PORT WILLIAMS FORMER CANNERY
CLEANUP WORK PLAN
ADEC Hazard ID# 26872

Prepared for:

300 Alimaq Drive
Kodiak, Alaska 99615

Prepared by:

Civil / Survey / Environmental Consulting: 326 Driveway Street, Fairbanks, AK 99701 (907) 451.7411
Environmental Engineering: 3305 Arctic Blvd., Ste. 102, Anchorage, AK 99503 (907) 522.4337

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Approving Official	Printed Name	Signature
3TA Project Manager	Casey Volk Staff Scientist	
ADEC Project Manager	Dawn Wilburn Environ. Program Specialist	

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ACRONYMS AND ABBREVIATIONS

3TA	3-Tier Alaska
AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AST	Aboveground Storage Tank
BMP	Best Management Practices
bgs	Below Ground Surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
COC	Contaminates of Concern
CFR	Code of Federal Regulation
CS-LAP	Contaminated Sites-Laboratory Approval Program
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GAC	Granular Activated Carbon
GRO	Gasoline Range Organics
HDPE	High-Density Polyethylene
mg/Kg	Milligrams per Kilograms
MTG	Migration to Groundwater
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photo-Ionization Detector
PPE	Personal Protective Equipment
ppm	Parts per Million
QA/QC	Quality Assurance/Quality Control
QEP	Qualified Environmental Professional
RCRA	Resource Conservation and Recovery Act
RRO	Residual Range Organics
SGS	SGS Environmental Laboratories, Inc
SOP	Standard Operating Procedure
SVOC	Semi-Volatile Organic Compound
TAH	Total Aromatic Hydrocarbons
TAqH	Total Aqueous Hydrocarbons
TCLP	Toxicity Characteristic Leaching Procedure
TSD	Treatment, Storage, and Disposal
µg/L	Micrograms per Liter
USCG	United States Coast Guard
WFOC	Washington Fish and Oyster Company
WQS	Water Quality Standards
VOC	Volatile Organic Compound

1.0 INTRODUCTION

On behalf of Ocean Beauty Seafoods LLC (Ocean Beauty), 3-Tier Alaska (3TA) prepared this cleanup work plan to remove contaminated soil and water at the Port William Former Cannery (Port William) on Shuyak Island, Alaska (Figure 1, Appendix A). This work plan addresses the removal and disposal of contaminated soils and water at locations identified in the *Port William Former Cannery Site Characterization Report* published in December 2021.

3TA developed this cleanup work plan to meet the requirements of 18 Alaska Administrative Code (AAC) 75.320 and 18 AAC 75.325. This plan describes the methods and procedures that will be taken to identify, excavate, remove, and dispose of contaminated soil and water at Port William to numeric and practicable cleanup levels defined in 18 AAC 75.

2.0 OBJECTIVES

This cleanup workplan will:

- Provide a site description and background;
- Develop a field screening and sampling plan;
- Detail sample collection methods;
- Discuss the analytical methods to be employed;
- Discuss disposal of excavated contaminated soils;
- Describe field quality control measures;
- Detail field documentation to be used;
- Detail field decontamination methods; and
- Provide conclusions and recommendations.

The scope of work is focused on the areas identified in the *Port William Former Cannery Site Characterization Report* where soil and/or water contain contaminants exceeding the Alaska Department of Environmental Conservation (ADEC) cleanup levels. This cleanup work plan addresses impacted areas, including the tank farm at the Port William facility, the natural drainage area west of the tank farm, and the ground beneath seven aboveground storage tanks (ASTs) that previously stored heating fuel for cannery buildings.

Ocean Beauty plans to remove and treat impacted water pooled within the facility's secondary containment using an Absorbent W® water scrubber and two granular activated carbon (GAC) systems. Additionally, impacted soil will be excavated and transported for disposal to Waste Management's Columbia Ridge Landfill in Arlington, Oregon. Additional work will involve constructing a temporary access road from the facility's dry dock to areas with identified contamination. The location of each proposed cleanup area and access road is shown in Figure 2 in Appendix A.

Civil / Survey / Environmental Consulting: 326 Driveway Street, Fairbanks, AK 99701 (907) 451.7411
Environmental Engineering: 3305 Arctic Blvd., Ste. 102, Anchorage, AK 99503 (907) 522.4337

3.0 SITE DESCRIPTION AND BACKGROUND

3.1 Facility Description

Port William is located along Shuyak Strait on the southern end of Shuyak Island, Alaska (Figure 1, Appendix A). Access to the site is via Island Air out of Kodiak, Alaska. The property position is approximately 58.490908° North latitude, -152.583690° West longitude. The property is currently co-owned by a group of private investors including Yvonne Cooper, Sarah Alden, Sharmel Collins, and Richard Holta.

Port William was a herring saltery prior to 1930 and was operated by S. Sklaroff and Sons. In 1930, it began salmon canning operations as the Port of William Packing Company. In 1935, Washington Fish and Oyster Company (WFOC) purchased the cannery. In 1970, Ocean Beauty Seafoods, Inc. purchased WFOC. WFOC then changed its name to Ocean Beauty Seafoods, Inc. in 1971. In 1973, Ocean Beauty Seafoods sold the property to Kodiak King Crab, Inc. Kodiak King Crab sold the property to a private party, Wayne Treat, in 1980. Wayne Treat then sold the property to Bruce and Yvonne Cooper in 1986.

In June 2011, J. Mark Krall began leasing the Port William property from the Coopers. Mr. Krall formed an LLC called the Port William Wilderness Lodge for the purpose of running a recreational hunting and fishing outfit out of Port William. We understand that Mr. Krall no longer operates the Port William Wilderness Lodge, and that the property is currently unoccupied except for a caretaker.

3.2 2001 Phase I Environmental Site Assessment

In August-September 2001, URS conducted a Phase I Environmental Site Assessment (ESA) at Port William at the request of the Rocky Mountain Elk Foundation. During the Phase I ESA, URS identified several areas of potential environmental concern. These areas are discussed below.

3.2.1 Aboveground Storage Tanks

URS observed 13 bulk fuel storage tanks on the property. Eleven tanks were located within a lined secondary containment area where a black oily mixture of petroleum hydrocarbons, water, and sludge was observed. The containment area was leaking from multiple areas and heavy staining and free product was observed in a wet, boggy area located west of the tank farm, referred to in this work plan as the natural drainage. Petroleum staining was observed in the natural drainage extending from the secondary containment, west to the upper most portion of a cliff face along the shoreline. Staining was observed along the upper portion of the cliff face; however, staining did not extend down the cliff to the shoreline. There was no evidence indicating that contamination from the tank farm had extended to Shuyak Strait.

The two remaining tanks were situated on wooden platforms. Secondary containment was not present for either tank. URS observed heavily stained soil beneath each platform.

Eight shallow subsurface soil samples were collected from the vicinity of the tank farm. Analytical results detected diesel range organics (DRO) and residual range organics (RRO) above 2001

ADEC cleanup levels. DRO ranged from 130 to 49,100 milligrams per kilograms (mg/Kg) while RRO ranged from 565 to 5,390 mg/Kg. Gasoline range organics (GRO) were detected; however, concentrations were below ADEC cleanup levels. GRO ranged from non-detect to 9.99 mg/Kg.

URS also identified tanks (55-gallon drums) situated on elevated wooden racks used to store heating fuel outside the Main House, Mess Hall, two employee residences, and the bunkhouse. During the investigation, URS observed at least one 55-gallon drum leaking that was not positioned within a secondary containment.

3.3 2018 Port William Bunker C Spill

A dock at Port William collapsed on February 26, 2018, because of a winter storm that produced wind gusts of more than 80 mph. The Pole/Wood Building located on the dock housed a bladder that contained approximately 3,000-gallons of Fuel Oil No. 6 (Bunker C). When the dock collapsed, the bladder ruptured and released its contents within the shoreline and waters below (Shuyak Strait).

The United States Coast Guard (USCG) responded to the spill. Responders deployed 3,280-feet of large inflatable ocean boom and 550-feet of fast water boom around the dock facility and the adjacent beach. Sorbent materials were placed inside the booms, which produced 1,878 bags of oily waste. The collapsed building was later dismantled which allowed personnel to safely access oiled debris under the building and nearby shores. The shoreline/tidelands portion of the cleanup was managed by the ADEC's Prevention, Preparedness, and Response Program and tracked under spill #18249905701. After seven weeks, the USCG determined that response efforts were no longer producing measurable results and ended the operation.

3.4 2021 Site Characterization

During June 21-24, 2021, 3TA conducted a Site Characterization at Port William. During the Site Characterization, 3TA identified several areas where contamination exceeded ADEC cleanup levels. These areas are discussed in detail below.

3.4.1 Tank Farm

3TA advanced 12 hand-dug test pits around the facility's tank farm (Figure 3, Appendix A). Most test pits were advanced west of the tank farm along a natural drainage that was down gradient of the tank farm's secondary containment. Soil samples collected for laboratory analysis generally detected elevated DRO concentrations. DRO concentrations ranged from 63.8 to 78,400 mg/Kg, with values exceeding the applicable ADEC cleanup level (230 mg/Kg) in eight of the twelve test pits (D1, D2, D3, D4, TF3, TF4, TF5, and TF7). RRO concentrations ranged from non-detect to 32,100 mg/Kg, with three test pits (D1, D3, and TF5) showing RRO concentrations above the applicable ADEC cleanup level (9,700 mg/Kg). No test pits detected GRO concentrations above the ADEC cleanup level (260 mg/Kg).

Laboratory analysis of test pits within the tank farm detected several polycyclic aromatic hydrocarbons (PAH) analytes. Detected analytes included 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, benzo[a]pyrene, benzo[b]fluoranthene,

benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorene, Indeno[1,2,3-c,d] pyrene, naphthalene, phenanthrene, and pyrene. Detected analytes that exceeded project cleanup levels included 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo[a]pyrene, naphthalene, and phenanthrene. PAH analyte concentrations were found to exceed the applicable ADEC Migration to Groundwater (MTG) cleanup levels at test pits D1, D2, D3, D4, TF1, TF4, TF5, and TF7.

Several volatile organic compound (VOC) analytes were detected in samples collected at test pits within the tank farm. Detected analytes included 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, naphthalene, and xylenes. Detected analytes that exceeded project cleanup levels included 1,2,4-Trimethylbenzene, 1,3,5-trimethylbenzene, ethylbenzene, naphthalene, and xylenes. VOC analyte concentrations that exceeded the applicable ADEC MTG cleanup levels were observed at test pits D1, D2, and D4.

3TA personnel also collected a characterization sample (SLG1), plus a duplicate sample (SLG2), from sludge located within the tank farm's secondary containment. The samples were collected from an area perceived to be the most contaminated based on visual and olfactory clues. Laboratory analysis detected DRO and RRO above ADEC cleanup levels. DRO was detected at 162,000 mg/Kg while RRO was detected at 19,500 mg/Kg. GRO was also detected (15.8 mg/Kg) but below the ADEC cleanup level.

Laboratory analysis of sludge detected several PAH analytes. Analytes that were detected included 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[g,h,i]perylene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, fluoranthene, indeno[1,2,3-c,d] pyrene, naphthalene, phenanthrene, and pyrene. Analytes that were detected above project cleanup levels included 1-methylnaphthalene, 2-methylnaphthalene, benzo(a)anthracene, benzo[a]pyrene, dibenzo[a,h]anthracene, naphthalene, and phenanthrene.

