North Slope Borough
Barrow Shop # 2 Ultra-Low Sulfur Diesel Release
Additional Site Characterization Draft Report
Barrow, Alaska

October 30, 2015

SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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Submitted To:
North Slope Borough Public Works Department
Fuels Division
PO Box 69
Barrow, AK. 99723

By:
Shannon & Wilson, Inc.
2355 Hill Road
Fairbanks, Alaska 99709

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NORTH SLOPE BOROUGH
BARROW SHOP #2 ULTRA-LOW SULFUR DIESEL RELEASE
ADDITIONAL SITE CHARACTERIZATION
DRAFT REPORT
BARROW, ALASKA

October 30, 2015

Prepared by:

SHANNON & WILSON, INC.
2355 Hill Road
Fairbanks, Alaska 99709-5326

Digitally signed by Adam Wyborny
Date: 2015.10.30 13:37:11 -08'00'

Prepared by: Adam Wyborny
Environmental Engineering Staff

Digitally signed by Valerie Webb, C.P.G.
Date: 2015.10.30 13:57:10 -08'00'

Reviewed by: Valerie Webb, C.P.G.
Senior Geologist

Prepared for:

North Slope Borough Public Works Department
Fuels Division
PO Box 69
Barrow, Alaska 99723

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ACRONYMS AND ABBREVIATIONS

ºC	degrees Celsius
ADEC	Alaska Department of Environmental Conservation
bgs	below the ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
COC	chain of custody
CSM	Conceptual Site Model
cy	cubic yard
DRO	diesel range organics
E1	excavation area 1; spill extent at Shop #2, per North Slope Borough
EPA	United States Environmental Protection Agency
GAC	granular activated carbon
GRO	gasoline range organics
LOD	limit of detection
LOQ	limit of quantitation
MTG	migration-to-groundwater
NSB	North Slope Borough
PAH	polynuclear aromatic hydrocarbon
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act
RRO	residual range organics
SGS	SGS North America, Inc.
ULSD	ultra-low sulfur diesel

NORTH SLOPE BOROUGH
SHOP #2 ULTRA-LOW SULFUR DIESEL RELEASE
ADDITIONAL SITE CHARACTERIZATION
DRAFT REPORT

BARROW, ALASKA

1.0 INTRODUCTION

This report summarizes additional site characterization field activities completed during site visits to the North Slope Borough (NSB) Shop #2 (the Site), in Barrow, Alaska (Figure 1). The Site is located near 71.30324 degrees North latitude and 156.75780 degrees West longitude (Datum WGS84) and is within 400 feet to the south of the Chukchi Sea. In August and September 2015, Shannon & Wilson completed three trips to the Site in order to characterize and excavate contaminated soil resulting from an approximately 110-gallon ultra-low sulfur diesel (ULSD) fuel release on March 28, 2015. The site visits in August and September were a follow-up to initial cleanup response (i.e., excavation and sampling) conducted in April 2015.

1.1 Background

The ULSD release occurred when a fuel tanker was overfilled during a tank-to-tank transfer. The NSB submitted a spill report to the Alaska Department of Environmental Conservation (ADEC) on March 31, 2015 (ADEC Spill File No. 1539908701, Appendix F). The spill area reportedly covered approximately six square yards on the snow/ice pad on the northwest side of the Shop #2 building (Figure 2). NSB responders recovered approximately 25 gallons of ULSD using absorbents during the initial spill response. The responders placed contaminated snow and ice in six 85-gallon overpack drums, one 95-gallon overpack drum, and one 10-cubic-yard (cy) double-lined dumpster. The contaminated snow and ice was eventually moved to the NSB Shop #3 site, located less than one mile from the Site.

Shannon & Wilson field staff performed initial remedial activities during the week of April 14, 2015. We field-screened soil using a photoionization detector (PID) and used the results to delineate the boundary and depth of the contamination. We removed approximately 87 cy of contaminated soil and collected analytical soil samples from the base and sidewalls of the excavated area. Laboratory results of analytical soil samples from the excavation indicated that gasoline range organics (GRO), diesel range organics (DRO), and polynuclear aromatic hydrocarbons (PAHs) were present at levels exceeding the ADEC cleanup levels. Stockpiled contaminated soil was placed in supersacks and stored on site. On April 27, we collected analytical water and soil samples from water and sediment derived from contaminated snow and

ice stored in the overpack drums and double-lined dumpsters. Analytical results showed that DRO, GRO, benzene, ethylbenzene and o-xylene were present above the ADEC cleanup levels in sediment samples. The contaminated sediment from snowmelt was therefore placed in drums for storage.

Snowmelt water was treated in a granular-activated carbon filter unit (GAC) at the NSB Shop #3 storage facility. NSB staff discharged the post-treatment water to a previously used wastewater treatment lagoon after reviewing analytical water sample results and receiving approval from ADEC on May 8, 2015. A full description of initial excavation activities can be found in our May 2015 *Barrow Shop #2 Ultra-Low Sulfur Diesel Release Final Site Assessment Report*.

We conducted an additional excavation and characterization at the Site in September 2015 in order to address the contamination left in place after the initial excavation effort. This report describes our efforts during the additional excavation and sampling event.

1.2 Objectives & Scope of Services

Our scope of services included preparing the Work Plan for Additional Site Characterization (Work Plan), implementing the Work Plan, and preparing this final site characterization report. Our Work Plan was approved by ADEC on August 20, 2015. Remedial activities performed during the additional site characterization included:

- field-screening soil within the fuel-release area and former stockpile footprint;
- coordinating with NSB staff to excavate contaminated soils from the fuel-release area and placing excavated soils in supersacks;
- collecting waste characterization samples for laboratory analysis;
- collecting analytical confirmation samples from the base and sidewalls of the excavation area;
- submitting analytical samples to an ADEC-approved laboratory for the analysis of fuel-related analytes;
- assisting with the treatment of water through a GAC filtration system and collecting analytical samples of the pre- and post-treated water;
- Coordinating with ADEC and the NSB to determine an appropriate disposal method for the contaminated soil; and
- preparing a summary report, herein, that includes our observations at the site, field and analytical sample results, and site closure recommendations, as appropriate.

The NSB provided equipment and personnel to excavate soil, handle excavated soil, and remove contaminated soil from the Site. This report includes a summary of field activities, analytical laboratory results, conclusions, and recommendations relevant to future remediation efforts. We have also prepared a revised conceptual site model (CSM) for the Shop #2 site, included as Appendix A.

2.0 FIELD ACTIVITIES

This section summarizes field activities performed during three trips to the site as part of our additional site characterization effort. Site photographs from each site visit are included in Appendix B. We completed Field-Screening Logs and Field Activity Reports (FARs) during each site visit, which are included alongside information from April 2015 in Appendices C and D, respectively.

2.1 Additional Site Characterization

We mobilized to Barrow in August and September 2015 to characterize soil contamination at the site, including field screening, soil excavation, and waste-characterization sampling.

2.1.1 August 2015 Site Visit

Shannon & Wilson environmental professionals Erica Blake and Andrew Frick mobilized to Barrow on August 23 and 24, 2015. Upon arrival we observed that the previously excavated area (April 2015) was uncovered and had filled with water. We noted a hydrocarbon sheen in a limited area of the excavation, in the western corner (Photo 24, Appendix B). In coordination with the NSB's Mr. Lokeni, our scope of services was expanded to include removal, storage, and treatment of this potentially contaminated water.

NSB and Shannon & Wilson staff pumped potentially contaminated water from the excavation area into 85-gallon drums and a 2,000-gallon fast tank using a two-inch sump pump and purge hose (Photo 27). We used a peristaltic pump to remove additional water that was not retrieved by the sump pump (Photo 28). We dewatered on August 24 and 25, filling or partially filling six 85-gallon drums and the fast tank with an estimated 2,100 gallons of potentially contaminated water.

We began field-screening at the base of the excavation area (approximately one foot below ground surface [bgs]) (Photo 29), with a loader to assist with the filling of supersacks. Excavation activities were guided by field-screening readings and observations.

During site-characterization efforts, we observed a separate, new hydraulic-fluid release located near the northeast corner of the excavation area. Following the guidance of Mr. Lokeni, we used sorbent pads to remove the oily sheen from the surface of the water and excavated contaminated

soil, partially filling one 5-cy supersack with an estimated two to three cy of soil. We field-screened the soils left in place at this location; PID readings were 0 parts per million (ppm).

We collected a total of 54 headspace field-screening samples from the base and sidewalls of the excavation area, after the removal of 6 to 12 inches of soil (Photo 30), and from the bottom of five test pits advanced 3.5 to 4.3 feet bgs (Photo 31). The ambient temperature was generally 30 to 45 degrees F; headspace sample bags were heated inside the vehicle for a minimum of 10 minutes prior to screening. PID field-screening results ranged from 0 to 273 ppm, and are included in Appendix C.

During excavation on August 26, we removed an estimated 31 cy of soil from the excavation area, which we placed in eight additional partially filled 5-cy supersacks (Photo 33). Soil supersacks were labeled and stored on site, near supersacks from our previous site investigation. We collected five headspace field-screening samples from each supersack; PID readings ranged from 28 to 219 ppm. We used field-screening results to select our analytical sample locations, collecting one waste-characterization sample from each supersack.

On the evening of August 24 a large storm arrived in Barrow; beginning August 25 high winds and rain interfered with site characterization activities. The plastic sheeting covering the excavation blew loose, allowing storm water to accumulate in the soil excavation, approaching overflow (Photo 25). Wind speeds and ocean swells gradually increased through the week, and on August 27 NSB operators were reassigned to assist with road repair and soil berm construction (Photo 26). Due to site conditions and operator unavailability we were unable to excavate additional contaminated soil. We terminated in-situ soil characterization efforts on August 27 and returned to Fairbanks on August 28 with plans to return at a later date.

Prior to departure, we replaced the plastic-sheeting cover and secured the liner using soil, barricades, wooden posts, and other heavy objects (Photo 34). We also directed the construction of approximately 6-inch soil berms around the excavation, in an attempt to prevent storm water filling the excavation area.

2.1.2 September 2015 Site Visit

Shannon & Wilson environmental professionals Erica Blake and Adam Wyborny mobilized to Barrow on September 2, 2015. The purpose of our September site visit was to delineate contaminated soils in the vicinity of E1, using field-screening and soil sampling to characterize the lateral extent of surface and subsurface soil contamination.

Upon arrival we observed that the excavation area was still covered, and the plastic sheeting was intact (Photo 34). We observed limited pools on top of the sheeting (no oil sheen), and water was discharged to the surface to access the excavation. Field staff coordinated with Barrow Utilities

& Electric Coop, Inc. (BUECI) personnel prior to commencing the excavation due to the presence of a utility pole near the excavation area.

On September 5 we began in-situ field-screening and excavation of potentially contaminated soil. We observed intermittent soil staining; field-screening results and direct observations were used to guide the depth and direction of excavation (Photos 35 and 36). We encountered soil and gravel fill, but observed a change in composition at approximately 4 to 5 feet bgs. Below this interval we encountered organic-rich soil (peat, woody material), likely native soil (Photos 37 and 38).

Excavated soil was placed in 2-cy and 5-cy supersacks (Photo 39). We began soil delineation efforts by scraping the base of the previous excavation an estimated 6 to 12 inches and setting up a field-screening grid on the new excavation base (Photo 40). The excavation and was expanded downward (Photo 41), and to the east, south, and southwest (Photo 42). We continued to expand the excavation, to the extent practicable, until we encountered "clean" (i.e. PID less than 20 ppm) soil to the north, east, and west. We collected 229 headspace field-screening samples from the base and sidewalls of the incrementally expanded excavation. PID readings in these areas ranged from 0 to 178 ppm.

We did not encounter soils with PID readings less than 20 ppm to the south of E1. We began a broader surface delineation by collecting headspace field-screening samples from 6-inch deep soil test pits to the south and west of the excavation (Photos 43 and 44).

We selected the supersack labelled "*#46*" for waste-characterization sampling. We collected field-screening samples from a depth of six inches; field-screening results ranged from 101 to 148 ppm. We selected the location with the highest PID readings, and collected an analytical sample and duplicate for laboratory analysis.

In summary, for analytical soil samples, we collected:

- seven analytical soil samples and one field duplicate from the base of excavation, in locations aligned to a grid designed to be representative of overall surface area, from between 4.6 and 5.6 feet bgs (*E1-1* through *E1-7*, *E1-40*) (Figure 2);
- eight soil samples and one duplicate from the sidewalls, from between 0.9 and 2.2 feet bgs (*SW-1* through *SW-8*, *SW-30*) (Figure 2);
- five analytical soil samples and one duplicate from between 6 and 9 inches bgs at these shallow test pit locations (*T19*, *T36*, *T40*, *T45*, and *T48 / T480*) (Figure 2); and
- *SS46* and field duplicate *SS460* for waste characterization sampling from the supersacks.

In addition to soil characterization, we collected analytical samples from water stored in the drums and the fast tank Fresh snowfall produced a small quantity of fresh surface water on the liner (Photo 45). Less than 10 gallons of snowmelt were added to previously collected storm water. We used a peristaltic pump to collect pre-treatment water samples for laboratory analysis. We collected seven analytical water samples and one duplicate, one from each drum (*Drum1-Pre* through *Drum7-Pre*) and one from the 2,000-gallon fast tank (*Tank1-Pre* / *Tank2-Pre*).

Prior to our departure, we inventoried previously removed material and labeled the supersacks and drums. The final excavation area measured approximately 920 square feet. The depth ranged from 4 to 5 feet in the east corner and 1 to 3 feet in the north, south, and west corners (Figure 2). We estimated the volume of excavated soil as described in Section 2.3, Summary of Recovered Material. We replaced the plastic sheeting covering the excavation area with a larger liner, securing it using barricades and other heavy objects (Photos 46 and 47).

2.2 Water Treatment Site Visit

Shannon & Wilson environmental professional Sheila Hinckley traveled to Barrow on September 19 to prepare the GAC filtration system and collect post-treatment water samples. Upon arrival at the Shop #2 site, she observed that the fast tank storing pre-treatment storm water contained approximately two to five inches of ice (Photo 48). We chipped through the ice to access potentially contaminated water, and transferred water into the GAC filter unit (Photos 49 and 50). We treated approximately 15 gallons of storm water from the fast tank using a 15-gallon poly container containing 40 pounds of GAC (Photo 51).

We collected post-treatment water samples using laboratory-provided jars or clean disposable plastic cups. GAC purge water was collected in a clean clear plastic trash bag and returned to the fast tank. Post-treatment water was brown, due to suspended sediment, but we did not observe a hydrocarbon sheen on post-treatment water samples (Photo 52). We collected primary and field duplicate post-treatment water samples. Following sample collection, we completed the GAC discharge tracking form and packed the 50-foot garden hose inside the GAC unit (Photo 53). We stored the GAC unit outdoors, next to the fast tank. We returned to Fairbanks on Sunday, September 20 and submitted analytical water samples to the SGS receiving office on Monday, September 21.

2.3 Summary of Recovered Material

Table 1 summarizes of the estimated volumes for the recovered contaminated materials during visits in April, August, and September 2015.

TABLE 1
VOLUMES OF RECOVERED CONTAMINATED MATERIALS

Material	Volume*
Excavated Soil	405 cy
Recovered potentially-contaminated water	4,580 gal

*Volumes are approximate and based on the capacity of containers used to store the material.

3.0 ANALYTICAL RESULTS

Based on the approved work plan, we compared analytical results of soil samples to Alaska's 18 AAC 75.341Table A2, Method One – Petroleum Hydrocarbon Soil Cleanup Levels in the Arctic Zone, and Table B1, Method Two – Outdoor Inhalation Soil Cleanup Levels in the Arctic Zone. Sample results for the analytes assessed in soil are found in Tables 2 and 3 of this report.

We compared analytical results of water samples collected from potentially contaminated water to 18 AAC 75.345 Table C to determine if the results exceeded the ADEC cleanup levels. The analytical water sample results are listed in Table 4 of this report.

3.1 Results

A summary of the analytical results of excavated soil, in situ soil samples collected from the base and sidewalls of the excavation and nearby soil test pits, and water pumped from the excavation area are presented in Tables 2, 3 and 4, respectively. The complete analytical laboratory reports are attached to this report, along with the ADEC checklists (Appendix E).

We submitted excavated soil (i.e. waste-characterization) samples and in-situ soil samples for determination of GRO/BTEX (benzene, toluene, ethylbenzene, and xylenes) by AK101/EPA Method 8021B and DRO/RRO (residual range organics) by methods AK102/AK103. We also submitted a minimum of 10 percent of these soil samples for analysis of PAHs by EPA Method 8270D-SIM. We submitted pre-treatment water samples for analysis of BTEX and DRO by the methods listed above. Finally, we submitted post-treatment water samples for analysis of GRO/BTEX and DRO, and 10 percent for PAHs.

Our review of the data reveals that some of the analytical samples experienced method and laboratory data quality failures (i.e., surrogate recovery, matrix spike/matrix spike duplicate, methanol leakage, etc.). None of the data quality failures caused the data to be considered unusable. The analytical results that are considered affected by method and laboratory data-quality failures are flagged in Tables 2, 3, and 4.

3.1.1 Excavated Soil Samples

DRO was detected above the laboratory's limit of quantitation (LOQ) and above the ADEC cleanup level in each of the excavated-soil samples (i.e., waste-characterization samples) collected in August and September. DRO concentrations in these samples range from 458 milligrams per kilogram (mg/kg) in sample *SS-37* to 2,130 mg/kg in *SS-30* (Table 2).

GRO, RRO, benzene, ethylbenzene, and xylenes were detected above the LOQ in the majority of samples, but not above their respective cleanup levels (Table 2). The highest detected concentrations of these analytes were 186JH* mg/kg GRO in sample *SS-30*; 2,650 mg/kg RRO in *SS-32*; 0.0105J mg/kg benzene in *SS-30* and *SS-31*; 0.981 mg/kg ethylbenzene in *SS-30*; 0.484 mg/kg o-xylene in *SS-32*; and 1.76 mg/kg p&m-xylenes in *SS-30*. PAH analytes 1- and 2-methylnaphthalene, naphthalene, fluorine, and acenaphthene were detected in *SS46*, but below ADEC cleanup levels. Phenanthrene was detected in sample SS46 at a concentration below the laboratory's LOQ but above the limit of detection (LOD).

3.1.2 In-Situ Soil Samples

DRO was detected above the laboratory's LOQ and above the ADEC cleanup level in the in-situ soil samples except for samples *E1-7, SW-2, SW-30, SW-6, SW-7, SW-8* and *T19* (Table 3). DRO concentrations in samples *E1-7, SW-2, SW-30* and *T19,* were greater than the laboratory's LOQ, but less than the ADEC cleanup level. DRO was detected less than the laboratory's LOQ but greater than its LOD in sample *SW-5*.

GRO was detected greater than the laboratory's LOQ but less than the ADEC cleanup level in samples *E1-7, SW-1, SW-4, T36, T40, T45, T48,* and T480 (Table 3). GRO was detected less than the LOQ but greater than the LOD in samples *E1-3, E1-4, E1-40, and E1-5*.

RRO was detected greater than the laboratory's LOQ and greater than the ADEC cleanup level in samples *E1-1, E1-2, E1-3, E1-4, E1-40, E1-5, E1-6* and *T45* (Table 3). RRO concentrations in remaining samples were greater than the laboratory's LOQ, but less than the ADEC cleanup level.

Benzene was detected less than the laboratory's LOQ but greater than its LOD in samples *E1-2* and *T40.* Ethylbenzene was detected above the laboratory's LOQ but below the ADEC cleanup level in samples *SW-4, T19, T40, T45, T48,* and *T480*. Ethylbenzene was detected below the LOQ but above the LOD in samples *E1-1, SW-1, SW-30, SW-7,* and *T36*.

O-xylene was detected above the laboratory's LOQ but below the ADEC cleanup level in samples *E1-1, E1-7, SW-1, SW-3, SW-30, SW-4, T19, T36, T40, T45, T48* and *T480 (*Table 3).

Xylene was detected less than the LOQ but greater than the LOD in samples *E1-2, SW-2,* and *SW-7*.

P & m -xylene were detected greater than the laboratory's LOQ but less than the ADEC cleanup level in samples *SW-1, SW-30, SW-4, T19, T40, T45, T48* and *T480* (Table 3).

Toluene was detected greater than the laboratory's LOQ but less than the ADEC cleanup level in samples *E1-3, E1-4, E1-40, E1-5, E1-6, T19, T45,* and *T48* (Table 3).

One PAH analyte (benzo[g,h,i]perylene) was detected greater than the laboratory's LOQ but less than the ADEC cleanup level in sample *E1-1*. Two PAH analytes (acenaphthylene, fluorene) were detected less than the laboratory's LOQ but greater than the LOD sample *E1-1* (Table 3).

3.1.3 Water Samples

We collected pre-treatment water samples from the fast tank and each of the six drums containing water pumped from the excavation area in August and September 2015. DRO was detected above the laboratory's LOQ in all pre-treatment water samples, and above the ADEC cleanup level in five of the seven samples (Table 4). DRO concentrations in pre-treatment water ranged from 1.18JL* milligrams per liter (mg/L) to 18.4JL* mg/L. BTEX were not detected above the LOQ; pre-treatment water samples were not analyzed for GRO or PAHs.

PAH analytes naphthalene and 2-methylnaphthalene were detected greater than the LOQ in post-treatment water samples, but at concentrations less than their respective ADEC groundwater cleanup levels (Table 4). Naphthalene was detected at a maximum concentration of 0.000208 mg/L, while and 2-methylnaphthalene was detected up to 0.000305J* mg/L. GRO, DRO, BTEX, and other PAH analytes were not detected greater than the LOQ in post-treatment water samples (Table 4).

TABLE 2
ANALYTICAL RESULTS FOR EXCAVATED SOIL SAMPLES

Analytical Method	Analyte	NSB Areawide Class III Landfills Operations Plan	18 AAC 60.025 (b)(4) Cleanup Levels	18 AAC 75.341 Cleanup Levels^	Units	Samples									
						SS-30	SS-31	SS-32	SS-33	SS-34	SS-35	SS-36	SS-37	SS46	SS460
8270D SIMS (PAH)	1-Methylnaphthalene	--	--	1100	mg/kg	--	--	--	--	--	--	--	--	2.61	--
	2-Methylnaphthalene	--	--	1100	mg/kg	--	--	--	--	--	--	--	--	0.331	--
	Acenaphthene	--	--	180	mg/kg	--	--	--	--	--	--	--	--	0.0593	--
	Acenaphthylene	--	--	180	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Anthracene	--	--	3000	mg/kg	--	--	--	--	--	--	--	--	<0.0262J*	--
	Benzo(a)anthracene	--	--	3.6	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Benzo(a)pyrene	--	--	2.1	mg/kg	--	--	--	--	--	--	--	--	<0.0262J*	--
	Benzo(b)fluoranthene	--	--	12	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Benzo(g,h,i)perylene	--	--	38700	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Benzo(k)fluoranthene	--	--	120	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Chrysene	--	--	360	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Dibenzo(a,h)anthracene	--	--	4	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Fluoranthene	--	--	1400	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Fluorene	--	--	220	mg/kg	--	--	--	--	--	--	--	--	0.128	--
	Indeno(1,2,3-cd)pyrene	--	--	41	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
	Naphthalene	--	--	42	mg/kg	--	--	--	--	--	--	--	--	0.15	--
	Phenanthrene	--	--	3000	mg/kg	--	--	--	--	--	--	--	--	0.0339J	--
	Pyrene	--	--	1000	mg/kg	--	--	--	--	--	--	--	--	<0.0262	--
AK101	Gasoline Range Organics	1,400	900	100	mg/kg	**186JH***	44.8JH*	65.4JH*	28.8JH*	36.9JH*	37.8JH*	24.0JH*	18.5JH*	55.6JH*	61.1JH*
AK102	Diesel Range Organics	12,500	2,000	200	mg/kg	**2130**	**1060**	**1020**	**1000**	**1790**	**1160**	**954**	**458**	**628**	**633**
AK103	Residual Range Organics	13,700	4,500	2000	mg/kg	1830	1370	**2650**	1210	1550	1430	**2470**	595	732	715
SM21 2540G	Total Solids	--	--	-	mg/kg	92.4	93.2	92.4	94.1	92.7	93.7	94.8	95.4	94.7	94.6
SW8021B	Benzene	--	--	17	mg/kg	0.0105J	0.0105J	0.00664J	0.00647J	0.00643J	<0.00477	<0.00620	<0.00456	0.00908J	0.00729J
	Ethylbenzene	--	--	110	mg/kg	0.981	0.452	0.374	0.200	0.292	0.0976	0.0610	0.0764	0.137	0.143
	o-Xylene	--	--	63	mg/kg	0.396	0.247	0.484	0.194	0.313	0.309	0.180	0.225	1.08	1.24
	P & M -Xylene	--	--	63	mg/kg	1.76	0.945	0.816	0.400	0.566	0.236	0.194	0.376	0.332	0.385
	Toluene	--	--	63	mg/kg	<0.0606B*	<0.0330B*	<0.0314B*	<0.0231B*	<0.0229B*	<0.0191B*	<0.0248B*	<0.0182B*	<0.0197B*	<0.0221B*

Notes for Table 2:

^	ADEC Soil-Cleanup Levels from 18 AAC 75.341 Table A2, Method One – *Petroleum Hydrocarbon Soil Cleanup Levels in the Arctic Zone,* and Table B1, Method Two – *Outdoor Inhalation Soil Cleanup Levels in the Arctic Zone*.
ADEC	Alaska Department of Environmental Conservation
mg/kg	Milligrams per kilogram
SS	Supersack sample
<	Analyte not detected; limit of detection (LOD) listed. Flag applied by laboratory.
-	Cleanup level not applicable
bold	Result exceeds ADEC 18 AAC 75.341 Cleanup Level
J	Estimated concentration, detected above the LOD and below the limit of quantitation (LOQ). Flag applied by laboratory.
J*	Estimated concentration due to laboratory quality control failures. Flag applied by Shannon & Wilson, Inc.
JH*	Result is considered estimated (biased high) due to quality control failures. See checklist for additional details. Flag applied by Shannon & Wilson, Inc.
B*	Result is considered not detected due to laboratory QC failures; the result is listed as less than the limit of quantitation (LOQ) or the concentration originally reported in the sample (higher concentration reported). Flag applied by Shannon & Wilson, Inc.

TABLE 3
ANALYTICAL RESULTS FOR IN-SITU SOIL SAMPLES

				Samples										
Analytical Method	**Analyte**	**ADEC Cleanup Levels^**	**Units**	**E1-1**	**E1-2**	**E1-3**	**E1-4**	**E1-40**	**E1-5**	**E1-6**	**E1-7**	**SW-1**	**SW-2**	**SW-3**
8270D SIMS (PAH)	1-Methylnaphthalene	1100	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	2-Methylnaphthalene	1100	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Acenaphthene	180	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Acenaphthylene	180	mg/kg	0.0229J	--	--	--	--	--	--	--	--	--	<0.0129
	Anthracene	3000	mg/kg	<0.0158J*	--	--	--	--	--	--	--	--	--	<0.0129J*
	Benzo(a)anthracene	3.6	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Benzo(a)pyrene	2.1	mg/kg	<0.0158J*	--	--	--	--	--	--	--	--	--	<0.0129J*
	Benzo(b)fluoranthene	12	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Benzo(g,h,i)perylene	38700	mg/kg	0.182	--	--	--	--	--	--	--	--	--	<0.0129
	Benzo(k)fluoranthene	120	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Chrysene	360	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Dibenzo(a,h)anthracene	4	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Fluoranthene	1400	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Fluorene	220	mg/kg	0.0150J	--	--	--	--	--	--	--	--	--	<0.0129
	Indeno(1,2,3-cd)pyrene	41	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Naphthalene	42	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Phenanthrene	3000	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
	Pyrene	1000	mg/kg	<0.0158	--	--	--	--	--	--	--	--	--	<0.0129
AK101	Gasoline Range Organics	100	mg/kg	<3.30B*	<3.72B*	3.33JL*	1.75JL*	1.53JL*	5.38JL*	<4.53B*	11.2JH*	16.7JH*	<2.14B*	<6.05B*
AK102	Diesel Range Organics	**200**	mg/kg	**854**	**770**	**895**	**795**	**719**	**557**	**877**	188	**1530**	62.4	**236**
AK103	Residual Range Organics	**2000**	mg/kg	**5200**	**3710**	**5270**	**3960**	**4390**	**3590**	**5550**	59.5	1320	337	186
SM21 2540G	Total Solids	-	mg/kg	79.0	76.6	41.6	66.8	71.7	60.1	69.4	96.6	96.1	90.9	96.1
SW8021B	Benzene	17	mg/kg	<0.00825	0.00931J	<0.0265	<0.0116	<0.00955	<0.0147	<0.0113	<0.00407	<0.00491	<0.00550	<0.00448
	Ethylbenzene	110	mg/kg	0.0152J	<0.0186	<0.0530	<0.0232	<0.0191	<0.0294	<0.0227	<0.00815	0.0120J	<0.0110	<0.00895
	o-Xylene	63	mg/kg	0.0624	0.0212J	<0.0530	<0.0232	<0.0191	<0.0294	<0.0227	0.381	0.184	0.0171J	0.162
	P & M -Xylene	63	mg/kg	<0.0660B*	<0.0372	<0.106	<0.0463	<0.0382	<0.0585	<0.0453	0.0851	0.0843JH*	<0.0438B*	<0.0358B*
	Toluene	220	mg/kg	<0.0165	<0.0372B*	0.184	0.107	0.144	0.821	0.552	<0.00815	<0.0232B*	<0.0110	<0.00895

TABLE 3 ANALYTICAL RESULTS FOR IN-SITU SOIL SAMPLES, CONTINUED

				Samples											
Analytical Method	**Analyte**	**ADEC Cleanup Levels^**	**Units**	**SW-30**	**SW-4**	**SW-5**	**SW-6**	**SW-7**	**SW-8**	**T19**	**T36**	**T40**	**T45**	**T48**	**T480**
8270D SIMS (PAH)	1-Methylnaphthalene	1100	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	2-Methylnaphthalene	1100	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Acenaphthene	180	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Acenaphthylene	180	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Anthracene	3000	mg/kg	<0.0129J*	--	--	--	--	--	--	--	--	--	--	--
	Benzo(a)anthracene	3.6	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Benzo(a)pyrene	2.1	mg/kg	<0.0129J*	--	--	--	--	--	--	--	--	--	--	--
	Benzo(b)fluoranthene	12	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Benzo(g,h,i)perylene	38700	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Benzo(k)fluoranthene	120	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Chrysene	360	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Dibenzo(a,h)anthracene	4	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Fluoranthene	1400	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Fluorene	220	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Indeno(1,2,3-cd)pyrene	41	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Naphthalene	42	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Phenanthrene	3000	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
	Pyrene	1000	mg/kg	<0.0129	--	--	--	--	--	--	--	--	--	--	--
AK101	Gasoline Range Organics	100	mg/kg	<6.18B*	14.9JH*	<1.69B*	<1.46B*	<1.61B*	<1.38B*	<1.84B*	4.99JH*	23.9JH*	38.2JH*	64.6J*	32.1JH*
AK102	Diesel Range Organics	200	mg/kg	194	**263**	8.55J	<20.3B*	<56.6B*	<20.2B*	38.1	**235**	**4920**	**1250**	**1110**	**1060**
AK103	Residual Range Organics	2000	mg/kg	191	917	70.2	22.2	141	34.1	140	152	250	**2120**	658	649
SM21 2540G	Total Solids	-	mg/kg	96.3	95.7	96.8	97.4	95.1	97.6	95.2	86.3	91.5	93.6	86.9	89.1
SW8021B	Benzene	17	mg/kg	<0.00473	<0.00419	<0.00422	<0.00366	<0.00402	<0.00345	<0.00348	<0.00459	0.00275J	<0.00458	<0.00463	<0.00438
	Ethylbenzene	110	mg/kg	0.00832J	0.0236	<0.00845	<0.00730	0.00819J	<0.00690	0.0265	0.0130J	0.210	0.562	0.0667	0.0557
	o-Xylene	63	mg/kg	0.192	0.419	<0.00845	<0.00730	0.00594J	<0.00690	0.0634	0.0499	1.21	2.65	1.84J*	0.963J*
	P & M -Xylene	63	mg/kg	0.0859JH*	0.152JH*	<0.0169	<0.0147	<0.0321B*	<0.0138	0.0952	<0.0740B*	1.35	2.48	0.883J*	0.439J*
	Toluene	220	mg/kg	<0.0189B*	<0.0167B*	<0.00845	<0.00730	<0.00805	<0.00690	0.0170	<0.00920	<0.0153B*	0.0935JH*	0.0263	<0.0268B*

Notes for Table 3

^	ADEC Soil-Cleanup Levels from 18 AAC 75.341 Table A2 Method One (*Petroleum Hydrocarbon Soil Cleanup Levels in the Arctic Zone*) and Table B1 Method Two - (*Arctic Zone Outdoor Inhillation Cleanup Levels* or *Migration to Groundwater Soil Cleanup Levels*)
ADEC	Alaska Department of Environmental Conservation
E1	Base of excavation samples
mg/Kg	milligrams per kilograms
SW	Excavation sidewall samples
T	Surficial test pit samples
--	Analysis not requested
<	analyte not detected; limit of detection (LOD) listed. Flag applied by laboratory.
-	cleanup level not applicable
bold	Result exceeds ADEC Migration to Groundwater Cleanup Level.
J	Estimated concentration, detected above the detection limit (DL) and below the limit of quantitation (LOQ). Flag applied by laboratory.
J*	Estimated concentration due to laboratory quality control failures. Flag applied by Shannon & Wilson, Inc.
JH*	Result is considered estimated (biased high) due to quality control failures. See checklist for additional details. Flag applied by Shannon & Wilson, Inc.
JL*	Result is considered estimated (biased low) due to quality control failures. See checklist for additional details. Flag applied by Shannon & Wilson, Inc.
B*	Result is considered not detected due to laboratory quality control failures; the result is listed as less than the limit of quantitation (LOQ) or the concentration originally reported in the sample (higher concentration reported). Flag applied by Shannon & Wilson, Inc.

TABLE 4
ANALYTICAL RESULTS FOR PRE- & POST-TREATMENT WATER SAMPLES

				PRE-TREATMENT								POST-TREATMENT	
Analytical Method	Analyte	ADEC Cleanup Levels^	Units	Drum1-Pre	Drum2-Pre	Drum3-Pre	Drum4-Pre	Drum5-Pre	Drum6-Pre	Tank 1 - Pre	Tank 10 - Pre ‡	Post – Trmt Fast Tank - 1	Post – Trmt Fast Tank - 2
8270D SIMS (PAH)	1-Methylnaphthalene	0.15	mg/L	--	--	--	--	--	--	--	--	<0.0000232J*	0.000178J*
	2-Methylnaphthalene	0.15	mg/L	--	--	--	--	--	--	--	--	0.000208	0.000205
	Acenaphthene	2.2	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Acenaphthylene	2.2	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Anthracene	11	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Benzo(a)anthracene	0.0012	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Benzo(a)pyrene	0.0012	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Benzo(b)fluoranthene	0.0012	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Benzo(g,h,i)perylene	1.1	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Benzo(k)fluoranthene	1.5	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Chrysene	0.12	mg/L	--	--	--	--	--	--	--	--	<0.0000232J*	<0.0000240J*
	Dibenzo(a,h)-anthracene	0.00012	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Fluoranthene	1.5	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Fluorene	1.5	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Indeno(1,2,3-cd)pyrene	0.0012	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Naphthalene	0.73	mg/L	--	--	--	--	--	--	--	--	0.000193J*	0.000305J*
	Phenanthrene	11	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
	Pyrene	1.1	mg/L	--	--	--	--	--	--	--	--	<0.0000232	<0.0000240
AK101	Gasoline Range Organics	2.2	mg/L	--	--	--	--	--	--	--	--	<0.100B*	<0.100B*
AK102	Diesel Range Organics	**1.5**	mg/L	1.40JL*	**1.87JL***	**2.13JL***	**9.19JL***	**18.4JL***	**8.41JL***	1.38JL*	1.18JL*	<0.556B*	<0.577B*
SW8260B / SW8021B	Benzene	0.005	mg/L	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000200	<0.000250	<0.000250
	Ethylbenzene	0.7	mg/L	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500
	o-Xylene	10	mg/L	<0.000500	<0.000500	<0.000500	0.0189	0.00262	0.0135	<0.000500	<0.000500	<0.000500	<0.000500
	p & m -Xylenes	10	mg/L	<0.00100	<0.00100	<0.00100	0.00758	0.00127J	0.00322	<0.00100	<0.00100	<0.00100	<0.00100
	Toluene	1	mg/L	<0.000500	<0.000500	<0.000500	0.000380J	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500

Notes for Table 4:

Pre-treatment samples analyzed using Method SW8260B for BTEX analysis, while post-treatment samples were analyzed using method SW8021B.

ADEC	Alaska Department of Environmental Conservation
ǂ	Tank 10 – Pre is the duplicate of Tank 1_Pre
^	Cleanup Levels are from 18 AAC 75.345, Table C
mg/L	milligrams per liter
bold	Bold font indicates concentration exceeds ADEC cleanup level shown.
--	Analysis was not requested.
J*	Result is considered estimated (no direction of bias) due to an RPD failure. Flag applied by Shannon & Wilson, Inc.
JL*	Result is considered low due to a hold time exceedance. Flag applied by Shannon & Wilson, Inc.
B*	Result is considered not detected due to sample contamination identified in the trip blank; the result is listed as less than the limit of quantitation (LOQ) or the concentration originally reported in the sample. Flag applied by Shannon & Wilson, Inc.

4.0 QUALITY ASSURANCE/QUALITY CONTROL

We reviewed the analytical results provided by SGS for laboratory QC samples and also conducted our own QA assessment for this project. We reviewed chain of custody (COC) records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample-holding times, and kept samples properly chilled (between 0 degrees Celsius [ºC] and 6 ºC) during shipping. Our QA-review procedures allow us to document accuracy and precision of the analytical data and check that the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

For this report, we reviewed the laboratory data report for the following SGS work orders:

- 1158569, dated September 3, 2015;
- 1158656, dated September 28, 2015;
- 1158629, dated October 6, 2015; and
- 1158630, in-situ and waste-characterization soil samples, dated October 15, 2015.

The SGS laboratory reports contain the case narratives, sample-receipt forms, analytical results and copies of the COCs. Details regarding the results of our QA analyses are presented in the ADEC data-review checklists, included in Appendix E, along with copies of the SGS laboratory reports.

5.0 DISCUSSION & RECOMMENDATIONS

Below is a summarized discussion of the analytical results and our field observations.

5.1 Discussion

5.1.1 Pre- and Post-Treatment Water

On behalf of the NSB, we requested ADEC approval for the NSB to discharge fast tank water following treatment with a portable GAC unit following receipt of analytical results obtained from our September 3, 2015 contaminated-water sampling events. Results indicate that the post-treatment water did not contain BTEX, GRO, DRO or PAHs above their respective ADEC cleanup levels. Additionally, we did not observe a hydrocarbon sheen on post-treatment water.

The requests were submitted to the ADEC on September 30, 2015. We requested authorization for the NSB to discharge the treated snowmelt and storm water into the “old” wastewater lagoon

located on the east side of the Barrow Thermal Oxidation System facility. The ADEC's Paul Lhotka provided approval to discharge the treated water via email on October 1, 2015.

5.1.2 Apparent Remaining In-situ Contamination

The results of analytical sample analyses indicate that contamination still exists within the proximity of the excavated area. Except for *E1-7, SW-2, SW-5, SW-6, SW-7,* and *SW-8,* (Figure 2), contaminated soils within the base and sidewalls of the excavation still contain DRO and/or GRO above the ADEC cleanup levels. Test pit sampling reveals contamination in the areas of T36, T40, T45, and T48 above the ADEC cleanup levels (Figure 2).

5.1.3 Waste Management of Polluted Soils

As defined by 18 AAC 60.990(a), "polluted soil" is:

> *"soil that is placed into a landfill, that is not a regulated hazardous waste, and that was excavated during a spill response or leaking underground storage tank action or to comply with an approved contaminated site cleanup plan under 18 AAC 75 or 18 AAC 78".*

A waste disposal plan for treatment and/or disposal is needed for the excavated polluted soil. Based on laboratory results, the contaminated soils excavated from the Shop #2 spill site contain DRO and GRO at concentrations greater than the ADEC cleanup level (Table 2). However, in preparation for disposal, we also compared supersack samples to 18 AAC 60.025(b)(4) cleanup levels and the *NSB Areawide Class III Landfills Operations Plan* levels for landfill acceptance. Although we recognize the Barrow Landfill is a Class II facility, we understand the polluted soils excavated from this site are subject to disposal at the Barrow Landfill under the direct approval of the Barrow Landfill Manager and ADEC. Under 18 AAC 60.025(d), the Barrow Landfill disposal option for the excavated soils is approved on a case-by-case basis.

Based on laboratory results, the contaminated soils excavated from the site contain DRO, GRO, BTEX, and PAHs are at concentrations less than the *NSB Areawide Class III Landfills Operations Plan* acceptable levels. In addition, with the exception of *SS-30,* all of the samples contain contaminants at levels less than the 18 AAC 60.025 (b)(4) cleanup levels.

5.2 Recommendations

Based on our analytical sample results, we recommend the NSB Fuels Division coordinate with the NSB Barrow Landfill Manager and the ADEC Solid Waste Division to demonstrate the excavated soil could be disposed at the Barrow Landfill. In order to demonstrate this, further work by a certified "qualified groundwater scientist" as defined by 18 AAC 60.025(e) may be required.

In addition, based on our field observations and analytical results, the vertical and lateral extent of contamination in the area is apparently deeper and wider than excavated, indicating the likelihood of historic contamination. Given the apparent extent of remaining contamination, we recommend further delineation of the vertical and lateral extents of the ULSD release and further excavation of the contaminated soils. Due to the potential presence of historic contamination and the close proximity to infrastructure including the Stevenson Road, utility poles, and shop buildings (Figure 2), we recommend this site be transferred from the Prevention and Emergency Response Program to the Contaminated Sites Program.

6.0 LIMITATIONS

This report was prepared for the use of the NSB and their representatives for evaluating remaining contamination at the Barrow Shop #2 in Barrow, Alaska. This work presents our professional judgment as to the conditions in the area. Conclusions and recommendations presented here are based on sampling and analyses we preformed, along with a limited review of records and other data available to the public. They should not be construed as definite conclusions about soil or groundwater conditions in the area, and it is possible our tests may not represent the highest levels of contamination in the area. We have not performed an independent evaluation of the accuracy or completeness of third-party information, and shall not be responsible for errors or omissions contained in such information.

