Draft Work Plan for Soil Removal at Aboveground Storage Tanks Containment Area

Deadhorse, Alaska

June 2014
Rev July 2014

CH2M HILL
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INTRODUCTION

This combined work and field sampling plan (WP) provides background information and describes the removal action of contaminated soil located in a containment area constructed to contain above ground diesel fuel storage tanks. The primary objective of data collection is to assess whether any surface, subsurface, or groundwater (if present) contamination is associated with this site. The expected contaminants of concern (COCs) are petroleum hydrocarbons (diesel-range organics [DRO] and associated polycyclic aromatic hydrocarbons (PAHs).

Figures are at the end of this WP. Standard Operating Procedures (SOPs) referenced in this WP are provided in Appendix A.

1 Site Location and Climate

Deadhorse is the northern terminal for construction and operation of the Trans-Alaska Pipeline at the northern end of the Dalton Highway. Deadhorse is located five miles south of Prudhoe Bay on the northern coastal plain of Alaska, about 490 miles north of Fairbanks. There is no actual town or village of Deadhorse; Deadhorse is an unincorporated community in the North Slope Borough in Prudhoe Bay. Deadhorse was established in the 1970s to support oil development in the area. The 2010 census data reports a population of 2,174 (Alaska Department of Commerce, Community, and Economic Development). Almost all residents are employees of oil drilling or oil-support companies, and work long consecutive shifts. Living quarters and food are provided to the workforce, and there are a number of recreational facilities. As a worksite, oil is the focus of the local culture.

Deadhorse has an arctic climate characterized by long cold winters, short cool summers, low annual rainfall, and persistent wind (Alcorn and Dorova, 1995). Climatic data for Deadhorse are measured and recorded several kilometers away at Prudhoe Bay (Western Regional Climate Center [WRRC], 2014).

For the period 1981 through 2010, the annual mean maximum temperature was 18.2 degrees Fahrenheit (°F) and the annual mean minimum temperature was 5.9°F (WRCC, 2014). Annual precipitation averaged 4.04 inches of rainfall and 33.1 inches of snowfall (WRCC, 2014). Wind speeds average 12 miles per hour (mph), and the prevailing directions are northeasterly and easterly (BP Exploration Alaska Inc. [BP], 2013)). Maximum wind speeds in the area are around 56 mph. The winds are calm less than 10% of the time (BP, 2013).

1.1 Site Characteristics

Two aboveground storage tank containment areas are located on the Sag River Road at the CH2M HILL Facility in Deadhorse, Alaska. The subject above ground storage tank (AST) containments are located along the west side of the Sag River Road at the intersection of Sag and Spine Road. Figure 1 shows the project area.

1.1.1 Topography

Both containment areas are located in a developed industrial area. The terrain is flat and built up with gravel. Vegetation within the general Deadhorse area is characterized as wet tundra consisting of a mosaic of wet grass and sedge tundra in low, poorly drained areas and dwarf shrub communities on drier sites (Alcorn and Dorova, 1995).

1.1.2 Hydrogeology

Deadhorse is in an area of thick, continuous permafrost which may extend to depths of 2165 feet (Alcorn and Dorova, 1995). The layer above the permafrost that thaws each summer and refreezes each winter is referred to as the "active layer" (the thickness of which is typically about 2 feet, rarely exceeds 3 feet, and varies depending on soil texture and vegetation type (Alcorn and Dorova, 1995)). Most buildings and other structures in the Deadhorse area are built on man-made gravel pads that are about 5 to 8 feet thick. The active layer on the pads may exceed 3 feet, but the thaw will not reach the underlying soil because the pads are designed to insulate the soil and keep it frozen year round. Liquid hazardous waste spilled on the gravel pads can be expected to infiltrate through the gravel and accumulate on the frost table.

Soils in the immediate Deadhorse area are classified as loamy, typical of soils found over thick permafrost and are characterized by high porosity and low permeability, i.e., poorly drained. The soils immediately east of Deadhorse, near the Sagavanirktok (Sag River) River, are classified as very gravelly, found on low terraces and braided flood plains consisting of gravelly stream deposits underlain by permafrost and have a higher permeability.

Permafrost controls groundwater movement on the Arctic Coastal Plain. During the brief summer thaw period, the upper 1.5 feet of the subsurface is thawed and ground water may be able to flow, but during the rest of the year, the near-surface ground water is frozen, unable to move.

Because permafrost is often virtually impermeable, it acts as a confining layer, restricting downward movement of water. The presence of this shallow confining layer similarly impedes downward infiltration of petroleum products and similar hazardous materials. Such wastes may remain at the surface or within the shallow subsurface.

The presence of deep, continuous permafrost in the Deadhorse area limits the use of ground water as a source for drinking water. Potable ground water is not known to exist in the deeper underlying sedimentary rocks below the permafrost (Alcorn and Dorova, 1995).

Drinking water is currently supplied through purchase from the North Slope Borough. Alternative drinking-water sources are limited but may be found in other surface-water sources such as from rivers or lakes that have a depth greater than 6.5 feet. Potential spills of hazardous materials pose little danger to the present drinking-water source.

1.1.3 Surface Water

Surface water is abundant in the Deadhorse area. Numerous shallow lakes, a major river, and extensive seasonal wetlands surround Deadhorse; Prudhoe Bay is approximately 5 miles north and extends to the Beaufort Sea and the Arctic Ocean. The Sagavanirktok River flows in a braided channel in a north-northeast direction to the Beaufort Sea. The west channel of the Sagavanirktok, second largest river on the North Slope, flows within 1640 feet of the Deadhorse Airport.

The Sagavanirktok River is located to the east of the site, with no connecting waterways to the site.

1.1.4 Sensitive Areas

Deadhorse is within the mapped range for moose, caribou, wolverine, wolf, brown bear, polar bear, arctic fox, short-tailed weasel, least weasel, collared lemming, brown lemming, northern red-backed vole, arctic ground squirrel, and masked, arctic and vagrant shrews. Caribou of the Central Arctic Herd calve and spend the summer on the arctic coastal plain.

1.1.4.1 Migratory Birds

Many species of waterfowl and shorebirds utilize the tundra ecosystem during the summer growing season (late May through mid-September). The vast majority of bird species that use the arctic coastal plain are migratory and therefore protected under the Migratory Bird Treaty Act. Birds generally arrive on the North Slope by the first week in June and begin nesting as soon as snow-free areas on the tundra are available. Early migrants to the area include the king eider, common eider, and glaucous gulls (DOWL Engineers [DOWL], 2004). Spring waterfowl migrants rest and feed in open water and tend to congregate around river deltas, which provide the first open water, until break-up of the tundra (DOWL, 2004). The snow-free period on the North Slope is short and for many species provides barely enough time to successfully nest and rear their young. Birds must arrive and quickly initiate nesting, lay a clutch of eggs, incubate, and rear their young before the onset of freeze-up in late September (DOWL, 2004).

Waterfowl and shorebirds feed on vegetation, invertebrates and fish found in the wetlands surrounding the Deadhorse Airport during the breeding season.

