2016 UNALASKA AIRPORT
DEBRIS PILE REMOVAL REPORT

Prepared for:

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Prepared by

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
amsl	Above mean sea level
BMPs	Best Management Practices
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
COC	Contaminants of Concern
CSM	Conceptual Site Model
CSP	Contaminated Sites Program
DRO	Diesel Range Organics
DOT&PF	Alaska Department of Transportation & Public Facilities
EPA	Environmental Protection Agency
GRO	Gasoline Range Organics
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photo-Ionization Detector
ppm	Parts per Million
QA/QC	Quality Assurance/Quality Control
RRO	Residual Range Organics
SOP	Standard Operating Procedure
TPECI	Travis/Peterson Environmental Consulting, Inc.
VOC	Volatile Organic Compound
WWII	World War II

1.0 INTRODUCTION

Travis/Peterson Environmental Consulting, Inc. (TPECI) developed this report to detail the field work conducted for the removal of a soil and debris pile, sampling, screening, laboratory analysis, and reporting of petroleum-contaminated soil at Lot 6F, Block 2 (and a portion of an adjoining lot), Unalaska Airport property in Dutch Harbor, Alaska. The site location is shown in Figure 1.

2.0 OBJECTIVES

The purpose of this report is to discuss the evaluation of the extent (presence) of contaminated soils within the debris pile, the removal of refuse, debris, and soil, and to provide recommendations for any future site work and/or site closure. The report details the following activities:

- The site description and background;
- Identification of any hydrocarbon soil contamination;
- Removal of debris pile;
- Collecting characterization soil samples;
- Analysis and summary of investigation results;
- Stockpiling and proposed disposal of contaminated soils removed;
- Coordination with the Alaska Department of Environmental Conservation (ADEC)
- Conclusions and recommendations.

3.0 SITE DESCRIPTION AND BACKGROUND

Unalaska Airport is located in Dutch Harbor, Alaska in the Aleutians West Borough, Alaska (Figure 1). Lot 6F, Block 2, Unalaska Airport is 0.52 acres in size. The property position is approximately 53.8945° North latitude, -166.5414° West longitude. The Parcel is located in Section 34, Township 72 South, Range 117 West, Seward Meridian United States Geological Survey (USGS) Quadrangle.

The property is accessed via Airport Beach Road and Airport Drive (Figure 2). The property is located immediately adjacent to the Dutch Harbor/Unalaska airport. The topography of the property is flat with existing buildings located immediately to the east and west of the site. Significant volumes of fill material have been placed on the site over time and the site has been graded and re-graded frequently throughout the past 70 years. Much of the property and the surrounding area were developed during World War II (WWII). The current ground level sits approximately six to eight feet above the natural ground surface.

On October 5, 2015, Western Power Engineering (Western Power) contracted TPECI to conduct an environmental baseline investigation of the property (Figure 1). This investigation was conducted as part of lease agreement due diligence and proposed site development.

TPECI prepared a letter report describing the findings of the investigation. This report, *Lot 6F, Block 2, Unalaska Airport Environmental Baseline Investigation*, was provided to the Alaska

Department of Environmental Conservation (ADEC) in February, 2016. The findings of the report indicated that detectable concentrations of Diesel Range Organics (DRO) and Residual Range Organics (RRO), lead and polychlorinated biphenyls (PCBs) were present on the property in surface and subsurface soils. Groundwater samples collected were found not to have detectable levels of hydrocarbon contamination.

Based on these findings, TPECI concluded that these contaminants were likely present in the soils throughout the entire property at varying concentrations. Some locations, including those near the "Torpedo Building", likely exceed ADEC Method Two cleanup levels (Above 40-inch Zone, for migration to groundwater) for DRO, RRO, and lead. TPECI also determined that, while possible, it was unlikely that contaminated groundwater existed elsewhere on the property in concentrations above ADEC cleanup levels.

Contaminated soils at the site were likely the result of multiple fuel spills, lead from lead-acid battery operations at the nearby Torpedo Building, and PCBs from former transformers located at adjacent properties. Contamination likely dates back to WWII and historical area uses. The specific property (Lot 6F, Block 2, Unalaska Airport) was not previously listed in the ADEC contaminated sites database. However, several adjacent properties, such as the Torpedo Building (ADEC File# 2542.38.010) and Aerology Building (ADEC File# 2542.38.029) are identified contaminated sites. Contamination identified at this property is likely an extension of contamination from the adjacent Torpedo Building site.

Western Power plans to construct an aircraft hangar on the property. Additionally, Alaska Weather Operations Services, Inc. (AWOS) conducted the demolition of the adjacent Torpedo Building during the summer of 2016. A large debris pile was located at the western edge of the Torpedo Building straddling both Lot 6F and the adjoining parcel leased by AWOS. This debris pile had to be removed prior to hangar construction or completion of Torpedo Building delomition. The debris pile was approximately 17 feet by 60 feet, containing an estimate 110 cubic yards of soil and 100 cubic yards of refuse and debris. A significant portion of the debris pile was comprised of non-soil materials. Materials within the pile included soil, large boulders, tires, scrap metal, engine components, rubber belts and other non-putrescible refuse. The locations and extent of the debris pile, as well as site details, are shown in Figure 2 in Appendix A.

4.0 CONTAMINANTS OF POTENTIAL CONCERN

The primary contaminant of concern (COC) was diesel fuel. During previous investigations, TPECI found lead and PCBs contaminated soil on the property at concentrations below ADEC Method Two cleanup levels (Over 40 Inch Zone, for migration to groundwater). ADEC and TPECI determined these contaminants were not a significant COC for this site. Analytical laboratory samples were collected for DRO, RRO, GRO, and Benzene, Toluene, Ethylbenzene and Xylenes, collectively (BTEX). Ten percent of samples were also analyzed for Polycyclic Aromatic Hydrocarbons (PAH). Due to low level presence of lead and PCBs, ten percent of samples were also analyzed for Total Lead (Pb) and PCBs.

Samples were submitted to SGS Environmental Laboratories, Inc. in Anchorage, Alaska for laboratory analysis. The qualified sampler also performed field screening using a photo-ionization detector (PID) to screen for volatile organic compounds (VOCs).

5.0 SAMPLING PLAN

This work was conducted in accordance with the *ADEC 18 AAC 75 Oil and Other Hazardous Substances Pollution Control (revised April 2016)*. Where applicable, the excavation and analysis will be modeled after procedures described in the *ADEC Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites (September 2009)*. Sampling efforts were conducted in accordance with the *ADEC Field Sampling Guidance (March 2016)* unless otherwise specified within this document.

TPECI screened and sampled excavated soils from within the debris pile to characterization any potentially contaminated soils on the property. The proposed site work included soil field screening, excavating soils for the proposed construction, segregating and stockpiling contaminated soils, and collection of samples for laboratory analysis from the debris pile site and stockpiles. TPECI personnel conducted the site activities in July, 2016. TPECI personnel meet the ADEC definition of "Qualified Environmental Professional" in accordance with 18 AAC 75.333.

While on site, TPECI personnel were aided by Western Power personnel and additional contractors as necessary. TPECI utilized a PID and an analytical sampling kit on site in addition to olfactory and visual clues to determine the presence or absence of the contamination within the debris pile. Heavy equipment including backhoes, trackhoes, loaders, and dump trucks were utilized for excavation, removal, and soil handling.

Throughout the site work and earth-disturbing construction process, TPECI monitored, screened, and sampled for potentially contaminated soils. Site work was focused on the debris pile and area immediately surrounding the pile. No additional areas of contamination were observed during the site work. Areas beyond the scope of the debris pile will likely be addressed at a later date through a separate work plan as part of the construction of the proposed hangar foundation.

6.0 FIELD SCREENING

The following describes the sampling protocols that TPECI field personnel followed to screen and collect soil samples within construction excavations. Field screening occurred first to delineate hydrocarbon contamination within the excavated debris pile. A MiniRAE™ Systems 3000 PID will be the primary equipment utilized for field screening.

TPECI personnel field screened soils with the PID in accordance with the ADEC *March 2016 Field Sampling Guidance*, Section 3.0 Soil Sampling. TPECI personnel collected confirmation samples for laboratory analysis from the locations with the highest PID readings within the pile. The confirmation samples were collected in accordance with Sections 3.3 and 3.5 of the ADEC *March 2016 Field Sampling Guidance*, specifically Soil Laboratory Analytical Sample Collection, Subsection 3.5.3 Excavations (see excerpt below).

> ***3.5.3 Excavations***
> *For volatile samples, remove 2-6 inches of soil immediately before sample collection. Furthermore, if the excavation has been open for longer than one hour, remove 6-12 inches of soil immediately before collection. Do not collect samples from disturbed soil that has fallen into the bottom of the excavation pit.*
>
> *For non-volatile samples (metals, PCBs, DRO, RRO and PAHs) it may not be necessary to expose fresh soil by remove any overburden prior to collection.*
>
> *If excavation depth precludes safely collection samples from the bottom of the excavation, samples may be collected from the center of an excavation bucket by first removing 4-6 inches of soil immediately, prior to collection.*

The PID was calibrated according to the manufacturer's specifications in the field using a fresh air charcoal blank and 100-ppm isobutylene calibration span gas. Plastic bags were filled three quarters full of soil from the screening sample. The soil, sealed in a plastic bag, was allowed to warm up to between 50 and 70 degrees Fahrenheit. The tip of the calibrated PID was then placed inside the bag for thirty seconds or until the reading stabilizes.

The frequency of field screening samples collected was in accordance with Table 2A Excavated Soil Sample Collection Guide and Table 2B Surface/Excavation Base and Excavation Sidewall Soil Sample Collection Guide of the *ADEC March 2016 Field Sampling Guidance*. The nature of the debris pile sitting above the ground surface limited sidewall sampling applicability. No sidewall samples were collected as there were no sidewalls to the "excavation" in the debris pile removal. Only the (horizontal) ground surface was sampled following the removal of the pile. Ground surface samples were collected at the level ground surface below the removed debris piles. The depth of these samples was approximately 0.1 feet. Typically, samples were collected in areas of likely contamination, near Torpedo building doorways, or where soil staining or discoloration may indicate the presence of contamination.

In the debris pile removal, TPECI personnel oversaw the removal work using a PID, as well as visual and olfactory clues to determine the presence of potentially contaminated soils. Solid wastes including scrap metal, wood, building materials, tires, or other non-putrescible refuse were sorted with like materials and disposed accordingly.

All excavated soils were segregated into multiple stockpiles to minimize the potential volume of contaminated soils generated. Each stockpile contained a maximum of approximately 15-20 cubic yards of soil. Stockpiles were field screened and assessed for other characteristics of contamination (staining and/or odor Laboratory samples were also collected from all stockpiles in accordance with the *ADEC March 2016 Field Sampling Guidance.* Soil samples from stockpiles were collected at least 18 inches into each pile.

Stockpiled soils were placed on a 20-mil HDPE liner and covered with a 6-mil (or greater) HDPE liner. These stockpiles shall remain on the property until a determination of the fate of any contaminated soils is determined.

TPECI did not attempt to determine the vertical or horizontal extents of any contamination encountered beyond the existing ground surface beneath the debris pile. No additional excavation or soil removal beyond what is necessary for the construction of a proposed hangar and demolition of the Torpedo Building is planned on the site and the final site shall be paved.

A PID threshold of 20 ppm was used to determine potentially contaminated soils. TPECI personnel collected confirmation samples for laboratory analysis from the floor (ground surface) of the excavated areas of the excavation when field screening determines that contamination has been removed to provide *in situ* information regarding contaminant presence. No sidewall samples were collected as there were no vertical excavation walls during this process. Confirmation samples shall be collected from soils suspected to be clean based on field screening. This sampling was conducted in accordance with pages 19-20 (Tables 2A and 2B) of the *ADEC March 2016 Field Sampling Guidance* noted in Table 1 of this document below. The locations of both these samples and field screenings within the excavations were recorded within TPECI personnel field notes (a copy of TPECI personnel field notes are in Appendix D) and are shown in Figure 3 in Appendix A.

7.0 LABORATORY SAMPLING ANALYSIS FOR *IN SITU* SOILS DOCUMENTATION

Samples were collected for laboratory analysis as described below from the locations flagged for field screening. The field screening samples which exhibited the highest readings on the PID were chosen for additional laboratory analysis. Some samples were collected from locations of particular concern or significantly differing soil types. In these cases, the sampling location may not have exhibited the highest field screening readings, but typically did. TPECI personnel collected samples for laboratory analysis in accordance with Table 1 and Table 2 of this document. Additionally, duplicate samples were collected in accordance with Section 7.3 the ADEC-approved work plan for this project.

Table 1: Surface/Excavation Base & Sidewall Soil Sample Collection

Surface Area (square feet)	**# of Screening Samples**	**# of Laboratory Samples**
0-50	5	1
51-124	5	2
125-250	1 per 25 sq ft	2
More than 250	10 plus 1 per additional 100 sq ft, or CSP determines necessary	2 samples, plus one sample for each additional 250 square feet, or portion thereof; or as CSP determines necessary

Excavation Sidewalls	For each excavation sidewall, 1 per 10 square feet (depth and length), or portion thereof, with field screening sample collection focused on soil horizons demonstrated as likely to be contaminated.	Minimum 1 per each sidewall plus one additional sample for each sidewall area over 250 total square feet (depth and length), or portion thereof at the highest field screening reading in all soil horizons (i.e. a 12'x30' excavation [360 square feet total] would require 2 laboratory samples.

All excavated soils were immediately placed in the onsite temporary stockpiles. All excavated/stockpiled soil characterization samples were collected from these soils after they are placed into the stockpiles. A total of six (6) stockpiles containing 15-20 cubic yards each were generated and staged on site.

Characterization samples of the soil stockpiles were collected in accordance with *ADEC March 2016 Field Sampling Guidance* and Table 2 below.

Table 2: Excavated/Stockpiled Soil Sample Collection

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

All laboratory soil samples were analyzed for GRO compounds by method AK101, BTEX by EPA Method 8021B, and DRO and RRO by method AK102. One sample for every 10 laboratory samples was also be analyzed for PAH by EPA Method 8270D to comply with ADEC's requirement of 10%+ sampling of PAH for Diesel contamination (ADEC March 2016 Field Sampling Guidance Appendix F). Additionally, 10% of samples were analyzed for Total Lead (Pb) by EPA Method 6020A and PCBs by EPA Method 8082A. Samples analyzed for lead, PCBs, and PAH were collected from suspected worst case locations.

Table 3: Analytical Methods and Sample Requirements

Method	Matrix	Container (jars)	Preservative	Hold time
8021 (BTEX)	Soil	1 4-oz amber wide mouth jar with septa lid	MeOH and 0-6° C.	14 days
AK101 (GRO)	Soil	1 4-oz amber wide mouth jar with septa lid	MeOH and 0-6° C.	14 days
AK102 (DRO/RRO)	Soil	1 4oz amber wide mouth jar	0-6° C.	14 days
8270 (PAH)	Soil	1 4oz amber wide mouth jar	0-6° C.	14 days
6020A (Total Lead)	Soil	1 4oz amber wide mouth jar	None	6 months
8082A (PCBs)	Soil	1 4oz amber wide mouth jar	0-6° C.	40 days

Soil samples destined for volatile analysis were collected first, follow by samples collected for non-volatile analysis. Soil sample containers were filled to a volume (mass) ranging from 25 to 50 grams of soil (approximately 1/3rd container volume) and were immediately preserved by pouring methanol over the soil and promptly securing the Teflon-lined container lid. Care was taken to ensure soils were completely covered with preservative.

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

- All samples were collected using disposable or cleaned and decontaminated sampling equipment;
- Field personnel wore disposable gloves, safety goggles, steel toed boots, hard hat, reflective vest, and other appropriate Class D personal protective equipment. Gloves and sampling devices were changed between samples;
- Samples were collected as quickly as possible and placed in laboratory supplied containers;
- All samples were labeled; and
- All samples were preserved in accordance with laboratory specifications and cooled to a temperature of 0 to 6 degrees Celsius.

8.0 GROUNDWATER SAMPLING

An addendum to the ADEC-approved work plan was developed and approved on July 1, 2016 regarding the collection of groundwater samples from existing groundwater monitoring wells located at the site.

Five groundwater monitoring wells were installed on Lot 6 and Lot 7 of the Unalaska Airport by EMCON in May, 1999. These wells were identified as MW-1 through MW-5. MW-1 was last sampled in 2001 and contained DRO concentrations of 9.49 mg/L, above the ADEC Table C groundwater cleanup level of 1.5 mg/L. No other monitoring wells contained contaminant

concentrations above ADEC cleanup levels during that sampling. Prior to this site work, the current status and condition of the five monitoring wells was unknown. It had been assumed that MW-5 had been destroyed prior to 2001.

TPECI attempted to identify the remaining wells on the property and determine their condition and functionality. If possible, TPECI collected a groundwater sample for laboratory analysis.

TPECI collected a groundwater sample for laboratory analysis from monitoring well MW-1. TPECI personnel measured the depth-to-groundwater surface to the top of each well casing using a water-wheel meter. The water-wheel meter was used to measure the distance from the bottom of the well and the top of the casing. The difference between these two points was calculated to determine the number of feet of groundwater in the well-point casing. TPECI personnel calculated the total volume of water in the well-point casing and converted this amount to gallons. A peristaltic pump was used to purge at least three times the calculated well volume to ensure a stable, representative sample was collected. All purged water was pumped into a 5-gallon bucket during this process.

Upon completion of the well purging process, TPECI replaced the used peristaltic pump tubing for each well-point. The monitoring well was sampled for DRO and RR. A field duplicate samples was collected from the well in accordance with Section 9.5.1.1. Groundwater samples for laboratory analysis were collected, handled, and stored in accordance with *ADEC Field Sampling Guidance (March 2016).*

TPECI purged approximately 4.0 gallons of water from MW-1 base on calculated well volumes. No visible sheen was noted on the purge water and only a slight sulfur odor was observed. The purge water was slowly poured onto soil stockpile six (S6) prior to the collection of soil samples from that stockpile.

Table 4 - Laboratory Analytical Methods for Groundwater

Method	Matrix	Container (jars)	Preservative	Hold time
AK103 (RRO)	Water	1, 500 mL amber glass	HCL and 4 degrees C	14-40 days
AK102 (DRO)	Water	1, 500 mL amber glass	HCL and 4 degrees C	14-40 days

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

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

9.0 SOIL SAMPLING RESULTS

Approximately 100 cubic yards of non-soil materials were removed from the debris pile. Approximately 110 cubic yards of soil was removed from the debris pile and placed into six soil stockpiles ranging from 15-20 cubic yards each. During the sorting and removal of the debris pile, no visual or olfactory indicators of hydrocarbon soil contamination were observed. As no contaminated soils were evident, no efforts were made at this stage to stockpile or segregate soils based on contamination.

TPECI collected a total of 17 soil screening samples from the area beneath the debris pile (Figure 3). These samples were identified as B1-B17. Of these soil screenings, five were also collected for laboratory analysis as described in Section 7.0.

Table 4 shows the field screening and laboratory results (excluding PAH analyses) for samples B1-B17 at the site. Sample B20 is a field duplicate of sample B3. Complete analytical results, including PAH analysis results are in the SGS Laboratory Report attached in Appendix B. The ADEC Data Review Checklist has also been completed for this report and is enclose in Appendix B.

Table 5: Excavation Base Field Screening and Laboratory Results

Sample ID	Depth (ft)	PID Reading	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Lead	PCBs
		ppm	230 mg/Kg	9,700 mg/Kg	260 mg/Kg	25 µg/Kg	6,500 µg/Kg	6,900 µg/Kg	63,000 µg/Kg	400 mg/Kg	1000 µg/Kg
B1	0.1	0.0	-	-	-	-	-	-	-	-	-
B2	0.1	0.2	-	-	-	-	-	-	-	-	-
B3	0.1	6.2	162J	791	1.25U	6.25U	10.0J	12.5U	37.6U	-	-
B4	0.1	12.1	192J	1,060	1.36U	6.75U	13.6U	13.6U	40.7U	121	76.8
B5	0.1	1.0	-	-	-	-	-	-	-	-	-
B6	0.1	0.9	-	-	-	-	-	-	-	-	-
B7	0.1	1.2	-	-	-	-	-	-	-	-	-
B8	0.1	2.1	**294**	1,550	2.23U	11.2U	22.3U	22.3U	67.0U	-	-
B9	0.1	1.8	-	-	-	-	-	-	-	-	-
B10	0.1	1.0	-	-	-	-	-	-	-	-	-
B11	0.1	0.3	-	-	-	-	-	-	-	-	-
B12	0.1	0.4	-	-	-	-	-	-	-	-	-
B13	0.1	0.2	-	-	-	-	-	-	-	-	-
B14	0.1	2.0	**277J**	1,910	1.35U	6.75U	13.4U	13.4U	40.3U	-	-
B15	0.1	2.3	229U	2,560	1.75U	8.70U	17.4U	17.4U	57.3U	-	-
B16	0.1	1.0	-	-	-	-	-	-	-	-	-
B17	0.1	1.8	-	-	-	-	-	-	-	-	-
B20	0.1	6.2	146J	797	1.68U	8.40U	16.8U	16.8U	50.3U	-	-

Notes:
Bold indicates concentration exceed ADEC Method Two Cleanup Level (>40 in zone).
J The quantitation is an estimate.
U Indicates the analyte was analyzed for but not detected.
Sample B20 is a field duplicate of sample B3

Field screening results yielded low PID results in samples throughout the site. The highest reading was 12.6ppm at soil sample B4. Typical readings were less than 1.0ppm.

In laboratory analysis, elevated DRO and RRO concentrations were observed in several samples. However, only two samples (B8 294mg/Kg, B14 277J mg/Kg) was found to contain DRO concentrations above ADEC Method Two cleanup levels (greater than 40-inch zone). Sample B8 was located immediately outside of the former Torpedo building doorway, the likely source of the contamination. Sample B14 contained DRO concentrations above ADEC Method Two cleanup levels, but due to elevated LOQs, the concentration was identified as an estimated, hence the "J" flag. No RRO concentrations were found to be above ADEC Method Two cleanup levels. No GRO or BTEX contaminants were detected in any excavation base soil samples collected. Elevation Total Lead and PCB concentrations (Aroclor-1260 only) were also

observed in sample B4. However, both PCB and Total Lead concentrations were below ADEC Method Two cleanup levels.