Laboratory analysis of sludge detected several Resource Conservation and Recovery Act (RCRA) metals. Metals that had detectable concentrations included arsenic, barium, cadmium, chromium, lead, and mercury. Metals with detectable concentrations that also exceeded ADEC MTG cleanup levels included arsenic, chromium, lead, and mercury. However, 3TA attributed arsenic and chromium exceedances to natural background concentrations.

In addition to soil and sludge samples, 3TA personnel collected five surface water samples within the vicinity of the tank farm. Three samples, one being a duplicate sample, were collected along discharge points of two natural drainages located west of the tank farm. These samples were analyzed for total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH). The remaining two samples, one being a duplicate sample, were collected from water that had pooled within the facility's secondary containment. These samples were analyzed for DRO, RRO, GRO, PAH, and VOC.

Laboratory analysis of water samples collected from drainage discharge points (CD1, CD2, and CD3) did not detect any TAH analytes. However, both sample CD1 and its duplicate, CD2, detected TAqH analytes benzo(a)anthracene, pyrene, chrysene, and fluoranthene, though the sum

of these analytes was well below the *State of Alaska Surface Water Quality Standards (WQS) (November 2022)*. Despite this, a sheen was observed on each water sample, which is a violation of the WQS.

Laboratory sample SCW1, and its duplicate sample SCW2, collected from water that had pooled within the tank farm secondary containment detected DRO and RRO above ADEC cleanup levels. DRO was detected at 2,020 micrograms per liter (µg/L) while RRO was detected at 1,630µg/L. GRO was not detected.

3.4.2 Facility Buildings

3TA advanced 10 hand-dug test pits adjacent to buildings where elevated wooden racks were used to store aboveground heating fuel tanks (Figure 4, Appendix A). Soil samples collected for laboratory analysis generally detected elevated DRO concentrations. DRO concentrations ranged from 187 to 21,900 mg/Kg. DRO concentrations were found to exceed the ADEC cleanup level in seven of the ten test pits (DT1, MH1, MH2 MH3, CH1, MR1, and MR2). RRO concentrations ranged from non-detect to 4,700 mg/Kg. However, zero samples exceeded the ADEC cleanup level. GRO ranged from non-detect to 28.8 mg/Kg. Like RRO, zero samples exceeded the ADEC cleanup level. Some samples also detected PAH analytes above ADEC cleanup levels.

In addition to soil samples, 3TA personnel collected one surface water sample from a natural drainage that ran parallel to multiple facility buildings. The sample was analyzed for TAH and TAqH. However, laboratory analysis did not detect any TAH or TAqH analytes.

3.4.3 Intertidal Zone

3TA personnel collected a composite sample to characterize sand underneath broken/discarded lead-acid batteries within the intertidal zone and underneath the drip line of the eastern side of the Boat Building that contained peeling paint.

In laboratory analysis for RCRA metals, several analytes had detectable concentrations. Analytes with detectable concentrations included arsenic, barium, chromium, and lead. Analytes with detectable concentrations that exceeded ADEC cleanup levels include arsenic and chromium. 3TA attributed these exceedances to natural background concentrations.

3.5 September 2022 Site Visit

3TA visited Port William in September of 2022. 3TA collected nine samples, including a duplicate sample, within the vicinity of the tank farm. Four samples, including one duplicate, were taken within the secondary containment, four samples were taken along the natural drainage west of the tank farm, and one sample was taken outside the natural drainage. Each sample was analyzed for RCRA metals. Additionally, lead and mercury were analyzed via the Toxicity Characteristic Leaching Procedure (TCLP). The purpose of these samples was to determine if, upon excavation, contaminated soil within the vicinity of the tank farm must be managed as RCRA characteristic hazardous waste. Sample locations can be viewed in Figure 5 in Appendix A.

Table 1 shows the analytical results for RCRA metal analysis.

Table 1: 2022 RCRA Metal Laboratory Results

Analyte	Cleanup Levels	Sample ID								
	mg/Kg	SLG1	SLG4*	SLG2	SLG3	D1	D2	D3	D4	S1
Arsenic	0.2	**2.09**	1.67 U	**17.9**	**7.12**	**2.43**	3.98 U	**3.7**	**13**	2.66 U
Barium	2100	44.5	17	690	20	31	38.8	26.4	12.3	6.53
Cadmium	9.1	0.390 U	0.334 U	0.857	0.692	0.390 U	0.797 U	0.400 U	0.419 U	0.533 U
Chromium	0.089	**31.8**	**36.8**	**22.6**	**82.1**	**46.6**	**5.34**	**13.2**	**7.72**	**15.8**
Lead	800	97.7	48.2	**9,870**	129	92.6	44.6	89	85.8	126
Mercury	0.36	0.585 U	0.502 U	0.690 U	0.676 U	0.585 U	1.20 U	0.600 U	0.629 U	0.799 U
Selenium	6.9	3.90 U	3.34 U	4.60 U	4.51 U	3.90 U	7.97 U	4.00 U	4.19 U	5.33 U
Silver	11	0.976 U	0.836 U	1.15 U	1.13 U	0.975 U	1.99 U	1.00 U	1.05 U	1.33 U

Notes:
U Indicates analytes was analyzed but not detected.
Bolded values indicate exceedance of ADEC Method Two, 'Migration to Groundwater Cleanup Level'.
* Indicates sample duplicate of SLG1

Similar to samples collected during the 2021 sampling event, chromium, arsenic, and lead were detected in the majority of samples. Chromium was detected in each sample above the ADEC MTG cleanup level with results ranging from 5.34 to 36.8 mg/Kg. Arsenic was detected in six samples above the ADEC MTG cleanup level with results ranging from non-detect to 17.9 mg/Kg. Lead was detected in one sample above the ADEC cleanup level with results ranging from non-detect to 9,870 mg/Kg. However, unlike the site characterization in 2021, mercury was not detected in any of the samples collected within the vicinity of the tank farm.

Table 2 provides laboratory results for samples analyzed for lead and mercury using TCLP.

Table 2: 2022 TCLP Laboratory Results

Analyte	Regulatory Level	Sample ID								
	mg/L	SLG1	SLG4*	SLG2	SLG3	D1	D2	D3	D4	S1
Lead	5	0.065	0.0500 U	4.57	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U	0.0500 U
Mercury	0.2	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U	0.0250 U

Notes:
U Indicates analytes was analyzed but not detected.
* Indicates sample duplicate of SLG1

Samples analyzed via the TCLP did not detect any concentrations above regulatory levels established by 40 C.F.R. 261.24. TCLP results did not detect any concentrations of mercury. Lead was detected in two TCLP samples; however, detected concentrations were below the regulatory level with results ranging from non-detect to 4.57 mg/Kg.

Mercury was not detected in any of the samples. 3TA personnel collected samples SLG1 and SLG4 adjacent to where mercury was detected in 2021. Therefore, 3TA believes the mercury exceedance observed in 2021 was isolated and is not considered a contaminant of concern at the site.

4.0 CONTAMINANTS OF CONCERN

Based on the findings of the 2021 Site Characterization and 2022 site work, the contaminants of concern (COC) within the vicinity of the tank farm are diesel fuel, Bunker C, and lead. Analytical soil samples collected within the vicinity of the tank farm will be analyzed for DRO, GRO, RRO, VOC (including benzene, toluene, ethylbenzene, and xylene (BTEX)), PAH, and lead.

The COC beneath the building ASTs is diesel fuel. Analytical soil samples collected beneath each AST will be analyzed for DRO, GRO, VOC including BTEX, PAH, and lead.

Additionally, analytical samples collected from treated water within the tank farms secondary containment will be analyzed for DRO, RRO, VOC, PAH, and lead.

Soil and water samples will be submitted to SGS Environmental Laboratories, Inc. (SGS) in Anchorage, Alaska for laboratory analysis. SGS is an ADEC Contaminated Sites-Laboratory Approval Program (CS-LAP) approved laboratory. The qualified sampler will also perform field screening using a photo-ionization detector (PID) to screen soils for VOCs.

4.1 Soil Cleanup Levels

According to the Western Region Climate Center, nearby Kitoi Bay averages 63.81 inches of precipitation per year. The project target soil cleanup levels shown in Table 3 below were established from ADEC, 18 AAC 75.341, *Table B1 - Method Two – Soil Cleanup Levels, Over 40 Inch Zone, Migration to Groundwater*. Except for BTEX, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and naphthalene, all VOC cleanup levels referenced in this project are listed in 18 AAC 75, Table B1 - Method Two – Soil Cleanup Levels.

Table 3: Project Soil Cleanup Levels

Analyte	Cleanup Level (mg/Kg)
DRO	230
RRO	9,700
GRO	260
Benzene	0.022
Ethylbenzene	0.13
Total Xylenes	1.5
Toluene	6.7
1,2,4-Trimethylbenzene	0.61
1,3,5-Trimethylbenzene	0.66
Naphthalene	0.038
Lead	400

Analyte	Cleanup Level (mg/Kg)
1-Methylnaphthalene	0.41
2-Methylnaphthalene	1.3
Acenaphthene	37
Acenaphthylene	18
Anthracene	390
Benzo(a)anthracene	0.70
Benzo[a]pyrene	1.2
Benzo[b]fluoranthene	12
Benzo[g,h,i]perylene	1,900
Benzo[k]fluoranthene	120
Chrysene	600
Dibenz[a,h]anthracene	1.2
Fluoranthene	590
Fluorene	36
Indeno[1,2,3-c,d]pyrene	12
Naphthalene	0.038
Phenanthrene	39
Pyrene	87

4.2 Water Cleanup Levels

The project target surface water cleanup levels shown in Table 4 were established from ADEC 18 AAC 70.020*(b)(17*)(*A*)(*i*) *Petroleum Hydrocarbons, Oils, and Grease, for Marine Water Uses, Aquaculture* and ADEC 18 AAC 75.345, *Table C, Groundwater Cleanup Levels*. All VOC and PAH project cleanup levels are listed in 18 AAC 75, *Table C, Groundwater Cleanup Levels*. Using the results of the VOC and PAH analysis, TAH and TAqH concentrations will be calculated for treated water within the tank farms secondary containment and compared to the cleanup levels identified in Table 4.

Table 4: Project Water Cleanup Levels

Analyte	Cleanup Level (µg/L)
TAqH	15
TAH	10
DRO	1,500
RRO	1,100

5.0 CLEANUP AND SAMPLING PLAN

This work will be conducted in accordance with *18 AAC 75 Oil and Other Hazardous Substances Pollution Control (revised October 2023)*. Sampling efforts will be conducted in accordance with the ADEC *Field Sampling Guidance (August 2024)* unless otherwise specified within this document.

3TA personnel assigned to this project have not been determined at this time. However, all 3TA personnel meet the ADEC definition of "Qualified Environmental Professional" (QEP) in accordance with 18 AAC 75.333. Resumes for all 3TA personnel are available in Appendix B. While on site, 3TA personnel will be aided by Brice Inc. (Brice) who is familiar with soil excavation. However, all sample collection and sitework will be conducted by or under the direct supervision of 3TA personnel.

5.1 Proposed Soil Cleanup and Excavation Activities

3TA will monitor and guide the excavation of known contaminated soils at sites identified in the *Port William Former Cannery Site Characterization Repor*t using a PID with a reduced field screening threshold of 10 parts per million (ppm) as described in Section 5.1.1. 3TA will also rely on olfactory and visual clues to determine the presence or absence of contamination. 3TA will collect confirmation samples for laboratory analysis once each excavation is complete to document the removal of contaminated soils to applicable ADEC cleanup levels. The proposed cleanup sites are shown in Figures 6 and 7 in Appendix A.