1.1.4.2 Endangered and Threatened Species

The spectacled eider (Somateria fischeri) and the Steller's eider are both listed by the USFWS as a threatened species throughout its range, and thus falls under the protection of the Endangered Species Act. Spectacled eiders nest in various densities across the Arctic Coastal Plain, as well as other areas of Alaska, and are most abundant in areas with extensive wetlands (Day et al., 1995). On the North Slope, spectacled eiders nest primarily in wet meadows, along the margins of ponds and lakes, and on islands in ponds and lakes. Eiders with young tend to use water bodies with emergent grasses and sedges as cover for the young from predators. The breeding ground of the Steller's eider is reportedly near Barrow and is reportedly and infrequent visitor to the Prudhoe Bay area (DOWL, 2004).

2 Site Description and History

The two containment areas are herein referred to as Containment Area 1 (Cont1) and Containment Area 2 (Cont2). Cont1 on Tract 48 is located south of Cont2 on Tract 46B.

Cont1 is located behind the CH2M Hill Base Operations Facility and was used to house three AST's containing diesel fuel only (Figure 2). The containment area is approximately 60 ft. by 60ft. with a 4ft. high by 6ft. wide berm. It was lined with a high density polyethylene (HDPE) liner, covering the entirety of the inside and buried into all sides of the berm. The liner has since been removed.

The ASTs were drained and removed, after which they went through the CH2M HILL wash bay for cleaning, and then delivered to a metals recycler. There are no other ASTs in the area. Figure 3 shows Cont1 as it appeared in May 2014; the vertical support members have since been removed.

The area of Cont2 measures approximately 40 feet by 20 feet and was surrounded by a 4- to 5-foot tall, 6-foot wide earthen berm. Cont2 was lined with an HDPE liner (Figure 2). A 2,000-gallon day tank storing diesel was formerly located within Cont2.

Both sites are located on an approximately 39 acre gravel pad, bordered by the Sag River Road on the west, tundra on the east, the Spine Road on the North and an additional gravel pad on the south.

2.1 Summary of Previous Investigations and Remedial Actions

A site investigation of both containment areas, including the collection of field screening and analytical soil samples, was conducted by Environmental Management Incorporated (EMI) in September of 2013 (Figures 4 and 6 for Cont1 and Cont2 respectively). No structures or tanks remain at Cont2, and Cont1 is proposed for demolition.

A MiniRae 2000 handheld photo ionization detector (PID) was used to check soil for petroleum based contamination. Twenty- three screening samples were collected at Cont1, eight from outside the berm and fifteen from inside the containment. Values ranged from 1.6 ppm to 744 ppm (EMI, 2013). From the 23 readings, 8 locations were sampled including at least one from the highest headspace reading taken outside the containment and two duplicates were collected and sent for laboratory analysis At Cont2, 18 screening samples were collected, 10 from inside the berm and above the water line (precipitation/ice), and 8 from around the outside edge of the berm. Headspace readings varied from 4.0 ppm to 35.5 ppm. From the 18 readings, 6 samples were collected from the locations of the highest headspace readings and submitted for laboratory analysis.

Surface soils only were sampled at both containment areas; sample depths of 6 to 12 inches below ground surface. Groundwater was not encountered at either area; therefore groundwater samples were not collected.

At the time of the investigation, analytical results were compared to the cleanup levels in Table B2. Method Two – Petroleum Hydrocarbon Soil Cleanup Levels (18 AAC 75.341. Soil cleanup levels; tables). Laboratory results indicated two locations at Cont1 (Cont1-K and Cont1-L) with levels of analytes above ADEC Arctic Zone Cleanup Levels listed in Table B2. Cont1-K had DRO at 22,400 mg/kg and Naphthalene at 64.5 mg/kg. Sample Cont1-L had DRO at 21,400 mg/kg. Figure 5 shows the locations of the DRO and naphthalene exceedances. A duplicate sample from Cont-1L was also taken, (Cont1A-Q) which was analyzed and had a DRO level at 25,400 mg/kg. From Table

B2, the ADEC Arctic Zone Cleanup Level for DRO is 12,500 mg/kg and 42 mg/kg for Naphthalene. Other samples from the containment had detections but none above the ADEC Cleanup level.

Analytical data from samples collected at Cont2 indicated that petroleum hydrocarbons were detected but no analyte was detected above the ADEC Arctic Zone cleanup levels. The highest result for DRO was 1150 mg/kg (sample Cont2-B1), which was less than 10% of the cleanup level of 12,500 mg/kg in Table B2 (Figure 7).

Based on the data collected during the 2013 investigation, EMI concluded that releases of POL had occurred in the past. Although EMI did not find evidence of a major leak or spill, EMI recommended the collection of five additional screening samples and one additional laboratory sample from the center of the containment to confirm whether the site met ADEC cleanup standards. Because the soil under the liner was contaminated with DRO and naphthalene, EMI recommended that all soil in the area around samples Cont1-K and Cont1-L be removed. EMI estimated the area of potential contamination to be roughly 30 by 40 feet. The full extent of the contamination is unknown; EMI stated that it may extend to the south and to an unknown depth. If a smear zone had been created from contact with seasonally varying water tables, the area of contamination could extend significantly further in any direction (EMI, 2013).

Although EMI concluded that they found no evidence of a major leak or spill at Cont2, EMI did recommend the collection of five additional screening samples and one addition analytical sample from the center area of the containment to confirm whether Cont2 meets ADEC site cleanup standards.

2.2 Assessment and Use of Existing Data

As described in the previous section, the area of potential contamination was estimated to be roughly 30 by 40 feet. The full extent of the contamination is unknown, particularly depth since only surface samples were collected.

Based on the analytical results from 2013, the main target analytes for the site are DRO and the PAH, naphthalene.

Historical site use and the EMI investigation findings suggest that the primary source of contamination if present, may be associated with past leaks or spills from the three ASTs and fueling practices. Figure 3 shows the sample locations in 2013.

No other available information has been located to indicate that spillage or leaks have occurred in the area of the containment.

Soil sampling will be conducted as described later in Section 2.5.2 of this WP. Samples will be submitted for laboratory analysis, and analytical results will be compared to ADEC cleanup levels (as specified in Title 18, Chapter 75, Article 3, Tables A2-Method One and B2 – Method Two of the *Alaska Administrative Code* [AAC]) to determine whether contamination is present and, if contamination is present, whether it is present at concentrations that exceed applicable soil and groundwater cleanup levels. Groundwater is not expected to be encountered.

2.3 Conceptual Site Model and Potential Exposure Pathways and Receptors

This preliminary conceptual site model (CSM) is intended to summarize the status of the site with respect to handling any contaminated media encountered during excavation and sampling. The preliminary SCM also identifies exposure pathways that present a risk to human health or other environmental receptors. The human health conceptual site model is shown in Figure 8.

Diesel fuels and related contaminants are subject to many natural and manmade factors which influence their phase (vapor, liquid, dissolved, adsorbed to soil, etc.), position, and overall mass with respect to time.