The results included in this report should be considered representative of the time and locations at which the sampling occurred. It was not the intent of our investigation to detect the presence of contaminants other than those for which laboratory analyses were performed. No conclusions can be drawn on the presence or absence of other contaminants. The observed levels of contamination may be dependent upon seasonal changes and the passage of time. Due to such changes, or others beyond our control, our observations and recommendations applicable to this site may need to be revised. If substantial time has elapsed between submission of this report and the start of activities or action based upon it, we recommend this report be reviewed to determine the applicability of the conclusions and recommendations considering the lapsed time or changed conditions.

This report was prepared for the exclusive use of the NSB. All documents prepared by Shannon & Wilson are instruments of service with respect to the project for the sole use of the NSB. Only the NSB shall have the right to rely upon such documents. Such documents are not intended or represented to be suitable for reuse by NSB or others after the passage of time, on extensions of the project, or on any other project. Any such reuse without written verification or adaptation by Shannon & Wilson, as appropriate for the specific purpose intended, shall be at the user's sole risk.

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Shannon & Wilson, Inc. has prepared the attachment, *"Important Information about your Environmental Site Assessment/Evaluation Report"* in Appendix G to assist you and others in understanding the uses and limitations of our reports.

7.0 REFERENCES

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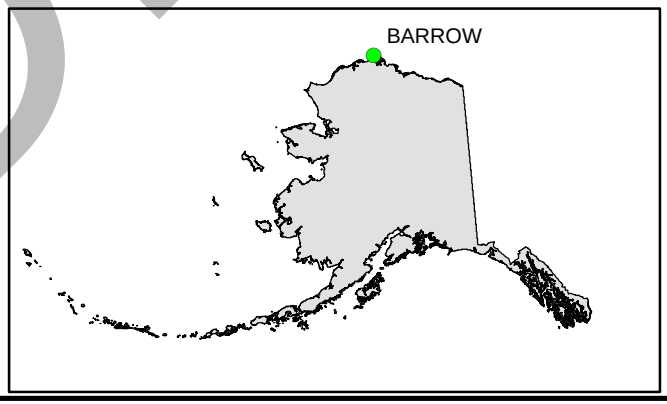
0 1,000 2,000

Feet

LEGEND

Site Location

N



NSB Barrow Shop #2 ULSD Release
Additional Site Characterization
Barrow, Alaska

VICINITY MAP

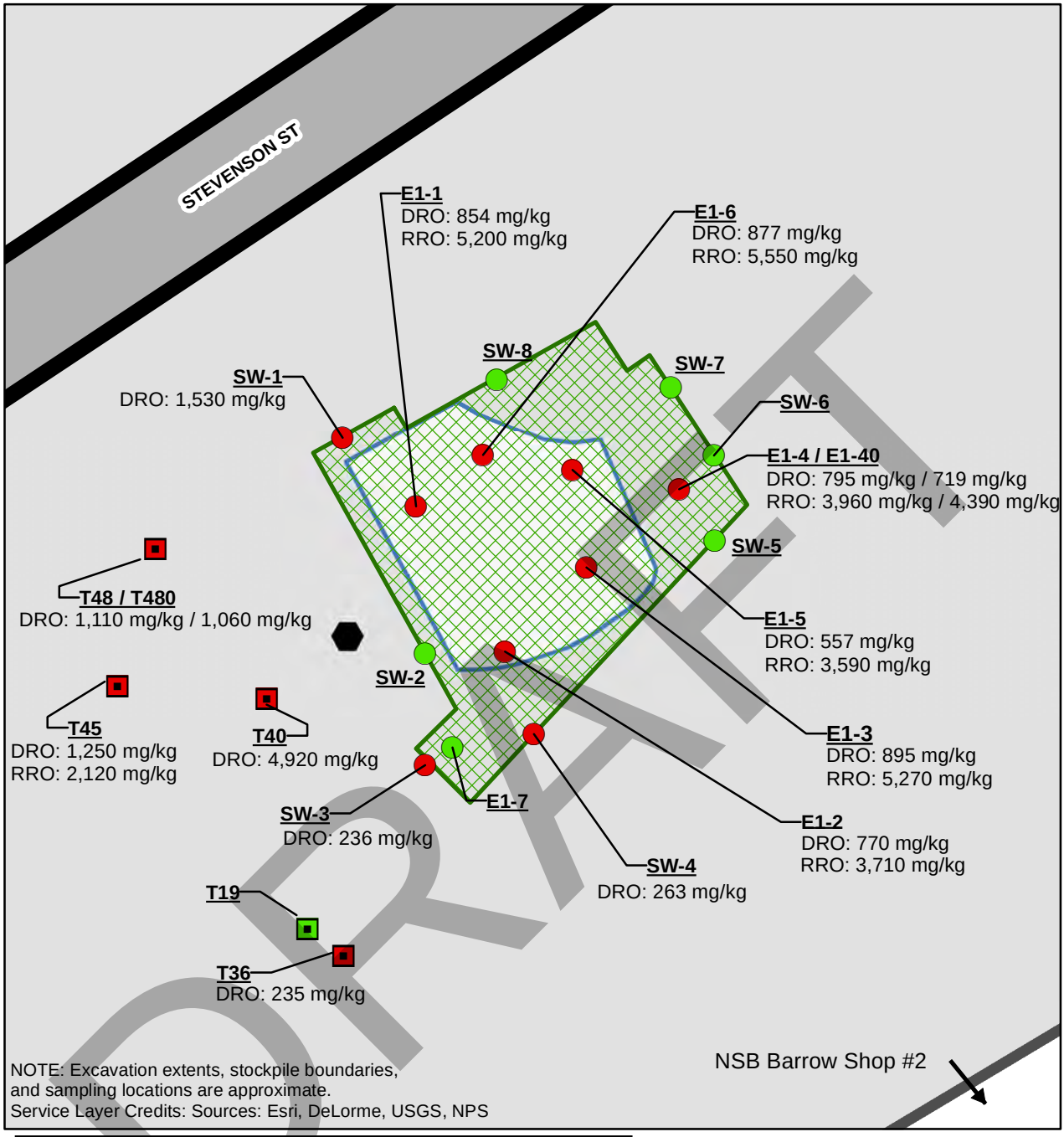
October 2015

31-1-11765-006

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1

Figure 1



LEGEND

- Boundary of excavated soils, September 2015
- Boundary of excavated soils, April 2015
- Utility pole

Analytical sample locations

- Contaminants detected at concentrations above ADEC cleanup levels.
- Contaminants detected at concentrations below ADEC cleanup levels.

Test pit analytical sample locations

- Contaminants detected at concentrations above ADEC cleanup levels.
- Contaminants detected at concentrations below ADEC cleanup levels.

0 25

Feet

NSB Barrow Shop #2 ULSD Release
Additional Site Characterization
Barrow, Alaska

SITE MAP

October 2015 31-1-11765-006

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2

APPENDIX A

CONCEPTUAL SITE MODEL (CSM)

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: NSB Barrow Shop #2 ULSD Release Site Characterization
ADEC Spill File No. 15399908701

Completed By: Adam Wyborny, Shannon & Wilson
Date Completed: October 2015

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

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

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

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

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

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

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

Revised, 10/01/2010

Print Form

Human Health Conceptual Site Model
Scoping Form

Site Name: NSB Barrow Shop #2 ULSD Release Site Characterization

File Number: ADEC Spill File No. 15399908701

Completed by: Adam Wyborny, Shannon & Wilson

Introduction

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

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

1. General Information:

Sources *(check potential sources at the site)*

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

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

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

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

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

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

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

* bgs - below ground surface

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

a) Direct Contact -

1. Incidental Soil Ingestion

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

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

Comments:

2. Dermal Absorption of Contaminants from Soil

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

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

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

Comments:

Polynuclear aromatic hydrocarbons (PAHs) and arsenic are included in Appendix B. Some PAHs are among the contaminants of concern at the NSB Barrow Shop #2 site. PAHs and arsenic were detected above ADEC cleanup levels in soils collected from inside the Shop #2 excavation site in September 2015. The concentrations of arsenic detected are believed to be naturally occurring.

b) Ingestion -

1. Ingestion of Groundwater

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

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

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

Comments:

To our knowledge, there are no wells in close proximity to the NSB Shop #2 site.

2. Ingestion of Surface Water

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

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

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

Comments:

To our knowledge, the drinking water source for the city of Barrow is Ikroavik lake located approximately 4.5 miles southeast of the NSB Shop #2 site.

3. Ingestion of Wild and Farmed Foods

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

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

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

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

Comments:

Neither wildlife nor vegetation were observed in or around the NSB Shop #2 site.

c) Inhalation-

1. Inhalation of Outdoor Air

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

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

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

Comments:

2. Inhalation of Indoor Air

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

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

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

Comments:

Site observations indicate that potentially-contaminated areas are approximately 50 ft or more from the nearest structure.

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

Dermal Exposure to Contaminants in Groundwater and Surface Water

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

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

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Dermal exposure to contaminated water, snow, and/or ice within the NSB Shop #2 release area is possible during spill response and site characterization activities.

Inhalation of Volatile Compounds in Tap Water

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

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

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

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

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

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

Comments:

Soil in the vicinity of the NSB Shop #2 site is generally fill material (silty gravel with sand). Strong winds are typical in Barrow given its coastal location. It is possible that contaminants from the upper 2 centimeters of soil could be respired.

Direct Contact with Sediment

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

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

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

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

Comments:

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

Site assessment activities between April and September 2015 focused on characterizing the reported ULSD release, however observable hydrocarbon sheens and PID readings exceeding 20 ppm from outside the spill area strongly suggest the presence of historical contamination. Potential historical contaminants include but are not limited to waste oil, hydraulic fluid, diesel range organics (DRO), gasoline range organics (GRO), benzene, toluene, ethylbenzene, and total xylenes (BTEX).

APPENDIX B

SITE PHOTOGRAPHS

APRIL 2015 SITE VISIT 1

Photo 1: Location of ULSD fuel release on snow/ice pad between Shop #2 building and Stevenson Rd; facing south towards Shop #2 (April 14, 2015).

Photo 2: Seven 85-gallon drums and one dumpster containing contaminated snow were observed at the fuel release area (April 14, 2015).

Photo 3: Location of ULSD fuel release. Release area covered in approximately three inches of fresh snow; facing west toward Stevenson Rd (April 14, 2015).

Photo 4: Containers holding contaminated snow were placed on a liner inside Shop #3, located less than one mile from the ULSD fuel release site (April 14, 2015).

Photo 5: Site characterized with 14 field-screen-locations in the fuel release (E1) area and six locations in the snow stockpile area (E2); locations marked with survey markers (April 15, 2015).

Photo 6: Ten additional field-screening samples were collected from E1 on April 16; facing southeast towards Shop #2 building (April 16, 2015).

Photo 7: The ULSD fuel release area (E1) was trenched with a rock saw in order to break up frozen soil prior to excavation (April 16, 2015).

Photo 8: NSB trenched the soil in the fuel release area (E1) approximately six to eight inches below ground surface (bgs), separating the trenches by approximately one foot; facing north towards Stevenson Street (April 16, 2015).

Photo 9: NSB crews used a loader and backhoe to excavate potentially-contaminated soil in the fuel release area (E1); facing west-southwest towards Stevenson Rd (April 17, 2015).

Photo 10: Excavated soil was stockpiled in the northeast corner of the fuel release area (E1). Five field-screening samples were collected from the soil stockpile; facing south (April 17, 2015).

Photo 11: Staining was observed in the west corner of the fuel release area (E1); facing east (April 17, 2015).

Photo 12: Analytical soil samples were collected from the base and sidewalls of the excavated area; facing northwest towards Stevenson Rd (April 18, 2015).

Photo 13: Field-screening samples were collected at 6-inches bgs at five locations within the soil stockpile. Locations were flagged with survey markers; looking north (April 17, 2015).

Photo 14: Excavated soils were stored in supersacks and placed on a liner at the northeast end of the Shop #2 site; facing southeast (April 18, 2015).

APRIL 2015 SITE VISIT 2

Photo 15: 55-gallon granular activated carbon (GAC) drum (on the left) and micron filter (on the right), in front of a 2,000-gallon holding tank (April 27, 2015).

Photo 16: The GAC filtration system assembled. Untreated water in the FASTANK on the left is filtered through the GAC system into the 2000 gallon holding tank on the right (April 27, 2015).

Photo 17: Potentially-contaminated sump water contained in a 1,600-gallon FASTANK (April 27, 2015).

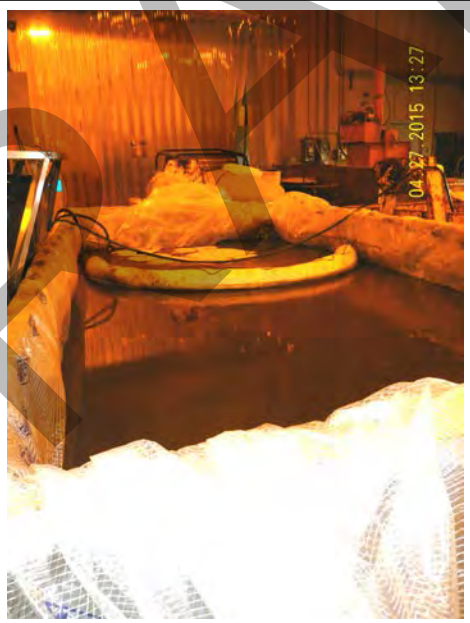


Photo 18: Pre-treated snowmelt water contained in a lined dumpster (April 27, 2015).

Photo 19: Effluent water from the GAC filtration system stored in a 2,000 gallon holding tank (April 27, 2015).

Photo 20: Post-treatment water from the dumpster containing potentially-contaminated snowmelt (April 27, 2015).

Photo 21: Potentially-contaminated sediment that precipitated from suspension in snowmelt water (April 27, 2015).

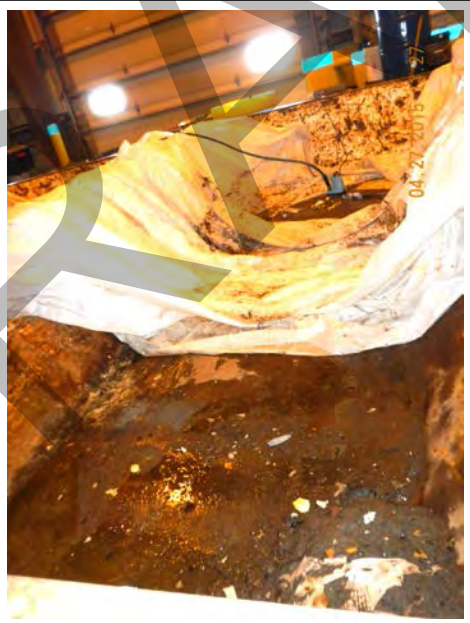


Photo 22: More potentially-contaminated precipitate from snowmelt (April 27, 2015).

Photo 23: Soil drums containing material from the two empty dumpsters. Sediment from the dumpster (not pictured here) filled with snowmelt water was placed into drums after the site visit (April 27, 2015).

AUGUST 2015 SITE VISIT 3

Photo 24: Runoff water with a hydrocarbon sheen observed in the excavation site (August 23, 2015).

Photo 25: Excavation site flooded after a heavy precipitation event (August 26, 2015).

Photo 26: Ocean surf breaking over Stevenson Rd, adjacent to the excavation site (August 27, 2015).

Photo 27: Pumping approximately 200 gallons of potentially contaminated water into three 85-gallon drums (August 24, 2015).

Photo 28: NSB personnel using a peristaltic pump to drain shallow puddles of potentially contaminated water (August 24, 2015).

Photo 29: Excavation site after all the standing water was pumped into containment (August 24, 2015).

Photo 30: Excavation site with approximately the first foot of potentially-contaminated soil removed (August 26, 2015).

Photo 31: Test pits dug in the base of the excavation to allow for additional field screening (August 26, 2015).

Photo 32: Supersacks containing potentially-contaminated soil removed from the excavation site (August 26, 2015).

Photo 33: Excavation site covered by a liner to prevent additional quantities of runoff water from coming into contact with potentially-contaminated soil (August 26, 2015).

SEPTEMBER 2015 SITE VISIT 4

Photo 34: Project site at the start of additional excavation activities; facing north by northwest (September 2, 2015).

Photo 35: Intermittent staining observed in the soil profile; facing northwest (September 4, 2015).

Photo 36: Excavation expanded after field screen results showed additional petroleum contamination; facing south east (September 7, 2015).

Photo 37: Pockets of organic woody material encountered at depths of approximately 4 to 4.5 feet bgs (September 5, 2015).

Photo 38: Soils encountered in the SE corner at a depth of approximately 4 to 5 feet (September 5, 2015).

Photo 39: Excavated soil were placed in 2 and 5-cubic yard supersacks; facing north (September 5, 2015).

Photo 40: Field screening the base of excavation and NE sidewall; facing north (September 6, 2015).

Photo 41: Water was observed seeping into the field screening locations within several minutes of being dug (September 6, 2015).

Photo 42: Manual removal of small clay deposits producing substantially higher PID readings than surrounding material; facing southwest (September 9, 2015).

Photo 43: 6-inch test pits dug for additional lateral delineation. Samples producing PID readings above 20 parts per million (ppm) are marked with orange flags (September 10, 2015).

Photo 44: Site overview with additional surface delineation on the left and supersacks containing excavated soil on the right; facing north (September 11, 2015).

Photo 45: Site covered to prevent fresh snow from contacting exposed soil; facing east (September 11, 2015).

Photo 46: Excavation site at the conclusion of sampling; facing east (September 12, 2015).

Photo 47: Excavation site secured and supersacks containing excavated soil numbered and tagged; facing north (September 12, 2015).

SEPTEMBER 2015 SITE VISIT 5

Photo 48: Ice layer, approximately two – five inches thick inside covered fast tank at Shop #2 (September 20, 2015).

Photo 49: Purge hose setup for gravity discharge of storm water inside the fast tank (September 20, 2015).

Photo 50: GAC unit setup for treatment of snowmelt water inside the covered fast tank at Shop #2 (September 20, 2015).

Photo 51: Snowmelt water from the fast tank purging into a scrubber unit setup at NSB Shop #2 (September 20, 2015).

Photo 52: Scrubber unit setup for treatment of snowmelt water inside the covered fast tank at Shop #2 (September 20, 2015).

Photo 53: Condition of site upon completion of post-treatment water sampling at Shop #2 (September 20, 2015).

APPENDIX C

FIELD-SCREENING LOGS

APRIL 2015 SITE VISIT

Job Number: 31-1-11765-002

SOIL SAMPLE COLLECTION LOG

SHANNON & WILSON, INC.

	Sample Number	Date	Time	Sample Location (See Figure 1 and Table 2)	Depth (Ft.) inches bgs / feet	Sample Classification	PID Type - ppm
	E1-S1	4/15/15	1025	N end, center of Ex.1 (fuel-release)	4"	10 silt, 30 sand 60 gravel, brown	356 HC
	E1-S2		1048	N end, center of Ex.1	4"	" " " "	195 HC
	E1-S3		1055	N end, center of Ex.1	4"	" " " "	148 HC
	E1-S4		1108	center of Ex.1	3"	10 silt, 20 sand, 70 gravel, brown	356 HC
	E1-S5		1100	E side, of Ex.1	4"	10 silt, 30 sand, 60 gravel "	243 HC
	E1-S6		1130	SW corner of Ex.1	4"	" " " "	57.6 HC
	E1-S7		1137	SW corner of Ex.1	4"	" " " "	3.4
	E1-S8		1143	SW corner of Ex.1	4"	" " " "	3.9
	E1-S9		1345	SW corner of Ex.1	4"	" " " "	334 HC
	E1-S10		1350	W side of Ex.1	3"	10 silt, 20 sand, 70 gravel, brown	20.2
	E1-S11		1354	W side of Ex.1	4"	10 silt, 30 sand, 60 gravel "	39.2 HC
	E1-S12		1400	NW corner of Ex.1	4"	5 silt, 15 sand, 80 gravel "	168 HC
	E1-S13		1405	center of Ex.1	4"	" " " "	237 HC
	E1-S14		1412	S end, center of Ex.1	4"	" " " "	2.8
	E2-S1		1429	NE corner of Ex.2 (former temp snow SP)	4"	10 silt 10 sand 80 gravel, brown	0.9 KVN
	E2-S2		1435	center of Ex.2	4"	" " " "	~~3.7~~ 2.7
	E2-S3		1442	NW corner of Ex.2	4"	" " " "	2.8
	E2-S4		1449	N end, center of Ex.2	4"	" " " "	0.9
*	E2-S5		1458	SW corner of Ex.2	4"	5 silt 10 sand 85 gravel "	3.2
*	E2-S6		1603	SE corner of Ex.2	4"	" " " "	3.2
	E1-S15	4/16/15	1000	NW corner of Ex.1	4"	10 silt 30 sand 60 gravel brown	8.5
	E1-S16		1008	N end, center of Ex.1	4"	" " " "	8.2
	E1-S17		1014	NE corner of Ex.1	3"	5 silt 25 sand 70 gravel "	47.2
	E1-S18		1020	"	3"	" " " "	408 HC
	E1-S19		1026	"	3"	10 silt 30 sand 60 gravel "	299 HC
	E1-S20		1035	"	3"	" " " "	8.0
	E1-S21		1043	"	3"	" " " "	5.6
	E1-S22		1134	"	4"	" " " "	10.2
*	SP-1	4/17/15	1509	S end, center of SP	6" b.s.	5 silt 25 sand 70 gravel d. brown	1503 HC
	SP-5		1510	SE corner of SP		" " " "	1236 HC
*	SP-2		1512	N end center of SP		" " " "	1894 HC
	SP-3		1513	NW corner of SP		" " " "	880 HC
	SP-4		1515	SW corner of SP		" " " "	817 HC
*	E1-SW-1	4/17/15	1628	NW corner sidewall	1'	10 silt 30 sand, 60 gravel, d. brown	2026 HC
	E1-S1 (2.5')		1637		2.5'	" 40 sand 50 gravel, brown	816 HC
	E1-S2 (2.2')		1648		2.2'	" " " "	685 HC
*	E1-S3 (2.2')		1657		2.2'	" 30 sand 60 gravel "	1960 HC
	E1-S4 (2.5')		1706		2.5'	" " " "	1376 HC
	E1-S5 (0.67')		1717		0.67'	" " " "	82.7 HC
	E1-S6 (1.5')		1727		1.5'	" " " "	46.7 HC
dup *	E1-S10 (2.0')		1749		2.0'	" " " "	2503 HC
	E1-S9 (1.5')		1738		1.5'	" " " "	569 HC
	E1-S11 (1.6)		1822		1.6'	" " " "	1654 HC
	*	Sample Analyzed By Laboratory					

Note: PID filter may have been saturated after E1-SW-1

b.s. below SP surface S.P. stockpile

Job Number: 31-1-11765

SOIL SAMPLE COLLECTION LOG

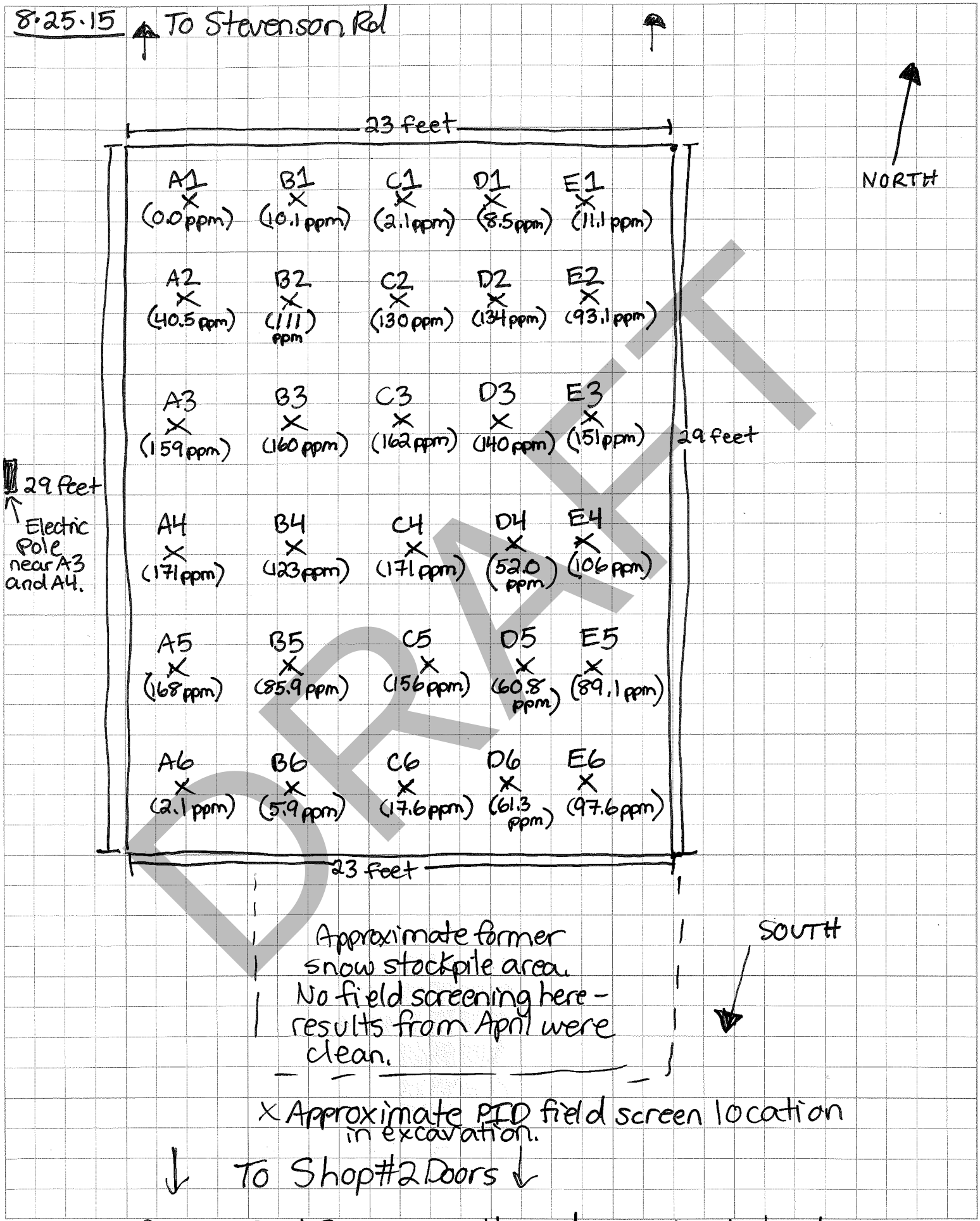
SHANNON & WILSON, INC.

	Sample Number	Date	Time	Sample Location (See Figure 1 and Table 2)	Depth (Ft.) bgs	Sample Classification	PID Type - ppm
*	E1-S12(1.4')	4/17/15	1826		1.4	10 silt 30 sand 60 gravel brown	956 HC
	E1-S13(1.8')	4/17/15	1837		1.8	10 silt 30 sand 60 gravel brown	197 HC
*	E1-SW-2	4/18/15	0900		1.1	10 silt 30 sand 60 gravel, d. brown	4671 HC
	E1-SW-3		0904		0.7	10 silt 30 sand 60 gravel brown	2411 HC
	E1-SW-4		0937		0.8	10 silt 30 sand 60 gravel brown	118 HC
*	E1-SW-5		0938		0.9	5 silt 15 sand 80 gravel brown	634 HC
	E1-SW-6		1010		0.6	10 silt 10 sand 80 gravel brown	76.9
*	E1-SW-11		1012		0.6	10 silt 30 sand 60 gravel brown	1482 HC
*	E1-SW-7		1836		0.8	10 silt 40 sand 50 gravel brown	1648 HC
	E1-SW-8		1845		0.7	10 silt 30 sand 60 gravel brown	427 HC
*	E1-SW-9		1856		0.8	5 silt 15 sand 80 gravel brown	37.4
	E1-SW-10		1904		0.8	5 silt 15 sand 80 gravel brown	24.1
	E1-S17(1.2')		1822		1.2	10 silt 30 sand 60 gravel, d. brown	2319 HC
*	E1-S18(1.3')		1824		1.3	" " " "	3096 HC
	E1-S19(0.8')		1827		0.8	" " " "	1396 HC
	*	Sample Analyzed By Laboratory					

AUGUST 2015 SITE VISIT

31-1-11765-005 Barrow NSB Shop #2 - Map 1 (map to approx. scale) ELB ALF

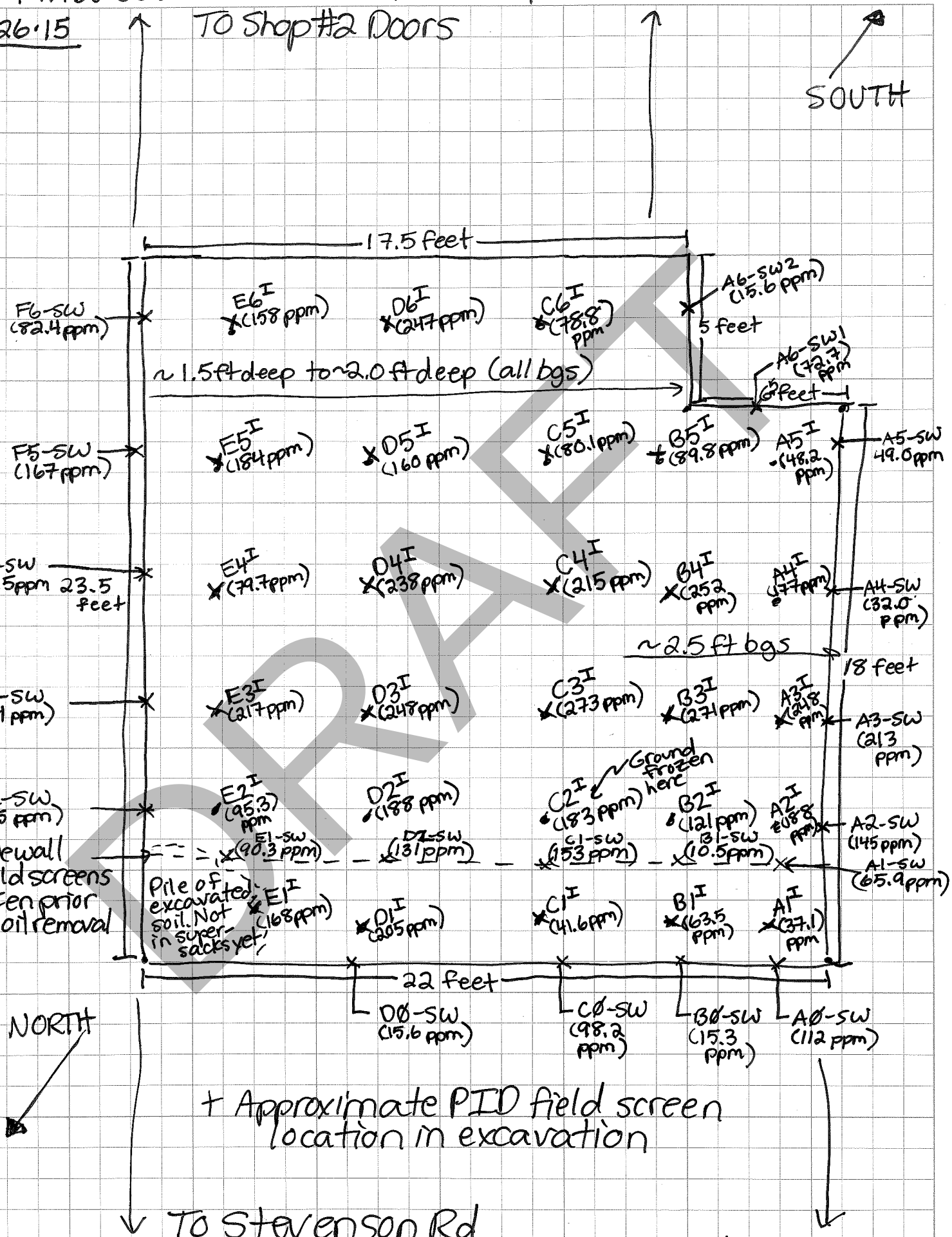
8.25.15



Surface - Field Screen results and approximate locations.

31-1-11765-005 Barrow NSB Shop#2 - Map 2 (Map drawn to approx. scale) ELB ALF

8.26.15

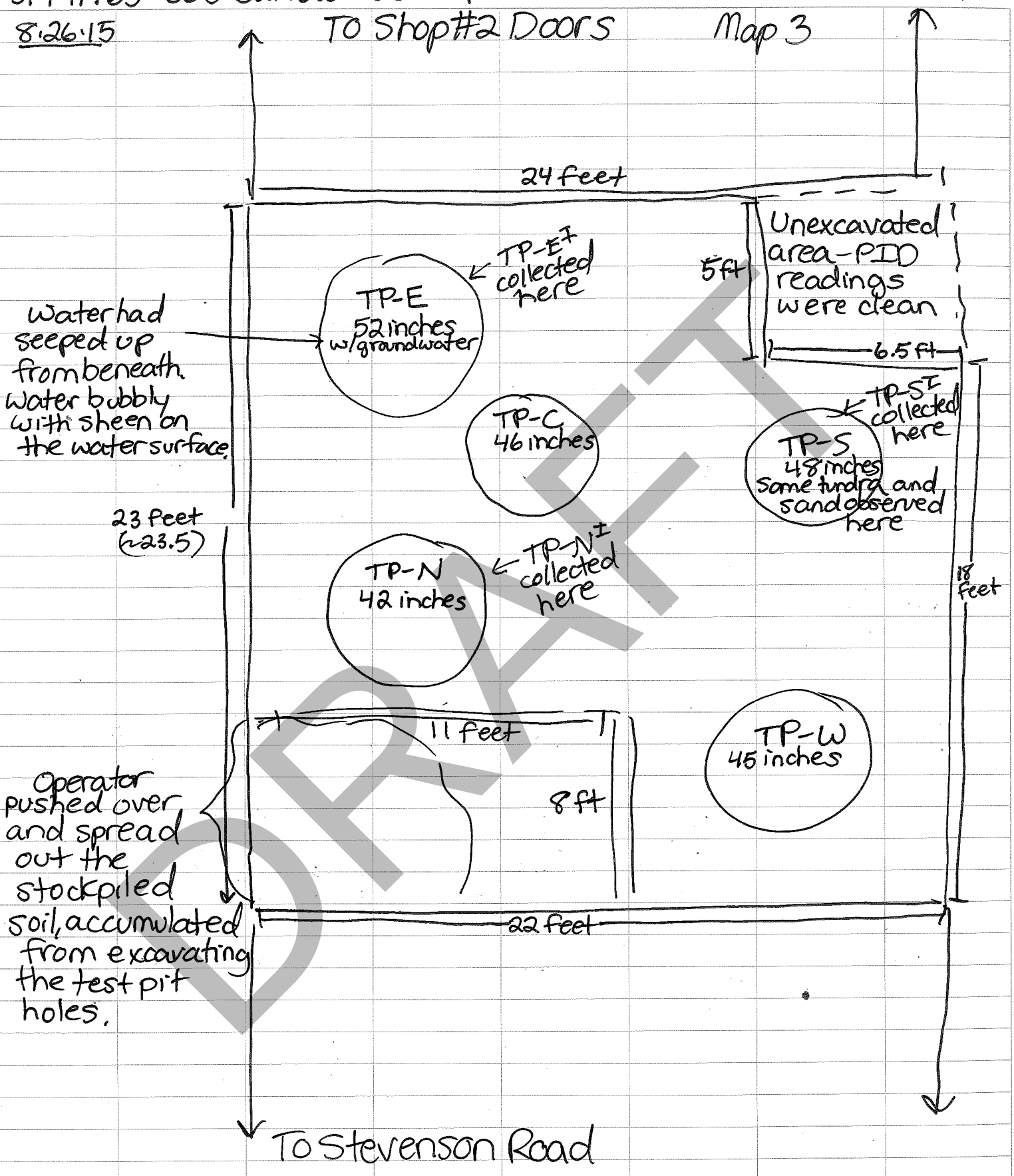


After removal about 6 inches; map of approximate field screen locations (~6" to 12")

31-1-11765-005 Barrow NSB Shop #2 Additional Excavation

ELB
ALF

8.26.15



DRAFT

Test Pits were dug deeper than excavated surface on Map 2.
Site after excavation work was completed on 8.26.15.

31-1-11765-005 Barrow NSB Shop#2 Additional Excavation

Field Screen Results 8-26-2015 cont'd from Map 3

TP-S: 44.0 ppm
TP-E: 178 ppm
TP-W: 20.2 ppm
TP-N: 148 ppm
} Collected ~1.0 feet below ground surface of excavation

TP-S^{I}: 64.0 ppm
TP-E^{I}: 123 ppm
} Collected ~2.0 feet below excavation surface

TP-C: 36.3 ppm - Collected ~1.5 feet below excavation surface

TP-N^{I}: 135 ppm - Collected ~2.0 feet below excavation surface

Notes:

ppm	parts per million
TP	Test Pit
SW	Side Wall
PID	photoionization detector
bgs	below ground surface

ELB
ALF

8/26/15 cont'd

Field Screen results from the filled seven supersacks.
FS means Field Screen

FS #	Date	Location	PID Reading (ppm)
30-1	8-26-15	Supersack 30	193
30-2		" "	177
30-3		" "	194
30-4		" "	105
30-5		" "	217 ← Highest, sampled
31-1		Supersack 31	182
31-2		" "	205
31-3		" "	219 ← Highest, sampled
31-4		" "	214
31-5		" "	182
32-1		Supersack 32	167 ← Highest, sampled
32-2		" "	138
32-3		" "	98.5
32-4		" "	131
32-5		" "	164
33-1 ~~33-5~~ (ELB)		Supersack 33	173 ← Highest, sampled
33-2		" "	164
33-3		" "	124
33-4		" "	145
33-5		" "	158
34-1		Supersack 34	115
34-2		" "	208
34-3		" "	212
34-4		" "	162
34-5		" "	214 ← Highest, sampled
35-1		Supersack 35	78.8
35-2		" "	45.6
35-3		" "	60.1
35-4		" "	96.8 ← Highest, sampled
35-5		" "	59.1
36-1		Supersack 36	59.3
36-2		" "	69.9
36-3		" "	70.1 ← Highest, sampled
36-4		" "	40.3
36-5		" "	42.8

continues Pg 11.

ELB
ALF

8.26.15 cont'd

Field screen results from supersacks, cont'd.

