



FINAL REPORT
FEDERAL AVIATION ADMINISTRATION
EXCAVATION OF CONTAMINATED SOIL
FREDERICK POINT NDB SITE
PETERSBURG, ALASKA
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APPROVAL PAGE

This report for the Excavation of Contaminated Soil at the Frederick Point Non-Directional Beacon site near Petersburg, Alaska has been prepared for the Federal Aviation Administration by Ahtna Engineering Services, LLC. The following persons have prepared, reviewed and approved this report and meet the definition of qualified person, as defined by Alaska Department of Environmental Conservation Regulations 18 Alaska Administrative Code 75.990 (100).



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ACRONYMS AND ABBREVIATIONS

AACAlaska Administrative Code
ADEC.....Alaska Department of Environmental Conservation
AES.....Ahtna Engineering Services, LLC
ASTabove ground storage tank
bgs.....below ground surface
BNAbase neutral/acid extractable
BTEXbenzene, toluene, ethylbenzene, and total xylenes
Cr(III).....trivalent chromium
Cr(VI).....hexavalent chromium
CSMconceptual site model
CYcubic yard
DROdiesel range organics
E&E.....Ecology and Environment, Inc
ECIREnvironmental Compliance Investigation Report
EPH-D.....extractable petroleum hydrocarbons as diesel
FAA.....Federal Aviation Administration
GROgasoline range organics
mg/kgmilligrams per kilogram
NDBNon-Directional Beacon
PAH.....polycyclic aromatic hydrocarbon
PCBpolychlorinated biphenyl
PPE.....personal protective equipment
QA/QCquality assurance/ quality control
RROresidual range organics
SCIR.....Site Cleanup and Investigation Report
SOPstandard operating procedure
SOW.....Scope of Work
TCDD.....2,3,7,8-tetrachlorodibenzo-p-dioxin
TCLP.....Toxicity Characteristic Leaching Procedure
TRPHtotal recoverable petroleum hydrocarbons
TPH.....total petroleum hydrocarbons
USFSUnited States Forest Service
VOCvolatile organic compound
VPH-Gvolatile petroleum hydrocarbons as gasoline
WP.....Work Plan

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1.0 INTRODUCTION

Ahtna Engineering Services, LLC (AES) has prepared this report to detail the activities and findings from the removal of contaminated soils at the Federal Aviation Administration (FAA) Frederick Point Non-Directional Beacon (NDB) near Petersburg, Alaska under Contract Number DTFAAL-10-D-00002, Task Order 74. The soil removal activities took place June 23 through June 26, 2014 and were conducted in general accordance with the FAA Scope of Work (SOW) received on January 31, 2014; Alaska Department of Environmental Conservation (ADEC) 18 Alaska Administrative Code (AAC) 75 *Oil and Other Hazardous Substances Pollution Control*, revised as of October 1, 2014; the Work Plan (WP), dated May 9, 2014; and in general accordance with the FAA Standard Operating Procedures (SOP). This report describes excavation, sampling, analytical and quality assurance/quality control (QA/QC) and waste handling procedures that were performed during field activities, the results of soil and waste characterization sampling and analytical testing, and conclusions and recommendations, as appropriate.

1.1 Project Objectives

The objectives for this site cleanup and investigation at the Frederick Point NDB facility were:

- to remove previously discovered contaminated soil from the North Burn Area and the West Burn Area at the site;
- collect soil samples from the limits of the excavations and from the waste soil;
- manifest and manage the transportation of the waste soil to an approved disposal facility; and
- prepare a summary report of the site work and findings.

1.2 Background

The Frederick Point NDB facility is located approximately 4.5 miles east-southeast of Petersburg in southeast Alaska (Figure 1). Petersburg is located on the northwest end of Mitkof Island, where the Wrangell Narrows meet Frederick Sound and lies midway between Juneau and Ketchikan, about 120 miles from either community at approximately 56.812500 North Latitude and -132.955560 West Longitude (Section 27, Township 058 South, Range 079 East, Copper River Meridian). Petersburg is located in the Petersburg Recording District. The area encompasses 43.9 square miles of land and 2.2 square miles of water.

1.2.1 Site and Facility Description

The NDB facility includes approximately seven acres of land leased from the United States Forest Service (USFS). Facilities located at the NDB facility include the Engine Generator Building 402, the NDB Equipment Building 601, and a helicopter landing pad.

The work performed during this site cleanup involved two sites at the FAA NDB Facility near Engine Generator Building 402 (further referred to as Building 402). The two sites being addressed at this facility include the North Burn Area and West Burn Area. The facility is accessed by a walking trail from a nearby road.

The North Burn Area is located at the base of a large tree stump which is located at the edge of a cliff dropping to the rocky shoreline. Roots on the opposite side of the tree from where the small area of concern exists hang beyond the cliff edge. The West Burn Area is located at the north corner of, and extending beneath, the existing deck. Both areas of concern are further described in the sections below.

A site map showing the facility layout and locations of the North and West Burn Areas are shown on Figure 2.

1.3 Previous Investigations

Previous investigations conducted at the Frederick Point NDB facility include:

- Environmental Compliance Investigation Report (ECIR) prepared by Ecology and Environment, Inc. (E&E), dated 1993 (E&E, 1993);
- Site Cleanup and Investigation Report (SCIR) prepared by CH2-OH, dated 1998 (CH2-OH, 1998); and
- Investigation and Excavation of Contaminated Soil prepared by AES, dated October 31, 2012 (AES, 2012).

1.3.1 North Burn Area

The North Burn Area is located adjacent to a large tree northeast of Building 402 (Figure 2). The 1993 ECIR identified one sample from the North Burn Area that was analyzed for volatile organic compounds (VOCs), volatile petroleum hydrocarbons-gasoline (VPH-G), extractable petroleum hydrocarbons-diesel (EPH-D), total recoverable petroleum hydrocarbons (TRPH), metals, base neutral/acid extractable (BNA), pesticide/polychlorinated biphenyl (PCB), metals, and dioxin. Reported results indicated arsenic, chromium, and copper exceeded the current, most stringent ADEC soil cleanup levels.

The investigation in 1997 included the collection of five soil samples for analysis for arsenic, gasoline range organics (GRO); diesel range organics (DRO); residual range organics (RRO); total petroleum hydrocarbons (TPH); and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Sample results revealed contaminant levels up to 890 milligram per kilogram (mg/kg) DRO and 1,290 mg/kg arsenic (no other metals analyzed). BTEX analyses indicated only benzene was detected above the laboratory reporting limit in two samples, both at concentrations of 0.11 mg/kg.

In 1998 approximately 6.5 cubic feet of arsenic-contaminated soil was hand-excavated from around and under the large tree to a depth of about 2 inches (CH2-OH, 1998). Confirmation samples were analyzed for arsenic only and reported to contain up to 34 mg/kg arsenic. The 1998 samples from the excavation limits were not analyzed for DRO or other potential contaminants that had been reported to exceed the current ADEC soil cleanup levels.

In 2012, AES removed approximately 0.5 cubic yards (CY) (approximately 13.5 cubic feet) of contaminated soil to depths ranging from 0.5 to 1 foot below ground surface (bgs) (AES, 2012). Confirmation samples were analyzed for DRO, RRO, BTEX, dioxin 2,3,7,8-tetrachlorodibenzo-

p-dioxin [TCDD]), arsenic, copper, and/or chromium. All five samples contained arsenic at concentrations exceeding the soil cleanup level of 3.7 mg/kg, with reported concentrations ranging from 15 to 76 mg/kg. Three of the samples also exceeded the ADEC soil cleanup level for chromium of 25 mg/kg, with reported concentrations ranging from 41 to 160 mg/kg. The sample containing 160 mg/kg chromium, FPN12NDB-NBA1, was subsequently analyzed for hexavalent chromium [Cr(VI)] to assess the chromium exceedance. Cr(VI) in this sample was reported at a concentration of 2.4 mg/kg, less than the ADEC soil cleanup level of 25 mg/kg. All other results were non-detect or less than the most stringent ADEC Method Two, Over 40-Inch Zone soil cleanup levels. The 2012 sample results and locations are shown on Figure 3.

1.3.2 West Burn Area

The West Burn Area is located under the northwest corner of the wooden deck, as shown on Figure 2. The 1993 ECIR identified one sample from the West Burn Area that was analyzed for VOCs, VPH-G, EPH-D, TRPH, metals, BNA, pesticide/PCB, and dioxin. The 1993 ECIR reported concentrations of BNA, DRO, pesticides, and dioxin TCDD using the Toxicity Equivalence Factor calculation which exceeded the existing, most-stringent ADEC soil cleanup levels (E&E, 1993).

The investigation in 1997 included the collection of five soil samples for GRO, DRO, RRO, TPH, BTEX, and arsenic analyses. The 1997 investigation reported concentrations of DRO up to 730 mg/kg, and concentrations of TPH up to 44,300 mg/kg (CH2-OH, 1998). BTEX concentrations were reported to not exceed the laboratory reporting limit, but the reporting limit was more than one order of magnitude above the current ADEC soil cleanup level for benzene. No sampling or analyses for dioxin, pesticides, or polycyclic aromatic hydrocarbons (PAHs similar to the BNA analyte suite) were performed during the 1997 work. No excavation of soil was performed at this location during the 1998 soil removal following the 1997 investigation.

AES excavated 0.5 CY of contaminated soil from the WBA in 2012. Confirmation samples were analyzed for DRO, RRO, BTEX, PAH, arsenic, pesticides, and dioxin. Analytical results indicated that one sample exceeded the ADEC Direct Contact soil cleanup level for arsenic, reported at 26 mg/kg (AES, 2012). All other samples reported concentrations less than the most stringent ADEC Method Two, Over 40-Inch Zone soil cleanup levels or were non-detect. The 2012 sample results, sample locations, and excavation limits are shown on Figure 3.

1.4 Physical Setting

The following information describes the location, the predominant soil and rock types and other pertinent geologic and hydrologic factors at the NDB facility.

1.4.1 Geology and Soils

The principal soil group in the vicinity consists mostly of peat. Extensive peat deposits derived from the partial decomposition of organic matter are present in the vicinity of the NDB facility. This material consists of acidic sphagnum moss peat with layers of fibrous sedge peat that are poorly drained. These deposits average 8 feet in depth and cover most surficial deposits and bedrock.

Surficial elements in the vicinity are the result of glacial and marine deposition processes. Remnants of emerged, marine, sandy deltaic and shoreline deposits overlie glacial diamicton, marine silt-clay, and bedrock. Inland from the present shores and minor deltas are located directly east and north of the facility, glacial and glaciolacustrine stony diamiction forms the prevalent surficial deposit. The diamicton grades laterally to stone-free silt-clay. Its thickness averages 42 feet.

Bedrock in the vicinity consists of dense, weakly metamorphosed rock; primarily phyllite of Middle Jurassic to Early Cretaceous age. Relatively few continuous fractures occur within the dense bedrock. Bedrock is also composed of tuff, thin layers of limestone, and limestone lenses in isolated areas. The average depth to bedrock is approximately 50 feet bgs.

Surficial soils encountered during this work consisted of dark brown to black, organic-rich silt with some mineral soil encountered over the bedrock at the North Burn Area.

1.4.2 Hydrogeology

Groundwater occurs in both surficial sediments and bedrock in the vicinity of the facility. Groundwater was not encountered during the completion of this work.

1.5 Soil Cleanup Levels

The contaminants of concern that have exceeded the most stringent soil cleanup levels at the NDB facility are chromium and arsenic. Arsenic is a naturally-occurring metal found throughout Alaska. Arsenic background concentrations have been found at elevated concentrations exceeding the regulatory levels in 18 AAC 75.341 Table B1 (ADEC, 2009).

Chromium is generally found in two valence or oxidation states: trivalent chromium, Cr(III), and hexavalent chromium, Cr(VI). Cr(III) is much less toxic than Cr(VI) and is an essential element for humans (EPA, 2014). The ADEC Method Two, Over 40-Inch Zone soil cleanup levels for the different oxidation states, Cr(III) and Cr(VI), vary greatly as shown in Table 1. In the absence of the specific oxidation state analyses, the total chromium soil cleanup level defaults to the Cr(VI) regulatory level because Cr(VI) is the more toxic of the two oxidation states.

The most stringent ADEC Method Two, Over 40-Inch Zone, soil exposure pathway regulatory level for arsenic, Cr(III), and Cr(VI) are provided in Table 1.

TABLE 1 – SUMMARY OF ADEC SOIL CLEANUP LEVELS

Analyte	Soil Cleanup Level* (mg/kg)	Most Stringent Exposure Pathway
Arsenic	3.7	Direct Contact
Chromium(III)	100,000	Migration to Groundwater
Chromium (VI)	25	Migration to Groundwater

Notes:

* Based on ADEC Method Two, Over 40-Inch Zone Soil Cleanup Levels
mg/kg = milligrams per kilogram

2.0 FIELD ACTIVITIES

Field activities were conducted June 23 through June 26, 2014. All field and sampling procedures complied with those specified in the ADEC-approved WP (AES, 2014), the ADEC *Draft Field Sampling Guidance* (ADEC, 2010a), and the FAA *SOP* (WP, 2014, Appendix D) unless otherwise noted. Brief descriptions of field activities and other project-specific details are presented below. Site photographs are included in Appendix A of this report. Photographs from the actual excavation and sampling were inadvertently deleted in a field camera and were not available to reproduce. Photographs 1, 2, and 3 were taken by a local FAA technician in mid-December 2014 as a record of current site conditions. Photograph 4 in Appendix A was taken with a separate camera during the removal of drums from the site. Field notes are included in Appendix B.

2.1 Field Screening

No field screening was performed to guide the soil removal operations due to the contaminants of concern being low concentrations of arsenic and chromium. The 2012 sample locations, where contaminated soil was identified, were relocated and additional soil was removed from the areas surrounding and below these locations.