Petroleum products released into the environment undergo weathering processes with time. These processes can include degradation, evaporation (volatilization), diffusion and advection transport through the saturated soil stratigraphy, sorption onto soil components, leaching (transfer to the groundwater from soil media) into solution,

and entrainment (physical transport along with the groundwater). The rate of weathering is highly dependent on environmental conditions including the depth of the release below ground surface, type of soils, and depth to groundwater.

Human health exposure pathways include incidental human ingestion and dermal contact with the soil. Receptors include individuals, such as excavation workers, who may be exposed to the contaminants of concern (COSs) during and following excavation and sampling activities. Potential ecological receptors include migratory birds who nest in available nearby marshy areas or areas with have accumulated surface water. The exposure pathways are considered incomplete because the site itself is contained on the pad and there are no nesting or foraging areas within the immediate vicinity of the site.

As discussed earlier, because permafrost is often virtually impermeable, it acts as a confining layer, restricting downward movement of water. The presence of this shallow confining layer similarly impedes downward infiltration of petroleum products and similar hazardous materials. Such materials may remain at the surface or within the shallow subsurface. Drinking water is currently supplied through purchase from North Slope Borough.

ADEC has made a general determination that the presence of continuous permafrost in the Arctic zone acts as a barrier for soil contaminant migration to a groundwater zone of saturation (ADEC, 1999). Therefore, the migration to groundwater pathway does not naturally exist for sites located in the Arctic zone. Seasonally however, groundwater exists beneath the surface of the soil in the Arctic zone, and it can act as a transport medium for soil contaminants. There are no drinking water wells in the area, and a suprapermafrost aquifer is not accessed as a drinking water source. As such, the groundwater pathway is considered incomplete with the exception of the unlikely event that shallow groundwater is encountered during excavation.

There is no adjacent surface water body; groundwater is not hydrogeologically connected a surface water body.

2.4 Proposed Cleanup Levels

The COCs at the site include the following constituents which are typically associated with petroleum hydrocarbon releases into the environment:

- BTEX;
- GRO;
- DRO; and
- PAHs.

All proposed cleanup levels (CULs) are based on 18 AAC 75.341, “Oil and Other Hazardous Substances Pollution Control” (ADEC, 2012). For the petroleum hydrocarbons, CULs are based on “Table A2. Method One – Petroleum Hydrocarbon Soil Cleanup Levels in the Arctic Zone” since these cleanup levels apply to contamination related to manmade pads and roads. For hazardous substances including VOCs, SVOCs, and PAHs, CULs are based on “Table B1. Method Two – Soil Cleanup Levels Table”. The most conservative value of direct contact or outdoor inhalation within the Arctic Zone values will be used for each analyte.

2.5 Site Investigation Activities

The project objective is removal of contaminated soil to approved ADEC clean-up levels, off-site treatment of the soil, and backfill of the site with the treated soil. Sampling and analysis will be used to verify the extent of contamination and ensure all appropriate material is remediated.

The scope of work includes:

- Field investigation (field screening of soils and collected of samples for laboratory analysis)
- Removal of contaminated soil and offsite treatment
- Post-excavation soil sampling to verify cleanup levels have been achieved.
- Backfill of area with treated soil.
- Collection of five additional screening samples and one addition analytical sample from the center area of the containment to confirm whether Cont2 meets ADEC site cleanup standards.

Excavation at Cont2 is not planned during this field activity. If analytical samples indicate the presence of contamination, a separate work plan will be generated prior to excavation. The area of proposed sampling locations is shown on Figure 7.

2.5.1 Pre-Investigation Activities

Before field activities begin, staff will review work-planning documentation (including SOPs and health, safety, and the environment [HS&E] information) and will ensure that materials and equipment identified in the SOPs have been procured. The HDPE liners from both containment areas have been removed and disposed of in an onsite dumpster.

2.5.2 Soil Sampling

Soil will be continuously field screened during excavation with a photoionization detector (PID) (SOP-04). Confirmation soil samples will be collected after excavation is complete and field screening does not indicate continued presence of hydrocarbons (SOP-08). All field screening and confirmation sampling will be conducted by an ADEC "qualified person" as defined in 18 AAC 75. 990 (100), and 18 AAC 78.995 (118). The resume of the third-party field sampler is located in Appendix B.

Appendix F of ADEC's DRAFT Field Sampling Guidance lists the required analyses for soil samples where site COCs are based on diesel fuels (ADEC, 2010). All confirmation samples will be analyzed for DRO (Alaska Method AK102), GRO (Alaska Method AK101), BTEX (U.S. Environmental Protection Agency [EPA] Method SW8260C), and PAHs (EPA Method SW8270C_SIM).

Confirmation soil samples will be delivered to Arctic Fox Environmental, Inc. in Deadhorse, who will then ship the samples to TestAmerica in Beaverton, Oregon for analysis. Laboratory certifications and approval letters are found in Appendix C. TestAmerica's letter of approval UST-012, will expire on July 31, 2014; however analytical laboratories received interim approvals from ADEC in April 2014. The expiration date for all interim approved labs would remain the same, and would be pushed every 2-3 months until the Approval Officer has reviewed all outstanding applications. Once full approval is determined for a laboratory, hard copies of certificates and scopes will be issued.

Specific laboratory methods, bottle requirements, field preservation requirements, and sample volumes for these analyses will follow the requirements in Appendix D of the DRAFT Field Sampling Guidance. Sample handling procedures will be in accordance with ADEC's DRAFT Field Sampling Guidance and will follow CH2M HILL's SOP-15, Packing and Shipping of Environmental Samples, and SOP-14, Sample Handling and Custody.

Soil samples for field screening will be collected directly from the center of the excavator bucket only; a sufficient number of screening samples will be collected to ensure that all areas and locations of the excavation are adequately evaluated for potential contamination (ADEC, 2010). Excavated soils taken to an ADEC approved treatment facility are excluded from the field screening and laboratory sampling frequency in Table 2A, Excavated Soil Sample Collection Guide, of the DRAFT Sampling Guidance. Pre-treatment laboratory sampling may be required to establish that the contaminants are acceptable and suitable for treatment at the selected facility. Excavated soils will be transported to the Anchorage Interstate Construction (AIC) ADEC approved off-site soil treatment facility located in Deadhorse, Alaska.

Soil will be removed from the containment using an excavator and loaded directly into Maxi Hauler trucks as it is being excavated. There will be no temporary stockpiles during the cleanup. Soil will be hauled to AIC's site using CH2M HILL Maxi Hauler trucks.

Table 2B, Surface/ Excavation Base and Excavation Sidewall Soil Sample Collection Guide provides the sampling frequency for field screening of the excavation sidewalls and base.

- Excavation Base:
    - 0 to 50 SF - 5 screening samples
    - 51 to 124 SF – 5 screening samples
    - 125 to 250 SF - 1 per 25 SF
    - More than 250 SF -10 plus 1 per additional 100 SF, or as the ADEC determines necessary
- Excavation Sidewalls
    - For each excavation sidewall, 1 per 10 linear feet, or portion thereof, with field screening sample collection focused on soil horizon(s) demonstrated as most likely to be contaminated.