FS #	Date	Location	PID Reading (ppm)
37-1	8.26.15	Supersack 37	44.5
37-2			62.9 ← Highest, sampled
37-3			28.2
37-4			55.7
37-5			47.3

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Barrow Shop #2 ULSD Release - Additional Excavation

Date: August 26, 2015

Sampler: ALF, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
SS-30	8/26/15	2100	Supersack 30	~6"	Unclassified fill, mix of sand & gravel	217
SS-31		2105	Supersack 31	~6"	" "	219
SS-32		2110	Supersack 32	~6"	" "	167
SS-33		2112	Supersack 33	~6"	" "	173
SS-34		2115	Supersack 34	~6"	" "	214
SS-35		2120	Supersack 35	~6"	" "	96.8
SS-36		2123	Supersack 36	~6"	" "	70.1
SS-37	↓	2130	Supersack 37	~6"	" "	62.9

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SEPTEMBER 2015 SITE VISIT

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: Barrow NSB Shop #2 Additional Excavation Page 1 of 9

Date: 9/4 through 9/6/2015

Sampler: APW, ELB

(Field Screen) Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
EI-Test 1	9/4/15	—	Base NE Wall, near West Corner	~6"	Unclassified fill; mix of	118
EI-Test 2		—	Base NE Wall, ~5' from Test 1	~6"	" gravel and sand	85.6
EI-Test 3		—	Center and at base NE Wall	~6"	" "	29.0
EI-Test 4		—	Base NE Wall, near North Corner	~6"	" "	8.6
EI-FS5	9/5/15	—	Base excavation; NE side	~6"	" "	10.8
EI-FS6		—	Base excavation; NE side	~6"	" "	17.8
EI-FS7		—	" "	~6"	" "	10.2
EI-FS8		—	" "	~6"	" "	28.5
EI-FS9		—	" "	~6"	" "	55.7
EI-FS10		—	" "	~6"	" "	19.0
EI-FS11		—	" Base Excavation; center SW side	~6"	" "	15.7
EI-FS12		—	" "	~6"	" "	15.8
EI-FS13		—	Base excavation, middle + center	~6"	" "	12.5
EI-FS14		—	" "	~6"	" "	18.5
EI-FS15		—	Base excavation, SW side, near South corner	~6"	" "	35.4
EI-FS16		—	" "	~6"	" "	36.7
EI-FS17		—	Base excavation, center SW side	~6"	" "	45.0
EI-FS18		—	Base excavation, SW side	~6"	" "	60.5
EI-FS19		—	" "	~6"	" "	16.1
EI-SW1		—	Sidewall, SW wall near South corner	~~~6"~~ ~36"	" "	4.8
EI-SW2		—	" "	(ELB) ~~~6"~~ ~39"	" "	7.3
EI-SW3		—	Sidewall, along center area SW wall	~~~6"~~ ~39"	" "	78.4
EI-SW4		—	Sidewall, SW wall near West corner	~3'10"	" "	10.2
EI-SW5		—	" "	~3'11"	" "	2.3
EI-SW6		—	" "	~3'8"	" "	2.3
EI-SW-T1		—	Near surface (Top) above EI-SW1	~3"	" "	63.9
EI-SW-T2		—	" " above EI-SW2	~3"	" "	104
EI-SW-T3		—	" " above EI-SW3	~3"	" "	135
EI-SW-T4		—	" " above EI-SW4	~3"	" "	90.4
EI-SW-T5		—	" " above EI-SW5	~3"	" "	97.6
EI-SW-T6		—	" " above EI-SW6	~3"	" "	104
~~EI-SW-T~~ (ELB)		—				
EI-P-SW1		—	Sidewall, center along SW wall near South corner	~1.5'	" "	51.0
EI-P-SW2		—	Sidewall, along SW wall, middle	~2.0'	" "	121
EI-P-SW3		—	Sidewall, along SW wall, near west corner	~2.3'	" "	100
EI-GS1		—	Two surface grab samples by EI-SW3	~6"	" "	64.0
EI-GS2		—	and EI-P-SW3	~6"	" "	96.6
EI-GS-SP		—	Stockpile (~6" in diam.) from digging out (EI-GS1/EI-GS2)		Stockpile	83.8
EI-FS20	9/6/15	—	NE Wall, near Eastern corner (base excavation)	~6" below excavation surface; see maps		3.1
EI-FS21		—	" "	" "	" "	3.2

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-11765-005 Project Name: Barrow NSB Shop #2 Additional Excavation Page 2 of 9

Date: 9/6/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
EI-ES22	9/6/15	—	Base excavation; NE wall near East corner	~6" below excavation surface	Unclass. fill; mix of sand + gravel	2.5
EI-ES23		—	Base excavation; along NE wall (center)	" "	" "	2.9
EI-ES24		—	" "	" "	" "	5.9
EI-ES25		—	Base excavation; NE wall near North corner	" "	" "	3.9
EI-ES26		—	" "	" "	" "	5.3
EI-ES27		—	Base excavation; see map (In NE area)	" "	" "	4.1
EI-ES28		—	" "	" "	" "	3.8
EI-ES29		—	" "	" "	" "	5.4
EI-ES30		—	" "	" "	" "	6.0
EI-ES31		—	" "	" "	" "	12.4
EI-ES32		—	" "	" "	" "	5.7
EI-ES33		—	" "	" "	" "	6.1
EI-ES34		—	" " (In SE area)	" "	" "	5.4
EI-ES35		—	" "	" "	" "	9.4
EI-ES36		—	" "	" "	" "	6.1
EI-ES37		—	" " (Along NE side)	" "	" "	4.7
EI-ES38		—	" "	" "	" "	6.7
EI-ES39		—	" " (NE area)	" "	" "	5.0
EI-ES40		—	" "	" "	" "	6.4
EI-ES41		—	" " (west half SE wall)	" "	" "	4.7
EI-ES42		—	" "	" "	" "	2.2
EI-ES43		—	" " (SW side - middle)	" "	" "	5.0
EI-ES44		—	" "	" "	" "	4.5
EI-ES45		—	" " (SW wall, W. corner)	" "	" "	5.3
EI-ES46		—	" "	" "	" "	1.4
EI-ES47		—	" "	" "	" "	4.2
EI-ES48		—	" "	" "	" "	5.3
EI-ES49		—	" " (SW wall, center)	" "	" "	4.7
EI-ES50		—	" "	" "	" "	6.1
EI-ES51		—	" "	" "	" "	13.6
EI-ES52		—	" "	" "	" "	2.6
EI-ES53		—	" " (SW wall, near S. corner)	" "	" "	7.6
EI-ES54		—	" "	" "	" "	4.9
EI-ES55		—	" " (SW wall, center area)	" "	" "	7.1
EI-ES56		—	" "	" "	" "	10.8
EI-ES57		—	" " (SW wall, near W. corner)	" "	" "	5.2
EI-ES58		—	" " (SW wall, at W. corner)	" "	" "	3.9
EI-SW20		—	Sidewall; NE sidewall, East corner area	~~~1.5'~~	" "	1.2
EI-SW21		—	" "	~1.5'	Unclassified fill; mix of sand + gravel	2.1
EI-SW22	↓	—	" "	~1.5'	" "	49.1

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB shop #2 Additional Excavation

Date: 9/6/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
E1-SW 21	9/6/2015	-	Along SE sidewall, eastern corner	~1.5 ft bgs	Unclassified fill; mix of gravel	2.1
E1-SW 22		-	Along NE sidewall, eastern corner		and sand	49.1
E1-SW 23		-	Along NE sidewall, eastern corner			107
E1-SW 24		-	near center of NE sidewall			118
E1-SW 25		-	near center of NE sidewall			86.3
E1-SW 26		-	North side of NE sidewall			87.7
E1-SW 27		-	North side of NE sidewall			9.5
E1-SW 28		-	near center of NE sidewall			14.9
E1-SW 29		-	near center of NE sidewall			8.0
E1-SW 30		-	near center of NE sidewall			10.2
E1-SW 31		-	near center of NE sidewall			13.0
E1-SW 32		-	Northern corner			113
E1-SW 33		-	Eastern corner			3.4
E1-SW 34		-	Eastern corner			137
E1-SW 35		-	Eastern corner			145
E1-SW 36		-	Eastern corner			121
E1-SW 37		-	SW side, ~10 ft from SW sidewall			3.2
E1-SW 38		-	SE side, ~6 ft from SW sidewall			2.7
E1-SW 39		-	Along SW sidewall, southern half			3.1
E1-SW 40		-	Along SW sidewall, southern half			3.0
E1-SW 41		-	near center of SW sidewall			4.2
E1-SW 42		-	Along SW sidewall, western corner			13.5
E1-SW 43		-	near center of SW sidewall			2.1
E1-SW 44		-	near center of SW sidewall			2.1
E1-SW 45		-	near center of SW sidewall			2.0
E1-SW 46		-	Along NW sidewall, Northern corner			39.3
E1-SW 47		-	Along NW sidewall, Northern corner			0.0
E1-SW 48		-	near center of NW sidewall			78.1
E1-SW 49		-	near center of NW sidewall			5.7
E1-SW 50		-	near center of NW sidewall			26.9
E1-SW 51		-	Along NE sidewall, eastern corner			4.3
E1-SW 52		-	Along NE sidewall, eastern side			2.4
E1-SW 53		-	Along NE sidewall, near center			82.6
E1-SW 54		-	Along NE sidewall, near center			110
E1-SW 55		-	Along NE sidewall, northern side			19.4
E1-SW 56		-	Along NE sidewall, Northern corner			47.7
E1-SW 57		-	Along NE sidewall, eastern corner	~3.8-4.0 ft bgs		80.4
E1-SW 58		-	Along NE sidewall, eastern side			88.9
E1-SW 59		-	Along NE sidewall, northern side			95.9
E1-SW 60		-	Along NE sidewall, northern corner			32.4

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/7/15

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
EI-SW 61	9/6/15	-	Near center of NE sidewall	~ 3.9'	unclassified fill mix of	35.6
EI-SW 62		-	NE sidewall, northern corner area	~ 4.2'	sand and gravel	22.1
EI-SW 63		-		~ 1.7'		2.1
EI-SW 64		-		~ 3.5'		10.2
EI-SW 65		-	NW sidewall, western corner	~ 1.7'		30.6
EI-SW 66		-	Near center of NW sidewall	~ 1.3'		121
EI-SW 67		-		~ 1.2'		20.4
EI-SW 68		-		~ 1.6'		30.0
EI-SW 69		-	NW sidewall, western corner	~ 3.5'		2.2
EI-SW 70		-	Along NW sidewall, centrally located	~ 3.4'		2.9
EI-SW 71		-		~ 3.8'		12.4
EI-SW 72		-		~ 2.1'		5.9
EI-SW 73	9/7/15	-	NE sidewall, northern corner and northern half	~ 3.9' to 5.0'		104
EI-SW 74		-				7.6
EI-SW 75		-				23.5
EI-SW 76		-				31.7
EI-SW 77		-				19.7
EI-SW 78		-				3.9
EI-SW 79		-				51.8
EI-SW 80		-				11.0
EI-SW 81		-				6.1
EI-SW 82		-				5.7
EI-SW 83		-				10.8
EI-SW 84		-		~ 1.5' to 2.5'		3.0
EI-SW 85		-				2.3
EI-SW 86		-				3.0
EI-SW 87		-				3.4
EI-SW 88		-				2.3
EI-SW 89		-				2.1
EI-SW 90		-				2.4
EI-SW 91		-				2.4
EI-SW 92		-				2.2
EI-SW 93		-				8.8
EI-SW 94		-	Along SW sidewall, ~ 5 ft from the utility pole	~ 1.5'		3.1
EI-SW 95		-		~ 1.5'		118
EI-SW 96		-		~ 2.5'		33.3
EI-SW 97		-		~ 2.5'		28.4
EI-SW 98		-		~ 1.5'		14.4
EI-SW 99		-		~ 2.5'		15.0
EI-SW 100		-	NE sidewall, northern half	~ 1.5'		9.1

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/7/2015 to 9/8/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
E1-SW101	9/7/15	-	NE sidewall, northern half	~1.5'	Unclassified mix of sand an gravel	26.3
E1-SW102	↓	-	↓	~1.5'	↓	31.6
E1-SW103	↓	-	SE sidewall, southern half	~2.0'	↓	74.3
E1-SW104	↓	-	↓	~2.0'	↓	10.2
E1-SW105	↓	-	↓	~2.0'	↓	105
E1-SW106	↓	-	SW sidewall, southern section south of utility pole	~1.5'	↓	1.0
E1-SW107	↓	-	↓	~1.5'	↓	75.9
E1-SW108	↓	-	↓	~1.5'	↓	38.5
E1-SW109	↓	-	↓	~1.5'	↓	2.5
E1-SW110	↓	-	↓	~3.5'	↓	1.3
E1-SW111	↓	-	↓	~3.5'	↓	30.7
E1-SW112	↓	-	↓	~3.5'	↓	115
E1-SW113	↓	-	↓	~3.5'	↓	3.9
E1-SW114	9/8/15	-	Along NE sidewall, northern side (~8.2 ft section)	~1.5' to 3.8'	↓	2.1
E1-SW115	↓	-	↓	↓	↓	3.6
E1-SW116	↓	-	↓	↓	↓	24.5
E1-SW117	↓	-	↓	↓	↓	6.6
E1-SW118	↓	-	↓	↓	↓	23.2
E1-SW119	↓	-	↓	↓	↓	2.4
E1-SW120	↓	-	↓	↓	↓	4.3
E1-SW121	↓	-	↓	↓	↓	15.5
E1-SW122	↓	-	↓	↓	↓	48.6
E1-SW123	↓	-	↓	↓	↓	11.1
E1-SW124	↓	-	↓	↓	↓	1.1
E1-SW125	↓	-	↓	↓	↓	3.3
E1-SW126	↓	-	↓	↓	↓	24.5
E1-SW127	↓	-	NE sidewall near northern corner (Top)	↓	↓	2.6
E1-SW128	↓	-	NE sidewall near northern corner (bottom)	~3.8'	↓	10.8
E1-SW129	↓	-	NW sidewall near western corner	~1.5'	↓	96.4
E1-SW131	↓	-	↓	~1.0'	↓	2.8
E1-SW132	↓	-	↓	~2.0'	↓	118
E1-SW133	↓	-	↓	~1.0'	↓	116
E1-SW134	↓	-	↓	~2.0'	↓	1.3
E1-SW135	↓	-	↓	~1.0'	↓	1.6
GS1	↓	-	Surface sample in western corner along NW wall	~1.0' bgs	↓	35.0
GS7	↓	-	↓	~1.0' bgs	↓	75.9
		-				
		-				
		-				
		-				

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/9/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
E1-SW 136	9/9/15	-	Along SW wall, southern corner (top layer)	~ 2.0'	Unclassified mix of sand and gravel	23.2
E1-SW 137		-				0.0
E1-SW 138		-				1.3
E1-SW 139		-				20.2
E1-SW 140		-	Along SW sidewall, southern corner (bottom layer)	~ 4.0'	Sample consisted of clay	153
E1-SW 141		-			Unclassified mix of sand and gravel	15.5
E1-SW 142		-				41.5
E1-SW 143		-				1.9
E1-SW 144		-	Along SW sidewall, southern corner to the right of SW140	~ 4.0'		11.9
E1-SW 145		-		~ 4.0'	Gravel from where clay was removed	8.2
GS3		-	Along NW wall, western corner (right side)	~ 1.3'	Unclassified mix of sand and gravel	127
GS4		-	Along NW wall, western corner (left side)	~ 1.3'		54.4
E1-SW 146		-	Along SW sidewall, southern corner	~ 1.5'		0.6
E1-SW 147		-		~ 1.5'		0.5
E1-SW 148		-		~ 1.5'		0.3
E1-SW 149		-		~ 1.5'		38.5
E1-SW 150		-		~ 4.0'		8.4
E1-SW 151		-		~ 4.0'		6.2
E1-SW 152		-		~ 4.0'		1.1
E1-SW 153		-		~ 4.0'		34.8
E1-SW 154		-		~ 1.0'		2.0
E1-SW 155		-		~ 1.0'		88.9
E1-SW 156		-		~ 1.4'		43.9
E1-SW 157		-		~ 4.0'		3.8
E1-SW 158		-		~ 4.0'		165
E1-SW 159		-		~ 1.5'		1.1
E1-SW 160		-		~ 1.5'		89.4
E1-SW 161		-		~ 1.5'		116
E1-SW 162		-		~ 1.5'		38.4
E1-SW 163		-		~ 4.0'		8.3
E1-SW 164		-		~ 4.0'		158
E1-SW 165		-		~ 4.0'		178
E1-SW 166		-		~ 4.0'		18.1
E1-SW 167		-		~ 1.7'		8.9
T1		-	Test pits ~ 3ft out from southern corner	~ 6"		29.0
T2		-				111
T3		-				74.9
T4		-				24.2
T5		-				54.9

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/9/2015 to 9/10/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
T6	9/9/15	-	Test pits ~3 ft out from southern corner	~6"	unclassified mix of sand and gravel	109
T7	↓	-	↓	↓	↓	74.7
T8	9/10/15	-	Test pits for broader surface delineation, see map	~6"	↓	63.8
T9	↓	-	↓	↓	↓	75.1
T10	↓	-	↓	↓	↓	3.2
T11	↓	-	↓	↓	↓	13.1
T12	↓	-	↓	↓	↓	7.5
T13	↓	-	↓	↓	↓	72.4
T14	↓	-	↓	↓	↓	47.9
T15	↓	-	↓	↓	↓	10.8
T16	↓	-	↓	↓	↓	13.1
T17	↓	-	↓	↓	↓	26.2
T18	↓	-	↓	↓	↓	5.4
T19	↓	-	↓	↓	↓	85.5
T20	↓	-	↓	↓	↓	4.4
T21	↓	-	↓	↓	↓	13.2
T22	↓	-	↓	↓	↓	20.7
T23	↓	-	↓	↓	↓	82.2
T24	↓	-	↓	↓	↓	81.5
T25	↓	-	↓	↓	↓	15.5
T26	↓	-	↓	↓	↓	58.0
T27	↓	-	↓	↓	↓	111
T28	↓	-	↓	↓	↓	59.1
T29	↓	-	↓	↓	↓	45.0
T30	↓	-	↓	↓	↓	7.3
T31	↓	-	↓	↓	↓	19.6
T32	↓	-	↓	↓	↓	9.5
T33	↓	-	↓	↓	↓	96.6
T34	↓	-	↓	↓	↓	10.1
T35	↓	-	↓	↓	↓	73.7
T36	↓	-	↓	↓	↓	112
T37	↓	-	↓	↓	↓	4.0
T38	↓	-	↓	↓	↓	23.0
T39	↓	-	↓	↓	↓	116
T40	↓	-	↓	↓	↓	156
T41	↓	-	↓	↓	↓	91.9
T42	↓	-	↓	↓	↓	6.6
T43	↓	-	↓	↓	↓	6.7
T44	↓	-	↓	↓	↓	7.7
T45	↓	-	↓	↓	↓	134

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/10/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
T46	9/10/15	-	test pits for broader surface delineation, see map	~6"	unclassified mix of sand and gravel	78.9
T47	↓	-	↓	↓	↓	11.2
T48	↓	-	↓	↓	↓	158

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

SOIL SAMPLE COLLECTION LOG

Project Number: 31-1-11765-005 Project Name: NSB Shop #2 Additional Excavation

Date: 9/12/2015

Sampler: APW, ELB

Sample Number	Date	Time	Sample Location	Depth (inches /ft bgs)	Sample Classification	PID Type - ppm
T48	9/12/15	1205	From T48 surface delineation	~8"	Brown, ≥15% sand, silty gravel w/sand	158
T480	↓	1155	↓	~8"	↓	158
T40	↓	1230	From T40 surface delineation	~7"	↓	156
T45	↓	1234	From T45 surface delineation	~6"	↓	134
T19	↓	1238	From T19 surface delineation	~9"	↓	85.5
T36	↓	1240	From T36 surface delineation	~9"	<5% fines, well-graded gravel	112
E1-1	9/12/15	1503	western corner, see sample map	~4.6'	Dark red-brown organic soil	
E1-2	↓	1511	Southern side bordering SE and SW sidewalls	~4.7'	Dark red-brown to black organic soil w/sand	
E1-3	↓	1520	Center of excavation bordering SE sidewall	~4.9'	Dark red-brown organic soil (peat like)	
E1-4	↓	1530	Eastern corner, see sample map	~5.2'	Red-brown organic soil	
E1-40	↓	1522	–	–	–	
E1-5	↓	1526	Northern corner, see sample map	~5.6'	Red-brown organic soil	
E1-6	↓	1515	Center of excavation bordering NW sidewall	~5.1'	Red-brown organic soil w/sand	
E1-7	↓	1510	Southern corner, see sample map	~2.5'	Brown 10% fines, 90% gravel, well-graded	
SW-1	9/12/15	1708	western corner along NW sidewall, see sample map	~0.9'	Brown, ≥15% fines, silty gravel w/sand	
SW-2	↓	1711	near center of SW sidewall, see sample map	~2.2'	Yellow-brown, ≥15% fines, clayey gravel w/sand	
SW-3	↓	1720	Southern corner along SW sidewall, see sample map	~1.0'	Brown, 10% fines, mostly well-graded gravel	
SW-30	↓	1715	–	–	–	
SW-4	↓	1730	Southern side along SE sidewall, see sample map	~1.5'	Brown, 10% fines, mostly well-graded gravel	
SW-5	↓	1725	Eastern side along SE sidewall, see sample map	~1.6'	↓	
SW-6	↓	1718	Eastern side along NE sidewall, see sample map	~1.5'	Brown, ≥15% fines, silty gravel w/sand	
SW-7	↓	1710	Northern side along NE sidewall, see sample map	~2.1'	↓	
SW-8	↓	1705	Northern side along NW sidewall, see sample map	~1.5'	↓	
FS-SS-1	9/12/15		Field screen of supersack 46	~6"	unclassified mix of gravel and sand	148
FS-SS-2	↓		↓	↓	↓	105
FS-SS-3	↓		↓	↓	↓	101
FS-SS-4	↓		↓	↓	↓	105
FS-SS-5	↓		↓	↓	↓	113
SS46	9/12/15	1930	Sample of supersack 46 from FS-SS-1 location	~6"	unclassified mix of gravel and sand	
SS460	↓	1920	↓	↓	↓	

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank bgs = below ground surface

APPENDIX D

FIELD ACTIVITY REPORTS

APRIL 2015 SITE VISIT 1

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/14/15
REPORT NO.:	1 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Partly cloudy, -2ºF
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 1420	to 1700
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Initial Site Visit	Katie and Jenny arrived on site at 1420 to meet with Lokeni Lokeni Jr. Lokeni identified the release area and temporary snow stockpile locations. The spill area was estimated to be a 20-foot by 8-foot area per Lokeni.	
	Transport of snow to Shop #3	Approval was obtained from Paul Lohtke (ADEC) for storage of potentially contaminated snow at NSB Barrow Shop #3. Lokeni and other NSB staff transported nine containers of contaminated snow (estimated at 25 cubic yards (c.y.)) to Shop #3, located approximately 0.5 miles from Shop #2. Katie and Jenny accompanied the NSB staff to Shop #3 to document activities. The containers included the following: • 2, 10-c.y. roll-off bins • 1, 95-gallon overpack drum • 6, 85-gallon drums All containers of snow were placed inside Shop #3 on a liner. The granular activated carbon (GAC) system for treatment of the contaminated snow is not set to arrive and be in operation for another 1.5- 2 weeks, per Lokeni.	Continue to monitor the melt of snow in bins and drums. Consolidate snow from drums and bins into as few containers as possible.
	Departure from site	Katie and Jenny and NSB staff departed from Shop #2 site at 1700.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/15/15
REPORT NO.:	2 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Sunny; -3ºF with wind chill, light snow at 1430
Client	North Slope Borough	General		TIMES OF SITE VISITS:	
CC		Subcontractors for Geotechnical Construction		from 0840 to 1200	
				from 1300 to 1720	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full work day #1, Barrow Shop #2	Katie and Jenny arrived onsite to meet Lokeni and NSB staff at 0840.. Approximately 2-3 inches of snow accumulated on the site prior to 4/14/15. Snow was immediately scooped off of the worksite using a loader and stockpiled in the NE corner of the approximate spill area. The approximate boundary of the spill and initial snow stockpile areas were marked with nails and whiskers according to Lokeni's directions. The overall site was broken into two excavation areas: the spill area (E1) and the initial snow stockpile area (E2). E1, based on Lokeni's description, comprised and area of approximately 19.5 feet by 13.5 feet. E2 comprised a 10-foot by 13.5-foot area. A telephone call was made to Val Webb, SWI Project Manager, to discuss expansion of the excavation footprint based on surface staining. During the telephone conversation, it was agreed that while we should expand the investigation area to include areas of surface stains, this could potentially incorporate historical releases from vehicles and other equipment. The fuel release area was expanded W and NW due to observed surface staining, and NE due to the fresh snow stockpile location. Adhering to the ADEC guidance, the total required number of field-screening samples in E1 was fourteen, while the total required number of field-screenings in E2 was six. Field-screening sample locations were marked using whiskers and nails.	Containerize snow and transport to Shop #3.

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full work day #1, Barrow Shop #2	The ground surface was frozen, making it very difficult to dig down to six inches to collect field-screening samples. We were able to dig down to four inches with the help of NSB staff members, who used an ice-pick. The loosened soil at four inches below ground surface (bgs) was collected for field-screening at each of the fourteen sampling points in E1 and each of the six sampling points in E2. Dark staining was observed down to one inch at the first sample at excavation 1 (E1-S1). Breathing zone PID readings read 1 ppm. The fresh snowpile that was stockpiled in the morning was transferred to a 10 c.y. roll-off bin, three 85-gallon, and two 95-gallon drums (~12 c.y. of snow). SWI accompanied NSB staff to Shop #3 to where the newly containerized snow was transferred. The snow in the containers transported to Shop #3 on Tuesday were beginning to melt. Air monitoring produced readings <5 ppm except when PID was held directly over drums and roll-offs. Readings >200 ppm were observed directly above drums and roll-offs. SWI and NSB staff returned to Shop #2 site. Field-screening from E2 were all <20 ppm. Confirmation samples, E2-S1 and E2-S2, were collected at 1707 and 1709, respectively. .	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/16/15
REPORT NO.:	3 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

DAILY FIELD ACTIVITY REPORT

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Cloudy; -2ºF with light wind
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0830	to 1700
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full work day #2, Barrow Shop #2	We began the day (4/16/15) by meeting Lokeni at the Shop #2 site at 0830. Lokeni confirmed the utility locates and excavation equipment would not be available until late morning/afternoon; therefore we decided to first check the containerized snow at Shop #3 to document the thawing process. The lids on the drums and liners on the bins were removed and we observed some progress with the melting, but still not sufficient for sampling (and not likely to completely melt in the next few days due to the large volume of material in the bins). Approximately 1 inch of fresh snow had accumulated on the project area overnight so we used push brooms to gather the snow into the footprint of the newest snow stockpile area (NE corner of the spill area (E1). This small stockpile was containerized into one 95-gallon drum (3/4 full). We collected six field screening samples from the E3 area. PID readings from samples collected in the footprint of the newest temporary snow stockpile area ranged from 5.6 to 408 ppm, with three readings greater than 20 ppm. The three "hot" field screening samples were collected from locations closest to the spill area; therefore we decided to combine the newest temporary snow stockpile area into the spill area (E1) area to better delineate the spill area. We did not collect an analytical sample from the newest temporary snow stockpile area, but will adjust the confirmation sampling accordingly to incorporate the additional area. A phone call was made to Val Webb and Jon Lindstrom to discuss the use of various equipment to excavate contaminated soil. We discussed the use of the rock saw to first trench the excavation area. A decision was reached that we would use the rock saw, as this was one of the only options that we thought would be successful. At 13:50, Barrow Utilities and Electric Co-op Incorporated (BUECI) arrived on site to conduct utility locates. BUECI personnel confirmed there were no buried utilities in our project area. Due to the frozen soil conditions, shallow trenching using a rock saw was proposed prior to bringing in an excavator. From 14:00-16:00, a BUECI operator used a BUECI-owned rock saw to cut shallow trenches about 6-8 inches deep across the delineated spill area to break up the frozen soil (see photos attached). Small rows of frozen soil (less than 1 foot wide) were left in between the shallow trenches which we believed the excavator could handle during the soil removal.	

REVIEW BY (PM initial/date)

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full work day #1, Barrow Shop #2	At 16:15, an NSB-owned excavator was brought on site, but this excavator was not powerful enough to break through the frozen soil. According to NSB, they were trying to get their larger excavator ready, but were having mechanical issues so it was not going to be available right away. They thought they might be able to have it ready to go tomorrow morning. Jenny and I measured the extent of the proposed excavation area to be approximately 700 sq ft, and about 17 cy of excavated soils. At that point, we could not proceed without the excavator so we covered the entire spill area with liners and called it a day. - We will meet at 0830 at Shop #2. - We will excavate the delineated spill area down to at least six inches. Field screening samples will be collected at the base to confirm headspace readings less than 20 ppm. We will have NSB stockpile the excavated soils temporarily on a liner to facilitate our sample collection. If all field screening comes back clean, I will proceed with the analytical confirmation sampling and excavated soil sampling. After sample collection is complete, I will have the NSB crew transfer the soils into supersacks/drums.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/17/15
REPORT NO.:	4 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Cloudy; -4ºF with wind chill
Client	North Slope Borough	General		TIMES OF SITE VISITS:	
CC		Subcontractors for Geotechnical Construction		from 0845	to 1948
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full work day #3, Barrow Shop #2	We arived onsite at 8:45AM and met with Lokeni. We transported the 95-gallon drum containing snow from the accumulation that occurred on the night of 4/15/15 to Shop #3. While at shop #3, we immediately noted that one of the roll-offs was leaking, resulting in accumulation of approximately 5-10 gallons of oily water on top of the liner. The NSB staff retrieved a pump and immediately pumped the water from the liner into one of the other roll-offs that was not leaking. We briefly discussed monitoring of the water leakage/accumulation and consolidating the water from the drums and other roll-offs into one bin. A phone call was made to Val Webb to discuss the use of various equipment to excavate contaminated soil. Because our options were limited, due to the large excavator being in repair, a decision was made that we would use whatever means were possible to remove the contaminated soil. We therefore relied on a loader to do the work. We returned to the Shop #2 site at 10:45AM. The small excavator was onsite by 11:00AM, and a loader arrived onsite shortly thereafter. Together, the loader and small excavator worked to both break up and excavate the contaminated soil. The loader broke the soil into large chunks and stockpiled it in the northeast corner of the excavation. Once the bulk of the excavated soil was stockpiled, NSB staff worked to shovel the remaining loose soil at the bottom of the excavation into supersacks. We estimated the volume of the soil stockpile at approximately 25 cubic yards. We therefore collected five field-screening samples from the stockpile, and collected two analytical samples from the field-screening sampling points having the highest PID readings. After our samples were collected, the NSB staff began moving the soil stockpile material from the stockpile to supersacks, which were placed on a liner at the Shop #2 site. The NSB staff was able to fill one supersack with excavated soil. The stockpile was covered for the night and NSB staff will continue placing the soil in to supersacks tomorrow (4/18/15).	

REVIEW BY (PM initial/date)

CONSTRUCTION OBSERVATIONS (continued)

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full work day #1, Barrow Shop #2	We calculated the total area of the excavation to be approximately 654 s.f. We therefore collected 14 field-screening samples. Field-screening samples returned results that were well above the field-screening samples we observed at four inches below the ground surface. We observed a diesel smell and soil staining, especially in the northwest corner of the excavation area. It was apparent to us that we had excavated into contaminated soils that existed prior to the most recent spill. We collected three of the four required analytical samples from the base of the excavation, along with one duplicate sample. The samples were collected at field screening points at which the highest PID readings were observed. We plan to collect the fourth analytical sample from the northeast corner of the excavation area, after the soil stockpile is removed from the northeast corner. We elected to take a sample in this area, because it is the location of the highest PID reading observed in the field screening conducted at 4" below ground surface. The soil was excavated to a depth deeper than desired due to conditions of the soil (i.e. frozen, very hard, and difficult to move), which required use of a loader to break up the soil. The loader was the only piece of equipment available for use at the site that had potential to break up the soil. The small excavator had been tried twice without much success while the large excavator is currently being repaired. The bulkiness of the loader limited its maneuverability and the finesse with which the excavation could be performed. The contaminated area was excavated to a depth ranging between one foot and 2.5 feet, instead of our intended 6-inch excavation depth, as a result. We are therefore required to collect 11 field-screen samples and five analytical samples, as well as a duplicate sample, from the excavation sidewalls. We collected one field-screening and one analytical sample from the stained area in the northwest corner of the excavation in order to characterize what we believe to be soil contamination that existed prior to the March 2015 spill. We will proceed on 4/18/15 by collecting an additional 10 field-screening samples and four analytical samples from the sidewalls of the excavation. In addition to the work described above, we also collected swing-ties to the corners of our excavation area and to sampling points. We plan to meet with Lokeni onsite at Shop #2 at 8:30AM tomorrow (4/18/15). Lokeni warned of the possibility that laborers may not be available to work due to the community activities related to the whaling season. Jenny is to depart at 11:48AM from Barrow. Katie intends to stay until Sunday afternoon.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/18/15
REPORT NO.:	5 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Cloudy; -1ºF with wind chill
Client	North Slope Borough	General		TIMES OF SITE VISITS:	
CC		Subcontractors for Geotechnical Construction		from 0840	to 2130
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full work day #4, Barrow Shop #2	SWI staff were onsite by 0845 and we started off collecting several field screening samples while the NSB crew was prepping the loader & backhoe. NSB containerized the excavated soils into 5 cy supersacks (bags filled at half capacity due to large chunks of frozen soil). Jenny was off site around 1030 to catch her flight out. During lunch, I accompanied Lokeni to the Shop #3 to check the snowmelt. Approximately 20-25 gallons of water (with a heavy sheen) was observed pooled on the liner. After lunch, the NSB crew continued to containerize the excavated soils. During a break, Lokeni and I went back to the Shop #3 with a new pump to transfer the water on the liner into the non-leaking bin. The NSB crew was able to containerize the soil stockpile into a total of 28 (5-cy) supersacks (1 filled at full capacity and 27 filled at about half capacity) and one small (3-cy) supersack filled with about 1 cy of soil. All of the supersacks were placed on a liner in the NE corner of the yard. The NSB crew finished at Shop #2 around 1800. The bucket on the loader was used to scrape some of the loose material around the ground surface adjacent to the excavation into the excavation to limit possible offsite transfer by the tires of the heavy equipment that drive throughout the yard. Katie remained on site with Lokeni to finish the sample collection. In total, 14 base and 11 sidewall field screening samples were collected from the excavation. All of the field screening samples were greater than 20 ppm. The base samples ranged from 46.7 to 3,096 ppm, and the sidewall samples ranged from 24.1 to 4,671 ppm. The highest PID results were from the West side of the excavation (near the light post) in an area with obvious staining and a strong hydrocarbon odor. Six analytical samples plus a duplicate were collected on 4/18/15 from the base and sidewalls of the excavation. Swing-tie measurements were obtained for each sample location and the approximate extent of the excavation.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/19/15
REPORT NO.:	6 of 6
SW FIELD REP.:	Kathryn Nolan & Jennifer Davis
PERMIT NO.:	

DAILY FIELD ACTIVITY REPORT

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	Partly cloudy; -11ºF with wind chill
Client North Slope Borough	General		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 0800 to 1625	
		from to	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full work day #5, Barrow Shop #2	This morning, Katie prepared the samples for shipping and packed the remaining gear coolers. She stopped by Alaska Airlines Cargo at around 1330 – the sample cooler was confirmed on the evening flight to Anchorage using Goldstreak and the PID & field gear cooler were confirmed on tomorrow's morning flight to Fairbanks using Priority. Katie left the water sample jars, extra cal gas, and bailers with Lokeni for our next trip. She and Lokeni met at Shop #3 around 1400 to observe the progress with the snowmelt. Lokeni was able to drain three drums into the non-leaking bin. The remaining nine drums were not completely melted so we labeled these drums with our "hazardous waste" labels. Lokeni said he would try to skim the fuel off the surface of the drums, but could wait to consolidate until SWI is back on site if advised. Lokeni and Katie also labeled the 3 bins and 1 additional drum that would be used for saturated absorbent pads. A significant amount of water was observed pooling on the floor of the shop under the garbage truck. There are two floor drains in the shop and according to Lokeni, the two drains are connected to a holding tank, maybe 150 to 300-gallons in capacity. It was difficult to tell if this water was from the leaking bins or from snow/icemelt directly off the truck. Some water was observed under the liners; therefore, the water in the holding tank may need to be sampled as well and should probably be addressed during the next trip up (Lokeni says they pump out the tank usually on an as-needed basis for off-site treatment and disposal). He would be willing to filter this water through the GAC system if needed. Lastly, Lokeni and Katie stopped at Shop #2 to label the supersacks. We used spray paint to number each bag. Lokeni says he will make some laminated signs indicating contaminated soil and will post them around the area tomorrow. Lokeni and Katie discussed possibly moving the supersacks to inside the secured (fenced) area at Shop #3. Lokeni elected not to place a liner in the excavation before Katie's departure due to the forecasted high winds.	

REVIEW BY (PM initial/date)

APRIL 2015 SITE VISIT 2

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/26/2015
REPORT NO.:	1 of 3
SW FIELD REP.:	Erica Blake
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Cloudy; 31°F on arrival. 5-10 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from N/A	to N/A
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Arrival in Barrow	Erica met with Lokeni Lokeni Jr. at the airport, and he assisted her in picking up the equipment and picking up the rental car. Lokeni took the field equipment and extra sample jars left from the previous trip, to the site (Shop #3). Erica picked up the two extra coolers of ice packs and soil jars from the Alaska Airlines Goldstreak, she confirmed they would be open at 08:30 am Tuesday morning. Ice packs were left in the rental car to remain frozen for samples to be collected on Monday, April 27. No site visit. Coordinated with Lokeni a time to meet on the morning of Monday, April 27 to begin the fieldwork.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/27/2015
REPORT NO.:	2 of 3
SW FIELD REP.:	Erica Blake
PERMIT NO.:	

DAILY FIELD ACTIVITY REPORT

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	16°F in morning, 33°F/34°F by mid-afternoon. 5-10 mph winds
Client North Slope Borough	General		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 0945 to 2030	
		from to	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Barrow Shop #2 and Shop #3	Lokeni and crew set up the GAC treatment system from 1140-1310. The 64-gpm pump pumped the sump water from the round 1,600-gallon holding tank through the micron filter first, before going through the GAC drum and flowing directly into the post-treatment holding tank. Once the filtration had a steady flow rate, Erica prepared jars for the second pre-treatment sampling, which was to be collected from the rectangular bin. The second set of pre-treatment samples was collected at 1330. The majority of the afternoon was spent working with the filtration system. At 1430, Lokeni and crew re-adjusted the filtration so that the sump water would pump through the micron filter, to the GAC drum, then through the second micron filter before entering the clean water holding tank. At 1545, Lokeni and crew consolidated all sediment from the two empty snow storage bins into two 85-gallon drums. The two drums used to store the consolidated sediment were labeled. Erica prepared the remaining water sample jars and soil sampling jars for sample collection. The post-treatment water samples and sediment samples were collected. Erica used a spoon to scoop wet sediment from the shovel into sample jars. By 1940 all necessary samples were collected, but not all of the water had been emptied from the bin through the filtration system. In addition to the 1.2 drums filled with sediment, Lokeni estimated approximately 1.5 85-gallon drums of potentially contaminated sediment remained at the bottom of the bin where the water was still filtering. Erica packaged the samples with appropriate ice packs while Lokeni and crew monitored the on-going filtering of the meltwater in the bin. Coolers were readied for shipment for Tuesday morning. They were placed in Shop #3 for the night. Erica departed site at 2030, Lokeni and crew shut off the filtering system and cleaned up the area.	Continue filtering all the water once. Wait for sample results before proceeding with any disposal methods.

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REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-002
REPORT DATE:	4/28/2015
REPORT NO.:	3 of 3
SW FIELD REP.:	Erica Blake
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	20°F on departure; 5-10 mph winds
Client	North Slope Borough	General		TIMES OF SITE VISITS:	
CC		Subcontractors for Geotechnical Construction		from N/A	to N/A
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Departing Barrow	Erica met with Lokeni and crew at Alaska Airlines Goldstreak. Once samples were guaranteed to be on the plane to Fairbanks, Erica departed the Alaska Airlines airport. No site work performed today. Samples taken to SGS North America Inc. laboratory in Fairbanks around 1500.	

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REVIEW BY (PM initial/date)

AUGUST 2015 SITE VISIT 3

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/23/15
REPORT NO.:	1 of 6
SW FIELD REP.:	Erica Blake
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast; 35°F; light winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 1400	to 1425
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Travel to Barrow from Fairbanks Initial Site Visit	Erica travels to Barrow from Fairbanks. Arrived in Barrow around 1100. At 1400, Erica connected with Lokeni at the field site, Shop #2. Erica observed the excavation was not covered and filled with water. Erica and Lokeni did not see any sheen at this time. Erica took some initial photos then departed the site at 1425.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/24/15
REPORT NO.:	2 of 6
SW FIELD REP.:	Erica Blake
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 34ºF w/ 10 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 1300	to 1750
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Partial Work Day, Shop #2 Site	Weather delays due to heavy fog. 1300 Erica calibrated the PID and counted water sampling jars. Erica and Lokeni arrived onsite around 1400. Winds were stronger and there was a noticeable sheen on the west side of the excavation that hadn't been previously observed. At 1430, Lokeni and an NSB laborer began pumping water out of the excavation hole. Using a 2-inch sump pump connected to a purge hose, 90% of the water was able to be pumped out. Small puddles remained that the 2-inch sump pump could not pump out, so Erica set up the peristaltic pump with 13/16 inch diameter tubing to suck dry the puddles. At 1615, two 85-gallon drums were full with potentially contaminated water. A third 85-gallon drum was ¾ full with potentially contaminated water. At 1620 the site was cleaned up, personal protective wear cleaned up, and a liner was placed over top the now dry, excavation. Rain was forecasted for the evening and throughout the night.	
	Departure from site	By 1750 Erica, Lokeni and NSB staff departed the Shop #2 site.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/25/15
REPORT NO.:	3 of 6
SW FIELD REP.:	Erica Blake and Drew Frick
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Rain in morning, 34°F, Overcast in afternoon, 48°F
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0815 to 1130	
				from 1300 to 1715	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full Work day, Shop #2 site	At 0815, Drew and Erica arrive at Shop #2. Observed lots of accumulated rainwater, more than what Erica had observed and pumped out Monday, August 24. Objects used to secure the cover had been moved around from the 20 to 30 mph winds. Drew and Erica head for the NSB office to calibrate the PID. 0918 Drew, Erica and Lokeni arrived back at the Shop #2 site. The excavation filled and close to flooding with potentially-contaminated water. An observable sheen on surface water outside the excavation could be seen flowing through a small drainage into the excavation on the east side. A sheen on the surface of the water in the excavation was also observed. A call to Valerie Webb was made to discuss the sheen flowing into the excavation. This sheen was sourced from a hydraulic fluid spill off the northeast corner of the site. Val suggested Drew and Erica use sorbent pads to remove the sheen, properly cover the excavation, and block the flow of water into the excavation. The drainage where the water was flowing in through should be fixed and blocked. An operator moved a small pile of some unclassified fill material (mix of gravel, sand and silt) and dropped it on top of the drainage. Once that material was dropped and blocked the flow into the site, Erica placed white oil sorbent pads down to soak up the oily sheen from the surface. At 1045 NSB staff responded to the hydraulic fluid spill and used a 5-cy supersack to contain the contaminated soil. Drew and Erica counted the supersacks; 29, 5-cy (28 black and 1 white). At 1330, Lokeni and NSB staff laborers return with a FASTANK (holding capacity about 2,500-gallons). While Lokeni and NSB staff set up the FASTANK and 2-inch sump pump, Drew and Erica observed on the west side of the excavation (near the light pole) bubbly, oily sheens. When the soil covered by the water was disturbed, the bubbles increased on the water's surface.	

REVIEW BY (PM initial/date)

DAILY FIELD ACTIVITY REPORT

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1		At 1350, the 2-inch sump pump was turned on and the process to pump out the water began. By 1420, parts of the excavation were visible so Drew and Erica began field screening. From 1420 to 1700 Drew and Erica field screened the entire excavation site. The FASTANK was full so Lokeni and NSB staff members obtained four additional 85-gallon drums to finish pumping the water into. At 1700, water pumping and field screening (30 locations) of the starting excavation layer was complete. There were seven, 85-gallon drums and 1, ~2,500-gallon FASTANK all mostly filled with potentially contaminated water. A large, new liner was placed over the excavation hole, and secured. Soil berms (5-6 inches tall) were piled on the eastern and western sides to prevent any rainfall runoff from flowing into the site. Heavy objects were placed around the cover to aid in keeping the cover from blowing away.	The water pumped into drums will require a pre- and post treatment water sample to be collected. Water will need to be run through the GAC system before post-treatment samples can be collected.
	Departure from site	Drew, Erica, Lokeni and NSB crew departed the site at 1800.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/26/15
REPORT NO.:	4 of 6
SW FIELD REP.:	Erica Blake and Drew Frick
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast/Partly Cloudy, 43°F, w/ 25-45 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0905 to 1130	
				from 1300 to 2200	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full Work day, Shop #2 site	Drew and Erica calibrate the PID and gather equipment from the NSB office. At 0850, they head to the Shop #2 site. Drew and Erica arrive onsite at 0905. At 1300, Drew, Erica, Lokeni, NSB staff, and two operators are ready to start excavating. By 1320, excavation work begins to remove the next approximate 6 inches of potentially contaminated soil. An operator, operated a back hoe to scrape and dig. Another operator worked a loader to hold open 5 yard supersacks which the potentially contaminated soil was to be put into for waste characterization. Erica and Drew started field screening areas around the excavation. By about 1545, all the field screen results from the removal of 6-12 inches had been recorded. Areas with the highest parts per million count were dug deeper. Four, 1 foot from excavation surface test pits were dug. Three out of the four test pits were still yielding high parts per million numbers and those three were dug even further (about another 1 foot). A middle test pit between the three that yielded the highest parts per million count was also dug (about 1.5 feet below the excavation surface). Between 1730 and 1800, the operators working the excavation equipment departed the site. Drew and Erica measured the depths of the test pits. The east test pit had water fill the bottom, and the south test pit was deep enough to reach tundra and sand material. NSB staff depart site around 1815 to get fencing material to put up around excavation and more zip ties to tighten the cover on the FASTANK. Drew, Erica and Lokeni begin laying out the liner over the site and securing it. Soil dug up from around the excavation was placed on the edges of the liner for weight, long wooded posts were used and any other heavy weighted object to keep the liner from blowing away. Winds were blowing about 20 mph.	