While several PAH constituents were detected at low concentrations including Acenaphthene, Benzo(a)Anthracene, Benzo[a]pyrene, Benzo[b]Fluoranthene, Benzo[g,h,i]perylene, Benzo[k]fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno[1,2,3-c,d]pyrene, Phenantrhene, and Pyrene, none were found to exceed ADEC Method Two cleanup levels for the above 40-inch zone.

TPECI collected five soil screening samples from each of the six soil stockpiles (Figure 4). These samples were identified as S1-1 through S1-5, S2-1 through S2-5, S3-1 through S3-5, S4-1 through S4-5, S5-1 through S5-5, and S6-1 through S6-5. Of these soil screenings, two from each stockpile were also collected for laboratory analysis as described in Section 7.0.

Table 5 shows the field screening and laboratory results (excluding PAH analyses) for samples B1-B17 at the site. Sample S3-10 is a field duplicate of sample S3-3 and sample S6-10 is a field duplicate of S6-2. Complete analytical results, including PAH analysis results are in the SGS Laboratory Report attached in Appendix B. No PAH constituents were found to exceed ADEC Method Two cleanup levels for the above 40-inch zone. The ADEC Data Review Checklist has also been completed for this report and is enclose in Appendix B.

Table 6: Stockpile Field Screening and Laboratory Results

Sample ID	Depth (ft)	PID Reading	DRO	RRO	GRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Total Lead	PCBs
		ppm	230 mg/Kg	9,700 mg/Kg	260 mg/Kg	25 µg/Kg	6,500 µg/Kg	6,900 µg/Kg	63,000 µg/Kg	400 mg/Kg	1000 µg/Kg
S1-1	1.7	0.2	-	-	-	-	-	-	-	-	-
S1-2	1.7	0.1	-	-	-	-	-	-	-	-	-
S1-3	1.7	0.2	-	-	-	-	-	-	-	-	-
S1-4	1.7	0.3	119	1,060	2.48U	12.4U	24.8U	24.8U	74.3U	-	-
S1-5	1.7	0.4	118	966	2.89U	14.5U	28.9U	28.9U	86.8U	-	-
S2-1	1.7	0.7	129	1,050	2.40U	12.0U	24.0U	24.0U	71.9U	-	-
S2-2	1.7	0.9	120	1,060	2.37U	11.8U	23.7U	23.7U	71.0U	-	-
S2-3	1.7	0.5	-	-	-	-	-	-	-	-	-
S2-4	1.7	0.6	-	-	-	-	-	-	-	-	-
S2-5	1.7	0.1	-	-	-	-	-	-	-	-	-
S3-1	1.7	0.2	-	-	-	-	-	-	-	-	-
S3-2	1.7	0.5	144	1,280	3.42U	17.1U	34.2U	34.2U	102.7U	250	120
S3-3	1.7	0.5	145	1,260	3.91U	19.6U	39.1U	39.1U	117.4U	214	99.2
S3-4	1.7	0.2	-	-	-	-	-	-	-	-	-
S3-5	1.7	0.2	-	-	-	-	-	-	-	-	-
S3-10	1.7	0.5	167	1,620	3.40U	17.0U	34.0U	34.0U	102.1U	293	81.1
S4-1	1.7	0.7	-	-	-	-	-	-	-	-	-
S4-2	1.7	0.5	-	-	-	-	-	-	-	-	-
S4-3	1.7	1.0	182	1,450	3.57U	17.8U	35.7U	35.7U	107.0U	-	-
S4-4	1.7	0.8	-	-	-	-	-	-	-	-	-
S4-5	1.7	0.9	**271**	1,990	2.97U	14.9U	29.7U	29.7U	89.2U	-	-
S5-1	1.7	0.1	-	-	-	-	-	-	-	-	-
S5-2	1.7	1.3	201	1,460	3.67U	18.4U	36.7U	26.7U	110.2U	-	-
S5-3	1.7	1.0	217	1,600	2.97U	14.9U	29.7U	29.7U	82.1	-	
S5-4	1.7	0.8	-	-	-	-	-	-	-	-	-
S5-5	1.7	0.9	-	-	-	-	-	-	-	-	-
S6-1	1.7	8.7	138	1,020	3.08U	15.4U	30.8U	30.8U	92.4U	299	118
S6-2	1.7	4.6	137	1,010	3.08U	15.4U	30.8U	30.8U	92.5U	-	-
S6-3	1.7	1.6	-	-	-	-	-	-	-	-	-
S6-4	1.7	1.4	-	-	-	-	-	-	-	-	-
S6-5	1.7	0.8	-	-	-	-	-	-	-	-	-
S6-10	1.7	4.6	159	1,330	3.34U	16.7U	33.4U	33.4U	100.2U	-	-

Notes:
Bold indicates concentration exceed ADEC Method Two Cleanup Level (>40 in zone).
J The quantitation is an estimate.
U Indicates the analyte was analyzed for but not detected.
Sample S3-10 is a field duplicate of sample S3-3. Sample S6-10 is a field duplicate of sample S6-2.

Field screening results yielded low PID results in samples throughout the stockpiles. The highest reading was 8.7ppm at soil sample S6-1. Typical readings were less than 1.0ppm.

In laboratory analysis, elevated DRO and RRO concentrations were observed in several samples. However, only one sample (S4-5 271 mg/Kg) was found to contain DRO concentrations above ADEC Method Two cleanup levels (greater than 40-inch zone). Soils in Stockpile 4 were those soils from immediately outside the former Torpedo Building door, coinciding with the area where sample B8 was collected.

No RRO concentrations were found to be above ADEC Method Two cleanup levels. No GRO contaminants were detected in any excavation base soil samples collected. Sample S5-3 was found to contain low level concentrations of Total Xylenes. However, the observed concentration was significantly below ADEC Method Two cleanup levels. Elevation Total Lead and PCB concentrations (Aroclor-1260 only) were also observed in samples S3-2, S3-3, S3-10 (field duplicate of S3-3) and S6-1. However, all detected PCB and Total Lead concentrations were below ADEC Method Two cleanup levels.

While several PAH constituents were detected at low concentrations including, Benzo[b]Fluoranthene, Chrysene, Fluoranthene, and Pyrene, none were found to exceed ADEC Method Two cleanup levels for the above 40-inch zone.

10.0 GROUNDWATER SAMPLING RESULTS

Table 7 shows the laboratory results for samples collected from groundwater monitoring well MW-1 (Figure 5). Sample MW-10 is a field duplicate of sample Mw-1. Complete analytical results are in the SGS Laboratory Report (Torpedo Building Wells) attached in Appendix B. The ADEC Data Review Checklist has also been completed for this report and is enclose in Appendix B.

Table 7: Groundwater Sampling Laboratory Results

Sample ID	Date	Depth to Water (ft)	DRO	RRO
			1.500 mg/L	1.100 mg/L
MW-1	7/7/2016	10.00	0.579	0.481U
MW-10	7/7/2016	10.00	0.717	0.510

Notes:
Bold indicates concentration exceed ADEC Table C Groundwater Cleanup Level.
J The quantitation is an estimate.
U Indicates the analyte was analyzed for but not detected.
Depth to Water from Top of Casing Elevation

DRO concentrations were detected in both MW-1 and its field duplicate MW-10 (0.579mg/L and 0.717mg/L, respectively). However, these concentrations were below the ADEC Table C groundwater cleanup level of 1.5 mg/L. RRO concentrations were not detected in MW-1 but were observed just above the detection level in MW-10. The observed relative percent difference is less than 10%. However, both measurements are significantly below the ADEC Table C groundwater cleanup level for RRO (1.1 mg/L).

11.0 DISCUSSION

11.1 Soils and Debris Pile Removal

A significant portion of the debris pile contained non-soil materials. Much of that material included rock and concrete, scrap metal, wood, building materials, tires, and other solid waste. This debris has been sorted, thoroughly cleaned of all soils, and disposed in the City of Unalaska landfill. While it is possible that some of these materials may have contributed to contaminated soils on site, it is more likely that previous site activity, specifically those at the former Torpedo Building were the source of contaminants.

The low volatile concentrations resulting in low PID field screening results is typical of extremely weathered DRO and RRO contaminants. This suggests that any remaining contaminated materials at the site are associated with historical spills and not with any active contaminant sources or recent spills.

Following the removal of the debris pile, laboratory soil analysis found only a single sample on the ground surface beneath the pile with contaminant concentrations above ADEC Method Two cleanup levels (sample B8 294mg/Kg). This sample was collected immediately outside of the former Torpedo Building door and was likely the result of historical spills at the facility.

Similarly, of the six soil stockpiles, only Stockpile four (S4) contained any soils samples exhibiting contaminant concentrations above ADEC Method Two cleanup levels (S4-5 271mg/Kg). This stockpile was generated from soils in the debris pile located immediately outside of the former Torpedo Building door.

Elevated Total Lead and PCB (Aroclor-1260) concentrations were also observed in both excavation ground surface sampling and in stockpile soils. The concentrations observed were similar to those noted in previously investigations and have been documented as being associated with activities at the Torpedo Building. The remaining concentrations are below ADEC Method Two cleanup levels and do not pose a risk to human health or the environment.

Soil stockpiles one through three (S1-S3), five (S5), and six (S6) did not contain any contaminants in concentrations above ADEC Method Two cleanup levels. The soils in these stockpiles may be disposed and the stockpiles cleared from the site. The soils can be used for fill on site or could be transported elsewhere as fill material. The soils in stockpile four (S4) must be managed and disposed in accordance with applicable regulations. Disposal and treatment options are discussed in Section 12.0.

11.2 Groundwater Sampling

TPECI attempted to identify the remaining wells on the property and determine their condition and functionality. If possible, TPECI collected a groundwater sample for laboratory analysis. Due to damage and development of the surrounding area since the wells were last assessed, only groundwater monitoring well MW-1 was successfully sampled.

Utilizing the Site Plan Figure 2 developed by Shannon & Wilson in June, 2001, TPECI successfully located groundwater monitoring wells MW-1 and MW-3. MW-1 casing cover sits in a small concrete pad approximately 4-6" above the road surface. The concrete pad surrounding the steel cover is severely damaged. The cover is present and intact, but the bolt brackets and broken and the cover is not secured. The plastic well cap was present, but not locked. The well casing appeared to be intact and it good condition. A sample was successfully collected from this well.

MW-2 was located in the adjacent Lot 7. The lot was paved in 2013 or 2014. No evidence of the well was observed. It is presumed destroyed.

MW-3 was located to the west of the Former Reeve Aleutian Airways Freight Building (Currently PenAir and Alaska Airlines Cargo Office). The well was located 23.1 feet from the NW corner of the building and 25.5 feet from the SW corner of the building. The well casing was buried approximately 18 inches below grade. The well cap appeared to have been cut off using a hacksaw and rough serrations were visible. The casing had been packed with plastic sheeting and dirt. A piece of plastic sheeting covered the well and the area was filled and graded with compacted gravel. The well was severely damaged and no sample could be collected.

MW-4 was located to the east of the Torpedo Building. Significant grading and fill had occurred at the site since 2001. TPECI used an excavator to attempt to locate the well. No evidence of the well was observed. It is presumed destroyed.

MW-5 located east of the Torpedo Building was previously presumed to have been destroyed. TPECI attempted to locate the well using an excavator. No evidence of a well was found. It is presumed destroyed.

The samples collected from MW-1 noted elevated DRO and RRO concentrations (RRO detected only in the field duplicate sample). However, all concentrations were below ADEC Table C Groundwater Cleanup Levels. This is a significant decrease from 2001, when samples from MW-1 contained a DRO concentration of 9.49 mg/L. The decrease indicates that significant natural attenuation has occurred during the past 15 years and that no active source of contamination remains on site.

The groundwater results in conjunction with the drive-point groundwater well samples collect by TPECI in 2015 where all analytes were found to be non-detect show that groundwater contamination at the site no longer poses a risk to human health or the environment.

12.0 DEVIATIONS FROM THE WORK PLAN

The July 1, 2016 Work Plan Addendum modified the ADEC-approved work plan to include the assessment of historic groundwater monitoring wells and the collection of groundwater samples for laboratory analysis as possible.

The ADEC-approved work plan indicated that soils removed from the debris pile would be segregated and stockpiled separately based on visual and olfactory indicators of hydrocarbon contamination as well field screening results. However, no obvious indications of hydrocarbon contamination were observed in any soils during the removal process. Therefore, all soils were stockpiled together in multiple stockpiles with a maximum individual volume of 15-20 cubic yards pending laboratory analysis of samples to determine any contaminant presence.

No other deviations from the work plan occurred.

13.0 SITE RECOMMENDATIONS AND CONCLUSIONS

13.1 Debris Pile Site

DRO concentrations at sample location B8 were above ADEC Method Two cleanup levels beneath the debris pile. However, due to the relatively low concentrations observed, the exposure of these surface soils to the environment, specifically the significant wind and precipitation typical of Dutch Harbor, and continued site traffic and potential disturbance due to the demolition of the immediately adjacent Torpedo building, it is likely that if the site were to be resampled DRO concentrations would be below ADEC Method Two cleanup levels.

Additionally, future site work will further disturb soils on the property with the construction of building footings and utilities. Soil screening and sampling may occur at that time to ensure that contaminated soils have been naturally remediated if necessary. The final site development plan includes the paving of the area where sample B8 was collected for use as a parking lot.

13.2 Landfarm Treatment

Soil stockpile four (S4) contained DRO concentrations above ADEC Method Two cleanup levels. The stockpile contained approximately 15-20 cubic yards of soil. TPECI and Western Power Engineering propose the treatment of this soil using a landfarm located on a separate parcel of land owned by Western Power Engineering in Dutch Harbor/Unalaska.

13.2.1 Landfarm Design and Construction

The design, construction, and operation of a landfarm will be based on the March, 2011 ADEC Division of Spill Prevention and Response Contaminated Sites Program Technical Memorandum *Landfarming at Sites in Alaska*. Prior to any transport or disposal of contaminates soils at the landfarm site, TPECI will prepare and submit an *ADEC Soil Transport, Treatment & Disposal Approval Form* to the ADEC.

The proposed landfarm will be constructed using a 20-mil liner. The design and construction of the landfarm will ensure a minimal risk of any leachate. The landfarm will be constructed with a grade of less than 1% to allow soils to drain towards a single corner, preventing saturated conditions within all soils which could prolong the treatment process. No internal piping, sump, or other water collection system is proposed within the landfarm. Any precipitation falling on the landfarm soils will be removed via evaporation.

A compacted soil berm will be constructed surrounding the proposed landfarm. The berm will be designed to contain hydrocarbon contaminated soils, to contain water from precipitation that falls on the landfarm, and to discourage access to the landfarm by any trespassers. The berm will be constructed with clean soil available on site. The exact height of the berm will be determined based on the volume of soil available and its compactability.

The hydrocarbon-contaminated soils will be placed into the constructed landfarm at a maximum depth of 18 inches. Ideally, soils will be spread to a depth of approximately 12 inches to allow for greater exposure to oxygen, resulting in higher rates of biodegradation of hydrocarbons and a more rapid treatment process. A single landfarm cell will be constructed to accommodate the approximately 15-20 cubic yards of material.

The landfarm will be designed in a manner to incorporate the construction of additional cells should it be necessary to expand soil treatment operations at the Site. This will allow Western Power Engineering to have capacity to accommodate additional soil treatment should additional contamination be discovered during the course of the future site development work.

13.2.2 Landfarm Operation

TPECI recommends that the soils in the landfarm be tilled throughout the growing season and at least once every two weeks to promote the release of volatile organics. Care will be taken during the tilling process to not damage the liner and intermix underlying soils with overlying impacted soils while also maintaining the gradient established during construction.

TPECI recommends the addition of an inorganic nitrogen based fertilizer to the landfarm annually to enhance biological degradation of hydrocarbon contaminants. Fertilizers used should be a nitrogen, phosphorous, potassium (N:P:K) fertilizer. These fertilizes contain inorganic forms of nitrogen and are typically marketed in 20:20:20 mixtures. The application rate should be 60:53:91 lbs/acre.

The landfarm will be re-sampled by a Qualified Environmental Professional at the end of each growing season (approximately early September) to track remediation progress and ultimately confirm that ADEC cleanup levels have been achieved. All samples will be analyzed for the DRO and RRO. Based on the observed concentrations just above ADEC Method Two Cleanup levels, TPECI estimates that a single season of landfarming will likely reduce DRO concentrations to below 230 mg/Kg. TPECI can produce a separate landfarm work plan if required.

13.3 Groundwater Sampling

An assessment of groundwater monitoring wells at the site and the sampling of MW-1 found that groundwater DRO concentrations no long are above ADEC Table C cleanup levels. The remaining well was intact at the time of sampling. However, severe damage had occurred to the casing cover and damage to the casing is inevitable. This sampling along with TPECI

groundwater sampling in 2015 indicate that groundwater contamination is no longer an issue at the site.

13.4 Conclusions and Site Closure

Based on the findings of this investigation, groundwater sampling results and isolated pockets of low level DRO contaminated soil indicate that site conditions and contaminants have naturally attenuated and no longer pose a risk to human health or the environment. TPECI believes that site closure with institutional controls would be warranted at this time. TPECI recommends that MW-1 and the remnants of MW-3 be decommissioned in accordance with ADEC guidance as soon as possible.

TPECI and Western Power Engineering would be interested in working with the ADEC and DOT&PF in discussion site closure options.

Appendix A:
Figures

Travis/Peterson Environmental Consulting, Inc.
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Lot 6F, Block 2, Unalaska Airport Debris Pile Removal Report