Once excavation efforts are complete, post-excavation soil sampling will be conducted to evaluate whether removal efforts were successful. Removal efforts will be considered to be complete when laboratory results confirm the remaining soil contaminant concentrations are below ADEC Method 2 cleanup levels. Confirmation samples will also be collected based on the frequencies in Table 2B:

- Excavation Base
    - 0 to 50 SF - 1 confirmation sample
    - 51 to 124 SF – 2 confirmation samples
    - 125 to 250 SF – 2 confirmation samples
    - More than 250 SF -2 samples, plus one sample for each additional 250 SF, or portion thereof; or s the ADEC determines necessary.
- Excavation Sidewalls
    - Minimum 1 per 20 linear feet, or portion thereof at the highest field screening reading in all soil horizons; or as the ADEC determines necessary (i.e. a 20'x20' excavation [80 linear feet total] would require 4 laboratory side wall samples. A 4'x4' excavation [16 linear feet total] would require 1 laboratory side wall sample).

Actual sample locations will be determined in the field based on field screening results. The excavation will be backfilled with gravel purchased from the Oxbow Gravel Pit (PUT 23).

2.5.2.1 Quality Control Samples

Field duplicate (FD) samples are defined as two (or more) field samples taken at the same time from the same location. They are intended to represent the same population and are taken through all steps of the analytical procedure in an identical manner. These samples are used to assess precision of the entire data collection activity, including sampling, analysis, and site heterogeneity. A field duplicate sample will be collected a frequency of 1 for every 10 field samples. The field duplicate sample(s) will be assigned a unique ID number in the field (SOP-14).

A matrix spike (MS)/matrix spike duplicate (MSD) is an aliquot of sample spiked with known concentrations of specific analytes. The spiking occurs before sample preparation and analysis at the laboratory. An additional sample(s) will be collected in the field to provide sufficient sample volume for performing the MS/MSD analysis. One MS and one MSD sample will be analyzed at a rate of approximately every 20 samples collected.

An equipment blank is a sample of ASTM Type II reagent-grade water poured into, poured over, or pumped through the sampling device; collected in a sample container; and transported to the laboratory for analysis. These samples may also be called “rinse blanks” or “rinsate blanks.” Equipment blanks are used to assess the effectiveness of equipment decontamination procedures. Disposal sampling equipment is anticipated for use; as such decontamination of sampling equipment is not expected. If an equipment blank is required, then it shall be collected immediately after the equipment has been decontaminated and will be included for each sampling event, as appropriate. At a minimum, equipment blanks will be collected at a frequency of 1 per installation for each decontaminated equipment type. Analysis of the equipment blank samples will match the methods and analytes requested in the associated samples.

A methanol trip blank at the rate of one trip blank per set of twenty soil samples or a minimum of one per analysis and cooler (one trip blank will accompany each cooler) will be shipped with the soil samples being analyzed for GRO, BTEX or VOCs using AK101 or 8260B field methanol preservation.

2.5.3 Equipment Decontamination

Nondedicated equipment will be decontaminated as described in SOP-13, Equipment Decontamination Procedures. At this time, it is anticipated that disposable sampling equipment will be used.

CH2M HILL will decontaminate the heavy equipment that comes into contact with excavated soil. Decontamination of equipment could include dry brushing and/or power washing. Waterless decontamination methods are preferred; however, if wet decontamination is used, water used for decontamination will be collected and contained within a drum, sampled, and disposed of based on analytical results in accordance with applicable laws and regulations. All wastewater will be disposed of offsite.

2.5.4 Sample Identification

Samples collected will be named as described in CH2M HILL’s SOP-14, Sample Handling and Custody.

2.5.5 Reporting

After the excavation and sampling activities have been completed, a report will be prepared describing field activities and the nature and extent of contamination (if any) detected during the field and confirmation sampling and analysis.

The intent of this soil removal action is to remove all contaminated soil. PID results of field screening and analytical results of the confirmation soil samples are expected to verify that residual contamination is no longer present or present at levels below ADEC cleanup levels. If screening sample results obtained at the edge of the berm, considered to be the horizontal extent of contamination, indicate the presence of hydrocarbons, additional screening samples will be collected stepping out from the berm at distances to be determined in the field. Once, samples are collected outside the bermed containment area, however, indications of the presence of hydrocarbons may not necessarily be related to, or resulting, from past AST storage and use practices. The vertical extent of contamination will be considered complete when either native soil (tundra) or permafrost is encountered or when screening levels confirmed by analytical sample results confirm that contamination is no longer present or is at concentrations below ADEC cleanup levels.

2.6 References

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FIGURES

Figure 1. Project Area

Figure 2. Location of Containment Areas

AST Vertical Support Members have since been removed.

HDPE liner visible.

Figure 3. Containment Area 1 in May 2014.

Photo 1: Containment 1, looking north-east.

Photo 2: Containment 1, looking north.

Photo 3: Containment 1, water and ice in center of containment.

Photo 4: Fuel line leading from tank in Containment 1 to tank outside the north of containment.

Figure 4. Containment Area 1 in September 2013 (EMI, 2013).