Brice will conduct the excavation, removal, and handling of contaminated soils using equipment such as backhoes, track-hoes, and hand tools. During the cleanup process, 3TA personnel will continuously screen for potentially contaminated soils and provide guidance on removal as needed. Given the proximity of cliffs near the natural drainage and facility buildings, complete removal of all contaminated soil may not be feasible. However, Brice will make every effort to safely remove as much contamination as possible.

To access impacted soils beneath the AST cribbing at the tank farm, Brice will also remove derelict tanks and cribbing. Efforts will focus on minimizing soil disturbance, particularly near the cliff west of the tank farm and around facility building foundations. 3TA will monitor water that discharges from the cliff west of the tank farm for sheen during excavation. If sheen is observed, appropriate mitigation measures, such as installing absorbent booms along drainage ditches, will be implemented.

After the cleanup, excavations near facility buildings will be backfilled using excess material from the access road construction. In contrast, no backfill is planned to be added to the excavation area near the tank farm due to the size of the excavation area and limited access to fill material. Additionally, the presence of exposed rock is common in the area. Impacted soils at the tank farm will be removed down to bedrock, approximately 18 inches below ground surface (bgs), leaving the bedrock exposed. 3TA will document all soil removal activities with photographs, which will be included in the subsequent cleanup report provided to ADEC.

Potential seasonal precipitation and proximity to Shuyak Strait necessitate careful management of excavated soils and site operations during excavation activities. Soil disturbance will be minimized wherever possible. Ocean Beauty will utilize storm water best management practices (BMPs) throughout the course of the project. BMPs, such as fiber rolls and vegetative buffers, may be utilized along site perimeters to prevent sediment transport as needed.

5.1.1 Field Screening & Soil Excavation

The following describes the sampling protocols that 3TA field personnel will follow to screen and collect confirmation soil samples within each excavation. Field screening will occur first to characterize the presence (if any) of hydrocarbon contamination within each excavation. A MiniRAE™ Systems 3000 PID will be the primary equipment utilized for field screening. 3TA personnel will field screen soils with a PID in accordance with the ADEC *August 2024 Field Sampling Guidance*, Section 5.0 Soil Sampling.

While removing contaminated soils from known sites, 3TA personnel will oversee the work using a PID, as well as visual and olfactory clues to determine the presence of potentially contaminated soils. Heated headspace PID field screenings shall be used to define the extents of contamination within each excavation. A PID threshold of 10 ppm will be used to determine contaminated soils that potentially contain contaminant concentrations greater than applicable ADEC cleanup levels (Project Cleanup Levels, Table 3). All soils that exhibit PID headspace screening results greater than 10 ppm or other characteristics of contamination (staining and/or odor) will be excavated and transported into SuperSacks®. 3TA will instruct Brice to excavate contaminated soil at each site until PID readings fall below 10 ppm or until reaching refusal (bedrock). 3TA anticipates reaching bedrock at each impacted area. Bedrock is comprised of jagged, uneven greywacke rock, approximately 18-inches bgs. 3TA and Brice will make every effort to remove impacted soil between bedrock crevasses. Any material not exhibiting contaminant characteristics or that have PID heated headspace screening results below 10 ppm will remain in place.

Due to the uncertainty of the volume of potentially contaminated soil, the number of screening samples cannot be estimated in advance of the work.

5.1.1.1 PID Calibration and Use

The PID will be calibrated according to the manufacturer's specifications in the field using a fresh-air charcoal blank and 100-ppm isobutylene calibration span gas. A re-sealable polyethylene bag with a total capacity not less than eight ounces (approximately 250mL) will be filled one-third to one-half full of soil from the screening sample. The soil, sealed in the bag, will be allowed to warm up to 40 degrees Fahrenheit where it shall be held for at least 10 minutes, but no longer than 60 minutes. The soil sample will be agitated for approximately 15 seconds at the beginning and end of the headspace development period to assist in volatilization. The tip of the calibrated PID will then be placed inside the bag for thirty seconds or until the reading stabilizes.

5.1.2 Collection of Samples for Laboratory Analysis

Following the excavation of contaminated soils, 3TA personnel will collect discrete confirmation soil samples for laboratory analysis from the sidewalls and base (if applicable) of each excavation. 3TA personnel will collect confirmation samples for laboratory analysis from the locations with the highest heated headspace PID readings within the final limits of each excavation to document the removal of contaminated soils to applicable ADEC cleanup levels. The confirmation samples will be collected in accordance with the ADEC *Field Sampling Guidance (August 2024)*, specifically Soil Laboratory Analytical Sample Collection, Subsection 5.3.2 Excavated Soil Characterization Sampling (see excerpt below).

When sampling soil for volatile compounds, remove 2 to 6 inches of soil immediately before sample collection. If the excavation has been open for longer than one hour, remove 6 to 12 inches of soil immediately before collection. Do not collect samples from disturbed soil that has fallen into the bottom of the excavation pit.

For non-volatile samples (metals, PCBs, DRO, RRO, and PAHs) it may not be necessary to expose fresh soil by removing any overburden prior to collection.

If excavation depth precludes safely collecting samples from the bottom of the excavation, samples can be collected from the center of an excavation bucket by first removing four to six inches of soil immediately, prior to collection.

Screening and sampling will be collected in accordance with *ADEC Field Sampling Guidance (August 2024)* Table 2B Surface/Excavation Base & Excavation Sidewall Soil Sample Collection Guide noted in Table 5 of this document below. 3TA anticipates that each excavation will reach bedrock and will not warrant sampling along the base of the excavation. However, if an excavation does not reach bedrock or the PID indicates that contamination has been removed prior to reaching bedrock, 3TA will collect confirmation samples along the base of that excavation in accordance with Table 5.

Table 5: Surface/Excavation Base & Excavation Sidewall Soil Sample Collection Guide

Surface Area (square feet)	# of Screening Samples	# of Laboratory Samples
0-50	5	1
51-124	5	2
125-250	1 per 25 sq ft	2
More than 250	10 plus 1 per additional 100 sq ft, or Contaminated Sites Program (CSP) determines necessary	2 samples, plus one sample for each additional 250 square feet, or portion thereof; or as CSP determines necessary
Excavation Sidewalls	For each excavation sidewall, 1 per 10 square feet (depth and length), or portion thereof, with field screening sample collection focused on soil horizons demonstrated as likely to be contaminated.	Minimum 1 per each sidewall plus one additional sample for each sidewall area over 250 total square feet (depth and length), or portion thereof at the highest field screening reading in all soil horizons (i.e. a 12'x30' excavation [360 square feet total]) would require 2 laboratory samples.

The field screening sample locations which exhibit the highest heated headspace PID screening results will be chosen for laboratory analysis. Additionally, some samples for laboratory analysis

may be collected from locations of concern or significantly differing soil types. In these cases, the sampling location may not have exhibited the highest field screening readings.

Samples collected for laboratory analysis shall be analyzed in accordance with Section 5.1.4.

5.1.3 Excavated/Stockpiled Soil

Excavated contaminated soil will be immediately loaded into one cubic yard SuperSacks® within the footprint of the excavation. The SuperSacks® will be made of woven polypropylene flexible intermediate bulk container with a 3-mil low-density polyethylene internal liner.

Each SuperSack® will be labeled using a pre-made tag printed on waterproof paper for weather resistance. These tags will be attached to each bag using zip-ties, bailing wire, or a similar method. Each tag will include the following information:

- Date of contaminated soil generation;
- Project SuperSack® identification number;
- Facility Owner contact information; and
- Statement identifying SuperSack® contents as hydrocarbon contaminated soils.

Project SuperSack® identification numbers will be assigned based on the origin of the impacted soil. Soils from beneath the tank farms secondary containment will be labeled SC-#, soils within the natural drainage will be labeled ND-#, and soils from beneath the building ASTs will be labeled with the initials of the building followed by a number. For instance, soil removed adjacent to the caretakers home will be labeled CH-#.

3TA estimates approximately 460 cubic yards of impacted soil will be excavated and placed in one-cubic yard SuperSacks®. Excavated characterization samples will be collected for each source area in accordance with *ADEC Field Sampling Guidance* Table 2A Excavated Soil Sample Collection Guide, Table 6 below. For example, if 400 cubic yards of impacted soil is removed from the facility tank farm and natural drainage, 3TA will collect 40 screening samples from 40 random SuperSacks®. 3TA will then collect five analytical samples for the five SuperSacks® that had the highest heated headspace PID screening results.

Samples collected for field screening and laboratory analysis for characterization of excavated soils shall be collected at least 18 inches beneath the exposed surface of soils stored in Supersacks®. Samples collected for laboratory analysis shall be analyzed in accordance with Section 5.1.4.

Table 6: Excavated/Stockpile Soil Sample Collection Frequency

By Volume (cubic yards)	# of Screening Samples	# of Laboratory Samples
0-10	5	1
11-50	5	2
51-100	1 per 10 cyd	3
More than 100	1 per 10 cyd, or as the CSP determines necessary	3 samples, plus (1) sample for each additional 200 cubic yards or portion thereof or as the CSP determines necessary

Once the SuperSacks® are filled and screening and analytical samples have been collected, the internal liners will be folded closed and SuperSacks® shall be securely closed using the integrated ties.

Impacted soil will be incrementally transported and loaded onto a barge at the facility's dry dock using heavy equipment supplied by Brice. If impacted soils in SuperSacks® are temporarily stockpiled in the area, rather than being transported to the barge for offsite disposal, they will be stored on a 20-mil high density polyethylene (HDPE) liner and securely covered with 6-mil or thicker HDPE liner, pursuant to 18 AAC 75.370, to prevent contaminating storm water runoff.

Once all impacted soil has been removed from the property, Brice will barge the material to the Kodiak Granite Quarry, a site they lease, for temporary storage until a larger barge is available to transport it to Seattle. SuperSacks® will be stored upright, maintaining a distance of at least 100 feet from surface waters and 200 feet from the nearest drinking water source in compliance with 18 AAC 75.370, until transportation to Seattle can occur. Upon arriving in Seattle, impacted soil will be delivered to Waste Management who will transport impacted soil onto rail cars and transport impacted material to their Columbia Ridge Facility for final disposal.

Prior to the transport or disposal of contaminated soils Ocean Beauty will prepare and submit an ADEC *Transport Treatment, & Disposal Approval Form for Contaminated Media* to the ADEC. A draft copy of this form has been completed using an estimated soil volume of 460 cubic yards and is available in Appendix C. Following completion of soil excavation, a revised form will be submitted with the final report.

5.1.4 Soil Laboratory Methods

All laboratory soil samples will be analyzed for GRO compounds by Method AK101, DRO by Method AK102, VOCs by EPA Method 8260C (including BTEX), and lead by Method 6020B. Additionally, samples collected within and from the vicinity of the tank farm will be analyzed for RRO by Method AK103 in addition to the analysis mentioned above. For each source area, PAH analysis shall be performed on a sufficient percentage of samples of the most likely contaminated locations based on field screenings and site observations to determine if PAHs are contaminants of concern. At a minimum, one sample for every 10 laboratory samples will be analyzed for PAH by EPA Method 8270D SIM. Table 7 below shows the proposed analytical methods and sample requirements for confirmation and excavation samples.