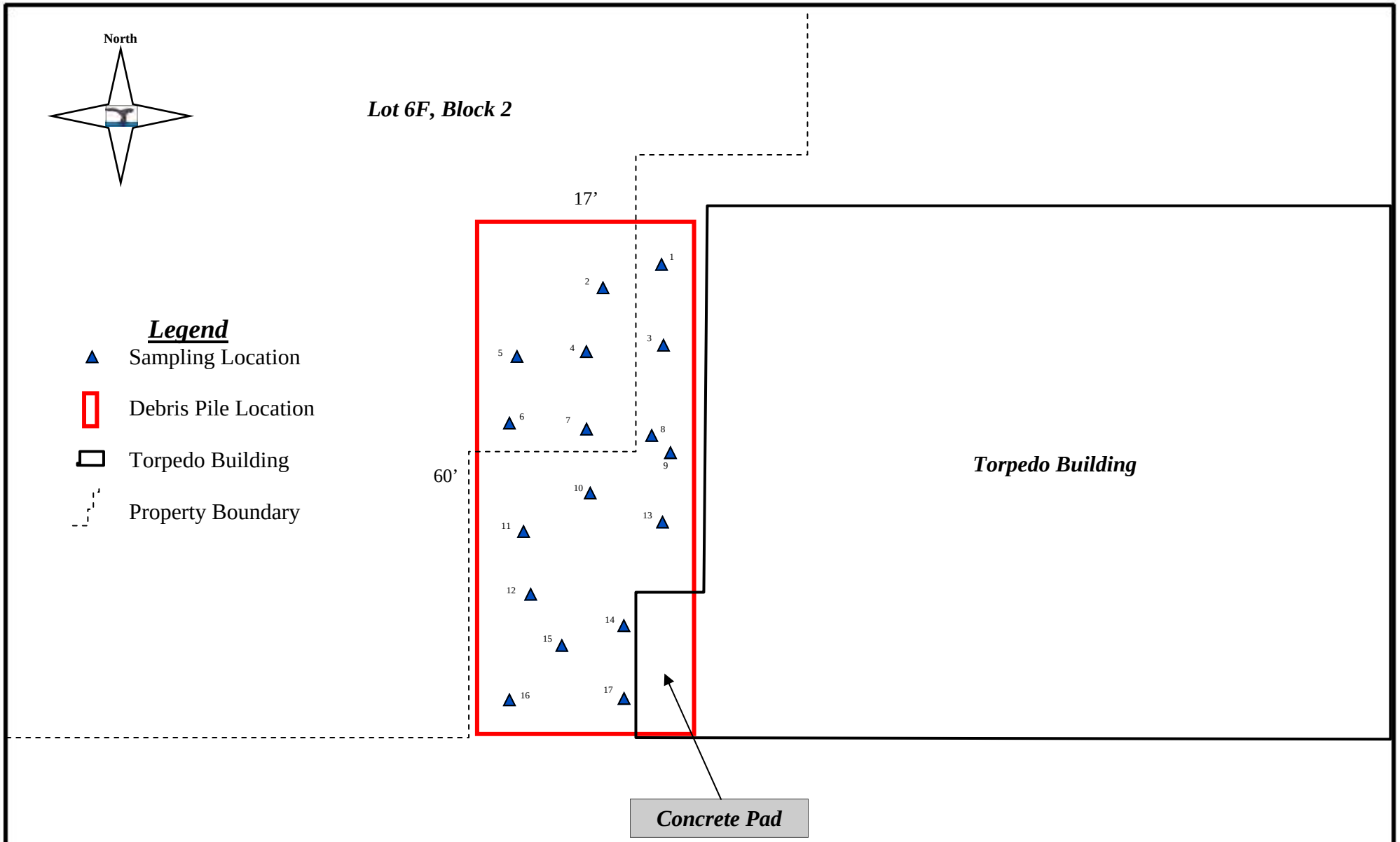
Dutch Harbor, Alaska

Figure #1
Location & Vicinity Map

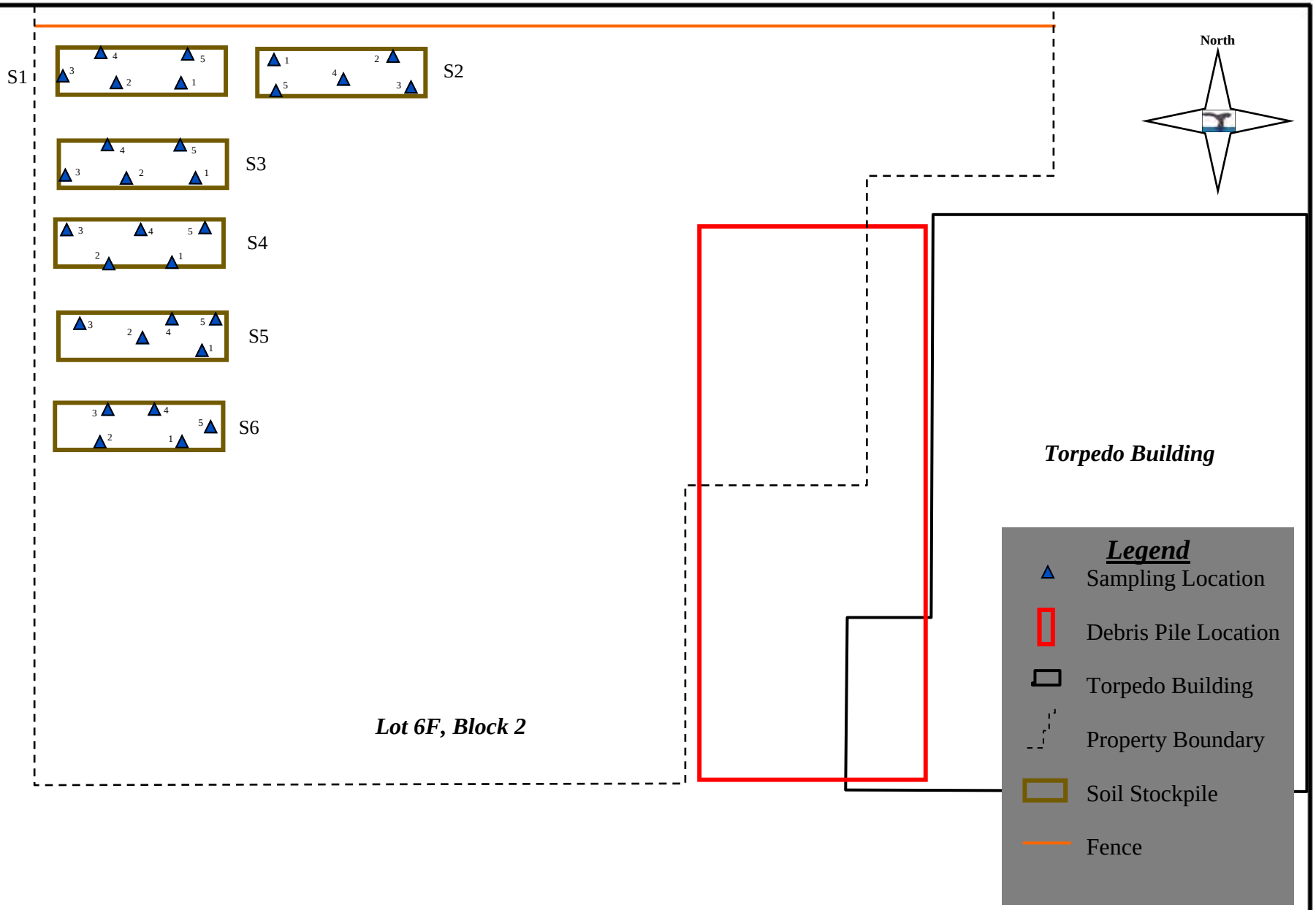
Project No: 1563-03	**File: Jupiter\backup\Erik\1563-01\Figures**	**Date: 9/11/2016**	**Scale: None**

Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Lot 6F, Block 2, Unalaska Airport Debris Pile Removal Report** **Dutch Harbor, Alaska**	**Figure #2** **Site Map**

Project No: 1563-03	**File: Jupiter\backup\Erik\1563-01\Figures**	**Date: 9/11/2016**	**Scale: None**



Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Lot 6F, Block 2, Unalaska Airport Debris Pile Removal Report** **Dutch Harbor, Alaska**	**Figure #3** **Debris Pile Soil Sampling Site Plan**	
Project No: 1563-03	**File: Jupiter\backup\Erik\1563-01\Figures**	**Date: 9/11/2016**	**Scale: None**



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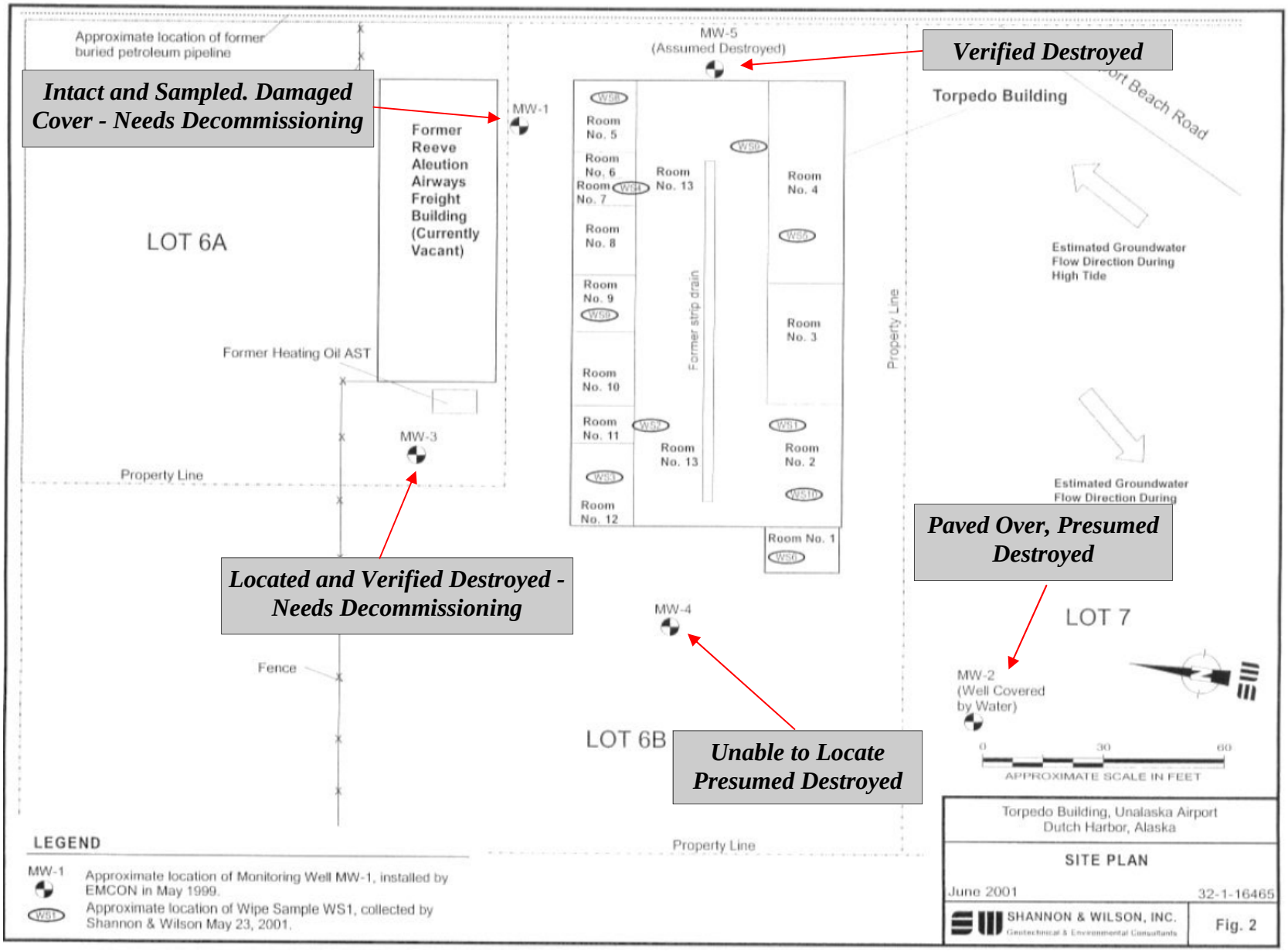
3305 Arctic Boulevard, Suite 102
Anchorage, AK 99503
907-522-4337

Lot 6F, Block 2, Unalaska Airport Debris Pile Removal Report

Dutch Harbor, Alaska

Figure #4
Stockpile Sampling Site Plan

Project No: 1563-03	**File: Jupiter\backup\Erik\1563-01\Figures**	**Date: 9/11/2016**	**Scale: None**



Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Lot 6F, Block 2, Unalaska Airport Debris Pile Removal Report** **Dutch Harbor, Alaska**	**Figure #5** **Groundwater Sampling Site Plan**

Project No: 1563-03	**File: Jupiter\backup\Erik\1563-01\Figures**	**Date: 9/11/2016**	**Scale: None**

Appendix B:
SGS Laboratory Reports and ADEC Data Review Checklists

Laboratory Report of Analysis

To: Travis/Peterson (TPECI)
3305 Arctic Blvd Suite 102
Anchorage, AK 99503
(907)522-4337

Report Number: **1163780**

Client Project: **Unalaska Airport Debris Pile**

Dear Erik Mundahl,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Victoria at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 08/01/2016 8:18:54AM

Case Narrative

Customer: TRAVISP **Travis/Peterson (TPECI)**
Project: 1163780 **Unalaska Airport Debris Pile**

Refer to the sample receipt form for information on sample condition.

1163780015 PS **B3**
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4X) and 5 mL final extract volume.

1163780016 PS **B4**
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4X) and 5 mL final extract volume.

1163780018 PS **B14**
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4X) and 5 mL final extract volume.

1163780019 PS **B15**
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4X) and 5 mL final extract volume.
AK102 - The LOQ for DRO is elevated. The sample was diluted due to the dark color of the extract.

1163780020 PS **B20**
AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (4X) and 5 mL final extract volume.

1336487 MS **1163780005MS**
8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria due to sample dilution (5X) and a 5 mL final extract volume.

1336488 MSD **1163780005MSD**
8270D SIM - PAH MSD recoveries for several analytes do not meet QC criteria due to sample dilution (5X) and a 5 mL final extract volume.
8270D SIM - PAH MS/MSD RPDs for several analytes do not meet QC criteria. These analytes were not detected above the LOQ in the original sample with the exception of fluoranthene. Fluoranthene may be considered estimated in the parent sample.

1336650 LCS **XXX/35791**
8270D SIM - PAH LCS recovery for 1-methylnaphthalene (118%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

1336651 MS **1163780016MS**
8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria.

1336652 MSD **1163780016MSD**
8270D SIM - PAH MSD recoveries for several analytes do not meet QC criteria.
8270D SIM - PAH MS/MSD RPDs for acenaphthene (48.4) and fluorene (29.2) do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.

1336950 MS **1168265008MS**
8270D SIM - PAH MS recoveries for several analytes do not meet QC criteria. See LCS for accuracy requirements.

1336951 MSD **1168265008MSD**
8270D SIM - PAH MSD recoveries for several analytes do not meet QC criteria. See LCS for accuracy requirements.

* QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to the associated field samples.

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1163780006	S3-3	XMS9486	Benzo[k]fluoranthene	RP
1163780006	S3-3	XMS9486	Chrysene	RP
1163780007	S3-10	XMS9486	Benzo[k]fluoranthene	RP
1163780016	B4	XMS9493	Benzo[k]fluoranthene	RP
1336487	1163780005MS	XMS9465	Benzo[k]fluoranthene	RP
1336651	1163780016MS	XMS9493	Benzo[k]fluoranthene	RP
1336652	1163780016MSD	XMS9493	Benzo[k]fluoranthene	RP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Print Date: 08/01/2016 8:18:57AM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
S1-4	1163780001	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S1-5	1163780002	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S2-1	1163780003	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S2-2	1163780004	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S3-2	1163780005	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S3-3	1163780006	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S3-10	1163780007	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S4-3	1163780008	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S4-5	1163780009	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S5-2	1163780010	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S5-3	1163780011	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S6-1	1163780012	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S6-2	1163780013	07/07/2016	07/08/2016	Soil/Solid (dry weight)
S6-10	1163780014	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B3	1163780015	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B4	1163780016	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B8	1163780017	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B14	1163780018	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B15	1163780019	07/07/2016	07/08/2016	Soil/Solid (dry weight)
B20	1163780020	07/07/2016	07/08/2016	Soil/Solid (dry weight)
Trip Blank	1163780021	07/07/2016	07/08/2016	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
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Detectable Results Summary

Client Sample ID: **S1-4**
Lab Sample ID: 1163780001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	119	mg/Kg
	Residual Range Organics	1060	mg/Kg

Client Sample ID: **S1-5**
Lab Sample ID: 1163780002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	118	mg/Kg
	Residual Range Organics	966	mg/Kg

Client Sample ID: **S2-1**
Lab Sample ID: 1163780003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	129	mg/Kg
	Residual Range Organics	1050	mg/Kg

Client Sample ID: **S2-2**
Lab Sample ID: 1163780004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	120	mg/Kg
	Residual Range Organics	1060	mg/Kg

Client Sample ID: **S3-2**
Lab Sample ID: 1163780005

	Parameter	Result	Units
Metals by ICP/MS	Lead	250	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	120	ug/Kg
Polynuclear Aromatics GC/MS	Fluoranthene	157	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	144	mg/Kg
	Residual Range Organics	1280	mg/Kg

Client Sample ID: **S3-3**
Lab Sample ID: 1163780006

	Parameter	Result	Units
Metals by ICP/MS	Lead	214	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	99.2	ug/Kg
Polynuclear Aromatics GC/MS	Benzo[b]Fluoranthene	219	ug/Kg
	Fluoranthene	181	ug/Kg
	Pyrene	190	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	145	mg/Kg
	Residual Range Organics	1260	mg/Kg

Client Sample ID: **S3-10**
Lab Sample ID: 1163780007

	Parameter	Result	Units
Metals by ICP/MS	Lead	293	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	81.1	ug/Kg
Polynuclear Aromatics GC/MS	Benzo[b]Fluoranthene	223	ug/Kg
	Chrysene	171	ug/Kg
	Pyrene	207	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	167	mg/Kg
	Residual Range Organics	1620	mg/Kg

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Detectable Results Summary

Client Sample ID: **S4-3**
Lab Sample ID: 1163780008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	182	mg/Kg
	Residual Range Organics	1450	mg/Kg

Client Sample ID: **S4-5**
Lab Sample ID: 1163780009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	271	mg/Kg
	Residual Range Organics	1990	mg/Kg

Client Sample ID: **S5-2**
Lab Sample ID: 1163780010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	201	mg/Kg
	Residual Range Organics	1460	mg/Kg

Client Sample ID: **S5-3**
Lab Sample ID: 1163780011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	217	mg/Kg
	Residual Range Organics	1600	mg/Kg
Volatile Fuels	o-Xylene	82.1	ug/Kg

Client Sample ID: **S6-1**
Lab Sample ID: 1163780012

	Parameter	Result	Units
Metals by ICP/MS	Lead	299	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	118	ug/Kg
Polynuclear Aromatics GC/MS	Fluoranthene	147	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	138	mg/Kg
	Residual Range Organics	1020	mg/Kg

Client Sample ID: **S6-2**
Lab Sample ID: 1163780013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	137	mg/Kg
	Residual Range Organics	1010	mg/Kg

Client Sample ID: **S6-10**
Lab Sample ID: 1163780014

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	159	mg/Kg
	Residual Range Organics	1330	mg/Kg

Client Sample ID: **B3**
Lab Sample ID: 1163780015

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	162J	mg/Kg
	Residual Range Organics	791	mg/Kg
Volatile Fuels	Toluene	10.0J	ug/Kg

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Detectable Results Summary

Client Sample ID: **B4**
Lab Sample ID: 1163780016

	Parameter	Result	Units
Metals by ICP/MS	Lead	121	mg/Kg
Polychlorinated Biphenyls	Aroclor-1260	76.8	ug/Kg
Polynuclear Aromatics GC/MS	Acenaphthene	85.1J	ug/Kg
	Benzo(a)Anthracene	139	ug/Kg
	Benzo[a]pyrene	171	ug/Kg
	Benzo[b]Fluoranthene	231	ug/Kg
	Benzo[g,h,i]perylene	130J	ug/Kg
	Benzo[k]fluoranthene	75.0J	ug/Kg
	Chrysene	145	ug/Kg
	Fluoranthene	223	ug/Kg
	Fluorene	44.7J	ug/Kg
	Indeno[1,2,3-c,d] pyrene	99.9J	ug/Kg
	Phenanthrene	154	ug/Kg
	Pyrene	192	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	192J	mg/Kg
	Residual Range Organics	1060	mg/Kg

Client Sample ID: **B8**
Lab Sample ID: 1163780017

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	294	mg/Kg
	Residual Range Organics	1550	mg/Kg

Client Sample ID: **B14**
Lab Sample ID: 1163780018

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	277J	mg/Kg
	Residual Range Organics	1910	mg/Kg

Client Sample ID: **B15**
Lab Sample ID: 1163780019

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	2560	mg/Kg

Client Sample ID: **B20**
Lab Sample ID: 1163780020

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	146J	mg/Kg
	Residual Range Organics	797	mg/Kg

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Results of **S1-4**

Client Sample ID: **S1-4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780001
Lab Project ID: 1163780

Collection Date: 07/07/16 08:29
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	119		114	35.2	mg/Kg	1		07/18/16 17:34
Surrogates								
5a Androstane (surr)	95.6		50-150		%	1		07/18/16 17:34

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 17:34
Container ID: 1163780001-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.246 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1060		114	35.2	mg/Kg	1		07/18/16 17:34
Surrogates								
n-Triacontane-d62 (surr)	93.5		50-150		%	1		07/18/16 17:34

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 17:34
Container ID: 1163780001-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.246 g
Prep Extract Vol: 5 mL

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Results of **S1-4**

Client Sample ID: **S1-4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780001
Lab Project ID: 1163780

Collection Date: 07/07/16 08:29
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.48	U	2.48	0.743	mg/Kg	1		07/19/16 14:43
Surrogates								
4-Bromofluorobenzene (surr)	104		50-150		%	1		07/19/16 14:43

Batch Information

Analytical Batch: VFC13148
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 14:43
Container ID: 1163780001-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:29
Prep Initial Wt./Vol.: 81.841 g
Prep Extract Vol: 35.384 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.4	U	12.4	3.96	ug/Kg	1		07/19/16 14:43
Ethylbenzene	24.8	U	24.8	7.72	ug/Kg	1		07/19/16 14:43
o-Xylene	24.8	U	24.8	7.72	ug/Kg	1		07/19/16 14:43
P & M -Xylene	49.5	U	49.5	14.9	ug/Kg	1		07/19/16 14:43
Toluene	24.8	U	24.8	7.72	ug/Kg	1		07/19/16 14:43
Surrogates								
1,4-Difluorobenzene (surr)	98.8		72-119		%	1		07/19/16 14:43

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 14:43
Container ID: 1163780001-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:29
Prep Initial Wt./Vol.: 81.841 g
Prep Extract Vol: 35.384 mL

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Results of **S1-5**

Client Sample ID: **S1-5**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780002
Lab Project ID: 1163780

Collection Date: 07/07/16 08:32
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	118		113	35.0	mg/Kg	1		07/18/16 17:45
Surrogates								
5a Androstane (surr)	97.7		50-150		%	1		07/18/16 17:45

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 17:45
Container ID: 1163780002-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.24 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	966		113	35.0	mg/Kg	1		07/18/16 17:45
Surrogates								
n-Triacontane-d62 (surr)	91.8		50-150		%	1		07/18/16 17:45

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 17:45
Container ID: 1163780002-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.24 g
Prep Extract Vol: 5 mL

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Results of **S1-5**

Client Sample ID: **S1-5**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780002
Lab Project ID: 1163780

Collection Date: 07/07/16 08:32
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.89	U	2.89	0.868	mg/Kg	1		07/19/16 15:01
Surrogates								
4-Bromofluorobenzene (surr)	96.7		50-150		%	1		07/19/16 15:01

Batch Information

Analytical Batch: VFC13148
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 15:01
Container ID: 1163780002-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:32
Prep Initial Wt./Vol.: 64.756 g
Prep Extract Vol: 32.9056 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.5	U	14.5	4.63	ug/Kg	1		07/19/16 15:01
Ethylbenzene	28.9	U	28.9	9.03	ug/Kg	1		07/19/16 15:01
o-Xylene	28.9	U	28.9	9.03	ug/Kg	1		07/19/16 15:01
P & M -Xylene	57.9	U	57.9	17.4	ug/Kg	1		07/19/16 15:01
Toluene	28.9	U	28.9	9.03	ug/Kg	1		07/19/16 15:01
Surrogates								
1,4-Difluorobenzene (surr)	101		72-119		%	1		07/19/16 15:01

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 15:01
Container ID: 1163780002-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:32
Prep Initial Wt./Vol.: 64.756 g
Prep Extract Vol: 32.9056 mL

Results of **S2-1**

Client Sample ID: **S2-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780003
Lab Project ID: 1163780

Collection Date: 07/07/16 08:36
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	129		113	35.0	mg/Kg	1		07/18/16 17:55
Surrogates								
5a Androstane (surr)	96.2		50-150		%	1		07/18/16 17:55

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 17:55
Container ID: 1163780003-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1050		113	35.0	mg/Kg	1		07/18/16 17:55
Surrogates								
n-Triacontane-d62 (surr)	92.9		50-150		%	1		07/18/16 17:55

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 17:55
Container ID: 1163780003-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.425 g
Prep Extract Vol: 5 mL

Results of **S2-1**

Client Sample ID: **S2-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780003
Lab Project ID: 1163780

Collection Date: 07/07/16 08:36
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.40	U	2.40	0.719	mg/Kg	1		07/19/16 15:20
Surrogates								
4-Bromofluorobenzene (surr)	104		50-150		%	1		07/19/16 15:20