2.2 Analytical Soil Sampling

Soil samples were collected from the limits of both the North Burn Area and West Burn Area excavations with disposable stainless steel spoons and clean sampling gloves. Soil samples were collected utilizing discrete grab sampling procedures, as described in the ADEC *Draft Field Sampling Guidance* (ADEC, 2010a). Samples were placed directly into pre-labeled sample jars to be submitted for laboratory analysis. Sample locations were measured and recorded in the field notebook, based on previous excavation limits. Sample locations and results from the 2014 Investigation and Excavation are shown on Figure 4.

Analytical composite samples were collected from the removed soil for waste characterization purposes. Each composite sample of the waste soil was prepared by collecting an equal aliquot of soil from each 5-gallon bucket that was added to the drums in a gallon-size resealable bag. The soil in the bag was then homogenized and placed into pre-labeled sample jars to be submitted for laboratory analysis. The composite waste sample collected from the North Burn Area was analyzed for arsenic and chromium using the Toxicity Characteristic Leaching Procedure (TCLP) preparation. The composite waste sample collected from the West Burn Area was analyzed for arsenic using the TCLP preparation.

2.3 Site Investigation and Excavation – North Burn Area

The North Burn Area work activities involved relocating the 2012 excavation limits and hand excavating soil from the base of the previous excavation. The excavation area is crisscrossed with large roots from the adjacent tree stump. Soil was removed to approximately 1 foot below the former excavation limits resulting in a comprehensive excavation depth, below adjacent ground surface/top of tree roots, ranging from 24 to 38 inches (Photographs 1 and 2, Appendix A). Burn scars on the tree roots indicated the central excavation area was the center of the former

burn area (Photograph 2, Appendix A). Approximately 0.5 CY of contaminated soil was excavated, placed in 5-gallon buckets and carried to the helicopter pad for accumulation into two 55-gallon steel drums. Six soil samples plus one duplicate were collected from the excavation limits of the North Burn Area and analyzed for arsenic, total chromium, and Cr(VI).

2.4 Site Investigation and Excavation – West Burn Area

The West Burn Area work activities involved hand excavating approximately 0.25 CY of contaminated soil under the northwest corner of the deck at Building 402 at the previous location of sample WBA1 (Figure 3). Soil was excavated to a depth of approximately 0.5 to 0.7 feet bgs from the previous sample location and surrounding area. Soil was very moist to wet (Photograph 3, Appendix A). Four soil samples and one duplicate were collected and analyzed for arsenic. Excavated soil was placed into one 55-gallon container at the helicopter pad.

2.5 Backfilling, Re-grading, and Re-vegetating Impacted Areas

No backfilling, re-grading, or re-vegetating was performed at the excavations.

2.6 Decontamination Procedures

Manual digging tools were decontaminated between excavations by brushing gross soil from the tools then wiped dry. All sampling activities were conducted using disposable sampling equipment. No wastewater was generated or treated at the site.

2.7 Investigation-Derived Waste

Used personal protective equipment (PPE) and disposable sampling equipment such as Ziploc bags were placed in plastic bags and taken to the Petersburg solid waste facility.

2.8 Soil Waste Characterization & Waste Management

Excavated soil was transferred directly from 5-gallon buckets to 55-gallon steel drums located at the helicopter pad. Two drums of waste soil were generated from the North Burn Area and one drum of waste soil was generated from the West Burn Area. A helicopter attempted to sling the drums from the helicopter pad to the nearby road; however, the helicopter could not lift the drums due to their weight. Another 55-gallon drum was brought to the site and soil from the three drums was placed into the new drum to reduce the drum weights. The drums were then slung by helicopter from the helicopter pad to the nearby road and loaded into a truck for transport to a secure area adjacent to the Temsco Helicopters hangar.

The drums remained in the secure area until analytical results of the waste characterization samples were received. Emerald Alaska, Inc. then prepared manifests and labels for the drums of waste soil and all shipping documents were received by FAA personnel in Petersburg, Alaska. An ADEC Contaminated Soil Transport & Treatment Approval Form was completed and approved by ADEC on July 25, 2014. The waste was shipped on Alaska Marine Line's barge to Seattle, Washington then on to US Ecology Idaho, Inc. in Grand View, Idaho. All disposal documentation are provided in Appendix E.

3.0 RESULTS

3.1 North Burn Area

Soil samples within this area were tested for arsenic, chromium (total) and Cr(VI). Analytical sample FNP14NBA-7 was collected as a duplicate for soil sample FNP14NBA-6.

Four of the six primary samples exceeded ADEC's most stringent soil cleanup level for arsenic of 3.7 mg/kg with results ranging from 23 to 51 mg/kg. While concentrations of total chromium were reported to range from 22 to 67 mg/kg, companion samples for Cr(VI) were reported to not exceed the laboratory reporting limit of 0.05 mg/kg. This indicates that the chromium reported in the total chromium analyses is a result of Cr(III) rather than Cr(VI).

All soil sample results are included below in Table 2. Analytical soil sample locations and results from the 2014 removal action are shown on Figure 4.

3.2 West Burn Area

A total of four soil samples plus one duplicate were collected from the excavation limits at the West Burn Area and analyzed for arsenic. Analytical sample FNP14WBA-5 was collected as a duplicate for soil sample FNP14WBA-4. Two of the four primary samples were reported to exceed the arsenic cleanup level with concentrations ranging from 6.5 to 11 mg/kg. The remaining samples, including the field duplicate, contained concentrations of arsenic less than the soil cleanup level.

All soil sample results are included below in Table 2. Analytical soil sample locations and results from the 2014 removal action are shown on Figure 4.

3.3 Waste Characterization

Arsenic and chromium concentrations were not detected at the reporting limits in the waste characterization sample collected from the North Burn Area waste soil. The soil was manifested, labeled, and disposed of as non-hazardous waste.

Arsenic was detected in the waste soil from the West Burn Area at a concentration of 0.012 mg/L. The soil was manifested, labeled, and disposed of as non-hazardous waste.

TABLE 2 – ANALYTICAL SOIL SAMPLE RESULTS

Analyte	Soil Cleanup Levels (mg/kg)	All Sample Identifications contain prefix "FNP14"											
		North Burn Area							West Burn Area				
		NBA-1	NBA-2	NBA-3	NBA-4	NBA-5	NBA-6	NBA-7*	WBA-1	WBA-2	WBA-3	WBA-4	WBA-5*
Arsenic	3.7	3.6	1.7	51	27	47	23	27	11	6.5	3.7	3.4	3.6
Chromium(Total) ⁺⁺	100,000	30	22	100	51	67	32	37	--	--	--	--	--
Chromium(VI) ⁺⁺	25	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--

Note:

⁺⁺ The chromium (total) concentration is comprised of chromium(VI) and chromium(III) concentrations. When chromium(VI) data is available, the chromium(VI) concentrations is removed and the resulting chromium(total) concentration is the remaining chromium(III).

* Sample is a duplicate of preceding sample

mg/kg = milligrams per kilogram

ND = analyte not detected at the reporting limit concentration of 0.050 mg/kg

TABLE 3 – ANALYTICAL WASTE CHARACTERIZATION SAMPLE RESULTS

Analyte	Hazardous Waste Threshold (mg/L)	North Burn Area	West Burn Area
		FNP14NBA-WC	FNP14WBA-WC
Arsenic	5.0	ND (0.010)	0.012
Chromium	5.0	ND (0.020)	--

mg/L = milligrams per liter

ND = analyte not detected at reporting limit provided in parantheses

3.4 Data Quality Review

The data quality report and ADEC data review checklist are located in Appendix C. In summary, all QC checks were within control limits and analytical results are considered acceptable and useable.

Two field duplicate soil samples were collected and the relative percent differences (RPDs) were within limits for all detected analytes in both duplicate sets. The laboratory-assigned matrix spike/matrix spike duplicate RPDs and percent recoveries were within laboratory control limits.

Overall, no data quality issues were observed and all sample results are considered to be valid with no additional qualifiers assigned.

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4.0 CONCEPTUAL SITE MODEL

The information used to generate the conceptual site model (CSM) for this project was obtained from data and observations gathered during the May 2012 and June 2014 site investigations and excavations, historical reports from previous investigations, and the ADEC *Guidance on Developing Conceptual Site Models* (2010).

Analytical samples collected at the limits of the 2012 and 2014 excavations indicate the only contaminant of concern remaining at the Frederick Point NDB site is arsenic with reported concentrations ranging from 3.7 mg/kg to 51 mg/kg.

Currently, the site is located in an uninhabited area several miles from the nearest inhabitants or developed residential area. There are no permanent residents at the FAA Frederick's Point NDB site. FAA personnel arrive at the site for routine maintenance activities and site visits do not extend overnight. Site access to the FAA Frederick's Point NDB site is not physically restricted. However, the site does discourage unauthorized access and is not considered to be used recreationally or for subsistence purposes due to its small size and low value.

The surface water direct contact pathway is complete due to the site's close proximity to Fredrick Sound (facility on bluff at edge of Frederick Sound) and the identification of a small drainage pathway during the 1993 site visit that could potentially transport contaminants from the site to Frederick Sound. While analytical results from the 1993 soil sampling along the drainage pathway reported concentrations below the applicable ADEC soil cleanup levels, erosion and sediment transport at the impacted areas could potentially move contaminants to the drainage pathway. Surface water ingestion is a complete pathway in the CSM because contaminants could be transported to the drainage pathway. However, the receiving waters of this pathway are marine and are not an exposure media for ingestion of surface water.

No drinking water wells are located at the site or in the vicinity. Although no drinking water wells are currently located at the site, no determination has been made that groundwater at the NDB site or vicinity is not a reasonably expected potential future drinking water source. Therefore, groundwater represents a complete exposure pathway for future site use.

According to ADEC *Policy Guidance on Developing Conceptual Site Models* (2010b), soils 0 to 2 feet bgs are classified as surface soil, and soils down to a depth of 15 feet bgs are classified as subsurface soil. The surface soil ingestion and direct contact pathways are considered complete in this CSM because soil arsenic concentrations have been reported at levels exceeding Direct Contact and Ingestion soil cleanup levels, as stated in 18 AAC 75.341. People may be exposed to and incidentally ingest soils from normal hand-to-mouth activities, but due to the small areas of contamination and relative inaccessibility of the site ingestion of these soils is considered insignificant.

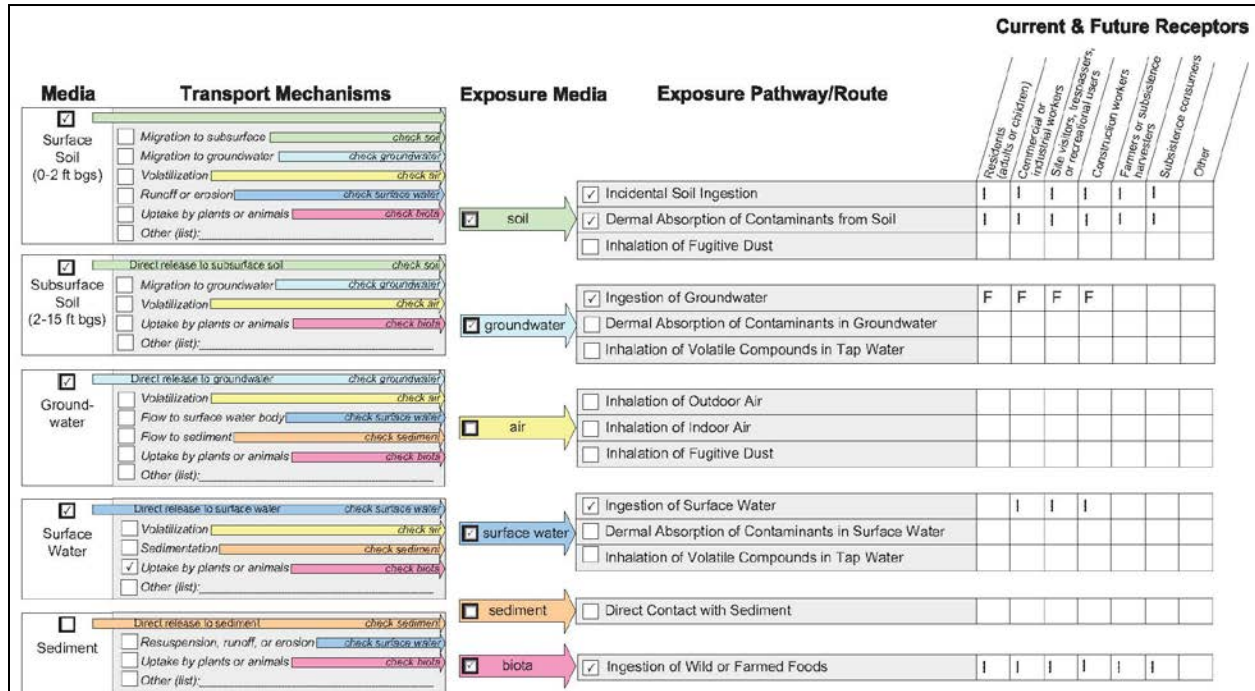
Based on historic reports and the 2012 and 2014 field investigation, arsenic contamination may extend below 2 feet bgs; therefore, the subsurface soil ingestion pathway must be considered complete for current and future site use until more site data is obtained. However, bedrock was observed at a depth of approximately 2 to 2.5 feet bgs at the North Burn Area and is expected to

underlie the remaining contaminated soil at this location. Due to the location and accessibility of the small areas of contamination, the ingestion pathway is considered insignificant.

Outdoor and indoor air inhalation pathways are not considered complete pathways for current and future site uses as the contaminant of concern at the site is arsenic and that compound is not volatile.

The biota exposure pathway is complete for current and future site uses as arsenic is listed in Appendix C of the ADEC Policy Guidance on Developing Conceptual Site Models (2010b). However, the biota exposure pathway is considered insignificant due to the location of the small impacted areas at the site (one area of contamination located beneath the deck of the building) and the widespread animal foraging areas and the size of Frederick Sound. Mammals suitable for subsistence harvesting are not expected to forage or be present in proximity of the sites. Site data has demonstrated that migration of contaminants to water bodies has not occurred; therefore, the potential for fish to be exposed to contaminants is insignificant.