Table 7: Analytical Methods and Sample Requirements for Soil

Method	Matrix	Container (jars)	Preservative	Hold time
AK101 (GRO)	Soil	1, 4-oz prewt'd amber	MeOH and 0-6° C	14 days
AK102 (DRO)	Soil	1, 4oz amber glass	0-6° C	14 days
AK103 (RRO)	Soil	1, 4oz amber glass	0-6° C	14 days
8260D (VOCs)	Soil	1, 4-oz prewt'd amber	MeOH and 0-6° C	14 days
8270D SIM (PAH)	Soil	1, 4oz amber glass	0-6° C	14 days
SW6020 B (Lead)	Soil	1, 4oz amber glass	0-6° C	14 days

Soil samples destined for volatile analysis will be collected first, followed by samples collected for non-volatile analysis. Pre-weighed and pre-labeled soil sample containers will be filled to a volume (mass) ranging from 25 to 50 grams of soil (approximately 1/3 container volume) and will be immediately preserved by pouring methanol over the soil and promptly securing the Teflon-lined container lid. Care will be taken to ensure soils are completely covered with preservative provided by the analytical laboratory in pre-measured 25mL portions. Should more than 25mL of preservative be required for a given sample, documentation of total preservative volume will be recorded in the field notes and on the laboratory Chain-of-Custody.

Sample Field Preparation
Sampling shall be performed in accordance with the applicable regulations:

- All samples will be collected using disposable or cleaned and decontaminated sampling equipment;
- Field personnel shall wear disposable gloves, safety goggles, steel-toed boots, hard hat, reflective vest, and other appropriate Class D personal protective equipment (PPE). Gloves and sampling devices will be changed between samples;
- Samples will be collected as quickly as possible and placed in laboratory supplied containers;
- Soil for analytical sample testing will not be obtained from field screening sample material;
- All samples will be labeled; and
- All samples will be preserved in accordance with laboratory specifications.

Brice estimates that the work plan can be completed in 18 days. 3TA will make every effort to ensure that laboratory samples are submitted to SGS within the accepted hold times. However, due to the project's remote location and factors such as weather, 3TA may face challenges in meeting certain hold times. If hold times are exceeded, 3TA will mention so in the ADEC Data Review Checklist and will work with SGS to ensure data quality and usability are not affected.

5.2 Proposed Surface Water Cleanup Activities

3TA will remove contaminated water currently pooled within the secondary containment to access contaminated sludge and soil beneath the facility's containment. 3TA proposes treating impacted water using a water scrubber in combination with two granular activated carbon systems (GACs).

Treated water will then be discharged into the natural drainage area west of the secondary containment. The natural drainage area will later be excavated and impacted soil will be disposed of as part of the site cleanup discussed in Section 5.1. After the natural drainage area has been excavated, 3TA will collect a water sample from the cliff drainage where previous samples (CD1 and CD2) detected TAqH analytes as discussed in Section 5.2.4.

3TA plans to visit the site before carrying out the cleanup activities outlined in Section 5.1. During this visit, they will collect a sample from the secondary containment to assess whether lead may be a potential contaminant of concern. 3TA will also collect a treated water sample from the proposed treatment system to evaluate its effectiveness in removing petroleum hydrocarbons and potential lead contamination. The following steps (5.2.1 – 5.2.3) outline the methods 3TA will use to ensure that any contamination in water pooled within the secondary containment is properly treated before being discharged into the natural drainage.

5.2.1 Step #1: Collect Water Sample and Analyze for Petroleum and Lead

Previous work at the site has identified petroleum, specifically DRO and RRO, as contaminants of concern. Prior to initiating cleanup activities, 3TA will visit the site to collect a water sample, along with a duplicate sample, from the secondary containment to determine if lead is also a potential contaminant of concern. This sample will be taken alongside a treated effluent sample described in Section 5.2.2

3TA personnel will collect the water sample within the secondary containment at the sample location that detected lead at its highest concentration during the site visit in September of 2022. 3TA will collect a sample of the entire water column using a coliwasa tube. The sample will be immediately transferred to the laboratory-supplied sample container.

The laboratory water sample will be analyzed for DRO, RRO, VOC, PAH, and lead by EPA Method SW6020. Table 8 below shows the proposed analytical method and sample requirements for the pre-treatment water sample.

Table 8: Analytical Methods and Sample Requirements for Pre-Treatment Water Samples

Method	Matrix	Container (jars)	Preservative	Hold time
AK102 (DRO)	Water	1, 1 L amber glass	HCL and 0-6° C.	14-40 days
AK103 (RRO)	Water	1, 1 L amber glass	HCL and 0-6° C.	14-40 days
8260D (VOC)	Water	3, 40 mL amber glass VOA vial	HCL and 0-6° C.	14 days
8270D SIM (PAH)	Water	2, 1 L amber glass	0-6° C.	7-40 days
SW6020 Lead	Water	1x250 ml HDPE	HNO3 and 0-6° C	180 days

Sample Field Preparation
Sampling shall be performed in accordance with the applicable regulations:

- The sample will be collected using disposable or cleaned and decontaminated sampling equipment;

- Field personnel shall wear disposable gloves, safety goggles, steel toed boots, hard hat, reflective vest, and other appropriate Class D PPE;
- Sample will be collected as quickly as possible and placed in laboratory supplied containers;
- Sample will be labeled; and
- Sample will be preserved in accordance with laboratory specifications and cooled to a temperature of 0 to 6 degrees Celsius.

5.2.2 Step #2: Demonstrate Effectiveness of Treatment System

After collecting the pre-treatment sample for lead, 3TA personnel will collect a treated water sample from the proposed treatment system (Absorbent W® water scrubber and GACs) to demonstrate its effectiveness at removing petroleum and potential lead contamination.

3TA will pump water from the secondary containment into an Absorbent W® water scrubber. To minimize the transport of sediment from the base of the containment area, the pump will be placed inside a perforated 5-gallon bucket. Water treated by the water scrubber will then flow through a Acti-R GAC, designed to remove DRO and RRO, followed by a BC830 GAC, specifically designed to remove metals, including lead. Based on the DRO and RRO concentrations observed in 2021, the manufacture of the GACs (Pacific Coast Carbon) calculated that the total carbon required prior to DRO and RRO breakthrough is 13.31 pounds. 3TA will ensure that more than 13.31 pounds of carbon are in each GAC system. Specifications for each proposed GAC and 3TA correspondence with the manufacture are provided in Appendix D.

To prevent the potential spread of contamination, treated water will be directed back into the secondary containment until 3TA provides analytical results to ADEC, confirming the treatment system effectively removes contaminants from the pooled water before discharging water to the natural drainage west of the containment.

The treated water sample will be analyzed for lead by EPA Method SW6020, DRO by method AK102, RRO by method AK103, VOCs by EPA Method 8260C, and PAH by EPA Method SW8270D-SIM. Table 9 below shows the proposed analytical methods and sample requirements for the treated water sample.

Table 9: Analytical Method and Sample Requirements for Treated Water

Method	Matrix	Container (jars)	Preservative	Hold time
8260C VOC	Water	3, 40 mL amber glass VOA vial	HCL and 0-6 degrees C	14 days
AK101 (GRO)	Water	3, 40 mL amber glass VOA vial	HCL and 0-6 degrees C	14 days
AK102 (DRO)	Water	1, 1L amber glass	4 degrees C.	14 days
AK103 (RRO)	Water	1, 1L amber glass	4 degrees C.	14 days
SW 8270D SIM (PAH)	Water	2, 250 mL amber	0-6 degrees C	14 days
SW6020 Lead	Water	1, 250 ml HDPE	HNO3 and 0-6 degrees C	180 days

Sample Field Preparation
Sampling shall be performed in accordance with the applicable regulations:

- The sample will be collected using disposable or cleaned and decontaminated sampling equipment;
- Field personnel shall wear disposable gloves, safety goggles, steel toed boots, hard hat, reflective vest, and other appropriate Class D PPE;
- Sample will be collected as quickly as possible and placed in laboratory supplied containers;
- Sample will be labeled; and
- Sample will be preserved in accordance with laboratory specifications and cooled to a temperature of 0 to 6 degrees Celsius.

Brice estimates that the work plan can be completed in 18 days. 3TA will make every effort to ensure that laboratory samples are submitted to SGS within the accepted hold times. However, due to the project's remote location and factors such as weather, 3TA may face challenges in meeting certain hold times. If hold times are exceeded, 3TA will mention so in the ADEC Data Review Checklist and will work with SGS to ensure data quality and usability are not affected.

5.2.3 Step #3: Implement Treatment Process During Cleanup Activities

3TA personnel will inspect the pooled water in the secondary containment prior to removal. If sheen is observed, absorbent pads will be placed on the water's surface to remove the sheen. Once the sheen is removed, 3TA will pump the water from the secondary containment into the Absorbent W® water scrubber. To minimize sediment transport from the base of the containment area, the pump will be placed inside a perforated 5-gallon bucket. The treated water will then flow through the Acti-R GAC and BC830 GAC, after which treated water will be discharged into the natural drainage area west of the containment. Treated water will be monitored for sheen during discharge. If sheen is observed, water will not be discharged. The proposed discharge location is shown in Figure 6 in Appendix A. To minimize surface erosion, a non-erodible material (e.g., plywood or rock) will be placed at the point where the water exits the hose.

3TA personnel will inspect the Absorbent W® pads at the end of each day while the water scrubber is in use. If the pads appear stained, they will be replaced. Spent pads will be containerized in 55-gallon drums for disposal at the Kodiak Island Borough Landfill.

3TA anticipates dewatering the secondary containment at a rate of three to five gallons per minute. At this rate, 3TA expects to remove and treat pooled water within three days.

5.2.4 Cliff Drainage Sample

After the natural drainage area has been excavated as discussed in Section 5.1, 3TA will collect a water sample from the cliff drainage where previous water samples (CD1 and CD2) detected TAqH analytes.

The surface water sample will be analyzed for TAH by method EPA 602 and TAqH by method EPA 625M SIM. Table 10 below shows the proposed analytical methods and sample requirements for the treated water sample.

Table 10: Analytical Method and Sample Requirements for Cliff Drainage Water

Method	Matrix	Container (jars)	Preservative	Hold time
EPA 602/624 (TAH)	Water	3, 40 mL amber glass VOA vial	HCL and 0-6 degrees C	14 days
EPA 625M SIM (TAqH)	Water	1, 1L amber glass	4 degrees C.	14 days

Sample Field Preparation
Sampling shall be performed in accordance with the applicable regulations:

- The sample will be collected using disposable or cleaned and decontaminated sampling equipment;
- Field personnel shall wear disposable gloves, safety goggles, steel toed boots, hard hat, reflective vest, and other appropriate Class D PPE;
- Sample will be collected as quickly as possible and placed in laboratory supplied containers;
- Sample will be labeled; and
- Sample will be preserved in accordance with laboratory specifications and cooled to a temperature of 0 to 6 degrees Celsius.

6.0 FIELD AND SAMPLING PROTOCOLS

6.1 Standard Operating Procedures

The standard operating procedures (SOP) for this project fall into two categories, field SOP and laboratory SOP. Throughout the sampling effort, laboratory hold-times and sample temperatures shall be maintained. The laboratory SGS Quality Assurance Project Plan is filed at the laboratory and 3TA. Thus, the SOP contained herein refers to generic field sampling and sample preparation.

6.1.1 Field Sampling SOPs

Field personnel shall keep detailed notes that include:

- Project name/Site ID/Client/Page Number;
- Date;
- Weather, site conditions, and other salient observations;
- Full name of onsite personnel, affiliations, and project title e.g., team leader (including all visitors);
- Daily objectives;
- Time and location of activities;
- Field observations and comments;
- Deviations from this site-specific work plan;

- Photographic log (photographic name, description of photograph, date, and time);
- Site sketches with reference to north direction, sample and field screening locations and depths, and onsite groundwater flow direction;
- Survey and location (latitude and longitude coordinates when possible);
- All field measurements (e.g. field screening results);
- Daily equipment calibrations and maintenance;
- Sample record (sample identification, date, time, media, number of samples, and location);
- Cleanup or remediation activities (system performance, system calibration or maintenance record, excavation activities and volume of material removed); and
- Waste tracking (when, how much, destination).