REVIEW BY (PM initial/date)

DAILY FIELD ACTIVITY REPORT

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Full Work day, Shop #2 site	By 1930, the site was secure and NSB staff had returned to the site with fencing material and more zip ties. No need for fencing material, however the zip ties were used to secure the cover on the FASTANK. At 2030, NSB staff and Lokeni were still securing things, winds had picked up to 30-40 mph. Drew labeled each supersack (total of 8 supersacks were filled). Each supersack was field screened five times to determine where in the sack to collect the soil samples from. Analytical soil samples were collected for GRO, BTEX, DRO and RRO.	
	Departed site	Once all the supersacks were sampled, Lokeni, Drew and Erica closed all the supersacks. Lokeni informs Drew and Erica that 60 mph winds with 10 to 12 foot swells along the coast were forecasted during the night. At 2200, Lokeni, Drew and Erica depart the site for the night.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/27/15
REPORT NO.:	5 of 6
SW FIELD REP.:	Erica Blake and Drew Frick
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 37°F, w/ about 31 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0950 to 1000	
				from 1800 to 1805	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Brief Site Visit to Shop #2 and packing up to return to Fairbanks Departed site	0930 Drew and Erica calibrated the PID. Lokeni informs Drew and Erica that part of the town by the shore is flooded, and that all operators have a new priority; to repair the roads. There will be no operators to assist with the excavation work. The weather is supposed to worsen, winds to increase back up for the afternoon. At 0950 Drew and Erica drive out to Shop #2 site. Everything is still covered and secure. Winds very strong. Lokeni informs them there is now a statewide emergency to repair the coastal flooding damages. Drew and Erica demobilize from the site and prepare to return to Fairbanks. Drew and Erica spent the afternoon writing up the summary and organizing field notes. At 1700 they drove out to the site to make sure the drums were indeed secured, they were. Drew and Erica left the site.	Shannon & Wilson, Inc. staff to return and finish the excavation, and collect pre-treatment water samples and post-treatment water samples.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	8/28/15
REPORT NO.:	6 of 6
SW FIELD REP.:	Erica Blake & Drew Frick
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 34°F; some snow flurries and 20-30 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from	to
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Departure from Barrow; Travel back to Fairbanks	Drew and Erica depart Barrow on the 1148 flight back to Fairbanks. No site visit today due to coastal flooding. Shannon & Wilson, Inc. will return to Barrow when the weather is calmer and operators are available to assist in finishing the excavation work.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SEPTEMBER 2015 SITE VISIT 4

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/02/2015
REPORT NO.:	1 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Partly Sunny, 40°F; some light winds
Client	North Slope Borough	General		TIMES OF SITE VISITS:	
CC		Subcontractors for Geotechnical Construction		from	to
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
1	Travel to Barrow from Fairbanks	Adam Wyborny and Erica Blake travel to Barrow from Fairbanks. Lokeni, Adam, and Erica plan to meet at the North Slope Borough (NSB) office around 0830.	
	Site visit (Shop #2)	Adam and Erica drove by the Shop #2 site. The excavation was covered well with a few pools of surface water on the liner. The drums and FASTANK were also covered and closed up well. Surface water could be observed around the Shop #2 parking lot.	

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REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/3/2015
REPORT NO.:	2 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	Overcast w/ fog, 36ºF; w/ 15 to 20 mph winds in afternoon
Client North Slope Borough	General		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 0930 to 1315	
		from 1450 to 1615	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0830 to calibrate the PID and gather equipment for the day's work. At 0930, Adam and Erica head to the Shop #2 site to meet NSB staff. At 0940 Adam and Erica arrive at the Shop #2 site. Adam, Erica, and NSB staff set up the 2-inch sump pump to remove the small pools of surface water that had accumulated on the liner. Surface water is fully purged from the excavation. Using a peristaltic pump with 13/16" diameter tubing and silicone tubing, Adam and Erica collected water samples from the six, full 85-gallon drums and the round, black FASTANK with about 2500-gallons of water. Erica placed 'Hazardous Waste – Hold for Test Results' labels on all six drums. Adam, Erica and NSB staff departed site around 1350. Around 1430, Adam, Erica and NSB staff arrives at the BUEC office. Adam, Erica and NSB staff head to Shop #2 site to wait for the electrician to come out at 1530. Around 1530, BUECI technician, Jeff Larson meets Adam, Erica and NSB staff at the excavation at Shop #2. Jeff mentioned we can excavate all the way up to the pole if we need to. He said the pole is approximately 10 feet deep and in frozen ground, but, we should only dig to a depth of 4 feet.	
	Departed Shop #2 site	Around 1620 Adam and Erica depart the site.	

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REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/4/2015
REPORT NO.:	3 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 33ºF to 36ºF; w/ 20 to 26 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0950 to 1130	
				from 1300 to 2015	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0830 to calibrate the PID and gather equipment for the day's work. At 0950, Adam and Erica head to the Shop #2 site to meet NSB staff. At 1000 Adam and Erica arrive at the Shop #2 site. Adam, Erica and NSB staff, remove liner covering the excavation site and relocate the 85-gallon drums to prepare the site for excavation activities. Equipment and operators were still attending to the emergency coastal flooding. At 1020 equipment becomes available and excavation continues. At 2000 Erica, Adam, and labor crew close the filled super sacks and cover the site.	
	Departed Shop #2 site	At 2015 Erica and Adam depart for the NSB office. At 2100 Erica and Adam depart for the hotel.	

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REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/5/2015
REPORT NO.:	4 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 36°F to 40°F
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0900 to 1200	
				from 1245 to 1745	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0830 to calibrate the PID and gather equipment for the day's work. At 0900, Adam and Erica head to the Shop #2 site to meet NSB staff. At 0930 Erica, Adam, and Dennis contact Derrick to assemble equipment and operators. The equipment and operators arrive at 0950 and excavation begins. From 0950 to 1200 Erica collects field screen samples while Adam assists with filling super sacks due to the lack of a labor crew. By 1315 the NE quadrant has been fully screened. From 1520 to 1700 excavation continues from areas that yielded the highest PID readings. At 1700 Lokeni called for an update on the excavation progress. From 1715 to 1745 the super sacks were secured and the liner was replaced. At 1745 Erica and Adam depart to site for the NSB office. Equipment is unloaded and the next day's excavation activities are discussed with Dennis. At 1830 Erica and Adam depart the NSB office for the hotel.	
	Departed Shop #2 site		

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/6/2015
REPORT NO.:	5 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 36°F to 43°F
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0900 to 1015	
				from 1045 to 1750	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0845 to calibrate the PID and gather equipment for the day's work. At 1045 Erica and Adam return to the excavation site and begin field screening the base of the excavation. While field screening it was observed that the holes left from the field screens were filling with water minutes after the sample was collected. Screening of the excavation is completed by 1350. Operators arrive and excavation commences around 1400. Excavation continues until 1605 when the backhoe operator departs. At 1605 Erica and Adam begin field screening the newly exposed surfaces along the expanded sidewalls and gathering excavation dimensional measurements. From 1700 to 1740 Erica and Adam close the newly filled super sacks and secure the site with the help of Shop #2 laborers. 1900 end of day	
	Departed Shop #2 site		

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/7/2015
REPORT NO.:	6 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 36ºF with light winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0910 to 1145	
				from 1305 to 2000	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Erica and Adam arrive at the NSB Office around 0845 to calibrate the PID and gather equipment for the day's work. Erica and Adam depart for NSB Shop #2 site at 0905. Erica and Adam arrive onsite at 0910. At 1100 the backhoe and loader arrive onsite with two additional laborers. Excavation continues. At 1800 worsening weather conditions force excavation activities to cease. 1800 to 2000 is spent securing the site by obtaining an additional liner and piling gravel on the perimeter to withstand high winds.	
	Departed Shop #2 site	At 2005 Erica and Adam depart the site for the NSB office. After equipment is unloaded Erica and Adam depart the NSB office for the hotel around 2030. 2130 to 2300 Erica and Adam spend the evening preparing a status report and estimating supply needs.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/8/2015
REPORT NO.:	7 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	Overcast, 34ºF with light winds and occasional snow flurries
Client North Slope Borough	General		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 0935 to 1115	
		from 1220 to 2000	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0850 to calibrate the PID and gather equipment for the day's work. At 0935 Erica and Adam arrive onsite and meet with Derrick. At 1045 Paul Johnson, a BEUCI employee, arrives to inspect the utility pole. Mr. Johnson believed the pole may be leaning slightly but did not believe it to be a danger. Mr. Johnson said he would return to check on the utility pole periodically but it was okay to continue excavation. 1220 Erica and Adam begin manually digging the NE sidewall. Three laborers arrived at 1330 but equipment was unavailable. Laborers manually shovel stockpiled material into super sacks while waiting for equipment to become available. 1515 Equipment is made available and excavation continues.	
	Departed Shop #2 site	From 1930 to 2000 the site is secured and Erica and Adam depart for the NSB office. Erica and Adam depart the NSB office for the hotel at 2015 after equipment is unloaded.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/9/2015
REPORT NO.:	8 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 30ºF with light winds and mild snow flurries
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0900 to 1900	
				from 1915 to 2000	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0840 to calibrate the PID and gather equipment for the day's work. Erica and Adam arrive onsite at 0900. Operators and laborers arrive at 0915 and excavation continues. At 1120 Erica and Adam begin field screening the SW sidewall near the southern corner of the site. At 1220, Paul Johnson from BEUCI returns to check on the utility pole. Mr. Johnson observes no change from the previous day. At 1300 excavation resumes while Erica and Adam continue field screening. From 1930 to 2000 the site is covered and secured. Adam and Erica depart the site at 2015.	
	Departed Shop #2 site		

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/10/2015
REPORT NO.:	9 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:	CONTRACTOR NAME AND CONTACT:	WEATHER & TEMP.	Overcast, 30°F to 32°F; winds 15 mph to 20 mph and mild snow flurries
Client North Slope Borough	General		
CC	Subcontractors for Geotechnical Construction	TIMES OF SITE VISITS:	
		from 1000 to 1145	
		from 1300 to 2030	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 1000 to calibrate the PID and gather equipment for the day's work. At 1030 Erica and Adam arrive on the Shop #2 site. Adam and Erica uncover the site and begin digging 6 inch test pits in the parking area near the Southern corner. Samples collected from the test pits continue to produce PID readings higher than 20 ppm. Excavation continues around 1320. At 1700 Erica and Adam depart the site. Everyone arrives back onsite by 1820 and excavation continues. Erica and Adam call Valerie Webb to update her on the parking area delineation. At 2000 Dennis and the labor crew begin covering the site and putting away equipment. Erica and Adam finish up their test pits and measure the outer perimeter of the delineation.	
	Departed Shop #2 site	Erica and Adam depart the site at 2030 for the NSB office. At 2050, after unloading the equipment Erica and Adam depart for their hotel.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/11/2015
REPORT NO.:	10 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 32ºF with winds 25 mph to 30 mph and snow
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0945 to 1215	
				from 1500 to 1735	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrive at the NSB Office around 0900 to calibrate the PID and gather equipment for the day's work. A brief meeting with Lokeni is held to discuss the direction of work. At 0945 Erica and Adam arrive onsite and begin preparing and attaching hazardous waste labels to the super sacks. At 1050 Erica and Adam depart the site for the NSB office. Lokeni, Erica, and Adam contact Valerie Webb to discuss the status of the site. Adam and Erica return to the site at 1120 to get photos for the report and estimates on the quantities of contaminated soil and water in containment. At 1215 Adam and Erica depart the site for the hotel. By 1500 Erica and Adam return to the Shop #2 site. By 1735 the weather conditions worsen.	
	Departed Shop #2 site	Adam, Erica, and Lokeni cover the site around 1900 and depart the site.	

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REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/12/2015
REPORT NO.:	11 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 34ºF to 36ºF with light snow and rain
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 1010	to 2000
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Full Work day, Shop #2 site	Adam and Erica arrived at the NSB office around 0930 to calibrate the PID and to gather equipment and sample containers. At 1010 Erica and Adam arrived onsite to find that roughly 2 inches of snow had accumulated on the liner within the excavation. Adam and Erica begin shoveling the snow out. Around 1100 Erica made a call to Valerie Webb to confirm the sampling plan while Adam continued shoveling. At 1145 Erica and Adam re-dug the five parking area test pits with the highest PID readings. Sampling of these test pits was completed by 1240. At 1300 Dennis arrived onsite and assisted Adam with shoveling out the remaining snow from the excavation and removing the liner. A significant amount of water from snowmelt accumulated at the northern corner of the excavation. From 1445 to 1600 Erica and Adam collected base of excavation samples, depth measurements, and classified the soil from the sample locations while Dennis pumped the surface water into the nearby FASTANK. From 1630 to 1800 Erica and Adam collected sidewall samples and their associated parameters, along with swing ties to each sample location from two known points. From 1800 to 1845 the site was secured. From 1845 to 1930 the selected representative supersack was field screened and sampled. Adam, Erica, and Dennis then drove to Shop #3 to photograph possible fenced-in locations where the supersacks could be stored.	
	Departed Shop #2 site	At 2000 Erica and Adam departed the site for the NSB office. Adam and Erica began preparing the samples for shipping and packing the coolers. Adam and Erica finished packing samples and equipment and departed for the night around 2330.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/13/2015
REPORT NO.:	12 of 12
SW FIELD REP.:	Erica Blake and Adam Wyborny
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release Additional Excavation

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast, 34ºF
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from	to
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Travel from Barrow to Fairbanks	From 0715 to 0900 Adam and Erica prepared tags to be placed on supersacks. Around 0930 Adam and Erica arrived at RAVN Air Cargo to ship the samples and equipment back to Fairbanks. The flight from Barrow to Fairbanks departed at 1220.	

LIMITATIONS: The Shannon & Wilson field representative is present on site solely to observe the field activities of the contractor identified and keep our client informed of the progress and quality of the work. The presence and activities of the Shannon & Wilson field representative and our acceptance of any non-conforming work or failure to reject any non-conforming work does not relieve the contractor from complying with its contract documents. Shannon & Wilson does not have the authority to direct the contractor's work. Any information provided by the Shannon & Wilson field inspector is intended solely to advise the contractor of the technical requirements of the plans and specifications and/or design concept. The contractor is solely responsible for its means, methods, sequences, procedures, construction site safety, quality of work, and adherence to the contract documents.

REVIEW BY (PM initial/date)

SEPTEMBER 2015 SITE VISIT 5

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY FIELD ACTIVITY REPORT

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/19/2015
REPORT NO.:	1 of 1
SW FIELD REP.:	Sheila Hinckley
PERMIT NO.:	

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast/Sun/Snow, 30°F; w/ 10-20 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 2000 to 2030	
				from	to

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Travel day and NSB Shop #2 site visit in Barrow Alaska	0800 – Arrive at Fairbanks International Airport. • 0840 – Flight departs Fairbanks • 1811 – Flight arrives in Barrow 1811 – 1930 • Pick-up truck rental. • Coordinate when to pick-up Goldstreak cargo shipment (GAC scrubber unit and sample cooler). Cargo shipments only available for pick-up after 2030. • Check into hotel and acquire a ride to the store to purchase a hose for purging snowmelt water from the FASTANK. • Unable to reach points of contact in Barrow. 2000 – Stop by Shop #2 site. The tank has frozen (approximately 2-5 inch layer). 2030 – Pick-up GAC drum and sample cooler. Loaded into the truck at 2050. 2100 – Done for the day.	

REVIEW BY (PM initial/date)

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

PROJECT NO.:	31-1-11765-005
REPORT DATE:	9/20/2015
REPORT NO.:	1 of 2
SW FIELD REP.:	Sheila Hinckley
PERMIT NO.:	

DAILY FIELD ACTIVITY REPORT

PROJECT NAME/LOCATION	NSB Barrow Shop #2 ULSD Release

REPORT SUBMITTED TO:		CONTRACTOR NAME AND CONTACT:		WEATHER & TEMP.	Overcast/Sun/Snow, 30°F; w/ 5-10 mph winds
Client	North Slope Borough	General			
CC		Subcontractors for Geotechnical Construction		TIMES OF SITE VISITS:	
				from 0800 to 1220	
				from 1430 to 1500	

CONSTRUCTION OBSERVATIONS

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Post treatment sampling of snowmelt water at Shop #2 site.	0800 – Put gel ice for samples in the hotel freezer. Prepare GAC drum for purging. Drive by Shop #2 and Shop #3. No personnel at either site. 0900 – Start setup at Shop #2. Three employees arrived at the site. Two operators attempted to contact Lokeni for me. One operator (RT) loaned me keys to Shop #3 to attempt to find two sample coolers left in Barrow from a previous site visit. 1000 – Start chipping at the ice layer in the tank. 1037 – Start gravity discharging from the tank. 1046 – 15 gallon GAC drum is full. Collect purge water into clear plastic trash bags. No sheen was observed. Treated purge water was cycled back into the tank. The hose stopped purging for a brief period. Restarted gravity feed. 1110 – Sample time. Sample I.D. = Post – Trmt FastTank – 1 • 1100 – Duplicate sample time. Sample I.D. = Post – Trmt FastTank – 2 Break down equipment. Clean up around site. Pack the 50 foot garden hose inside the GAC drum. Fill out GAC discharge form and re-taped it to the drum. 1220 Leave the site. 1230-1330 lunch. 1330 – 1500 • Organize gear for shipment. Fill out paperwork. • Check on gel ice at the hotel (still not frozen). • Drive by both sites; no personnel at either site. 1500 – 1630 break.	

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REVIEW BY (PM initial/date)

DAILY FIELD ACTIVITY REPORT

NO.	TOPIC AND LOCATION	DESCRIPTION OF FIELD ACTIVITY, OBSERVATIONS AND RECOMMENDATIONS TO OWNER	FURTHER ACTION RECOMMENDED TO OWNER
	Travel from Barrow Alaska to Fairbanks Alaska.	1630 – Check baggage and return rental vehicle. 1700 – Arrive at Wiley Post-Will Rogers Memorial Airport. 1830 – Board flight. 1859 – Flight departs Barrow. 2358 – Flight arrives in Fairbanks. 0000 – Collect baggage. 0030 – Drop samples and chain of custody at Shannon & Wilson, Inc. office.	

REVIEW BY (PM initial/date)

APPENDIX E

ADEC LABORATORY DATA REVIEW CHECKLISTS FOR SOIL AND WATER ANALYTICAL RESULTS AND SGS ANALYTICAL LABORATORY REPORTS

SGS LABORATORY REPORT
1158569 –SOIL RESULTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
907-479-0600

Report Number: **1158569**

Client Project: **1765-005 NSB Barrow Shop #2**

Dear Valerie Webb,

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 Jennifer 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.

_____

Jennifer Dawkins Date
Project Manager

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

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158569**
Project Name/Site: **1765-005 NSB Barrow Shop #2**
Project Contact: **Valerie Webb**

Refer to sample receipt form for information on sample condition.

SS-30 (1158569001) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (1800%) does not meet QC criteria due to matrix interference.

SS-31 (1158569002) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (388%) does not meet QC criteria due to matrix interference.

SS-32 (1158569003) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (639%) does not meet QC criteria due to matrix interference.

SS-33 (1158569004) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (304%) does not meet QC criteria due to matrix interference.

SS-34 (1158569005) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (397%) does not meet QC criteria due to matrix interference.

SS-35 (1158569006) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (460%) does not meet QC criteria due to matrix interference.

SS-36 (1158569007) PS

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).
AK101 - Surrogate recovery for 4-bromofluorobenzene (152%) does not meet QC criteria due to matrix interference.

SS-37 (1158569008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (236%) does not meet QC criteria due to matrix interference.

LCSD for HBN 1718993 [XXX/3401 (1287805) LCSD

AK102/103 - Surrogate recoveries in the LCSD for 5a androstane (134%) and n triacontane (130 %) do not meet QC criteria; however, the surrogate recoveries in the samples are within criteria.

1158569001(1287708MS) (1287709) MS

8021B - MSrecovery for o-Xylene (144%) does not meet QC criteria due to matrix interference. Refer to LCS/LSCS for accuracy requirements.

1158569001(1287708MSD) (1287710) MSD

8021B - MSD recovery for o-Xylene (146%) does not meet QC criteria due to matrix interference. Refer to LCS/LSCS for accuracy requirements.

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

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158569**
Project Name/Site: **1765-005 NSB Barrow Shop #2**
Project Contact: **Valerie Webb**

*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.

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SS-30	1158569001	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-31	1158569002	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-32	1158569003	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-33	1158569004	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-34	1158569005	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-35	1158569006	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-36	1158569007	08/26/2015	08/29/2015	Soil/Solid (dry weight)
SS-37	1158569008	08/26/2015	08/29/2015	Soil/Solid (dry weight)
Trip Blank	1158569009	08/26/2015	08/29/2015	Soil/Solid (dry weight)

Method	Method Description
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G

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Detectable Results Summary

Client Sample ID: **SS-30**
Lab Sample ID: 1158569001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	2130	mg/Kg
	Residual Range Organics	1830	mg/Kg
Volatile Fuels	Benzene	0.0105J	mg/Kg
	Ethylbenzene	0.981	mg/Kg
	Gasoline Range Organics	186	mg/Kg
	o-Xylene	0.396	mg/Kg
	P & M -Xylene	1.76	mg/Kg
	Toluene	0.0606	mg/Kg

Client Sample ID: **SS-31**
Lab Sample ID: 1158569002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1060	mg/Kg
	Residual Range Organics	1370	mg/Kg
Volatile Fuels	Benzene	0.0105J	mg/Kg
	Ethylbenzene	0.452	mg/Kg
	Gasoline Range Organics	44.8	mg/Kg
	o-Xylene	0.247	mg/Kg
	P & M -Xylene	0.945	mg/Kg
	Toluene	0.0330	mg/Kg

Client Sample ID: **SS-32**
Lab Sample ID: 1158569003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1020	mg/Kg
	Residual Range Organics	2650	mg/Kg
Volatile Fuels	Benzene	0.00664J	mg/Kg
	Ethylbenzene	0.374	mg/Kg
	Gasoline Range Organics	65.4	mg/Kg
	o-Xylene	0.484	mg/Kg
	P & M -Xylene	0.816	mg/Kg
	Toluene	0.0314	mg/Kg

Client Sample ID: **SS-33**
Lab Sample ID: 1158569004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1000	mg/Kg
	Residual Range Organics	1210	mg/Kg
Volatile Fuels	Benzene	0.00647J	mg/Kg
	Ethylbenzene	0.200	mg/Kg
	Gasoline Range Organics	28.8	mg/Kg
	o-Xylene	0.194	mg/Kg
	P & M -Xylene	0.400	mg/Kg
	Toluene	0.0162J	mg/Kg

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Detectable Results Summary

Client Sample ID: **SS-34**
Lab Sample ID: 1158569005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1790	mg/Kg
	Residual Range Organics	1550	mg/Kg
Volatile Fuels	Benzene	0.00643J	mg/Kg
	Ethylbenzene	0.292	mg/Kg
	Gasoline Range Organics	36.9	mg/Kg
	o-Xylene	0.313	mg/Kg
	P & M -Xylene	0.566	mg/Kg
	Toluene	0.0229	mg/Kg

Client Sample ID: **SS-35**
Lab Sample ID: 1158569006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1160	mg/Kg
	Residual Range Organics	1430	mg/Kg
Volatile Fuels	Ethylbenzene	0.0976	mg/Kg
	Gasoline Range Organics	37.8	mg/Kg
	o-Xylene	0.309	mg/Kg
	P & M -Xylene	0.236	mg/Kg
	Toluene	0.00991J	mg/Kg

Client Sample ID: **SS-36**
Lab Sample ID: 1158569007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	954	mg/Kg
	Residual Range Organics	2470	mg/Kg
Volatile Fuels	Ethylbenzene	0.0610	mg/Kg
	Gasoline Range Organics	24.0	mg/Kg
	o-Xylene	0.180	mg/Kg
	P & M -Xylene	0.194	mg/Kg
	Toluene	0.00868J	mg/Kg

Client Sample ID: **SS-37**
Lab Sample ID: 1158569008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	458	mg/Kg
	Residual Range Organics	595	mg/Kg
Volatile Fuels	Ethylbenzene	0.0764	mg/Kg
	Gasoline Range Organics	18.5	mg/Kg
	o-Xylene	0.225	mg/Kg
	P & M -Xylene	0.376	mg/Kg
	Toluene	0.00711J	mg/Kg

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Results of **SS-30**

Client Sample ID: **SS-30**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569001
Lab Project ID: 1158569

Collection Date: 08/26/15 21:00
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2130		213	66.2	mg/Kg	10		09/02/15 15:40
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 15:40

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 15:40
Container ID: 1158569001-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.411 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1830		213	66.2	mg/Kg	10		09/02/15 15:40
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 15:40

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 15:40
Container ID: 1158569001-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.411 g
Prep Extract Vol: 1 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-30**

Client Sample ID: **SS-30**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569001
Lab Project ID: 1158569

Collection Date: 08/26/15 21:00
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	186		21.4	6.42	mg/Kg	10		08/31/15 15:51
Surrogates								
4-Bromofluorobenzene (surr)	1800	*	50-150		%	10		08/31/15 15:51

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 15:51
Container ID: 1158569001-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:00
Prep Initial Wt./Vol.: 78.118 g
Prep Extract Vol: 30.9173 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0105	J	0.0107	0.00343	mg/Kg	1		09/01/15 00:36
Ethylbenzene	0.981		0.0214	0.00668	mg/Kg	1		09/01/15 00:36
o-Xylene	0.396		0.0214	0.00668	mg/Kg	1		09/01/15 00:36
P & M -Xylene	1.76		0.0428	0.0128	mg/Kg	1		09/01/15 00:36
Toluene	0.0606		0.0214	0.00668	mg/Kg	1		09/01/15 00:36
Surrogates								
1,4-Difluorobenzene (surr)	85.3		72-119		%	1		09/01/15 00:36

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/01/15 00:36
Container ID: 1158569001-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:00
Prep Initial Wt./Vol.: 78.118 g
Prep Extract Vol: 30.9173 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-31**

Client Sample ID: **SS-31**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569002
Lab Project ID: 1158569

Collection Date: 08/26/15 21:05
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1060		213	66.1	mg/Kg	10		09/02/15 15:50
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 15:50

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 15:50
Container ID: 1158569002-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.219 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1370		213	66.1	mg/Kg	10		09/02/15 15:50
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 15:50

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 15:50
Container ID: 1158569002-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.219 g
Prep Extract Vol: 1 mL

Results of **SS-31**

Client Sample ID: **SS-31**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569002
Lab Project ID: 1158569

Collection Date: 08/26/15 21:05
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	44.8		2.62	0.786	mg/Kg	1		08/31/15 21:44
Surrogates								
4-Bromofluorobenzene (surr)	388	*	50-150		%	1		08/31/15 21:44

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 21:44
Container ID: 1158569002-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:05
Prep Initial Wt./Vol.: 59.56 g
Prep Extract Vol: 29.0731 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0105	J	0.0131	0.00419	mg/Kg	1		08/31/15 21:44
Ethylbenzene	0.452		0.0262	0.00817	mg/Kg	1		08/31/15 21:44
o-Xylene	0.247		0.0262	0.00817	mg/Kg	1		08/31/15 21:44
P & M -Xylene	0.945		0.0524	0.0157	mg/Kg	1		08/31/15 21:44
Toluene	0.0330		0.0262	0.00817	mg/Kg	1		08/31/15 21:44
Surrogates								
1,4-Difluorobenzene (surr)	83.5		72-119		%	1		08/31/15 21:44

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 21:44
Container ID: 1158569002-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:05
Prep Initial Wt./Vol.: 59.56 g
Prep Extract Vol: 29.0731 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-32**

Client Sample ID: **SS-32**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569003
Lab Project ID: 1158569

Collection Date: 08/26/15 21:10
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1020		216	66.8	mg/Kg	10		09/02/15 16:00
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 16:00

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 16:00
Container ID: 1158569003-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.126 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	2650		216	66.8	mg/Kg	10		09/02/15 16:00
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 16:00

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 16:00
Container ID: 1158569003-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.126 g
Prep Extract Vol: 1 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-32**

Client Sample ID: **SS-32**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569003
Lab Project ID: 1158569

Collection Date: 08/26/15 21:10
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	65.4		2.29	0.687	mg/Kg	1		08/31/15 22:03
Surrogates								
4-Bromofluorobenzene (surr)	639	*	50-150		%	1		08/31/15 22:03

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 22:03
Container ID: 1158569003-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:10
Prep Initial Wt./Vol.: 71.98 g
Prep Extract Vol: 30.4709 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00664	J	0.0115	0.00367	mg/Kg	1		08/31/15 22:03
Ethylbenzene	0.374		0.0229	0.00715	mg/Kg	1		08/31/15 22:03
o-Xylene	0.484		0.0229	0.00715	mg/Kg	1		08/31/15 22:03
P & M -Xylene	0.816		0.0458	0.0137	mg/Kg	1		08/31/15 22:03
Toluene	0.0314		0.0229	0.00715	mg/Kg	1		08/31/15 22:03
Surrogates								
1,4-Difluorobenzene (surr)	84.4		72-119		%	1		08/31/15 22:03

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 22:03
Container ID: 1158569003-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:10
Prep Initial Wt./Vol.: 71.98 g
Prep Extract Vol: 30.4709 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-33**

Client Sample ID: **SS-33**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569004
Lab Project ID: 1158569

Collection Date: 08/26/15 21:12
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):94.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1000		211	65.5	mg/Kg	10		09/02/15 14:41
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 14:41

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 14:41
Container ID: 1158569004-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.201 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1210		211	65.5	mg/Kg	10		09/02/15 14:41
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 14:41

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 14:41
Container ID: 1158569004-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.201 g
Prep Extract Vol: 1 mL

Results of **SS-33**

Client Sample ID: **SS-33**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569004
Lab Project ID: 1158569

Collection Date: 08/26/15 21:12
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):94.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	28.8		2.31	0.693	mg/Kg	1		08/31/15 22:22
Surrogates								
4-Bromofluorobenzene (surr)	304	*	50-150		%	1		08/31/15 22:22

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 22:22
Container ID: 1158569004-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:12
Prep Initial Wt./Vol.: 66.57 g
Prep Extract Vol: 28.9462 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00647	J	0.0116	0.00370	mg/Kg	1		08/31/15 22:22
Ethylbenzene	0.200		0.0231	0.00721	mg/Kg	1		08/31/15 22:22
o-Xylene	0.194		0.0231	0.00721	mg/Kg	1		08/31/15 22:22
P & M -Xylene	0.400		0.0462	0.0139	mg/Kg	1		08/31/15 22:22
Toluene	0.0162	J	0.0231	0.00721	mg/Kg	1		08/31/15 22:22
Surrogates								
1,4-Difluorobenzene (surr)	82.8		72-119		%	1		08/31/15 22:22

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 22:22
Container ID: 1158569004-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:12
Prep Initial Wt./Vol.: 66.57 g
Prep Extract Vol: 28.9462 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-34**

Client Sample ID: **SS-34**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569005
Lab Project ID: 1158569

Collection Date: 08/26/15 21:15
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1790		213	66.1	mg/Kg	10		09/02/15 14:51
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 14:51

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 14:51
Container ID: 1158569005-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.356 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1550		213	66.1	mg/Kg	10		09/02/15 14:51
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 14:51

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 14:51
Container ID: 1158569005-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.356 g
Prep Extract Vol: 1 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-34**

Client Sample ID: **SS-34**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569005
Lab Project ID: 1158569

Collection Date: 08/26/15 21:15
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):92.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	36.9		2.14	0.643	mg/Kg	1		08/31/15 22:41
Surrogates								
4-Bromofluorobenzene (surr)	397	*	50-150		%	1		08/31/15 22:41

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 22:41
Container ID: 1158569005-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:15
Prep Initial Wt./Vol.: 77.221 g
Prep Extract Vol: 30.6717 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00643	J	0.0107	0.00343	mg/Kg	1		08/31/15 22:41
Ethylbenzene	0.292		0.0214	0.00669	mg/Kg	1		08/31/15 22:41
o-Xylene	0.313		0.0214	0.00669	mg/Kg	1		08/31/15 22:41
P & M -Xylene	0.566		0.0429	0.0129	mg/Kg	1		08/31/15 22:41
Toluene	0.0229		0.0214	0.00669	mg/Kg	1		08/31/15 22:41
Surrogates								
1,4-Difluorobenzene (surr)	83.3		72-119		%	1		08/31/15 22:41

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 22:41
Container ID: 1158569005-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:15
Prep Initial Wt./Vol.: 77.221 g
Prep Extract Vol: 30.6717 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-35**

Client Sample ID: **SS-35**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569006
Lab Project ID: 1158569

Collection Date: 08/26/15 21:20
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):93.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1160		212	65.6	mg/Kg	10		09/02/15 15:00
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 15:00

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 15:00
Container ID: 1158569006-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.24 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1430		212	65.6	mg/Kg	10		09/02/15 15:00
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 15:00

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 15:00
Container ID: 1158569006-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.24 g
Prep Extract Vol: 1 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-35**

Client Sample ID: **SS-35**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569006
Lab Project ID: 1158569

Collection Date: 08/26/15 21:20
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):93.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	37.8		1.91	0.572	mg/Kg	1		08/31/15 23:00
Surrogates								
4-Bromofluorobenzene (surr)	460	*	50-150		%	1		08/31/15 23:00

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 23:00
Container ID: 1158569006-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:20
Prep Initial Wt./Vol.: 84.823 g
Prep Extract Vol: 30.3182 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00477	U	0.00953	0.00305	mg/Kg	1		08/31/15 23:00
Ethylbenzene	0.0976		0.0191	0.00595	mg/Kg	1		08/31/15 23:00
o-Xylene	0.309		0.0191	0.00595	mg/Kg	1		08/31/15 23:00
P & M -Xylene	0.236		0.0381	0.0114	mg/Kg	1		08/31/15 23:00
Toluene	0.00991	J	0.0191	0.00595	mg/Kg	1		08/31/15 23:00
Surrogates								
1,4-Difluorobenzene (surr)	81.1		72-119		%	1		08/31/15 23:00

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 23:00
Container ID: 1158569006-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:20
Prep Initial Wt./Vol.: 84.823 g
Prep Extract Vol: 30.3182 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-36**

Client Sample ID: **SS-36**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569007
Lab Project ID: 1158569

Collection Date: 08/26/15 21:23
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	954		211	65.4	mg/Kg	10		09/02/15 15:10
Surrogates								
5a Androstane (surr)	0	*	50-150		%	10		09/02/15 15:10

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 15:10
Container ID: 1158569007-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.024 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	2470		211	65.4	mg/Kg	10		09/02/15 15:10
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/02/15 15:10

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 15:10
Container ID: 1158569007-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.024 g
Prep Extract Vol: 1 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-36**

Client Sample ID: **SS-36**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569007
Lab Project ID: 1158569

Collection Date: 08/26/15 21:23
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):94.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	24.0		2.48	0.744	mg/Kg	1		08/31/15 23:20
Surrogates								
4-Bromofluorobenzene (surr)	125		50-150		%	1		08/31/15 23:20

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 23:20
Container ID: 1158569007-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:23
Prep Initial Wt./Vol.: 59.882 g
Prep Extract Vol: 28.1423 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00620	U	0.0124	0.00397	mg/Kg	1		08/31/15 23:20
Ethylbenzene	0.0610		0.0248	0.00774	mg/Kg	1		08/31/15 23:20
o-Xylene	0.180		0.0248	0.00774	mg/Kg	1		08/31/15 23:20
P & M -Xylene	0.194		0.0496	0.0149	mg/Kg	1		08/31/15 23:20
Toluene	0.00868	J	0.0248	0.00774	mg/Kg	1		08/31/15 23:20
Surrogates								
1,4-Difluorobenzene (surr)	77.7		72-119		%	1		08/31/15 23:20

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 23:20
Container ID: 1158569007-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:23
Prep Initial Wt./Vol.: 59.882 g
Prep Extract Vol: 28.1423 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **SS-37**

Client Sample ID: **SS-37**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569008
Lab Project ID: 1158569

Collection Date: 08/26/15 21:30
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):95.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	458		83.2	25.8	mg/Kg	4		09/02/15 15:30
Surrogates								
5a Androstane (surr)	55.6		50-150		%	4		09/02/15 15:30

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Analyst: AYC
Analytical Date/Time: 09/02/15 15:30
Container ID: 1158569008-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.247 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	595		83.2	25.8	mg/Kg	4		09/02/15 15:30
Surrogates								
n-Triacontane-d62 (surr)	69.7		50-150		%	4		09/02/15 15:30

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Analyst: AYC
Analytical Date/Time: 09/02/15 15:30
Container ID: 1158569008-A

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 09/01/15 22:23
Prep Initial Wt./Vol.: 30.247 g
Prep Extract Vol: 1 mL

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Results of **SS-37**

Client Sample ID: **SS-37**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569008
Lab Project ID: 1158569

Collection Date: 08/26/15 21:30
Received Date: 08/29/15 11:00
Matrix: Soil/Solid (dry weight)
Solids (%):95.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	18.5		1.82	0.547	mg/Kg	1		08/31/15 23:39
Surrogates								
4-Bromofluorobenzene (surr)	236	*	50-150		%	1		08/31/15 23:39

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 23:39
Container ID: 1158569008-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:30
Prep Initial Wt./Vol.: 82.834 g
Prep Extract Vol: 28.8267 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00456	U	0.00912	0.00292	mg/Kg	1		08/31/15 23:39
Ethylbenzene	0.0764		0.0182	0.00569	mg/Kg	1		08/31/15 23:39
o-Xylene	0.225		0.0182	0.00569	mg/Kg	1		08/31/15 23:39
P & M -Xylene	0.376		0.0365	0.0109	mg/Kg	1		08/31/15 23:39
Toluene	0.00711	J	0.0182	0.00569	mg/Kg	1		08/31/15 23:39
Surrogates								
1,4-Difluorobenzene (surr)	78		72-119		%	1		08/31/15 23:39

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 23:39
Container ID: 1158569008-B

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:30
Prep Initial Wt./Vol.: 82.834 g
Prep Extract Vol: 28.8267 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1765-005 NSB Barrow Shop #2**
Lab Sample ID: 1158569009
Lab Project ID: 1158569

Collection Date: 08/26/15 21:00
Received Date: 08/29/15 11:00
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	1.23	U	2.45	0.734	mg/Kg	1		08/31/15 17:45
Surrogates								
4-Bromofluorobenzene (surr)	93.4		50-150		%	1		08/31/15 17:45

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 08/31/15 17:45
Container ID: 1158569009-A

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:00
Prep Initial Wt./Vol.: 51.092 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00610	U	0.0122	0.00391	mg/Kg	1		08/31/15 17:45
Ethylbenzene	0.0123	U	0.0245	0.00763	mg/Kg	1		08/31/15 17:45
o-Xylene	0.0123	U	0.0245	0.00763	mg/Kg	1		08/31/15 17:45
P & M -Xylene	0.0245	U	0.0489	0.0147	mg/Kg	1		08/31/15 17:45
Toluene	0.0123	U	0.0245	0.00763	mg/Kg	1		08/31/15 17:45
Surrogates								
1,4-Difluorobenzene (surr)	76		72-119		%	1		08/31/15 17:45

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 08/31/15 17:45
Container ID: 1158569009-A

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 08/26/15 21:00
Prep Initial Wt./Vol.: 51.092 g
Prep Extract Vol: 25 mL

Print Date: 09/03/2015 4:49:00PM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1719117 [SPT/9719]
Blank Lab ID: 1288065

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	99.8			%

Batch Information

Analytical Batch: SPT9719
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R
Analytical Date/Time: 9/2/2015 10:05:00AM

Duplicate Sample Summary

Original Sample ID: 1154899003
Duplicate Sample ID: 1288067
Analysis Date: 09/02/2015 10:05
Matrix: Soil/Solid (dry weight)

QC for Samples:

1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	81.1	80.5	%	0.71	(< 15)

Batch Information

Analytical Batch: SPT9719
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 09/03/2015 4:49:04PM

Method Blank

Blank ID: MB for HBN 1718971 [VXX/27813]
Blank Lab ID: 1287703

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008, 1158569009

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	89	50-150		%

Batch Information

Analytical Batch: VFC12623
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2015 2:16:00PM

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 8/31/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158569 [VXX27813]
Blank Spike Lab ID: 1287706
Date Analyzed: 08/31/2015 15:13

Spike Duplicate ID: LCSD for HBN 1158569 [VXX27813]
Spike Duplicate Lab ID: 1287707
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008, 1158569009

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	10.0	10.4	104	10.0	10.0	100	(60-120)	3.60	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	89.7	90	1.25	88.2	88	(50-150)	1.70	

Batch Information

Analytical Batch: **VFC12623**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX27813**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1718971 [VXX/27813]
Blank Lab ID: 1287703

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008, 1158569009

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0180J	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	77.3	72-119		%

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2015 2:16:00PM

Prep Batch: VXX27813
Prep Method: SW5035A
Prep Date/Time: 8/31/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158569 [VXX27813]
Blank Spike Lab ID: 1287704
Date Analyzed: 08/31/2015 14:35

Spike Duplicate ID: LCSD for HBN 1158569 [VXX27813]
Spike Duplicate Lab ID: 1287705
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008, 1158569009

Results by **SW8021B**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.45	116	1.25	1.47	118	(75-125)	1.70	(< 20)
Ethylbenzene	1.25	1.35	108	1.25	1.38	110	(75-125)	2.10	(< 20)
o-Xylene	1.25	1.31	105	1.25	1.33	107	(75-125)	2.00	(< 20)
P & M -Xylene	2.50	2.67	107	2.50	2.73	109	(80-125)	2.30	(< 20)
Toluene	1.25	1.41	113	1.25	1.44	115	(70-125)	2.00	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	82	82	1.25	82.3	82	(72-119)	0.39	

Batch Information

Analytical Batch: **VFC12623**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX27813**
Prep Method: **SW5035A**
Prep Date/Time: **08/31/2015 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1287708
MS Sample ID: 1287709 MS
MSD Sample ID: 1287710 MSD

Analysis Date: 08/31/2015 15:51
Analysis Date: 08/31/2015 16:10
Analysis Date: 08/31/2015 16:29
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008, 1158569009

Results by **SW8021B**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Benzene	0.0400U	8.00	9.63	120		8.00	9.43	118		75-125	2.00	(< 20)
Ethylbenzene	0.846	8.00	9.58	109		8.00	9.48	108		75-125	1.00	(< 20)
o-Xylene	0.400	8.00	12.0	144	*	8.00	12.0	146	*	75-125	0.73	(< 20)
P & M -Xylene	1.55	16.0	19.4	112		16.0	19.3	111		80-125	0.63	(< 20)
Toluene	0.0880J	8.00	8.93	111		8.00	8.78	109		70-125	1.80	(< 20)
Surrogates												
1,4-Difluorobenzene (surr)		8.00	6.64	83		8.00	6.70	84		72-119	0.98	

Batch Information

Analytical Batch: VFC12623
Analytical Method: SW8021B
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 8/31/2015 4:10:00PM

Prep Batch: VXX27813
Prep Method: AK101 Extraction (S)
Prep Date/Time: 8/31/2015 8:00:00AM
Prep Initial Wt./Vol.: 78.12g
Prep Extract Vol: 25.00mL

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 1718993 [XXX/34015]
Blank Lab ID: 1287803

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	98.9	60-120		%

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/2/2015 10:53:00AM

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 9/1/2015 10:23:30PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158569 [XXX34015]
Blank Spike Lab ID: 1287804
Date Analyzed: 09/02/2015 11:43

Spike Duplicate ID: LCSD for HBN 1158569 [XXX34015]
Spike Duplicate Lab ID: 1287805
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

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	133	80	167	162	97	(75-125)	20.00	(< 20)
Surrogates									
5a Androstane (surr)	3.33	114	114	3.33	134	134	* (60-120)	16.40	

Batch Information

Analytical Batch: **XFC12054**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX34015**
Prep Method: **SW3550C**
Prep Date/Time: **09/01/2015 22:23**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1718993 [XXX/34015]
Blank Lab ID: 1287803

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

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)	118	60-120		%

Batch Information

Analytical Batch: XFC12054
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: AYC
Analytical Date/Time: 9/2/2015 10:53:00AM

Prep Batch: XXX34015
Prep Method: SW3550C
Prep Date/Time: 9/1/2015 10:23:30PM
Prep Initial Wt./Vol.: 30 g
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 1158569 [XXX34015]
Blank Spike Lab ID: 1287804
Date Analyzed: 09/02/2015 11:43

Spike Duplicate ID: LCSD for HBN 1158569 [XXX34015]
Spike Duplicate Lab ID: 1287805
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158569001, 1158569002, 1158569003, 1158569004, 1158569005, 1158569006, 1158569007, 1158569008

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	156	94	167	182	109	(60-120)	15.60	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	111	111	3.33	130	130	* (60-120)	16.20	

Batch Information

Analytical Batch: **XFC12054**
Analytical Method: **AK103**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **AYC**

Prep Batch: **XXX34015**
Prep Method: **SW3550C**
Prep Date/Time: **09/01/2015 22:23**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

1158569

RUSH

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-OF-CUSTODY RECORD

Laboratory SGS Page 1 of 1
Attn:

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	DRO/RRO AK102/103	GRO/BTEX AK101/8021B					Total Number of Containers	Remarks/Matrix
SS-30	1AB	21:00	8-26-15		X	X	X					2	Soil
SS-31	2AB	21:05											
SS-32	3AB	21:10											
SS-33	4AB	21:12											
SS-34	5AB	21:15											
SS-35	6AB	21:20											
SS-36	7AB	21:23											
SS-37	8AB	21:30											
Trip Blank	9A	—	—										

Project Information	
Project Number:	1765-005
Project Name:	NSB Barrow Shop #2
Contact:	VAL/ELB
Ongoing Project?	Yes ☒ No ☐
Sampler:	ALF/ELB

Sample Receipt	
Total Number of Containers	16
COC Seals/Intact? Y/N/NA	—
Received Good Cond./Cold	—
Delivery Method: (attach shipping bill, if any)	Hand

Instructions	
Requested Turnaround Time:	3-day rush
Special Instructions:	Bill to SWI

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Andrew Frick	Signature:	Signature:
Time: 14:35	Time: 1500	Time:
Printed Name: Andrew Frick	Printed Name: Ben	Printed Name:
Date: 8-28-15	Date: 8/28/15	Date:
Company: SWI	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature:	Signature:	Signature:
Time: 1435	Time:	Time: 1105
Printed Name: Ben Dawkins	Printed Name:	Printed Name: Erik Johnson
Date: 8/28/15	Date:	Date: 8/29/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

TB=4.4°C

2 side
1-2 #241

No. 33569

SGS

1158569

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No N/A	☐*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 4.4 w/Therm. ID: D7 Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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"	Yes No Yes No N/A Yes No N/A	☐*Exemption permitted if chilled & collected <8hrs ago* *Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*
Delivery Method: Client (hand carried) Other:____	Tracking/AB# : Or see attached Or N/A	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:____	Yes No N/A	*Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.*
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No N/A Yes No N/A	

Additional notes (if applicable):

3-day rush due 9.2.15.