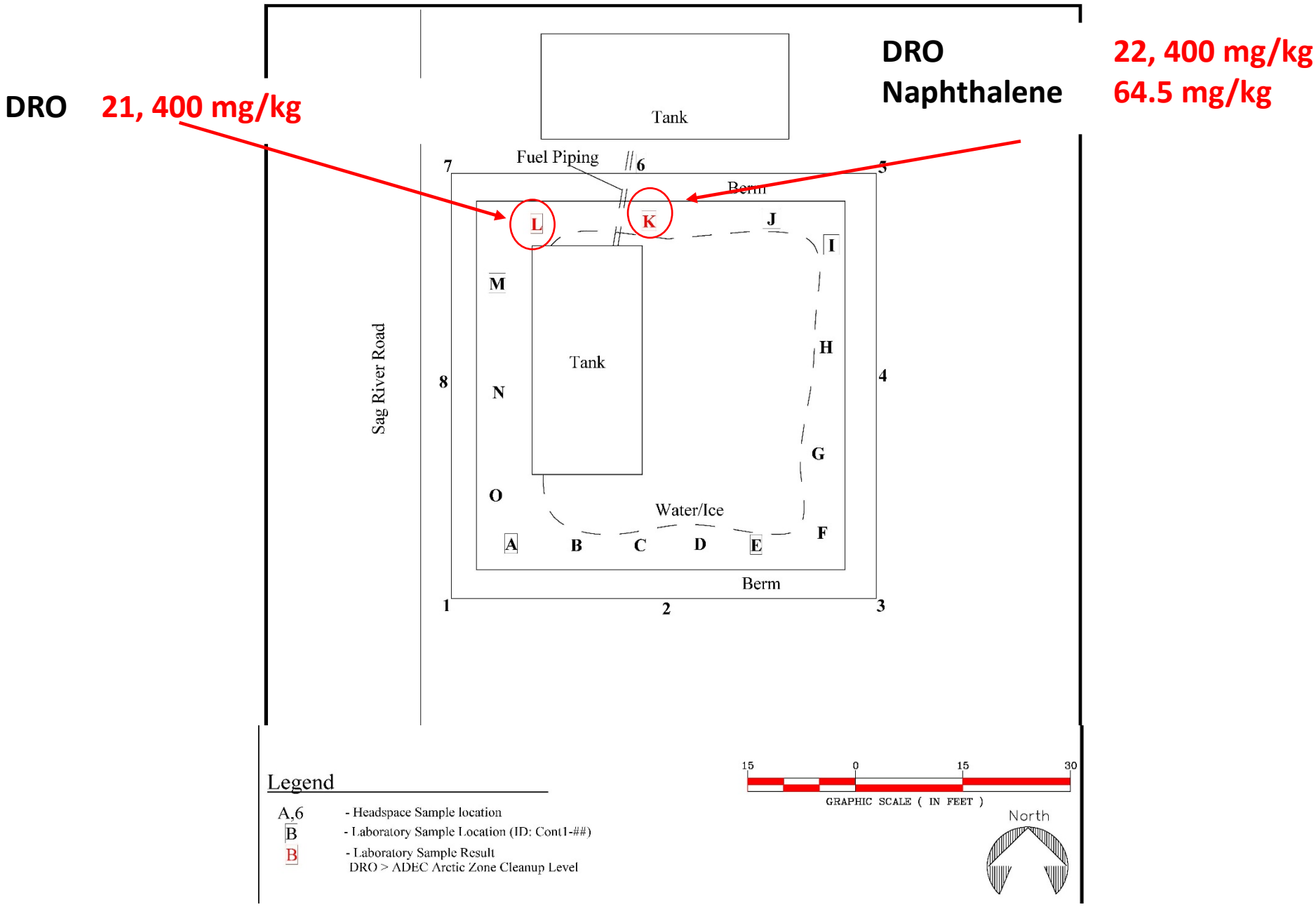
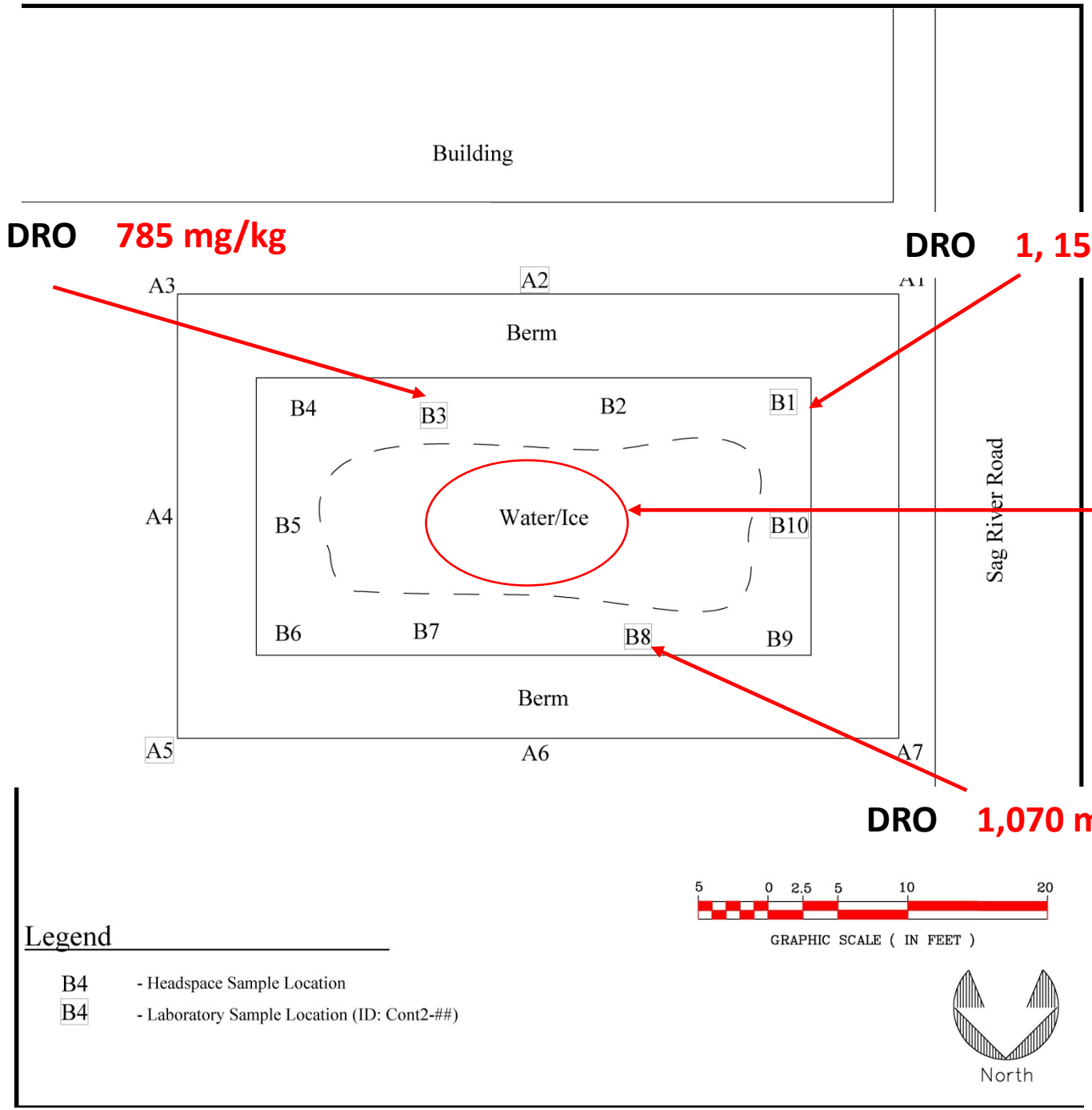


Figure 5. Analytical Results Containment Area 1 September 2013 (EMI, 2013).