MODEL 1 – CONCEPTUAL SITE MODEL



C = current receptors
 F = future receptors
 C/F = current and future receptors
 I = insignificant exposure

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 North Burn Area

Approximately 0.5 CY of contaminated soil was removed from the North Burn Area. Six discrete soil grab samples plus one duplicate were collected from the limits of the excavation for laboratory analysis of arsenic, total chromium, and Cr(VI).

Analytical results from the North Burn Area indicate arsenic remains in soils at the excavation limits. Four of the six samples exceeded the ADEC cleanup level of 3.7 mg/kg for arsenic with concentrations ranging from 23 to 51 mg/kg.

Cr(VI) was not detected at concentrations exceeding the reporting limit of 0.050 mg/kg in any samples. Pairing the Cr(VI) concentrations with the total chromium concentrations indicates the reported chromium concentrations are comprised of the less toxic Cr(III) and therefore, do not exceed the soil cleanup levels.

Bedrock was encountered at the base of Sample FNP14NBA-2 suggesting a thin thickness of soil remains above the bedrock at the site. The amount of soil over the base of the North Burn Area excavation is small and arsenic concentrations remaining in the soil are not high. These factors suggest the remaining soil does not pose a significant risk to human health or the environment.

Based on reported concentrations and limited soil volume, AES recommends ADEC grant Cleanup Complete status with no institutional controls at this site.

5.2 West Burn Area

Approximately 0.25 CY of soil was removed from beneath the northwest corner of the deck and Building 402. Four analytical samples and one duplicate were collected from the excavation limits and analyzed for arsenic.

Two analytical samples collected from the limits of the West Burn Area excavation indicate that arsenic remains below the deck at concentrations greater than the ADEC Direct Contact soil cleanup level. FNP14WBA-1 and FNP14WBA-2 contained arsenic at 11 mg/kg and 6.5 mg/kg, respectively, exceeding the ADEC soil cleanup level of 3.7 mg/kg. However, due to the location of these samples, direct contact with the contaminants is unlikely with regular activities. Additionally, naturally-occurring arsenic concentrations vary greatly throughout Alaska and the concentrations of arsenic reported at the West Burn Area are not considered high. Based on these concentrations in tandem with the minimal volume of impacted soil, AES recommends ADEC grant Cleanup Complete status with no institutional controls for this site.

5.3 Soil Waste Disposal

Soil waste, containerized in four 55-gallon steel drums, was transported to Seattle, Washington via Alaska Marine Lines, then on to US Ecology Idaho, Inc., in Grand View, Idaho. Disposal receipts and a copy of the fully completed Non-Hazardous Waste Manifest are provided in Appendix E.

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6.0 REFERENCES

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CH2-OH, 1998. *Site Cleanup and Investigation Report (SCIR), Frederick Point Non-Directional Beacon (NDB) Facility, Petersburg, Alaska*, October

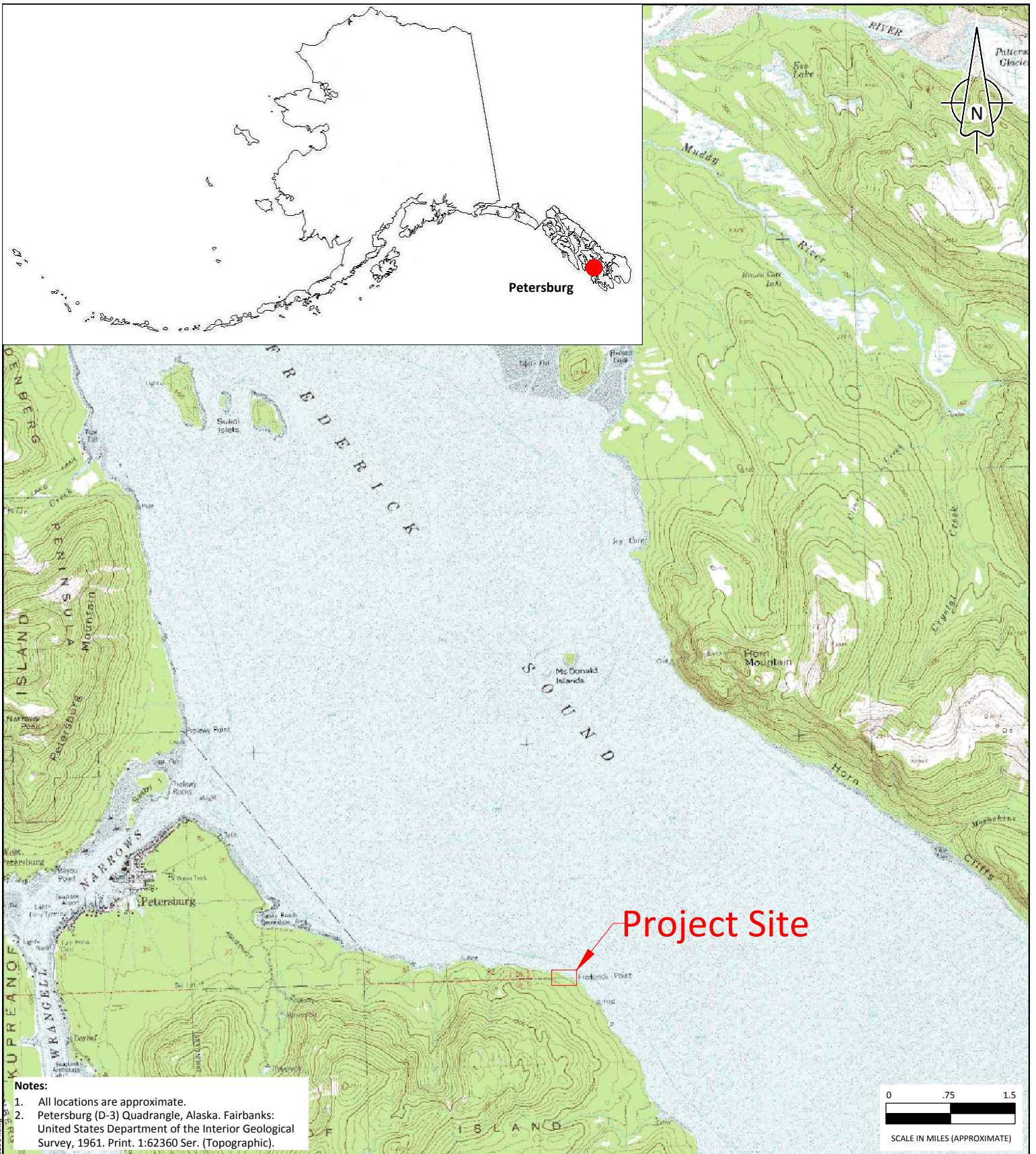
Ecology and Environment, Inc. (E&E), 1993. *Environmental Compliance Investigation Report (ECIR), Petersburg FAA Station, Petersburg, Alaska*, November

United States Environmental Protection Agency, 2000. *Chromium Compounds Hazard Summary*, Air Toxics Website, accessed online at <www.epa.gov/ttnatw01/hlthef/chromium.html>

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FIGURES

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- Notes:**
1. All locations are approximate.
 2. Petersburg (D-3) Quadrangle, Alaska. Fairbanks: United States Department of the Interior Geological Survey, 1961. Print. 1:62360 Ser. (Topographic).

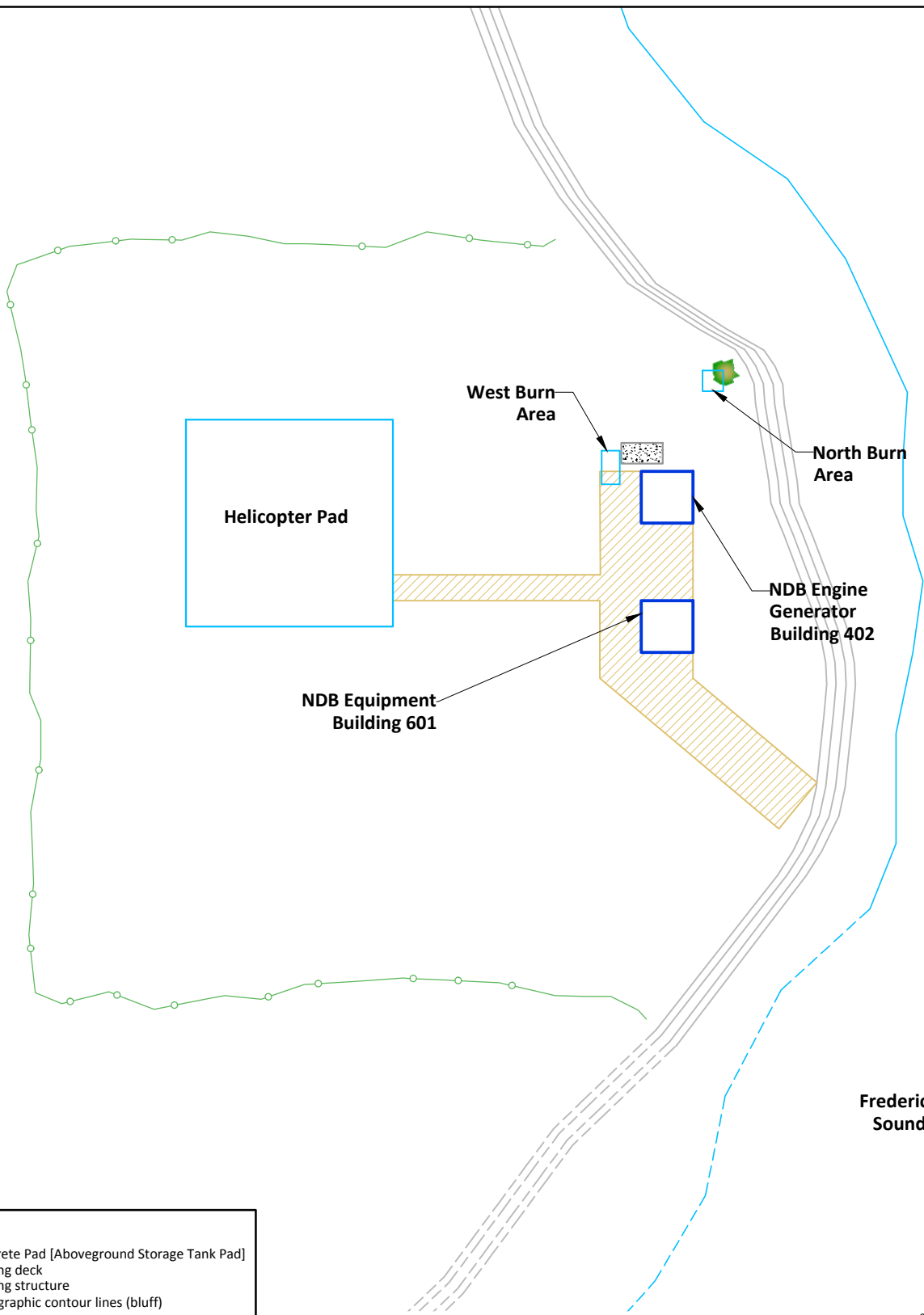
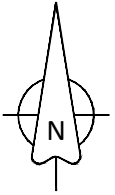
Excavation of Contaminated Soil
 Frederick Point NDB Site near Petersburg, Alaska











State & Site Vicinity Maps

Project Number: 20125.074	Figure Number:
Date: 09.22.2014	1
Drawn By: G.R.	

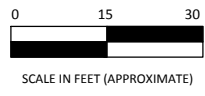
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Key:

-  Area
-  Concrete Pad [Aboveground Storage Tank Pad]
-  Existing deck
-  Existing structure
-  Topographic contour lines (bluff)
-  Tree
-  Tree line
-  Water line

- Notes:**
1. All locations are approximate.
 2. Dashed lines indicated that the actual location is unknown.