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

1158569

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ ☑	☐ ☐	☐ ☐	***Exemption permitted if sampler hand carries/delivers.*** 2 Side
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6 °C, were samples collected <8 hours ago?* *If <0 °C, were all sample containers ice free?* Cooler ID: [1] _____ @ 1.2 _____ w/ Therm.ID: 241 _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☐Client (hand carried) ☐USPS ☑Lynden ☐AK Air ☐Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*		☑	☐	
	Yes	N/A	No	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☑ ☑	☐ ☐ ☐	☐ ☐ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.***
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☐Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☑ ☐ ☑	☐ ☐ ☑ ☐	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☐ ☐	☑ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☐	☑	☐	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☑	☐	☐	Rush due 9/2/15
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: EDJ PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☐	☑	☐	Peer Reviewed by:
Additional notes (if applicable):				

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1158569001-A	No Preservative Required	OK			
1158569001-B	Methanol field pres. 4 C	OK			
1158569002-A	No Preservative Required	OK			
1158569002-B	Methanol field pres. 4 C	OK			
1158569003-A	No Preservative Required	OK			
1158569003-B	Methanol field pres. 4 C	OK			
1158569004-A	No Preservative Required	OK			
1158569004-B	Methanol field pres. 4 C	OK			
1158569005-A	No Preservative Required	OK			
1158569005-B	Methanol field pres. 4 C	OK			
1158569006-A	No Preservative Required	OK			
1158569006-B	Methanol field pres. 4 C	OK			
1158569007-A	No Preservative Required	OK			
1158569007-B	Methanol field pres. 4 C	OK			
1158569008-A	No Preservative Required	OK			
1158569008-B	Methanol field pres. 4 C	OK			
1158569009-A	Methanol field pres. 4 C	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.
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.
BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by: Jennifer Davis

Title: Environmental Scientist Date: October 08, 2015

CS Report Name: NSB Barrow Shop#2 - Pre-treated Soils Report Date: September 03, 2015

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1158569

ADEC File Number: ADEC RecKey Number:

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

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

      Analyses were performed by SGS North America, Inc. in Anchorage, Alaska.

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:

      Temperature blanks and/or the cooler were measured within the acceptable temperature range of 0 °C to 6 °C upon receipt at the SGS Fairbanks receiving office and Anchorage laboratory. This range has been approved by ADEC.

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:

Samples were received in good condition.

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

There were no discrepancies that needed to be reported by the laboratory.

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

The data quality and usability were not affected; see above.

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:

Project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, and SS-36 had surrogate recoveries that did not meet QC criteria for 5a-androstane (0%) and n-triacontane (0%) due to sample dilution (10x) for the analysis by AK102 /AK103. Project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, SS-36, and SS-37 had surrogate recoveries that did not meet QC criteria (biased high) due to matrix interference for the analysis by AK101. The LCSD surrogate recoveries for 5a-androstane and n-triacontane did not meet QC criteria (biased high) for the analysis via AK102/AK103; however, the surrogate recoveries in the LCS were within criteria. The MS (1287709) and MSD (1287710) surrogate recoveries for o-xylene did not meet QC criteria (biased high) due to matrix interference.

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

No corrective actions were required.

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

The laboratory does not specify any effect on the data quality or usability due to the QC failures; refer to sections 5.d., 6.a., 6.b., and 6.c. for further assessment.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
☒Yes ☐ No ☐NA (Please explain.) Comments:

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

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

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

The project samples are being analyzed to characterize the soils and prepare a waste profile for disposal of the material. Cleanup levels are not applicable for this project.

e. Data quality or usability affected?

Comments:

The data quality and usability are not considered to be affected; see above.

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:

However, toluene was detected in the method blank at an estimated concentration of 0.0180J mg/kg, less than the practical quantitation limit (PQL), now referred to as the limit of quantitation (LOQ).

iii. If above PQL, what samples are affected?

Comments:

Project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, SS-36, and SS-37 were affected by the method-blank detection.

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

Project samples SS-30, SS-31, SS-32, and SS-34 had toluene detections that were greater than the PQL, but less than five times the method blank detection concentration for toluene. These samples were flagged as "UB" and are considered "not detected" at the reported concentration for toluene. Project samples SS-33, SS-35, SS-36 and SS-37 had toluene detections that were less than the PQL. These samples were flagged "UB" and are considered "not detected at the LOQ" for toluene.

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

Comments:

The data quality was affected, as described above.

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:

An LCS/LCSD and an MS/MSD sample was reported for BTEX analysis.
LCS/LCSD samples were reported for GRO, DRO, and RRO analyses.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
☐Yes ☐ No ☒NA (Please explain.) Comments:

Only organic analysis were requested in this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
☒Yes ☐ No ☐NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
☒Yes ☐ No ☐NA (Please explain.) Comments:

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

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☐Yes ☐ No ☒NA (Please explain.) Comments:

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

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:

The surrogate recoveries for 5a-androstane (DRO) and n-triacontane (RRO) were outside QC criteria due to sample dilution for project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, and SS-36.

The surrogate recovery for 4-bromofluorobenzene was outside QC criteria (biased high) due to matrix interference for project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, SS-36 and SS-37.

The surrogate recoveries in the LCSD for 5a-androstane and n-triacontane were outside QC criteria; however, surrogate recoveries in the LCS were within QC criteria.

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:

Results of GRO analyses in project samples SS-30, SS-31, SS-32, SS-33, SS-34, SS-35, SS-36, and SS-37 are flagged with "JH*" (i.e. biased high) as a result of matrix interference associated with the 4-bromofluorbenzene surrogate recovery failure.

The DRO and RRO project samples are not considered affected by the surrogate-recovery failures (5a-androstane and n-triacontane) associated with sample dilutions.

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

The data quality is affected, as noted above.

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

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:

The COC did not clearly identify that the trip blank and VOA samples were transported in the same cooler. However, only one cooler was submitted to the laboratory and we can assume the trip blank was transported with the samples at all times.

iii. All results less than PQL?
☒Yes ☐ No ☐NA (Please explain.) Comments:

Project analytes were not detected in the trip blank.

iv. If above PQL, what samples are affected?
Comments:

The samples were not considered affected because the project analytes were not detected in the trip blank.

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

The data quality and usability is not considered to be affected; see above.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
☐Yes ☒ No ☐NA (Please explain.) Comments:

Eight project samples were submitted to the laboratory: one for each of eight supersacks, the contents of which are being analyzed for waste characterization and disposal purposes. No field duplicate pair was submitted due to the nature of the project.

ii. Submitted blind to lab?
☐Yes ☐ No ☒NA (Please explain.) Comments:

A field duplicate pair was not submitted with this work order.

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:

A field-duplicate pair was not submitted with this work order.

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

Comments:

The samples were being analyzed for waste characterization and disposal purposes. No field duplicates were submitted due to the nature of the project. The data quality and usability were not affected.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

Equipment blanks were not submitted with this work order due to the nature of the project.

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

Equipment blanks were not required for the project.

ii. If above PQL, what samples are affected?

Comments:

N/A; equipment blanks were not required for the project.

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

Comments:

The data quality and usability were not affected; see above.

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

a. Defined and appropriate?

☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no other data flags/qualifiers.

SGS LABORATORY REPORT
1158630 – SOIL RESULTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
907-479-0600

Report Number: **1158630**

Client Project: **31-1-11765-005 BrwULSDShop#2**

Dear Valerie Webb,

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 Jennifer 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.

_____

Jennifer Dawkins Date
Project Manager

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

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158630**
Project Name/Site: **31-1-11765-005 BrwULSDShop#2**
Project Contact: **Valerie Webb**

Refer to sample receipt form for information on sample condition.

T480 (1158630002) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (340%) does not meet QC criteria due to matrix interference.

T40 (1158630003) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (246%) does not meet QC criteria due to matrix interference.
AK102- Surrogate recoveries for 5a-androstane (0%) do not meet QC criteria due to sample dilution (40X).

T45 (1158630004) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (372%) does not meet QC criteria due to matrix interference.

T36 (1158630006) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (211%) does not meet QC criteria due to matrix interference.

EI-1 (1158630007) PS

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

EI-2 (1158630008) PS

AK103 - Surrogate recovery for d n-triacontane (0%) does not meet QC criteria due to sample dilution (40X).
AK102- Surrogate recovery for 5a-androstane (1530%) does not meet QC criteria due to hydrocarbon interference.

EI-3 (1158630009) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (23.2%) does not meet QC criteria. Sample was analyzed twice and results confirmed.
AK102- Surrogate recovery for 5a-androstane (331%) does not meet QC criteria due to sample hydrocarbon interference.

EI-4 (1158630010) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (32%) does not meet QC criteria. Sample was analyzed twice and results confirmed.
AK103 - Surrogate recovery for d n-triacontane (0%) does not meet QC criteria due to sample dilution (40X).
AK102 - Surrogate recovery for 5a-androstane (599%) does not meet QC criteria due to hydrocarbon interference.

EI-40 (1158630011) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (31.8%) does not meet QC criteria. Sample was analyzed twice and results confirmed.
AK103 - Surrogate recovery for d n-triacontane (0%) does not meet QC criteria due to sample dilution (40X).
AK102 - Surrogate recovery for 5a-androstane (558%) does not meet QC criteria due to hydrocarbon interference.

EI-5 (1158630012) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (36.5%) does not meet QC criteria. Sample was analyzed twice and results confirmed.
AK102 - Surrogate recovery for 5a-androstane (167%) does not meet QC criteria due to hydrocarbon interference.

EI-6 (1158630013) PS

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

SW-1 (1158630015) PS

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Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158630**
Project Name/Site: **31-1-11765-005 BrwULSDShop#2**
Project Contact: **Valerie Webb**

AK101 - Surrogate recovery for 4-bromofluorobenzene (151%) does not meet QC criteria due to matrix interference.

SW-3 (1158630017) PS

8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (125%) does not meet QC criteria due to sample dilution (5X).
8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to matrix interference..

SW-30 (1158630018) PS

8270D SIM - The PAH LOQs are elevated due to sample dilution. The sample was diluted due to matrix interference.

SW-4 (1158630019) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (219%) does not meet QC criteria due to matrix interference.
AK102/103 - Surrogate recoveries for d n-triacontane (0%) do not meet QC criteria due to sample dilution (10X).

SS46 (1158630024) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (454%) does not meet QC criteria due to matrix interference.
8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (220%) does not meet QC criteria due to sample dilution (10X).

SS460 (1158630025) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene (453%) does not meet QC criteria due to matrix interference.

LCS for HBN 1720980 [XXX/34210 (1292621) LCS

8270D SIM - LCS recovery for anthracene (48.4%) and benzo[a]pyrene (42.8%) does not meet QC criteria. The associated samples could not be re-extracted within hold time.

MB for HBN 1720912 [XXX/34197] (1292301) MB

AK102 - DRO is detect in the MB greater than one half the LOQ, but less than the LOQ.

1158630025(1292578MS) (1292423) MS

AK101/8021B - MS recovery for o-xylene (15%) does not meet QC criteria due to matrix interference. Refer to LCS/LSCS for accuracy requirements.

1155479008MS (1292622) MS

8270D SIM - PAH surrogate recovery for terphenyl-d14 (128%) and 2-fluorobiphenyl (244%) does not meet QC criteria due to sample dilution (20X).
8270D SIM - MS recovery for several analytes does not meet QC criteria.

1158630025(1292578MSD) (1292424) MSD

AK101/8021B - MSD recovery for o-xlyene (13%) does not meet QC criteria due to matrix interference. Refer to LCS/LSCS for accuracy requirements.

1155479008MSD (1292623) MSD

8270D SIM - PAH surrogate recovery for 2-fluorobiphenyl (147%) does not meet QC criteria due to sample dilution (20X).
8270D SIM - MSD recovery for several analytes does not meet QC criteria.
8270D SIM - MS/MSD RPD for several analytes does not meet QC criteria.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIMS (PAH)				
1158630024	SS46	XMS8982	Naphthalene	SP
1292622	1155479008MS	XMS8982	Anthracene	PNF
1292622	1155479008MS	XMS8982	Benzo[b]Fluoranthene	SP
1292622	1155479008MS	XMS8982	Benzo[k]fluoranthene	SP
1292622	1155479008MS	XMS8982	Chrysene	RP
1292623	1155479008MSD	XMS8982	Anthracene	PNF
1292623	1155479008MSD	XMS8982	Benzo(a)Anthracene	BLC
1292623	1155479008MSD	XMS8982	Benzo[k]fluoranthene	RP
1298088	CVC for HBN 1722766 [XMS/8982]	XMS8982	Anthracene	RP
1298088	CVC for HBN 1722766 [XMS/8982]	XMS8982	Benzo[a]pyrene	RP
1298088	CVC for HBN 1722766 [XMS/8982]	XMS8982	Benzo[k]fluoranthene	RP
1298088	CVC for HBN 1722766 [XMS/8982]	XMS8982	Chrysene	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.

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
T48	1158630001	09/12/2015	09/16/2015	Soil/Solid (dry weight)
T480	1158630002	09/12/2015	09/16/2015	Soil/Solid (dry weight)
T40	1158630003	09/12/2015	09/16/2015	Soil/Solid (dry weight)
T45	1158630004	09/12/2015	09/16/2015	Soil/Solid (dry weight)
T19	1158630005	09/12/2015	09/16/2015	Soil/Solid (dry weight)
T36	1158630006	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-1	1158630007	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-2	1158630008	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-3	1158630009	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-4	1158630010	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-40	1158630011	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-5	1158630012	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-6	1158630013	09/12/2015	09/16/2015	Soil/Solid (dry weight)
EI-7	1158630014	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-1	1158630015	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-2	1158630016	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-3	1158630017	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-30	1158630018	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-4	1158630019	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-5	1158630020	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-6	1158630021	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-7	1158630022	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SW-8	1158630023	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SS46	1158630024	09/12/2015	09/16/2015	Soil/Solid (dry weight)
SS460	1158630025	09/12/2015	09/16/2015	Soil/Solid (dry weight)
TripBlank1	1158630026	09/12/2015	09/16/2015	Soil/Solid (dry weight)
TripBlank2	1158630027	09/12/2015	09/16/2015	Soil/Solid (dry weight)

Method	Method Description
8270D SIMS (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
SM21 2540G	Percent Solids SM2540G

Detectable Results Summary

Client Sample ID: **T48**
Lab Sample ID: 1158630001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1110	mg/Kg
	Residual Range Organics	658	mg/Kg
Volatile Fuels	Ethylbenzene	0.0667	mg/Kg
	Gasoline Range Organics	64.6	mg/Kg
	o-Xylene	1.84	mg/Kg
	P & M -Xylene	0.883	mg/Kg
	Toluene	0.0263	mg/Kg

Client Sample ID: **T480**
Lab Sample ID: 1158630002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1060	mg/Kg
	Residual Range Organics	649	mg/Kg
Volatile Fuels	Ethylbenzene	0.0557	mg/Kg
	Gasoline Range Organics	32.1	mg/Kg
	o-Xylene	0.963	mg/Kg
	P & M -Xylene	0.439	mg/Kg
	Toluene	0.0268	mg/Kg

Client Sample ID: **T40**
Lab Sample ID: 1158630003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	4920	mg/Kg
	Residual Range Organics	250	mg/Kg
Volatile Fuels	Benzene	0.00275J	mg/Kg
	Ethylbenzene	0.210	mg/Kg
	Gasoline Range Organics	23.9	mg/Kg
	o-Xylene	1.21	mg/Kg
	P & M -Xylene	1.35	mg/Kg
	Toluene	0.0153	mg/Kg

Client Sample ID: **T45**
Lab Sample ID: 1158630004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1250	mg/Kg
	Residual Range Organics	2120	mg/Kg
Volatile Fuels	Ethylbenzene	0.562	mg/Kg
	Gasoline Range Organics	38.2	mg/Kg
	o-Xylene	2.65	mg/Kg
	P & M -Xylene	2.48	mg/Kg
	Toluene	0.0935	mg/Kg

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Detectable Results Summary

Client Sample ID: **T19**
Lab Sample ID: 1158630005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	38.1	mg/Kg
	Residual Range Organics	140	mg/Kg
Volatile Fuels	Ethylbenzene	0.0265	mg/Kg
	Gasoline Range Organics	1.84	mg/Kg
	o-Xylene	0.0634	mg/Kg
	P & M -Xylene	0.0952	mg/Kg
	Toluene	0.0170	mg/Kg

Client Sample ID: **T36**
Lab Sample ID: 1158630006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	235	mg/Kg
	Residual Range Organics	152	mg/Kg
Volatile Fuels	Ethylbenzene	0.0130J	mg/Kg
	Gasoline Range Organics	4.99	mg/Kg
	o-Xylene	0.0499	mg/Kg
	P & M -Xylene	0.0740	mg/Kg

Client Sample ID: **EI-1**
Lab Sample ID: 1158630007

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Acenaphthylene	0.0229J	mg/Kg
	Benzo[g,h,i]perylene	0.182	mg/Kg
	Fluorene	0.0150J	mg/Kg
Semivolatile Organic Fuels	Diesel Range Organics	854	mg/Kg
	Residual Range Organics	5200	mg/Kg
Volatile Fuels	Ethylbenzene	0.0152J	mg/Kg
	Gasoline Range Organics	2.61J	mg/Kg
	o-Xylene	0.0624	mg/Kg
	P & M -Xylene	0.0561J	mg/Kg

Client Sample ID: **EI-2**
Lab Sample ID: 1158630008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	770	mg/Kg
	Residual Range Organics	3710	mg/Kg
Volatile Fuels	Benzene	0.00931J	mg/Kg
	Gasoline Range Organics	1.95J	mg/Kg
	o-Xylene	0.0212J	mg/Kg
	Toluene	0.0141J	mg/Kg

Client Sample ID: **EI-3**
Lab Sample ID: 1158630009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	895	mg/Kg
	Residual Range Organics	5270	mg/Kg
Volatile Fuels	Gasoline Range Organics	3.33J	mg/Kg
	Toluene	0.184	mg/Kg

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Detectable Results Summary

Client Sample ID: **EI-4**
Lab Sample ID: 1158630010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	795	mg/Kg
	Residual Range Organics	3960	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.75J	mg/Kg
	Toluene	0.107	mg/Kg

Client Sample ID: **EI-40**
Lab Sample ID: 1158630011

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	719	mg/Kg
	Residual Range Organics	4390	mg/Kg
Volatile Fuels	Gasoline Range Organics	1.53J	mg/Kg
	Toluene	0.144	mg/Kg

Client Sample ID: **EI-5**
Lab Sample ID: 1158630012

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	557	mg/Kg
	Residual Range Organics	3590	mg/Kg
Volatile Fuels	Gasoline Range Organics	5.38J	mg/Kg
	Toluene	0.821	mg/Kg

Client Sample ID: **EI-6**
Lab Sample ID: 1158630013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	877	mg/Kg
	Residual Range Organics	5550	mg/Kg
Volatile Fuels	Gasoline Range Organics	3.27J	mg/Kg
	Toluene	0.552	mg/Kg

Client Sample ID: **EI-7**
Lab Sample ID: 1158630014

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	188	mg/Kg
	Residual Range Organics	59.5	mg/Kg
Volatile Fuels	Gasoline Range Organics	11.2	mg/Kg
	o-Xylene	0.381	mg/Kg
	P & M -Xylene	0.0851	mg/Kg

Client Sample ID: **SW-1**
Lab Sample ID: 1158630015

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1530	mg/Kg
	Residual Range Organics	1320	mg/Kg
Volatile Fuels	Ethylbenzene	0.0120J	mg/Kg
	Gasoline Range Organics	16.7	mg/Kg
	o-Xylene	0.184	mg/Kg
	P & M -Xylene	0.0843	mg/Kg
	Toluene	0.0232	mg/Kg

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Detectable Results Summary

Client Sample ID: **SW-2**
Lab Sample ID: 1158630016

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	62.4	mg/Kg
	Residual Range Organics	337	mg/Kg
Volatile Fuels	Gasoline Range Organics	2.14J	mg/Kg
	o-Xylene	0.0171J	mg/Kg
	P & M -Xylene	0.0169J	mg/Kg

Client Sample ID: **SW-3**
Lab Sample ID: 1158630017

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	236	mg/Kg
	Residual Range Organics	186	mg/Kg
Volatile Fuels	Gasoline Range Organics	6.05	mg/Kg
	o-Xylene	0.162	mg/Kg
	P & M -Xylene	0.0324J	mg/Kg

Client Sample ID: **SW-30**
Lab Sample ID: 1158630018

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	194	mg/Kg
	Residual Range Organics	191	mg/Kg
Volatile Fuels	Ethylbenzene	0.00832J	mg/Kg
	Gasoline Range Organics	6.18	mg/Kg
	o-Xylene	0.192	mg/Kg
	P & M -Xylene	0.0859	mg/Kg
	Toluene	0.00681J	mg/Kg

Client Sample ID: **SW-4**
Lab Sample ID: 1158630019

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	263	mg/Kg
	Residual Range Organics	917	mg/Kg
Volatile Fuels	Ethylbenzene	0.0236	mg/Kg
	Gasoline Range Organics	14.9	mg/Kg
	o-Xylene	0.419	mg/Kg
	P & M -Xylene	0.152	mg/Kg
	Toluene	0.00636J	mg/Kg

Client Sample ID: **SW-5**
Lab Sample ID: 1158630020

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	8.55J	mg/Kg
	Residual Range Organics	70.2	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.860J	mg/Kg

Client Sample ID: **SW-6**
Lab Sample ID: 1158630021

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	18.0J	mg/Kg
	Residual Range Organics	22.2	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.495J	mg/Kg

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Detectable Results Summary

Client Sample ID: **SW-7**
Lab Sample ID: 1158630022

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	56.6	mg/Kg
	Residual Range Organics	141	mg/Kg
Volatile Fuels	Ethylbenzene	0.00819J	mg/Kg
	Gasoline Range Organics	1.02J	mg/Kg
	o-Xylene	0.00594J	mg/Kg
	P & M -Xylene	0.0177J	mg/Kg

Client Sample ID: **SW-8**
Lab Sample ID: 1158630023

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	19.8J	mg/Kg
	Residual Range Organics	34.1	mg/Kg
Volatile Fuels	Gasoline Range Organics	0.811J	mg/Kg

Client Sample ID: **SS46**
Lab Sample ID: 1158630024

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	2.61	mg/Kg
	2-Methylnaphthalene	0.331	mg/Kg
	Acenaphthene	0.0593	mg/Kg
	Fluorene	0.128	mg/Kg
	Naphthalene	0.150	mg/Kg
	Phenanthrene	0.0339J	mg/Kg
Semivolatile Organic Fuels	Diesel Range Organics	628	mg/Kg
	Residual Range Organics	732	mg/Kg
Volatile Fuels	Benzene	0.00908J	mg/Kg
	Ethylbenzene	0.137	mg/Kg
	Gasoline Range Organics	55.6	mg/Kg
	o-Xylene	1.08	mg/Kg
	P & M -Xylene	0.332	mg/Kg
	Toluene	0.0197	mg/Kg

Client Sample ID: **SS460**
Lab Sample ID: 1158630025

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	633	mg/Kg
	Residual Range Organics	715	mg/Kg
Volatile Fuels	Benzene	0.00729J	mg/Kg
	Ethylbenzene	0.143	mg/Kg
	Gasoline Range Organics	61.1	mg/Kg
	o-Xylene	1.24	mg/Kg
	P & M -Xylene	0.385	mg/Kg
	Toluene	0.0188J	mg/Kg

Client Sample ID: **TripBlank1**
Lab Sample ID: 1158630026

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	1.51J	mg/Kg

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Results of **T48**

Client Sample ID: **T48**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630001
Lab Project ID: 1158630

Collection Date: 09/12/15 12:05
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):86.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1110		91.8	28.5	mg/Kg	4		09/26/15 20:01
Surrogates								
5a Androstane (surr)	90.2		50-150		%	4		09/26/15 20:01

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 20:01
Container ID: 1158630001-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.086 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	658		91.8	28.5	mg/Kg	4		09/26/15 20:01
Surrogates								
n-Triacontane-d62 (surr)	119		50-150		%	4		09/26/15 20:01

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 20:01
Container ID: 1158630001-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.086 g
Prep Extract Vol: 1 mL

Results of **T48**

Client Sample ID: **T48**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630001
Lab Project ID: 1158630

Collection Date: 09/12/15 12:05
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):86.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	64.6		18.5	5.56	mg/Kg	10		09/19/15 05:55
Surrogates								
4-Bromofluorobenzene (surr)	60.7		50-150		%	10		09/19/15 05:55

Batch Information

Analytical Batch: VFC12681
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/19/15 05:55
Container ID: 1158630001-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:05
Prep Initial Wt./Vol.: 131.25 g
Prep Extract Vol: 42.2343 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00463	U	0.00926	0.00296	mg/Kg	1		09/21/15 15:58
Ethylbenzene	0.0667		0.0185	0.00578	mg/Kg	1		09/21/15 15:58
o-Xylene	1.84		0.185	0.0578	mg/Kg	10		09/19/15 05:55
P & M -Xylene	0.883		0.370	0.111	mg/Kg	10		09/19/15 05:55
Toluene	0.0263		0.0185	0.00578	mg/Kg	1		09/21/15 15:58
Surrogates								
1,4-Difluorobenzene (surr)	88.1		72-119		%	10		09/19/15 05:55

Batch Information

Analytical Batch: VFC12681
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/19/15 05:55
Container ID: 1158630001-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:05
Prep Initial Wt./Vol.: 131.25 g
Prep Extract Vol: 42.2343 mL

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 15:58
Container ID: 1158630001-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:05
Prep Initial Wt./Vol.: 131.25 g
Prep Extract Vol: 42.2343 mL

Results of **T480**

Client Sample ID: **T480**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630002
Lab Project ID: 1158630

Collection Date: 09/12/15 11:55
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1060		88.6	27.5	mg/Kg	4		09/26/15 20:21
Surrogates								
5a Androstane (surr)	92.2		50-150		%	4		09/26/15 20:21

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 20:21
Container ID: 1158630002-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.393 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	649		88.6	27.5	mg/Kg	4		09/26/15 20:21
Surrogates								
n-Triacontane-d62 (surr)	124		50-150		%	4		09/26/15 20:21

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 20:21
Container ID: 1158630002-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.393 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

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Results of **T480**

Client Sample ID: **T480**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630002
Lab Project ID: 1158630

Collection Date: 09/12/15 11:55
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):89.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	32.1		1.75	0.525	mg/Kg	1		09/20/15 15:26
Surrogates								
4-Bromofluorobenzene (surr)	340	*	50-150		%	1		09/20/15 15:26

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 15:26
Container ID: 1158630002-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 123.057 g
Prep Extract Vol: 38.3945 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00438	U	0.00875	0.00280	mg/Kg	1		09/20/15 15:26
Ethylbenzene	0.0557		0.0175	0.00546	mg/Kg	1		09/20/15 15:26
o-Xylene	0.963		0.0175	0.00546	mg/Kg	1		09/20/15 15:26
P & M -Xylene	0.439		0.0350	0.0105	mg/Kg	1		09/20/15 15:26
Toluene	0.0268		0.0175	0.00546	mg/Kg	1		09/20/15 15:26
Surrogates								
1,4-Difluorobenzene (surr)	90.4		72-119		%	1		09/20/15 15:26

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 15:26
Container ID: 1158630002-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 123.057 g
Prep Extract Vol: 38.3945 mL

Print Date: 10/15/2015 5:29:06PM

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Results of **T40**

Client Sample ID: **T40**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630003
Lab Project ID: 1158630

Collection Date: 09/12/15 12:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	4920		873	271	mg/Kg	40		09/30/15 10:55
Surrogates								
5a Androstane (surr)	0	*	50-150		%	40		09/30/15 10:55

Batch Information

Analytical Batch: XFC12114
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/30/15 10:55
Container ID: 1158630003-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.058 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	250		87.3	27.1	mg/Kg	4		09/26/15 20:42
Surrogates								
n-Triacontane-d62 (surr)	89.1		50-150		%	4		09/26/15 20:42

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 20:42
Container ID: 1158630003-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.058 g
Prep Extract Vol: 1 mL

Results of **T40**

Client Sample ID: **T40**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630003
Lab Project ID: 1158630

Collection Date: 09/12/15 12:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	23.9		1.53	0.458	mg/Kg	1		09/20/15 16:23
Surrogates								
4-Bromofluorobenzene (surr)	246	*	50-150		%	1		09/20/15 16:23

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 16:23
Container ID: 1158630003-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:30
Prep Initial Wt./Vol.: 129.121 g
Prep Extract Vol: 36.0272 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00275	J	0.00763	0.00244	mg/Kg	1		09/20/15 16:23
Ethylbenzene	0.210		0.0153	0.00476	mg/Kg	1		09/20/15 16:23
o-Xylene	1.21		0.0153	0.00476	mg/Kg	1		09/20/15 16:23
P & M -Xylene	1.35		0.0305	0.00915	mg/Kg	1		09/20/15 16:23
Toluene	0.0153		0.0153	0.00476	mg/Kg	1		09/20/15 16:23
Surrogates								
1,4-Difluorobenzene (surr)	90.5		72-119		%	1		09/20/15 16:23

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 16:23
Container ID: 1158630003-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:30
Prep Initial Wt./Vol.: 129.121 g
Prep Extract Vol: 36.0272 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **T45**

Client Sample ID: **T45**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630004
Lab Project ID: 1158630

Collection Date: 09/12/15 12:34
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):93.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1250		84.4	26.2	mg/Kg	4		09/26/15 21:02
Surrogates								
5a Androstane (surr)	100		50-150		%	4		09/26/15 21:02

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 21:02
Container ID: 1158630004-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.361 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	2120		84.4	26.2	mg/Kg	4		09/26/15 21:02
Surrogates								
n-Triacontane-d62 (surr)	138		50-150		%	4		09/26/15 21:02

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 21:02
Container ID: 1158630004-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.361 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **T45**

Client Sample ID: **T45**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630004
Lab Project ID: 1158630

Collection Date: 09/12/15 12:34
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):93.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	38.2		1.83	0.550	mg/Kg	1		09/20/15 16:42
Surrogates								
4-Bromofluorobenzene (surr)	372	*	50-150		%	1		09/20/15 16:42

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 16:42
Container ID: 1158630004-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:34
Prep Initial Wt./Vol.: 89.476 g
Prep Extract Vol: 30.7093 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00458	U	0.00917	0.00293	mg/Kg	1		09/20/15 16:42
Ethylbenzene	0.562		0.0183	0.00572	mg/Kg	1		09/20/15 16:42
o-Xylene	2.65		0.0183	0.00572	mg/Kg	1		09/20/15 16:42
P & M -Xylene	2.48		0.0367	0.0110	mg/Kg	1		09/20/15 16:42
Toluene	0.0935		0.0183	0.00572	mg/Kg	1		09/20/15 16:42
Surrogates								
1,4-Difluorobenzene (surr)	89.6		72-119		%	1		09/20/15 16:42

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 16:42
Container ID: 1158630004-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:34
Prep Initial Wt./Vol.: 89.476 g
Prep Extract Vol: 30.7093 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **T19**

Client Sample ID: **T19**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630005
Lab Project ID: 1158630

Collection Date: 09/12/15 12:38
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	38.1		20.7	6.43	mg/Kg	1		09/26/15 17:17
Surrogates								
5a Androstane (surr)	93.6		50-150		%	1		09/26/15 17:17

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 17:17
Container ID: 1158630005-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.405 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	140		20.7	6.43	mg/Kg	1		09/26/15 17:17
Surrogates								
n-Triacontane-d62 (surr)	98		50-150		%	1		09/26/15 17:17

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 17:17
Container ID: 1158630005-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.405 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **T19**

Client Sample ID: **T19**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630005
Lab Project ID: 1158630

Collection Date: 09/12/15 12:38
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.84		1.39	0.418	mg/Kg	1		09/19/15 06:14
Surrogates								
4-Bromofluorobenzene (surr)	104		50-150		%	1		09/19/15 06:14

Batch Information

Analytical Batch: VFC12681
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/19/15 06:14
Container ID: 1158630005-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:38
Prep Initial Wt./Vol.: 115.146 g
Prep Extract Vol: 30.5426 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00348	U	0.00697	0.00223	mg/Kg	1		09/19/15 06:14
Ethylbenzene	0.0265		0.0139	0.00435	mg/Kg	1		09/19/15 06:14
o-Xylene	0.0634		0.0139	0.00435	mg/Kg	1		09/19/15 06:14
P & M -Xylene	0.0952		0.0279	0.00836	mg/Kg	1		09/19/15 06:14
Toluene	0.0170		0.0139	0.00435	mg/Kg	1		09/19/15 06:14
Surrogates								
1,4-Difluorobenzene (surr)	88.2		72-119		%	1		09/19/15 06:14

Batch Information

Analytical Batch: VFC12681
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/19/15 06:14
Container ID: 1158630005-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:38
Prep Initial Wt./Vol.: 115.146 g
Prep Extract Vol: 30.5426 mL

Results of **T36**

Client Sample ID: **T36**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630006
Lab Project ID: 1158630

Collection Date: 09/12/15 12:40
Received Date: 09/16/15 09:04
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	235		22.9	7.09	mg/Kg	1		09/26/15 17:58
Surrogates								
5a Androstane (surr)	89.7		50-150		%	1		09/26/15 17:58

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 17:58
Container ID: 1158630006-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.381 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	152		22.9	7.09	mg/Kg	1		09/26/15 17:58
Surrogates								
n-Triacontane-d62 (surr)	92.3		50-150		%	1		09/26/15 17:58

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 17:58
Container ID: 1158630006-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.381 g
Prep Extract Vol: 1 mL

Results of **T36**

Client Sample ID: **T36**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630006
Lab Project ID: 1158630

Collection Date: 09/12/15 12:40
Received Date: 09/16/15 09:04
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	4.99		1.84	0.551	mg/Kg	1		09/20/15 17:01
Surrogates								
4-Bromofluorobenzene (surr)	211	*	50-150		%	1		09/20/15 17:01

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 17:01
Container ID: 1158630006-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:40
Prep Initial Wt./Vol.: 138.783 g
Prep Extract Vol: 43.99 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00459	U	0.00918	0.00294	mg/Kg	1		09/20/15 17:01
Ethylbenzene	0.0130	J	0.0184	0.00573	mg/Kg	1		09/20/15 17:01
o-Xylene	0.0499		0.0184	0.00573	mg/Kg	1		09/20/15 17:01
P & M -Xylene	0.0740		0.0367	0.0110	mg/Kg	1		09/20/15 17:01
Toluene	0.00920	U	0.0184	0.00573	mg/Kg	1		09/20/15 17:01
Surrogates								
1,4-Difluorobenzene (surr)	86.7		72-119		%	1		09/20/15 17:01

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 17:01
Container ID: 1158630006-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 12:40
Prep Initial Wt./Vol.: 138.783 g
Prep Extract Vol: 43.99 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-1**

Client Sample ID: **EI-1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630007
Lab Project ID: 1158630

Collection Date: 09/12/15 15:03
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):79.0
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
2-Methylnaphthalene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Acenaphthene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Acenaphthylene	0.0229	J	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Anthracene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Benzo(a)Anthracene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Benzo[a]pyrene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Benzo[b]Fluoranthene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Benzo[g,h,i]perylene	0.182		0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Benzo[k]fluoranthene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Chrysene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Dibenzo[a,h]anthracene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Fluoranthene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Fluorene	0.0150	J	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Indeno[1,2,3-c,d] pyrene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Naphthalene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Phenanthrene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Pyrene	0.0158	U	0.0316	0.00948	mg/Kg	1		10/14/15 20:17
Surrogates								
2-Fluorobiphenyl (surr)	64.2		46-115		%	1		10/14/15 20:17
Terphenyl-d14 (surr)	76.8		58-113		%	1		10/14/15 20:17

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 10/14/15 20:17
Container ID: 1158630007-A

Prep Batch: XXX34210
Prep Method: SW3550C
Prep Date/Time: 09/22/15 16:14
Prep Initial Wt./Vol.: 22.513 g
Prep Extract Vol: 5 mL

Results of **EI-1**

Client Sample ID: **EI-1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630007
Lab Project ID: 1158630

Collection Date: 09/12/15 15:03
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):79.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	854		506	157	mg/Kg	4		09/26/15 21:23
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/26/15 21:23

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 21:23
Container ID: 1158630007-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.031 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	5200		506	157	mg/Kg	4		09/26/15 21:23
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/26/15 21:23

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 21:23
Container ID: 1158630007-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.031 g
Prep Extract Vol: 5 mL

Results of **EI-1**

Client Sample ID: **EI-1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630007
Lab Project ID: 1158630

Collection Date: 09/12/15 15:03
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):79.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.61	J	3.30	0.990	mg/Kg	1		09/20/15 17:20
Surrogates								
4-Bromofluorobenzene (surr)	66		50-150		%	1		09/20/15 17:20

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 17:20
Container ID: 1158630007-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:03
Prep Initial Wt./Vol.: 80.083 g
Prep Extract Vol: 41.7889 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00825	U	0.0165	0.00528	mg/Kg	1		09/20/15 17:20
Ethylbenzene	0.0152	J	0.0330	0.0103	mg/Kg	1		09/20/15 17:20
o-Xylene	0.0624		0.0330	0.0103	mg/Kg	1		09/20/15 17:20
P & M -Xylene	0.0561	J	0.0660	0.0198	mg/Kg	1		09/20/15 17:20
Toluene	0.0165	U	0.0330	0.0103	mg/Kg	1		09/20/15 17:20
Surrogates								
1,4-Difluorobenzene (surr)	85.9		72-119		%	1		09/20/15 17:20

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 17:20
Container ID: 1158630007-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:03
Prep Initial Wt./Vol.: 80.083 g
Prep Extract Vol: 41.7889 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-2**

Client Sample ID: **EI-2**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630008
Lab Project ID: 1158630

Collection Date: 09/12/15 15:11
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):76.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	770		103	32.0	mg/Kg	4		09/26/15 21:44
Surrogates								
5a Androstane (surr)	1530	*	50-150		%	4		09/26/15 21:44

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 21:44
Container ID: 1158630008-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.389 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	3710		1030	320	mg/Kg	40		09/30/15 11:05
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	40		09/30/15 11:05

Batch Information

Analytical Batch: XFC12114
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/30/15 11:05
Container ID: 1158630008-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.389 g
Prep Extract Vol: 1 mL

Results of **EI-2**

Client Sample ID: **EI-2**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630008
Lab Project ID: 1158630

Collection Date: 09/12/15 15:11
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):76.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.95	J	3.72	1.12	mg/Kg	1		09/20/15 17:39
Surrogates								
4-Bromofluorobenzene (surr)	50.2		50-150		%	1		09/20/15 17:39