Site drawings shall be included within the field notes as part of the cleanup. Site drawings should include a north arrow, and, if applicable, at least one permanent identifying feature (such as a building). All samples collected (screening and analytical) should be noted in the figure. Alternatively, sample locations may be indicated on a field copy of project design drawings where applicable. If recording on project design drawings, the drawing set shall be included with field notes during reporting.

All laboratory sampling locations shall be documented on a field copy of the project design drawings or in separate plan view site drawings within the field notes. If applicable, the sampling location cross-sectional view may be drawn. Any unusual characteristics of the sampling location and any problems encountered during sample collection shall also be recorded for each sample location. GPS coordinates of each sample location shall be documented within the field notes. Sample location names shall be a unique alpha-numeric identifier.

Field notes will be collected in an all-weather notebook. The notebook utilized will not be dedicated solely to this project, but only information relevant to the project will be included on the pages assigned. Combined project field notebooks reduce project costs and minimize waste generation.

Field notes will be written in pen, pencil, or water-resistant marker. When field conditions result in illegible content due to dirt, precipitation, or poor penmanship, field notes will be recopied immediately after field activities.

6.1.2 Field Sample Preparation SOP

All samples will be prepared in accordance with laboratory instructions. At a minimum, the following information will be included on the sample label:

- Client name;
- Date and time of sample collection;
- Sampler;
- Sample location;

- Preservative; and
- Analytical test(s) to be run.

In addition, the above information will be recorded in the field notes. Chain of Custody records will be maintained for each sample. Samples will be kept between zero (0) and six (6) degrees centigrade (°C). The field technician will place custody seals on all coolers to determine if the samples may have been tampered with while being transported to the laboratory. The laboratory will notify 3TA in such an event so that a decision can be made on whether re-sampling is necessary.

6.1.3 Field Decontamination Procedures

Decontamination procedures for equipment and personnel are described in the following sections.

6.1.3.1 Equipment

After working in an area of contamination and before moving equipment to another area, equipment and tools shall be decontaminated to remove soil that may contain contamination. Tracks, tires, buckets, blades, and containment vessels of heavy equipment shall be swept clean of adhering soil. Buckets and blades of heavy equipment shall be sprayed with a solution of Alconox® or Citrisol and wiped down with paper towels or rags until all soil is removed. Cleaning solution shall be applied such that it does not drip or run off the equipment but is absorbed by paper towels or rags used to wipe the equipment. All decontamination waste from the site shall be placed in contractor trash bags for proper disposal.

Decontamination of small hand tools including the washing of reusable sampling equipment such as sampling spoons/trowels will be conducted by spraying Alconox® solution or Citrisol on the tools and rinsing them twice with clean water.

All decontamination waste from the site shall be placed in a drum, contractor trash bag, or other appropriate container for proper disposal as described in Section 8.0.

6.1.3.2 Personnel

In the presence of contaminated soil, all personnel may elect to don disposable coveralls, booties, and gloves. Disposable nitrile gloves shall be worn by the QEP during the collection and handling of all soil samples for field screening and laboratory analysis. All worn disposable PPE must be collected at the end of the day and disposed of in accordance with Section 8.0 Investigation Derived Waste.

6.2 Field and Laboratory Calibration Methods

All field and laboratory procedures requiring instrument calibration will be conducted according to the applicable Environmental Protection Agency (EPA) methods, the ADEC methods, and standard operating procedures. The manufacturer’s service representative calibrates the PID annually. The PID will also be calibrated with fresh air and a 100-ppm isobutylene calibration standard daily before it is potentially used. The EPA checks the calibrations traceable quality control standards for the laboratory.

6.3 Routine and Periodic Quality Control Activities

SGS, an ADEC CS-LAP approved laboratory, will be used for all project analyses. This section describes the methods used for determining the quality of laboratory results.

6.3.1 Field Quality Control Samples

Field personnel will take two types of field quality control samples. These are sample duplicates and trip blanks. The objective and frequency of these samples are discussed below.

3TA will not collect field blanks or equipment blanks. 3TA will rely on field duplicates and trip blanks for quality control and determination of artificially introduced contamination.

6.3.1.1 Field Duplicates

Field duplicates are samples collected simultaneously from the same sampling locations. Field personnel will use identical sampling methods to retrieve one duplicate for every 10 samples for each sample matrix and each analyte. Field duplicate samples will be collected from screening locations exhibiting the highest PID heated headspace screening results. Field personnel will split one sample for duplicate analysis from the excavation and will follow the same Quality Assurance/Quality Control (QA/QC) methods for collecting, packaging, recording, and shipping the duplicate samples as all other samples. Duplicate samples will be submitted blind to the lab and analyzed for the same analyses as all the other samples.

6.3.1.2 Trip Blank

Trip blanks are samples prepared from sterile media at the laboratory and shipped with the sample containers. Trip blanks remain with the samples after collection and are analyzed for volatile compounds. This analysis determines if any cross-contamination occurred during shipping. Field personnel will never open the trip blank containers during the entire sampling process. Field personnel will use one trip blank per cooler. If the laboratory finds any contamination within the trip blank, the results will be used to evaluate any possible impacts on associated samples.

6.3.1.3 Field Blank

3TA will not collect field blanks for this project. The total number of laboratory samples to be collected is unknown. Therefore, the volume of analyte-free water required cannot be estimated prior to beginning site activities. The remote location and the logistical challenges associated with transporting an unknown (and potentially large volume) of analyte-free (de-ionized) water to the site would result in a significant economic and operational burden.

6.3.1.4 Equipment Blank

3TA will not collect equipment blanks for this project. The total number of laboratory samples to be collected is unknown. Therefore, the volume of analyte-free water required cannot be estimated prior to beginning site activities. The remote location and the logistical challenges associated with transporting an unknown (and potentially large volume) of analyte-free (de-ionized) water to the site would result in a significant economic and operational burden. 3TA will conduct thorough field decontamination procedures as described in Section 6.1.3.

6.3.2 Laboratory Quality Control Samples

The project laboratory will use matrix-spiked samples, spiked duplicates, surrogates, method blanks, duplicates, and laboratory control samples to measure data quality. Matrix spiked samples and laboratory control samples assess sample matrix interference and analytical errors and accuracy. Surrogates evaluate the accuracy of an analytical measurement. Method blanks check for laboratory contamination and instrument bias. Duplicates measure the precision of the analysis.

The laboratory will use one method blank per sample period and use one laboratory control sample. The laboratory will use a surrogate spike for every sample, standard, and blank. The laboratory will use one matrix spike per sample period.

6.4 Data Reduction, Validation and Reporting

Data reduction is conducted by the analyst. All calculations are made as specified by the analytical method. Units are reported as mg/Kg, μg/Kg, or as otherwise called for in the method. Analytical data reports will include:

- Client name;
- Date and time of sample collection;
- Sample location;
- Date and time samples received at the laboratory;
- Date analysis completed;
- Laboratory sample ID number;
- A list of parameters analyzed;
- The analytical method number for each parameter; and
- Concentration of each parameter.

The laboratory will forward a copy of the completed analytical results to 3TA. Upon receipt of the analytical laboratory report, 3TA will review the data and complete the ADEC Laboratory Data Review Checklist.

7.0 SITE SPECIFIC SAFETY

3TA personnel shall abide by all Ocean Beauty and Brice safety guidelines while operating on the site.

7.1 Hazard Assessment

Project hazards include typical construction hazards (noise, heavy equipment, excavations, slips trips and falls, etc.) and potential exposure to petroleum products.

Contaminated soil will be encountered during this project and the potential exists for contact and ingestion of soils. The project will consist of work outside, so the work site will be well ventilated and windy; the complete pathways associated with inhalation of outdoor and indoor air are not considered a risk at this time.

7.2 Site Control

Workers and the public shall be protected from construction and chemical hazards associated with excavation within a contaminated area by marking public areas, work areas, and excavations. All workers shall operate in accordance with contractor operations and safety plans. Excavations that are left open at the end of a shift shall be marked with tape and/or blocked off with a barricade.

7.3 Monitoring

No air quality monitoring or vapor intrusion sampling is proposed at this time.

7.4 Personal Protective Equipment

All workers who have contact with the soil in contaminated areas may elect to wear disposable coveralls, booties, and gloves (in addition to typical worksite PPE including safety-toe shoes, safety glasses, high visibility clothing, hardhat, and hearing protection). Workers may wear respiratory protection in accordance with Occupational Safety and Health Administration requirements and comply with the contractor's respiratory protection program.

8.0 INVESTIGATION DERIVED WASTE

Decontamination waste, spent Absorbent W pads, disposable PPE, disposable sampling equipment, old liners, and all other investigative derived solid waste shall be placed in labeled drums, 5-gallon buckets, contractor trash bags, or other appropriate containers. After project completion, 3TA will transport containers that contain investigative derived waste back to Kodiak and dispose of waste into the Kodiak Island Borough Landfill.

Excavated soil will be managed as described in Section 5.1.3. Ocean Beauty has selected to remove and dispose of contaminated soil at the Columbia Ridge Landfill.

Liquid waste from decontamination wash water will be minimized to the maximum extent possible. Equipment shall be sprayed with a solution of Alconox® or Citrisol and wiped down with paper towels or rags until all soil is removed. Cleaning solution shall be applied such that it does not drip or run off the equipment but is absorbed by paper towels or rags used to wipe the equipment. In the event that any wash water is generated, wash water will be collected and run through an Absorbent W® Water scrubber and GAC. Discharge water will be monitored for sheen and odor. This process will be repeated as many times as necessary if sheen or odor are detected. Water scrubber effluent will be discharged more than 100 feet from any surface water. Care will be taken to ensure that water scrubber effluent does not erode surrounding soils near its discharge point. Absorbent W® pillows will be replaced as needed.

At the end of the project, 3TA will collect a TCLP sample from each GAC filter media to ensure spent media is not classified as hazardous waste. If the GAC fails the TCLP test for any VOC analytes or lead, 3TA will manifest the GAC and send it to a permitted Treatment, Storage, and

Disposal (TSD) facility for disposal. If the media is not classified as hazardous waste. 3TA will dispose of media at a state permitted landfill (Kodiak or Anchorage).

9.0 PROJECT SCHEDULE

Proposed site work is planned to begin during the 2025 field season. 3TA will notify the ADEC project manager by phone or email 10 days prior to beginning site work.

Development of a written report shall occur following the receipt of laboratory data. Currently, laboratory turn-around times range from approximately six to eight weeks. The development of a complete report is estimated to be completed within four weeks following receipt of laboratory data.

10.0 DELIVERABLES

3TA will document daily operations within the field notes or a formal daily report. This daily report should include weather, site activities, QC activities, safety issues and includes a general summary of the work completed. As necessary, this report will also include information regarding the volume of contaminated soils excavated, the extent of the excavation, identification of additional contamination or alternate contaminant sources (if any), and any other information pertinent to daily activities. Should additional contamination be encountered or site conditions or work warrant, daily reports may be submitted to ADEC.

The data deliverables for the project shall include at the completion of the project a written report summarizing field activities, results, and conclusions. The report shall specifically address the following information:

- Site investigation overview;
- Laboratory result summary for confirmation and excavation samples;
- Laboratory results;
- Data Validation and Completion of ADEC Laboratory Data Review Checklist;
- Field observations;
- Investigation findings; and
- Recommendations for future site work, if necessary.

11.0 CONCLUSIONS

A written report summarizing cleanup activities and describing actions taken at the site will be submitted upon receiving laboratory results and completion of the project.

12.0 LITERATURE CITED

ADEC, 2024. *Field Sampling Guidance.* State of Alaska, Department of Environmental Conservation, Juneau, Alaska.

