.0319]	ND [0.0329]	ND [0.0308]

Notes:

[1] PSL is defined as the EPA Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018)

Blue highlight indicates that a detected result exceeds the PSL

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J-/J+ – the result is an estimated value, bias low/high, due to a QC failure

LOD – limit of detection

LOQ – limit of quantitation

mg/kg – milligrams per kilogram

MS/MSD – matrix spike/matrix spike duplicate

NE – not established

ND – not detected

PSL – project screening level

QC – quality control

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Attachment C-3
ADEC Laboratory Data Review Checklists

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ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By: Travis Gouveia	**CS Site Name:**	Haines Fuel Terminal Dock Site Inspection	**Lab Name:** Pace Analytical National – Mt. Juliet, TN	
Title: Senior Chemist	**ADEC File No.:**	1508.38.002	**Lab Report No.:**	L1875388
Consulting Firm: Brice Environmental Services	**Hazard ID No.:**	591	**Lab Report Date:** 08/04/2025	

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

   Yes ☒ No ☐ N/A ☐

   Comments: Samples were received and analyzed by Pace Analytical National of Mt. Juliet TN. CS Approval 17-026.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

   Yes ☐ No ☐ N/A ☒

   Comments: All analyses in this SDG were performed by Pace Analytical National – Tennessee.

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?

   Yes ☒ No ☐ N/A ☐

   Comments:

   b. Were the correct analyses requested?

   Yes ☒ No ☐ N/A ☐

   Analyses requested: Metals by SW6020B and mercury by SW7471B

   Comments:

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6°C)?

Yes ☒ No ☐ N/A ☐
Cooler temperature(s): Cooler 070125-1 received at 1.4°C.
Sample temperature(s):
Comments:

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒
Comments: No preserved containers in this SDG.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐
Comments: All sample containers received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒
Comments: No discrepancies.

e. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

4. Case Narrative

a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐
Comments:

b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐
Comments: QC failures are identified in the case narrative and discussed in the applicable section of the checklist.

c. Were all the corrective actions documented?

Yes ☐ No ☒ N/A ☐
Comments: No corrective actions were documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments: Effects on data quality and usability are discussed in the applicable sections of this checklist.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐
Comments:

b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐
Comments:

c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐
Comments:

d. Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐
Comments: Sample LODs for non-detects metals in marine sediment samples were compared to EPA Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018) to determine whether the laboratory data met measure performance criteria (MPC) for sensitivity. All reported LODs for ND results met project MPC for sensitivity, except as noted below:
-The non-detect LOD value for SW6020B analyte cadmium exceeded the project screening level (PSL) in project sample 25HFT-SO-SD06-0.5 due to a dilution that was performed on the sample that raised the detection limits. The LOD was only marginally over the PSL (0.68 milligrams per kilogram [mg/kg]) for 25HFT-SO-SD06-0.5 (LOD 0.75 mg/kg), and cadmium detections in all other samples were below the PSL.

e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐
Comments: It cannot be determined whether the affected analyte is present greater than or less than the PSL, data usability may be affected.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments:

ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐
Comments: No target analytes were detected in the method blanks.

iii. If above LOQ or RL, what samples are affected?

Comments: No target analytes were detected in the method blanks.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: No target analytes were detected in the method blanks and no data were qualified.

v. Data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☐ N/A ☒
Comments: No organic methods were analyzed in this SDG.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments: An LCS analyzed as a part of each batch.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☒ No ☐ N/A ☐
Comments:

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☐ N/A ☒
Comments: No LCSD were analyzed in this SDG, so LCS/LCSD precision could not be evaluated. Precision measurements for these analytes are available via the matrix spike/matrix spike duplicate (MS/MSD) and are discussed in the following sections.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: There were no LCS exceedances, so no analytes were affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: There no exceedances, so no data qualifiers were applied to the samples.

vii. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒
Comments: No organic methods were analyzed in this SDG.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments: Two site-specific MS/MSDs were provided to the laboratory in this SDG. So the MS/MSD collection rate of 1 per 20 was met. However, in two mercury batches another client's sample was chosen for the reported MS/MSD.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☐ No ☒ N/A ☐
Comments: The following analytes have an MS and MSD recovery failure:

Method	Batch	Parent Sample	Analyte	QC Type	% Recovery	LCL	UCL
6020B	WG2554612	25HFT-SO-SD05-0.5	Barium	MS	59.8	86.0	116
6020B	WG2554612	25HFT-SO-SD05-0.5	Barium	MSD	72.9	86.0	116
6020B	WG2554612	25HFT-SO-SD05-0.5	Lead	MS	78.8	84.0	118
6020B	WG2554612	25HFT-SO-SD05-0.5	Lead	MSD	77.9	84.0	118

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☒ No ☐ N/A ☐
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: Parent sample 25HFT-SO-SD05-0.5 was affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☒ No ☐ N/A ☐
Comments: The detected barium and lead results in the parent sample were qualified J- for estimated potential low bias.

vii. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐
Comments: Barium has no defined PSL so data usability is not affected. The affected lead result is significantly less than the PSL so data usability is not affected.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

iv. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no TB necessary.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no TB necessary.

iii. If above LoQ or RL, what samples are affected?

Comments: N/A

iv. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐
Comments: Overall, the FD collection rate was met. 30 sediment samples were collected during this field collection event and 3 FDs were collected. In this SDG the N/FD pairs are 25HFT-SO-SD03-0.5/25HFT-SO-SD21-0.5 and 25HFT-SO-SD17-0.5/ 25HFT-SO-SD22-0.5. The other FD pair are in SDG L1875390.

ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐
Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes ☒ No ☐ N/A ☐
Comments: All FD RPDs were less than 50%.

iv. Is the data quality or usability affected? (Explain)

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☒ N/A ☐
Comments: All samples were collected using disposable equipment, so no EB was collected.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒
Comments: No EB collected.

iii. If above LoQ or RL, specify what samples are affected.

Comments: No EB collected.

iv. Are data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐
Comments: All other calibration requirements were met.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By: Travis Gouveia	**CS Site Name:**	Haines Fuel Terminal Dock Site Inspection	**Lab Name:** Pace Analytical National – Mt. Juliet, TN	
Title: Senior Chemist	**ADEC File No.:**	1508.38.002	**Lab Report No.:**	L1875390
Consulting Firm: Brice Environmental Services	**Hazard ID No.:**	591	**Lab Report Date:** 08/04/2025	

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?

   Yes ☒ No ☐ N/A ☐

   Comments: Samples were received and analyzed by Pace Analytical National of Mt. Juliet TN. CS Approval 17-026.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?

   Yes ☐ No ☐ N/A ☒

   Comments: All analyses in this SDG were performed by Pace Analytical National – Tennessee.

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?

   Yes ☒ No ☐ N/A ☐

   Comments:

   b. Were the correct analyses requested?

   Yes ☒ No ☐ N/A ☐

   Analyses requested: Metals by SW6020B and mercury by SW7471B

   Comments:

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6°C)?

Yes ☒ No ☐ N/A ☐
Cooler temperature(s): Cooler 070125-1 received at 1.4°C.
Sample temperature(s):
Comments:

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?

Yes ☐ No ☐ N/A ☒
Comments: No preserved containers in this SDG.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?

Yes ☒ No ☐ N/A ☐
Comments: All sample containers received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, canister not holding a vacuum, etc.?

Yes ☐ No ☐ N/A ☒
Comments: No discrepancies.

e. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

4. Case Narrative

a. Is the case narrative present and understandable?

Yes ☒ No ☐ N/A ☐
Comments:

b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes ☒ No ☐ N/A ☐
Comments: QC failures are identified in the case narrative and discussed in the applicable section of the checklist.

c. Were all the corrective actions documented?

Yes ☐ No ☒ N/A ☐
Comments: No corrective actions were documented.

d. What is the effect on data quality/usability according to the case narrative?

Comments: Effects on data quality and usability are discussed in the applicable sections of this checklist.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?

Yes ☒ No ☐ N/A ☐
Comments:

b. Are all applicable holding times met?

Yes ☒ No ☐ N/A ☐
Comments:

c. Are all soils reported on a dry weight basis?

Yes ☒ No ☐ N/A ☐
Comments:

d. Are the reported limits of quantitation (LOQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?