Looking south-east

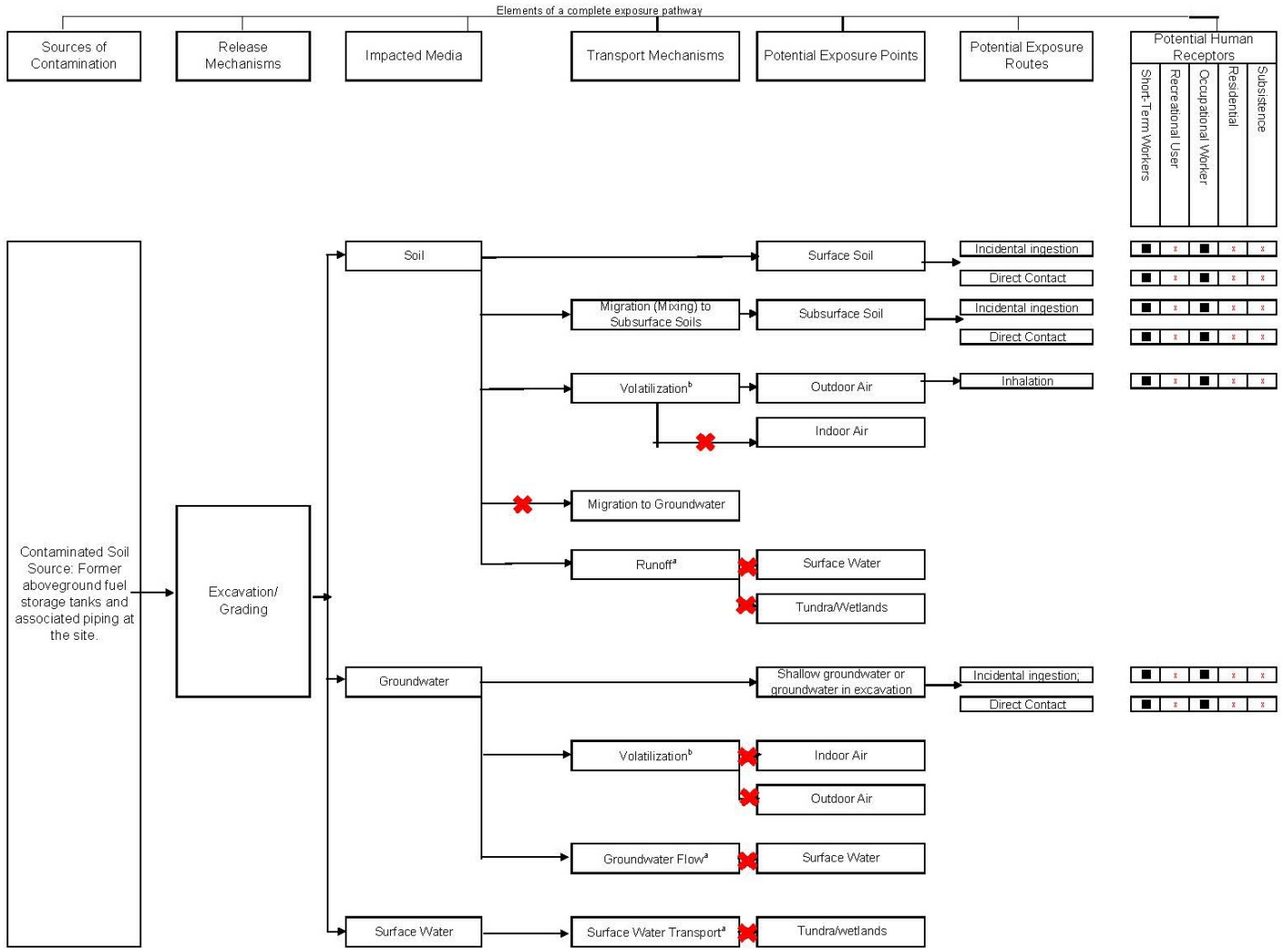
Looking north-east

Figure 6. Containment Area 2 in September 2013 (EMI, 2013).



Area of additional sample collection

Figure 7. Analytical Results Containment Area 2 September 2013 (EMI, 2013).



Note: Exposure pathways assume current conditions of the site. This CSM should be updated if future landuse changes or additional information becomes available.

a - No surface water or wetland on site

b - No buildings on site

Figure 8
Conceptual Site Exposure Model
Potential Human Exposures and Receptors
Fuel Dock, Deadhorse, Alaska

APPENDIX A

STANDARD OPERATING PROCEDURES

APPENDIX B

RESUME OF QUALIFIED SAMPLER

94480 SW 96th Ave #2
Beaverton, OR 97005

Cell: (503)-367-1427
ravinraven13@hotmail.com

John M. Fot

Objective

To obtain a staff level technical position with opportunity for advancement.

Experience

August 2012-Present TestAmerica Laboratory Beaverton, OR

Field Service Representative

- Responsible for Field Testing analysis.
- Responsible for revising field sampling SOPs.
- Responsible for new project site investigation and generating Sampling Analysis Plans to comply with issued COLS and NPDES permits.
- Responsible for laboratory wide consignment inventory and Field Service department ordering.

June 2010-August 2012 Test America Laboratory Beaverton, OR

Metals Extractions

- Responsible for preparation and digestion of samples for analysis by ICP and ICP-MS using EPA methods 200.7, 200.8, 1311, 1312, 3005A, 3010A, 6010B, and 6020.
- Responsible for TCLP analysis.
- Responsible for Closed Cup Flashpoint analysis of samples by EPA methods 1010A and 1020B.
- Responsible for consignment inventory and ordering.

Feb. 2009-July 2009 WV Geological Survey Morgantown, WV

Oil and Gas Geologist (temporary position)

- Marcellus Shale Database and Mapping project, database and records management.
- Responsible for analysis of stratagraphic field data to ensure continuity of subsurface maps.

Feb. 2005-April 2008 Landau Associates Portland, OR

Environmental Geologist

- Conducted Phase I, II, and III investigations and reports.
- Installed monitoring wells, SVE, air sparge, ground water remediation systems. Conducted O&M for multiple systems and sites. Dual phase extraction, UV Hydroxyl radicalization, air strippers, GAC systems, insitu anaerobic redox for chlorinated DNAPL, insitu oxidation of semi-volatile contaminants (PCP).
- Experience with HSA, Geoprobe, Sonic Rotary, and Tubex drilling.
- Experience on navigable waters.
- Experience with construction oversight and industrial workspaces.
- Conducted emergency responses to surface and subsurface releases of hazardous materials.
- Conducted UST removals, Oregon UST Soil Matrix Supervisor.
- Conducted confined space HAZMAT investigation and report for the SS Paisley, Newport, OR.
- Nuclear Density Gauge trained (Troxler 3430), Radiation Safety Officer.
- Extensive experience in environmental sampling and analysis for chemical, biological, and radiological parameters.

Aug. 2003–Feb. 2005 Ajinomoto Frozen Foods USA Portland, OR

Supervisor

- HACCP, ISO9001, ISO14001 trained and certified.
- Studied mechanics, pneumatics, and automation technologies abroad in Ouizimi, Japan.
- Extensive experience in industrial safety.
- Overhauled production lines to convert to new products and improve product safety utilizing the latest in technology advancements.
- Member of Safety Committee, responsible for training employees on SOPs and GMPs.
- Worked to translate schematics and manuals from Japanese to Spanish and English.

Sept. 2002–July 2003 Ajinomoto Frozen Foods, USA Portland, OR

QA/QC technician

- Responsible for collection, preparation, and analysis of biological samples for Coliform, E. Coli, S. Aurues, Yeast and Mold, Standard Plate Count, L. Mononcytogenes, and Salmonella.
- Environmental and food product testing for microbiological, chemical, and mechanical contaminant safety compliance.
- Responsible for reporting to USDA and FDA inspectors.

Education

1995-2002 West Virginia University Morgantown, WV

- B.S., Geology.
- Emphasis on natural resources and environmental studies.
- 2 years Electrical and Computer Engineering.

P.O. BOX 631
COOPER LANDING, AK 99572
907-599-0053 AKDRIFTGUIDE@YAHOO.COM

MICHAEL J. HAWLEY

OBJECTIVE

To seek employment in a new career field that will allow me to draw from my previous experiences and training.

FUNCTIONAL SUMMARY

Throughout my working life I have been drawn to jobs that involve physical labor. I have always taken great pride in my hard work ethic and ability to learn and adapt to new tasks and challenges. Most of my work experience has been seasonal and between semesters while in school. I am anxious to find a more stable career that will allow me continue working in physical, "out of the office" type locales. It is my strong connection to the outdoors that makes me feel work on the north slope would be a good fit.