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 17:39
Container ID: 1158630008-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:11
Prep Initial Wt./Vol.: 74.488 g
Prep Extract Vol: 42.4555 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00931	J	0.0186	0.00596	mg/Kg	1		09/20/15 17:39
Ethylbenzene	0.0186	U	0.0372	0.0116	mg/Kg	1		09/20/15 17:39
o-Xylene	0.0212	J	0.0372	0.0116	mg/Kg	1		09/20/15 17:39
P & M -Xylene	0.0372	U	0.0744	0.0223	mg/Kg	1		09/20/15 17:39
Toluene	0.0141	J	0.0372	0.0116	mg/Kg	1		09/20/15 17:39
Surrogates								
1,4-Difluorobenzene (surr)	86.7		72-119		%	1		09/20/15 17:39

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 17:39
Container ID: 1158630008-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:11
Prep Initial Wt./Vol.: 74.488 g
Prep Extract Vol: 42.4555 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-3**

Client Sample ID: **EI-3**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630009
Lab Project ID: 1158630

Collection Date: 09/12/15 15:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):41.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	895		190	58.9	mg/Kg	4		09/26/15 22:04
Surrogates								
5a Androstane (surr)	331	*	50-150		%	4		09/26/15 22:04

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 22:04
Container ID: 1158630009-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	5270		190	58.9	mg/Kg	4		09/26/15 22:04
Surrogates								
n-Triacontane-d62 (surr)	61.1		50-150		%	4		09/26/15 22:04

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 22:04
Container ID: 1158630009-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.347 g
Prep Extract Vol: 1 mL

Results of **EI-3**

Client Sample ID: **EI-3**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630009
Lab Project ID: 1158630

Collection Date: 09/12/15 15:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):41.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.33	J	10.6	3.18	mg/Kg	1		09/23/15 02:59
Surrogates								
4-Bromofluorobenzene (surr)	23.2	*	50-150		%	1		09/23/15 02:59

Batch Information

Analytical Batch: VFC12685
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/23/15 02:59
Container ID: 1158630009-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:20
Prep Initial Wt./Vol.: 84.044 g
Prep Extract Vol: 74.08 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0265	U	0.0530	0.0170	mg/Kg	1		09/23/15 02:59
Ethylbenzene	0.0530	U	0.106	0.0331	mg/Kg	1		09/23/15 02:59
o-Xylene	0.0530	U	0.106	0.0331	mg/Kg	1		09/23/15 02:59
P & M -Xylene	0.106	U	0.212	0.0636	mg/Kg	1		09/23/15 02:59
Toluene	0.184		0.106	0.0331	mg/Kg	1		09/23/15 02:59
Surrogates								
1,4-Difluorobenzene (surr)	87.2		72-119		%	1		09/23/15 02:59

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/23/15 02:59
Container ID: 1158630009-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:20
Prep Initial Wt./Vol.: 84.044 g
Prep Extract Vol: 74.08 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-4**

Client Sample ID: **EI-4**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630010
Lab Project ID: 1158630

Collection Date: 09/12/15 15:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):66.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	795		119	36.9	mg/Kg	4		09/26/15 22:25
Surrogates								
5a Androstane (surr)	599	*	50-150		%	4		09/26/15 22:25

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 22:25
Container ID: 1158630010-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.176 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	3960		1190	369	mg/Kg	40		09/30/15 11:15
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	40		09/30/15 11:15

Batch Information

Analytical Batch: XFC12114
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/30/15 11:15
Container ID: 1158630010-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.176 g
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 **EI-4**

Client Sample ID: **EI-4**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630010
Lab Project ID: 1158630

Collection Date: 09/12/15 15:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):66.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.75	J	4.63	1.39	mg/Kg	1		09/23/15 03:18
Surrogates								
4-Bromofluorobenzene (surr)	32	*	50-150		%	1		09/23/15 03:18

Batch Information

Analytical Batch: VFC12685
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/23/15 03:18
Container ID: 1158630010-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:30
Prep Initial Wt./Vol.: 87.221 g
Prep Extract Vol: 53.9397 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0116	U	0.0231	0.00740	mg/Kg	1		09/23/15 03:18
Ethylbenzene	0.0232	U	0.0463	0.0144	mg/Kg	1		09/23/15 03:18
o-Xylene	0.0232	U	0.0463	0.0144	mg/Kg	1		09/23/15 03:18
P & M -Xylene	0.0463	U	0.0926	0.0278	mg/Kg	1		09/23/15 03:18
Toluene	0.107		0.0463	0.0144	mg/Kg	1		09/23/15 03:18
Surrogates								
1,4-Difluorobenzene (surr)	85.9		72-119		%	1		09/23/15 03:18

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/23/15 03:18
Container ID: 1158630010-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:30
Prep Initial Wt./Vol.: 87.221 g
Prep Extract Vol: 53.9397 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-40**

Client Sample ID: **EI-40**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630011
Lab Project ID: 1158630

Collection Date: 09/12/15 15:22
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):71.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	719		111	34.5	mg/Kg	4		09/26/15 22:45
Surrogates								
5a Androstane (surr)	558	*	50-150		%	4		09/26/15 22:45

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 22:45
Container ID: 1158630011-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.101 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	4390		1110	345	mg/Kg	40		09/30/15 11:25
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	40		09/30/15 11:25

Batch Information

Analytical Batch: XFC12114
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/30/15 11:25
Container ID: 1158630011-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.101 g
Prep Extract Vol: 1 mL

Results of **EI-40**

Client Sample ID: **EI-40**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630011
Lab Project ID: 1158630

Collection Date: 09/12/15 15:22
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):71.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.53	J	3.81	1.14	mg/Kg	1		09/23/15 03:37
Surrogates								
4-Bromofluorobenzene (surr)	31.8	*	50-150		%	1		09/23/15 03:37

Batch Information

Analytical Batch: VFC12685
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/23/15 03:37
Container ID: 1158630011-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:22
Prep Initial Wt./Vol.: 94.777 g
Prep Extract Vol: 51.8224 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00955	U	0.0191	0.00610	mg/Kg	1		09/23/15 03:37
Ethylbenzene	0.0191	U	0.0381	0.0119	mg/Kg	1		09/23/15 03:37
o-Xylene	0.0191	U	0.0381	0.0119	mg/Kg	1		09/23/15 03:37
P & M -Xylene	0.0382	U	0.0763	0.0229	mg/Kg	1		09/23/15 03:37
Toluene	0.144		0.0381	0.0119	mg/Kg	1		09/23/15 03:37
Surrogates								
1,4-Difluorobenzene (surr)	86.5		72-119		%	1		09/23/15 03:37

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/23/15 03:37
Container ID: 1158630011-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:22
Prep Initial Wt./Vol.: 94.777 g
Prep Extract Vol: 51.8224 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-5**

Client Sample ID: **EI-5**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630012
Lab Project ID: 1158630

Collection Date: 09/12/15 15:26
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):60.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	557		133	41.2	mg/Kg	4		09/26/15 23:06
Surrogates								
5a Androstane (surr)	167	*	50-150		%	4		09/26/15 23:06

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 23:06
Container ID: 1158630012-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.029 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	3590		133	41.2	mg/Kg	4		09/26/15 23:06
Surrogates								
n-Triacontane-d62 (surr)	77.4		50-150		%	4		09/26/15 23:06

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 23:06
Container ID: 1158630012-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.029 g
Prep Extract Vol: 1 mL

Results of **EI-5**

Client Sample ID: **EI-5**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630012
Lab Project ID: 1158630

Collection Date: 09/12/15 15:26
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):60.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	5.38	J	5.87	1.76	mg/Kg	1		09/23/15 03:56
Surrogates								
4-Bromofluorobenzene (surr)	36.5	*	50-150		%	1		09/23/15 03:56

Batch Information

Analytical Batch: VFC12685
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/23/15 03:56
Container ID: 1158630012-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:26
Prep Initial Wt./Vol.: 81.51 g
Prep Extract Vol: 57.5248 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0147	U	0.0294	0.00939	mg/Kg	1		09/23/15 03:56
Ethylbenzene	0.0294	U	0.0587	0.0183	mg/Kg	1		09/23/15 03:56
o-Xylene	0.0294	U	0.0587	0.0183	mg/Kg	1		09/23/15 03:56
P & M -Xylene	0.0585	U	0.117	0.0352	mg/Kg	1		09/23/15 03:56
Toluene	0.821		0.0587	0.0183	mg/Kg	1		09/23/15 03:56
Surrogates								
1,4-Difluorobenzene (surr)	86		72-119		%	1		09/23/15 03:56

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/23/15 03:56
Container ID: 1158630012-B

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:26
Prep Initial Wt./Vol.: 81.51 g
Prep Extract Vol: 57.5248 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-6**

Client Sample ID: **EI-6**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630013
Lab Project ID: 1158630

Collection Date: 09/12/15 15:15
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):69.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	877		575	178	mg/Kg	4		09/27/15 07:41
Surrogates								
5a Androstane (surr)	0	*	50-150		%	4		09/27/15 07:41

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/27/15 07:41
Container ID: 1158630013-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.092 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	5550		575	178	mg/Kg	4		09/27/15 07:41
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	4		09/27/15 07:41

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/27/15 07:41
Container ID: 1158630013-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.092 g
Prep Extract Vol: 5 mL

Results of **EI-6**

Client Sample ID: **EI-6**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630013
Lab Project ID: 1158630

Collection Date: 09/12/15 15:15
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):69.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.27	J	4.53	1.36	mg/Kg	1		09/20/15 19:13
Surrogates								
4-Bromofluorobenzene (surr)	51.7		50-150		%	1		09/20/15 19:13

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 19:13
Container ID: 1158630013-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:15
Prep Initial Wt./Vol.: 77.728 g
Prep Extract Vol: 48.8198 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.0113	U	0.0226	0.00724	mg/Kg	1		09/20/15 19:13
Ethylbenzene	0.0227	U	0.0453	0.0141	mg/Kg	1		09/20/15 19:13
o-Xylene	0.0227	U	0.0453	0.0141	mg/Kg	1		09/20/15 19:13
P & M -Xylene	0.0453	U	0.0906	0.0272	mg/Kg	1		09/20/15 19:13
Toluene	0.552		0.0453	0.0141	mg/Kg	1		09/20/15 19:13
Surrogates								
1,4-Difluorobenzene (surr)	87.9		72-119		%	1		09/20/15 19:13

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 19:13
Container ID: 1158630013-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:15
Prep Initial Wt./Vol.: 77.728 g
Prep Extract Vol: 48.8198 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-7**

Client Sample ID: **EI-7**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630014
Lab Project ID: 1158630

Collection Date: 09/12/15 15:10
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	188		20.4	6.34	mg/Kg	1		09/26/15 18:18
Surrogates								
5a Androstane (surr)	90.4		50-150		%	1		09/26/15 18:18

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 18:18
Container ID: 1158630014-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.397 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	59.5		20.4	6.34	mg/Kg	1		09/26/15 18:18
Surrogates								
n-Triacontane-d62 (surr)	92.5		50-150		%	1		09/26/15 18:18

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 18:18
Container ID: 1158630014-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.397 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **EI-7**

Client Sample ID: **EI-7**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630014
Lab Project ID: 1158630

Collection Date: 09/12/15 15:10
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	11.2		1.63	0.488	mg/Kg	1		09/19/15 06:33
Surrogates								
4-Bromofluorobenzene (surr)	140		50-150		%	1		09/19/15 06:33

Batch Information

Analytical Batch: VFC12681
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/19/15 06:33
Container ID: 1158630014-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:10
Prep Initial Wt./Vol.: 89.3 g
Prep Extract Vol: 28.0601 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00407	U	0.00813	0.00260	mg/Kg	1		09/19/15 06:33
Ethylbenzene	0.00815	U	0.0163	0.00508	mg/Kg	1		09/19/15 06:33
o-Xylene	0.381		0.0163	0.00508	mg/Kg	1		09/19/15 06:33
P & M -Xylene	0.0851		0.0325	0.00976	mg/Kg	1		09/19/15 06:33
Toluene	0.00815	U	0.0163	0.00508	mg/Kg	1		09/19/15 06:33
Surrogates								
1,4-Difluorobenzene (surr)	88.8		72-119		%	1		09/19/15 06:33

Batch Information

Analytical Batch: VFC12681
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/19/15 06:33
Container ID: 1158630014-B

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 09/12/15 15:10
Prep Initial Wt./Vol.: 89.3 g
Prep Extract Vol: 28.0601 mL

Results of **SW-1**

Client Sample ID: **SW-1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630015
Lab Project ID: 1158630

Collection Date: 09/12/15 17:08
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1530		83.1	25.8	mg/Kg	4		09/27/15 08:02
Surrogates								
5a Androstane (surr)	95.8		50-150		%	4		09/27/15 08:02

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/27/15 08:02
Container ID: 1158630015-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.039 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1320		83.1	25.8	mg/Kg	4		09/27/15 08:02
Surrogates								
n-Triacontane-d62 (surr)	135		50-150		%	4		09/27/15 08:02

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/27/15 08:02
Container ID: 1158630015-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.039 g
Prep Extract Vol: 1 mL

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Results of **SW-1**

Client Sample ID: **SW-1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630015
Lab Project ID: 1158630

Collection Date: 09/12/15 17:08
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	16.7		1.96	0.589	mg/Kg	1		09/20/15 20:10
Surrogates								
4-Bromofluorobenzene (surr)	151	*	50-150		%	1		09/20/15 20:10

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 20:10
Container ID: 1158630015-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:08
Prep Initial Wt./Vol.: 73.72 g
Prep Extract Vol: 27.8468 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00491	U	0.00982	0.00314	mg/Kg	1		09/20/15 20:10
Ethylbenzene	0.0120	J	0.0196	0.00613	mg/Kg	1		09/20/15 20:10
o-Xylene	0.184		0.0196	0.00613	mg/Kg	1		09/20/15 20:10
P & M -Xylene	0.0843		0.0393	0.0118	mg/Kg	1		09/20/15 20:10
Toluene	0.0232		0.0196	0.00613	mg/Kg	1		09/20/15 20:10
Surrogates								
1,4-Difluorobenzene (surr)	88.1		72-119		%	1		09/20/15 20:10

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 20:10
Container ID: 1158630015-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:08
Prep Initial Wt./Vol.: 73.72 g
Prep Extract Vol: 27.8468 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-2**

Client Sample ID: **SW-2**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630016
Lab Project ID: 1158630

Collection Date: 09/12/15 17:11
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	62.4		21.8	6.77	mg/Kg	1		09/26/15 18:39
Surrogates								
5a Androstane (surr)	93.7		50-150		%	1		09/26/15 18:39

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 18:39
Container ID: 1158630016-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.218 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	337		21.8	6.77	mg/Kg	1		09/26/15 18:39
Surrogates								
n-Triacontane-d62 (surr)	117		50-150		%	1		09/26/15 18:39

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 18:39
Container ID: 1158630016-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.218 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-2**

Client Sample ID: **SW-2**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630016
Lab Project ID: 1158630

Collection Date: 09/12/15 17:11
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):90.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.14	J	2.19	0.658	mg/Kg	1		09/20/15 20:30
Surrogates								
4-Bromofluorobenzene (surr)	85.7		50-150		%	1		09/20/15 20:30

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 20:30
Container ID: 1158630016-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:11
Prep Initial Wt./Vol.: 81.337 g
Prep Extract Vol: 32.4144 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00550	U	0.0110	0.00351	mg/Kg	1		09/20/15 20:30
Ethylbenzene	0.0110	U	0.0219	0.00684	mg/Kg	1		09/20/15 20:30
o-Xylene	0.0171	J	0.0219	0.00684	mg/Kg	1		09/20/15 20:30
P & M -Xylene	0.0169	J	0.0438	0.0132	mg/Kg	1		09/20/15 20:30
Toluene	0.0110	U	0.0219	0.00684	mg/Kg	1		09/20/15 20:30
Surrogates								
1,4-Difluorobenzene (surr)	87.1		72-119		%	1		09/20/15 20:30

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 20:30
Container ID: 1158630016-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:11
Prep Initial Wt./Vol.: 81.337 g
Prep Extract Vol: 32.4144 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-3**

Client Sample ID: **SW-3**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630017
Lab Project ID: 1158630

Collection Date: 09/12/15 17:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.1
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
2-Methylnaphthalene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Acenaphthene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Acenaphthylene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Anthracene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Benzo(a)Anthracene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Benzo[a]pyrene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Benzo[b]Fluoranthene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Benzo[g,h,i]perylene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Benzo[k]fluoranthene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Chrysene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Dibenzo[a,h]anthracene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Fluoranthene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Fluorene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Indeno[1,2,3-c,d] pyrene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Naphthalene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Phenanthrene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Pyrene	0.0129	U	0.0257	0.00771	mg/Kg	5		10/14/15 20:33
Surrogates								
2-Fluorobiphenyl (surr)	125	*	46-115		%	5		10/14/15 20:33
Terphenyl-d14 (surr)	95.6		58-113		%	5		10/14/15 20:33

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 10/14/15 20:33
Container ID: 1158630017-A

Prep Batch: XXX34210
Prep Method: SW3550C
Prep Date/Time: 09/22/15 16:14
Prep Initial Wt./Vol.: 22.77 g
Prep Extract Vol: 1 mL

Results of **SW-3**

Client Sample ID: **SW-3**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630017
Lab Project ID: 1158630

Collection Date: 09/12/15 17:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	236		20.7	6.41	mg/Kg	1		09/26/15 18:59
Surrogates								
5a Androstane (surr)	97.9		50-150		%	1		09/26/15 18:59

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 18:59
Container ID: 1158630017-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	186		20.7	6.41	mg/Kg	1		09/26/15 18:59
Surrogates								
n-Triacontane-d62 (surr)	103		50-150		%	1		09/26/15 18:59

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 18:59
Container ID: 1158630017-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.165 g
Prep Extract Vol: 1 mL

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Results of **SW-3**

Client Sample ID: **SW-3**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630017
Lab Project ID: 1158630

Collection Date: 09/12/15 17:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	6.05		1.79	0.538	mg/Kg	1		09/20/15 20:49
Surrogates								
4-Bromofluorobenzene (surr)	121		50-150		%	1		09/20/15 20:49

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 20:49
Container ID: 1158630017-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:20
Prep Initial Wt./Vol.: 81.768 g
Prep Extract Vol: 28.1674 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00448	U	0.00896	0.00287	mg/Kg	1		09/20/15 20:49
Ethylbenzene	0.00895	U	0.0179	0.00559	mg/Kg	1		09/20/15 20:49
o-Xylene	0.162		0.0179	0.00559	mg/Kg	1		09/20/15 20:49
P & M -Xylene	0.0324	J	0.0358	0.0108	mg/Kg	1		09/20/15 20:49
Toluene	0.00895	U	0.0179	0.00559	mg/Kg	1		09/20/15 20:49
Surrogates								
1,4-Difluorobenzene (surr)	86.4		72-119		%	1		09/20/15 20:49

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 20:49
Container ID: 1158630017-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:20
Prep Initial Wt./Vol.: 81.768 g
Prep Extract Vol: 28.1674 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-30**

Client Sample ID: **SW-30**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630018
Lab Project ID: 1158630

Collection Date: 09/12/15 17:15
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
2-Methylnaphthalene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Acenaphthene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Acenaphthylene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Anthracene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Benzo(a)Anthracene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Benzo[a]pyrene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Benzo[b]Fluoranthene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Benzo[g,h,i]perylene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Benzo[k]fluoranthene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Chrysene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Dibenzo[a,h]anthracene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Fluoranthene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Fluorene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Indeno[1,2,3-c,d] pyrene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Naphthalene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Phenanthrene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Pyrene	0.0129	U	0.0258	0.00775	mg/Kg	5		10/14/15 20:49
Surrogates								
2-Fluorobiphenyl (surr)	115		46-115		%	5		10/14/15 20:49
Terphenyl-d14 (surr)	96.4		58-113		%	5		10/14/15 20:49

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 10/14/15 20:49
Container ID: 1158630018-A

Prep Batch: XXX34210
Prep Method: SW3550C
Prep Date/Time: 09/22/15 16:14
Prep Initial Wt./Vol.: 22.585 g
Prep Extract Vol: 1 mL

Results of **SW-30**

Client Sample ID: **SW-30**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630018
Lab Project ID: 1158630

Collection Date: 09/12/15 17:15
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	194		20.7	6.42	mg/Kg	1		09/26/15 19:20
Surrogates								
5a Androstane (surr)	93.4		50-150		%	1		09/26/15 19:20

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 19:20
Container ID: 1158630018-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.059 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	191		20.7	6.42	mg/Kg	1		09/26/15 19:20
Surrogates								
n-Triacontane-d62 (surr)	101		50-150		%	1		09/26/15 19:20

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 19:20
Container ID: 1158630018-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.059 g
Prep Extract Vol: 1 mL

Results of **SW-30**

Client Sample ID: **SW-30**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630018
Lab Project ID: 1158630

Collection Date: 09/12/15 17:15
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	6.18		1.89	0.567	mg/Kg	1		09/20/15 21:08
Surrogates								
4-Bromofluorobenzene (surr)	110		50-150		%	1		09/20/15 21:08

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 21:08
Container ID: 1158630018-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:15
Prep Initial Wt./Vol.: 76.231 g
Prep Extract Vol: 27.7826 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00473	U	0.00946	0.00303	mg/Kg	1		09/20/15 21:08
Ethylbenzene	0.00832	J	0.0189	0.00590	mg/Kg	1		09/20/15 21:08
o-Xylene	0.192		0.0189	0.00590	mg/Kg	1		09/20/15 21:08
P & M -Xylene	0.0859		0.0378	0.0113	mg/Kg	1		09/20/15 21:08
Toluene	0.00681	J	0.0189	0.00590	mg/Kg	1		09/20/15 21:08
Surrogates								
1,4-Difluorobenzene (surr)	88		72-119		%	1		09/20/15 21:08

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 21:08
Container ID: 1158630018-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:15
Prep Initial Wt./Vol.: 76.231 g
Prep Extract Vol: 27.7826 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-4**

Client Sample ID: **SW-4**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630019
Lab Project ID: 1158630

Collection Date: 09/12/15 17:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	263		20.7	6.42	mg/Kg	1		09/26/15 19:40
Surrogates								
5a Androstane (surr)	99.8		50-150		%	1		09/26/15 19:40

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 19:40
Container ID: 1158630019-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.261 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	917		207	64.2	mg/Kg	10		09/30/15 10:45
Surrogates								
n-Triacontane-d62 (surr)	0	*	50-150		%	10		09/30/15 10:45

Batch Information

Analytical Batch: XFC12114
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/30/15 10:45
Container ID: 1158630019-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.261 g
Prep Extract Vol: 1 mL

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Results of **SW-4**

Client Sample ID: **SW-4**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630019
Lab Project ID: 1158630

Collection Date: 09/12/15 17:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	14.9		1.67	0.502	mg/Kg	1		09/21/15 16:17
Surrogates								
4-Bromofluorobenzene (surr)	219	*	50-150		%	1		09/21/15 16:17

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/21/15 16:17
Container ID: 1158630019-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:30
Prep Initial Wt./Vol.: 90.206 g
Prep Extract Vol: 28.8853 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00419	U	0.00837	0.00268	mg/Kg	1		09/21/15 16:17
Ethylbenzene	0.0236		0.0167	0.00522	mg/Kg	1		09/21/15 16:17
o-Xylene	0.419		0.0167	0.00522	mg/Kg	1		09/21/15 16:17
P & M -Xylene	0.152		0.0335	0.0100	mg/Kg	1		09/21/15 16:17
Toluene	0.00636	J	0.0167	0.00522	mg/Kg	1		09/21/15 16:17
Surrogates								
1,4-Difluorobenzene (surr)	88.1		72-119		%	1		09/21/15 16:17

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 16:17
Container ID: 1158630019-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:30
Prep Initial Wt./Vol.: 90.206 g
Prep Extract Vol: 28.8853 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-5**

Client Sample ID: **SW-5**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630020
Lab Project ID: 1158630

Collection Date: 09/12/15 17:25
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	8.55	J	20.5	6.35	mg/Kg	1		09/26/15 17:37
Surrogates								
5a Androstane (surr)	99.8		50-150		%	1		09/26/15 17:37

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/26/15 17:37
Container ID: 1158630020-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.249 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	70.2		20.5	6.35	mg/Kg	1		09/26/15 17:37
Surrogates								
n-Triacontane-d62 (surr)	98		50-150		%	1		09/26/15 17:37

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Analyst: KJO
Analytical Date/Time: 09/26/15 17:37
Container ID: 1158630020-A

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 09/21/15 11:22
Prep Initial Wt./Vol.: 30.249 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-5**

Client Sample ID: **SW-5**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630020
Lab Project ID: 1158630

Collection Date: 09/12/15 17:25
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):96.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.860	J	1.69	0.506	mg/Kg	1		09/20/15 21:26
Surrogates								
4-Bromofluorobenzene (surr)	86.2		50-150		%	1		09/20/15 21:26

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 21:26
Container ID: 1158630020-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:25
Prep Initial Wt./Vol.: 85.03 g
Prep Extract Vol: 27.7425 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00422	U	0.00843	0.00270	mg/Kg	1		09/20/15 21:26
Ethylbenzene	0.00845	U	0.0169	0.00526	mg/Kg	1		09/20/15 21:26
o-Xylene	0.00845	U	0.0169	0.00526	mg/Kg	1		09/20/15 21:26
P & M -Xylene	0.0169	U	0.0337	0.0101	mg/Kg	1		09/20/15 21:26
Toluene	0.00845	U	0.0169	0.00526	mg/Kg	1		09/20/15 21:26
Surrogates								
1,4-Difluorobenzene (surr)	87		72-119		%	1		09/20/15 21:26

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 21:26
Container ID: 1158630020-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:25
Prep Initial Wt./Vol.: 85.03 g
Prep Extract Vol: 27.7425 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-6**

Client Sample ID: **SW-6**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630021
Lab Project ID: 1158630

Collection Date: 09/12/15 17:18
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):97.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	18.0	J	20.3	6.28	mg/Kg	1		09/28/15 19:55
Surrogates								
5a Androstane (surr)	96.4		50-150		%	1		09/28/15 19:55

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/28/15 19:55
Container ID: 1158630021-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.38 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	22.2		20.3	6.28	mg/Kg	1		09/28/15 19:55
Surrogates								
n-Triacontane-d62 (surr)	97.5		50-150		%	1		09/28/15 19:55

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/28/15 19:55
Container ID: 1158630021-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.38 g
Prep Extract Vol: 1 mL

Results of **SW-6**

Client Sample ID: **SW-6**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630021
Lab Project ID: 1158630

Collection Date: 09/12/15 17:18
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):97.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.495	J	1.46	0.439	mg/Kg	1		09/20/15 21:45
Surrogates								
4-Bromofluorobenzene (surr)	85.4		50-150		%	1		09/20/15 21:45

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 21:45
Container ID: 1158630021-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:18
Prep Initial Wt./Vol.: 96.316 g
Prep Extract Vol: 27.478 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00366	U	0.00732	0.00234	mg/Kg	1		09/20/15 21:45
Ethylbenzene	0.00730	U	0.0146	0.00457	mg/Kg	1		09/20/15 21:45
o-Xylene	0.00730	U	0.0146	0.00457	mg/Kg	1		09/20/15 21:45
P & M -Xylene	0.0147	U	0.0293	0.00878	mg/Kg	1		09/20/15 21:45
Toluene	0.00730	U	0.0146	0.00457	mg/Kg	1		09/20/15 21:45
Surrogates								
1,4-Difluorobenzene (surr)	87.1		72-119		%	1		09/20/15 21:45

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 21:45
Container ID: 1158630021-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:18
Prep Initial Wt./Vol.: 96.316 g
Prep Extract Vol: 27.478 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-7**

Client Sample ID: **SW-7**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630022
Lab Project ID: 1158630

Collection Date: 09/12/15 17:10
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	56.6		20.8	6.44	mg/Kg	1		09/28/15 20:05
Surrogates								
5a Androstane (surr)	114		50-150		%	1		09/28/15 20:05

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/28/15 20:05
Container ID: 1158630022-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.357 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	141		20.8	6.44	mg/Kg	1		09/28/15 20:05
Surrogates								
n-Triacontane-d62 (surr)	112		50-150		%	1		09/28/15 20:05

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/28/15 20:05
Container ID: 1158630022-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.357 g
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 **SW-7**

Client Sample ID: **SW-7**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630022
Lab Project ID: 1158630

Collection Date: 09/12/15 17:10
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):95.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.02	J	1.61	0.482	mg/Kg	1		09/20/15 22:04
Surrogates								
4-Bromofluorobenzene (surr)	90.2		50-150		%	1		09/20/15 22:04

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 22:04
Container ID: 1158630022-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:10
Prep Initial Wt./Vol.: 97.59 g
Prep Extract Vol: 29.8066 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00402	U	0.00803	0.00257	mg/Kg	1		09/20/15 22:04
Ethylbenzene	0.00819	J	0.0161	0.00501	mg/Kg	1		09/20/15 22:04
o-Xylene	0.00594	J	0.0161	0.00501	mg/Kg	1		09/20/15 22:04
P & M -Xylene	0.0177	J	0.0321	0.00964	mg/Kg	1		09/20/15 22:04
Toluene	0.00805	U	0.0161	0.00501	mg/Kg	1		09/20/15 22:04
Surrogates								
1,4-Difluorobenzene (surr)	85.7		72-119		%	1		09/20/15 22:04

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 22:04
Container ID: 1158630022-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:10
Prep Initial Wt./Vol.: 97.59 g
Prep Extract Vol: 29.8066 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-8**

Client Sample ID: **SW-8**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630023
Lab Project ID: 1158630

Collection Date: 09/12/15 17:05
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):97.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	19.8	J	20.2	6.28	mg/Kg	1		09/28/15 20:15
Surrogates								
5a Androstane (surr)	90.2		50-150		%	1		09/28/15 20:15

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/28/15 20:15
Container ID: 1158630023-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.361 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	34.1		20.2	6.28	mg/Kg	1		09/28/15 20:15
Surrogates								
n-Triacontane-d62 (surr)	88		50-150		%	1		09/28/15 20:15

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/28/15 20:15
Container ID: 1158630023-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.361 g
Prep Extract Vol: 1 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SW-8**

Client Sample ID: **SW-8**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630023
Lab Project ID: 1158630

Collection Date: 09/12/15 17:05
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):97.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.811	J	1.38	0.413	mg/Kg	1		09/20/15 22:23
Surrogates								
4-Bromofluorobenzene (surr)	81.1		50-150		%	1		09/20/15 22:23

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/20/15 22:23
Container ID: 1158630023-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:05
Prep Initial Wt./Vol.: 101.891 g
Prep Extract Vol: 27.4153 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00345	U	0.00689	0.00220	mg/Kg	1		09/20/15 22:23
Ethylbenzene	0.00690	U	0.0138	0.00430	mg/Kg	1		09/20/15 22:23
o-Xylene	0.00690	U	0.0138	0.00430	mg/Kg	1		09/20/15 22:23
P & M -Xylene	0.0138	U	0.0276	0.00827	mg/Kg	1		09/20/15 22:23
Toluene	0.00690	U	0.0138	0.00430	mg/Kg	1		09/20/15 22:23
Surrogates								
1,4-Difluorobenzene (surr)	86.2		72-119		%	1		09/20/15 22:23

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/20/15 22:23
Container ID: 1158630023-B

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 09/12/15 17:05
Prep Initial Wt./Vol.: 101.891 g
Prep Extract Vol: 27.4153 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SS46**

Client Sample ID: **SS46**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630024
Lab Project ID: 1158630

Collection Date: 09/12/15 19:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	2.61		0.525	0.158	mg/Kg	100		10/14/15 23:12
2-Methylnaphthalene	0.331		0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Acenaphthene	0.0593		0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Acenaphthylene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Anthracene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Benzo(a)Anthracene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Benzo[a]pyrene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Benzo[b]Fluoranthene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Benzo[g,h,i]perylene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Benzo[k]fluoranthene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Chrysene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Dibenzo[a,h]anthracene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Fluoranthene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Fluorene	0.128		0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Indeno[1,2,3-c,d] pyrene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Naphthalene	0.150		0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Phenanthrene	0.0339	J	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Pyrene	0.0262	U	0.0525	0.0158	mg/Kg	10		10/14/15 21:05
Surrogates								
2-Fluorobiphenyl (surr)	220	*	46-115		%	10		10/14/15 21:05
Terphenyl-d14 (surr)	99.6		58-113		%	10		10/14/15 21:05

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Analyst: NRB
Analytical Date/Time: 10/14/15 23:12
Container ID: 1158630024-A

Prep Batch: XXX34210
Prep Method: SW3550C
Prep Date/Time: 09/22/15 16:14
Prep Initial Wt./Vol.: 22.632 g
Prep Extract Vol: 1 mL

Results of **SS46**

Client Sample ID: **SS46**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630024
Lab Project ID: 1158630

Collection Date: 09/12/15 19:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	628		84.0	26.0	mg/Kg	4		09/28/15 20:25
Surrogates								
5a Androstane (surr)	105		50-150		%	4		09/28/15 20:25

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/28/15 20:25
Container ID: 1158630024-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.184 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	732		84.0	26.0	mg/Kg	4		09/28/15 20:25
Surrogates								
n-Triacontane-d62 (surr)	89.2		50-150		%	4		09/28/15 20:25

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/28/15 20:25
Container ID: 1158630024-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.184 g
Prep Extract Vol: 1 mL

Results of **SS46**

Client Sample ID: **SS46**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630024
Lab Project ID: 1158630

Collection Date: 09/12/15 19:30
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.7
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	55.6		1.97	0.592	mg/Kg	1		09/21/15 15:39
Surrogates								
4-Bromofluorobenzene (surr)	454	*	50-150		%	1		09/21/15 15:39

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/21/15 15:39
Container ID: 1158630024-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 19:30
Prep Initial Wt./Vol.: 78.048 g
Prep Extract Vol: 29.1706 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00908	J	0.00987	0.00316	mg/Kg	1		09/21/15 15:39
Ethylbenzene	0.137		0.0197	0.00616	mg/Kg	1		09/21/15 15:39
o-Xylene	1.08		0.0197	0.00616	mg/Kg	1		09/21/15 15:39
P & M -Xylene	0.332		0.0395	0.0118	mg/Kg	1		09/21/15 15:39
Toluene	0.0197		0.0197	0.00616	mg/Kg	1		09/21/15 15:39
Surrogates								
1,4-Difluorobenzene (surr)	90.7		72-119		%	1		09/21/15 15:39

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 15:39
Container ID: 1158630024-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 19:30
Prep Initial Wt./Vol.: 78.048 g
Prep Extract Vol: 29.1706 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **SS460**

Client Sample ID: **SS460**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630025
Lab Project ID: 1158630

Collection Date: 09/12/15 19:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	633		83.9	26.0	mg/Kg	4		09/28/15 20:35
Surrogates								
5a Androstane (surr)	103		50-150		%	4		09/28/15 20:35

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Analyst: NLL
Analytical Date/Time: 09/28/15 20:35
Container ID: 1158630025-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.237 g
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	715		83.9	26.0	mg/Kg	4		09/28/15 20:35
Surrogates								
n-Triacontane-d62 (surr)	135		50-150		%	4		09/28/15 20:35

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Analyst: NLL
Analytical Date/Time: 09/28/15 20:35
Container ID: 1158630025-A

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 09/21/15 16:29
Prep Initial Wt./Vol.: 30.237 g
Prep Extract Vol: 1 mL

Results of **SS460**

Client Sample ID: **SS460**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630025
Lab Project ID: 1158630

Collection Date: 09/12/15 19:20
Received Date: 09/16/15 09:04
Matrix: Soil/Solid (dry weight)
Solids (%):94.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	61.1		2.21	0.663	mg/Kg	1		09/21/15 14:42
Surrogates								
4-Bromofluorobenzene (surr)	453	*	50-150		%	1		09/21/15 14:42

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/21/15 14:42
Container ID: 1158630025-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 19:20
Prep Initial Wt./Vol.: 68.702 g
Prep Extract Vol: 28.7156 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00729	J	0.0110	0.00353	mg/Kg	1		09/21/15 14:42
Ethylbenzene	0.143		0.0221	0.00689	mg/Kg	1		09/21/15 14:42
o-Xylene	1.24		0.0221	0.00689	mg/Kg	1		09/21/15 14:42
P & M -Xylene	0.385		0.0442	0.0133	mg/Kg	1		09/21/15 14:42
Toluene	0.0188	J	0.0221	0.00689	mg/Kg	1		09/21/15 14:42
Surrogates								
1,4-Difluorobenzene (surr)	91.8		72-119		%	1		09/21/15 14:42

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 14:42
Container ID: 1158630025-B

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 19:20
Prep Initial Wt./Vol.: 68.702 g
Prep Extract Vol: 28.7156 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **TripBlank1**

Client Sample ID: **TripBlank1**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630026
Lab Project ID: 1158630

Collection Date: 09/12/15 11:55
Received Date: 09/16/15 09:04
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	1.51	J	2.45	0.736	mg/Kg	1		09/21/15 14:04
Surrogates								
4-Bromofluorobenzene (surr)	94.2		50-150		%	1		09/21/15 14:04

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/21/15 14:04
Container ID: 1158630026-A

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 50.968 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00615	U	0.0123	0.00392	mg/Kg	1		09/21/15 14:04
Ethylbenzene	0.0123	U	0.0245	0.00765	mg/Kg	1		09/21/15 14:04
o-Xylene	0.0123	U	0.0245	0.00765	mg/Kg	1		09/21/15 14:04
P & M -Xylene	0.0245	U	0.0491	0.0147	mg/Kg	1		09/21/15 14:04
Toluene	0.0123	U	0.0245	0.00765	mg/Kg	1		09/21/15 14:04
Surrogates								
1,4-Difluorobenzene (surr)	87.2		72-119		%	1		09/21/15 14:04

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 14:04
Container ID: 1158630026-A

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 50.968 g
Prep Extract Vol: 25 mL

Print Date: 10/15/2015 5:29:06PM

J flagging is activated

Results of **TripBlank2**

Client Sample ID: **TripBlank2**
Client Project ID: **31-1-11765-005 BrwULSDShop#2**
Lab Sample ID: 1158630027
Lab Project ID: 1158630

Collection Date: 09/12/15 11:55
Received Date: 09/16/15 09:04
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	1.22	U	2.43	0.728	mg/Kg	1		09/21/15 14:23
Surrogates								
4-Bromofluorobenzene (surr)	88.1		50-150		%	1		09/21/15 14:23

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Analyst: CRD
Analytical Date/Time: 09/21/15 14:23
Container ID: 1158630027-A

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 51.529 g
Prep Extract Vol: 25 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.00605	U	0.0121	0.00388	mg/Kg	1		09/21/15 14:23
Ethylbenzene	0.0121	U	0.0243	0.00757	mg/Kg	1		09/21/15 14:23
o-Xylene	0.0121	U	0.0243	0.00757	mg/Kg	1		09/21/15 14:23
P & M -Xylene	0.0243	U	0.0485	0.0146	mg/Kg	1		09/21/15 14:23
Toluene	0.0121	U	0.0243	0.00757	mg/Kg	1		09/21/15 14:23
Surrogates								
1,4-Difluorobenzene (surr)	88.3		72-119		%	1		09/21/15 14:23

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Analyst: CRD
Analytical Date/Time: 09/21/15 14:23
Container ID: 1158630027-A

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 09/12/15 11:55
Prep Initial Wt./Vol.: 51.529 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1720928 [SPT/9744]
Blank Lab ID: 1292389

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016, 1158630017, 1158630018, 1158630019, 1158630020, 1158630021, 1158630022, 1158630023, 1158630024, 1158630025

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9744
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R
Analytical Date/Time: 9/21/2015 7:45:00PM

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Duplicate Sample Summary

Original Sample ID: 1155476029
Duplicate Sample ID: 1292393
QC for Samples:

Analysis Date: 09/21/2015 19:45
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	81.6	81.0	%	0.77	(< 15)

Batch Information

Analytical Batch: SPT9744
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

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Duplicate Sample Summary

Original Sample ID: 1155476034
Duplicate Sample ID: 1292394

Analysis Date: 09/21/2015 19:45
Matrix: Soil/Solid (dry weight)

QC for Samples:

1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	78.6	78.9	%	0.45	(< 15)

Batch Information

Analytical Batch: SPT9744
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Print Date: 10/15/2015 5:29:14PM

Duplicate Sample Summary

Original Sample ID: 1158630016
Duplicate Sample ID: 1292395

Analysis Date: 09/21/2015 19:45
Matrix: Soil/Solid (dry weight)

QC for Samples:

1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016,

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	90.9	90.0	%	0.95	(< 15)

Batch Information

Analytical Batch: SPT9744
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

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Duplicate Sample Summary

Original Sample ID: 1158630025
Duplicate Sample ID: 1292396

Analysis Date: 09/21/2015 19:45
Matrix: Soil/Solid (dry weight)

QC for Samples:

1158630017, 1158630018, 1158630019, 1158630020, 1158630021, 1158630022, 1158630023, 1158630024, 1158630025

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	94.6	94.6	%	0.00	(< 15)

Batch Information

Analytical Batch: SPT9744
Analytical Method: SM21 2540G
Instrument:
Analyst: A.R

Method Blank

Blank ID: MB for HBN 1720875 [VXX/27932]
Blank Lab ID: 1292131

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630005, 1158630014

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	78.3	50-150		%

Batch Information

Analytical Batch: VFC12681
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/18/2015 9:42:00PM

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 9/18/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27932]
Blank Spike Lab ID: 1292134
Date Analyzed: 09/18/2015 22:38

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27932]
Spike Duplicate Lab ID: 1292135
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630005, 1158630014

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	10.0	10.3	103	10.0	9.87	99	(60-120)	3.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	80.7	81	1.25	80.4	80	(50-150)	0.45	

Batch Information

Analytical Batch: **VFC12681**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27932**
Prep Method: **SW5035A**
Prep Date/Time: **09/18/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1720875 [VXX/27932]
Blank Lab ID: 1292131

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630005, 1158630014

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	88.7	72-119		%

Batch Information

Analytical Batch: VFC12681
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/18/2015 9:42:00PM

Prep Batch: VXX27932
Prep Method: SW5035A
Prep Date/Time: 9/18/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27932]
Blank Spike Lab ID: 1292132
Date Analyzed: 09/18/2015 22:01

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27932]
Spike Duplicate Lab ID: 1292133
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630005, 1158630014

Results by **SW8021B**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.37	110	1.25	1.36	108	(75-125)	0.99	(< 20)
Ethylbenzene	1.25	1.30	104	1.25	1.29	103	(75-125)	0.56	(< 20)
o-Xylene	1.25	1.19	95	1.25	1.19	95	(75-125)	0.19	(< 20)
P & M -Xylene	2.50	2.49	100	2.50	2.48	99	(80-125)	0.51	(< 20)
Toluene	1.25	1.32	106	1.25	1.31	105	(70-125)	0.82	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	91.6	92	1.25	91.8	92	(72-119)	0.17	

Batch Information

Analytical Batch: **VFC12681**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27932**
Prep Method: **SW5035A**
Prep Date/Time: **09/18/2015 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1155383001
MS Sample ID: 1292136 MS
MSD Sample ID: 1292137 MSD