Batch Information

Analytical Batch: VFC13148
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 15:20
Container ID: 1163780003-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:36
Prep Initial Wt./Vol.: 85.986 g
Prep Extract Vol: 35.9573 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.0	U	12.0	3.83	ug/Kg	1		07/19/16 15:20
Ethylbenzene	24.0	U	24.0	7.48	ug/Kg	1		07/19/16 15:20
o-Xylene	24.0	U	24.0	7.48	ug/Kg	1		07/19/16 15:20
P & M -Xylene	47.9	U	47.9	14.4	ug/Kg	1		07/19/16 15:20
Toluene	24.0	U	24.0	7.48	ug/Kg	1		07/19/16 15:20
Surrogates								
1,4-Difluorobenzene (surr)	97.9		72-119		%	1		07/19/16 15:20

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 15:20
Container ID: 1163780003-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:36
Prep Initial Wt./Vol.: 85.986 g
Prep Extract Vol: 35.9573 mL

Results of **S2-2**

Client Sample ID: **S2-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780004
Lab Project ID: 1163780

Collection Date: 07/07/16 08:39
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	120		114	35.3	mg/Kg	1		07/18/16 18:06
Surrogates								
5a Androstane (surr)	92.5		50-150		%	1		07/18/16 18:06

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:06
Container ID: 1163780004-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.04 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1060		114	35.3	mg/Kg	1		07/18/16 18:06
Surrogates								
n-Triacontane-d62 (surr)	85.1		50-150		%	1		07/18/16 18:06

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:06
Container ID: 1163780004-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.04 g
Prep Extract Vol: 5 mL

Results of **S2-2**

Client Sample ID: **S2-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780004
Lab Project ID: 1163780

Collection Date: 07/07/16 08:39
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.37	U	2.37	0.710	mg/Kg	1		07/19/16 15:39
Surrogates								
4-Bromofluorobenzene (surr)	101		50-150		%	1		07/19/16 15:39

Batch Information

Analytical Batch: VFC13148
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 15:39
Container ID: 1163780004-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:39
Prep Initial Wt./Vol.: 85.429 g
Prep Extract Vol: 35.4637 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	11.8	U	11.8	3.78	ug/Kg	1		07/19/16 15:39
Ethylbenzene	23.7	U	23.7	7.38	ug/Kg	1		07/19/16 15:39
o-Xylene	23.7	U	23.7	7.38	ug/Kg	1		07/19/16 15:39
P & M -Xylene	47.3	U	47.3	14.2	ug/Kg	1		07/19/16 15:39
Toluene	23.7	U	23.7	7.38	ug/Kg	1		07/19/16 15:39
Surrogates								
1,4-Difluorobenzene (surr)	98.4		72-119		%	1		07/19/16 15:39

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 15:39
Container ID: 1163780004-B

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:39
Prep Initial Wt./Vol.: 85.429 g
Prep Extract Vol: 35.4637 mL

Results of **S3-2**

Client Sample ID: **S3-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780005
Lab Project ID: 1163780

Collection Date: 07/07/16 08:57
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	250		1.15	0.357	mg/Kg	50		07/28/16 20:42

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/28/16 20:42
Container ID: 1163780005-A

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 07/19/16 09:58
Prep Initial Wt./Vol.: 1.023 g
Prep Extract Vol: 50 mL

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Results of **S3-2**

Client Sample ID: **S3-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780005
Lab Project ID: 1163780

Collection Date: 07/07/16 08:57
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	58.7	U	58.7	17.6	ug/Kg	1		07/22/16 07:41
Aroclor-1221	235	U	235	72.7	ug/Kg	1		07/22/16 07:41
Aroclor-1232	58.7	U	58.7	17.6	ug/Kg	1		07/22/16 07:41
Aroclor-1242	58.7	U	58.7	17.6	ug/Kg	1		07/22/16 07:41
Aroclor-1248	58.7	U	58.7	17.6	ug/Kg	1		07/22/16 07:41
Aroclor-1254	58.7	U	58.7	17.6	ug/Kg	1		07/22/16 07:41
Aroclor-1260	120		58.7	17.6	ug/Kg	1		07/22/16 07:41
Surrogates								
Decachlorobiphenyl (surr)	96		60-125		%	1		07/22/16 07:41

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Analyst: S.G
Analytical Date/Time: 07/22/16 07:41
Container ID: 1163780005-A

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 07/15/16 08:12
Prep Initial Wt./Vol.: 22.622 g
Prep Extract Vol: 5 mL

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Results of **S3-2**

Client Sample ID: **S3-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780005
Lab Project ID: 1163780

Collection Date: 07/07/16 08:57
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
2-Methylnaphthalene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Acenaphthene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Acenaphthylene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Anthracene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Benzo(a)Anthracene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Benzo[a]pyrene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Benzo[b]Fluoranthene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Benzo[g,h,i]perylene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Benzo[k]fluoranthene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Chrysene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Dibenzo[a,h]anthracene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Fluoranthene	157		146	43.9	ug/Kg	5		07/22/16 20:53
Fluorene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Indeno[1,2,3-c,d] pyrene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Naphthalene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Phenanthrene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Pyrene	146	U	146	43.9	ug/Kg	5		07/22/16 20:53
Surrogates								
2-Fluorobiphenyl (surr)	91.2		46-115		%	5		07/22/16 20:53
Terphenyl-d14 (surr)	116		58-133		%	5		07/22/16 20:53

Batch Information

Analytical Batch: XMS9465
Analytical Method: 8270D SIM (PAH)
Analyst: BRV
Analytical Date/Time: 07/22/16 20:53
Container ID: 1163780005-A

Prep Batch: XXX35784
Prep Method: SW3550C
Prep Date/Time: 07/13/16 13:19
Prep Initial Wt./Vol.: 22.665 g
Prep Extract Vol: 5 mL

Results of **S3-2**

Client Sample ID: **S3-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780005
Lab Project ID: 1163780

Collection Date: 07/07/16 08:57
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	144		117	36.3	mg/Kg	1		07/18/16 18:16
Surrogates								
5a Androstane (surr)	94.8		50-150		%	1		07/18/16 18:16

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:16
Container ID: 1163780005-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.189 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1280		117	36.3	mg/Kg	1		07/18/16 18:16
Surrogates								
n-Triacontane-d62 (surr)	90		50-150		%	1		07/18/16 18:16

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:16
Container ID: 1163780005-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.189 g
Prep Extract Vol: 5 mL

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Results of **S3-2**

Client Sample ID: **S3-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780005
Lab Project ID: 1163780

Collection Date: 07/07/16 08:57
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):84.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.42	U	3.42	1.03	mg/Kg	1		07/19/16 20:00
Surrogates								
4-Bromofluorobenzene (surr)	99.1		50-150		%	1		07/19/16 20:00

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 20:00
Container ID: 1163780005-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:57
Prep Initial Wt./Vol.: 58.373 g
Prep Extract Vol: 33.8801 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	17.1	U	17.1	5.48	ug/Kg	1		07/19/16 20:00
Ethylbenzene	34.2	U	34.2	10.7	ug/Kg	1		07/19/16 20:00
o-Xylene	34.2	U	34.2	10.7	ug/Kg	1		07/19/16 20:00
P & M -Xylene	68.5	U	68.5	20.5	ug/Kg	1		07/19/16 20:00
Toluene	34.2	U	34.2	10.7	ug/Kg	1		07/19/16 20:00
Surrogates								
1,4-Difluorobenzene (surr)	89.1		72-119		%	1		07/19/16 20:00

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 20:00
Container ID: 1163780005-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:57
Prep Initial Wt./Vol.: 58.373 g
Prep Extract Vol: 33.8801 mL

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Results of **S3-3**

Client Sample ID: **S3-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780006
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	214		1.10	0.341	mg/Kg	50		07/28/16 20:47

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/28/16 20:47
Container ID: 1163780006-A

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 07/19/16 09:58
Prep Initial Wt./Vol.: 1.053 g
Prep Extract Vol: 50 mL

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Results of **S3-3**

Client Sample ID: **S3-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780006
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	57.2	U	57.2	17.2	ug/Kg	1		07/22/16 07:54
Aroclor-1221	229	U	229	71.0	ug/Kg	1		07/22/16 07:54
Aroclor-1232	57.2	U	57.2	17.2	ug/Kg	1		07/22/16 07:54
Aroclor-1242	57.2	U	57.2	17.2	ug/Kg	1		07/22/16 07:54
Aroclor-1248	57.2	U	57.2	17.2	ug/Kg	1		07/22/16 07:54
Aroclor-1254	57.2	U	57.2	17.2	ug/Kg	1		07/22/16 07:54
Aroclor-1260	99.2		57.2	17.2	ug/Kg	1		07/22/16 07:54
Surrogates								
Decachlorobiphenyl (surr)	89		60-125		%	1		07/22/16 07:54

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Analyst: S.G
Analytical Date/Time: 07/22/16 07:54
Container ID: 1163780006-A

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 07/15/16 08:12
Prep Initial Wt./Vol.: 22.772 g
Prep Extract Vol: 5 mL

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Results of **S3-3**

Client Sample ID: **S3-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780006
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
2-Methylnaphthalene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Acenaphthene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Acenaphthylene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Anthracene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Benzo(a)Anthracene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Benzo[a]pyrene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Benzo[b]Fluoranthene	219		143	42.8	ug/Kg	5		07/25/16 22:58
Benzo[g,h,i]perylene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Benzo[k]fluoranthene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Chrysene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Dibenzo[a,h]anthracene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Fluoranthene	181		143	42.8	ug/Kg	5		07/25/16 22:58
Fluorene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Indeno[1,2,3-c,d] pyrene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Naphthalene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Phenanthrene	143	U	143	42.8	ug/Kg	5		07/25/16 22:58
Pyrene	190		143	42.8	ug/Kg	5		07/25/16 22:58
Surrogates								
2-Fluorobiphenyl (surr)	87.3		46-115		%	5		07/25/16 22:58
Terphenyl-d14 (surr)	93		58-133		%	5		07/25/16 22:58

Batch Information

Analytical Batch: XMS9486
Analytical Method: 8270D SIM (PAH)
Analyst: NRB
Analytical Date/Time: 07/25/16 22:58
Container ID: 1163780006-A

Prep Batch: XXX35797
Prep Method: SW3550C
Prep Date/Time: 07/14/16 21:36
Prep Initial Wt./Vol.: 22.84 g
Prep Extract Vol: 5 mL

Print Date: 08/01/2016 8:19:01AM

Results of **S3-3**

Client Sample ID: **S3-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780006
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	145		115	35.8	mg/Kg	1		07/18/16 18:27
Surrogates								
5a Androstane (surr)	93.7		50-150		%	1		07/18/16 18:27

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:27
Container ID: 1163780006-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.09 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1260		115	35.8	mg/Kg	1		07/18/16 18:27
Surrogates								
n-Triacontane-d62 (surr)	90.5		50-150		%	1		07/18/16 18:27

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:27
Container ID: 1163780006-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.09 g
Prep Extract Vol: 5 mL

Results of **S3-3**

Client Sample ID: **S3-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780006
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.91	U	3.91	1.17	mg/Kg	1		07/19/16 20:20
Surrogates								
4-Bromofluorobenzene (surr)	87.7		50-150		%	1		07/19/16 20:20

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 20:20
Container ID: 1163780006-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:59
Prep Initial Wt./Vol.: 46.397 g
Prep Extract Vol: 31.3455 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	19.6	U	19.6	6.26	ug/Kg	1		07/19/16 20:20
Ethylbenzene	39.1	U	39.1	12.2	ug/Kg	1		07/19/16 20:20
o-Xylene	39.1	U	39.1	12.2	ug/Kg	1		07/19/16 20:20
P & M -Xylene	78.3	U	78.3	23.5	ug/Kg	1		07/19/16 20:20
Toluene	39.1	U	39.1	12.2	ug/Kg	1		07/19/16 20:20
Surrogates								
1,4-Difluorobenzene (surr)	89.2		72-119		%	1		07/19/16 20:20

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 20:20
Container ID: 1163780006-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:59
Prep Initial Wt./Vol.: 46.397 g
Prep Extract Vol: 31.3455 mL

Results of **S3-10**

Client Sample ID: **S3-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780007
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	293		1.09	0.339	mg/Kg	50		07/28/16 20:51

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/28/16 20:51
Container ID: 1163780007-A

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 07/19/16 09:58
Prep Initial Wt./Vol.: 1.06 g
Prep Extract Vol: 50 mL

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Results of **S3-10**

Client Sample ID: **S3-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780007
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.2
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	57.0	U	57.0	17.1	ug/Kg	1		07/22/16 08:50
Aroclor-1221	228	U	228	70.7	ug/Kg	1		07/22/16 08:50
Aroclor-1232	57.0	U	57.0	17.1	ug/Kg	1		07/22/16 08:50
Aroclor-1242	57.0	U	57.0	17.1	ug/Kg	1		07/22/16 08:50
Aroclor-1248	57.0	U	57.0	17.1	ug/Kg	1		07/22/16 08:50
Aroclor-1254	57.0	U	57.0	17.1	ug/Kg	1		07/22/16 08:50
Aroclor-1260	81.1		57.0	17.1	ug/Kg	1		07/22/16 08:50
Surrogates								
Decachlorobiphenyl (surr)	82		60-125		%	1		07/22/16 08:50

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Analyst: S.G
Analytical Date/Time: 07/22/16 08:50
Container ID: 1163780007-A

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 07/15/16 08:12
Prep Initial Wt./Vol.: 22.886 g
Prep Extract Vol: 5 mL

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Results of **S3-10**

Client Sample ID: **S3-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780007
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
2-Methylnaphthalene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Acenaphthene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Acenaphthylene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Anthracene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Benzo(a)Anthracene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Benzo[a]pyrene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Benzo[b]Fluoranthene	223		145	43.5	ug/Kg	5		07/25/16 23:18
Benzo[g,h,i]perylene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Benzo[k]fluoranthene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Chrysene	171		145	43.5	ug/Kg	5		07/25/16 23:18
Dibenzo[a,h]anthracene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Fluoranthene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Fluorene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Indeno[1,2,3-c,d] pyrene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Naphthalene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Phenanthrene	145	U	145	43.5	ug/Kg	5		07/25/16 23:18
Pyrene	207		145	43.5	ug/Kg	5		07/25/16 23:18
Surrogates								
2-Fluorobiphenyl (surr)	95.5		46-115		%	5		07/25/16 23:18
Terphenyl-d14 (surr)	110		58-133		%	5		07/25/16 23:18

Batch Information

Analytical Batch: XMS9486
Analytical Method: 8270D SIM (PAH)
Analyst: NRB
Analytical Date/Time: 07/25/16 23:18
Container ID: 1163780007-A

Prep Batch: XXX35797
Prep Method: SW3550C
Prep Date/Time: 07/14/16 21:36
Prep Initial Wt./Vol.: 22.517 g
Prep Extract Vol: 5 mL

Print Date: 08/01/2016 8:19:01AM

Results of **S3-10**

Client Sample ID: **S3-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780007
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	167		115	35.7	mg/Kg	1		07/18/16 18:38
Surrogates								
5a Androstane (surr)	87.6		50-150		%	1		07/18/16 18:38

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:38
Container ID: 1163780007-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.233 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1620		115	35.7	mg/Kg	1		07/18/16 18:38
Surrogates								
n-Triacontane-d62 (surr)	87.1		50-150		%	1		07/18/16 18:38

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:38
Container ID: 1163780007-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.233 g
Prep Extract Vol: 5 mL

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Results of **S3-10**

Client Sample ID: **S3-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780007
Lab Project ID: 1163780

Collection Date: 07/07/16 08:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.40	U	3.40	1.02	mg/Kg	1		07/19/16 20:39
Surrogates								
4-Bromofluorobenzene (surr)	87.9		50-150		%	1		07/19/16 20:39

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 20:39
Container ID: 1163780007-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:59
Prep Initial Wt./Vol.: 55.675 g
Prep Extract Vol: 32.6809 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	17.0	U	17.0	5.45	ug/Kg	1		07/19/16 20:39
Ethylbenzene	34.0	U	34.0	10.6	ug/Kg	1		07/19/16 20:39
o-Xylene	34.0	U	34.0	10.6	ug/Kg	1		07/19/16 20:39
P & M -Xylene	68.1	U	68.1	20.4	ug/Kg	1		07/19/16 20:39
Toluene	34.0	U	34.0	10.6	ug/Kg	1		07/19/16 20:39
Surrogates								
1,4-Difluorobenzene (surr)	89.9		72-119		%	1		07/19/16 20:39

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 20:39
Container ID: 1163780007-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:59
Prep Initial Wt./Vol.: 55.675 g
Prep Extract Vol: 32.6809 mL

Results of **S4-3**

Client Sample ID: **S4-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780008
Lab Project ID: 1163780

Collection Date: 07/07/16 11:50
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	182		115	35.5	mg/Kg	1		07/18/16 18:48
Surrogates								
5a Androstane (surr)	92.7		50-150		%	1		07/18/16 18:48

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:48
Container ID: 1163780008-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.289 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1450		115	35.5	mg/Kg	1		07/18/16 18:48
Surrogates								
n-Triacontane-d62 (surr)	84.8		50-150		%	1		07/18/16 18:48

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:48
Container ID: 1163780008-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.289 g
Prep Extract Vol: 5 mL

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Results of **S4-3**

Client Sample ID: **S4-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780008
Lab Project ID: 1163780

Collection Date: 07/07/16 11:50
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.57	U	3.57	1.07	mg/Kg	1		07/19/16 20:58
Surrogates								
4-Bromofluorobenzene (surr)	91.2		50-150		%	1		07/19/16 20:58

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 20:58
Container ID: 1163780008-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 11:50
Prep Initial Wt./Vol.: 52.061 g
Prep Extract Vol: 32.0808 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	17.8	U	17.8	5.71	ug/Kg	1		07/19/16 20:58
Ethylbenzene	35.7	U	35.7	11.1	ug/Kg	1		07/19/16 20:58
o-Xylene	35.7	U	35.7	11.1	ug/Kg	1		07/19/16 20:58
P & M -Xylene	71.3	U	71.3	21.4	ug/Kg	1		07/19/16 20:58
Toluene	35.7	U	35.7	11.1	ug/Kg	1		07/19/16 20:58
Surrogates								
1,4-Difluorobenzene (surr)	88.6		72-119		%	1		07/19/16 20:58

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 20:58
Container ID: 1163780008-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 11:50
Prep Initial Wt./Vol.: 52.061 g
Prep Extract Vol: 32.0808 mL

Results of **S4-5**

Client Sample ID: **S4-5**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780009
Lab Project ID: 1163780

Collection Date: 07/07/16 11:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	271		116	35.9	mg/Kg	1		07/18/16 18:59
Surrogates								
5a Androstane (surr)	97.9		50-150		%	1		07/18/16 18:59

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 18:59
Container ID: 1163780009-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1990		116	35.9	mg/Kg	1		07/18/16 18:59
Surrogates								
n-Triacontane-d62 (surr)	88.6		50-150		%	1		07/18/16 18:59

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 18:59
Container ID: 1163780009-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 5 mL

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Results of **S4-5**

Client Sample ID: **S4-5**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780009
Lab Project ID: 1163780

Collection Date: 07/07/16 11:59
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.97	U	2.97	0.892	mg/Kg	1		07/19/16 21:17
Surrogates								
4-Bromofluorobenzene (surr)	83.5		50-150		%	1		07/19/16 21:17

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 21:17
Container ID: 1163780009-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 11:59
Prep Initial Wt./Vol.: 67.453 g
Prep Extract Vol: 34.4736 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.9	U	14.9	4.76	ug/Kg	1		07/19/16 21:17
Ethylbenzene	29.7	U	29.7	9.28	ug/Kg	1		07/19/16 21:17
o-Xylene	29.7	U	29.7	9.28	ug/Kg	1		07/19/16 21:17
P & M -Xylene	59.5	U	59.5	17.8	ug/Kg	1		07/19/16 21:17
Toluene	29.7	U	29.7	9.28	ug/Kg	1		07/19/16 21:17
Surrogates								
1,4-Difluorobenzene (surr)	87.4		72-119		%	1		07/19/16 21:17

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 21:17
Container ID: 1163780009-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 11:59
Prep Initial Wt./Vol.: 67.453 g
Prep Extract Vol: 34.4736 mL

Results of **S5-2**

Client Sample ID: **S5-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780010
Lab Project ID: 1163780

Collection Date: 07/07/16 13:36
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	201		115	35.5	mg/Kg	1		07/18/16 19:09
Surrogates								
5a Androstane (surr)	98.1		50-150		%	1		07/18/16 19:09

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 19:09
Container ID: 1163780010-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.206 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1460		115	35.5	mg/Kg	1		07/18/16 19:09
Surrogates								
n-Triacontane-d62 (surr)	92.6		50-150		%	1		07/18/16 19:09

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 19:09
Container ID: 1163780010-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.206 g
Prep Extract Vol: 5 mL

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Results of **S5-2**

Client Sample ID: **S5-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780010
Lab Project ID: 1163780

Collection Date: 07/07/16 13:36
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.67	U	3.67	1.10	mg/Kg	1		07/19/16 21:36
Surrogates								
4-Bromofluorobenzene (surr)	91.7		50-150		%	1		07/19/16 21:36

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 21:36
Container ID: 1163780010-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 13:36
Prep Initial Wt./Vol.: 49.774 g
Prep Extract Vol: 31.6642 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	18.4	U	18.4	5.88	ug/Kg	1		07/19/16 21:36
Ethylbenzene	36.7	U	36.7	11.5	ug/Kg	1		07/19/16 21:36
o-Xylene	36.7	U	36.7	11.5	ug/Kg	1		07/19/16 21:36
P & M -Xylene	73.5	U	73.5	22.0	ug/Kg	1		07/19/16 21:36
Toluene	36.7	U	36.7	11.5	ug/Kg	1		07/19/16 21:36
Surrogates								
1,4-Difluorobenzene (surr)	90.6		72-119		%	1		07/19/16 21:36