ADEC, 2020. *Contaminated Media Transport and Treatment or Disposal Approval Form*. State of Alaska, Department of Environmental Conservation, Juneau, Alaska.

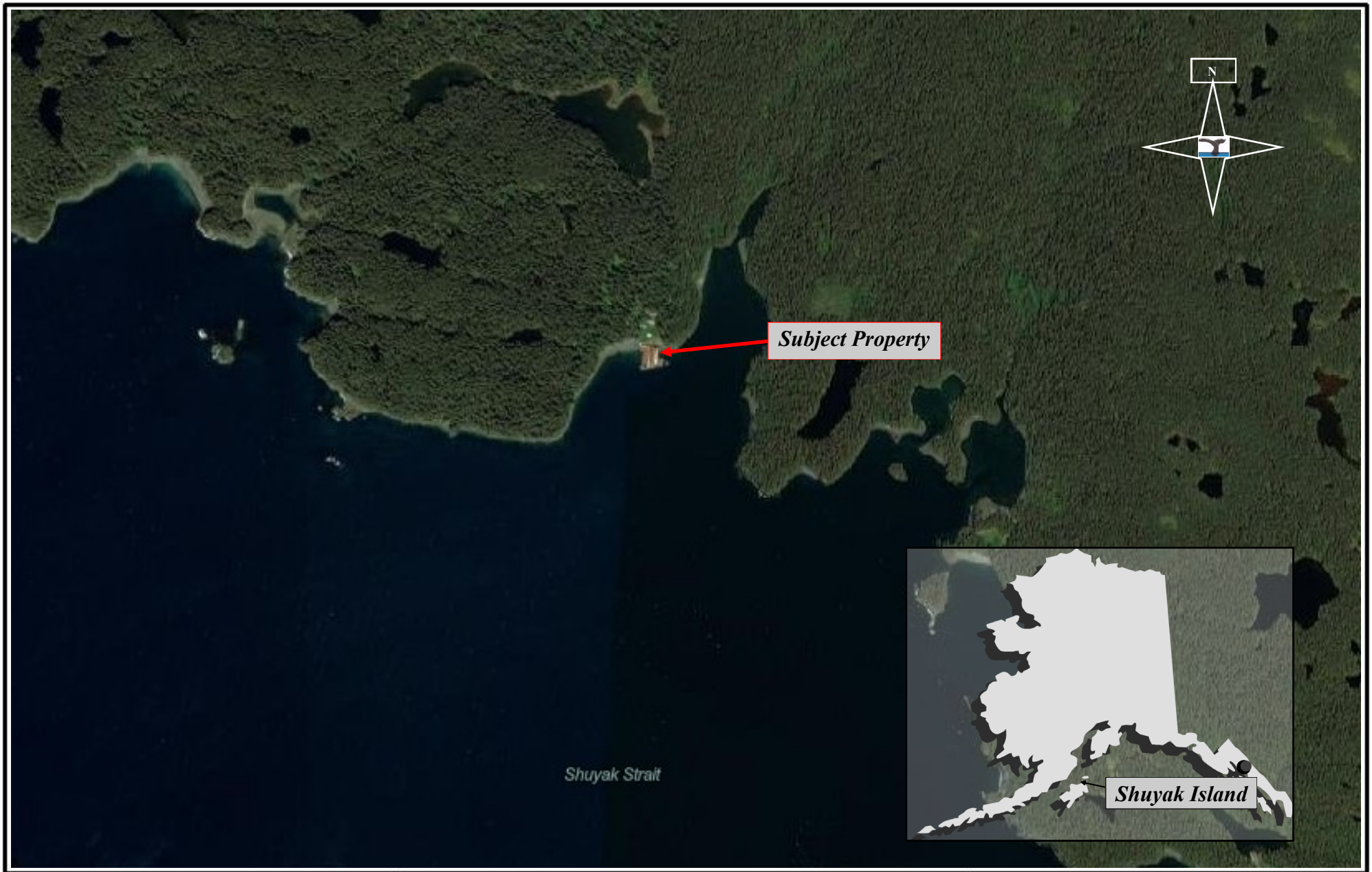
ADEC, 2019. Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data– *Technical Memorandum*. State of Alaska, Department of Environmental Conservation, Juneau, Alaska.

ADEC, 2017. *Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites.* State of Alaska, Department of Environmental Conservation, Juneau, Alaska. Anchorage, Alaska.

18 AAC 75 *Oil and Other Hazardous Substances Pollution Control, Revised as of October, 2023*. State of Alaska, Department of Environmental Conservation, Juneau, Alaska.

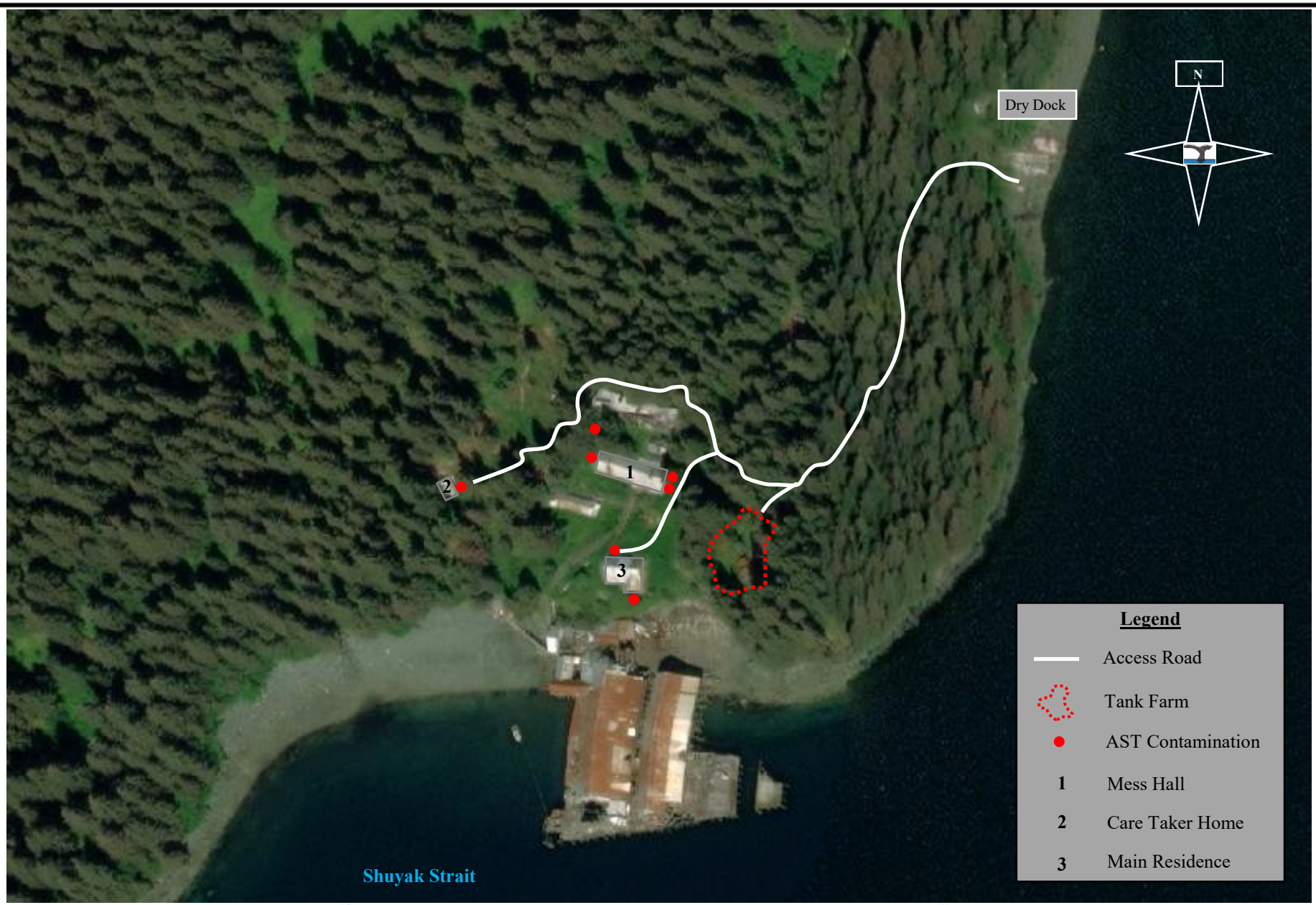
Appendix A

Figures



3-Tier Alaska 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Port William Former Cannery Cleanup Work Plan** **Shuyak Island, Alaska**	**Location and Vicinity Map** **Figure #1**

Project No: 1598-21	**File: Company/Projects/1598/21**	**Date: 2/5/2024**	**Scale: None**



3-Tier Alaska
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Port William Former Cannery Cleanup Work Plan

Shuyak Island, Alaska

Site Map

Figure #2

Project No: 1598-21	File: Company/Projects/1598/21	Date: 2/5/2024	Scale: 1” = 150’

3-Tier Alaska
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Port William Former Cannery Cleanup Work Plan

Shuyak Island, Alaska

2021 Tank Farm Sample Locations

Figure #3

Project No: 1598-21	File: Company/Projects/1598/21	Date: 6/28/2021	Scale: 1” = 25’

3-Tier Alaska 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Port William Former Cannery Cleanup Work Plan** **Shuyak Island, Alaska**	**2021 Facility Sample Locations** **Figure #4**

Project No: 1598-21	**File: Company/Projects/1598/21**	**Date: 6/28/2021**	**Scale: 1" = 65'**

3-Tier Alaska
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Port William Former Cannery Cleanup Work Plan

Shuyak Island, Alaska

2022 Tank Farm Sample Locations

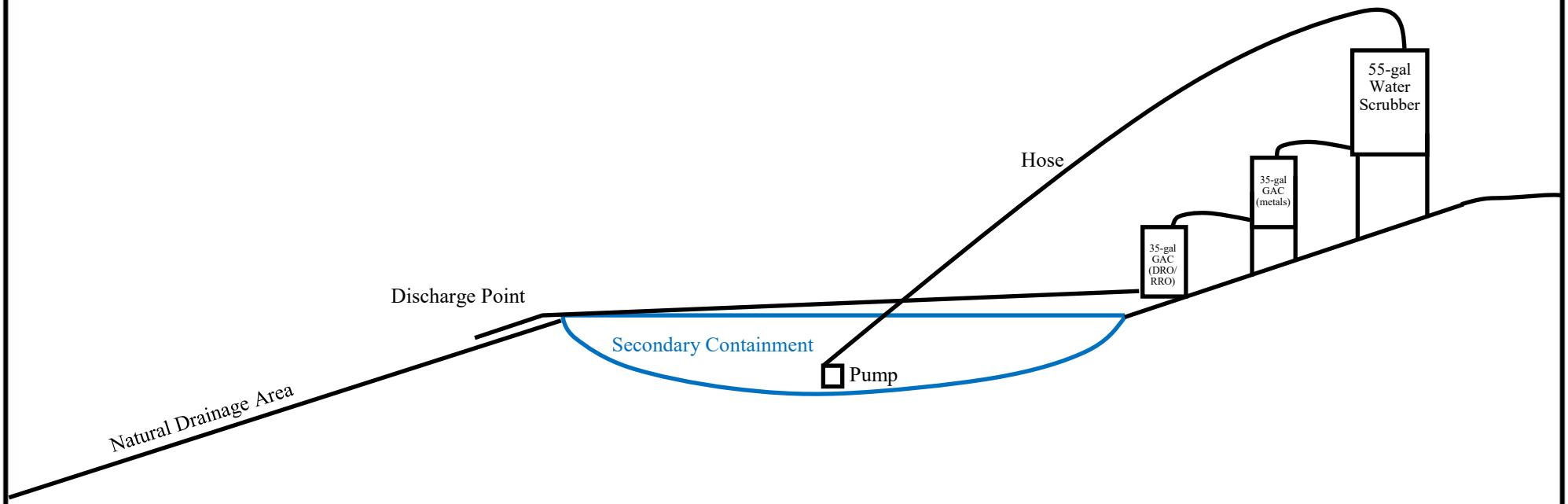
Figure #5

Project No: 1598-21	File: Company/Projects/1598/21	Date: 1/15/2025	Scale: 1” = 65’