Analysis Date: 09/19/2015 0:14
Analysis Date: 09/19/2015 0:33
Analysis Date: 09/19/2015 0:52
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630005, 1158630014

Results by **SW8021B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.26	1.68	2.88	96	1.68	2.86	95	75-125	0.54	(< 20)
Ethylbenzene	0.596	1.68	2.16	93	1.68	2.15	93	75-125	0.33	(< 20)
o-Xylene	0.795	1.68	2.21	84	1.68	2.20	84	75-125	0.37	(< 20)
P & M -Xylene	2.11	3.35	4.97	85	3.35	4.95	85	80-125	0.24	(< 20)
Toluene	0.512	1.68	2.07	93	1.68	2.06	92	70-125	0.49	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		1.68	1.48	89	1.68	1.48	88	72-119	0.43	

Batch Information

Analytical Batch: VFC12681
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/19/2015 12:33:00AM

Prep Batch: VXX27932
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/18/2015 8:00:00AM
Prep Initial Wt./Vol.: 38.64g
Prep Extract Vol: 25.00mL

Print Date: 10/15/2015 5:29:25PM

Method Blank

Blank ID: MB for HBN 1720882 [VXX/27937]
Blank Lab ID: 1292158

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630002, 1158630003, 1158630004, 1158630006, 1158630007, 1158630008, 1158630013, 1158630015, 1158630016, 1158630017, 1158630018, 1158630020, 1158630021, 1158630022, 1158630023

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	76.7	50-150		%

Batch Information

Analytical Batch: VFC12682
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/20/2015 1:51:00PM

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 9/20/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27937]
Blank Spike Lab ID: 1292161
Date Analyzed: 09/20/2015 14:48

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27937]
Spike Duplicate Lab ID: 1292162
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630002, 1158630003, 1158630004, 1158630006, 1158630007, 1158630008, 1158630013, 1158630015, 1158630016, 1158630017, 1158630018, 1158630020, 1158630021, 1158630022, 1158630023

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	10.0	11.0	110	10.0	10.5	105	(60-120)	4.30	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	82.1	82	1.25	85.8	86	(50-150)	4.40	

Batch Information

Analytical Batch: **VFC12682**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27937**
Prep Method: **SW5035A**
Prep Date/Time: **09/20/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1720882 [VXX/27937]
Blank Lab ID: 1292158

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630002, 1158630003, 1158630004, 1158630006, 1158630007, 1158630008, 1158630013, 1158630015, 1158630016, 1158630017, 1158630018, 1158630020, 1158630021, 1158630022, 1158630023

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0158J	0.0500	0.0150	mg/Kg
Toluene	0.0118J	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	87.4	72-119		%

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/20/2015 1:51:00PM

Prep Batch: VXX27937
Prep Method: SW5035A
Prep Date/Time: 9/20/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27937]
Blank Spike Lab ID: 1292159
Date Analyzed: 09/20/2015 14:10

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27937]
Spike Duplicate Lab ID: 1292160
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630002, 1158630003, 1158630004, 1158630006, 1158630007, 1158630008, 1158630013, 1158630015, 1158630016, 1158630017, 1158630018, 1158630020, 1158630021, 1158630022, 1158630023

Results by **SW8021B**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.37	109	1.25	1.39	111	(75-125)	1.80	(< 20)
Ethylbenzene	1.25	1.29	103	1.25	1.32	106	(75-125)	2.50	(< 20)
o-Xylene	1.25	1.20	96	1.25	1.22	98	(75-125)	2.10	(< 20)
P & M -Xylene	2.50	2.50	100	2.50	2.56	102	(80-125)	2.20	(< 20)
Toluene	1.25	1.31	105	1.25	1.34	107	(70-125)	2.10	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	90.1	90	1.25	91.2	91	(72-119)	1.20	

Batch Information

Analytical Batch: **VFC12682**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27937**
Prep Method: **SW5035A**
Prep Date/Time: **09/20/2015 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1292564
MS Sample ID: 1292163 MS
MSD Sample ID: 1292164 MSD

Analysis Date: 09/20/2015 15:26
Analysis Date: 09/20/2015 15:45
Analysis Date: 09/20/2015 16:04
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630002, 1158630003, 1158630004, 1158630006, 1158630007, 1158630008, 1158630013, 1158630015, 1158630016, 1158630017, 1158630018, 1158630020, 1158630021, 1158630022, 1158630023

Results by **SW8021B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.00254U	0.508	0.559	110	0.508	0.570	112	75-125	1.90	(< 20)
Ethylbenzene	0.0323	0.508	0.554	103	0.508	0.565	105	75-125	2.00	(< 20)
o-Xylene	0.559	0.508	1.00	87	0.508	1.02	92	75-125	2.30	(< 20)
P & M -Xylene	0.255	1.02	1.48	121	1.02	1.52	124	80-125	2.20	(< 20)
Toluene	0.0155	0.508	0.515	98	0.508	0.524	100	70-125	1.70	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		0.508	0.467	92	0.508	0.469	92	72-119	0.30	

Batch Information

Analytical Batch: VFC12682
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/20/2015 3:45:00PM

Prep Batch: VXX27937
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/20/2015 8:00:00AM
Prep Initial Wt./Vol.: 123.06g
Prep Extract Vol: 25.00mL

Print Date: 10/15/2015 5:29:32PM

Method Blank

Blank ID: MB for HBN 1720935 [VXX/27942]
Blank Lab ID: 1292418

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630019, 1158630024, 1158630025, 1158630026, 1158630027

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	77.3	50-150		%

Batch Information

Analytical Batch: VFC12683
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/21/2015 12:10:00PM

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 9/21/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27942]
Blank Spike Lab ID: 1292421
Date Analyzed: 09/21/2015 13:07

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27942]
Spike Duplicate Lab ID: 1292422
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630019, 1158630024, 1158630025, 1158630026, 1158630027

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	10.0	10.4	104	10.0	10.4	104	(60-120)	0.46	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	81.5	82	1.25	80.5	81	(50-150)	1.20	

Batch Information

Analytical Batch: **VFC12683**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27942**
Prep Method: **SW5035A**
Prep Date/Time: **09/21/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1720935 [VXX/27942]
Blank Lab ID: 1292418

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630019, 1158630024, 1158630025, 1158630026, 1158630027

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0168J	0.0500	0.0150	mg/Kg
Toluene	0.0128J	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	87.8	72-119		%

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/21/2015 12:10:00PM

Prep Batch: VXX27942
Prep Method: SW5035A
Prep Date/Time: 9/21/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27942]
Blank Spike Lab ID: 1292419
Date Analyzed: 09/21/2015 12:29

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27942]
Spike Duplicate Lab ID: 1292420
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630019, 1158630024, 1158630025, 1158630026, 1158630027

Results by **SW8021B**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.42	114	1.25	1.40	112	(75-125)	1.60	(< 20)
Ethylbenzene	1.25	1.34	107	1.25	1.33	106	(75-125)	0.81	(< 20)
o-Xylene	1.25	1.24	100	1.25	1.24	99	(75-125)	0.24	(< 20)
P & M -Xylene	2.50	2.59	103	2.50	2.56	102	(80-125)	0.92	(< 20)
Toluene	1.25	1.31	105	1.25	1.29	103	(70-125)	1.50	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	92.5	93	1.25	91.9	92	(72-119)	0.59	

Batch Information

Analytical Batch: **VFC12683**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27942**
Prep Method: **SW5035A**
Prep Date/Time: **09/21/2015 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1292578
MS Sample ID: 1292423 MS
MSD Sample ID: 1292424 MSD

Analysis Date: 09/21/2015 14:42
Analysis Date: 09/21/2015 15:01
Analysis Date: 09/21/2015 15:20
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630019, 1158630024, 1158630025, 1158630026, 1158630027

Results by **SW8021B**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Benzene	0.00600J	0.910	1.06	116		0.910	1.04	114		75-125	1.50	(< 20)
Ethylbenzene	0.117	0.910	1.08	106		0.910	1.06	104		75-125	1.70	(< 20)
o-Xylene	1.02	0.910	1.15	15	*	0.910	1.13	13	*	75-125	1.60	(< 20)
P & M -Xylene	0.317	1.82	2.37	113		1.82	2.33	111		80-125	1.60	(< 20)
Toluene	0.0155J	0.910	0.954	103		0.910	0.938	101		70-125	1.70	(< 20)
Surrogates												
1,4-Difluorobenzene (surr)		0.910	0.869	96		0.910	0.866	95		72-119	0.44	

Batch Information

Analytical Batch: VFC12683
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/21/2015 3:01:00PM

Prep Batch: VXX27942
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/21/2015 8:00:00AM
Prep Initial Wt./Vol.: 68.70g
Prep Extract Vol: 25.00mL

Print Date: 10/15/2015 5:29:39PM

Method Blank

Blank ID: MB for HBN 1721048 [VXX/27948]
Blank Lab ID: 1292787

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630009, 1158630010, 1158630011, 1158630012

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	74.7	50-150		%

Batch Information

Analytical Batch: VFC12685
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/22/2015 8:39:00PM

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 9/22/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27948]
Blank Spike Lab ID: 1292790
Date Analyzed: 09/22/2015 21:36

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27948]
Spike Duplicate Lab ID: 1292791
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630009, 1158630010, 1158630011, 1158630012

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	10.0	10.9	109	10.0	10.4	104	(60-120)	4.40	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	79.8	80	1.25	78.4	78	(50-150)	1.80	

Batch Information

Analytical Batch: **VFC12685**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27948**
Prep Method: **SW5035A**
Prep Date/Time: **09/22/2015 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1721048 [VXX/27948]
Blank Lab ID: 1292787

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630009, 1158630010, 1158630011, 1158630012

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.00625U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
Surrogates				
1,4-Difluorobenzene (surr)	87.4	72-119		%

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/22/2015 8:39:00PM

Prep Batch: VXX27948
Prep Method: SW5035A
Prep Date/Time: 9/22/2015 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [VXX27948]
Blank Spike Lab ID: 1292788
Date Analyzed: 09/22/2015 20:58

Spike Duplicate ID: LCSD for HBN 1158630 [VXX27948]
Spike Duplicate Lab ID: 1292789
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630009, 1158630010, 1158630011, 1158630012

Results by **SW8021B**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	1.25	1.32	105	1.25	1.32	106	(75-125)	0.23	(< 20)
Ethylbenzene	1.25	1.25	100	1.25	1.26	101	(75-125)	0.66	(< 20)
o-Xylene	1.25	1.15	92	1.25	1.16	93	(75-125)	0.76	(< 20)
P & M -Xylene	2.50	2.43	97	2.50	2.44	98	(80-125)	0.61	(< 20)
Toluene	1.25	1.29	103	1.25	1.29	103	(70-125)	0.47	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	1.25	90.3	90	1.25	89.6	90	(72-119)	0.76	

Batch Information

Analytical Batch: **VFC12685**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **CRD**

Prep Batch: **VXX27948**
Prep Method: **SW5035A**
Prep Date/Time: **09/22/2015 08:00**
Spike Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/Kg Extract Vol: 25 mL

Matrix Spike Summary

Original Sample ID: 1155479003
MS Sample ID: 1292792 MS
MSD Sample ID: 1292793 MSD

Analysis Date: 09/22/2015 23:11
Analysis Date: 09/22/2015 23:30
Analysis Date: 09/22/2015 23:49
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630009, 1158630010, 1158630011, 1158630012

Results by **SW8021B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	0.0160	0.954	1.07	111	0.954	1.06	110	75-125	1.10	(< 20)
Ethylbenzene	0.0271	0.954	1.02	104	0.954	1.01	103	75-125	1.00	(< 20)
o-Xylene	0.0388	0.954	0.956	96	0.954	0.946	95	75-125	1.10	(< 20)
P & M -Xylene	0.124	1.91	2.03	100	1.91	2.01	99	80-125	1.10	(< 20)
Toluene	0.115	0.954	1.04	97	0.954	1.03	96	70-125	1.10	(< 20)
Surrogates										
1,4-Difluorobenzene (surr)		0.954	0.892	93	0.954	0.895	94	72-119	0.36	

Batch Information

Analytical Batch: VFC12685
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: CRD
Analytical Date/Time: 9/22/2015 11:30:00PM

Prep Batch: VXX27948
Prep Method: AK101 Extraction (S)
Prep Date/Time: 9/22/2015 8:00:00AM
Prep Initial Wt./Vol.: 69.53g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1720883 [XXX/34193]
Blank Lab ID: 1292165

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016, 1158630017, 1158630018, 1158630019, 1158630020

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	86.5	60-120		%

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK102
Instrument: HP 7890A FID SV E F
Analyst: KJO
Analytical Date/Time: 9/26/2015 4:15:00PM

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 9/21/2015 11:22:38AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [XXX34193]
Blank Spike Lab ID: 1292166
Date Analyzed: 09/30/2015 04:08

Spike Duplicate ID: LCSD for HBN 1158630 [XXX34193]
Spike Duplicate Lab ID: 1292167
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016, 1158630017, 1158630018, 1158630019, 1158630020

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	175	105	167		108	(75-125)	3.00	(< 20)
Surrogates									
5a Androstane (surr)	3.33	81.5	82	3.33	87.8	88	(60-120)	7.50	

Batch Information

Analytical Batch: **XFC12116**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **KJO**

Prep Batch: **XXX34193**
Prep Method: **SW3550C**
Prep Date/Time: **09/21/2015 11:22**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1720883 [XXX/34193]
Blank Lab ID: 1292165

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016, 1158630017, 1158630018, 1158630019, 1158630020

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)	94.1	60-120		%

Batch Information

Analytical Batch: XFC12110
Analytical Method: AK103
Instrument: HP 7890A FID SV E F
Analyst: KJO
Analytical Date/Time: 9/26/2015 4:15:00PM

Prep Batch: XXX34193
Prep Method: SW3550C
Prep Date/Time: 9/21/2015 11:22:38AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [XXX34193]
Blank Spike Lab ID: 1292166
Date Analyzed: 09/30/2015 04:08

Spike Duplicate ID: LCSD for HBN 1158630 [XXX34193]
Spike Duplicate Lab ID: 1292167
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630001, 1158630002, 1158630003, 1158630004, 1158630005, 1158630006, 1158630007, 1158630008, 1158630009, 1158630010, 1158630011, 1158630012, 1158630013, 1158630014, 1158630015, 1158630016, 1158630017, 1158630018, 1158630019, 1158630020

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	169	102	167		107	(60-120)	5.50	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	84.7	85	3.33	90.3	90	(60-120)	6.30	

Batch Information

Analytical Batch: **XFC12116**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **KJO**

Prep Batch: **XXX34193**
Prep Method: **SW3550C**
Prep Date/Time: **09/21/2015 11:22**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1720912 [XXX/34197]
Blank Lab ID: 1292301

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630021, 1158630022, 1158630023, 1158630024, 1158630025

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	15.9J	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	85.7	60-120		%

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK102
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 9/28/2015 6:15:00PM

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 9/21/2015 4:29:59PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [XXX34197]
Blank Spike Lab ID: 1292302
Date Analyzed: 09/28/2015 18:25

Spike Duplicate ID: LCSD for HBN 1158630 [XXX34197]
Spike Duplicate Lab ID: 1292303
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630021, 1158630022, 1158630023, 1158630024, 1158630025

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	149	89	167	130	78	(75-125)	13.10	(< 20)
Surrogates									
5a Androstane (surr)	3.33	117	117	3.33	101	101	(60-120)	14.50	

Batch Information

Analytical Batch: **XFC12112**
Analytical Method: **AK102**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34197**
Prep Method: **SW3550C**
Prep Date/Time: **09/21/2015 16:29**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1720912 [XXX/34197]
Blank Lab ID: 1292301

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630021, 1158630022, 1158630023, 1158630024, 1158630025

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)	98.4	60-120		%

Batch Information

Analytical Batch: XFC12112
Analytical Method: AK103
Instrument: HP 6890 Series II FID SV D R
Analyst: NLL
Analytical Date/Time: 9/28/2015 6:15:00PM

Prep Batch: XXX34197
Prep Method: SW3550C
Prep Date/Time: 9/21/2015 4:29:59PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158630 [XXX34197]
Blank Spike Lab ID: 1292302
Date Analyzed: 09/28/2015 18:25

Spike Duplicate ID: LCSD for HBN 1158630 [XXX34197]
Spike Duplicate Lab ID: 1292303
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630021, 1158630022, 1158630023, 1158630024, 1158630025

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	155	93	167	134	80	(60-120)	14.40	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	3.33	105	105	3.33	91.3	91	(60-120)	13.80	

Batch Information

Analytical Batch: **XFC12112**
Analytical Method: **AK103**
Instrument: **HP 6890 Series II FID SV D R**
Analyst: **NLL**

Prep Batch: **XXX34197**
Prep Method: **SW3550C**
Prep Date/Time: **09/21/2015 16:29**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1720980 [XXX/34210]
Blank Lab ID: 1292620

Matrix: Soil/Solid (dry weight)

QC for Samples:
1158630007, 1158630017, 1158630018, 1158630024

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00250U	0.00500	0.00150	mg/Kg
Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Chrysene	0.00250U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00250U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Fluorene	0.00250U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00250U	0.00500	0.00150	mg/Kg
Naphthalene	0.00250U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00250U	0.00500	0.00150	mg/Kg
Pyrene	0.00250U	0.00500	0.00150	mg/Kg
Surrogates				
2-Fluorobiphenyl (surr)	88.5	46-115		%
Terphenyl-d14 (surr)	108	58-113		%

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: NRB
Analytical Date/Time: 10/14/2015 6:40:00PM

Prep Batch: XXX34210
Prep Method: SW3550C
Prep Date/Time: 9/22/2015 4:14:54PM
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 1158630 [XXX34210]
Blank Spike Lab ID: 1292621
Date Analyzed: 10/14/2015 18:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630007, 1158630017, 1158630018, 1158630024

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

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	0.0222	0.0162	73		(43-111)
2-Methylnaphthalene	0.0222	0.0154	69		(39-114)
Acenaphthene	0.0222	0.0153	69		(44-111)
Acenaphthylene	0.0222	0.0120	54		(39-116)
Anthracene	0.0222	0.0108	48	*	(50-114)
Benzo(a)Anthracene	0.0222	0.0185	83		(54-122)
Benzo[a]pyrene	0.0222	0.00951	43	*	(50-125)
Benzo[b]Fluoranthene	0.0222	0.0202	91		(53-128)
Benzo[g,h,i]perylene	0.0222	0.0214	96		(49-127)
Benzo[k]fluoranthene	0.0222	0.0203	91		(56-123)
Chrysene	0.0222	0.0212	96		(57-118)
Dibenzo[a,h]anthracene	0.0222	0.0225	101		(50-129)
Fluoranthene	0.0222	0.0199	90		(55-119)
Fluorene	0.0222	0.0167	75		(47-114)
Indeno[1,2,3-c,d] pyrene	0.0222	0.0217	98		(49-130)
Naphthalene	0.0222	0.0146	66		(38-111)
Phenanthrene	0.0222	0.0190	85		(49-113)
Pyrene	0.0222	0.0194	87		(55-117)
Surrogates					
2-Fluorobiphenyl (surr)	0.0222	77.2	77		(46-115)
Terphenyl-d14 (surr)	0.0222	103	103		(58-113)

Batch Information

Analytical Batch: **XMS8982**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **NRB**

Prep Batch: **XXX34210**
Prep Method: **SW3550C**
Prep Date/Time: **09/22/2015 16:14**
Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1155479008
MS Sample ID: 1292622 MS
MSD Sample ID: 1292623 MSD

Analysis Date: 10/14/2015 22:08
Analysis Date: 10/14/2015 22:24
Analysis Date: 10/14/2015 22:40
Matrix: Soil/Solid (dry weight)

QC for Samples: 1158630007, 1158630017, 1158630018, 1158630024

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

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)						
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	6.09	0.0256	5.37	-2810	*	0.0256	3.78	-9020	*	43-111	34.90	* (< 20)
2-Methylnaphthalene	5.31	0.0256	4.31	-3890	*	0.0256	3.12	-8560	*	39-114	32.30	* (< 20)
Acenaphthene	0.113J	0.0256	0.130	510	*	0.0256	0.104J	407	*	44-111	21.90	* (< 20)
Acenaphthylene	0.0570U	0.0256	0.0988J	387	*	0.0256	0.106J	415	*	39-116	7.30	(< 20)
Anthracene	0.0570U	0.0256	0.0544J	213	*	0.0256	0.0392J	153	*	50-114	32.50	* (< 20)
Benzo(a)Anthracene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	54-122	0.00	(< 20)
Benzo[a]pyrene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	50-125	0.00	(< 20)
Benzo[b]Fluoranthene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	53-128	0.00	(< 20)
Benzo[g,h,i]perylene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	49-127	0.00	(< 20)
Benzo[k]fluoranthene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	56-123	0.00	(< 20)
Chrysene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	57-118	0.00	(< 20)
Dibenzo[a,h]anthracene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	50-129	0.00	(< 20)
Fluoranthene	0.0570U	0.0256	0.0437J	171	*	0.0256	0.00J	0	*	55-119	0.00	(< 20)
Fluorene	0.282	0.0256	0.269	-52	*	0.0256	0.213	-270	*	47-114	23.30	* (< 20)
Indeno[1,2,3-c,d] pyrene	0.0570U	0.0256	0.0570U	0	*	0.0256	0.00J	0	*	49-130	0.00	(< 20)
Naphthalene	1.49	0.0256	1.31	-719	*	0.0256	1.10	-1520	*	38-111	17.00	(< 20)
Phenanthrene	0.0595J	0.0256	0.0724J	284	*	0.0256	0.0514J	201	*	49-113	33.90	* (< 20)
Pyrene	0.0570U	0.0256	0.0401J	157	*	0.0256	0.00J	0	*	55-117	0.00	(< 20)
Surrogates												
2-Fluorobiphenyl (surr)		0.0256	0.0622	244	*	0.0256	0.0377	147	*	46-115	49.00	
Terphenyl-d14 (surr)		0.0256	0.0326	128	*	0.0256	0.0287	112		58-113	12.70	

Batch Information

Analytical Batch: XMS8982
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: NRB
Analytical Date/Time: 10/14/2015 10:24:00PM

Prep Batch: XXX34210
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/22/2015 4:14:54PM
Prep Initial Wt./Vol.: 22.77g
Prep Extract Vol: 1.00mL

1158630

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

CHAIN-[illegible]ECORD

Laboratory SGS
Attn: Jen Dawkins

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	BTEX pres. w/methanol	GRO pres. w/methanol	DRO	RRO	PAH		Total Number of Containers	Remarks/Matrix
T48	(1) A-B	1205	9/12/15		X	X	X	X	X			2	T48 leaked methanol at SOIL
T480	(2) A-B	1155			X	X	X	X	X			2	
T40	(3) A-B	1230			X	X	X	X	X			2	
T45	(4) A-B	1234			X	X	X	X	X			2	
T19	(5) A-B	1238			X	X	X	X	X			2	
T36	(6) A-B	1240			X	X	X	X	X			2	
E1-1	(7) A-B	1503			X	X	X	X	X	X		2	
E1-2	(8) A-B	1511			X	X	X	X	X			2	
E1-3	(9) A-B	1520			X	X	X	X	X			2	
E1-4	(10) A-B	1530	↓		X	X	X	X	X			2	

Project Information		Sample Receipt	
Project Number:	311765-005	Total Number of Containers	50
Project Name:	BrwULSDShop#2	COC Seals/Intact? Y/N/NA	—
Contact:	VEW	Received Good Cond./Cold	—
Ongoing Project?	Yes ☒ No ☒	Delivery Method:	Hand
Sampler:	APW, ELB	(attach shipping bill, if any)	

Instructions

Requested Turnaround Time: Standard

Special Instructions:
Bill to Shannon & Wilson, Inc.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1140	Signature: Time: 1500	Signature: Time:
Printed Name: Adam Wyborny Date: 9-15-15	Printed Name: Nicole Warner Date: 9/15/15	Printed Name: Date:
Company: SWI	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1140	Signature: Time:	Signature: Time: 0904
Printed Name: Nicole Warner Date: 9/15/15	Printed Name: Date:	Printed Name: Erik Johnson Date: 9/16/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

TB 4.0134

ANC 2 side
3.1 #D2, J.5 #D2

No. 33563

1158630

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
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St. Louis, MO 63146-3564
(314) 699-9660

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Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Page 2 of 3

Laboratory SGS
Attn: Jen Dawkins

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	BTEX pres. w/methanol	GRO pres. w/methanol	DRO	RRO	PAH	Total Number of Containers	Remarks/Matrix
EI-40	(11) A-B	1522	9/12/15		X	X	X	X	X		2	Soil
EI-5	(12) A-B	1526			X	X	X	X	X		2	
EI-6	(13) A-B	1515			X	X	X	X	X		2	
EI-7	(14) A-B	1510			X	X	X	X	X		2	
SW-1	(15) A-B	1708			X	X	X	X	X		2	
SW-2	(16) A-B	1711			X	X	X	X	X		2	
SW-3	(17) A-B	1720			X	X	X	X	X	X	2	
SW-30	(18) A-B	1715			X	X	X	X	X	X	2	
SW-4	(19) A-B	1730			X	X	X	X	X		2	
SW-5	(20) A-B	1725	↓		X	X	X	X	X		2	↓

Project Information	
Project Number:	
Project Name:	
Contact:	
Ongoing Project? Yes ☐ No ☐	
Sampler:	

Sample Receipt	
Total Number of Containers	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Delivery Method:	
(attach shipping bill, if any)	

Instructions

Requested Turnaround Time:

Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Adam Wyborny	Signature:	Signature:
Time: 1140	Time: 1500	Time:
Printed Name: Adam Wyborny	Printed Name: Nicole Wamu	Printed Name:
Date: 9-15-15	Date: 9/15/15	Date:
Company: SWI	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature:	Signature:	Signature:
Time: 1140	Time:	Time: 0905
Printed Name: Nicole Wamu	Printed Name:	Printed Name: Erik Johnson
Date: 9/15/15	Date:	Date: 9/16/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

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F-19-91/UR

TB 4.0, 3.4

No. 33562

1158630

SHANNON & WILSON, INC. — CHAIN OF CUSTODY RECORD

Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
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Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Laboratory: SGS
Attn: Jen Dawkins

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	BTEX pres. w/Methanol	GRO pres. w/Methanol	DRO	RRO	PAH		Total Number of Containers	Remarks/Matrix
SW-6	(21) A-B	1718	9/12/15		X	X	X	X	X			2	Soil
SW-7	(22) A-B	1710			X	X	X	X	X			2	
SW-8	(23) A-B	1705			X	X	X	X	X			2	
SS46	(24) A-B	1930			X	X	X	X	X	X		2	
SS460	(25) A-B	1920			X	X	X	X	X			2	
TripBlank1	(26) A	—	—			X	X					—	Soil prepared by SGS
TripBlank2	(27) A	—	—			X	X					—	

Project Information		Sample Receipt	
Project Number:		Total Number of Containers	
Project Name:		COC Seals/Intact? Y/N/NA	
Contact:		Received Good Cond./Cold	
Ongoing Project? Yes ☐ No ☐		Delivery Method: (attach shipping bill, if any)	
Sampler:			

Instructions

Requested Turnaround Time:

Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1140	Signature: Time: 1500	Signature: Time:
Printed Name: Adam Wyborny Date: 9-15-15	Printed Name: Nicole Warner Date: 9/15/15	Printed Name: Date:
Company: SWI	Company: SGS	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time: 1140	Signature: Time:	Signature: Time: 0959
Printed Name: Nicole Warner Date: 9/15/15	Printed Name: Date:	Printed Name: Erik Johnson Date: 9/16/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

* Trip Blanks transported with the samples at all times — one trip blank per cooler. TB 9.01.34

No. 33561

SGS

SGS WO#
1158630

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	~~Yes~~ No ~~N/A~~ ~~Yes~~ No N/A	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: 1 @ 4.0 w/Therm. ID: D6 Cooler ID: 2 @ 3.4 w/Therm. ID: D7 Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ Cooler ID:____ @____ w/Therm. ID:____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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"	~~Yes~~ No Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: ~~Client (hand carried)~~ Other:____	Tracking/AB# : Or see attached ~~Or N/A~~	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/~~cracks/breakage~~)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:____	~~Yes~~ No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	~~Yes~~ No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No ~~N/A~~ Yes No ~~N/A~~	
Additional notes (if applicable):		

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

1158630

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ ☑	☐ ☐	☐ ☐	***Exemption permitted if sampler hand carries/delivers.*** 2 Side
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6 °C, were samples collected <8 hours ago?* *If <0 °C, were all sample containers ice free?* Cooler ID: [1] _____ @ 3.1 w/ Therm.ID: D2 Cooler ID: [2] _____ @ 5.5 w/ Therm.ID: D2 Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☐Client (hand carried) ☐USPS ☑Lynden ☐AK Air ☐Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	☐	☑	☐	
	Yes	N/A	No	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☑ ☑	☐ ☐ ☐	☐ ☐ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.***
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☑Bubble Wrap ☑Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☑ ☐ ☑	☐ ☐ ☑ ☐	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☐ ☐	☑ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☐	☑	☐	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☐	☑	☐	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: EDJ PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☑	☐	☐	Peer Reviewed by: KV

Additional notes (if applicable):

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1158630001-A	No Preservative Required	OK	1158630022-A	No Preservative Required	OK
1158630001-B	Methanol field pres. 4 C	OK	1158630022-B	Methanol field pres. 4 C	OK
1158630002-A	No Preservative Required	OK	1158630023-A	No Preservative Required	OK
1158630002-B	Methanol field pres. 4 C	OK	1158630023-B	Methanol field pres. 4 C	OK
1158630003-A	No Preservative Required	OK	1158630024-A	No Preservative Required	OK
1158630003-B	Methanol field pres. 4 C	OK	1158630024-B	Methanol field pres. 4 C	OK
1158630004-A	No Preservative Required	OK	1158630025-A	No Preservative Required	OK
1158630004-B	Methanol field pres. 4 C	OK	1158630025-B	Methanol field pres. 4 C	OK
1158630005-A	No Preservative Required	OK	1158630026-A	Methanol field pres. 4 C	OK
1158630005-B	Methanol field pres. 4 C	OK	1158630027-A	Methanol field pres. 4 C	OK
1158630006-A	No Preservative Required	OK			
1158630006-B	Methanol field pres. 4 C	OK			
1158630007-A	No Preservative Required	OK			
1158630007-B	Methanol field pres. 4 C	OK			
1158630008-A	No Preservative Required	OK			
1158630008-B	Methanol field pres. 4 C	OK			
1158630009-A	No Preservative Required	OK			
1158630009-B	Methanol field pres. 4 C	OK			
1158630010-A	No Preservative Required	OK			
1158630010-B	Methanol field pres. 4 C	OK			
1158630011-A	No Preservative Required	OK			
1158630011-B	Methanol field pres. 4 C	OK			
1158630012-A	No Preservative Required	OK			
1158630012-B	Methanol field pres. 4 C	OK			
1158630013-A	No Preservative Required	OK			
1158630013-B	Methanol field pres. 4 C	OK			
1158630014-A	No Preservative Required	OK			
1158630014-B	Methanol field pres. 4 C	OK			
1158630015-A	No Preservative Required	OK			
1158630015-B	Methanol field pres. 4 C	OK			
1158630016-A	No Preservative Required	OK			
1158630016-B	Methanol field pres. 4 C	OK			
1158630017-A	No Preservative Required	OK			
1158630017-B	Methanol field pres. 4 C	OK			
1158630018-A	No Preservative Required	OK			
1158630018-B	Methanol field pres. 4 C	OK			
1158630019-A	No Preservative Required	OK			
1158630019-B	Methanol field pres. 4 C	OK			
1158630020-A	No Preservative Required	OK			
1158630020-B	Methanol field pres. 4 C	OK			
1158630021-A	No Preservative Required	OK			
1158630021-B	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.
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.
BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by: Adam Wyborny

Title: Environmental Engineering Staff Date: October 16, 2015

CS Report Name: BrwULSDShop#2 Report Date: October 15, 2015

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1158630

ADEC File Number: Spill No. 15399908701 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:

      Analyses were performed by SGS North America, Inc. in Anchorage, Alaska.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      We note that the project samples 1158630-007 through 1158630-014 were logged in with the prefix "EI" and should have been logged with the prefix "E1". The sample results are not considered to be affected by this discrepancy.

   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:

      Temperature blanks and/or the cooler were measured within the acceptable temperature range of 0 °C to 6 °C upon receipt at the SGS Fairbanks receiving office and Anchorage laboratory. This range has been approved by ADEC.

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:

Samples were received in good condition.

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

There were no discrepancies that needed to be reported by the laboratory.

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

The data quality and usability were not affected; see above.

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:

Project samples T480, T40, T45, T36, SW-1, SW-4, SS46, and SS460 had surrogate recoveries that did not meet QC criteria (biased high) for 4-bromofluorobenzene due to matrix interference for analysis by AK101.

The project samples E1-3, E1-4, E1-40, and E1-5 had surrogate recoveries that did not meet QC criteria (biased low) for 4-bromofluorobenzene for analysis by AK101.

Project samples E1-2, E1-3, E1-4, E1-40, and E1-5 had surrogate recoveries that did not meet QC criteria for 5a-androstane (biased high) due to hydrocarbon interference for analysis by AK102.

Project samples T40, E1-1, and E1-6 had surrogate recoveries that did not meet QC criteria for 5a-androstane (0%) due to sample dilution for analysis by AK102.

Project samples E1-1, E1-2, E1-4, E1-40, E1-6, and SW-4 had surrogate recoveries that did not meet QC criteria for n-triacontane (0%) due to sample dilution for analysis by AK103.

Project samples SW-3 and SS46 had surrogate recoveries that did not meet QC criteria for 2-fluorobiphenyl (biased high) due to sample dilution for analysis by 8270D SIM.

Project samples SW-3 and SW-30 had elevated LOQs for PAH analysis due to sample dilution. The samples were diluted due to matrix interference.

The MB (1292301) contained a DRO concentration that was greater than one half the LOQ, but less than the LOQ.

The LCS (1292621) recoveries for anthracene and benzo[a]pyrene did not meet QC criteria (biased low) and the associated samples could not be re-extracted within hold time.

The MS (1292423) and MSD (1292424) recoveries for o-xylene did not meet QC criteria (biased low) due to matrix interference for analysis by 8021B. Refer to LCS/LSCS for accuracy requirements.

The MS (1292622) and MSD (1292623) had surrogate recoveries for 2-fluorobiphenyl and the MS (1292622) had a surrogate recovery failure for terphenyl-d14 did not meet QC criteria (biased high) due to sample dilution (20X) for analysis by 8270D SIM.

The MS (1292622) and MSD (1292623) had recoveries and RPDs for several analytes that did not meet QC criteria.

c. Were all corrective actions documented?

☒Yes ☐ No ☐NA (Please explain.) Comments:

Project samples E1-3, E1-4, E1-40, and E1-5 were analyzed twice to confirm the results.

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

Comments:

The laboratory does not specify any effect on the data quality or usability due to the QC failures; refer to sections 6.a., 6.b., and 6.c. for further assessment.

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:

Reporting values were below ADEC-established soil migration to groundwater cleanup levels (CULs), where applicable for non-detect results.

e. Data quality or usability affected?

Comments:

The data quality/usability were not affected; see above.

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:

However, the following mehtod blanks had detections below the LOQ at estimated concentrtaions.

MB (1292158) associated with Prep Batch VXX27937 had detections for p- & m-xylenes and toluene at estimated concentrations of 0.0158J mg/Kg and 0.0118J mg/Kg, respectively. MB (1292418) associated with Prep Batch VXX27942 had detections for p- & m-xylenes and toluene at estimated concentrations of 0.0168J mg/Kg and 0.0128J mg/Kg, respectively.
MB (1292301) associated with Prep Batch XXX34197 had detections for DRO at an estimated concentration of 15.9J mg/kg.

iii. If above PQL, what samples are affected?

Comments:

Project samples are associated with the method blank detection if they are from the same Prep Batch. Project samples are not considered to be affected if the sample results are non-detect or if the result is greater than ten times the method blank detection.

The project samples affected by the MB (1292158) are T480, T40, T45, T36, E1-1, E1-2, SW-1, SW-2, SW-3, SW-30, and SW-7.
The project samples affected by the MB (1292418) are T48, SW-4, SS46, and SS460.
The project samples affected by the MB (1292301) detection for DRO are SW-6, SW-7, and SW-8.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
☒Yes ☐ No ☐NA (Please explain.) Comments:

The project samples SW-1, SW-30, and SW-4 had detections for p & m-xylene that were between five and ten times the method blank detection. The p & m-xylene results for these samples are considered estimated, biased high, and are flagged 'JH*' in the analytical results table.

The project samples T36, E1-1, SW-2, SW-3, and SW-7 had detections for p & m-xylene that were less than five times the method blank detection. The p & m-xylen results for these samples are considered to be non-detect and are flagged 'B*' in the analytical results table at the detected value or the LOQ (whichever value is greater).

The project sample T45 had a detection for toluene that was between five and ten times the method blank detection. The toluene result for this sample is considered estimated, biased high, and is flagged 'JH*' in the analytical results table.

The project samples T48, T480, T40, E1-2, SW-1, SW-30, SW-4, SS46, and SW460 had detections for toluene that were less than five times the method blank detection. The toluene results for these samples are considered to be non-detect and are flagged 'B*' in the analytical results table at the detected value or the LOQ (whichever value is greater).

The project samples SW-6, SW-7, and SW-8 had detections for DRO that were less than five times the method blank detection. The DRO results for these samples are considered to be non-detect and are flagged 'B*' in the analytical results table at the detected value or the LOQ (whichever value is greater).

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

Comments:

The data quality was affected; see above.

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:

LCS/LCSD samples were reported for GRO, DRO, and RRO analyses. LCS and MS/MSD samples were reported for PAH analysis. LCS/LCSD and MS/MSD samples were reported for BTEX analysis.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

Only organic analysis were requested in this work order.

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:

The LCS (1292621) associated with QC Batch XXX34210 had recoveries for anthracene and benzo[a]pyrene that did not meet QC criteria (biased low). The MS (1292622) and MSD (1292623) associated with QC Batch XXX34210 exhibited recovery failures for each analyte.

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

☐Yes ☒ No ☐NA (Please explain.) Comments:

MS (1292622)/ MSD (1292623) associated with QC Batch XXX34210 exhibited RPD failures for multiple analytes.

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

Comments:

The QC failures associated with MS (1292622) and MSD (1292623) were the result of sample dilution. The associated project samples are not considered to be affected by MS/MSD recovery and RPD failures due to dilution. The QC failures in LCS (1292621) are considered to affect project samples E1-1, SW-3, SW-30, and SS46.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☒Yes ☐ No ☐NA (Please explain.) Comments:

Anthracene and benzo[a]pyrene were not detected in project samples E1-1, SW-3, SW-30, and SS46. The results are considered estimated and are flagged 'J*' in the analytical results table.

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

The data quality/usability was affected; see above.

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:

Project samples E1-3, E1-4, E1-40, and E1-5 had surrogate recoveries that did not meet QC criteria (biased low) for 4-bromofluorobenzene for analysis by AK101. Project samples T40, T480, T45, T36, SW-1, SW-4, SS46, and SS460 had surrogate recoveries that did not meet QC criteria (biased high) for 4-bromofluorobenzene due to matrix interference for analysis by AK101. Project samples E1-2, E1-3, E1-4, E1-40, and E1-5 had surrogate recoveries that did not meet QC criteria for 5a-androstane (biased high) due to sample dilution for analysis by AK102. Project samples T40, E1-1, and E1-6 had surrogate recoveries that did not meet QC criteria for 5a-androstane (0%) due to sample dilution for analysis by AK102. Project samples E1-1, E1-2, E1-4, E1-40, E1-6, and SW-4 had surrogate recoveries that did not meet QC criteria for n-triacontane (0%) due to sample dilution for analysis by AK103. Project samples SW-3 and SS46 had surrogate recoveries that did not meet QC criteria for 2-fluorobiphenyl (biased high) due to sample dilution for analysis by 8270D SIM.

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:

The recovery of 4-bromofluorobenzene did not meet QC criteria (biased high) for project samples T40, T480, T45, T36, SW-1, SW-4, SS46, and SS460. The sample results for GRO are considered estimated, biased high, and flagged 'JH*' in the analytical results table.

The recovery of 4-bromofluorobenzene did not meet QC criteria (biased low) for project samples E1-3, E1-4, E1-40, and E1-5. The sample results for GRO are considered estimated, biased low, and flagged 'JL*' in the analytical results table.

Project samples are not considered to be affected by surrogate recovery failures due to sample dilution.

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

Comments:

The data quality is affected, see above.

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:

The COC states that a trip blank was present in each of the two coolers containing VOA samples. However, the COC does not specify which trip blank accompanied which cooler.

iii. All results less than PQL?

☐Yes ☒ No ☐NA (Please explain.) Comments:

GRO was detected in TripBlank1 at a concentration of 1.51J mg/kg below the PQL.

iv. If above PQL, what samples are affected?

Since it cannot be definitively known which cooler contained TripBlank1 the GRO results of all samples must be considered affected by the detection.

Comments:

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

Comments:

The project samples T19, T36, E1-1, E1-2, E1-3, E1-4, E1-40, E1-5, E1-6, SW-2, SW-3, SW-30, SW-5, SW-6, SW-7, and SW-8 had GRO detections less than five times the detection in the trip blank. The GRO concentrations in these samples are considered not-detected and flagged 'B*' in the analytical results table at the detected value or the LOQ (whichever value is greater). However, project sample T36, E1-3, E1-4, E1-40, and E1-5 were already flagged for surrogate recovery failures. The results are considered non-detect due to the trip blank detection.

The project samples E1-7 and SW-4 had GRO detections between five and ten times the detection in the trip blank. The GRO concentrations in these samples are considered biased high, and flagged 'JH*' in the analytical results table. However project sample SW-4 was already flagged for a surrogate recovery failure, further qualification is not required.

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:

The field duplicate pairs T48/T480, E1-4/E1-40, SW-3/SW-30, and SS46/SS460 were submitted with this work order.

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐Yes ☒ No ☐NA (Please explain.) Comments:

The field duplicate RPDs for GRO, o-xylene, and p- & m- xylene did not meet QC criteria in field duplicate pair T48/T480.

The RPD value for p- & m- xylene did not meet QC criteria in field duplicate pair SW-3/SW-30.

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

Comments:

The GRO, o-xylene, and p- & m- xylene concentrations in project samples T48 and T480 are considered estimates and flagged 'J*' in the analytical results table. The GRO result for T480 was previously qualified due to a surrogate recovery failure, further qualificaion is not required. The p- & m- xylene concentrations in project samples SW-3 and SW-30 are considered estimates and flagged 'J*' in the analytical results table. However these concentrations were already flagged for a method blank detection, further qualification is not required.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

Equipment blanks were not submitted with this work order due to the nature of the project.