**Excavation of Contaminated Soil
Frederick Point NDB Site near Petersburg, Alaska**



Site Plan

<small>Project Number: 20125.074</small>	<small>Figure Number:</small>
<small>Date: 01.08.2015</small>	2
<small>Drawn By: G.R.</small>	

L:\Frederick Point\20125.074\CAD\FP-WP_0922014.dwg

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NBA1							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	43	96	ND	--	--	As: 76, Cr: 160, Cr(VI): 2.4	--
NBA2							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	<2.8	96	ND	--	--	As: 21, Cr: 13	--
NBA3							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
0.5	--	--	--	--	--	As: 25, Cr: 41	--
NBA4							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
0.3 - 0.5	--	--	--	--	--	As: 49, Cr: 69	--
NBA5							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	ND	15	ND	ND	--	As: 15, Cr: 17	--
NBA6							
Depth (feet bgs)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
0.3 - 0.5	ND	13	ND	--	--	As: 25, Cr: 16	--

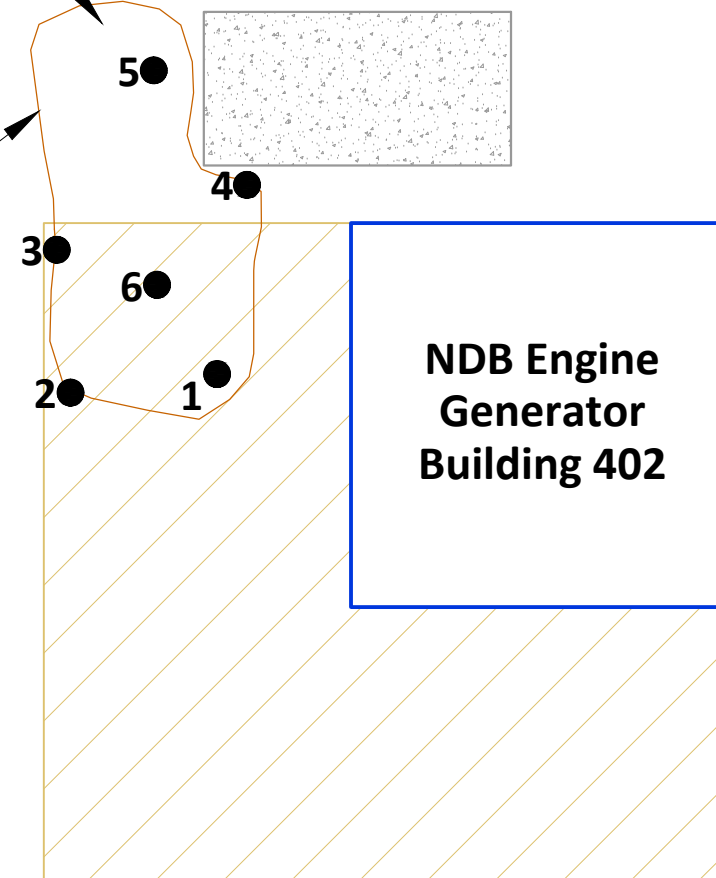
WBA1							
DRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	40	160	ND	ND	ND	As: 26	BCL
WBA2							
DRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	<12	120	ND	ND	ND	As: 1.5	BCL
WBA3							
DRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	26	110	ND	ND	ND	As: 2.5	BCL
WBA6							
DRO (mg/kg)	DRO (mg/kg)	RRO (mg/kg)	BTEX (mg/kg)	TCDD (mg/kg)	Pesticides (mg/kg)	Metals (mg/kg)	PAHs (mg/kg)
1.0	4.2	34	ND	ND	ND	As: 0.86	BCL

Helicopter Pad

Key:	
As	Arsenic
BCL	All analytes below cleanup levels
bgs	Below Ground Surface
BTEX	Benzene Toluene Ethylbenzene Xylenes
Cr	Chromium
Cr(VI)	Hexavalent Chromium
DRO	Diesel Range Organics
mg/kg	Milligrams per kilogram
ND	Non-detect
PAH	Polycyclic Aromatic Hydrocarbons
RRO	Residual Range Organics
TCDD	2,3,7,8 - Tetrachlorodibenzopdoxin
[Blue outline]	Area - Helipad
[Concrete pattern]	Concrete Pad [Aboveground Storage Tank Pad]
[Diagonal lines]	Existing deck
[Blue outline]	Existing structure
[Dashed line]	Topographic contour lines (bluff)
[Green circle]	Tree
[Green line]	Tree line
[Blue line]	Water line

West Burn Area (WBA)

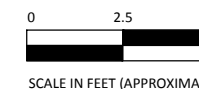
2012 Excavation Limits



Excavation of Contaminated Soil
Frederick Point NDB Site near Petersburg, Alaska

2012 Sample Locations and Results

- Notes:**
- All locations are approximate.
 - Yellow shaded results indicate that the value exceeds the ADEC Method Two, Over 40-inch Zone, Most Stringent Cleanup Levels.



Ahtna
Engineering

Project Number: 20125.074	Figure Number: 3
Date: 10.21.2014	
Drawn By: G.R.	

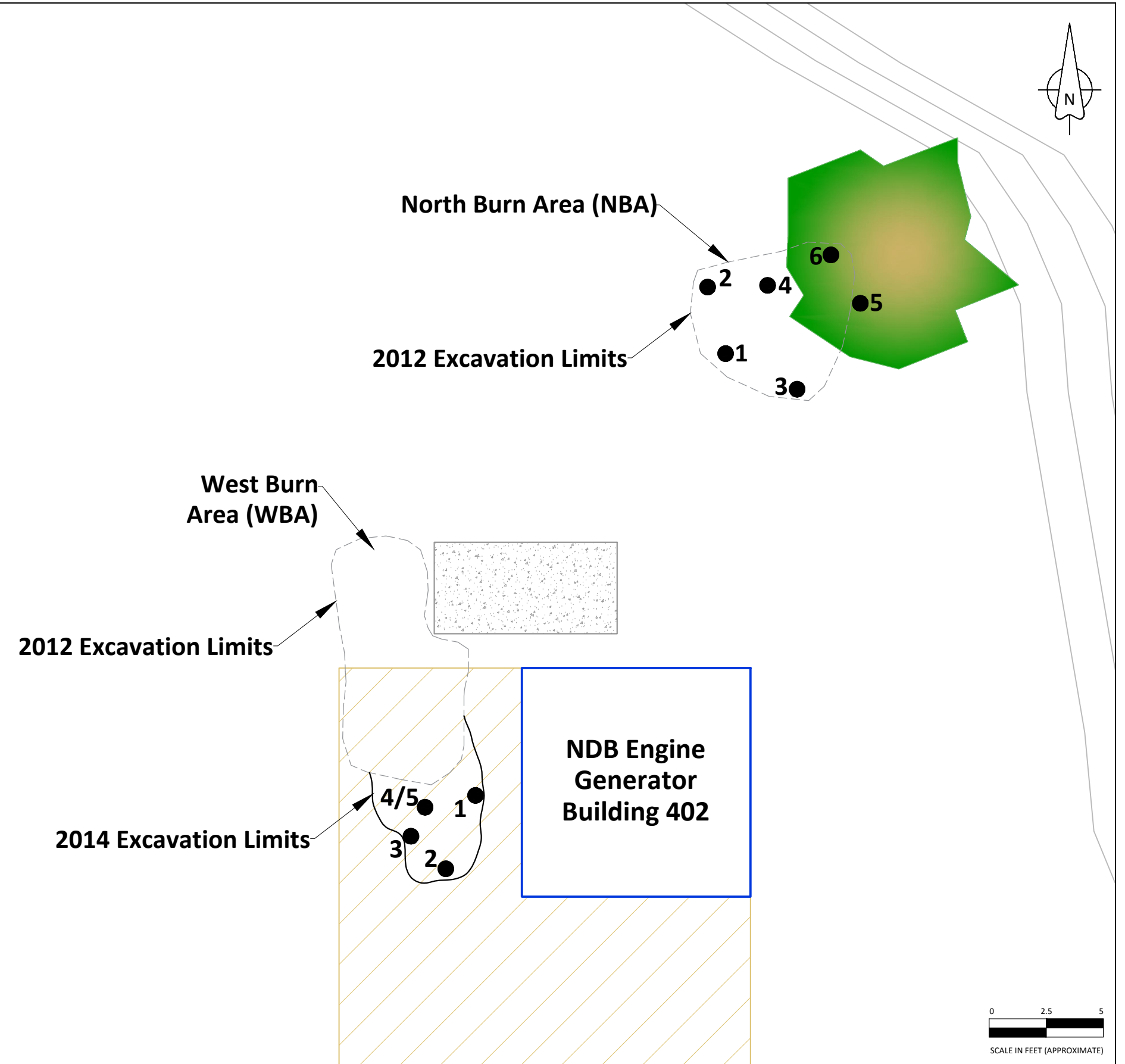
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NBA-1				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
28	12	3.6	30	ND
NBA-2				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
32	12	1.7	22	ND
NBA-3				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
28	12	51	100	ND
NBA-4				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
34	8	27	51	ND
NBA-5				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
38	10	47	67	ND
NBA-6				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
38	10	23	32	ND
NBA-7 (Duplicate of NBA-6)				
Depth (inches bgs)	Depth below previously excavated area (inches)	Arsenic (mg/kg)	Chromium (total) (mg/kg)	Chromium (VI) (mg/kg)
38	10	27	37	ND

WBA-1	
Depth (inches bgs)	Arsenic (mg/kg)
6	11
WBA-2	
Depth (inches bgs)	Arsenic (mg/kg)
6	6.5
WBA-3	
Depth (inches bgs)	Arsenic (mg/kg)
7	3.7
WBA-4	
Depth (inches bgs)	Arsenic (mg/kg)
8	3.4
WBA-5 (Duplicate of WBA-4)	
Depth (inches bgs)	Arsenic (mg/kg)
8	3.6

Key:	
As	Arsenic
BCL	All analytes below cleanup levels
bgs	Below Ground Surface
Cr	Chromium
Cr (VI)	Hexavalent Chromium
DRO	Diesel Range Organics
mg/kg	Milligrams per kilogram
ND	Non-detect
RRO	Residual Range Organics
TCDD	2,3,7,8 - Tetrachlorodibenzopdxin
	Area - Helipad
	Concrete Pad [Aboveground Storage Tank Pad]
	Existing deck
	Existing structure
	Topographic contour lines (bluff)
	Tree
	Tree line
	Water line

- Notes:**
- All locations are approximate.
 - Yellow shaded results indicate that the value exceeds the ADEC Method Two, Over 40-inch Zone, Most Stringent Cleanup Levels.



Excavation of Contaminated Soil
Frederick Point NDB Site near Petersburg, Alaska

2014 Sample Locations and Results



Project Number: 20125.074	Figure Number: 4
Date: 10.21.2014	
Drawn By: G.R.	

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APPENDIX A

SITE PHOTOGRAPHS

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Photograph 1: North Burn Area view.
Note tree stump at edge of cliff and deep hole at root base.



Photograph 2: North Burn Area excavation area between roots.
Note burn scars on inside of roots.



Photograph 3: West Burn Area with 2014 excavation area located left of center and far left below deck. Note saturated condition of soil.



Photograph 4: Transporting 55-gallon drums from site to nearby road via helicopter.

APPENDIX B

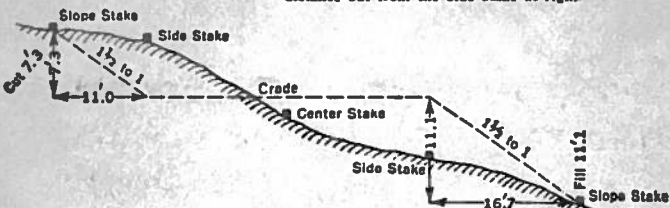
FIELD NOTES

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DISTANCES FROM SIDE STAKES FOR CROSS-SECTIONING

Roadway of any Width. Side Slopes 1 1/2 to 1.

In the figure below: opposite 7 under "Cut or Fill" and under .3 read 11.0, the distance out from the side stake at left. Also, opposite 11 under "Cut or Fill" and under .1 read 16.7, the distance out from the side stake at right.



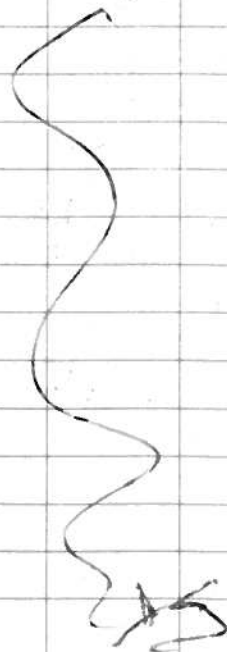
Cut or Fill	Distance out from Side or Shoulder Stake										Cut or Fill
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	
0	0.0	0.2	0.3	0.5	0.6	0.8	0.9	1.1	1.2	1.4	0
1	1.5	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	1
2	3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	2
3	4.5	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	3
4	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.4	4
5	7.5	7.7	7.8	8.0	8.1	8.3	8.4	8.6	8.7	8.9	5
6	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4	6
7	10.5	10.7	10.8	11.0	11.1	11.3	11.4	11.6	11.7	11.9	7
8	12.0	12.2	12.3	12.5	12.6	12.8	12.9	13.1	13.2	13.4	8
9	13.5	13.7	13.8	14.0	14.1	14.3	14.4	14.6	14.7	14.9	9
10	15.0	15.2	15.3	15.5	15.6	15.8	15.9	16.1	16.2	16.4	10
11	16.5	16.7	16.8	17.0	17.1	17.3	17.4	17.6	17.7	17.9	11
12	18.0	18.2	18.3	18.5	18.6	18.8	18.9	19.1	19.2	19.4	12
13	19.5	19.7	19.8	20.0	20.1	20.3	20.4	20.6	20.7	20.9	13
14	21.0	21.2	21.3	21.5	21.6	21.8	21.9	22.1	22.2	22.4	14
15	22.5	22.7	22.8	23.0	23.1	23.3	23.4	23.6	23.7	23.9	15
16	24.0	24.2	24.3	24.5	24.6	24.8	24.9	25.1	25.2	25.4	16
17	25.5	25.7	25.8	26.0	26.1	26.3	26.4	26.6	26.7	26.9	17
18	27.0	27.2	27.3	27.5	27.6	27.8	27.9	28.1	28.2	28.4	18
19	28.5	28.7	28.8	29.0	29.1	29.3	29.4	29.6	29.7	29.9	19
20	30.0	30.2	30.3	30.5	30.6	30.8	30.9	31.1	31.2	31.4	20
21	31.5	31.7	31.8	32.0	32.1	32.3	32.4	32.6	32.7	32.9	21
22	33.0	33.2	33.3	33.5	33.6	33.8	33.9	34.1	34.2	34.4	22
23	34.5	34.7	34.8	35.0	35.1	35.3	35.4	35.6	35.7	35.9	23
24	36.0	36.2	36.3	36.5	36.6	36.8	36.9	37.1	37.2	37.4	24
25	37.5	37.7	37.8	38.0	38.1	38.3	38.4	38.6	38.7	38.9	25
26	39.0	39.2	39.3	39.5	39.6	39.8	39.9	40.1	40.2	40.4	26
27	40.5	40.7	40.8	41.0	41.1	41.3	41.4	41.6	41.7	41.9	27
28	42.0	42.2	42.3	42.5	42.6	42.8	42.9	43.1	43.2	43.4	28
29	43.5	43.7	43.8	44.0	44.1	44.3	44.4	44.6	44.7	44.9	29
30	45.0	45.2	45.3	45.5	45.6	45.8	45.9	46.1	46.2	46.4	30
31	46.5	46.7	46.8	47.0	47.1	47.3	47.4	47.6	47.7	47.9	31
32	48.0	48.2	48.3	48.5	48.6	48.8	48.9	49.1	49.2	49.4	32
33	49.5	49.7	49.8	50.0	50.1	50.3	50.4	50.6	50.7	50.9	33
34	51.0	51.2	51.3	51.5	51.6	51.8	51.9	52.1	52.2	52.4	34
35	52.5	52.7	52.8	53.0	53.1	53.3	53.4	53.6	53.7	53.9	35
36	54.0	54.2	54.3	54.5	54.6	54.8	54.9	55.1	55.2	55.4	36
37	55.5	55.7	55.8	56.0	56.1	56.3	56.4	56.6	56.7	56.9	37
38	57.0	57.2	57.3	57.5	57.6	57.8	57.9	58.1	58.2	58.4	38
39	58.5	58.7	58.8	59.0	59.1	59.3	59.4	59.6	59.7	59.9	39
40	60.0	60.2	60.3	60.5	60.6	60.8	60.9	61.1	61.2	61.4	40

6/23/14

Travel Anchorage to Petersburg
 Arrive ~4:10 PM - Collect
 baggage and ride shuttle
 to Hotel.