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 21:36
Container ID: 1163780010-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 13:36
Prep Initial Wt./Vol.: 49.774 g
Prep Extract Vol: 31.6642 mL

Results of **S5-3**

Client Sample ID: **S5-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780011
Lab Project ID: 1163780

Collection Date: 07/07/16 13:41
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	217		114	35.3	mg/Kg	1		07/18/16 19:20
Surrogates								
5a Androstane (surr)	97.9		50-150		%	1		07/18/16 19:20

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 19:20
Container ID: 1163780011-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.124 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1600		114	35.3	mg/Kg	1		07/18/16 19:20
Surrogates								
n-Triacontane-d62 (surr)	92.3		50-150		%	1		07/18/16 19:20

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 19:20
Container ID: 1163780011-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.124 g
Prep Extract Vol: 5 mL

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Results of **S5-3**

Client Sample ID: **S5-3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780011
Lab Project ID: 1163780

Collection Date: 07/07/16 13:41
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.97	U	2.97	0.892	mg/Kg	1		07/19/16 21:55
Surrogates								
4-Bromofluorobenzene (surr)	90.8		50-150		%	1		07/19/16 21:55

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 21:55
Container ID: 1163780011-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 13:41
Prep Initial Wt./Vol.: 63.322 g
Prep Extract Vol: 32.9468 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	14.9	U	14.9	4.76	ug/Kg	1		07/19/16 21:55
Ethylbenzene	29.7	U	29.7	9.28	ug/Kg	1		07/19/16 21:55
o-Xylene	82.1		29.7	9.28	ug/Kg	1		07/19/16 21:55
P & M -Xylene	59.5	U	59.5	17.8	ug/Kg	1		07/19/16 21:55
Toluene	29.7	U	29.7	9.28	ug/Kg	1		07/19/16 21:55
Surrogates								
1,4-Difluorobenzene (surr)	89.4		72-119		%	1		07/19/16 21:55

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 21:55
Container ID: 1163780011-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 13:41
Prep Initial Wt./Vol.: 63.322 g
Prep Extract Vol: 32.9468 mL

Results of **S6-1**

Client Sample ID: **S6-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780012
Lab Project ID: 1163780

Collection Date: 07/07/16 15:20
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	299		1.16	0.359	mg/Kg	50		07/28/16 20:56

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/28/16 20:56
Container ID: 1163780012-A

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 07/19/16 09:58
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

Print Date: 08/01/2016 8:19:01AM

Results of **S6-1**

Client Sample ID: **S6-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780012
Lab Project ID: 1163780

Collection Date: 07/07/16 15:20
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	57.7	U	57.7	17.3	ug/Kg	1		07/22/16 09:05
Aroclor-1221	231	U	231	71.6	ug/Kg	1		07/22/16 09:05
Aroclor-1232	57.7	U	57.7	17.3	ug/Kg	1		07/22/16 09:05
Aroclor-1242	57.7	U	57.7	17.3	ug/Kg	1		07/22/16 09:05
Aroclor-1248	57.7	U	57.7	17.3	ug/Kg	1		07/22/16 09:05
Aroclor-1254	57.7	U	57.7	17.3	ug/Kg	1		07/22/16 09:05
Aroclor-1260	118		57.7	17.3	ug/Kg	1		07/22/16 09:05
Surrogates								
Decachlorobiphenyl (surr)	85		60-125		%	1		07/22/16 09:05

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Analyst: S.G
Analytical Date/Time: 07/22/16 09:05
Container ID: 1163780012-A

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 07/15/16 08:12
Prep Initial Wt./Vol.: 22.599 g
Prep Extract Vol: 5 mL

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Results of **S6-1**

Client Sample ID: **S6-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780012
Lab Project ID: 1163780

Collection Date: 07/07/16 15:20
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
2-Methylnaphthalene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Acenaphthene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Acenaphthylene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Anthracene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Benzo(a)Anthracene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Benzo[a]pyrene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Benzo[b]Fluoranthene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Benzo[g,h,i]perylene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Benzo[k]fluoranthene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Chrysene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Dibenzo[a,h]anthracene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Fluoranthene	147		145	43.4	ug/Kg	5		07/28/16 20:42
Fluorene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Indeno[1,2,3-c,d] pyrene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Naphthalene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Phenanthrene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Pyrene	145	U	145	43.4	ug/Kg	5		07/28/16 20:42
Surrogates								
2-Fluorobiphenyl (surr)	82		46-115		%	5		07/28/16 20:42
Terphenyl-d14 (surr)	93.7		58-133		%	5		07/28/16 20:42

Batch Information

Analytical Batch: XMS9493
Analytical Method: 8270D SIM (PAH)
Analyst: NRB
Analytical Date/Time: 07/28/16 20:42
Container ID: 1163780012-A

Prep Batch: XXX35791
Prep Method: SW3550C
Prep Date/Time: 07/14/16 08:11
Prep Initial Wt./Vol.: 22.527 g
Prep Extract Vol: 5 mL

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Results of **S6-1**

Client Sample ID: **S6-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780012
Lab Project ID: 1163780

Collection Date: 07/07/16 15:20
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	138		115	35.7	mg/Kg	1		07/18/16 19:30
Surrogates								
5a Androstane (surr)	93.1		50-150		%	1		07/18/16 19:30

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 19:30
Container ID: 1163780012-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.221 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1020		115	35.7	mg/Kg	1		07/18/16 19:30
Surrogates								
n-Triacontane-d62 (surr)	89.7		50-150		%	1		07/18/16 19:30

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 19:30
Container ID: 1163780012-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.221 g
Prep Extract Vol: 5 mL

Print Date: 08/01/2016 8:19:01AM

Results of **S6-1**

Client Sample ID: **S6-1**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780012
Lab Project ID: 1163780

Collection Date: 07/07/16 15:20
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.08	U	3.08	0.924	mg/Kg	1		07/19/16 22:14
Surrogates								
4-Bromofluorobenzene (surr)	92.1		50-150		%	1		07/19/16 22:14

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 22:14
Container ID: 1163780012-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:20
Prep Initial Wt./Vol.: 63.447 g
Prep Extract Vol: 33.7217 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	15.4	U	15.4	4.93	ug/Kg	1		07/19/16 22:14
Ethylbenzene	30.8	U	30.8	9.61	ug/Kg	1		07/19/16 22:14
o-Xylene	30.8	U	30.8	9.61	ug/Kg	1		07/19/16 22:14
P & M -Xylene	61.6	U	61.6	18.5	ug/Kg	1		07/19/16 22:14
Toluene	30.8	U	30.8	9.61	ug/Kg	1		07/19/16 22:14
Surrogates								
1,4-Difluorobenzene (surr)	91.8		72-119		%	1		07/19/16 22:14

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 22:14
Container ID: 1163780012-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:20
Prep Initial Wt./Vol.: 63.447 g
Prep Extract Vol: 33.7217 mL

Results of **S6-2**

Client Sample ID: **S6-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780013
Lab Project ID: 1163780

Collection Date: 07/07/16 15:26
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	137		114	35.3	mg/Kg	1		07/18/16 19:41
Surrogates								
5a Androstane (surr)	92.3		50-150		%	1		07/18/16 19:41

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 19:41
Container ID: 1163780013-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.333 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1010		114	35.3	mg/Kg	1		07/18/16 19:41
Surrogates								
n-Triacontane-d62 (surr)	90.7		50-150		%	1		07/18/16 19:41

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 19:41
Container ID: 1163780013-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.333 g
Prep Extract Vol: 5 mL

Results of **S6-2**

Client Sample ID: **S6-2**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780013
Lab Project ID: 1163780

Collection Date: 07/07/16 15:26
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.08	U	3.08	0.925	mg/Kg	1		07/19/16 22:33
Surrogates								
4-Bromofluorobenzene (surr)	94.3		50-150		%	1		07/19/16 22:33

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 22:33
Container ID: 1163780013-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:26
Prep Initial Wt./Vol.: 61.968 g
Prep Extract Vol: 33.1678 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	15.4	U	15.4	4.93	ug/Kg	1		07/19/16 22:33
Ethylbenzene	30.8	U	30.8	9.62	ug/Kg	1		07/19/16 22:33
o-Xylene	30.8	U	30.8	9.62	ug/Kg	1		07/19/16 22:33
P & M -Xylene	61.7	U	61.7	18.5	ug/Kg	1		07/19/16 22:33
Toluene	30.8	U	30.8	9.62	ug/Kg	1		07/19/16 22:33
Surrogates								
1,4-Difluorobenzene (surr)	89.1		72-119		%	1		07/19/16 22:33

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 22:33
Container ID: 1163780013-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:26
Prep Initial Wt./Vol.: 61.968 g
Prep Extract Vol: 33.1678 mL

Results of **S6-10**

Client Sample ID: **S6-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780014
Lab Project ID: 1163780

Collection Date: 07/07/16 15:26
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	159		115	35.6	mg/Kg	1		07/18/16 19:51
Surrogates								
5a Androstane (surr)	94.2		50-150		%	1		07/18/16 19:51

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 19:51
Container ID: 1163780014-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.144 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1330		115	35.6	mg/Kg	1		07/18/16 19:51
Surrogates								
n-Triacontane-d62 (surr)	90.5		50-150		%	1		07/18/16 19:51

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 19:51
Container ID: 1163780014-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.144 g
Prep Extract Vol: 5 mL

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Results of **S6-10**

Client Sample ID: **S6-10**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780014
Lab Project ID: 1163780

Collection Date: 07/07/16 15:26
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):86.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.34	U	3.34	1.00	mg/Kg	1		07/19/16 23:48
Surrogates								
4-Bromofluorobenzene (surr)	89.6		50-150		%	1		07/19/16 23:48

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 23:48
Container ID: 1163780014-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:26
Prep Initial Wt./Vol.: 56.355 g
Prep Extract Vol: 32.5716 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	16.7	U	16.7	5.34	ug/Kg	1		07/19/16 23:48
Ethylbenzene	33.4	U	33.4	10.4	ug/Kg	1		07/19/16 23:48
o-Xylene	33.4	U	33.4	10.4	ug/Kg	1		07/19/16 23:48
P & M -Xylene	66.8	U	66.8	20.0	ug/Kg	1		07/19/16 23:48
Toluene	33.4	U	33.4	10.4	ug/Kg	1		07/19/16 23:48
Surrogates								
1,4-Difluorobenzene (surr)	85.7		72-119		%	1		07/19/16 23:48

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 23:48
Container ID: 1163780014-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 15:26
Prep Initial Wt./Vol.: 56.355 g
Prep Extract Vol: 32.5716 mL

Results of **B3**

Client Sample ID: **B3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780015
Lab Project ID: 1163780

Collection Date: 07/07/16 16:07
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	162	J	449	139	mg/Kg	4		07/18/16 20:23
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		07/18/16 20:23

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 20:23
Container ID: 1163780015-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.228 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	791		449	139	mg/Kg	4		07/18/16 20:23
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		07/18/16 20:23

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 20:23
Container ID: 1163780015-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.228 g
Prep Extract Vol: 5 mL

Results of **B3**

Client Sample ID: **B3**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780015
Lab Project ID: 1163780

Collection Date: 07/07/16 16:07
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25	U	2.50	0.751	mg/Kg	1		07/20/16 00:07
Surrogates								
4-Bromofluorobenzene (surr)	82.8		50-150		%	1		07/20/16 00:07

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 00:07
Container ID: 1163780015-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:07
Prep Initial Wt./Vol.: 76.825 g
Prep Extract Vol: 33.9679 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.25	U	12.5	4.00	ug/Kg	1		07/20/16 00:07
Ethylbenzene	12.5	U	25.0	7.81	ug/Kg	1		07/20/16 00:07
o-Xylene	12.5	U	25.0	7.81	ug/Kg	1		07/20/16 00:07
P & M -Xylene	25.1	U	50.1	15.0	ug/Kg	1		07/20/16 00:07
Toluene	10.0	J	25.0	7.81	ug/Kg	1		07/20/16 00:07
Surrogates								
1,4-Difluorobenzene (surr)	90.3		72-119		%	1		07/20/16 00:07

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 00:07
Container ID: 1163780015-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:07
Prep Initial Wt./Vol.: 76.825 g
Prep Extract Vol: 33.9679 mL

Print Date: 08/01/2016 8:19:01AM

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Results of **B4**

Client Sample ID: **B4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780016
Lab Project ID: 1163780

Collection Date: 07/07/16 16:09
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Lead	121		1.11	0.344	mg/Kg	50		07/28/16 21:00

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Analyst: VDL
Analytical Date/Time: 07/28/16 21:00
Container ID: 1163780016-A

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 07/19/16 09:58
Prep Initial Wt./Vol.: 1.021 g
Prep Extract Vol: 50 mL

Results of **B4**

Client Sample ID: **B4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780016
Lab Project ID: 1163780

Collection Date: 07/07/16 16:09
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	27.9	U	55.8	16.7	ug/Kg	1		07/22/16 09:19
Aroclor-1221	112	U	223	69.1	ug/Kg	1		07/22/16 09:19
Aroclor-1232	27.9	U	55.8	16.7	ug/Kg	1		07/22/16 09:19
Aroclor-1242	27.9	U	55.8	16.7	ug/Kg	1		07/22/16 09:19
Aroclor-1248	27.9	U	55.8	16.7	ug/Kg	1		07/22/16 09:19
Aroclor-1254	27.9	U	55.8	16.7	ug/Kg	1		07/22/16 09:19
Aroclor-1260	76.8		55.8	16.7	ug/Kg	1		07/22/16 09:19
Surrogates								
Decachlorobiphenyl (surr)	81		60-125		%	1		07/22/16 09:19

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Analyst: S.G
Analytical Date/Time: 07/22/16 09:19
Container ID: 1163780016-A

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 07/15/16 08:12
Prep Initial Wt./Vol.: 22.845 g
Prep Extract Vol: 5 mL

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Results of **B4**

Client Sample ID: **B4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780016
Lab Project ID: 1163780

Collection Date: 07/07/16 16:09
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
2-Methylnaphthalene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
Acenaphthene	85.1	J	140	41.9	ug/Kg	5		07/28/16 21:03
Acenaphthylene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
Anthracene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
Benzo(a)Anthracene	139		140	41.9	ug/Kg	5		07/28/16 21:03
Benzo[a]pyrene	171		140	41.9	ug/Kg	5		07/28/16 21:03
Benzo[b]Fluoranthene	231		140	41.9	ug/Kg	5		07/28/16 21:03
Benzo[g,h,i]perylene	130	J	140	41.9	ug/Kg	5		07/28/16 21:03
Benzo[k]fluoranthene	75.0	J	140	41.9	ug/Kg	5		07/28/16 21:03
Chrysene	145		140	41.9	ug/Kg	5		07/28/16 21:03
Dibenzo[a,h]anthracene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
Fluoranthene	223		140	41.9	ug/Kg	5		07/28/16 21:03
Fluorene	44.7	J	140	41.9	ug/Kg	5		07/28/16 21:03
Indeno[1,2,3-c,d] pyrene	99.9	J	140	41.9	ug/Kg	5		07/28/16 21:03
Naphthalene	70.0	U	140	41.9	ug/Kg	5		07/28/16 21:03
Phenanthrene	154		140	41.9	ug/Kg	5		07/28/16 21:03
Pyrene	192		140	41.9	ug/Kg	5		07/28/16 21:03
Surrogates								
2-Fluorobiphenyl (surr)	86.4		46-115		%	5		07/28/16 21:03
Terphenyl-d14 (surr)	103		58-133		%	5		07/28/16 21:03

Batch Information

Analytical Batch: XMS9493
Analytical Method: 8270D SIM (PAH)
Analyst: NRB
Analytical Date/Time: 07/28/16 21:03
Container ID: 1163780016-A

Prep Batch: XXX35791
Prep Method: SW3550C
Prep Date/Time: 07/14/16 08:11
Prep Initial Wt./Vol.: 22.774 g
Prep Extract Vol: 5 mL

Results of **B4**

Client Sample ID: **B4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780016
Lab Project ID: 1163780

Collection Date: 07/07/16 16:09
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	192	J	453	140	mg/Kg	4		07/18/16 20:34
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		07/18/16 20:34

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 20:34
Container ID: 1163780016-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.014 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1060		453	140	mg/Kg	4		07/18/16 20:34
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		07/18/16 20:34

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 20:34
Container ID: 1163780016-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.014 g
Prep Extract Vol: 5 mL

Print Date: 08/01/2016 8:19:01AM

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Results of **B4**

Client Sample ID: **B4**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780016
Lab Project ID: 1163780

Collection Date: 07/07/16 16:09
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.36	U	2.71	0.812	mg/Kg	1		07/20/16 00:26
Surrogates								
4-Bromofluorobenzene (surr)	87.2		50-150		%	1		07/20/16 00:26

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 00:26
Container ID: 1163780016-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:09
Prep Initial Wt./Vol.: 69.115 g
Prep Extract Vol: 33.0651 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.75	U	13.5	4.33	ug/Kg	1		07/20/16 00:26
Ethylbenzene	13.6	U	27.1	8.45	ug/Kg	1		07/20/16 00:26
o-Xylene	13.6	U	27.1	8.45	ug/Kg	1		07/20/16 00:26
P & M -Xylene	27.1	U	54.2	16.2	ug/Kg	1		07/20/16 00:26
Toluene	13.6	U	27.1	8.45	ug/Kg	1		07/20/16 00:26
Surrogates								
1,4-Difluorobenzene (surr)	86		72-119		%	1		07/20/16 00:26

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 00:26
Container ID: 1163780016-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:09
Prep Initial Wt./Vol.: 69.115 g
Prep Extract Vol: 33.0651 mL

Print Date: 08/01/2016 8:19:01AM

J flagging is activated

Results of **B8**

Client Sample ID: **B8**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780017
Lab Project ID: 1163780

Collection Date: 07/07/16 16:23
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):92.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	294		106	33.0	mg/Kg	1		07/18/16 20:44
Surrogates								
5a Androstane (surr)	118		50-150		%	1		07/18/16 20:44

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 20:44
Container ID: 1163780017-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.369 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1550		106	33.0	mg/Kg	1		07/18/16 20:44
Surrogates								
n-Triacontane-d62 (surr)	74.5		50-150		%	1		07/18/16 20:44

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 20:44
Container ID: 1163780017-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.369 g
Prep Extract Vol: 5 mL

Results of **B8**

Client Sample ID: **B8**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780017
Lab Project ID: 1163780

Collection Date: 07/07/16 16:23
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):92.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.23	U	2.23	0.670	mg/Kg	1		07/20/16 00:45
Surrogates								
4-Bromofluorobenzene (surr)	86.4		50-150		%	1		07/20/16 00:45

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 00:45
Container ID: 1163780017-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:23
Prep Initial Wt./Vol.: 72.618 g
Prep Extract Vol: 30.1515 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	11.2	U	11.2	3.58	ug/Kg	1		07/20/16 00:45
Ethylbenzene	22.3	U	22.3	6.97	ug/Kg	1		07/20/16 00:45
o-Xylene	22.3	U	22.3	6.97	ug/Kg	1		07/20/16 00:45
P & M -Xylene	44.7	U	44.7	13.4	ug/Kg	1		07/20/16 00:45
Toluene	22.3	U	22.3	6.97	ug/Kg	1		07/20/16 00:45
Surrogates								
1,4-Difluorobenzene (surr)	89.3		72-119		%	1		07/20/16 00:45

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 00:45
Container ID: 1163780017-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:23
Prep Initial Wt./Vol.: 72.618 g
Prep Extract Vol: 30.1515 mL

Results of **B14**

Client Sample ID: **B14**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780018
Lab Project ID: 1163780

Collection Date: 07/07/16 16:48
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	277	J	450	140	mg/Kg	4		07/18/16 20:55
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		07/18/16 20:55

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 20:55
Container ID: 1163780018-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.383 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1910		450	140	mg/Kg	4		07/18/16 20:55
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		07/18/16 20:55

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 20:55
Container ID: 1163780018-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.383 g
Prep Extract Vol: 5 mL

Print Date: 08/01/2016 8:19:01AM

J flagging is activated

Results of **B14**

Client Sample ID: **B14**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780018
Lab Project ID: 1163780

Collection Date: 07/07/16 16:48
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.35	U	2.69	0.807	mg/Kg	1		07/20/16 01:04
Surrogates								
4-Bromofluorobenzene (surr)	85.8		50-150		%	1		07/20/16 01:04

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 01:04
Container ID: 1163780018-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:48
Prep Initial Wt./Vol.: 71.445 g
Prep Extract Vol: 33.7451 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	6.75	U	13.5	4.31	ug/Kg	1		07/20/16 01:04
Ethylbenzene	13.4	U	26.9	8.40	ug/Kg	1		07/20/16 01:04
o-Xylene	13.4	U	26.9	8.40	ug/Kg	1		07/20/16 01:04
P & M -Xylene	26.9	U	53.8	16.1	ug/Kg	1		07/20/16 01:04
Toluene	13.4	U	26.9	8.40	ug/Kg	1		07/20/16 01:04
Surrogates								
1,4-Difluorobenzene (surr)	88.3		72-119		%	1		07/20/16 01:04

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 01:04
Container ID: 1163780018-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:48
Prep Initial Wt./Vol.: 71.445 g
Prep Extract Vol: 33.7451 mL

Print Date: 08/01/2016 8:19:01AM

J flagging is activated

Results of **B15**

Client Sample ID: **B15**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780019
Lab Project ID: 1163780

Collection Date: 07/07/16 16:51
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	229	U	458	142	mg/Kg	4		07/18/16 21:05
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		07/18/16 21:05

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 21:05
Container ID: 1163780019-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.044 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	2560		458	142	mg/Kg	4		07/18/16 21:05
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		07/18/16 21:05

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 21:05
Container ID: 1163780019-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.044 g
Prep Extract Vol: 5 mL

Results of **B15**

Client Sample ID: **B15**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780019
Lab Project ID: 1163780