Yes ☐ No ☒ N/A ☐
Comments: Sample LODs for non-detects metals in marine sediment samples were compared to EPA Region 4 Ecological Risk Assessment Supplemental Guidance Levels, Table 2a Ecological Screening Value Levels for Marine Sediment (EPA 2018) to determine whether the laboratory data met measure performance criteria (MPC) for sensitivity. All reported LODs for ND results met project MPC for sensitivity, except as noted below:
-The non-detect LOD value for SW6020B analyte cadmium exceeded the project screening level (PSL) in project sample 25HFT-SO-SDBG02-0.5 due to a dilution that was performed on the sample that raised the detection limits. The LOD was only marginally over the PSL (0.68 milligrams per kilogram [mg/kg]) for 25HFT-SO-SDBG02-0.5 (LOD 0.685 mg/kg), and cadmium detections in all other samples were below the PSL.

e. Is the data quality or usability affected?

Yes ☒ No ☐ N/A ☐
Comments: It cannot be determined whether the affected analyte is present greater than or less than the PSL, data usability may be affected.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments:

ii. Are all method blank results less than LOQ (or RL)?

Yes ☒ No ☐
Comments: No target analytes were detected in the method blanks.

iii. If above LOQ or RL, what samples are affected?

Comments: No target analytes were detected in the method blanks.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: No target analytes were detected in the method blanks and no data were qualified.

v. Data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – Are one LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes ☐ No ☐ N/A ☒
Comments: No organic methods were analyzed in this SDG.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments: An LCS analyzed as a part of each batch.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes ☒ No ☐ N/A ☐
Comments:

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the RPD reported from LCS/LCSD, and or sample/sample duplicate? (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes ☐ No ☐ N/A ☒
Comments: No LCSD were analyzed in this SDG, so LCS/LCSD precision could not be evaluated.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: There were no LCS exceedances, so no analytes were affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒

Comments: There no exceedances, so no data qualifiers were applied to the samples.

vii. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☐ No ☐ N/A ☒
Comments: No organic methods were analyzed in this SDG.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?

Yes ☒ No ☐ N/A ☐
Comments: A site-specific MS/MSD was provided with the samples in this SDG. One mercury batch and one metals batch have an MS/MSD from another SDG related to this project.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes ☒ No ☐ N/A ☐
Comments:

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes ☒ No ☐ N/A ☐
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments: No sample affected as there were no exceedances.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: No results were qualified since there were no exceedances.

vii. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC, and laboratory samples?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

ii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no surrogates present.

iv. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability was not affected as no data were qualified.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no TB necessary.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒
Comments: This SDG is metals only; no TB necessary.

iii. If above LoQ or RL, what samples are affected?

Comments: N/A

iv. Is the data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability is not affected as no data were qualified.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?

Yes ☒ No ☐ N/A ☐

Comments: Overall, the FD collection rate was met. 30 sediment samples were collected during this field collection event and 3 FDs were collected. In this SDG the N/FD pair is 25HFT-SO-SDBG09-0.5/ 25HFT-SO-SDBG11-0.5. The other FD pairs are in SDG L1875388.

ii. Was the duplicate submitted blind to lab?

Yes ☒ No ☐ N/A ☐
Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water or air, 50% soil)

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes ☐ No ☒ N/A ☐
Comments: The following analytes had at least one result greater than the LOQ and the RPD exceeded 50%:

Method	Analyte	25HFT-SO-SDBG09-0.5	25HFT-SO-SDBG11-0.5	RPD	Qualifier
6020B	Barium	2.80	5.91	71.41%	J
6020B	Chromium	12.3	44.4	113.23%	J
6020B	Nickel	10.1	26.8	90.51%	J

The associated results in the N/FD pair were qualified J for indeterminate bias.

iv. Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐
Comments: -The usability of the barium results is not affected since it has no specified PSL.
-For project decision-making purposes the higher of the two results in the N/FD pair will be used. The higher of the two affected chromium results is only slightly less than the PSL with an indeterminate bias. The usability of this result may be affected.
-The affected nickel results are either significantly greater than or significantly less than the PSL, so data usability is not affected.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?

Yes ☐ No ☒ N/A ☐
Comments: All samples were collected using disposable equipment, so no EB was collected.

ii. Are all results less than LoQ or RL?