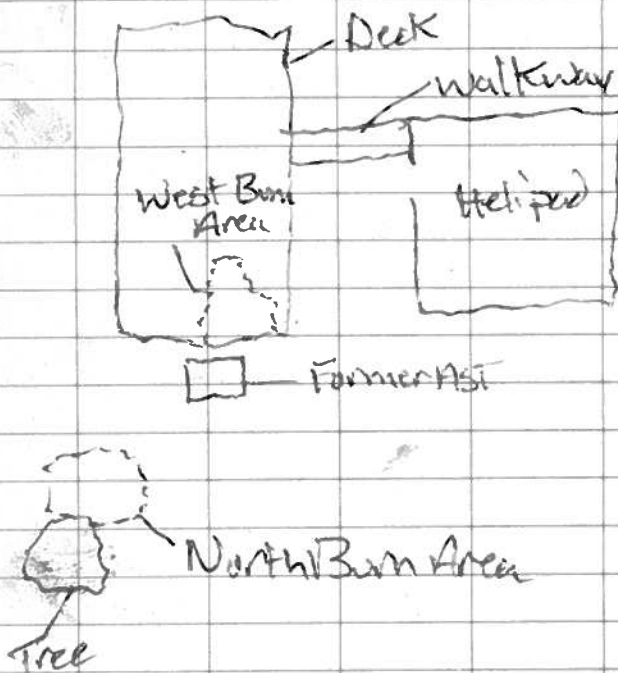
Coordinate resources for
 field work on Tuesday

End of day



John Spidman

6-24-14 - Christally Robert Melrose
Pickup equip/supplies in town
Travel to site and pack
equipment to site. Inter-
mittent rain ~ 55°F
Set up drums on cargo
nets



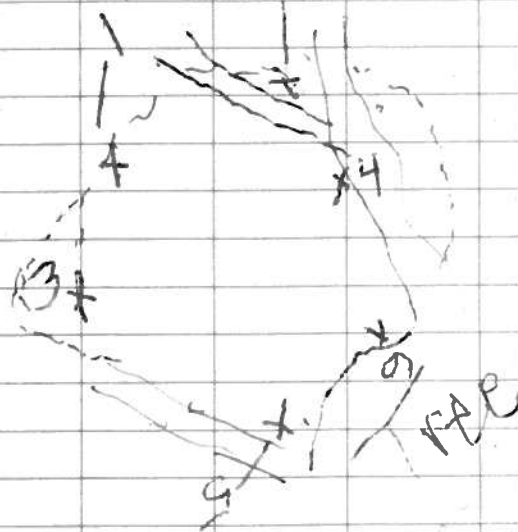
6-24-14

Collect FNP4/NBA1 1530
@ 28" depth ~ 12" removal

Collect NBA2 1545
@ 32" depth ~ 12" removal
bedrock

Collect NBA3 1600
@ 28" depth ~ 12 inch removal

Collect NBA4 1615
@ 34" depth ~ 8 inch removal
bedrock



NBA5 @ 1620
38" depth ~ 10 inch removal

6-24-14

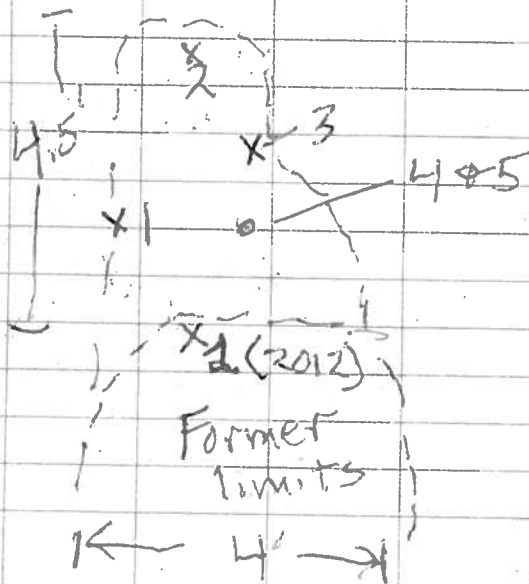
NBA 6/7 (dup) @ 1630
at 38" depth ~10 inch removal

NBA 7 @ 1635 low loc

All NBA samples submitted
for

1 jar As + Cr by EPA 6010/6020
1 jar Cr III by 6010B w/
7196 A prep

WBA - One Drum removal



6-24-14

FNP14 WBA-1 Collected at
1700 @ ~ 6 inch depth
at sidewall

WBA-2 1705 From base
~ 6 inch depth

WBA-3 From base/sidew
1710 ~ 7 inch

WBA-4 (5 dup) at 1720
From base ~ 8 inch
depth

All WBA samples for As
by 6020

Waste Characterization

FNP14 WBA-WC at
1730 From composite
bag collected while filling drum
Analysis TCLP As

NBA-WC at 1735
From composite bag
TCLP As + Cr
Pack up gear and leave site
B

6-25-14 | Partly to mostly cloudy
intermittent showers 55°

Arrange for helicopter to
sling drums at 10 AM

Chris at top to unhook
me (Tspidman) at site to
hook up drums.

Doug Moody & Robert Melrose
to 'block' roads.

Helicopter arrives and
can't lift any of the drums.
Leaves.

Chris and I return to town
and buy another drum. Go
back to site and remove
soil from each of the
drums and add to 4th drum.

Make arrangements for
helicopter to come back
at 3 PM.

6-25-14

On-site at 3 PM for helicopter
same personnel/tasks as
morning.

Sling drums to back of flat-bed
by road.

Deliver drums to Temso for
storage.

Unload w/ forklift and store
w/in secure, fenced area by
hangar.

End of Day

15

APPENDIX C
DATA QUALITY REPORT
&
ADEC DATA REVIEW CHECKLIST

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DATA QUALITY REVIEW

Date: 09/12/2014

Project : Frederick's Point Soil Removal
Site: Frederick's Point, Alaska
Laboratory: TestAmerica Laboratories, Inc.
Work Order: 230-184-1
Analyses: Metals, Hexavalent Chromium (CrVI)
Date Received: 6/27/2014
Reviewer Name: Emily Freitas
Reviewer Title: Chemist

INTRODUCTION

Table 1 lists the field sample numbers, corresponding laboratory numbers, requested analyses, and identifies quality control (QC) samples.

TABLE 1: FIELD SAMPLE PLAN OVERVIEW

Field Sample ID	Lab Sample ID	Analyses requested	QC
FNP14NBA-1	230-184-1	As, Cr, CrVI	
FNP14NBA-2	230-184-2	As, Cr, CrVI	
FNP14NBA-3	230-184-3	As, Cr, CrVI	
FNP14NBA-4	230-184-4	As, Cr, CrVI	
FNP14NBA-5	230-184-5	As, Cr, CrVI	
FNP14NBA-6	230-184-6	As, Cr, CrVI	Primary
FNP14NBA-7	230-184-7	As, Cr, CrVI	Duplicate of sample FNP14NBA-6
FNP14WBA-1	230-184-8	As, Cr, CrVI	
FNP14WBA-2	230-184-9	As, Cr, CrVI	
FNP14WBA-3	230-184-10	As, Cr, CrVI	
FNP14WBA-4	230-184-11	As, Cr, CrVI	Primary
FNP14WBA-5	230-184-12	As, Cr, CrVI	Duplicate of sample FNP14WBA-4
FNP14WBA-WC	230-184-13	TCLP As	
FNP14NBA-WC	230-184-14	TCLP As and Cr	

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

- R Reported value is “rejected.” Resampling or reanalysis may be necessary to verify the presence or absence of the compound.
- J The associated numerical value is an estimated quantity because the Quality Control criteria were not met. “J+” is used when the quantity is biased high, and “J-” is used when the quantity is biased low.
- UJ The reported quantitation limit is estimated because QC criteria were not met. Element or compound was not detected.
- U The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
- NR Result was not used from a particular sample analysis. This typically occurs when more than one result for an element is reported due to dilutions and reanalysis.

DATA REVIEW

Data quality review is a process for evaluating the completeness, correctness, consistency, compliance with method procedures and quality control requirements, and identification of anomalous data. This quality assurance (QA) summary includes a review, where appropriate, of the following parameters.

- Sample receipt conditions
 - Sample preservation
 - Cooler receipt forms
 - Chain of Custody condition
- Extraction and analytical procedures
 - Holding times
 - Analytical reporting limits
 - Method blanks
 - Laboratory control samples and duplicates
 - Matrix spike samples and duplicates
 - Laboratory duplicate samples
 - Surrogate recoveries (organics only)
- Sampling procedures
 - Field blanks
 - Trip blanks
 - Field duplicate samples
- Correspondence to method criteria and project data quality objectives

Each analysis that was performed is evaluated in the following subsections of this report, and only the criteria exceedances that impact data qualification or require assessment beyond laboratory documentation are discussed.

This project did not have a project-specific quality assurance plan with specified data quality objectives. The Data Quality Assessment was conducted in accordance with the following documents.

- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic (October, 1994) and Organic (October, 1999) Review,
- USEPA document “Test Methods for Evaluating Solid Wastes, SW-846, revision 6” (February, 2007 and updates,
- Alaska Department of Environmental Conservation (ADEC) Environmental Laboratory Data and Quality Assurance Requirements Technical Memorandum (March 2009),
- Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5 (DoD QSM) (July, 2013), where and when applicable.

This review document summarizes the precision, accuracy, representativeness, comparability, completeness, and sensitivity as required by ADEC guidelines. An ADEC Laboratory Data Review Checklist is included for this Sample Delivery Group (SDG).

Sample Receipt Conditions

Samples were submitted to TestAmerica in Portland, OR. Fourteen(14) soil samples were submitted in two coolers under intact custody seals in one laboratory batch on June 27, 2014. The Hexavalent Chromium samples were subcontracted to TestAmerica in Sacramento, CA. The sample results are reported under TestAmerica Anchorage SDG 230-184-1. All samples were received with proper preservation and in good condition. Samples were received at 3.0°C in Portland and 2.0°C in Sacramento, which are within the ADEC recommended temperatures (4 ± 2 °C).

All holding time criteria specified by the individual methods were met.

Precision

Precision was assessed by calculating the relative percent difference (RPD) between the primary and duplicate of field samples, lab control samples (LCS), and matrix spike samples (MS).

Sample FNP14NBA-7 was collected as a duplicate of sample FNP14NBA-6. Sample FNP14WBA-5 was collected as a duplicate of FNP14WBA-4. This represents a field duplicate rate of 2 per 12 soil samples or 17%, which is above the DQO of 10%.

RPDs were calculated for the primary and duplicate field samples when both results are reported above the LOQ using the following equation. Results are shown in Table 2 below.

EQUATION 1 – RELATIVE PERCENT DIFFERENCE

$\text{RPD (\%)} = \text{Absolute Value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$ <p>Where R_1 = Sample Concentration R_2 = Field Duplicate Concentration</p>

TABLE 2 – RPD CALCULATION

Analyte	Units	FNP14NBA-6 230-184-6 Primary	FNP14NBA-7 230-184-7 Duplicate	RPD ≤ 50%	Flag
Arsenic	mg/Kg	23	27	25	
Chromium	mg/Kg	32	37	14	
Analyte	Units	FNP14WBA-4 230-184-11 Primary	FNP14WBA-5 230-184-12 Duplicate	RPD ≤ 50%	Flag
Arsenic	mg/Kg	3.4	3.6	6	

The RPDs were within limits for all detected analytes in both duplicate sets.

The LCS/LCSD RPDs were within laboratory limits.

A MS/MSD sample was not designated. The laboratory assigned MS/MSD RPDs were within laboratory limits.

Accuracy

Accuracy was assessed by calculating the percent recovery for LCS, MS.

An MS/MSD sample was not designated in the field. The laboratory assigned MS/MSD percent recoveries were within limits.

The LCS/LCSD were recovered within control limits.

An MS/MSD site-specific sample was not designated. The laboratory MS/MSD % recoveries were within laboratory limits.

No additional qualifications were made based on accuracy.

Representativeness

All samples were collected in accordance with the ADEC Draft Field Sampling Guidance (2010). Samples collected are considered representative of conditions.

Comparability

Field screening was not conducted at this site. One laboratory was used and only one SDG, so laboratories or SDGs cannot be compared. However, the results are comparable to each other and previous investigation results.

Completeness

All data necessary to complete a level II data validation on this SDG was provided. No data were rejected, so 100% of results are usable.

Sensitivity

All results are evaluated to the Reporting Limit (RL). These limits are comparable to the levels specified in Tables B and B1, ADEC Soil Cleanup Levels (18AAC75.345, April 2012).

No trip blanks were submitted within this SDG and none were required since no volatile analyses were requested.

The method blanks (MB) were analyzed at the required frequencies of one per matrix, analysis, and 20 samples. The method blanks did not contain any detections.

No equipment blanks or field blanks were submitted for this SDG.