Collection Date: 07/07/16 16:51
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):87.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.75	U	3.49	1.05	mg/Kg	1		07/20/16 01:22
Surrogates								
4-Bromofluorobenzene (surr)	82.4		50-150		%	1		07/20/16 01:22

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 01:22
Container ID: 1163780019-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:51
Prep Initial Wt./Vol.: 52.018 g
Prep Extract Vol: 31.6473 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	8.70	U	17.4	5.58	ug/Kg	1		07/20/16 01:22
Ethylbenzene	17.4	U	34.9	10.9	ug/Kg	1		07/20/16 01:22
o-Xylene	17.4	U	34.9	10.9	ug/Kg	1		07/20/16 01:22
P & M -Xylene	34.9	U	69.8	20.9	ug/Kg	1		07/20/16 01:22
Toluene	17.4	U	34.9	10.9	ug/Kg	1		07/20/16 01:22
Surrogates								
1,4-Difluorobenzene (surr)	91.2		72-119		%	1		07/20/16 01:22

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 01:22
Container ID: 1163780019-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:51
Prep Initial Wt./Vol.: 52.018 g
Prep Extract Vol: 31.6473 mL

Results of **B20**

Client Sample ID: **B20**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780020
Lab Project ID: 1163780

Collection Date: 07/07/16 16:07
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	146	J	450	140	mg/Kg	4		07/18/16 21:16
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		07/18/16 21:16

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Analyst: AEE
Analytical Date/Time: 07/18/16 21:16
Container ID: 1163780020-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.238 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	797		450	140	mg/Kg	4		07/18/16 21:16
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		07/18/16 21:16

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Analyst: AEE
Analytical Date/Time: 07/18/16 21:16
Container ID: 1163780020-A

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 07/13/16 22:01
Prep Initial Wt./Vol.: 30.238 g
Prep Extract Vol: 5 mL

Results of **B20**

Client Sample ID: **B20**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780020
Lab Project ID: 1163780

Collection Date: 07/07/16 16:07
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.68	U	3.36	1.01	mg/Kg	1		07/20/16 01:41
Surrogates								
4-Bromofluorobenzene (surr)	88.7		50-150		%	1		07/20/16 01:41

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/20/16 01:41
Container ID: 1163780020-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:07
Prep Initial Wt./Vol.: 52.872 g
Prep Extract Vol: 31.2798 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	8.40	U	16.8	5.37	ug/Kg	1		07/20/16 01:41
Ethylbenzene	16.8	U	33.6	10.5	ug/Kg	1		07/20/16 01:41
o-Xylene	16.8	U	33.6	10.5	ug/Kg	1		07/20/16 01:41
P & M -Xylene	33.5	U	67.1	20.1	ug/Kg	1		07/20/16 01:41
Toluene	16.8	U	33.6	10.5	ug/Kg	1		07/20/16 01:41
Surrogates								
1,4-Difluorobenzene (surr)	85.5		72-119		%	1		07/20/16 01:41

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/20/16 01:41
Container ID: 1163780020-B

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 16:07
Prep Initial Wt./Vol.: 52.872 g
Prep Extract Vol: 31.2798 mL

Print Date: 08/01/2016 8:19:01AM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Unalaska Airport Debris Pile**
Lab Sample ID: 1163780021
Lab Project ID: 1163780

Collection Date: 07/07/16 08:29
Received Date: 07/08/16 15:55
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.51	U	2.51	0.753	mg/Kg	1		07/19/16 19:03
Surrogates								
4-Bromofluorobenzene (surr)	92.4		50-150		%	1		07/19/16 19:03

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/19/16 19:03
Container ID: 1163780021-A

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:29
Prep Initial Wt./Vol.: 49.802 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	12.5	U	12.5	4.02	ug/Kg	1		07/19/16 19:03
Ethylbenzene	25.1	U	25.1	7.83	ug/Kg	1		07/19/16 19:03
o-Xylene	25.1	U	25.1	7.83	ug/Kg	1		07/19/16 19:03
P & M -Xylene	50.2	U	50.2	15.1	ug/Kg	1		07/19/16 19:03
Toluene	25.1	U	25.1	7.83	ug/Kg	1		07/19/16 19:03
Surrogates								
1,4-Difluorobenzene (surr)	93		72-119		%	1		07/19/16 19:03

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 07/19/16 19:03
Container ID: 1163780021-A

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 07/07/16 08:29
Prep Initial Wt./Vol.: 49.802 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1739631 [MXX/29988]
Blank Lab ID: 1337810

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Lead	0.100U	0.200	0.0620	mg/Kg

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/28/2016 7:31:43PM

Prep Batch: MXX29988
Prep Method: SW3050B
Prep Date/Time: 7/19/2016 9:58:22AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [MXX29988]
Blank Spike Lab ID: 1337811
Date Analyzed: 07/28/2016 19:36

Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Lead	50	54.6	109	(84-118)

Batch Information

Analytical Batch: **MMS9467**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexion P5**
Analyst: **VDL**

Prep Batch: **MXX29988**
Prep Method: **SW3050B**
Prep Date/Time: **07/19/2016 09:58**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1337812
MS Sample ID: 1337813 MS
MSD Sample ID: 1337814 MSD

Analysis Date: 07/28/2016 19:40
Analysis Date: 07/28/2016 19:45
Analysis Date: 07/28/2016 19:49
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Lead	1.20	49.6	54.2	107	49.4	55.1	109	84-118	1.66	(< 20)

Batch Information

Analytical Batch: MMS9467
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: VDL
Analytical Date/Time: 7/28/2016 7:45:09PM

Prep Batch: MXX29988
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 7/19/2016 9:58:22AM
Prep Initial Wt./Vol.: 1.01g
Prep Extract Vol: 50.00mL

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Method Blank

Blank ID: MB for HBN 1739164 [SPT/9943]
Blank Lab ID: 1336674

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9943
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA
Analytical Date/Time: 7/13/2016 7:10:00PM

Duplicate Sample Summary

Original Sample ID: 1163780001
Duplicate Sample ID: 1336675

Analysis Date: 07/13/2016 19:10
Matrix: Soil/Solid (dry weight)

QC for Samples:

1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016,

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	87.3	86.6	%	0.84	(< 15)

Batch Information

Analytical Batch: SPT9943
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 08/01/2016 8:19:16AM

Duplicate Sample Summary

Original Sample ID: 1163833050
Duplicate Sample ID: 1336676

Analysis Date: 07/13/2016 19:10
Matrix: Soil/Solid (dry weight)

QC for Samples:

1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017,

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	93.9	93.6	%	0.34	(< 15)

Batch Information

Analytical Batch: SPT9943
Analytical Method: SM21 2540G
Instrument:
Analyst: RJA

Print Date: 08/01/2016 8:19:16AM

Method Blank

Blank ID: MB for HBN 1739689 [VXX/29163]
Blank Lab ID: 1338106

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780001, 1163780002, 1163780003, 1163780004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.797J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	98.7	50-150		%

Batch Information

Analytical Batch: VFC13148
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2016 12:31:00PM

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [VXX29163]
Blank Spike Lab ID: 1338109
Date Analyzed: 07/19/2016 11:35

Spike Duplicate ID: LCSD for HBN 1163780 [VXX29163]
Spike Duplicate Lab ID: 1338110
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780001, 1163780002, 1163780003, 1163780004

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	11.6	93	12.5	11.4	91	(60-120)	1.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	105	105	1.25	103	103	(50-150)	1.60	

Batch Information

Analytical Batch: **VFC13148**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29163**
Prep Method: **SW5035A**
Prep Date/Time: **07/19/2016 00:30**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1739689 [VXX/29163]
Blank Lab ID: 1338106

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780001, 1163780002, 1163780003, 1163780004

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	103	72-119		%

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2016 12:31:00PM

Prep Batch: VXX29163
Prep Method: SW5035A
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [VXX29163]
Blank Spike Lab ID: 1338107
Date Analyzed: 07/19/2016 10:57

Spike Duplicate ID: LCSD for HBN 1163780 [VXX29163]
Spike Duplicate Lab ID: 1338108
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780001, 1163780002, 1163780003, 1163780004

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1380	110	1250	1310	105	(75-125)	5.30	(< 20)
Ethylbenzene	1250	1340	107	1250	1300	104	(75-125)	3.20	(< 20)
o-Xylene	1250	1290	104	1250	1270	101	(75-125)	2.20	(< 20)
P & M -Xylene	2500	2700	108	2500	2610	104	(80-125)	3.30	(< 20)
Toluene	1250	1330	106	1250	1270	102	(70-125)	4.40	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	106	106	1250	103	103	(72-119)	2.10	

Batch Information

Analytical Batch: **VFC13148**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX29163**
Prep Method: **SW5035A**
Prep Date/Time: **07/19/2016 00:30**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1168230006
MS Sample ID: 1338111 MS
MSD Sample ID: 1338112 MSD

Analysis Date: 07/19/2016 21:19
Analysis Date: 07/19/2016 21:38
Analysis Date: 07/19/2016 21:57
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780001, 1163780002, 1163780003, 1163780004

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	12.9U	2098	2324	111	2098	2408	114	75-125	3.30	(< 20)
Ethylbenzene	25.9U	2098	2157	103	2098	2205	105	75-125	2.20	(< 20)
o-Xylene	25.9U	2098	2050	98	2098	2110	100	75-125	2.50	(< 20)
P & M -Xylene	32.0J	4207	4255	100	4207	4338	102	80-125	2.00	(< 20)
Toluene	25.9U	2098	2133	102	2098	2169	103	70-125	1.30	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		2098	2050	97	2098	2122	101	72-119	3.70	

Batch Information

Analytical Batch: VFC13148
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2016 9:38:00PM

Prep Batch: VXX29163
Prep Method: AK101 Extraction (S)
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 35.41g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1739692 [VXX/29165]
Blank Lab ID: 1338123

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020, 1163780021

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	83.1	50-150		%

Batch Information

Analytical Batch: VFC13146
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2016 6:24:00PM

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [VXX29165]
Blank Spike Lab ID: 1338126
Date Analyzed: 07/19/2016 17:26

Spike Duplicate ID: LCSD for HBN 1163780 [VXX29165]
Spike Duplicate Lab ID: 1338127
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020, 1163780021

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	11.3	90	12.5	10.5	84	(60-120)	7.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	88.5	89	1.25	83.5	84	(50-150)	5.80	

Batch Information

Analytical Batch: **VFC13146**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX29165**
Prep Method: **SW5035A**
Prep Date/Time: **07/19/2016 00:30**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1739692 [VXX/29165]
Blank Lab ID: 1338123

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020, 1163780021

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	6.25U	12.5	4.00	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,4-Difluorobenzene (surr)	91.3	72-119		%

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/19/2016 6:24:00PM

Prep Batch: VXX29165
Prep Method: SW5035A
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [VXX29165]
Blank Spike Lab ID: 1338124
Date Analyzed: 07/19/2016 16:48

Spike Duplicate ID: LCSD for HBN 1163780 [VXX29165]
Spike Duplicate Lab ID: 1338125
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020, 1163780021

Results by **SW8021B**

	Blank Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1250	1350	108	1250	1320	106	(75-125)	2.50	(< 20)
Ethylbenzene	1250	1160	93	1250	1120	90	(75-125)	3.60	(< 20)
o-Xylene	1250	1140	91	1250	1150	92	(75-125)	0.46	(< 20)
P & M -Xylene	2500	2280	91	2500	2240	90	(80-125)	1.70	(< 20)
Toluene	1250	1270	101	1250	1220	98	(70-125)	3.60	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1250	91.8	92	1250	100	100	(72-119)	8.80	

Batch Information

Analytical Batch: **VFC13146**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX29165**
Prep Method: **SW5035A**
Prep Date/Time: **07/19/2016 00:30**
Spike Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1250 ug/Kg Extract Vol: 25 mL

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Matrix Spike Summary

Original Sample ID: 1163780020
MS Sample ID: 1338128 MS
MSD Sample ID: 1338129 MSD

Analysis Date: 07/20/2016 1:41
Analysis Date: 07/20/2016 2:00
Analysis Date: 07/20/2016 2:19
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020, 1163780021

Results by **SW8021B**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	8.40U	1339	1385	104	1339	1407	105	75-125	1.20	(< 20)
Ethylbenzene	16.8U	1339	1169	87	1339	1192	89	75-125	2.10	(< 20)
o-Xylene	16.8U	1339	1169	87	1339	1169	87	75-125	0.46	(< 20)
P & M -Xylene	33.5U	2679	2316	86	2679	2338	87	80-125	0.92	(< 20)
Toluene	16.8U	1339	1283	95	1339	1305	97	70-125	2.10	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1339	1249	93	1339	1237	92	72-119	1.10	

Batch Information

Analytical Batch: VFC13146
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/20/2016 2:00:00AM

Prep Batch: VXX29165
Prep Method: AK101 Extraction (S)
Prep Date/Time: 7/19/2016 12:30:00AM
Prep Initial Wt./Vol.: 52.87g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1739128 [XXX/35784]
Blank Lab ID: 1336485

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780005

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.06J	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	102	46-115		%
Terphenyl-d14 (surr)	106	58-133		%

Batch Information

Analytical Batch: XMS9465
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: BRV
Analytical Date/Time: 7/22/2016 12:17:00PM

Prep Batch: XXX35784
Prep Method: SW3550C
Prep Date/Time: 7/13/2016 1:19:57PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35784]
Blank Spike Lab ID: 1336486
Date Analyzed: 07/22/2016 12:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005

Results by **8270D SIM (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	20.4	92	(43-111)
2-Methylnaphthalene	22.2	18.6	84	(39-114)
Acenaphthene	22.2	22.0	99	(44-111)
Acenaphthylene	22.2	19.3	87	(39-116)
Anthracene	22.2	20.6	93	(50-114)
Benzo(a)Anthracene	22.2	21.0	94	(54-122)
Benzo[a]pyrene	22.2	21.8	98	(50-125)
Benzo[b]Fluoranthene	22.2	20.6	93	(53-128)
Benzo[g,h,i]perylene	22.2	21.6	97	(49-127)
Benzo[k]fluoranthene	22.2	20.9	94	(56-123)
Chrysene	22.2	22.4	101	(57-118)
Dibenzo[a,h]anthracene	22.2	22.3	100	(50-129)
Fluoranthene	22.2	20.9	94	(55-119)
Fluorene	22.2	20.0	90	(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	21.8	98	(49-130)
Naphthalene	22.2	19.3	87	(38-111)
Phenanthrene	22.2	20.1	90	(49-113)
Pyrene	22.2	22.4	101	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	22.2	93.4	93	(46-115)
Terphenyl-d14 (surr)	22.2	100	100	(58-133)

Batch Information

Analytical Batch: **XMS9465**
Analytical Method: **8270D SIM (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **BRV**

Prep Batch: **XXX35784**
Prep Method: **SW3550C**
Prep Date/Time: **07/13/2016 13:19**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1163780005
MS Sample ID: 1336487 MS
MSD Sample ID: 1336488 MSD

Analysis Date: 07/22/2016 20:53
Analysis Date: 07/22/2016 21:15
Analysis Date: 07/22/2016 21:38
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005

Results by **8270D SIM (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	146U	26.2	45.8J	175	*	25.7	73.0U	0	*	43-111	0.00	(< 20)
2-Methylnaphthalene	146U	26.2	51.2J	196	*	25.7	73.0U	0	*	39-114	0.00	(< 20)
Acenaphthene	146U	26.2	53.8J	205	*	25.7	73.0U	0	*	44-111	0.00	(< 20)
Acenaphthylene	146U	26.2	124J	473	*	25.7	73.0U	0	*	39-116	0.00	(< 20)
Anthracene	146U	26.2	95.2J	364	*	25.7	65.4J	255	*	50-114	37.00	* (< 20)
Benzo(a)Anthracene	146U	26.2	162	347	*	25.7	93.2J	87		54-122	53.70	* (< 20)
Benzo[a]pyrene	146U	26.2	205	474	*	25.7	108J	104		50-125	62.00	* (< 20)
Benzo[b]Fluoranthene	146U	26.2	295	616	*	25.7	147	52	*	53-128	66.80	* (< 20)
Benzo[g,h,i]perylene	146U	26.2	197	424	*	25.7	112J	99		49-127	55.20	* (< 20)
Benzo[k]fluoranthene	146U	26.2	102J	389	*	25.7	55.9J	218	*	56-123	58.10	* (< 20)
Chrysene	146U	26.2	243	500	*	25.7	132J	78		57-118	59.20	* (< 20)
Dibenzo[a,h]anthracene	146U	26.2	68.4J	262	*	25.7	50.6J	197	*	50-129	29.90	* (< 20)
Fluoranthene	157	26.2	462	1170	*	25.7	173	62		55-119	91.10	* (< 20)
Fluorene	146U	26.2	84.3J	323	*	25.7	49.3J	192	*	47-114	52.40	* (< 20)
Indeno[1,2,3-c,d] pyrene	146U	26.2	152	362	*	25.7	82.5J	98		49-130	59.30	* (< 20)
Naphthalene	146U	26.2	92.9J	355	*	25.7	73.0U	0	*	38-111	0.00	(< 20)
Phenanthrene	146U	26.2	443	1350	*	25.7	117J	110		49-113	116.00	* (< 20)
Pyrene	146U	26.2	384	934	*	25.7	163	91		55-117	80.70	* (< 20)
Surrogates												
2-Fluorobiphenyl (surr)		26.2	27.6	105		25.7	23.3	91		46-115	16.40	
Terphenyl-d14 (surr)		26.2	27.5	105		25.7	26.8	104		58-133	2.40	

Batch Information

Analytical Batch: XMS9465
Analytical Method: 8270D SIM (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: BRV
Analytical Date/Time: 7/22/2016 9:15:00PM

Prep Batch: XXX35784
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 7/13/2016 1:19:57PM
Prep Initial Wt./Vol.: 22.55g
Prep Extract Vol: 5.00mL

Print Date: 08/01/2016 8:19:37AM

Method Blank

Blank ID: MB for HBN 1739155 [XXX/35788]
Blank Lab ID: 1336634

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	92.5	60-120		%

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: AEE
Analytical Date/Time: 7/18/2016 5:03:00PM

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 7/13/2016 10:01:42PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35788]
Blank Spike Lab ID: 1336635
Date Analyzed: 07/18/2016 17:13

Spike Duplicate ID: LCSD for HBN 1163780 [XXX35788]
Spike Duplicate Lab ID: 1336636
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	165	99	167	166	99	(75-125)	0.42	(< 20)
Surrogates									
5a Androstane (surr)	3.33	91.4	91	3.33	96	96	(60-120)	4.90	

Batch Information

Analytical Batch: **XFC12543**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **AEE**

Prep Batch: **XXX35788**
Prep Method: **SW3550C**
Prep Date/Time: **07/13/2016 22:01**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1739155 [XXX/35788]
Blank Lab ID: 1336634

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	90.3	60-120		%

Batch Information

Analytical Batch: XFC12543
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: AEE
Analytical Date/Time: 7/18/2016 5:03:00PM

Prep Batch: XXX35788
Prep Method: SW3550C
Prep Date/Time: 7/13/2016 10:01:42PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35788]
Blank Spike Lab ID: 1336635
Date Analyzed: 07/18/2016 17:13

Spike Duplicate ID: LCSD for HBN 1163780 [XXX35788]
Spike Duplicate Lab ID: 1336636
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780001, 1163780002, 1163780003, 1163780004, 1163780005, 1163780006, 1163780007, 1163780008, 1163780009, 1163780010, 1163780011, 1163780012, 1163780013, 1163780014, 1163780015, 1163780016, 1163780017, 1163780018, 1163780019, 1163780020

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	179	107	167	179	107	(60-120)	0.02	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	84.9	85	3.33	85.7	86	(60-120)	0.93	

Batch Information

Analytical Batch: **XFC12543**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **AEE**

Prep Batch: **XXX35788**
Prep Method: **SW3550C**
Prep Date/Time: **07/13/2016 22:01**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1739158 [XXX/35791]
Blank Lab ID: 1336649

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780012, 1163780016

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	1.61J	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	95.5	46-115		%
Terphenyl-d14 (surr)	96.8	58-133		%

Batch Information

Analytical Batch: XMS9493
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/28/2016 8:01:00PM

Prep Batch: XXX35791
Prep Method: SW3550C
Prep Date/Time: 7/14/2016 8:11:49AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35791]
Blank Spike Lab ID: 1336650
Date Analyzed: 07/28/2016 20:22

Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780012, 1163780016

Results by **8270D SIM (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	22.2	26.3	118	*	(43-111)
2-Methylnaphthalene	22.2	24.6	111		(39-114)
Acenaphthene	22.2	24.5	110		(44-111)
Acenaphthylene	22.2	21.9	99		(39-116)
Anthracene	22.2	20.8	93		(50-114)
Benzo(a)Anthracene	22.2	21.7	98		(54-122)
Benzo[a]pyrene	22.2	22.4	101		(50-125)
Benzo[b]Fluoranthene	22.2	21.0	95		(53-128)
Benzo[g,h,i]perylene	22.2	22.3	100		(49-127)
Benzo[k]fluoranthene	22.2	20.6	93		(56-123)
Chrysene	22.2	21.0	94		(57-118)
Dibenzo[a,h]anthracene	22.2	23.5	106		(50-129)
Fluoranthene	22.2	21.6	97		(55-119)
Fluorene	22.2	20.9	94		(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	22.3	100		(49-130)
Naphthalene	22.2	23.0	104		(38-111)
Phenanthrene	22.2	21.3	96		(49-113)
Pyrene	22.2	22.1	99		(55-117)
Surrogates					
2-Fluorobiphenyl (surr)	22.2	99	99		(46-115)
Terphenyl-d14 (surr)	22.2	99.7	100		(58-133)

Batch Information

Analytical Batch: **XMS9493**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **XXX35791**
Prep Method: **SW3550C**
Prep Date/Time: **07/14/2016 08:11**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1163780016
MS Sample ID: 1336651 MS
MSD Sample ID: 1336652 MSD