My work history includes experience in a range of construction and technology related trades. I have operated as an outdoor guide, lab technician, machinist, carpenter, laborer, and radio technician. In which ever field, I have always demonstrated an ability to learn quickly and have proved to be quite dependable. These traits have allowed me to advance quickly. In many of my past jobs I have been promoted to leadership roles or from part-time to full-time due to my performance and professional attitude.

SUMMARY OF QUALIFICATIONS

Apr. 2007-Jun. 2007
SGS Environmental Services Anchorage,AK
Lab Technician

- Locate, log, and prepare environmental samples for analysis.
- Setup lab equipment for testing. Disassemble, clean, and sanitize equipment after running tests.
- Conduct analysis according to standards and use computer to log results.
- Maintain a clean work station.
- Work safely in the handling of chemicals, samples and equipment.

EMPLOYMENT

Jun.2007- Oct.2008
Wise Guide Outfitters Cooper Landing, AK
Fishing Guide

- Guide sport fishing trips on the Upper and Lower Kenai River.
- Ensure the safety and comfort of my guests.

Dec. 2007- May 2008
Alyeska Resort Girdwood, AK
Security Officer

- Patrol hotel and resort property to ensure the safety and security of resort guests.
- Operate a variety of resort vehicles in performance of my duties.
- Provide security for events and concerts at the Sitzmark Bar on resort property.

Oct. 2007-May 2007-Oct. 2008-May 2008
Girdwood Services Girdwood, AK
Laborer/Carpenter

- Construct additions to residential buildings.
- Remodel rooms and entire floors of residential homes. Perform a wide variety of handyman type projects and general carpentry tasks.

May 2006- Oct.2007
Alaska River Adventures Cooper Landing, AK
Rafting Guide/Fishing Guide

- Guide sport fishing trips on the Upper and Lower Kenai River.
- Guide scenic rafting trips on the Upper Kenai River.
- Ensure the safety and comfort of my guests.

Oct.2006 -Feb.2007
Revel Communications Anchorage, AK
Radio Tech

- Position required me to gain clearance to work on a U.S. military installation.
- Install and program Land Mobile Radio system on Elmendorf AFB.
- Install L.M.R. antennae on various base buildings.

Oct. 2004-May 2005
Wilson Concrete Franklin, WI
Laborer

- Construct concrete forms and pour foundation walls for residential buildings.
- Pour concrete basements, patios, decks, and sidewalks and then finish them.
- Act as crew leader in absence of foreman.

May 2002-Sep. 2002/ May 2003-Sep.2003
Ocean Spray Cranberries Inc. Kenosha, WI
Press cake dumper/Sauce cook I

- Operate and maintain two task specific fork lift trucks.
- Operate as a machinist in the production of cranberry sauce.

EDUCATION

1996-1999 Mary D. Bradford High School Kenosha, WI
Received high school diploma.

- Participated in athletics, football and track and field.
- Course of study emphasizing in science and biology.

1999-2004 University of Wisconsin-Stevens Point Stevens Point, WI

- Studied natural resources management and biology.
- Earned a B.S. degree in Wildlife Management, a specific course of study for a biology degree.

CERTIFICATIONS

- First Aid and CPR certified. Valid through May 2009.
- U.S. Coast Guard OUPV license. Valid through May 2011.
- Alaska TAMS card. Valid through Dec. 2010.
- NSTC North Slope Training Certificate
- ADEC Drinking Water Analyst Workshop Certificate

REFERENCES

Tom Murray Owner/Guide Wise Guide Outfitters
Cooper Landing, AK 907-599-0088

Donald Davis Owner/Licensed General Contractor Girdwood Services Girdwood, AK 907-783-2952

Michael Jackson Security Supervisor Alyeska Resort
Girdwood, AK 907-382-1991

Dave Wilson Owner Wilson Concrete
Kenosha,WI 888-570-4644

APPENDIX C

LABORATORY CERTIFICATIONS AND APPROVAL LETERS

Matolcsy, Katherin/ANC

From: Yeomans, Ken <Ken.Yeomans@testamericainc.com>
Sent: Tuesday, June 24, 2014 12:07
To: Matolcsy, Katherin/ANC
Subject: Alaska ADEC communication regarding contaminated sites certification
Attachments: Update of Alaska Laboratory Approval Program and Lab Status

Greetings Katherin:
Attached is an email announcement from Alaska DEC regarding interim approval. If you have any further questions please feel free to contact me.
Sincerely, Ken Y

Ken Yeomans
Quality Assurance Manager
TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
9405 SW Nimbus Ave
Beaverton, OR 97008
Tel 503.906.9200

KT

From: Hickman, Shera L (DEC) <shera.hickman@alaska.gov>
Sent: Thursday, April 03, 2014 11:19 AM
Subject: Update of Alaska Laboratory Approval Program and Lab Status

To all Alaska Contaminated Sites Approved Laboratories:

In an email dated October 2, 2013, we notified all of you about a vacancy of the Laboratory Approval Officer position. The position has been filled, and an announcement will be made once the new person assumes their Approval Officer duties full-time. The email address is and will continue to be DEClabcert@alaska.gov, which is routed to the Approval Officer and other staff prepared to provide backup assistance to the Alaska Laboratory Approval Program (LAP).

If you are receiving this message, your laboratory is **Interim Approved** for the methods listed at http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx. This website is directly connected to our database for laboratory certifications and approvals, and contains the most up to date information. The expiration date for all interim approved labs is the same, and will be pushed every 2-3 months until the Approval Officer has reviewed all outstanding applications. Once full approval is determined for a laboratory, hard copies of certificates and scopes will be issued. The expiration date will be the same as it was previous to the interim approval, so that the lab's PT schedule can remain the same.

Thank you for your continued patience during this transition time for the LAP.

Have a great day,

Shera Hickman
Quality Systems Manager
State of Alaska
Department of Environmental Conservation
Environmental Health Lab
5251 Dr. Martin Luther King Jr. Avenue
Anchorage, AK 99507
Phone: 907.375.7799
Fax: 907.929.7335
Email: Shera.Hickman@Alaska.gov

"It is easier to do a job right than to explain why you didn't." **--Martin Van Buren**

CDPH
California Department of
PublicHealth

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM BRANCH

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

TestAmerica - Portland, OR

9405 SW Nimbus Avenue

Beaverton, OR 97008

Scope of the certificate is limited to the
"Fields of Testing"
which accompany this Certificate.