3-Tier Alaska 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Port William Former Cannery Cleanup Work Plan** **Shuyak Island, Alaska**	**2025 Proposed Tank Farm Cleanup Location** **Figure #6**

Project No: 1598-21	**File: Company/Projects/1598/21**	**Date: 1/15/2025**	**Scale: 1" = 25'**

3-Tier Alaska 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Port William Former Cannery Cleanup Work Plan** **Shuyak Island, Alaska**	**2025 Proposed Building Cleanup Locations** **Figure #7**	
Project No: 1598-21	**File: Company/Projects/1598/21**	**Date: 1/15/2025**	**Scale: 1” = 65’**



3-Tier Alaska 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Port William Former Cannery Cleanup Work Plan** **Shuyak Island, Alaska**	**Proposed Water Treatment System** **Figure #8**

Project No: 1598-21	**File: Company/Projects/1598/21**	**Date: 1/15/2025**	**Scale: None**

Appendix B

Resumes

Casey Volk | Staff Scientist
O 907-522-4337 **E** cvolk@tpeci.com
3305 Arctic Blvd, Suite 102, Anchorage, AK 99503
www.3tieralaska.com

EDUCATION

University of Nevada, Reno — BS- Wildlife Ecology Conservation
Reno, Virginia (2010-2014)

REPRESENTATIVE EXPERIENCE

Staff Scientist - *3-Tier Alaska Capital, Inc. (formerly Travis/Peterson Environmental Consulting, Inc.)*

Staff Scientist for an environmental consulting, engineering, and survey firm. Primary duties include wetland delineation investigations, environmental permitting, and contaminated site characterization/corrective action. General duties include laboratory sample collection, work plan and report writing, conducting baseline environmental research, and coordination with clients and regulatory agencies. Additional work includes environmental records reviews, Phase I Environmental Site Assessments, bird nesting surveys, and creating Stormwater Pollution Prevention Plans (SWPPP) along with conduction SWPPP inspections.

Fish Technician II – *Alaska Department of Fish and Game*

Fish Technician duties included field technician supervision, field logistics, data entry and preliminary data analysis, and collection of biological samples. Additional duties included the installation and usage of telemetry scanning for mortality rates among Alaskan salmon. Employed while attending college.

CERTIFICATIONS

The Associated General Contractors	*Alaska Certified Erosion & Sediment ControlLead, 3/2022* *Writing a Storm Water Pollution Prevention Plan 4/23*
Environmental Management Inc	*HAZWOPER 40-hr. Initial Course, 5/2019*
Satori Group	*HAZWOPER 8-hr. Refresher 2020, 2021,2022, 2023*
Wetland Training Institute	*40-hr Army Corps of Engineers Wetland Delineation Training Program, 6/2021*
HSI	*Adult First Aid/CPR/AED, 4/2023*
US Mine Safety & Health Administration	*MSHA Part 48 Training*

EMPLOYMENT RECORD

1/2021 – present	3-Tier Alaska Capital, Inc.
4/2019 – 1/2021	Travis/Peterson Environmental Consulting, Inc.
7/2015 - 4/2019	Spectra Venue Management
5/2012 - 7/2015	Alaska Department of Fish & Game (Seasonal Permanent)

Ryan Kingsbery | Staff Scientist

O 907-522-4337
E rkingsbery@tpeci.com
3305 Arctic Blvd, Suite 102
Anchorage, AK 99503
www.3tieralaska.com

SUMMARY PROFILE

Ryan Kingsbery has 17 years of experience as an environmental scientist in Alaska and nine years with 3-Tier Alaska (formerly Travis/Peterson Environmental Consulting, Inc.). He has actively managed and been a part of more than 250 projects since his time with 3-Tier Alaska. Many of his projects were successfully completed in remote areas of Alaska involving complex logistical components with the bulk of his experience occurring in Southcentral Alaska. Much of Ryan's experience involves contaminated site characterization and cleanup effort, wetland delineation, and environmental permitting work.

Over his time with 3-Tier Alaska, he has established relationships within all involved regulatory agencies and assisted numerous clients. His key skills are maintaining clear and open communication with his clients and all involved parties.

EDUCATION

- Alaska Pacific University — Master of Science - Environmental Science (2012)
- Principia College — Bachelor of Arts - Environmental Studies (2006)

REPRESENTATIVE EXPERIENCE

Staff Scientist

3-Tier Alaska (formerly Travis/Peterson Environmental Consulting, Inc.)

Staff Scientist for an environmental consulting, engineering, and survey firm. Primary duties include wetland delineation investigations, environmental permitting, contaminated site characterization/corrective action, and bird nesting surveys. General duties include laboratory sample collection, work plan and report writing, conducting baseline environmental research, and coordination with clients and regulatory agencies. Additional work includes environmental records reviews, Phase 1 environmental site assessments, and creating Stormwater Pollution Prevention Plans.

Biological Science Technician - Seasonal

U.S. Geological Survey, Alaska Science Center

Seasonal Biological Science Technician duties included field technician supervision, field logistics, vegetation plot sampling, completing North Slope bird nesting surveys and capture effort, and data entry. Additional duties included field logistics preparations and assistance with a walrus tagging effort near Point Lay, Alaska.

CERTIFICATIONS

Richard Chinn Environmental Training, Inc.	*38-hr. Army Corps of Engineers Wetland Delineation Training Program, 5/2018*
Wetland Training Institute	*Hydric and Problem Area Soils, 6/2023*
Federal Aviation Administration	*Remote Pilot – Small Unmanned Aircraft System, #4835828, 5/2023*
Alaska Safety Alliance	*Alaska Certified Erosion & Sediment Control Lead (#ASA-21-0138)*
Frontier Safety & Supply	*HSI Adult First Aid / CPR AED (Exp. 04/2025)*
Satori Group, Inc.	*HAZWOPER 8-hr refresher, 1/2023*
Environmental Management, Inc.	*HAZWOPER 40-hr. Course, 4/2014*

Appendix C

Transport Treatment, & Disposal Approval Form

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention Preparedness and Response Programs

Contaminated Media Transport and Treatment or Disposal Approval Form

HAZARD ID # or SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL	
26872	Port William Former Cannery	
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION		
Port William; Southern End of Shuyak Island; ~50 Miles NNW of Kodiak		
CURRENT PHYSICAL LOCATION OF MEDIA	**SOURCE OF THE CONTAMINATION (DAY TANK, FIRE TRAINING PIT, LUST, ETC.)**	
Shuyak Island	Aboveground Storage Tanks	
CONTAMINANTS OF CONCERN	**ESTIMATED VOLUME**	**DATE(S) GENERATED**
DRO, RRO, VOC, PAH, and lead	460	April 2025
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)*		
NA		
COMMENTS OR OTHER IMPORTANT INFORMATION		
Impacted soil will be removed from Shuyak Island and temporarily stored at the Kodiak Granite Quarry until a barge can transport impacted soil to Seattle, Washington.		

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
Kodiak Granite Quarry (Temporarily)	57.911952°, -152.606179° (907-261-4014)
PARTY CONDUCTING CLEANUP	**ADDRESS/PHONE NUMBER**
Ocean Beauty Seafoods	1100 West Ewing Street Seattle, WA 98119 (907-440-5766)
WASTE MANAGEMENT COMPANY	**ADDRESS/PHONE NUMBER**
Brice Inc	3700 Centerpoint Dr Suite 8173, Anchorage, AK 99503 (907-275-2894)

***Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.**

Michael Link
Name of the Person Requesting Approval (printed)

President/CEO
Title/Association

Signature

1/20/25
Date

907-440-5766
Phone Number

----------DEC USE ONLY----------

Based on the information provided, ADEC approves transport of the above mentioned material. The party conducting the cleanup or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

DEC Project Manager Name (printed)

Project Manager Title

Signature

Date

Phone Number

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites and Prevention Preparedness and Response Programs

Contaminated Media Transport and Treatment or Disposal Approval Form

HAZARD ID # or SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL	
26872	Port William Former Cannery	
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION		
Port William; Southern End of Shuyak Island; ~50 Miles NNW of Kodiak		
CURRENT PHYSICAL LOCATION OF MEDIA	SOURCE OF THE CONTAMINATION (DAY TANK, FIRE TRAINING PIT, LUST, ETC.)	
Shuyak Island	Aboveground Storage Tanks	
CONTAMINANTS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED
DRO, RRO, VOC, PAH, and lead	460	April 2025
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)*		
NA		
COMMENTS OR OTHER IMPORTANT INFORMATION		
Impacted soil will be removed from Shuyak Island and temoraily stored at the Kodiak Granite Quarry until a barge can transport imnpacted soil to Seattle, Washington. Once in Seattle, impacted soil will be transported via rail carts to Columbia rioge Landfill in Arlington, Oregon.		

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
Columbia Ridge Landfill	18177 Cedar Springs Ln, Arlington, OR 97812 (541-454-2030)
PARTY CONDUCTING CLEANUP	ADDRESS/PHONE NUMBER
Ocean Beauty Seafoods	1100 West Ewing Street Seattle, WA 98119 (907-440-5766)
WASTE MANAGEMENT COMPANY	ADDRESS/PHONE NUMBER
Brice Inc	3700 Centerpoint Dr Suite 8173, Anchorage, AK 99503 (907-275-2894)

***Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.**

Michael Link
Name of the Person Requesting Approval (printed)

President/CEO
Title/Association

Michael Link Digitally signed by Michael Link Date: 2025.01.20 10:56:08 -09'00'
Signature

1/20/25
Date

907-440-5766
Phone Number

----------DEC USE ONLY----------

Based on the information provided, ADEC approves transport of the above mentioned material. The party conducting the cleanup or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

DEC Project Manager Name (printed)

Project Manager Title

Signature

Date

Phone Number

Appendix D

Supporting Documentation

SpillShield inc
Environmental Products
2000 W International Airport Road, D-2
Anchorage, Alaska 99502
907-561-6033
spillshield@ak.net

Absorbent W™

WATER SCRUBBING SYSTEM

The *Absorbent W* water scrubbing system is designed to remove hydrocarbons from wash and waste water in applications including steam cleaning of boat bilges, construction equipment and parts.

No application is too large or too small. Because of *Absorbent W's* unique ability to instantly absorb oil while repelling water it is now possible to eliminate the need for large expensive mechanical water recycling systems.

All systems are custom made right here in Alaska and are designed to meet your specific needs.

2000 W International Airport Road, D-2
Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

OILY WATER DISPOSAL PROBLEM?

There is no easier or more effective method for removing oil contamination from water than the WATER SCRUBBER.

In repeated tests with diesel, standard motor oil and gasoline in water, at initial hydrocarbon levels of 30,000 to over 250,000 ppm, the Water Scrubber removed over 99.9% of the hydrocarbons in the quick pass.

HOW THE WATER SCRUBBER WORKS

Whether tank cleaning, de-watering sludge or removing oily run-off water, simply pour the oil contaminated water in the top of the scrubber and seconds later, clear water will flow from the bottom. The Water Scrubber will extract all oils - from light fuels to heavy crude- IMMEDIATELY!