Analysis Date: 07/28/2016 21:03
Analysis Date: 07/28/2016 21:24
Analysis Date: 07/28/2016 21:45
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780012, 1163780016

Results by **8270D SIM (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	70.0U	24.7	63.1J	255	*	24.9	53.7J	216	*	43-111	16.20	(< 20)
2-Methylnaphthalene	70.0U	24.7	67.0J	272	*	24.9	56.4J	227	*	39-114	17.30	(< 20)
Acenaphthene	85.1J	24.7	149	259	*	24.9	91.1J	24	*	44-111	48.40	* (< 20)
Acenaphthylene	70.0U	24.7	70.0U	0	*	24.9	70.0U	0	*	39-116	0.00	(< 20)
Anthracene	70.0U	24.7	52.9J	214	*	24.9	55.9J	225	*	50-114	5.60	(< 20)
Benzo(a)Anthracene	139	24.7	144	16	*	24.9	171	125	*	54-122	17.20	(< 20)
Benzo[a]pyrene	171	24.7	165	-23	*	24.9	185	57		50-125	11.40	(< 20)
Benzo[b]Fluoranthene	231	24.7	219	-50	*	24.9	253	87		53-128	14.50	(< 20)
Benzo[g,h,i]perylene	130J	24.7	140	41	*	24.9	139J	35	*	49-127	0.95	(< 20)
Benzo[k]fluoranthene	75.0J	24.7	87.4J	50	*	24.9	88.1J	52	*	56-123	0.74	(< 20)
Chrysene	145	24.7	152	25	*	24.9	172	109		57-118	12.90	(< 20)
Dibenzo[a,h]anthracene	70.0U	24.7	53.0J	215	*	24.9	55.2J	222	*	50-129	4.00	(< 20)
Fluoranthene	223	24.7	220	-12	*	24.9	254	124	*	55-119	14.30	(< 20)
Fluorene	44.7J	24.7	79.2J	140	*	24.9	59.0J	58		47-114	29.20	* (< 20)
Indeno[1,2,3-c,d] pyrene	99.9J	24.7	109J	36	*	24.9	111J	43	*	49-130	1.80	(< 20)
Naphthalene	70.0U	24.7	70.0U	0	*	24.9	70.0U	0	*	38-111	0.00	(< 20)
Phenanthrene	154	24.7	174	83		24.9	178	96		49-113	1.90	(< 20)
Pyrene	192	24.7	193	4	*	24.9	232	163	*	55-117	18.60	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		24.7	21.3	86		24.9	21.2	85		46-115	0.32	
Terphenyl-d14 (surr)		24.7	23.0	93		24.9	24.2	98		58-133	5.70	

Batch Information

Analytical Batch: XMS9493
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/28/2016 9:24:00PM

Prep Batch: XXX35791
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 7/14/2016 8:11:49AM
Prep Initial Wt./Vol.: 22.93g
Prep Extract Vol: 5.00mL

Print Date: 08/01/2016 8:19:49AM

Method Blank

Blank ID: MB for HBN 1739223 [XXX/35797]
Blank Lab ID: 1336948

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780006, 1163780007

Results by **8270D SIM (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
2-Methylnaphthalene	2.50U	5.00	1.50	ug/Kg
Acenaphthene	2.50U	5.00	1.50	ug/Kg
Acenaphthylene	2.50U	5.00	1.50	ug/Kg
Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo(a)Anthracene	2.50U	5.00	1.50	ug/Kg
Benzo[a]pyrene	2.50U	5.00	1.50	ug/Kg
Benzo[b]Fluoranthene	2.50U	5.00	1.50	ug/Kg
Benzo[g,h,i]perylene	2.50U	5.00	1.50	ug/Kg
Benzo[k]fluoranthene	2.50U	5.00	1.50	ug/Kg
Chrysene	2.50U	5.00	1.50	ug/Kg
Dibenzo[a,h]anthracene	2.50U	5.00	1.50	ug/Kg
Fluoranthene	2.50U	5.00	1.50	ug/Kg
Fluorene	2.50U	5.00	1.50	ug/Kg
Indeno[1,2,3-c,d] pyrene	2.50U	5.00	1.50	ug/Kg
Naphthalene	2.50U	5.00	1.50	ug/Kg
Phenanthrene	2.50U	5.00	1.50	ug/Kg
Pyrene	2.50U	5.00	1.50	ug/Kg
Surrogates				
2-Fluorobiphenyl (surr)	99	46-115		%
Terphenyl-d14 (surr)	98	58-133		%

Batch Information

Analytical Batch: XMS9470
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/23/2016 4:10:00AM

Prep Batch: XXX35797
Prep Method: SW3550C
Prep Date/Time: 7/14/2016 9:36:28PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35797]
Blank Spike Lab ID: 1336949
Date Analyzed: 07/23/2016 04:31

Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780006, 1163780007

Results by **8270D SIM (PAH)**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	22.2	20.2	91	(43-111)
2-Methylnaphthalene	22.2	19.3	87	(39-114)
Acenaphthene	22.2	21.6	97	(44-111)
Acenaphthylene	22.2	20.0	90	(39-116)
Anthracene	22.2	20.4	92	(50-114)
Benzo(a)Anthracene	22.2	20.4	92	(54-122)
Benzo[a]pyrene	22.2	20.1	91	(50-125)
Benzo[b]Fluoranthene	22.2	20.4	92	(53-128)
Benzo[g,h,i]perylene	22.2	19.7	89	(49-127)
Benzo[k]fluoranthene	22.2	20.1	91	(56-123)
Chrysene	22.2	21.0	94	(57-118)
Dibenzo[a,h]anthracene	22.2	20.2	91	(50-129)
Fluoranthene	22.2	20.0	90	(55-119)
Fluorene	22.2	20.3	91	(47-114)
Indeno[1,2,3-c,d] pyrene	22.2	20.2	91	(49-130)
Naphthalene	22.2	19.9	90	(38-111)
Phenanthrene	22.2	20.2	91	(49-113)
Pyrene	22.2	21.4	96	(55-117)
Surrogates				
2-Fluorobiphenyl (surr)	22.2	95.3	95	(46-115)
Terphenyl-d14 (surr)	22.2	97	97	(58-133)

Batch Information

Analytical Batch: **XMS9470**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **XXX35797**
Prep Method: **SW3550C**
Prep Date/Time: **07/14/2016 21:36**
Spike Init Wt./Vol.: 22.2 ug/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1168265008
MS Sample ID: 1336950 MS
MSD Sample ID: 1336951 MSD

Analysis Date: 07/25/2016 21:35
Analysis Date: 07/25/2016 21:56
Analysis Date: 07/25/2016 22:16
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780006, 1163780007

Results by **8270D SIM (PAH)**

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Acenaphthene	22.3J	23.0	42.5	88		22.9	41.2	82		44-111	3.30	(< 20)
Acenaphthylene	12.9U	23.0	38.4	167	*	22.9	38.5	168	*	39-116	0.10	(< 20)
Anthracene	12.9U	23.0	24.5J	107		22.9	24.1J	105		50-114	1.60	(< 20)
Benzo(a)Anthracene	12.9U	23.0	21.6J	94		22.9	20.8J	91		54-122	3.60	(< 20)
Benzo[a]pyrene	12.9U	23.0	17.8J	78		22.9	17.1J	75		50-125	4.10	(< 20)
Benzo[b]Fluoranthene	12.9U	23.0	22.0J	96		22.9	21.2J	93		53-128	3.70	(< 20)
Benzo[g,h,i]perylene	12.9U	23.0	18.6J	81		22.9	18.4J	80		49-127	1.50	(< 20)
Benzo[k]fluoranthene	12.9U	23.0	19.5J	85		22.9	18.3J	80		56-123	6.50	(< 20)
Chrysene	12.9U	23.0	27.2	119	*	22.9	26.5	116		57-118	2.60	(< 20)
Dibenzo[a,h]anthracene	12.9U	23.0	17.9J	78		22.9	17.3J	76		50-129	3.60	(< 20)
Fluoranthene	24.4J	23.0	44.6	88		22.9	43.5	84		55-119	2.30	(< 20)
Fluorene	12.9U	23.0	67.4	294	*	22.9	65.8	287	*	47-114	2.60	(< 20)
Indeno[1,2,3-c,d] pyrene	12.9U	23.0	17.6J	77		22.9	16.9J	74		49-130	4.00	(< 20)
Phenanthrene	122	23.0	142	84		22.9	137	64		49-113	3.40	(< 20)
Pyrene	11.6J	23.0	32.5	91		22.9	32.1	90		55-117	1.20	(< 20)
1-Methylnaphthalene	6750	23.0	6618	-579	*	22.9	6505	-1080	*	43-111	1.80	(< 20)
2-Methylnaphthalene	12700	23.0	12616	-309	*	22.9	12616	-442	*	39-114	0.24	(< 20)
Naphthalene	18800	23.0	18718	-339	*	22.9	18097	-2760	*	38-111	3.00	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		23.0	20.1	88		22.9	19.3	84		46-115	4.00	
Terphenyl-d14 (surr)		23.0	21.4	93		22.9	21.1	92		58-133	1.10	

Batch Information

Analytical Batch: XMS9486
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/25/2016 9:56:00PM

Prep Batch: XXX35797
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 7/14/2016 9:36:28PM
Prep Initial Wt./Vol.: 22.55g
Prep Extract Vol: 1.00mL

Analytical Batch: XMS9488
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 7/27/2016 4:34:00PM

Prep Batch: XXX35797
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 7/14/2016 9:36:28PM
Prep Initial Wt./Vol.: 22.55g
Prep Extract Vol: 1.00mL

Print Date: 08/01/2016 8:19:53AM

Method Blank

Blank ID: MB for HBN 1739228 [XXX/35799]
Blank Lab ID: 1336967

Matrix: Soil/Solid (dry weight)

QC for Samples:
1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	15.0	ug/Kg
Aroclor-1221	100U	200	62.0	ug/Kg
Aroclor-1232	25.0U	50.0	15.0	ug/Kg
Aroclor-1242	25.0U	50.0	15.0	ug/Kg
Aroclor-1248	25.0U	50.0	15.0	ug/Kg
Aroclor-1254	25.0U	50.0	15.0	ug/Kg
Aroclor-1260	25.0U	50.0	15.0	ug/Kg
Surrogates				
Decachlorobiphenyl (surr)	113	60-125		%

Batch Information

Analytical Batch: XGC9394
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: S.G
Analytical Date/Time: 7/21/2016 9:21:00PM

Prep Batch: XXX35799
Prep Method: SW3550C
Prep Date/Time: 7/15/2016 8:12:38AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1163780 [XXX35799]
Blank Spike Lab ID: 1336968
Date Analyzed: 07/21/2016 21:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	167	75	(47-134)
Aroclor-1260	222	240	108	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	114	114	(60-125)

Batch Information

Analytical Batch: **XGC9394**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV H F**
Analyst: **S.G**

Prep Batch: **XXX35799**
Prep Method: **SW3550C**
Prep Date/Time: **07/15/2016 08:12**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1163780006
MS Sample ID: 1336969 MS
MSD Sample ID: 1336970 MSD

Analysis Date: 07/22/2016 7:54
Analysis Date: 07/22/2016 8:22
Analysis Date: 07/22/2016 8:36
Matrix: Soil/Solid (dry weight)

QC for Samples: 1163780005, 1163780006, 1163780007, 1163780012, 1163780016

Results by **SW8082A**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	57.2U	253	261	103	254	284	112	47-134	8.69	(< 30)
Aroclor-1260	99.2	253	316	86	254	358	102	53-140	12.30	(< 30)
Surrogates										
Decachlorobiphenyl (surr)		253	241	95	254	231	91	60-125	3.98	

Batch Information

Analytical Batch: XGC9395
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV L R
Analyst: S.G
Analytical Date/Time: 7/22/2016 8:22:00AM

Prep Batch: XXX35799
Prep Method: Sonication Extraction Soil SW8080 PCB
Prep Date/Time: 7/15/2016 8:12:38AM
Prep Initial Wt./Vol.: 22.89g
Prep Extract Vol: 5.00mL

Print Date: 08/01/2016 8:19:57AM

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CHAIN OF CUSTODY RECORD

1163780

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Page 1 of 2

Section 1

CLIENT: Travis/Peterson Environmental

CONTACT: Mundahl PHONE NO: 907-522-41337

PROJECT NAME: Unalaska Airport Debris Pile PROJECT/ PWSID/ PERMIT#:

REPORTS TO: TPECF E-MAIL: emundahl@TPECF.

INVOICE TO: TPECF QUOTE #:

P.O. #: 1563-03

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: /	MeOH	/	/	/					REMARKS/ LOC ID
							DRO/RRO	6-RRO/BTEX	PAH	Pb	PCBs					
(1) A-B	S1-4	7/7/16	8:29	Soil	2	G	X	X								
(2) A-B	S1-5		8:32		2		X	X								
(3) A-B	S2-1		8:36		2		X	X								
(4) A-B	S2-2		8:39		2		X	X	X	X	X					
(5) A-B	S3-2		8:57		2		X	X	X	X	X					
(6) A-B	S3-3		8:59		2		X	X	X	X	X					
(7) A-B	S3-10		8:59		2		X	X								
(8) A-B	S4-3		11:50		2		X	X								
(9) A-B	S4-5		11:59		2		X	X								
(10) A-B	S5-2		13:36		2		X	X								

Section 5

	Date	Time	
Relinquished By: (1)	7/8/16	7:55	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/8/16	15:55	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 3.6 #11

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

http://www.sgs.com/terms-and-conditions

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1163780

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: Travis/Peterson Environmental

CONTACT: Mundahl PHONE NO: 907-522-4337

PROJECT NAME: Unalaska Airport Debris Piles PROJECT/ PWSID/ PERMIT#:

REPORTS TO: TPECI E-MAIL: emundahl@tpeci.com

INVOICE TO: TPECI QUOTE #: P.O. #: 1563-03

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: /	MeOH	/	/	/					REMARKS/ LOC ID
							DRO/1220	GRO/8TEX	PAH	Pb	PCBs					
(11) A-B	SS-3	7/7/16	13:41	Soil	2	G	X	X								
(12) A-B	SS-1		15:20		2		X	X	X	X	X					
(13) A-B	SS-2		15:26		2		X	X								
(14) A-B	SS-10		15:26		2		X	X								
(15) A-B	B3		16:07		2		X	X								
(16) A-B	B4		16:09		2		X	X	X	X	X					
(17) A-B	B8		16:23		2		X	X								
(18) A-B	B14		16:48		2		X	X								
(19) A-B	B15		16:51		2		X	X								
(20) A-B	B20		16:07		2		X	X							(21) A-B	

Section 5

	Date	Time	
Relinquished By: (1)	7/8/16	3:55	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/8/16	15:55	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 3.8 #11 or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle) INTACT (12) BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

F083-Kit_Request_and_COC_Templates-Blank
Revised 2013-03-24

SGS

e-SAMPLE RECEIPT FORM

1163780

Review Criteria	Y/N (yes/no)	Exceptions Noted below
	Y	exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Y	1F
COC accompanied samples?	Y	
Y **exemption permitted if chilled & collected <8hrs ago or chlling not required (i.e., waste, oil)		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Y	Cooler ID: 1 @ 3.8 °C Therm ID: 11
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
*If >6°C, were samples collected <8 hours ago?	Y	
If <0°C, were sample containers ice free?	Y	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
		Note: Refer to form F-083 "Sample Guide" for hold times.
Were samples received within hold time?	Y	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Y	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	Y	
	Y	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Y	
IF APPLICABLE		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Y	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Y	
Were all soil VOAs field extracted with MeOH+BFB?	Y	

Note to Client: Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1163780001-A	No Preservative Required	OK			
1163780001-B	Methanol field pres. 4 C	OK			
1163780002-A	No Preservative Required	OK			
1163780002-B	Methanol field pres. 4 C	OK			
1163780003-A	No Preservative Required	OK			
1163780003-B	Methanol field pres. 4 C	OK			
1163780004-A	No Preservative Required	OK			
1163780004-B	Methanol field pres. 4 C	OK			
1163780005-A	No Preservative Required	OK			
1163780005-B	Methanol field pres. 4 C	OK			
1163780006-A	No Preservative Required	OK			
1163780006-B	Methanol field pres. 4 C	OK			
1163780007-A	No Preservative Required	OK			
1163780007-B	Methanol field pres. 4 C	OK			
1163780008-A	No Preservative Required	OK			
1163780008-B	Methanol field pres. 4 C	OK			
1163780009-A	No Preservative Required	OK			
1163780009-B	Methanol field pres. 4 C	OK			
1163780010-A	No Preservative Required	OK			
1163780010-B	Methanol field pres. 4 C	OK			
1163780011-A	No Preservative Required	OK			
1163780011-B	Methanol field pres. 4 C	OK			
1163780012-A	No Preservative Required	OK			
1163780012-B	Methanol field pres. 4 C	OK			
1163780013-A	No Preservative Required	OK			
1163780013-B	Methanol field pres. 4 C	OK			
1163780014-A	No Preservative Required	OK			
1163780014-B	Methanol field pres. 4 C	OK			
1163780015-A	No Preservative Required	OK			
1163780015-B	Methanol field pres. 4 C	OK			
1163780016-A	No Preservative Required	OK			
1163780016-B	Methanol field pres. 4 C	OK			
1163780017-A	No Preservative Required	OK			
1163780017-B	Methanol field pres. 4 C	OK			
1163780018-A	No Preservative Required	OK			
1163780018-B	Methanol field pres. 4 C	OK			
1163780019-A	No Preservative Required	OK			
1163780019-B	Methanol field pres. 4 C	OK			
1163780020-A	No Preservative Required	OK			
1163780020-B	Methanol field pres. 4 C	OK			
1163780021-A	Methanol field pres. 4 C	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Data Review Checklist

Completed by:	Erik Mundah, P.E.		
Title:	Environmental Engineer	Date:	9/11/2016
CS Report Name:		Report Date:	8/1/2016
Consultant Firm:	Travis/Peterson Environmental Consulting, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1163780
ADEC File Number:	2542.38.010	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:

All samples analyzed by SGS.

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° ± 2° C)?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

All cooler temperature blanks were recorded within range at time of receipt.

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:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/ preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There were no discrepancies.

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

Comments:

Data quality and usability is unaffected.

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:

Several QC failures identified. All described in Case Narrative.

c. Were all corrective actions documented?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

Comments:

Sample data is usable. See Case Narrative for details.

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:

LOQs for several samples above cleanup levels. See Checklist Supplement.

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

Comments:

See Checklist Supplement.

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? If so, are the data flags clearly defined?

○ Yes ○ No ◉ NA (Please explain) Comments:

No samples affected.

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

No samples 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:

No metals or inorganics sampled.

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:

%R for several MS/MSD samples outside specified limits. See Checklist Supplement.

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/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

◉ Yes ○ No ○ NA (Please explain) Comments:

%RPD for two MSD outside specified limits. See Checklist Supplement.

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

Comments:

See Checklist Supplement.

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

See Checklist Supplement.

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

See Checklist Supplement.

c. Surrogates - Organics Only

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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:

Multiple surrogates recovery was reported outside of control limit range. See Checklist Supplement.

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:

See Checklist Supplement.

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:

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:

No affected samples.

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

Comments:

No affected samples.

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:

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

○ Yes ◉ No ○ NA (Please explain) Comments:

No affected samples.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ◉ NA (Please explain) Comments:

No equipment blank used.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

NA

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

a. Defined and appropriate?

○ Yes ◉ No ○ NA (Please explain) Comments:

Reset Form

Laboratory Data Review Checklist Supplement Narrative
Unalaska Airport Debris Pile Removal

5. d. e.

SGS laboratory uses the limit of quantitation (LOQ) instead of PQL. The LOQs for samples B4, B4, B14, B15, and B20 are above the ADEC Method Two cleanup levels for Diesel. The LOQ for these samples for DRO analysis was elevated as a result of sample dilution. It is possible that the above referenced samples could contain DRO concentrations at or above ADEC cleanup levels. However, the estimated quantitations remain low and the resulting LOQs are not drastically higher than cleanup levels.

6. b. iii., iv., v., vi., vii.

The percent recovery (%R) for matrix spike samples #1163780005MS, 1163780016MS, 1168265008MS (PAH) and matrix spike duplicate samples #1163780005MSD, 1163780016MSD, 1168265008MSD (PAH) were outside the control limits. The %RPD for matrix spike duplicate samples #1163780005MSD, 1163780016MSD were outside of control limits. Matrix interference from an unknown substance is likely the cause of %R and %RPD issues in these samples. As a result of likely matrix interference, the affected samples may be biased low. However, PAH analytes for all samples analyzed were generally non-detect, so this bias is unlikely to affect overall data usability.

6. c. ii.

All sample results with failed surrogate recoveries were flagged. The samples affected by surrogate failures were: B3, B4, B14, B15, B20.

AK 102/103

For the following samples, 5a-androstane and n-triacontane surrogates in the AK 102/103 analyses were biased low: B3, B4, B14, B15, B20.

Several samples in the AK 102/103 analysis had failed surrogate recoveries and thus did not meet QC criteria. The above listed samples analyzed for AK 102/103 did not meet QC criteria due to sample dilution due to the dark color of the extract.

6. c. iv.

Data usability may be affected by these quality issues.

There were several samples with failed surrogate recoveries for the DRO/RRO analysis (AK102/103) above the specified control limits. The LOQ for these samples for DRO analysis was elevated as a result of sample dilution. The resulting LOQs were above ADEC Method Two cleanup levels for Diesel. It is possible that the above referenced samples could contain DRO concentrations at or above ADEC cleanup levels. However, the estimated quantitations remain low and the resulting LOQs are not significantly higher than cleanup levels.