Yes ☐ No ☐ N/A ☒
Comments: No EB collected.

iii. If above LoQ or RL, specify what samples are affected.

Comments: No EB collected.

iv. Are data quality or usability affected?

Yes ☐ No ☐ N/A ☒
Comments: Usability was not affected as no data were qualified.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Are they defined and appropriate?

Yes ☒ No ☐ N/A ☐
Comments: All other calibration requirements were met.

APPENDIX D
CONCEPTUAL SITE MODEL FORMS

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Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Haines Fuel Terminal Dock (U.S. Army Haines POL Terminal)

File Number: 1508.38.002

Completed by: Brice Environmental Services Corporation

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☒ Other: Sandblasting dock structure

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☐ Leaks
- ☒ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☐ Surface soil (0-2 feet bgs*)
- ☐ Subsurface soil (>2 feet bgs)
- ☐ Air
- ☒ Sediment
- ☐ Groundwater
- ☐ Surface water
- ☒ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☐ Commercial or industrial worker
- ☒ Construction worker
- ☒ Subsistence harvester (i.e. gathers wild foods)
- ☒ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☐ Trespasser
- ☒ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☐

If the box is checked, label this pathway complete: Incomplete

Comments:

Soil is not an impacted media.

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☐

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Soil is not an impacted media.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☐

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Groundwater is not an impacted media.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Surface water is marine and cannot be used as drinking water.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☒

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☒

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☒

If all of the boxes are checked, label this pathway complete: Complete

Comments:

Lead concentrations in marine sediment are greater than naturally occurring background but less than the ecological PSL. Although the pathway is complete the risk is considered insignificant.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☐

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Air is not an impacted media.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☐

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Air is not an impacted media.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Heavy metals from sandblasting would not impact marine surface water.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Marine water cannot be used as tap water.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Potentially impacted marine sediments are generally submerged or saturated and unlikely to create dust issues.

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

The area around Tanani Point is used for recreation and subsistence harvesting of seaweed and shellfish. Direct contact with marine sediments can occur during these activities. However, lead concentrations are less than the ecological PSL indicating the exposure risk is insignificant.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Haines Fuel Terminal (HFT) Dock

Completed By: Brice Environmental Services Corp

Date Completed: 10/13/2025

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Current & Future Receptors

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☐ Surface Soil (0-2 ft bgs)	☐ Direct release to surface soil — check soil	☐ soil	☐ Incidental Soil Ingestion							
	☐ Migration to subsurface — check soil		☐ Dermal Absorption of Contaminants from Soil							
	☐ Migration to groundwater — check groundwater		☐ Inhalation of Fugitive Dust							
	☐ Volatilization — check air									
	☐ Runoff or erosion — check surface water									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Subsurface Soil (2-15 ft bgs)	☐ Direct release to subsurface soil — check soil	☐ groundwater	☐ Ingestion of Groundwater							
	☐ Migration to groundwater — check groundwater		☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Volatilization — check air		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Ground-water	☐ Direct release to groundwater — check groundwater	☐ air	☐ Inhalation of Outdoor Air							
	☐ Volatilization — check air		☐ Inhalation of Indoor Air							
	☐ Flow to surface water body — check surface water		☐ Inhalation of Fugitive Dust							
	☐ Flow to sediment — check sediment									
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water — check surface water	☐ surface water	☐ Ingestion of Surface Water							
	☐ Volatilization — check air		☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Sedimentation — check sediment		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals — check biota									
	☐ Other (list):									
☑ Sediment	☐ Direct release to sediment — check sediment	☑ sediment	☑ Direct Contact with Sediment			I	I	I	I	
	☑ Resuspension, runoff, or erosion — check surface water									
	☑ Uptake by plants or animals — check biota	☑ biota	☑ Ingestion of Wild or Farmed Foods					I	I	
	☐ Other (list):									