OVERALL ASSESSMENT

Based on the review completed on the one laboratory SDG data, no data were rejected.

No data quality issues were observed and all sample results are considered to be valid with no additional qualifiers assigned.

The technical completeness goal was exceeded for all methods. All analytical data is considered usable for the purpose of evaluating the presence or absence and magnitude of the suspected site contaminants.

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Laboratory Data Review Checklist

Completed by:

Title: Date:

CS Report Name: Report Date:

Consultant Firm:

Laboratory Name: Laboratory Report Number:

ADEC File Number: ADEC RecKey Number:

1. Laboratory

- a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
 Yes No NA (Please explain.) Comments:

- b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
 Yes No NA (Please explain.) Comments:

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?
 Yes No NA (Please explain.) Comments:

- b. Correct analyses requested?
 Yes No NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt ($4^{\circ} \pm 2^{\circ} \text{C}$)?
 Yes No NA (Please explain.) Comments:

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
 Yes No NA (Please explain.) Comments:

- c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
 Yes No NA (Please explain.) Comments:

Sample condition documented. The samples were received in good condition.

- d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
 Yes No NA (Please explain.) Comments:

No discrepancies were present.

- e. Data quality or usability affected? (Please explain.) Comments:

No errors were present in the sample condition upon receipt at the lab.

4. Case Narrative

- a. Present and understandable?
 Yes No NA (Please explain.) Comments:

- b. Discrepancies, errors or QC failures identified by the lab?
 Yes No NA (Please explain.) Comments:

No discrepancies were present.

- c. Were all corrective actions documented?
 Yes No NA (Please explain.) Comments:

No corrective actions were necessary since there were no discrepancies.

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

Data usability was not affected.

5. Samples Results

- a. Correct analyses performed/reported as requested on COC?
 Yes No NA (Please explain.) Comments:

- b. All applicable holding times met?
 Yes No NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?
 Yes No NA (Please explain.)

Comments:

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?

Yes No NA (Please explain.)

Comments:

The PQLs are lower than the project action level except where indicated on the tables. In instances where the project action level is lower than the PQL, result can only be used to verify presence or absence of the analyte.

e. Data quality or usability affected?

Comments:

Data quality is not affected.

6. QC Samples

a. Method Blank

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

Yes No NA (Please explain.)

Comments:

ii. All method blank results less than PQL?

Yes No NA (Please explain.)

Comments:

iii. If above PQL, what samples are affected?

Comments:

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

Yes No NA (Please explain.)

Comments:

There were no affected samples.

v. Data quality or usability affected? (Please explain.)

Comments:

Data usability is not affected.

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

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

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.) Comments:

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

Comments:

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

Yes No NA (Please explain.) Comments:

There were no affected samples.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data usability is not affected.

c. Surrogates – Organics Only

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

Yes No NA (Please explain.) Comments:

No organic analyses were requested.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No NA (Please explain.) Comments:

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

Yes No NA (Please explain.)

Comments:

iv. Data quality or usability affected? (Use the comment box to explain.)

Comments:

Data quality is not affected by the lack of surrogates.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes No NA (Please explain.)

Comments:

No volatile analyses were requested.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes No NA (Please explain.)

Comments:

iii. All results less than PQL?

Yes No NA (Please explain.)

Comments:

iv. If above PQL, what samples are affected?

Comments:

v. Data quality or usability affected? (Please explain.)

Comments:

Data quality was not affected by the lack of a trip blank.

e. Field Duplicate

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

Yes No NA (Please explain.)

Comments:

ii. Submitted blind to lab?

Yes No NA (Please explain.)

Comments:

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

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No NA (Please explain.)

Comments:

The RPDs for the detected analytes in both duplicate sets were within limits.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality and usability is not affected.

f. Decontamination or Equipment Blank (If not used explain why).

Yes No NA (Please explain.)

Comments:

No equipment blank necessary. Disposable equipment was used.

i. All results less than PQL?

Yes No NA (Please explain.)

Comments:

ii. If above PQL, what samples are affected?

Comments:

NA.

iii. Data quality or usability affected? (Please explain.)

Comments:

No.

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

a. Defined and appropriate?

Yes No NA (Please explain.)

Comments:

No additional qualifiers were assigned to this laboratory data set.

APPENDIX D

LABORATORY ANALYTICAL REPORT

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Anchorage

2000 West International Airport Road

Suite A10

Anchorage, AK 99502-1119

Tel: (907)563-9200

TestAmerica Job ID: 230-184-1

Client Project/Site: Frederick Point Soil Removal

For:

Ahtna Engineering Services LLC

560 E 34th Avenue

Suite 101

Anchorage, Alaska 99503

Attn: John Spielman



Authorized for release by:

7/14/2014 5:24:51 PM

Johanna Dreher, Project Manager I

(907)563-9200

johanna.dreher@testamericainc.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Job ID: 230-184-1

Laboratory: TestAmerica Anchorage

Narrative

**Job Narrative
230-184-1**

Comments

Samples were shipped to TestAmerica Portland from the field. This project was reported from TestAmerica Anchorage.

Receipt

The samples were received on 6/27/2014 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

Subcontract

Total and TCLP metals samples were analyzed by TestAmerica Portland.

Hexavalent Chromium samples were analyzed by TestAmerica Sacramento.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Detection Summary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-1

Lab Sample ID: 230-184-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.6		0.64	mg/Kg	10	☼	6020	Total/NA
Chromium	30		1.3	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-2

Lab Sample ID: 230-184-2

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.7		0.67	mg/Kg	10	☼	6020	Total/NA
Chromium	22		1.3	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-3

Lab Sample ID: 230-184-3

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	51		0.84	mg/Kg	10	☼	6020	Total/NA
Chromium	100		1.7	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-4

Lab Sample ID: 230-184-4

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	27		0.67	mg/Kg	10	☼	6020	Total/NA
Chromium	51		1.3	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-5

Lab Sample ID: 230-184-5

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	47		0.80	mg/Kg	10	☼	6020	Total/NA
Chromium	67		1.6	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-6

Lab Sample ID: 230-184-6

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	23		0.73	mg/Kg	10	☼	6020	Total/NA
Chromium	32		1.5	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14NBA-7

Lab Sample ID: 230-184-7

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	27		0.81	mg/Kg	10	☼	6020	Total/NA
Chromium	37		1.6	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-1

Lab Sample ID: 230-184-8

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	11		1.6	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-2

Lab Sample ID: 230-184-9

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	6.5		2.6	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-3

Lab Sample ID: 230-184-10

This Detection Summary does not include radiochemical test results.

TestAmerica Anchorage

Detection Summary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14WBA-3 (Continued)

Lab Sample ID: 230-184-10

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.7		0.99	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-4

Lab Sample ID: 230-184-11

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.4		2.4	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-5

Lab Sample ID: 230-184-12

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	3.6		2.3	mg/Kg	10	☼	6020	Total/NA

Client Sample ID: FNP14WBA-WC

Lab Sample ID: 230-184-13

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.012		0.010	mg/L	10		6020	TCLP

Client Sample ID: FNP14NBA-WC

Lab Sample ID: 230-184-14

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Anchorage

Client Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-1

Lab Sample ID: 230-184-1

Date Collected: 06/24/14 15:30

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 77.9

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.6		0.64	mg/Kg	☼	06/30/14 16:25	06/30/14 21:13	10
Chromium	30		1.3	mg/Kg	☼	06/30/14 16:25	06/30/14 21:13	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14NBA-2

Lab Sample ID: 230-184-2

Date Collected: 06/24/14 15:45

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 73.0

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.7		0.67	mg/Kg	☼	07/02/14 08:31	07/02/14 17:11	10
Chromium	22		1.3	mg/Kg	☼	07/02/14 08:31	07/02/14 17:11	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14NBA-3

Lab Sample ID: 230-184-3

Date Collected: 06/24/14 16:00

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 58.5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	51		0.84	mg/Kg	☼	07/02/14 08:31	07/02/14 17:15	10
Chromium	100		1.7	mg/Kg	☼	07/02/14 08:31	07/02/14 17:15	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14NBA-4

Lab Sample ID: 230-184-4

Date Collected: 06/24/14 16:15

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 71.9

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	27		0.67	mg/Kg	☼	07/02/14 08:31	07/02/14 17:18	10
Chromium	51		1.3	mg/Kg	☼	07/02/14 08:31	07/02/14 17:18	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-5

Lab Sample ID: 230-184-5

Date Collected: 06/24/14 16:20

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 60.6

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	47		0.80	mg/Kg	☼	07/02/14 08:31	07/02/14 17:22	10
Chromium	67		1.6	mg/Kg	☼	07/02/14 08:31	07/02/14 17:22	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14NBA-6

Lab Sample ID: 230-184-6

Date Collected: 06/24/14 16:30

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 65.4

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23		0.73	mg/Kg	☼	07/02/14 08:31	07/02/14 17:26	10
Chromium	32		1.5	mg/Kg	☼	07/02/14 08:31	07/02/14 17:26	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14NBA-7

Lab Sample ID: 230-184-7

Date Collected: 06/24/14 16:35

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 59.3

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	27		0.81	mg/Kg	☼	07/02/14 08:31	07/02/14 17:29	10
Chromium	37		1.6	mg/Kg	☼	07/02/14 08:31	07/02/14 17:29	10

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Client Sample ID: FNP14WBA-1

Lab Sample ID: 230-184-8

Date Collected: 06/24/14 07:00

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 31.0

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11		1.6	mg/Kg	☼	07/02/14 08:31	07/02/14 17:45	10

Client Sample ID: FNP14WBA-2

Lab Sample ID: 230-184-9

Date Collected: 06/24/14 17:05

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 18.0

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.5		2.6	mg/Kg	☼	07/02/14 08:31	07/02/14 17:48	10

TestAmerica Anchorage

Client Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14WBA-3

Lab Sample ID: 230-184-10

Date Collected: 06/24/14 17:10

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 49.0

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.7		0.99	mg/Kg	☼	07/02/14 08:31	07/02/14 17:52	10

Client Sample ID: FNP14WBA-4

Lab Sample ID: 230-184-11

Date Collected: 06/24/14 17:15

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 20.2

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.4		2.4	mg/Kg	☼	07/02/14 08:31	07/02/14 17:56	10

Client Sample ID: FNP14WBA-5

Lab Sample ID: 230-184-12

Date Collected: 06/24/14 17:20

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 20.8

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	3.6		2.3	mg/Kg	☼	07/02/14 08:31	07/02/14 18:11	10

Client Sample ID: FNP14WBA-WC

Lab Sample ID: 230-184-13

Date Collected: 06/24/14 17:30

Matrix: Solid

Date Received: 06/27/14 08:40

Method: 6020 - Metals (ICP/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.012		0.010	mg/L		07/09/14 07:42	07/09/14 19:52	10

Client Sample ID: FNP14NBA-WC

Lab Sample ID: 230-184-14

Date Collected: 06/24/14 17:35

Matrix: Solid

Date Received: 06/27/14 08:40

Method: 6020 - Metals (ICP/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	mg/L		07/09/14 07:42	07/09/14 19:56	10
Chromium	ND		0.020	mg/L		07/09/14 07:42	07/09/14 19:56	10

QC Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 250-28279/1-A

Matrix: Solid

Analysis Batch: 28290

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 28279

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.50	mg/Kg		06/30/14 16:25	06/30/14 20:52	10
Chromium	ND		1.0	mg/Kg		06/30/14 16:25	06/30/14 20:52	10

Lab Sample ID: LCS 250-28279/2-A

Matrix: Solid

Analysis Batch: 28290

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 28279

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	48.8	47.7		mg/Kg		98	80 - 120
Chromium	48.8	48.8		mg/Kg		100	80 - 120

Lab Sample ID: 230-184-1 MS

Matrix: Solid

Analysis Batch: 28290

Client Sample ID: FNP14NBA-1

Prep Type: Total/NA

Prep Batch: 28279

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	3.6		63.5	65.6		mg/Kg	✱	98	75 - 125
Chromium	30		63.5	107		mg/Kg	✱	120	75 - 125

Lab Sample ID: 230-184-1 MSD

Matrix: Solid

Analysis Batch: 28290

Client Sample ID: FNP14NBA-1

Prep Type: Total/NA

Prep Batch: 28279

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	3.6		61.9	67.8		mg/Kg	✱	104	75 - 125	3	40
Chromium	30		61.9	102		mg/Kg	✱	115	75 - 125	5	40

Lab Sample ID: MB 250-28347/1-A

Matrix: Solid

Analysis Batch: 28383

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 28347

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.48	mg/Kg		07/02/14 08:31	07/02/14 16:08	10
Chromium	ND		0.97	mg/Kg		07/02/14 08:31	07/02/14 16:08	10

Lab Sample ID: LCS 250-28347/2-A

Matrix: Solid

Analysis Batch: 28383

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 28347

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	47.9	46.4		mg/Kg		97	80 - 120
Chromium	47.9	48.4		mg/Kg		101	80 - 120

Lab Sample ID: 250-19905-A-1-B MS

Matrix: Solid

Analysis Batch: 28383

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 28347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	2.8		50.5	51.1		mg/Kg	✱	95	75 - 125

TestAmerica Anchorage

QC Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 250-19905-A-1-B MS
Matrix: Solid
Analysis Batch: 28383

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 28347

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	24		50.5	77.8		mg/Kg	☼	106	75 - 125

Lab Sample ID: 250-19905-A-1-C MSD
Matrix: Solid
Analysis Batch: 28383

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 28347

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	2.8		50.4	50.6		mg/Kg	☼	95	75 - 125	1	40
Chromium	24		50.4	80.2		mg/Kg	☼	111	75 - 125	3	40

Lab Sample ID: LCS 250-28476/2-A
Matrix: Solid
Analysis Batch: 28508

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 28476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.965		mg/L		96	80 - 120
Chromium	1.00	0.999		mg/L		100	80 - 120