WHO CAN USE THE WATER SCRUBBER

The Water Scrubber is invaluable in machine shops, industrial settings, oily wash down stations, marinas, construction /work sites, parking lots or any place where there is danger of oil contamination entering into the water system resulting in environmental damage, costly fines or project shutdowns.

The Water Scrubber removes oil from water for a fraction of the cost of other removal systems. The light, natural filter, Absorbent W can be disposed of by incineration, bioremediation, biodegradation or landfilling, in accordance with local, state and federal regulations.

2000 W International Airport Road, D-2
Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

WATER SCRUBBER OPERATING INSTRUCTIONS

1. **Pour "Absorbent W" loose particulate in bottom of scrubber. (If you purchased a fully loaded system, this step has already been done for you)**

   Note: This step only applies to the Scrubber 30 & 55 models

2. **Fill remainder of the scrubber with "Absorbent W" open mesh pillows to 6 inches of the top of the drum.(If you purchased a fully loaded system, this step has already been done for you.)**

3. **Place water diffuser on top of pillows.**

4. **Remove plug from discharge hole.**

5. **Pour or gravity feed oily water through diffuser**

   DO NOT PUMP as this will emulsify the oil. If you must pump the oily water to get it from your location to the water scrubber, it will be necessary to pump it to a holding tank and allow the oil to settle back out of the water. You can then pour the settled solution of oily water through the Scrubber.

6. **Check water discharge and pillows periodically. When saturated to a dark grey color, change the filter media.**

Note: **Time intervals between filter media changes will vary depending on the viscosity of the oil and PPM of the oily water.**

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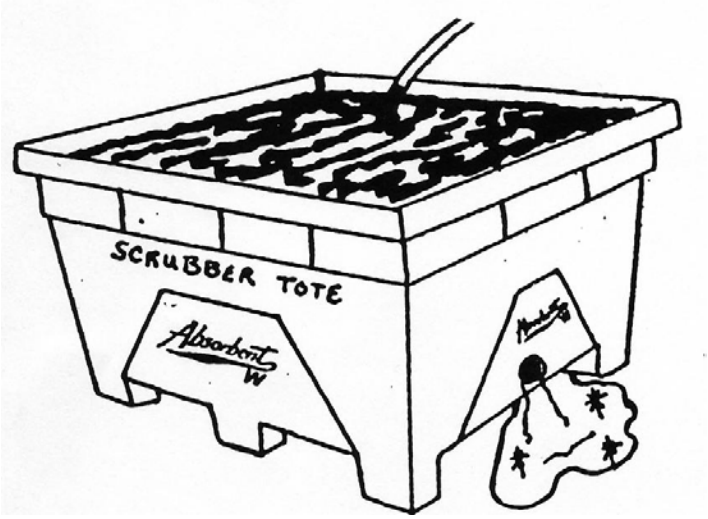
Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

WATER SCRUBBER TOTE

The Water Scrubber Tote uses a Tra-Tote as an outer casting.

It has an oil absorption capacity of 60-90 gallons depending on viscosity of oil.

The Water Scrubber Tote contains *16 of 20 liter Absorbent W Pillows*. Ship weight approximately 200 lbs.



Water Scrubber Tote	**Part # 70108**
Filter Media Refill	**Part #70108R**

The Water Scrubber Tote and the Water Scrubber 30 & 55 will handle flow rates of up to 600 gallons per hour. Filter medium (Absorbent W) life depends upon the amount of oil contamination in the water.

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WATER SCRUBBER 55

Then Water Scrubber 55 uses a 55 gallon plastic drum as an outer casting .It has an oil absorption capacity of 15-20 gallons depending on viscosity of oil. The Water Scrubber 55 contains *5 - 20 liter Absorbent W Pillows* and *1 – 50 liter bag of Loose Absorbent W*. Ship weight approximately 65 lbs.

Water Scrubber 55	**Part #70105**
Filter Media Refill	**Part #70105R**

The Water Scrubber Tote and the Water Scrubber 30 & 55 will handle flow rates of up to 600 gallons per hour. Filter medium (Absorbent W) life depends upon the amount of oil contamination in the water.

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907-561-6033 Phone
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WATER SCRUBBER 30

Then Water Scrubber 30 uses a 30 gallon plastic drum as an outer casting .It has an oil absorption capacity of 10-15 gallons depending on viscosity of oil. The Water Scrubber 30 contains *2 - 20 liter Absorbent W Pillows* and *1 – 50 liter bag of Loose Absorbent W*. Ship weight approximately 50 lbs.

Water Scrubber 30	**Part #70103**
Filter Media Refill	**Part #70103R**

The Water Scrubber Tote and the Water Scrubber 30 & 55 will handle flow rates of up to 600 gallons per hour. Filter medium (Absorbent W) life depends upon the amount of oil contamination in the water.

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Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

"THE WATER SCRUBBER"

The most cost effective way known to man to quickly and efficiently clean oil from water. Pour oil-water mix in the top and, within seconds, clear water is coming out the bottom. There is nothing that works as quickly and efficiently as the Water Scrubber.

This simple system can save money in many ways:

**** Reduced waste disposal fees**

**** Reduced hazardous waste handling costs**

**** Reduce water usage by using reclaimed water**

**** Eliminate fines related to pollution from oil contaminated outflow**

**** Extend the life of expensive filter systems such as activated carbon.**

The Water Scrubber's performance is based on Absorbent W's unique ability to instantly absorb oil while repelling water. Absorbent W is a natural fiber cellulose material that selectively absorbs and retains hydrocarbons. Absorbent W has many benefits including:

**** Supports a wide range of disposal alternatives**

**** Safely burnable...producing no toxic byproducts.**

**** Biodegradable and supports enhanced bioremediation**

**** Non-toxic material containing no silica dust, recycled inks or dioxins**

2000 W International Airport Road, D-2
Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

In repeated tests and actual operating situations, the Water Scrubber consistently removes 99.9% of hydrocarbons. Common applications have included the removal of gasoline, diesel, used motor oil and heating oil from water.

ANALYSIS OF OIL WATER MIX HAVING PASSED THROUGH AN ABSORBENT W WATER SCRUBBER

Sample	Oil in PPM	Oil out PPM	0% Removed
30 wt oil			
207-1119	250000	1	99.9996
207-1120	250000	6.5	99.9974
Diesel			
207-1121	250000	130	99.948
207-1122	`250000	20	99.992
Gasoline			
207-1123	250000	52	99.9792
207-1124	250000	89	99.9644

2000 W International Airport Road, D-2
Anchorage, Alaska 99502
907-561-6033 Phone
www.spillshield.com

Tel: (360) 727-3775 email: info@PacificCoastCarbon.com

Activated Carbon, Carbon Adsorption Systems, Change-out Services, Water Filters & Filtration Mediums, Spent Carbon Disposal & Reactivation, BioCarbon Production & Sales, Research and Development,

TYPE FS-Acti-R

Specialized Enhanced Alumina Media

APPLICATION: FS-Acti-R Alumina is the ultimate water filtration media for long lasting and cost effective reduction of arsenic, fluoride, zinc, copper, silica, lead, selenium, phosphates and nitrates.

DESCRIPTION: Our specialty enhanced alumina has extremely high capacity (2-3 times higher than non promoted enhanced medias) for metals and nutrients. The high uptake capacity and low cost per unit volume make it the most economical adsorption route for project requirements.

FS-Acti-R has the ability to remove many heavy metals including arsenic and fluoride in non-regenerating systems with a 25– 30% increased uptake capacity over other non-promoted enhances medias. It is designed for single pass use, landfill disposal is neutralized to not change the pH of influent water and passes both TCLP and California WET.

FS-Acti-R has also proven effective in remediation applications including groundwater site clean ups, storm water runoff where arsenic and other metals and nutrients are issues. High contaminant uptake capacities have FS-Acti-R being used for arsenic, fluoride, zinc, copper, silica, lead, selenium, phosphate and nitrates removal across numerous industries.

OPERATION: FS-Acti-R operates very well side by side with other proven technologies. FS-Acti-R coupled with Activated carbons, organoclay medias and many others work well in in a series setup

SPECIFICATIONS:

Particle Size (US Sieve Series)	14x28
> 14 mesh (% maximum)	5.0
< 28 mesh (% maximum)	5.0
Hardness Number (minimum)	85
Moisture (as packed, % maximum)	10

TYPICAL PROPERTIES

Bulk Density (kg/m3)	1050
Surface Area (m2/g)	280

Packaging: 2000 lb. bulk sacks / 400 pound fiber drums
(Other packaging is available upon request)
Shipping Point: Prineville, OR / Ridgefield, WA

Shipping Information: Type FS-Acti-R is exempt from provisions of IMCO 4.2, IATA A 51, IATA #395 and UN1362. The domestic freight classification is NMFC #40560; UFC #20460.

Activated Carbon Products & Services

PO Box 70096 – Vancouver, WA 98665 Phone: (360) 727-3775 Email: Info@PacificCoastCarbon.com

LSC200

SPECIFICATION SUMMARY

The **LSC200** Aqueous phase carbon adsorber is designed to treat a wide range of contaminated compounds such as dissolved phase hydrocarbons, chlorinated solvents, odorus compounds and many other contaminants. The addition of piping and valves can be configured to operate the LSC200 adsorber for series, parallel, or vessel isolation flows. The adsorber is designed with internal structures able to contain the carbon bed and achieve a maximum flow rate of 10 GPM.

EACH VESSEL:

Vessel Diameter	25”
Vessel Height	35””
Total Empty Weight / Vessel	50 lbs
Shipping Weight / Vessel	250 lbs
Operating Weight / Vessel	500 lbs.
Maximum Pressure	6 psi
Maximum Working Temperature	140 °F
Vessel Volume	55gal.
Carbon Capacity	200 lbs.
Carbon Bed Volume-Typical	7 Ft^3
Maximum Flow	10 gpm
Material	Epoxy Lined Carbon Steel
Interior Surface Coating	, Phenolic Epoxy 5 mil min dft
Exterior Surface Primer	Rust Preventative Epoxy 3 mil min dft
Exterior Surface Coating	High Solids Urethane 3mil min dft
Standard Color	Grey

CONNECTIONS:

Influent and Effluent	2” FNPT

SCREEN:

Lateral	0.010 slotted internal piping

WEIGHT:

Shipping weight (vessel & dry carbon)	250 lbs.
Operating Weight	500 lbs.

Re: Petroleum/ Lead Removal - Activated Carbon Vessel

AP
Alex Peru <alex@pacificcoastcarbon.com>
To Casey Volk
Cc Briana Munoz

Reply | Reply All | Forward

Wed 2/5/2025 12:57 PM

You replied to this message on 2/5/2025 1:26 PM.

Dear Casey,

Regarding the DRO and RRO, we cannot provide precise compound capacity and breakthrough data. These compounds can originate from various contaminants, each with different adsorption and equilibrium capacities.

We can, however, offer a worst-case scenario analysis and provide a "broad stroke" isotherm review.

Below are the results for your reference:

* Isotherm Data
* DRO = 2200 µg/L
* RRO = 1630 µg/L
* Flow rate: 5 GPM
* Total water to be treated: 13,000 gallons

* **Total carbon required prior to DRO & RRO breakthrough:=13.31 pounds of carbon**

Please note that these isotherm results assume optimal conditions, including consistent influent contaminant concentrations, proper contact time between contaminated water and adsorber media and even water distribution within the adsorber (hydraulic loading)

Your actual breakthrough data may necessitate using more adsorption media to achieve the required hydraulic loading and contact times for proper treatment.

Best regards,
Alex Peru

O. 360-727-3775