Revised, 10/01/2010

APPENDIX E
BACKGROUND METALS CALCULATIONS

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ProUCL Input Table

Location ID	Arsenic Result (mg/kg)	Lead Result (mg/kg)	Nickel Result (mg/kg)	Chromium Result (mg/kg)
25HFT-SDBG01	1.12	1.33	3.83	4.58
25HFT-SDBG02	5.79	3.06	28	45.9
25HFT-SDBG03	0.59	0.861	2.34	3.05
25HFT-SDBG04	2.1	3.66	9.43	14.2
25HFT-SDBG05	2.97	1.09	4.23	3.55
25HFT-SDBG06	0.757	0.852	3.51	4.28
25HFT-SDBG07	1.78	0.217	16.7	28.1
25HFT-SDBG08	12.4	0.537	40	78.6
25HFT-SDBG09	4.26	0.444	10.1	12.3
25HFT-SDBG09 (Dup)	4.81	0.684	26.8	44.4
25HFT-SDBG10	16.2	8.53	34.3	34.6

Notes:

Yellow Highlight: Result considered an outlier.

Outlier Tests for Selected Uncensored Variables

User Selected Options	**Arsenic Outlier Test**
Date/Time of Computation	ProUCL 5.2 8/26/2025 3:26:22 PM
From File	WorkSheet.xls
Full Precision	OFF

Dixon's Outlier Test for C1

Number of Observations = 11

10% critical value: 0.517

5% critical value: 0.576

1% critical value: 0.679

1. Observation Value 16.2 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.674

For 10% significance level, 16.2 is an outlier.

For 5% significance level, 16.2 is an outlier.

For 1% significance level, 16.2 is not an outlier.

2. Observation Value 0.59 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.045

For 10% significance level, 0.59 is not an outlier.

For 5% significance level, 0.59 is not an outlier.

For 1% significance level, 0.59 is not an outlier.

Normal Background Statistics for Uncensored Full Data Sets

Arsenic 95% UTL

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/26/2025 3:30:05 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1

C1

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11
		Number of Missing Observations	1
Minimum	0.59	First Quartile	1.45
Second Largest	12.4	Median	2.97
Maximum	16.2	Third Quartile	5.3
Mean	4.798	SD	5.063
Coefficient of Variation	1.055	Skewness	1.581
Mean of logged Data	1.072	SD of logged Data	1.074

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.815	d2max (for USL)	2.234

Normal GOF Test

Shapiro Wilk Test Statistic	0.791	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.792	Data Not Normal at 1% Significance Level
Lilliefors Test Statistic	0.241	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.291	Data appear Normal at 1% Significance Level

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	19.05	90% Percentile (z)	11.29
	95% UPL (t)	14.38	95% Percentile (z)	13.13
	95% USL	16.11	99% Percentile (z)	16.58

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

Outlier Tests for Selected Uncensored Variables

User Selected Options **Chromium Outlier Test**

Date/Time of Computation ProUCL 5.2 8/26/2025 3:40:13 PM

From File WorkSheet.xls

Full Precision OFF

Dixon's Outlier Test for C4

Number of Observations = 11

10% critical value: 0.517

5% critical value: 0.576

1% critical value: 0.679

1. Observation Value 78.6 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.456

For 10% significance level, 78.6 is not an outlier.

For 5% significance level, 78.6 is not an outlier.

For 1% significance level, 78.6 is not an outlier.

2. Observation Value 3.05 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.029

For 10% significance level, 3.05 is not an outlier.

For 5% significance level, 3.05 is not an outlier.

For 1% significance level, 3.05 is not an outlier.

Normal Background Statistics for Uncensored Full Data Sets

Chromium 95% UTL

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/26/2025 3:39:44 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1

C4

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11
		Number of Missing Observations	1
Minimum	3.05	First Quartile	4.43
Second Largest	45.9	Median	14.2
Maximum	78.6	Third Quartile	39.5
Mean	24.87	SD	24.19
Coefficient of Variation	0.973	Skewness	1.143
Mean of logged Data	2.671	SD of logged Data	1.178

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.815	d2max (for USL)	2.234

Normal GOF Test

Shapiro Wilk Test Statistic	0.857	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.792	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.216	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.291	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	92.98	90% Percentile (z)	55.88
	95% UPL (t)	70.67	95% Percentile (z)	64.67
	95% USL	78.92	99% Percentile (z)	81.15

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

Outlier Tests for Selected Uncensored Variables

User Selected Options **Lead Outlier Test - Outlier Removed**

Date/Time of Computation	ProUCL 5.2 8/26/2025 4:10:08 PM
From File	WorkSheet.xls
Full Precision	OFF

Dixon's Outlier Test for C2

Number of Observations = 10
10% critical value: 0.409
5% critical value: 0.477
1% critical value: 0.597

1. Observation Value 3.66 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.187

For 10% significance level, 3.66 is not an outlier.
For 5% significance level, 3.66 is not an outlier.
For 1% significance level, 3.66 is not an outlier.