Lab Sample ID: MB 250-28451/8-B
Matrix: Solid
Analysis Batch: 28508

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 28476

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.010	mg/L		07/09/14 07:42	07/09/14 19:26	10
Chromium	ND		0.020	mg/L		07/09/14 07:42	07/09/14 19:26	10

Lab Sample ID: 250-20006-A-1-C MS
Matrix: Solid
Analysis Batch: 28508

Client Sample ID: Matrix Spike
Prep Type: TCLP
Prep Batch: 28476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	ND		1.00	0.978		mg/L		98	75 - 125
Chromium	0.088		1.00	1.08		mg/L		99	75 - 125

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 320-46995/1-A
Matrix: Solid
Analysis Batch: 47008

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	ND		0.050	mg/Kg			07/11/14 08:33	1

Lab Sample ID: LCS 320-46995/2-A
Matrix: Solid
Analysis Batch: 47008

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	0.200	0.198		mg/Kg		99	85 - 115

TestAmerica Anchorage

QC Sample Results

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Method: 7196A - Chromium, Hexavalent (Continued)

Lab Sample ID: 230-184-7 MS

Matrix: Solid

Analysis Batch: 47008

Client Sample ID: FNP14NBA-7

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium, hexavalent	ND		0.251	0.223		mg/Kg		89	85 - 115

Lab Sample ID: 230-184-7 MSD

Matrix: Solid

Analysis Batch: 47008

Client Sample ID: FNP14NBA-7

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium, hexavalent	ND		0.251	0.217		mg/Kg		86	85 - 115	3	15



QC Association Summary

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Metals

Prep Batch: 28279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-1	FNP14NBA-1	Total/NA	Solid	3050B	
230-184-1 MS	FNP14NBA-1	Total/NA	Solid	3050B	
230-184-1 MSD	FNP14NBA-1	Total/NA	Solid	3050B	
LCS 250-28279/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 250-28279/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 28290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-1	FNP14NBA-1	Total/NA	Solid	6020	28279
230-184-1 MS	FNP14NBA-1	Total/NA	Solid	6020	28279
230-184-1 MSD	FNP14NBA-1	Total/NA	Solid	6020	28279
LCS 250-28279/2-A	Lab Control Sample	Total/NA	Solid	6020	28279
MB 250-28279/1-A	Method Blank	Total/NA	Solid	6020	28279

Prep Batch: 28347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-2	FNP14NBA-2	Total/NA	Solid	3050B	
230-184-3	FNP14NBA-3	Total/NA	Solid	3050B	
230-184-4	FNP14NBA-4	Total/NA	Solid	3050B	
230-184-5	FNP14NBA-5	Total/NA	Solid	3050B	
230-184-6	FNP14NBA-6	Total/NA	Solid	3050B	
230-184-7	FNP14NBA-7	Total/NA	Solid	3050B	
230-184-8	FNP14WBA-1	Total/NA	Solid	3050B	
230-184-9	FNP14WBA-2	Total/NA	Solid	3050B	
230-184-10	FNP14WBA-3	Total/NA	Solid	3050B	
230-184-11	FNP14WBA-4	Total/NA	Solid	3050B	
230-184-12	FNP14WBA-5	Total/NA	Solid	3050B	
250-19905-A-1-B MS	Matrix Spike	Total/NA	Solid	3050B	
250-19905-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	
LCS 250-28347/2-A	Lab Control Sample	Total/NA	Solid	3050B	
MB 250-28347/1-A	Method Blank	Total/NA	Solid	3050B	

Analysis Batch: 28383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-2	FNP14NBA-2	Total/NA	Solid	6020	28347
230-184-3	FNP14NBA-3	Total/NA	Solid	6020	28347
230-184-4	FNP14NBA-4	Total/NA	Solid	6020	28347
230-184-5	FNP14NBA-5	Total/NA	Solid	6020	28347
230-184-6	FNP14NBA-6	Total/NA	Solid	6020	28347
230-184-7	FNP14NBA-7	Total/NA	Solid	6020	28347
230-184-8	FNP14WBA-1	Total/NA	Solid	6020	28347
230-184-9	FNP14WBA-2	Total/NA	Solid	6020	28347
230-184-10	FNP14WBA-3	Total/NA	Solid	6020	28347
230-184-11	FNP14WBA-4	Total/NA	Solid	6020	28347
230-184-12	FNP14WBA-5	Total/NA	Solid	6020	28347
250-19905-A-1-B MS	Matrix Spike	Total/NA	Solid	6020	28347
250-19905-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6020	28347
LCS 250-28347/2-A	Lab Control Sample	Total/NA	Solid	6020	28347
MB 250-28347/1-A	Method Blank	Total/NA	Solid	6020	28347

TestAmerica Anchorage

QC Association Summary

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Metals (Continued)

Leach Batch: 28451

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-13	FNP14WBA-WC	TCLP	Solid	1311	
230-184-14	FNP14NBA-WC	TCLP	Solid	1311	
250-20006-A-1-C MS	Matrix Spike	TCLP	Solid	1311	
MB 250-28451/8-B	Method Blank	TCLP	Solid	1311	

Prep Batch: 28476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-13	FNP14WBA-WC	TCLP	Solid	3005A	28451
230-184-14	FNP14NBA-WC	TCLP	Solid	3005A	28451
250-20006-A-1-C MS	Matrix Spike	TCLP	Solid	3005A	28451
LCS 250-28476/2-A	Lab Control Sample	Total/NA	Solid	3005A	
MB 250-28451/8-B	Method Blank	TCLP	Solid	3005A	28451

Analysis Batch: 28508

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-13	FNP14WBA-WC	TCLP	Solid	6020	28476
230-184-14	FNP14NBA-WC	TCLP	Solid	6020	28476
250-20006-A-1-C MS	Matrix Spike	TCLP	Solid	6020	28476
LCS 250-28476/2-A	Lab Control Sample	Total/NA	Solid	6020	28476
MB 250-28451/8-B	Method Blank	TCLP	Solid	6020	28476

General Chemistry

Analysis Batch: 28287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-1	FNP14NBA-1	Total/NA	Solid	D2216-80	
230-184-2	FNP14NBA-2	Total/NA	Solid	D2216-80	
230-184-3	FNP14NBA-3	Total/NA	Solid	D2216-80	
230-184-3 DU	FNP14NBA-3	Total/NA	Solid	D2216-80	
230-184-4	FNP14NBA-4	Total/NA	Solid	D2216-80	
230-184-5	FNP14NBA-5	Total/NA	Solid	D2216-80	
230-184-6	FNP14NBA-6	Total/NA	Solid	D2216-80	
230-184-7	FNP14NBA-7	Total/NA	Solid	D2216-80	
230-184-8	FNP14WBA-1	Total/NA	Solid	D2216-80	
230-184-9	FNP14WBA-2	Total/NA	Solid	D2216-80	
230-184-10	FNP14WBA-3	Total/NA	Solid	D2216-80	
230-184-11	FNP14WBA-4	Total/NA	Solid	D2216-80	
230-184-12	FNP14WBA-5	Total/NA	Solid	D2216-80	

Analysis Batch: 28348

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-13	FNP14WBA-WC	Total/NA	Solid	D2216-80	
230-184-14	FNP14NBA-WC	Total/NA	Solid	D2216-80	
250-19905-A-1 DU	Duplicate	Total/NA	Solid	D2216-80	

Leach Batch: 46995

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-1	FNP14NBA-1	Soluble	Solid	DI Leach	
230-184-2	FNP14NBA-2	Soluble	Solid	DI Leach	
230-184-3	FNP14NBA-3	Soluble	Solid	DI Leach	

TestAmerica Anchorage

QC Association Summary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

General Chemistry (Continued)

Leach Batch: 46995 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-4	FNP14NBA-4	Soluble	Solid	DI Leach	
230-184-5	FNP14NBA-5	Soluble	Solid	DI Leach	
230-184-6	FNP14NBA-6	Soluble	Solid	DI Leach	
230-184-7	FNP14NBA-7	Soluble	Solid	DI Leach	
230-184-7 MS	FNP14NBA-7	Soluble	Solid	DI Leach	
230-184-7 MSD	FNP14NBA-7	Soluble	Solid	DI Leach	
LCS 320-46995/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
MB 320-46995/1-A	Method Blank	Soluble	Solid	DI Leach	

Analysis Batch: 47008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
230-184-1	FNP14NBA-1	Soluble	Solid	7196A	46995
230-184-2	FNP14NBA-2	Soluble	Solid	7196A	46995
230-184-3	FNP14NBA-3	Soluble	Solid	7196A	46995
230-184-4	FNP14NBA-4	Soluble	Solid	7196A	46995
230-184-5	FNP14NBA-5	Soluble	Solid	7196A	46995
230-184-6	FNP14NBA-6	Soluble	Solid	7196A	46995
230-184-7	FNP14NBA-7	Soluble	Solid	7196A	46995
230-184-7 MS	FNP14NBA-7	Soluble	Solid	7196A	46995
230-184-7 MSD	FNP14NBA-7	Soluble	Solid	7196A	46995
LCS 320-46995/2-A	Lab Control Sample	Soluble	Solid	7196A	46995
MB 320-46995/1-A	Method Blank	Soluble	Solid	7196A	46995

Lab Chronicle

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-1

Date Collected: 06/24/14 15:30

Date Received: 06/27/14 08:40

Lab Sample ID: 230-184-1

Matrix: Solid

Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28279	06/30/14 16:25	KTN	TAL PRT
Total/NA	Analysis	6020		10	28290	06/30/14 21:13	LQN	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14NBA-2

Date Collected: 06/24/14 15:45

Date Received: 06/27/14 08:40

Lab Sample ID: 230-184-2

Matrix: Solid

Percent Solids: 73.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:11	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14NBA-3

Date Collected: 06/24/14 16:00

Date Received: 06/27/14 08:40

Lab Sample ID: 230-184-3

Matrix: Solid

Percent Solids: 58.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:15	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14NBA-4

Date Collected: 06/24/14 16:15

Date Received: 06/27/14 08:40

Lab Sample ID: 230-184-4

Matrix: Solid

Percent Solids: 71.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:18	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Lab Chronicle

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-5

Lab Sample ID: 230-184-5

Date Collected: 06/24/14 16:20

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 60.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:22	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14NBA-6

Lab Sample ID: 230-184-6

Date Collected: 06/24/14 16:30

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 65.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:26	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14NBA-7

Lab Sample ID: 230-184-7

Date Collected: 06/24/14 16:35

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 59.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:29	TNL	TAL PRT
Soluble	Leach	DI Leach			46995	07/11/14 08:30	NKN	TAL SAC
Soluble	Analysis	7196A		1	47008	07/11/14 08:33	NKN	TAL SAC
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14WBA-1

Lab Sample ID: 230-184-8

Date Collected: 06/24/14 07:00

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 31.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:45	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Lab Chronicle

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14WBA-2

Lab Sample ID: 230-184-9

Date Collected: 06/24/14 17:05

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 18.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:48	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14WBA-3

Lab Sample ID: 230-184-10

Date Collected: 06/24/14 17:10

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 49.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:52	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14WBA-4

Lab Sample ID: 230-184-11

Date Collected: 06/24/14 17:15

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 20.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 17:56	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14WBA-5

Lab Sample ID: 230-184-12

Date Collected: 06/24/14 17:20

Matrix: Solid

Date Received: 06/27/14 08:40

Percent Solids: 20.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			28347	07/02/14 08:31	KTN	TAL PRT
Total/NA	Analysis	6020		10	28383	07/02/14 18:11	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28287	06/30/14 18:33	KTN	TAL PRT

Client Sample ID: FNP14WBA-WC

Lab Sample ID: 230-184-13

Date Collected: 06/24/14 17:30

Matrix: Solid

Date Received: 06/27/14 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			28451	07/08/14 08:37	KTN	TAL PRT
TCLP	Prep	3005A			28476	07/09/14 07:42	KTN	TAL PRT
TCLP	Analysis	6020		10	28508	07/09/14 19:52	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28348	07/02/14 09:24	KTN	TAL PRT

Lab Chronicle

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Client Sample ID: FNP14NBA-WC

Lab Sample ID: 230-184-14

Date Collected: 06/24/14 17:35

Matrix: Solid

Date Received: 06/27/14 08:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			28451	07/08/14 08:37	KTN	TAL PRT
TCLP	Prep	3005A			28476	07/09/14 07:42	KTN	TAL PRT
TCLP	Analysis	6020		10	28508	07/09/14 19:56	TNL	TAL PRT
Total/NA	Analysis	D2216-80		1	28348	07/02/14 09:24	KTN	TAL PRT

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

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Certification Summary

Client: Ahtna Engineering Services LLC
 Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Laboratory: TestAmerica Anchorage

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	AK00975	06-30-15
Alaska (UST)	State Program	10	UST-067	06-16-14 *

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-13 *
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-15
USDA	Federal		P330-11-00092	04-17-17
Washington	State Program	10	C586	06-23-15

Laboratory: TestAmerica Sacramento

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-16
Alaska (UST)	State Program	10	UST-055	12-18-13 *
Arizona	State Program	9	AZ0708	08-11-15
Arkansas DEQ	State Program	6	88-0691	06-17-15
California	State Program	9	2897	01-31-15
Colorado	State Program	8	N/A	08-31-14
Connecticut	State Program	1	PH-0691	06-30-15
Guam	State Program	9	N/A	08-31-14
Hawaii	State Program	9	N/A	01-29-15
Illinois	NELAP	5	200060	03-17-15
Kansas	NELAP	7	E-10375	10-31-14
Michigan	State Program	5	9947	01-31-15
Nebraska	State Program	7	NE-OS-22-13	01-29-15
New Jersey	NELAP	2	CA005	06-30-15
Oregon	NELAP	10	CA200005	01-29-15
Pennsylvania	NELAP	3	9947	03-31-15
Texas	NELAP	6	T104704399-08-TX	05-31-15
US Fish & Wildlife	Federal		LE148388-0	12-31-14
USDA	Federal		P330-11-00436	12-30-14
USEPA UCMR	Federal	1	CA00044	11-06-14
Utah	NELAP	8	QUAN1	02-28-15
Washington	State Program	10	C581	05-05-15
West Virginia (DW)	State Program	3	9930C	12-31-14
Wyoming	State Program	8	8TMS-Q	01-29-15

* Certification renewal pending - certification considered valid.