Continued accredited status depends on successful completion of on-site, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **2755**

Expiration Date: **09/30/2015**

Effective Date: **10/01/2013**

Richmond, California
subject to forfeiture or revocation

Fred Chaoke for
David Mazzera, Ph.D., Assistant Division Chief
Division of Drinking Water and Environmental Management

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM BRANCH
ELAP Accredited Fields of Testing

TestAmerica - Portland, OR
9405 SW Nimbus Avenue
Beaverton, OR 97008
Phone: (503) 906-9200

Certificate No.: 2755
Renew Date: 9/30/2015

Field of Testing: 114 - Inorganic Chemistry of Hazardous Waste

114.010	001	Antimony	EPA 6010B
114.010	002	Arsenic	EPA 6010B
114.010	003	Barium	EPA 6010B
114.010	004	Beryllium	EPA 6010B
114.010	005	Cadmium	EPA 6010B
114.010	006	Chromium	EPA 6010B
114.010	007	Cobalt	EPA 6010B
114.010	008	Copper	EPA 6010B
114.010	009	Lead	EPA 6010B
114.010	010	Molybdenum	EPA 6010B
114.010	011	Nickel	EPA 6010B
114.010	012	Selenium	EPA 6010B
114.010	013	Silver	EPA 6010B
114.010	014	Thallium	EPA 6010B
114.010	015	Vanadium	EPA 6010B
114.010	016	Zinc	EPA 6010B
114.020	001	Antimony	EPA 6020
114.020	002	Arsenic	EPA 6020
114.020	003	Barium	EPA 6020
114.020	004	Beryllium	EPA 6020
114.020	005	Cadmium	EPA 6020
114.020	006	Chromium	EPA 6020
114.020	007	Cobalt	EPA 6020
114.020	008	Copper	EPA 6020
114.020	009	Lead	EPA 6020
114.020	010	Molybdenum	EPA 6020
114.020	011	Nickel	EPA 6020
114.020	012	Selenium	EPA 6020
114.020	013	Silver	EPA 6020
114.020	014	Thallium	EPA 6020
114.020	015	Vanadium	EPA 6020
114.020	016	Zinc	EPA 6020
114.140	001	Mercury	EPA 7470A
114.141	001	Mercury	EPA 7471A

Field of Testing: 116 - Volatile Organic Chemistry of Hazardous Waste

As of 10/1/2013 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation status with the California State Environmental Laboratory Accreditation Branch.

116.080	000	Volatile Organic Compounds	EPA 8260B
Field of Testing: 117 - Semi-volatile Organic Chemistry of Hazardous Waste			
117.110	000	Extractable Organics	EPA 8270C
117.210	000	Organochlorine Pesticides	EPA 8081A
117.220	000	PCBs	EPA 8082

NOTICE

The "List of Approved Fields of Testing and Analytes", as stated on this certificate will be sent to your laboratory upon completion of the entire certification process, which includes an on-site inspection and participation in the appropriate PT studies.

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate of Approval for Contaminated Sites Analysis

TestAmerica-Portland

9405 SW Nimbus Ave.
Beaverton, OR 97008

UST-012

has complied with the provisions set forth in 18 AAC 78 and is hereby recognized by The Department of Environmental Conservation as **Approved** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **12/26/12**, and expires **12/26/13**.

Patryce D. McKinney
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Approval Program

Scope of Approval

Expiration: 12/26/2013

TestAmerica-Portland, OR **UST-012**
9405 SW Nimbus Avenue
Beaverton, OR 97008

is approved by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 78, to perform analysis for the parameters listed below using the analytical methods indicated. Approval for all parameters is final. Approval is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. AK refers to Alaska Methods 101, 102 and 103 for the determination of gasoline, diesel and residual range organics in soil and water. ASTM refers to the American Society for Testing and Materials.

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6010B	EPA	Total Arsenic	Soil	Approved
6010B	EPA	Total Barium	Soil	Approved
6010B	EPA	Total Cadmium	Soil	Approved
6010B	EPA	Total Chromium	Soil	Approved
6010B	EPA	Total Lead	Soil	Approved
6010B	EPA	Total Nickel	Soil	Approved
6010B	EPA	Total Vanadium	Soil	Approved
6010B	EPA	Total Arsenic	Water	Approved
6010B	EPA	Total Barium	Water	Approved
6010B	EPA	Total Cadmium	Water	Approved
6010B	EPA	Total Chromium	Water	Approved
6010B	EPA	Total Lead	Water	Approved
6010B	EPA	Total Nickel	Water	Approved
6010B	EPA	Total Vanadium	Water	Approved
6020	EPA	Total Arsenic	Soil	Approved
6020	EPA	Total Barium	Soil	Approved
6020	EPA	Total Cadmium	Soil	Approved
6020	EPA	Total Chromium	Soil	Approved
6020	EPA	Total Lead	Soil	Approved

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6020	EPA	Total Nickel	Soil	Approved
6020	EPA	Total Vanadium	Soil	Approved
6020	EPA	Total Arsenic	Water	Approved
6020	EPA	Total Barium	Water	Approved
6020	EPA	Total Cadmium	Water	Approved
6020	EPA	Total Chromium	Water	Approved
6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

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6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

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8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
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AK103	AK	Residual Range Organics	Soil	Approved

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Patryce D. McKinney
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

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6020	EPA	Total Nickel	Water	Approved
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8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
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AK103	AK	Residual Range Organics	Soil	Approved

THE STATE OF ALASKA

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Laboratory Certification Program

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Beaverton, OR 97008

UST-012

has complied with the provisions set forth in 18 AAC 78 and is hereby recognized by The Department of Environmental Conservation as **Approved** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **12/26/12**, and expires **12/26/13**.

Patryce D. McKinney
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Approval Program

Scope of Approval

Expiration: 12/26/2013

TestAmerica-Portland, OR **UST-012**
9405 SW Nimbus Avenue
Beaverton, OR 97008

is approved by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 78, to perform analysis for the parameters listed below using the analytical methods indicated. Approval for all parameters is final. Approval is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. AK refers to Alaska Methods 101, 102 and 103 for the determination of gasoline, diesel and residual range organics in soil and water. ASTM refers to the American Society for Testing and Materials.

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6010B	EPA	Total Arsenic	Soil	Approved
6010B	EPA	Total Barium	Soil	Approved
6010B	EPA	Total Cadmium	Soil	Approved
6010B	EPA	Total Chromium	Soil	Approved
6010B	EPA	Total Lead	Soil	Approved
6010B	EPA	Total Nickel	Soil	Approved
6010B	EPA	Total Vanadium	Soil	Approved
6010B	EPA	Total Arsenic	Water	Approved
6010B	EPA	Total Barium	Water	Approved
6010B	EPA	Total Cadmium	Water	Approved
6010B	EPA	Total Chromium	Water	Approved
6010B	EPA	Total Lead	Water	Approved
6010B	EPA	Total Nickel	Water	Approved
6010B	EPA	Total Vanadium	Water	Approved
6020	EPA	Total Arsenic	Soil	Approved
6020	EPA	Total Barium	Soil	Approved
6020	EPA	Total Cadmium	Soil	Approved
6020	EPA	Total Chromium	Soil	Approved
6020	EPA	Total Lead	Soil	Approved

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6020	EPA	Total Nickel	Soil	Approved
6020	EPA	Total Vanadium	Soil	Approved
6020	EPA	Total Arsenic	Water	Approved
6020	EPA	Total Barium	Water	Approved
6020	EPA	Total Cadmium	Water	Approved
6020	EPA	Total Chromium	Water	Approved
6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

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6010B	EPA	Total Vanadium	Soil	Approved
6010B	EPA	Total Arsenic	Water	Approved
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6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082A	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
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8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
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