2. Observation Value 0.217 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.080

For 10% significance level, 0.217 is not an outlier.
For 5% significance level, 0.217 is not an outlier.
For 1% significance level, 0.217 is not an outlier.

Normal Background Statistics for Uncensored Full Data Sets

Lead 95% UTL - Outlier Removed

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/26/2025 4:06:59 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1

C2

General Statistics

Total Number of Observations	10	Number of Distinct Observations	10
		Number of Missing Observations	1
Minimum	0.217	First Quartile	0.574
Second Largest	3.06	Median	0.857
Maximum	3.66	Third Quartile	1.27
Mean	1.274	SD	1.153
Coefficient of Variation	0.905	Skewness	1.521
Mean of logged Data	-0.0864	SD of logged Data	0.851

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.911	d2max (for USL)	2.176

Normal GOF Test

Shapiro Wilk Test Statistic	0.781	**Shapiro Wilk GOF Test**	
1% Shapiro Wilk Critical Value	0.781	Data Not Normal at 1% Significance Level	
Lilliefors Test Statistic	0.28	**Lilliefors GOF Test**	
1% Lilliefors Critical Value	0.304	Data appear Normal at 1% Significance Level	

Data appear Approximate Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	4.63	90% Percentile (z)	2.751
	95% UPL (t)	3.49	95% Percentile (z)	3.17
	95% USL	3.783	99% Percentile (z)	3.956

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

Outlier Tests for Selected Uncensored Variables

User Selected Options **Nickel Outlier Test**

Date/Time of Computation ProUCL 5.2 8/26/2025 3:28:27 PM

From File WorkSheet.xls

Full Precision OFF

Dixon's Outlier Test for C3

Number of Observations = 11

10% critical value: 0.517

5% critical value: 0.576

1% critical value: 0.679

1. Observation Value 40 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.329

For 10% significance level, 40 is not an outlier.

For 5% significance level, 40 is not an outlier.

For 1% significance level, 40 is not an outlier.

2. Observation Value 2.34 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.047

For 10% significance level, 2.34 is not an outlier.

For 5% significance level, 2.34 is not an outlier.

For 1% significance level, 2.34 is not an outlier.

Normal Background Statistics for Uncensored Full Data Sets

Nickel 95% UTL

User Selected Options	
Date/Time of Computation	ProUCL 5.2 8/26/2025 3:39:07 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%
Coverage	95%
New or Future K Observations	1

C3

General Statistics

Total Number of Observations	11	Number of Distinct Observations	11
		Number of Missing Observations	1
Minimum	2.34	First Quartile	4.03
Second Largest	34.3	Median	10.1
Maximum	40	Third Quartile	27.4
Mean	16.29	SD	13.71
Coefficient of Variation	0.841	Skewness	0.611
Mean of logged Data	2.373	SD of logged Data	1.027

Critical Values for Background Threshold Values (BTVs)

Tolerance Factor K (For UTL)	2.815	d2max (for USL)	2.234

Normal GOF Test

Shapiro Wilk Test Statistic	0.873	**Shapiro Wilk GOF Test**
1% Shapiro Wilk Critical Value	0.792	Data appear Normal at 1% Significance Level
Lilliefors Test Statistic	0.22	**Lilliefors GOF Test**
1% Lilliefors Critical Value	0.291	Data appear Normal at 1% Significance Level

Data appear Normal at 1% Significance Level

Background Statistics Assuming Normal Distribution

95% UTL with	95% Coverage	54.87	90% Percentile (z)	33.86
	95% UPL (t)	42.24	95% Percentile (z)	38.84
	95% USL	46.91	99% Percentile (z)	48.18

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

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APPENDIX F
ADEC APPROVAL LETTER

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