Method Summary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PRT
7196A	Chromium, Hexavalent	SW846	TAL SAC
D2216-80	Percent Dry Weight (Solids) per ASTM D2216-80	ASTM	TAL PRT

Protocol References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PRT = TestAmerica Portland, 9405 SW Nimbus Ave., Beaverton, OR 97008, TEL (503)906-9200

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600



Sample Summary

Client: Ahtna Engineering Services LLC
Project/Site: Frederick Point Soil Removal

TestAmerica Job ID: 230-184-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
230-184-1	FNP14NBA-1	Solid	06/24/14 15:30	06/27/14 08:40
230-184-2	FNP14NBA-2	Solid	06/24/14 15:45	06/27/14 08:40
230-184-3	FNP14NBA-3	Solid	06/24/14 16:00	06/27/14 08:40
230-184-4	FNP14NBA-4	Solid	06/24/14 16:15	06/27/14 08:40
230-184-5	FNP14NBA-5	Solid	06/24/14 16:20	06/27/14 08:40
230-184-6	FNP14NBA-6	Solid	06/24/14 16:30	06/27/14 08:40
230-184-7	FNP14NBA-7	Solid	06/24/14 16:35	06/27/14 08:40
230-184-8	FNP14WBA-1	Solid	06/24/14 07:00	06/27/14 08:40
230-184-9	FNP14WBA-2	Solid	06/24/14 17:05	06/27/14 08:40
230-184-10	FNP14WBA-3	Solid	06/24/14 17:10	06/27/14 08:40
230-184-11	FNP14WBA-4	Solid	06/24/14 17:15	06/27/14 08:40
230-184-12	FNP14WBA-5	Solid	06/24/14 17:20	06/27/14 08:40
230-184-13	FNP14WBA-WC	Solid	06/24/14 17:30	06/27/14 08:40
230-184-14	FNP14NBA-WC	Solid	06/24/14 17:35	06/27/14 08:40

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



230-184 Chain of Custody

24-1317 253-922-2310 FAX 922-5047
 6-5302 509-924-9200 FAX 924-9290
 8-7145 503-906-9200 FAX 906-9210
 2-1119 907-563-9200 FAX 563-9210

20001

CHAIN OF CUSTODY REPORT

Work Order #: 230-184

CLIENT: <u>Antna Engineering Services, LLC</u>		INVOICE TO: <u>AES</u>		TURNAROUND REQUEST in Business Days* Organic & Inorganic Analyses <input checked="" type="checkbox"/> 10 <input type="checkbox"/> 7 <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD. Petroleum Hydrocarbon Analyses <input type="checkbox"/> 5 <input type="checkbox"/> 4 <input type="checkbox"/> 3 <input type="checkbox"/> 2 <input type="checkbox"/> 1 <input type="checkbox"/> <1 STD. <input type="checkbox"/> OTHER Specify: * Turnaround Requests less than standard may incur Rush Charges.						
REPORT TO: <u>John Spielman</u>		ADDRESS:								
PHONE: <u>907-433-0770</u> FAX:		E.O. NUMBER: <u>20125.074</u>								
PROJECT NAME: <u>Frederick Point Soil Remedial</u>		PRESERVATIVE								
PROJECT NUMBER: <u>20125.074</u>		REQUESTED ANALYSES								
SAMPLED BY: <u>JS</u>										
CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	As 6020	As 6020	Cr VI	TCLP As 6020	TCLP As	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1. FNPI4 NBA-1	6-24-14 1530	X		X			S	2		01
2. FNPI4 NBA-2	1545	X		X				2		02
3. FNPI4 NBA-3	1600	X		X				2		03
4. FNPI4 NBA-4	1615	X		X				2		04
5. FNPI4 NBA-5	1620	X		X				2		05
6. FNPI4 NBA-6	1630	X		X				2		06
7. FNPI4 NBA-7	1635	X		X				2		07
8. FNPI4 WBA-1	1700		X					1		08
9. FNPI4 WBA-2	1705		X					1		09
10. FNPI4 WBA-3	1710		X					1		10
RELEASED BY: <u>John Spielman</u>	DATE: <u>6-26-14</u>	RECEIVED BY: <u>Phil Sivak</u>	DATE: <u>6/27/14</u>							
PRINT NAME: <u>John Spielman</u>	FIRM: <u>AES</u>	PRINT NAME: <u>Phil Sivak</u>	FIRM: <u>TAP</u>							
RELEASED BY:	DATE:	RECEIVED BY:	DATE:							
PRINT NAME:	FIRM:	PRINT NAME:	FIRM:							
ADDITIONAL REMARKS: <u>Cr VI = hexavalent Chromium; As = Arsenic; Cr = Chromium</u>										
TEMP: <u>3.0</u> PAGE 1 OF 2										

IR/P-B

TAL-1000 (0612)



Login Sample Receipt Checklist

Client: Ahtna Engineering Services LLC

Job Number: 230-184-1

Login Number: 184

List Source: TestAmerica Anchorage

List Number: 1

Creator: Pilch, Andrew C

Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	Client shipped direct to Portland
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Ahtna Engineering Services LLC

Job Number: 230-184-1

Login Number: 184

List Number: 2

Creator: Svabik-Seror, Philip M

List Source: TestAmerica Portland

List Creation: 06/30/14 02:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	



Login Sample Receipt Checklist

Client: Ahtna Engineering Services LLC

Job Number: 230-184-1

Login Number: 184

List Number: 3

Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

List Creation: 07/02/14 11:51 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	Seal
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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APPENDIX E

DISPOSAL DOCUMENTS

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A. Generator Information

EPA ID CESQG Generator AHT2000-05 Generator Status CESQG

Generator Name US DOT FAA Phone (907) 269-1850
Site Address FREDERICK POINT NDB SITE City ST Zip N 56.79306 / W-132.8225, AK Fax
Contact/Title KIRBY BROWN Sulfide Producing Industry: N

B. Shipping Information

Proper Shipping Name MATERIAL NOT REGULATED BY D.O.T.
DOT ID Hazard Class Packing Group ERG RQ

C. Regulatory Information

Name of Material NON-RCRA CONTAMINATED SOIL Generating Proces SITE CLEAN-UP
Form Code Source Code Origin Code System Code
EPA Codes State Codes
Container Type Number of Units Frequency

D. Chemical / Constituent Composition

Table with 3 columns: Constituent, PPM, % Volume. Row 1: NON-RCRA CONTAMINATED SOIL, PPM, 100.

E. Physical Characteristics

Physical State (Including Range) % Liquid % Sludges/Solid / 100 Bi-Layer Liqui N Color VARIES
Odor / Describe HYDROCARBON Specific Gravity N/A BTUs / Lb N/A pH: <= 2 >2 and <12.5 >=12.5 N/A
FlashPt: <100F (38C) 100-140F (38-60C) 141-200F (61-93C) >200F (93C) None

F. Comments

Generator's Certification

US DOT FAA
FREDERICK POINT NDB SITE
N 56.79306 / W-132.8225, AK

I hereby certify that the above and attached description is complete and accurate to the best of my knowledge and ability to determine that no deliberate or willful omissions of composition properties exist and that all known or suspected hazards have been disclosed. I certify that the materials tested are representative of all material described by this profile.

Generator's Authorized Signature: John Spielman Date 7-25-14
Name (Print) John Spielman Title Ahtna Engineering Svcs, PM

TSDF's Certification

US ECOLOGY IDAHO, INC.
20400 LEMLEY RD
GRAND VIEW, ID 83624

As an authorized representative of Emerald Services, Inc. I certify, by my signature below, that Emerald Services, Inc. has the necessary permits to accept and properly manage the waste stream identified above.

TSDF's Authorized Signature: Date

Reviewer Information Only VOC Level 1 < 11.1 psia >= 11.1 psia NA At Risk Waste Steam
Process Storage FB OB RY RR AF UW RY150 MT Initials



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program**

Contaminated Soil Transport and Treatment Approval Form

DEC HAZARD ID #		NAME OF CONTAMINATED SITE	
1762		FAA Frederick Point NDB Site	
SPILL LOCATION			
Two former burn areas - North Burn Area and West Burn Area			
CONTAMINATED SOIL'S CURRENT LOCATION		SOURCE OF THE CONTAMINATION	
Petersburg Airport		Former burn areas	
TYPE OF CONTAMINATION	ESTIMATED VOLUME	DATE(S) STOCKPILE GENERATED	
Arsenic contaminated soil	four 55-gallon drums		
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)			
COMMENTS			
Non-hazardous waste for transport by Alaska Marine Lines to Port of Seattle, WA then on to US Ecology Idaho, Inc. (see attached manifest)			

Facility Accepting the Contaminated Soil

NAME OF THE FACILITY	ADDRESS/PHONE NUMBER
US Ecology Idaho, Inc.	20400 Lemley Rd, Grand View, ID 83624

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
FAA - Generator	
Ahtna Engineering Services, LLC	110 W 38th Ave Ste200A, Anchorage AK 99503 (907) 433-0740

John Spielman
Name of the Person Requesting Approval (printed)

Project Manager-AES
Title/Association

Signature

July 25 2014
Date

(907) 433-0740
Phone Number

DEC USE ONLY

Based on the information provided, ADEC approves transport of the above mentioned material for treatment in accordance with the approved facility operations plan. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported to the facility and a post treatment analytical report. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Melody Debenham
DEC Project Manager Name (printed)

Signature

EPST III
Project Manager Title

Signature

25 July 2014
Date

907.451.5175
Phone Number

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. C E S Q G		Manifest Document No. 2 2 6 0 5	2. Page 1 of 2	
3. Generator's Mailing Address US DOT FAA 700 N. BONIFACE PKWY. ANCHORAGE, AK 99506		Site Address US DOT FAA FREDERICK POINT NDB SITE N 56.79306 / W-132.8225, AK		KIRBY BROWN		
4. Generator's Phone ((907) 269-1850)		6. US EPA ID Number W A D 9 9 1 4 7 3 6 1 5		A. State Transporter's ID	(800) 326-8346	
5. Transporter 1 Company Name ALASKA MARINE LINES, INC.		8. US EPA ID Number W A D 0 5 8 3 6 4 6 4 7		B. Transporter 1 Phone	(800) 326-8346	
7. Transporter 2 Company Name EMERALD SERVICES, INC.		10. US EPA ID Number I D D 0 7 3 1 1 4 6 5 4		C. State Transporter's ID	(206) 832-3000	
9. Designated Facility Name and Site Address US ECOLOGY IDAHO, INC. 20400 LEMLEY RD GRAND VIEW, ID 83624				D. Transporter 2 Phone	(206) 832-3000	
				E. State Facility's ID		
				F. Facility's Phone	(800) 274-1516	
11. WASTE DESCRIPTION MATERIAL NOT REGULATED BY D.O.T.			Containers		13. Total Quantity	14. Unit Wt./Vol.
			No.	Type		
			4	DM	2600	P
b.						
c.						
d.						
G. Additional Descriptors for Materials Listed Above 1)USE33735 NON-RCRA CONTAMINATED SOIL			H. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information						
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.						
Printed/Typed Name			Signature		Date Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials			Signature		Date Month Day Year	
Printed/Typed Name			Signature		Date Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials			Signature		Date Month Day Year	
Printed/Typed Name			Signature		Date Month Day Year	
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.						
Printed/Typed Name			Signature		Date Month Day Year	

NON-HAZARDOUS WASTE GENERATOR TRANSPORTER FACILITY

CERTIFICATE OF DISPOSAL

January 02,2015

US DOT FAA- FREDERICK POINT NDB FACILITY
LATITUDE 56.7931 LONGITUDE 132.8225
PETERSBURG, AK 99833

This is to certify that waste as defined on Waste Manifest number 22605/ was received by U.S. Ecology, Inc., on 10/01/2014. The waste(s) were subsequently treated, if required by 40 CFR Part 268 and U.S. Ecology's permits and disposed of by 11/01/2014 in accordance with permits and laws regulating this facility.

Reference Number: 14093007052-22605-1-1

Material: 4 55 GALLON DRUM (BATCH WASTE)

Process: Solidification

Management Code: H132 Landfill or surface impoundment that will be closed as landfill

Facility: U.S. ECOLOGY IDAHO, INC.
20400 LEMLEY ROAD
GRAND VIEW, ID 83624
EPA ID: IDD073114654

Waste Type: NON HAZARDOUS WASTE

Customer: EMERALD ALASKA

Printed Name: DONNA PULLEN

Signature:



Title: RECEIVING SUPERVISOR

CERTIFICATE OF DISPOSAL

January 02, 2015

US DOT FAA- FREDERICK POINT NDB FACILITY
LATITUDE 56.7931 LONGITUDE 132.8225
PETERSBURG, AK 99833

This is to certify that waste as defined on Waste Manifest number 22605/ was received by U.S. Ecology, Inc., on 10/01/2014. The waste(s) were subsequently treated, if required by 40 CFR Part 268 and U.S. Ecology's permits and disposed of by 11/01/2014 in accordance with permits and laws regulating this facility.

Reference Number: 14093007052-22605-1-1
Material: 4 55 GALLON DRUM (CRUSHED EMPTY CONT)
Process: Solidification
Management Code: H132 Landfill or surface impoundment that will be closed as landfill
Facility: U.S. ECOLOGY IDAHO, INC.
20400 LEMLEY ROAD
GRAND VIEW, ID 83624
EPA ID: IDD073114654
Waste Type: NON HAZARDOUS WASTE
Customer: EMERALD ALASKA

Printed Name: DONNA PULLEN

Signature: Donna Pullen

Title: RECEIVING SUPERVISOR