Laboratory Report of Analysis

To: Travis/Peterson (TPECI)
3305 Arctic Blvd Suite 102
Anchorage, AK 99503
(907)522-4337

Report Number: **1163781**

Client Project: **Torpedo Building Wells**

Dear Erik Mundahl,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Victoria at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Victoria Pennick Date
Project Manager
Victoria.Pennick@sgs.com

Print Date: 07/27/2016 3:38:32PM

Case Narrative

SGS Client: **Travis/Peterson (TPECI)**
SGS Project: **1163781**
Project Name/Site: **Torpedo Building Wells**
Project Contact: **Erik Mundahl**

Refer to sample receipt form for information on sample condition.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-1	1163781001	07/07/2016	07/08/2016	Water (Surface, Eff., Ground)
MW-10	1163781002	07/07/2016	07/08/2016	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO/RRO Low Volume Water
AK103	DRO/RRO Low Volume Water

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **MW-1**
Lab Sample ID: 1163781001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.579	mg/L

Client Sample ID: **MW-10**
Lab Sample ID: 1163781002
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	0.717	mg/L
Residual Range Organics	0.510	mg/L

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-1**

Client Sample ID: **MW-1**
Client Project ID: **Torpedo Building Wells**
Lab Sample ID: 1163781001
Lab Project ID: 1163781

Collection Date: 07/07/16 10:50
Received Date: 07/08/16 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.579		0.577	0.173	mg/L	1		07/22/16 21:45
Surrogates								
5a Androstane (surr)	89.4		50-150		%	1		07/22/16 21:45

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 07/22/16 21:45
Container ID: 1163781001-A

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 07/20/16 15:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.481	U	0.481	0.144	mg/L	1		07/22/16 21:45
Surrogates								
n-Triacontane-d62 (surr)	83.4		50-150		%	1		07/22/16 21:45

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 07/22/16 21:45
Container ID: 1163781001-A

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 07/20/16 15:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **Torpedo Building Wells**
Lab Sample ID: 1163781002
Lab Project ID: 1163781

Collection Date: 07/07/16 10:50
Received Date: 07/08/16 15:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.717		0.577	0.173	mg/L	1		07/22/16 21:55
Surrogates								
5a Androstane (surr)	98.8		50-150		%	1		07/22/16 21:55

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK102
Analyst: NRO
Analytical Date/Time: 07/22/16 21:55
Container ID: 1163781002-A

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 07/20/16 15:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.510		0.481	0.144	mg/L	1		07/22/16 21:55
Surrogates								
n-Triacontane-d62 (surr)	94.1		50-150		%	1		07/22/16 21:55

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK103
Analyst: NRO
Analytical Date/Time: 07/22/16 21:55
Container ID: 1163781002-A

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 07/20/16 15:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1739725 [XXX/35843]
Blank Lab ID: 1338308

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163781001, 1163781002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	92.8	60-120		%

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 7/22/2016 8:21:00PM

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 7/20/2016 3:50:38PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1163781 [XXX35843]
Blank Spike Lab ID: 1338309
Date Analyzed: 07/22/2016 20:32

Spike Duplicate ID: LCSD for HBN 1163781 [XXX35843]
Spike Duplicate Lab ID: 1338310
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163781001, 1163781002

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	20.3	101	20	21.9	109	(75-125)	7.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4	96.4	96	0.4	104	104	(60-120)	8.00	

Batch Information

Analytical Batch: **XFC12553**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **NRO**

Prep Batch: **XXX35843**
Prep Method: **SW3520C**
Prep Date/Time: **07/20/2016 15:50**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1739725 [XXX/35843]
Blank Lab ID: 1338308

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1163781001, 1163781002

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.211J	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62 (surr)	89.1	60-120		%

Batch Information

Analytical Batch: XFC12553
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: NRO
Analytical Date/Time: 7/22/2016 8:21:00PM

Prep Batch: XXX35843
Prep Method: SW3520C
Prep Date/Time: 7/20/2016 3:50:38PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1163781 [XXX35843]
Blank Spike Lab ID: 1338309
Date Analyzed: 07/22/2016 20:32

Spike Duplicate ID: LCSD for HBN 1163781 [XXX35843]
Spike Duplicate Lab ID: 1338310
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1163781001, 1163781002

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	20	21.0	105	20	22.7	114	(60-120)	8.10	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	0.4	85	85	0.4	92.6	93	(60-120)	8.50	

Batch Information

Analytical Batch: **XFC12553**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **NRO**

Prep Batch: **XXX35843**
Prep Method: **SW3520C**
Prep Date/Time: **07/20/2016 15:50**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

AI
N
N
W

1163781

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Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: Travis/Peterson Environmental

CONTACT: Mundahl PHONE NO: 907-522-4337

PROJECT NAME: Torpedo Building Wells PROJECT/ PWSID/ PERMIT#:

REPORTS TO: TPECI E-MAIL: emundahl

INVOICE TO: TPECI QUOTE #:

P.O. #: 1049-09

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Preservative: HCl	Preservative: DRO/12RCO	REMARKS/ LOC ID
~~1~~ AB	MW-1	7/7/16	10:50	water	2	G	x		
~~2~~ AB	MW-10	1	10:50	1	2	G	x		

Section 5

	Date	Time	Received By:
Relinquished By: (1)	7/6/16	3:55	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	7/8/16	15:35	Received For Laboratory By:

Section 4

DOD Project? Yes No

Cooler ID:

Data Deliverable Requirements:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: #11 3.8

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301
[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

SGS

e-SAMPLE RECEIPT FORM

1163781

Review Criteria	Y/N (yes/no)	Exceptions Noted below
		☐ exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Y	1F
COC accompanied samples?	Y	
☐ **exemption permitted if chilled & collected <8hrs ago or chlling not required (i.e., waste, oil)		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Y	Cooler ID: 1 @ 3.8 °C Therm ID: 11
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
	Y	Cooler ID: @ °C Therm ID:
*If >6°C, were samples collected <8 hours ago?	Y	
If <0°C, were sample containers ice free?	Y	
If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
		Note: Refer to form F-083 "Sample Guide" for hold times.
Were samples received within hold time?	Y	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Y	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	Y	
		☐ ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Y	
IF APPLICABLE		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	~~Y~~	na
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	~~Y~~	na
Were all soil VOAs field extracted with MeOH+BFB?	~~Y~~	na vlp 7/12/16

Note to Client: Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1163781001-A	HCL to pH < 2	OK			
1163781001-B	HCL to pH < 2	OK			
1163781002-A	HCL to pH < 2	OK			
1163781002-B	HCL to pH < 2	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Data Review Checklist

Completed by:	Erik Mundah, P.E.		
Title:	Environmental Engineer	Date:	9/11/2016
CS Report Name:		Report Date:	7/27/2016
Consultant Firm:	Travis/Peterson Environmental Consulting, Inc.		
Laboratory Name:	SGS North America, Inc.	Laboratory Report Number:	1163781
ADEC File Number:	2542.38.010	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:

All samples analyzed by SGS.

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° ± 2° C)?

(●) Yes ( ) No ( ) NA (Please explain) Comments:

All cooler temperature blanks were recorded within range at time of receipt.

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:

d. If there were any discrepancies, were they documented? - For example, incorrect sample containers/ preservation, sample temperature outside of acceptance range, insufficient or missing samples, etc.?

( ) Yes ( ) No (•) NA (Please explain) Comments:

There were no discrepancies.

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

Comments:

Data quality and usability is unaffected.

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, errors or QC failures occurred. See Case Narrative.

c. Were all corrective actions documented?

( ) Yes ( ) No (•) NA (Please explain) Comments:

No corrective actions required.

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

Comments:

Sample data is usable. See Case Narrative for details.

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:

See Checklist Supplement.

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

Comments:

Not applicable.

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? If so, are the data flags clearly defined?

○ Yes ○ No ◉ NA (Please explain) Comments:

No samples affected.

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

No samples 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:

No metals or inorganics sampled.

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:

All %R are within specified limits.

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/DMSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

◉ Yes ○ No ○ NA (Please explain) Comments:

All %RPD is below the specified limits.

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

Comments:

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

○ Yes ○ No ◉ NA (Please explain) Comments:

No affected samples.

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

No affected samples.

c. Surrogates - Organics Only

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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:

All percent recoveries within limits. See Checklist Supplement.

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:

No affected samples.

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

No affected samples.

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:

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:

No affected samples.

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

Comments:

No affected samples.

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:

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

○ Yes ◉ No ○ NA (Please explain) Comments:

No affected samples.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ○ No ◉ NA (Please explain) Comments:

No equipment blank used.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

NA

ii. If above PQL, what samples are affected?

Comments:

NA

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

Comments:

NA

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

a. Defined and appropriate?

○ Yes ◉ No ○ NA (Please explain) Comments:

Reset Form

Laboratory Data Review Checklist Supplement Narrative
Unalaska Airport Debris Pile Removal

5. d. e.
SGS laboratory uses the limit of quantitation (LOQ) instead of PQL.

Appendix C:
Photographic Log

Unalaska Airport Debris Pile Removal Site Work: Photo Log – Jul7, 2016

Excavating in the debris pile.	Excavating in the debris pile.
	

Lifting a generator and motor from the debris pile.	Clearing the debris pile.
	

Most of the debris pile removed.	Small volumes of rock and bricks remaining on the debris pile site.
	

Rocks and bricks being cleared from the debris pile site.	Mostly cleared debris pile.
	

Cleared debris pile site and the wall of the adjacent Torpedo Building.	Fully cleared debris pile site.
	

Tires, fishing line, rope, and other non-wood or metal materials removed from the debris pile.	Scrap metal removed from the debris pile.
	

Scrap metal removed from the debris pile.	Generator and motor removed. Motor appeared to contain no fluids.
	

Wood removed from the debris pile. Note vehicle behind pile as scale.	Rock removed from the debris pile. Note vehicle for scale.
	

Covering of the soil stockpiles following sample collection.	Covering of the soil stockpiles following sample collection.
	

Covering of the soil stockpiles following sample collection.	Additional rock removed from the debris pile.
	

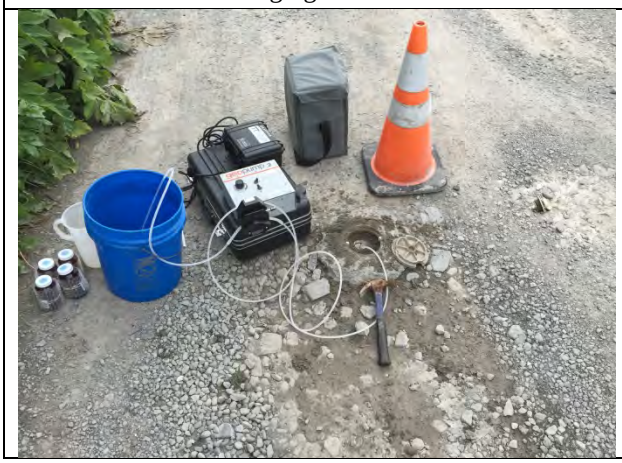
Soil field screening sample baggies in locations where samples were collect.	Soil field screening sample baggies in locations where samples were collect.
	

Soil field screening sample baggies in locations where samples were collect.	Covered soil stockpiles on site.
	

Covered soil stockpiles.	Unearthed MW-3.
	

The damaged, broken, and filled MW-3.	MW-1 well cover and concrete pad.
	

Location of MW-1 looking along Torpedo Building.	Removing compacted soil around MW-1 cap.
	

Purging MW-1.	Sample collection at MW-1.
	

Appendix D:
Field Notes

Location _____ Date _____

Project / Client _____

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Building Debris Pile

55°F Cloudy, windy - EDM on site for TREC

Soil

Stockpile #1 - North end - ≈ 15 yards

	ID	Depth in SP	PID	Time	Lab
	S1-1	20"	0.2	8:21	-
	S1-2	20"	0.1	8:23	-
	S1-3	20"	0.2	8:27	-
1	S1-4	20"	0.3	8:29	DRO/RRO GRO/BTEX
2	S1-5	20"	0.41	8:32	DRO/RRO GRO/BTEX

Notes: Approximately 15 yards. Large quantity of rock. No staining or odor. Large volume steel - including generator - came out of this section.

Stockpile #2 - 2nd to north ≈ 20 yards

	ID	Depth in SP	PID	Time	Lab
3	S2-1	20"	0.7	8:36	DRO/RRO GRO/BTEX
4	S2-2	20"	0.9	8:39	DRO/RRO GRO/BTEX
	S2-3	20"	0.5	8:44	-
	S2-4	20"	0.6	8:47	-
	S2-5	20"	0.1	8:50	-

Notes: Approximately 20 yards. Large quantity of rock. No staining or odor. Large volume of steel and wood in this section.

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Building Debris Pile

Stockpile #3 - center of pile by door of bldg. - 20 yards

ID	Depth in SP	PID	Time	Lab
S3-1	20"	0.2	8:53	—
S3-2	20"	0.5	8:57	DRO/RRO/PAH/Lead/PCB GRO/BTEX
S3-3	20"	0.5	8:59	DRO/RRO/PAH/Lead/PCB GRO/BTEX
S3-4	20"	0.2	9:03	—
S3-5	20"	0.2	9:08	—

S3-10 is duplicate of S3-3 @ 8:59

Notes: Approximately 20 yards. Likely worst case area for lead and PCBs. No staining or odor. Mostly soil, but some wood and steel. Lots of rock in SP.

Stockpile #4 - South of door - 20 yards

ID	Depth in SP	PID	Time	Lab
S4-1	20"	0.7	11:39	—
S4-2	20"	0.5	11:44	—
S4-3	20"	1.0	11:50	GRO/BTEX DRO/RRO
S4-4	20"	0.8	11:53	—
S4-5	20"	0.9	11:59	GRO/BTEX DRO/RRO

Notes: Approximately 20 yards. No staining or odor. Very rocky. Large number of bricks in pile. Lots of rocks in SP.

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Building Debris Pile

Stockpile #5 - South end of pile - 20 yds

ID	Depth in SP	PID	Time	Lab
S5-1	20"	0.1	13:31	—
S5-2	20"	1.3	13:36	GRO/BTEX DRO/RRO
S5-3	20"	1.0	13:41	GRO/BTEX DRO/RRO
S5-4	20"	0.8	13:45	—
S5-5	20"	0.9	13:52	—

Notes: Approximately 20 yards. No staining or odor. Very rocky. Lots of rocks in SP. Significant amount of wood and steel removed from soil location as well.

Stockpile #6 - Bottom scrapings - generally near door

ID	Depth in SP	PID	Time	Lab
S6-1	20"	8.7	15:20	GRO/BTEX DRO/RRO/PAH/PCB/RCB
S6-2	20"	4.6	15:26	GRO/BTEX DRO/RRO
S6-3	20"	1.6	15:29	
S6-4	20"	1.4	15:34	
S6-5	20"	0.8	15:39	

Notes: Approximately 20 yards. No staining or odor. Very rocky. Lots of rocks in SP. S6-10 is duplicate of S6-2 @ 15:26

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Building Debris Pile

ID	PID	Time	Lab
B1	0.0	16:01	—
B2	0.2	16:04	—
B3	6.2	16:07	GRO/BTEX DRO/RRO
B4	12.1	16:09	GRO/BTEX DRO/RRO/PAH/PB/PCBs
B5	1.0	16:13	—
B6	0.9	16:15	—
B7	1.2	16:19	—
B8	2.1	16:23	GRO/BTEX DRO/RRO
B9	1.8	16:27	—
B10	1.0	16:33	—
B11	0.3	16:37	—
B12	0.4	16:39	—
B13	0.2	16:44	—
B14	2.0	16:48	GRO/BTEX DRO/RRO
B15	2.3	16:51	GRO/BTEX DRO/RRO
B16	1.0	16:54	—
B17	1.8	16:56	—

- B20 Duplicate of B3 @ 16:07
- All samples collected @ ≈ 0.1' ie ground surface

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Building Wells

Groundwater Sampling

MW1

Depth to water: 10.00 ft

Depth to bottom: 14.60 ft

2.0" well casing

4.6' of water = 55.2" of water

$\pi r^2 h$

r = 1.0" = 0.083'

h = 4.6'

3.14 · 0.083 · 0.083 · 4.6 = 0.099 ft³

= 0.744 gallons × 3 well volume

= 2.23 gallons to purge

Approximately 4.0 gallons purged. Initial purge murky for ≈ 200 mL, then clear. No sheen visible on water surface but sulfur/[redacted] odor varied from faint to strong throughout purging proces

Samples for MW-1 collected at 10:50 am for DRO/RRO. MW-10 is a duplicate sample of MW-1 and also collected at 10:50.

Location Dutch Harbor, AK Date 7/7/16

Project / Client

Torpedo Building Wells

MW-1

Well located. Small concrete pad at well head sits 4-6" above road surface. Gravel surrounding pad severly damaged. Metal cover present but bolt brackets broken and not attached. Well cap present and intact. well casing appeared to be in good condition. Successfully sampled.

MW-2

Parking lot paved in 2013 or 2014. No evidence of well, presumed destroyed.

MW-5

Previously presumed destroyed. No visible evidence of well

MW-4

Significant grading and fill occured since 2001. No evidence of well, presumed destroyed.

Location Dutch Harbor, AK Date 7/7/16

Project / Client Torpedo Bldg Wells

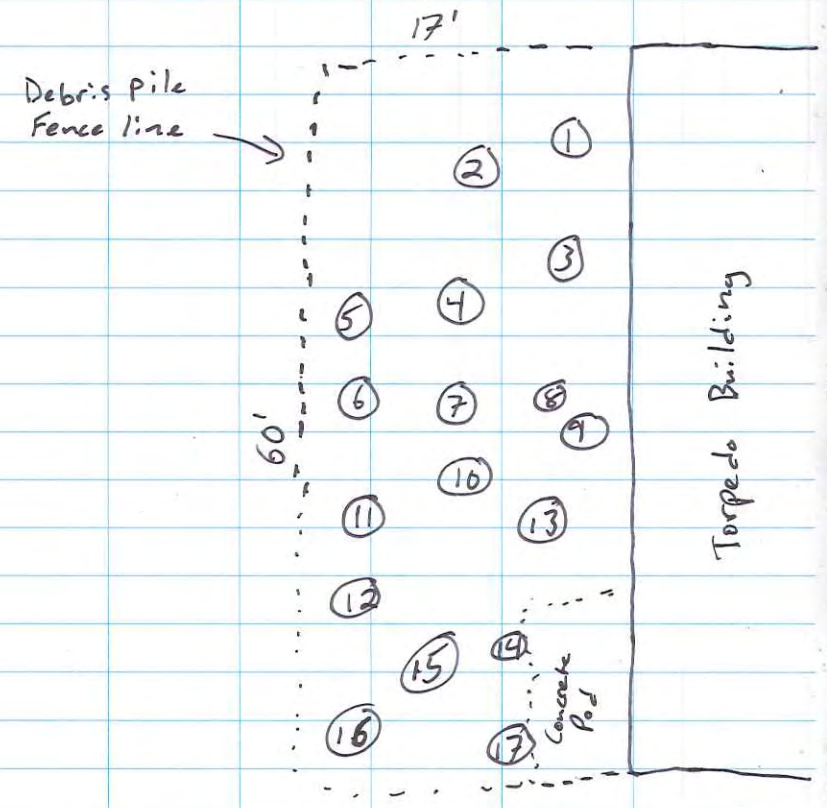
MW-3

23.1' NW corner of Cargo bldg
25.5' SW corner of Cargo bldg
Located - well cap cut off w/ hacksaw. Casing stuffed with plastic and dirt. Plastic covered top and then covered w/ dirt. Not sample-able.

Location Dutch Harbor, AK Date 7/~~7~~/16

Project / Client Torpedo Building Debris Pile

Debris pile Drawing



~~All~~ samples collected @ 0.1" or less ie ground surface

Location Date

Project / Client

Appendix E:
Qualifications of the Environmental Professional

Erik D. Mundahl, P.E.
Environmental Engineer
Travis/Peterson Environmental Consulting, Inc.
3305 Arctic Boulevard, Suite 102
Anchorage, Alaska 99503

Telephone (907) 522-4337
Fax (907) 522-4313
EMundahl@tpeci.com

EDUCATION

B.S. Environmental Engineering
Michigan Technological University
Houghton, Michigan

REPRESENTATIVE EXPERIENCE

Environmental Engineer

Travis/Peterson Environmental Consulting, Inc.

Staff Environmental Engineer for an environmental consulting and engineering firm. General duties include writing complex environmental documents, design and construction oversight of water and wastewater treatment systems, conducting baseline environmental research, site characterization and remediation, biological assessments and species data collection, writing scientific reports, managing projects, and interfacing with regulatory agencies and clients. Other duties include performing environmental records reviews, site assessments, biological analysis, soil sampling, wetlands delineations, and site reconnaissance. These duties require field work in remote areas throughout Alaska while working in inclement weather.

As an Environmental Engineer, he has 7 years of experience in Alaska. Assignments have required close familiarity with designing and implementing remediation plans, hazardous waste management, and performing Environmental Site Assessments and Facility Compliance Audits. Additional assignments have included wetland delineation and restoration work. Mr. Mundahl has designed, permitted, and provided construction supervision for watershed restoration programs including water quality monitoring and analysis. Mr. Mundahl also has a significant background in aquatic biology including fish collection and identification, stream/river habitat assessments, GPS based wildlife monitoring, and aquatic invertebrate collection, sorting, and identification.

CERTIFICATIONS

State of Alaska	Registered Professional Engineer EV14420
AGC of Alaska	Certified Erosion & Sediment Control Lead #AGC-16-0040
NANA Training Systems	HAZWOPER 40-hr. Course, 2009
Environmental Management, Inc.	HAZWOPER 8-hr. Refresher, 5/10, 5/11, 5/12, 5/13, 4/14, 3/15, 2/16
State of Alaska	Certified Sanitary Survey Inspector

Richard Chinn Training	U.S. Army Corps of Engineers Wetland Delineation Training
American Red Cross	CPR & First Aid Certified
Wilderness Medicine Institute	Wilderness First Responder
North Slope Training Cooperative	NSTC

EMPLOYMENT RECORD

5/2009 – Present	Travis/Peterson Environmental Consulting, Inc.
5/2008 – 8/2008	Restoration Science and Engineering
5/2007 – 8/2007	Oasis Environmental, Inc.