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

Equipment blanks were not required for the project.

ii. If above PQL, what samples are affected?

Comments:

N/A; equipment blanks were not required for the project.

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

Comments:

The data quality and usability were not affected; see above.

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

a. Defined and appropriate?

☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no other data flags/qualifiers.

SGS LABORATORY REPORT
1158629 – PRE-TREATMENT WATER RESULTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
907-479-0600

Report Number: **1158629**

Client Project: **31-1-11765-005 BRWShop#2**

Dear Valerie Webb,

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 Jennifer 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.

_____

Jennifer Dawkins Date
Project Manager

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

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158629**
Project Name/Site: **31-1-11765-005 BRWShop#2**
Project Contact: **Valerie Webb**

Refer to sample receipt form for information on sample condition.

Drum1-Pre (1158629001) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Drum2-Pre (1158629002) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Drum3-Pre (1158629003) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Drum4-Pre (1158629004) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Drum5-Pre (1158629005) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Drum6-Pre (1158629006) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Tank1-Pre (1158629007) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

Tank10-Pre (1158629008) PS

AK102 - The sample was re-extracted past the 14 day hold time. Reanalysis confirmed the original results and both in hold and out of hold data was reported.
Corrected Report: Out of hold confirmation DRO reporting.

MB for HBN 1720466 [XXX/34159] (1291388) MB

AK102/103 - DRO/RRO is detect in the MB greater than the LOQ. Samples were re-extracted and results confirmed with passing QC.

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

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
Drum1-Pre	1158629001	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Drum2-Pre	1158629002	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Drum3-Pre	1158629003	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Drum4-Pre	1158629004	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Drum5-Pre	1158629005	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Drum6-Pre	1158629006	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Tank1-Pre	1158629007	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
Tank10-Pre	1158629008	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)
TripBlank	1158629009	09/03/2015	09/16/2015	Water (Surface, Eff., Ground)

Method	Method Description
AK102	DRO Low Volume (W)
SW8260B	Volatile Organic Compounds (W)

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Detectable Results Summary

Client Sample ID: **Drum1-Pre**
Lab Sample ID: 1158629001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.23	mg/L
	Diesel Range Organics	1.40	mg/L

Client Sample ID: **Drum2-Pre**
Lab Sample ID: 1158629002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.11	mg/L
	Diesel Range Organics	1.87	mg/L

Client Sample ID: **Drum3-Pre**
Lab Sample ID: 1158629003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.49	mg/L
	Diesel Range Organics	2.13	mg/L

Client Sample ID: **Drum4-Pre**
Lab Sample ID: 1158629004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	10.1	mg/L
	Diesel Range Organics	9.19	mg/L
Volatile GC/MS	o-Xylene	18.9	ug/L
	P & M -Xylene	7.58	ug/L
	Toluene	0.380J	ug/L

Client Sample ID: **Drum5-Pre**
Lab Sample ID: 1158629005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	18.4	mg/L
	Diesel Range Organics	11.6	mg/L
Volatile GC/MS	o-Xylene	2.62	ug/L
	P & M -Xylene	1.27J	ug/L

Client Sample ID: **Drum6-Pre**
Lab Sample ID: 1158629006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	5.74	mg/L
	Diesel Range Organics	8.41	mg/L
Volatile GC/MS	o-Xylene	13.5	ug/L
	P & M -Xylene	3.22	ug/L

Client Sample ID: **Tank1-Pre**
Lab Sample ID: 1158629007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.774	mg/L
	Diesel Range Organics	1.38	mg/L

Client Sample ID: **Tank10-Pre**
Lab Sample ID: 1158629008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.18	mg/L
	Diesel Range Organics	0.926	mg/L

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Results of **Drum1-Pre**

Client Sample ID: **Drum1-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629001
Lab Project ID: 1158629

Collection Date: 09/03/15 11:42
Received Date: 09/16/15 09:04
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	1.23		0.577	0.173	mg/L	1		09/24/15 19:02
Diesel Range Organics	1.40		0.600	0.180	mg/L	1		10/03/15 18:07
Surrogates								
5a Androstane (surr)	88.3		50-150		%	1		10/03/15 18:07
5a Androstane (surr)	85.8		50-150		%	1		09/24/15 19:02

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 19:02
Container ID: 1158629001-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 18:07
Container ID: 1158629001-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of **Drum1-Pre**

Client Sample ID: **Drum1-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629001
Lab Project ID: 1158629

Collection Date: 09/03/15 11:42
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/16/15 23:37
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:37
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:37
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/16/15 23:37
Toluene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	107		81-118		%	1		09/16/15 23:37
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/16/15 23:37
Toluene-d8 (surr)	98.6		89-112		%	1		09/16/15 23:37

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/16/15 23:37
Container ID: 1158629001-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Drum2-Pre**

Client Sample ID: **Drum2-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629002
Lab Project ID: 1158629

Collection Date: 09/03/15 11:54
Received Date: 09/16/15 09:04
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	1.11		0.577	0.173	mg/L	1		09/24/15 19:23
Diesel Range Organics	1.87		0.588	0.176	mg/L	1		10/03/15 18:28
Surrogates								
5a Androstane (surr)	99		50-150		%	1		10/03/15 18:28
5a Androstane (surr)	81.8		50-150		%	1		09/24/15 19:23

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 19:23
Container ID: 1158629002-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 18:28
Container ID: 1158629002-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **Drum2-Pre**

Client Sample ID: **Drum2-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629002
Lab Project ID: 1158629

Collection Date: 09/03/15 11:54
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/16/15 23:53
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:53
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:53
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/16/15 23:53
Toluene	0.500	U	1.00	0.310	ug/L	1		09/16/15 23:53
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		09/16/15 23:53
4-Bromofluorobenzene (surr)	99.7		85-114		%	1		09/16/15 23:53
Toluene-d8 (surr)	96		89-112		%	1		09/16/15 23:53

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/16/15 23:53
Container ID: 1158629002-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Drum3-Pre**

Client Sample ID: **Drum3-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629003
Lab Project ID: 1158629

Collection Date: 09/03/15 12:03
Received Date: 09/16/15 09:04
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	1.49		0.556	0.167	mg/L	1		09/24/15 19:43
Diesel Range Organics	2.13		0.573	0.172	mg/L	1		10/03/15 18:49
Surrogates								
5a Androstane (surr)	85.5		50-150		%	1		09/24/15 19:43
5a Androstane (surr)	92.1		50-150		%	1		10/03/15 18:49

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 19:43
Container ID: 1158629003-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 18:49
Container ID: 1158629003-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 262 mL
Prep Extract Vol: 1 mL

Results of **Drum3-Pre**

Client Sample ID: **Drum3-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629003
Lab Project ID: 1158629

Collection Date: 09/03/15 12:03
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 00:10
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:10
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:10
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/17/15 00:10
Toluene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		09/17/15 00:10
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/17/15 00:10
Toluene-d8 (surr)	97.4		89-112		%	1		09/17/15 00:10

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 00:10
Container ID: 1158629003-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/15/2015 1:20:01PM

J flagging is activated

Results of **Drum4-Pre**

Client Sample ID: **Drum4-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629004
Lab Project ID: 1158629

Collection Date: 09/03/15 12:10
Received Date: 09/16/15 09:04
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	9.19		0.577	0.173	mg/L	1		10/03/15 19:09
Diesel Range Organics	10.1		0.556	0.167	mg/L	1		09/24/15 20:04
Surrogates								
5a Androstane (surr)	76.9		50-150		%	1		09/24/15 20:04
5a Androstane (surr)	89.2		50-150		%	1		10/03/15 19:09

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 20:04
Container ID: 1158629004-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 19:09
Container ID: 1158629004-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **Drum4-Pre**

Client Sample ID: **Drum4-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629004
Lab Project ID: 1158629

Collection Date: 09/03/15 12:10
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 00:26
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:26
o-Xylene	18.9		1.00	0.310	ug/L	1		09/17/15 00:26
P & M -Xylene	7.58		2.00	0.620	ug/L	1		09/17/15 00:26
Toluene	0.380	J	1.00	0.310	ug/L	1		09/17/15 00:26
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		09/17/15 00:26
4-Bromofluorobenzene (surr)	97.1		85-114		%	1		09/17/15 00:26
Toluene-d8 (surr)	96		89-112		%	1		09/17/15 00:26

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 00:26
Container ID: 1158629004-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/15/2015 1:20:01PM

J flagging is activated

Results of **Drum5-Pre**

Client Sample ID: **Drum5-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629005
Lab Project ID: 1158629

Collection Date: 09/03/15 12:19
Received Date: 09/16/15 09:04
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	18.4		0.588	0.176	mg/L	1		10/03/15 19:30
Diesel Range Organics	11.6		0.556	0.167	mg/L	1		09/24/15 20:25
Surrogates								
5a Androstane (surr)	92.4		50-150		%	1		10/03/15 19:30
5a Androstane (surr)	79.5		50-150		%	1		09/24/15 20:25

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 20:25
Container ID: 1158629005-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 19:30
Container ID: 1158629005-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of **Drum5-Pre**

Client Sample ID: **Drum5-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629005
Lab Project ID: 1158629

Collection Date: 09/03/15 12:19
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 00:43
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:43
o-Xylene	2.62		1.00	0.310	ug/L	1		09/17/15 00:43
P & M -Xylene	1.27	J	2.00	0.620	ug/L	1		09/17/15 00:43
Toluene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:43
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/17/15 00:43
4-Bromofluorobenzene (surr)	99.2		85-114		%	1		09/17/15 00:43
Toluene-d8 (surr)	95.2		89-112		%	1		09/17/15 00:43

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 00:43
Container ID: 1158629005-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Drum6-Pre**

Client Sample ID: **Drum6-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629006
Lab Project ID: 1158629

Collection Date: 09/03/15 12:25
Received Date: 09/16/15 09:04
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	5.74		0.577	0.173	mg/L	1		09/24/15 20:45
Diesel Range Organics	8.41		0.577	0.173	mg/L	1		10/03/15 19:50
Surrogates								
5a Androstane (surr)	90.7		50-150		%	1		10/03/15 19:50
5a Androstane (surr)	80.9		50-150		%	1		09/24/15 20:45

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 20:45
Container ID: 1158629006-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 19:50
Container ID: 1158629006-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **Drum6-Pre**

Client Sample ID: **Drum6-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629006
Lab Project ID: 1158629

Collection Date: 09/03/15 12:25
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 01:33
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 01:33
o-Xylene	13.5		1.00	0.310	ug/L	1		09/17/15 01:33
P & M -Xylene	3.22		2.00	0.620	ug/L	1		09/17/15 01:33
Toluene	0.500	U	1.00	0.310	ug/L	1		09/17/15 01:33
Surrogates								
1,2-Dichloroethane-D4 (surr)	113		81-118		%	1		09/17/15 01:33
4-Bromofluorobenzene (surr)	98.6		85-114		%	1		09/17/15 01:33
Toluene-d8 (surr)	95.4		89-112		%	1		09/17/15 01:33

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 01:33
Container ID: 1158629006-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Tank1-Pre**

Client Sample ID: **Tank1-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629007
Lab Project ID: 1158629

Collection Date: 09/03/15 12:35
Received Date: 09/16/15 09:04
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	0.774		0.577	0.173	mg/L	1		09/24/15 21:06
Diesel Range Organics	1.38		0.566	0.170	mg/L	1		10/03/15 17:47
Surrogates								
5a Androstane (surr)	89.1		50-150		%	1		10/03/15 17:47
5a Androstane (surr)	77.1		50-150		%	1		09/24/15 21:06

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 21:06
Container ID: 1158629007-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 17:47
Container ID: 1158629007-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Results of **Tank1-Pre**

Client Sample ID: **Tank1-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629007
Lab Project ID: 1158629

Collection Date: 09/03/15 12:35
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 00:59
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:59
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:59
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/17/15 00:59
Toluene	0.500	U	1.00	0.310	ug/L	1		09/17/15 00:59
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.1		81-118		%	1		09/17/15 00:59
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/17/15 00:59
Toluene-d8 (surr)	99.2		89-112		%	1		09/17/15 00:59

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 00:59
Container ID: 1158629007-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Tank10-Pre**

Client Sample ID: **Tank10-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629008
Lab Project ID: 1158629

Collection Date: 09/03/15 12:30
Received Date: 09/16/15 09:04
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	0.926		0.536	0.161	mg/L	1		09/24/15 21:26
Diesel Range Organics	1.18		0.577	0.173	mg/L	1		10/03/15 17:06
Surrogates								
5a Androstane (surr)	89.9		50-150		%	1		10/03/15 17:06
5a Androstane (surr)	81.3		50-150		%	1		09/24/15 21:26

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/24/15 21:26
Container ID: 1158629008-A

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 09/17/15 09:58
Prep Initial Wt./Vol.: 280 mL
Prep Extract Vol: 1 mL

Analytical Batch: XFC12127
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 10/03/15 17:06
Container ID: 1158629008-B

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 09/27/15 09:50
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of **Tank10-Pre**

Client Sample ID: **Tank10-Pre**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629008
Lab Project ID: 1158629

Collection Date: 09/03/15 12:30
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/17/15 01:16
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/17/15 01:16
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/17/15 01:16
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/17/15 01:16
Toluene	0.500	U	1.00	0.310	ug/L	1		09/17/15 01:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/17/15 01:16
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/17/15 01:16
Toluene-d8 (surr)	101		89-112		%	1		09/17/15 01:16

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/17/15 01:16
Container ID: 1158629008-C

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **TripBlank**

Client Sample ID: **TripBlank**
Client Project ID: **31-1-11765-005 BRWShop#2**
Lab Sample ID: 1158629009
Lab Project ID: 1158629

Collection Date: 09/03/15 11:42
Received Date: 09/16/15 09:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.200	U	0.400	0.120	ug/L	1		09/16/15 22:30
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/16/15 22:30
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/16/15 22:30
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/16/15 22:30
Toluene	0.500	U	1.00	0.310	ug/L	1		09/16/15 22:30
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/16/15 22:30
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/16/15 22:30
Toluene-d8 (surr)	98.7		89-112		%	1		09/16/15 22:30

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Analyst: NRB
Analytical Date/Time: 09/16/15 22:30
Container ID: 1158629009-A

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 09/16/15 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1720482 [VXX/27914]
Blank Lab ID: 1291447

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008, 1158629009

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	99.1	89-112		%

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 9/16/2015 8:18:00PM

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 9/16/2015 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Leaching Blank

Blank ID: LB for HBN 1720384 [TCLP/7963]
Blank Lab ID: 1291084

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008, 1158629009

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	10.0U	20.0	6.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	99.4	89-112		%

Batch Information

Analytical Batch: VMS15259
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 9/17/2015 3:13:00AM

Prep Batch: VXX27914
Prep Method: SW5030B
Prep Date/Time: 9/16/2015 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 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 1158629 [VXX27914]
Blank Spike Lab ID: 1291448
Date Analyzed: 09/16/2015 20:55

Spike Duplicate ID: LCSD for HBN 1158629 [VXX27914]
Spike Duplicate Lab ID: 1291449
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008, 1158629009

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	30.1	100	30	29.1	97	(79-120)	3.10	(< 20)
Ethylbenzene	30	29.8	99	30	29.6	99	(79-121)	0.57	(< 20)
o-Xylene	30	29.6	99	30	29.9	100	(78-122)	1.30	(< 20)
P & M -Xylene	60	59.8	100	60	61.4	102	(80-121)	2.60	(< 20)
Toluene	30	27.6	92	30	28.3	94	(80-121)	2.50	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	106	106	30	97.2	97	(81-118)	8.40	
4-Bromofluorobenzene (surr)	30	103	103	30	102	102	(85-114)	0.26	
Toluene-d8 (surr)	30	95.8	96	30	99.2	99	(89-112)	3.50	

Batch Information

Analytical Batch: **VMS15259**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX27914**
Prep Method: **SW5030B**
Prep Date/Time: **09/16/2015 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1720466 [XXX/34159]
Blank Lab ID: 1291388

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	1.61*	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	102	60-120		%

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: KJO
Analytical Date/Time: 9/24/2015 6:01:00PM

Prep Batch: XXX34159
Prep Method: SW3520C
Prep Date/Time: 9/17/2015 9:58:04AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158629 [XXX34159]
Blank Spike Lab ID: 1291389
Date Analyzed: 09/24/2015 18:21

Spike Duplicate ID: LCSD for HBN 1158629 [XXX34159]
Spike Duplicate Lab ID: 1291390
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008

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	18.7	94	20	19.4	97	(75-125)	3.70	(< 20)
Surrogates									
5a Androstane (surr)	0.4	95.1	95	0.4	96.6	97	(60-120)	1.60	

Batch Information

Analytical Batch: **XFC12105**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **KJO**

Prep Batch: **XXX34159**
Prep Method: **SW3520C**
Prep Date/Time: **09/17/2015 09:58**
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 1721327 [XXX/34249]
Blank Lab ID: 1293439

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	102	60-120		%

Batch Information

Analytical Batch: XFC12127
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: KJO
Analytical Date/Time: 10/3/2015 4:04:00PM

Prep Batch: XXX34249
Prep Method: SW3520C
Prep Date/Time: 9/27/2015 9:50:45AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158629 [XXX34249]
Blank Spike Lab ID: 1293440
Date Analyzed: 10/03/2015 16:25

Spike Duplicate ID: LCSD for HBN 1158629 [XXX34249]
Spike Duplicate Lab ID: 1293441
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158629001, 1158629002, 1158629003, 1158629004, 1158629005, 1158629006, 1158629007, 1158629008

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	20.6	103	20	21.2	106	(75-125)	2.70	(< 20)
Surrogates									
5a Androstane (surr)	0.4	100	100	0.4	102	102	(60-120)	2.30	

Batch Information

Analytical Batch: **XFC12127**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **KJO**

Prep Batch: **XXX34249**
Prep Method: **SW3520C**
Prep Date/Time: **09/27/2015 09:50**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L 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

1158629

CHAIN OF CUSTODY RECORD

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Laboratory SGS
Attn: Jen Dawkins

Analysis Parameters/Sample Container Description
(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	BTEX 8260	DRO					Total Number of Containers	Remarks/Matrix
Drum 1-Pre	(1) A-E	1142	9/12/15		X	X	X					5	water w/ Potential
Drum 2-Pre	(2) A-E	1154	3 APW		X	X	X					5	Hydrocarbons
Drum 3-Pre	(3) A-E	1203			X	X	X					5	
Drum 4-Pre	(4) A-E	1210			X	X	X					5	
Drum 5-Pre	(5) A-E	1219			X	X	X					5	
Drum 6-Pre	(6) A-E	1225			X	X	X					5	
Tank 1-Pre	(7) A-E	1235			X	X	X					5	
Tank 10-Pre	(8) A-E	1230			X	X	X					5	
Trip Blank	(9) A-C	—	—		NA	X (ELB)						—	- water prepared by SGS

Project Information		Sample Receipt	
Project Number:	31-1-11765-005	Total Number of Containers	40
Project Name:	BRW Shop #2	COC Seals/Intact? Y/N/NA	—
Contact:	VEW	Received Good Cond./Cold	—
Ongoing Project?	Yes ☐ No ☒	Delivery Method:	Hard
Sampler:	APW, ELB	(attach shipping bill, if any)	

Instructions

Requested Turnaround Time: Standard

Special Instructions:
Bill to Shannon & Wilson, Inc.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Adam Wyborny	Signature:	Signature:
Time: 1140	Time: 1500	Time:
Printed Name: Adam Wyborny	Printed Name: Nicole Wann	Printed Name:
Date: 9-15-15	Date: 9.15.15	Date:
Company: SWI	Company: SGS	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature:	Signature:	Signature:
Time: 1140	Time:	Time: 0901
Printed Name: Nicole Wann	Printed Name:	Printed Name: Erik Johnson
Date: 9.15.15	Date:	Date: 9/16/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

*Trip Blank transported in same cooler as VOAs at all times.
TB 2.0

No. 33560

SGS

1158629

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID:_____@ 2.0 w/Therm. ID:D6 Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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"	Yes No Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: Client (hand carried) Other:_____	Tracking/AB# : Or see attached Or N/A	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:_____	Yes No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	~~Yes~~ No N/A Yes No N/A	

Additional notes (if applicable):

* Holdtime expires in two days as of 9-15-15.
↳ for all samples

Hold breaks 9-17-15!

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

1158629

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ ☑	☐ ☐	☐ ☐	***Exemption permitted if sampler hand carries/delivers.*** 2 Side
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6 °C, were samples collected <8 hours ago?* *If <0 °C, were all sample containers ice free?* Cooler ID: [1] _____ @ 2.2 _____ w/ Therm.ID: 11 _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☐Client (hand carried) ☐USPS ☑Lynden ☐AK Air ☐Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	☐	☑	☐	
	Yes	N/A	No	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☑ ☑	☐ ☐ ☐	☐ ☐ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.***
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☑Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☑ ☑ ☐	☐ ☐ ☐ ☑	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☑ ☐	☐ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☐	☑	☐	
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☑	☐	☐	Short Hold
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: EDJ PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☑	☐	☐	Peer Reviewed by: VDL
Additional notes (if applicable):				

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1158629001-A	HCL to pH < 2	OK	1158629009-C	HCL to pH < 2	OK
1158629001-B	HCL to pH < 2	OK			
1158629001-C	HCL to pH < 2	OK			
1158629001-D	HCL to pH < 2	OK			
1158629001-E	HCL to pH < 2	OK			
1158629002-A	HCL to pH < 2	OK			
1158629002-B	HCL to pH < 2	OK			
1158629002-C	HCL to pH < 2	OK			
1158629002-D	HCL to pH < 2	OK			
1158629002-E	HCL to pH < 2	OK			
1158629003-A	HCL to pH < 2	OK			
1158629003-B	HCL to pH < 2	OK			
1158629003-C	HCL to pH < 2	OK			
1158629003-D	HCL to pH < 2	OK			
1158629003-E	HCL to pH < 2	OK			
1158629004-A	HCL to pH < 2	OK			
1158629004-B	HCL to pH < 2	OK			
1158629004-C	HCL to pH < 2	OK			
1158629004-D	HCL to pH < 2	OK			
1158629004-E	HCL to pH < 2	OK			
1158629005-A	HCL to pH < 2	OK			
1158629005-B	HCL to pH < 2	OK			
1158629005-C	HCL to pH < 2	OK			
1158629005-D	HCL to pH < 2	OK			
1158629005-E	HCL to pH < 2	OK			
1158629006-A	HCL to pH < 2	OK			
1158629006-B	HCL to pH < 2	OK			
1158629006-C	HCL to pH < 2	OK			
1158629006-D	HCL to pH < 2	OK			
1158629006-E	HCL to pH < 2	OK			
1158629007-A	HCL to pH < 2	OK			
1158629007-B	HCL to pH < 2	OK			
1158629007-C	HCL to pH < 2	OK			
1158629007-D	HCL to pH < 2	OK			
1158629007-E	HCL to pH < 2	OK			
1158629008-A	HCL to pH < 2	OK			
1158629008-B	HCL to pH < 2	OK			
1158629008-C	HCL to pH < 2	OK			
1158629008-D	HCL to pH < 2	OK			
1158629008-E	HCL to pH < 2	OK			
1158629009-A	HCL to pH < 2	OK			
1158629009-B	HCL to pH < 2	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.
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.
BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by: Adam Wyborny

Title: Environmental Engineer I Date: October 15, 2015

CS Report Name: NSB Barrow Shop #2 ULSD Release Report Date: October 15, 2015

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1158629

ADEC File Number: Spill No. 15399908701 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:

      Analyses were performed by SGS North America, Inc. in Anchorage, Alaska.

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:

      The temperature blank was measured within the acceptable range of 0° C to 6° C upon arrival at SGS-Fairbanks and SGS-Anchorage. This temperature range has been approved by ADEC.

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

HCL was used as a field preservative for all samples.

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

The laboratory noted that all samples were received in good condition.

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

The laboratory did not report any discrepancies.

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

The data quality and usability were not affected; see above.

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:

The laboratory noted that there were diesel range organics (DRO) and residual range organics (RRO) detections in the method blank that were greater than the LOQ.

The samples Drum1-Pre, Drum2-Pre, Drum3-Pre, Drum4-Pre, Drum5-Pre, Drum6-Pre, Tank1-Pre, and Tank10-Pre were re-extracted outside of the 14 day hold time to confirm the original results. The results were confirmed.

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

The laboratory re-extracted the samples in order to confirm the original results with passing QC. The results of the original analyses were confirmed and both sets of data are reported for DRO analysis.

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

Comments:

The case narrative does not specify an effect on the data quality or usability; refer to Section 5.b. and Section 6.a. for further assessment.

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:

The DRO confirmation analysis for all samples was conducted outside of the 14 day hold time.

c. All soils reported on a dry weight basis?

☐Yes ☐ No ☒NA (Please explain.) Comments:

Soil samples were not submitted with this work order.

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:

Reporting values were below ADEC-established groundwater-cleanup levels, where appicable.

e. Data quality or usability affected?

Comments:

DRO concentrations in confirmation samples with detectable results are considered biased low, and flagged 'JL*' in the analytical results table. The confirmation samples will be used for reporting purposes. While the qualification of the data is necessary, it should be noted that the concensus between the intial analyses and the re-extration analyses lends confidence to the results.

6. QC Samples

a. Method Blank

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

Method blanks were submitted for DRO and BTEX analysis.

ii. All method blank results less than PQL?
☐Yes ☒ No ☐NA (Please explain.) Comments:

Method blank 1291388 associated with QC Batch XXX34159 had a DRO concentration above the LOQ.

iii. If above PQL, what samples are affected?

Comments:

All of the samples were affected by the detection in method blank 1291388 in the original analysis. However the samples were re-extracted and analyzed with passing QC, (method blank 1293439) confirming the original results. The re-extraction results will be used for reporting purposes.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
☐Yes ☐ No ☒NA (Please explain.) Comments:

The reported data is comprised of the results from the re-extraction analyses using method blank 1293439 for QC. DRO was not detected in method blank 1293439 and the reported data quality is not affected by the detection in method blank 1291388.

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

Comments:

No; see above.

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:

LCS/LCSD samples were reported for DRO and BTEX.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
☐Yes ☐ No ☒NA (Please explain.) Comments:

Only organic analyses were requested.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
☒Yes ☐ No ☐NA (Please explain.) Comments:

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

☒Yes ☐ No ☐NA (Please explain.) Comments:

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

Comments:

N/A; there were no %R or RPD failures reported by the laboratory.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no %R or RPD failures reported by the laboratory.

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

Comments:

No; see above.

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:

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:

There were no surrogate recovery failures.

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

Comments:

No; see above.

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:

Analytes were not detected in the trip blank.

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

No; see above.

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:

The field duplicate pair Tank1-Pre/Tank10-Pre was submitted with this work order.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

☒Yes ☐ No ☐NA (Please explain.) Comments:

The field duplicate RPD was found to be within acceptance criteria for DRO. BTEX was not detected in either the project sample nor the duplicate sample, therefore RPD values could not be calculated for these analytes. The results are not considered to be affected.

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

Comments:

No; see above.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

Samples were collected using equipment that was not re-usable. An equipment blank was not required for this project.

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

N/A; see above.

ii. If above PQL, what samples are affected?

Comments:

N/A; see above.

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

Comments:

N/A; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no other data flags/qualifiers.

SGS LABORATORY REPORT
1158656 – POST-TREATMENT WATER RESULTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
907-479-0600

Report Number: **1158656**

Client Project: **1765-005 NSB Shop#2**

Report revised to include MS/MSD data (HSN 1294034/1294035) for evaluation of DRO surrogate RPD. ~ HLH 9/30/15

Dear Valerie Webb,

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 Jennifer 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.

_____

Jennifer Dawkins Date
Project Manager

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

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1158656**
Project Name/Site: **1765-005 NSB Shop#2**
Project Contact: **Valerie Webb**

Refer to sample receipt form for information on sample condition.

LCSD for HBN 1721130 [XXX/3422 (1292960) LCSD

8270D SIM - LCS/LCSD RPD for chrysene (28.7%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

LCSD for HBN 1721138 [XXX/3422 (1292982) LCSD

AK102/103 - Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria. The LCSD was not surrogated due lab error. Refer to BMS/BMSD for precision requirements. (HSN 1294034/1294035)

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

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
Post-TrmtFast Tank-1	1158656001	09/20/2015	09/22/2015	Water (Surface, Eff., Ground)
Post-TrmtFast Tank-2	1158656002	09/20/2015	09/22/2015	Water (Surface, Eff., Ground)
Trip Blank	1158656003	09/20/2015	09/22/2015	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIMS LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK101	AK101/8021 Combo.
SW8021B	AK101/8021 Combo.
AK102	DRO Low Volume (W)

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Detectable Results Summary

Client Sample ID: **Post-TrmtFast Tank-1**
Lab Sample ID: 1158656001

Polynuclear Aromatics GC/MS

Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
2-Methylnaphthalene	0.208	ug/L
Naphthalene	0.193	ug/L
Diesel Range Organics	0.412J	mg/L
Gasoline Range Organics	0.0510J	mg/L

Client Sample ID: **Post-TrmtFast Tank-2**
Lab Sample ID: 1158656002

Polynuclear Aromatics GC/MS

Semivolatile Organic Fuels

Volatile Fuels

Parameter	Result	Units
1-Methylnaphthalene	0.178	ug/L
2-Methylnaphthalene	0.205	ug/L
Naphthalene	0.305	ug/L
Diesel Range Organics	0.441J	mg/L
Gasoline Range Organics	0.0327J	mg/L

Client Sample ID: **Trip Blank**
Lab Sample ID: 1158656003

Volatile Fuels

Parameter	Result	Units
Gasoline Range Organics	0.0719J	mg/L
o-Xylene	0.320J	ug/L
P & M -Xylene	0.680J	ug/L
Toluene	0.490J	ug/L

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Results of **Post-TrmtFast Tank-1**

Client Sample ID: **Post-TrmtFast Tank-1**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656001
Lab Project ID: 1158656

Collection Date: 09/20/15 11:10
Received Date: 09/22/15 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
2-Methylnaphthalene	0.208		0.0463	0.0139	ug/L	1		09/25/15 13:12
Acenaphthene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Acenaphthylene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Benzo(a)Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Benzo[a]pyrene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Benzo[b]Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Benzo[g,h,i]perylene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Benzo[k]fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Chrysene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Dibenzo[a,h]anthracene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Fluorene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Indeno[1,2,3-c,d] pyrene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Naphthalene	0.193		0.0926	0.0287	ug/L	1		09/25/15 13:12
Phenanthrene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Pyrene	0.0232	U	0.0463	0.0139	ug/L	1		09/25/15 13:12
Surrogates								
2-Fluorobiphenyl (surr)	63.5		53-106		%	1		09/25/15 13:12
Terphenyl-d14 (surr)	84.7		58-132		%	1		09/25/15 13:12

Batch Information

Analytical Batch: XMS8945
Analytical Method: 8270D SIMS LV (PAH)
Analyst: NRB
Analytical Date/Time: 09/25/15 13:12
Container ID: 1158656001-F

Prep Batch: XXX34225
Prep Method: SW3520C
Prep Date/Time: 09/24/15 09:56
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Post-TrmtFast Tank-1**

Client Sample ID: **Post-TrmtFast Tank-1**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656001
Lab Project ID: 1158656

Collection Date: 09/20/15 11:10
Received Date: 09/22/15 09:57
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	0.412	J	0.556	0.167	mg/L	1		09/25/15 01:33
Surrogates								
5a Androstane (surr)	78.2		50-150		%	1		09/25/15 01:33

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/25/15 01:33
Container ID: 1158656001-D

Prep Batch: XXX34227
Prep Method: SW3520C
Prep Date/Time: 09/24/15 11:32
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Post-TrmtFast Tank-1**

Client Sample ID: **Post-TrmtFast Tank-1**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656001
Lab Project ID: 1158656

Collection Date: 09/20/15 11:10
Received Date: 09/22/15 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0510	J	0.100	0.0310	mg/L	1		09/24/15 02:17
Surrogates								
4-Bromofluorobenzene (surr)	71.7		50-150		%	1		09/24/15 02:17

Batch Information

Analytical Batch: VFC12689
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 09/24/15 02:17
Container ID: 1158656001-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/24/15 02:17
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:17
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:17
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/24/15 02:17
Toluene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:17
Surrogates								
1,4-Difluorobenzene (surr)	87.3		77-115		%	1		09/24/15 02:17

Batch Information

Analytical Batch: VFC12689
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 09/24/15 02:17
Container ID: 1158656001-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Post-TrmtFast Tank-2**

Client Sample ID: **Post-TrmtFast Tank-2**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656002
Lab Project ID: 1158656

Collection Date: 09/20/15 11:00
Received Date: 09/22/15 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.178		0.0481	0.0144	ug/L	1		09/25/15 13:28
2-Methylnaphthalene	0.205		0.0481	0.0144	ug/L	1		09/25/15 13:28
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Benzo[a]pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Dibenzo[a,h]anthracene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Naphthalene	0.305		0.0962	0.0298	ug/L	1		09/25/15 13:28
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		09/25/15 13:28
Surrogates								
2-Fluorobiphenyl (surr)	66.2		53-106		%	1		09/25/15 13:28
Terphenyl-d14 (surr)	81.1		58-132		%	1		09/25/15 13:28

Batch Information

Analytical Batch: XMS8945
Analytical Method: 8270D SIMS LV (PAH)
Analyst: NRB
Analytical Date/Time: 09/25/15 13:28
Container ID: 1158656002-E

Prep Batch: XXX34225
Prep Method: SW3520C
Prep Date/Time: 09/24/15 09:56
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Post-TrmtFast Tank-2**

Client Sample ID: **Post-TrmtFast Tank-2**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656002
Lab Project ID: 1158656

Collection Date: 09/20/15 11:00
Received Date: 09/22/15 09:57
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	0.441	J	0.577	0.173	mg/L	1		09/25/15 01:54
Surrogates								
5a Androstane (surr)	78.6		50-150		%	1		09/25/15 01:54

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Analyst: KJO
Analytical Date/Time: 09/25/15 01:54
Container ID: 1158656002-C

Prep Batch: XXX34227
Prep Method: SW3520C
Prep Date/Time: 09/24/15 11:32
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Post-TrmtFast Tank-2**

Client Sample ID: **Post-TrmtFast Tank-2**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656002
Lab Project ID: 1158656

Collection Date: 09/20/15 11:00
Received Date: 09/22/15 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0327	J	0.100	0.0310	mg/L	1		09/24/15 02:36
Surrogates								
4-Bromofluorobenzene (surr)	70.9		50-150		%	1		09/24/15 02:36

Batch Information

Analytical Batch: VFC12689
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 09/24/15 02:36
Container ID: 1158656002-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/24/15 02:36
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:36
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:36
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/24/15 02:36
Toluene	0.500	U	1.00	0.310	ug/L	1		09/24/15 02:36
Surrogates								
1,4-Difluorobenzene (surr)	87.4		77-115		%	1		09/24/15 02:36

Batch Information

Analytical Batch: VFC12689
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 09/24/15 02:36
Container ID: 1158656002-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1765-005 NSB Shop#2**
Lab Sample ID: 1158656003
Lab Project ID: 1158656

Collection Date: 09/20/15 11:00
Received Date: 09/22/15 09:57
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0719	J	0.100	0.0310	mg/L	1		09/24/15 03:33
Surrogates								
4-Bromofluorobenzene (surr)	73.6		50-150		%	1		09/24/15 03:33

Batch Information

Analytical Batch: VFC12689
Analytical Method: AK101
Analyst: KAS
Analytical Date/Time: 09/24/15 03:33
Container ID: 1158656003-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	0.250	U	0.500	0.150	ug/L	1		09/24/15 03:33
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/24/15 03:33
o-Xylene	0.320	J	1.00	0.310	ug/L	1		09/24/15 03:33
P & M -Xylene	0.680	J	2.00	0.620	ug/L	1		09/24/15 03:33
Toluene	0.490	J	1.00	0.310	ug/L	1		09/24/15 03:33
Surrogates								
1,4-Difluorobenzene (surr)	87.6		77-115		%	1		09/24/15 03:33

Batch Information

Analytical Batch: VFC12689
Analytical Method: SW8021B
Analyst: KAS
Analytical Date/Time: 09/24/15 03:33
Container ID: 1158656003-A

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 09/23/15 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/30/2015 5:15:31PM

J flagging is activated

Method Blank

Blank ID: MB for HBN 1721162 [VXX/27955]
Blank Lab ID: 1293093

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158656001, 1158656002, 1158656003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0474J	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	79	50-150		%

Batch Information

Analytical Batch: VFC12689
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 9/23/2015 9:32:00PM

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 9/23/2015 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158656 [VXX27955]
Blank Spike Lab ID: 1293095
Date Analyzed: 09/23/2015 20:54

Spike Duplicate ID: LCSD for HBN 1158656 [VXX27955]
Spike Duplicate Lab ID: 1293097
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158656001, 1158656002, 1158656003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.08	108	1.00	0.985	99	(60-120)	9.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500	87	87	0.0500	81.6	82	(50-150)	6.40	

Batch Information

Analytical Batch: **VFC12689**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **KAS**

Prep Batch: **VXX27955**
Prep Method: **SW5030B**
Prep Date/Time: **09/23/2015 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1721162 [VXX/27955]
Blank Lab ID: 1293093

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158656001, 1158656002, 1158656003

Results by **SW8021B**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.250U	0.500	0.150	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Surrogates				
1,4-Difluorobenzene (surr)	88.4	77-115		%

Batch Information

Analytical Batch: VFC12689
Analytical Method: SW8021B
Instrument: Agilent 7890A PID/FID
Analyst: KAS
Analytical Date/Time: 9/23/2015 9:32:00PM

Prep Batch: VXX27955
Prep Method: SW5030B
Prep Date/Time: 9/23/2015 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/30/2015 5:15:47PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1158656 [VXX27955]
Blank Spike Lab ID: 1293094
Date Analyzed: 09/23/2015 20:35

Spike Duplicate ID: LCSD for HBN 1158656 [VXX27955]
Spike Duplicate Lab ID: 1293096
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158656001, 1158656002, 1158656003

Results by **SW8021B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	100	108	108	100	103	103	(80-120)	4.80	(< 20)
Ethylbenzene	100	104	104	100	97.8	98	(75-125)	5.90	(< 20)
o-Xylene	100	97.9	98	100	90.6	91	(80-120)	7.70	(< 20)
P & M -Xylene	200	201	100	200	188	94	(75-130)	6.30	(< 20)
Toluene	100	101	101	100	97.2	97	(75-120)	3.70	(< 20)
Surrogates									
1,4-Difluorobenzene (surr)	50	89.4	89	50	92.3	92	(77-115)	3.10	

Batch Information

Analytical Batch: **VFC12689**
Analytical Method: **SW8021B**
Instrument: **Agilent 7890A PID/FID**
Analyst: **KAS**

Prep Batch: **VXX27955**
Prep Method: **SW5030B**
Prep Date/Time: **09/23/2015 08:00**
Spike Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 100 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1721130 [XXX/34225]
Blank Lab ID: 1292958

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158656001, 1158656002

Results by **8270D SIMS LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0250U	0.0500	0.0150	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0250U	0.0500	0.0150	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Fluorobiphenyl (surr)	87.9	53-106		%
Terphenyl-d14 (surr)	95.9	58-132		%

Batch Information

Analytical Batch: XMS8945
Analytical Method: 8270D SIMS LV (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: NRB
Analytical Date/Time: 9/25/2015 12:24:00PM

Prep Batch: XXX34225
Prep Method: SW3520C
Prep Date/Time: 9/24/2015 9:56:40AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158656 [XXX34225]
Blank Spike Lab ID: 1292959
Date Analyzed: 09/25/2015 16:24

Spike Duplicate ID: LCSD for HBN 1158656 [XXX34225]
Spike Duplicate Lab ID: 1292960
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158656001, 1158656002

Results by **8270D SIMS LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.25	63	2	1.22	61	(41-115)	2.80	(< 20)
2-Methylnaphthalene	2	0.999	50	2	1.09	55	(39-114)	8.60	(< 20)
Acenaphthene	2	1.21	60	2	1.32	66	(48-114)	8.90	(< 20)
Acenaphthylene	2	1.34	67	2	1.26	63	(35-121)	5.60	(< 20)
Anthracene	2	1.26	63	2	1.21	61	(53-119)	3.80	(< 20)
Benzo(a)Anthracene	2	1.60	80	2	1.49	75	(59-120)	7.10	(< 20)
Benzo[a]pyrene	2	1.60	80	2	1.41	70	(53-120)	12.90	(< 20)
Benzo[b]Fluoranthene	2	1.55	78	2	1.54	77	(53-126)	0.76	(< 20)
Benzo[g,h,i]perylene	2	1.47	74	2	1.33	66	(44-128)	10.10	(< 20)
Benzo[k]fluoranthene	2	1.73	87	2	1.70	85	(54-125)	2.00	(< 20)
Chrysene	2	2.18	109	2	1.63	82	(57-120)	28.70 *	(< 20)
Dibenzo[a,h]anthracene	2	1.52	76	2	1.41	71	(44-131)	7.40	(< 20)
Fluoranthene	2	1.70	85	2	1.50	75	(58-120)	12.60	(< 20)
Fluorene	2	1.27	64	2	1.53	77	(50-118)	18.50	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.62	81	2	1.47	74	(48-130)	9.80	(< 20)
Naphthalene	2	1.27	64	2	1.34	67	(43-114)	5.50	(< 20)
Phenanthrene	2	1.28	64	2	1.38	69	(53-115)	8.10	(< 20)
Pyrene	2	1.56	78	2	1.29	65	(53-121)	18.80	(< 20)
Surrogates									
2-Fluorobiphenyl (surr)	2	71	71	2	76.5	77	(53-106)	7.40	
Terphenyl-d14 (surr)	2	98.1	98	2	88.6	89	(58-132)	10.20	

Batch Information

Analytical Batch: **XMS8945**
Analytical Method: **8270D SIMS LV (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **NRB**

Prep Batch: **XXX34225**
Prep Method: **SW3520C**
Prep Date/Time: **09/24/2015 09:56**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1721138 [XXX/34227]
Blank Lab ID: 1292980

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1158656001, 1158656002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.181J	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	81.8	60-120		%

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: KJO
Analytical Date/Time: 9/25/2015 12:32:00AM

Prep Batch: XXX34227
Prep Method: SW3520C
Prep Date/Time: 9/24/2015 11:32:57AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1158656 [XXX34227]
Blank Spike Lab ID: 1292981
Date Analyzed: 09/25/2015 00:52

Spike Duplicate ID: LCSD for HBN 1158656 [XXX34227]
Spike Duplicate Lab ID: 1292982
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158656001, 1158656002

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	20.4	102	20	21.1	106	(75-125)	3.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4	99.2	99	0.4	0	0	* (60-120)	200.00	

Batch Information

Analytical Batch: **XFC12105**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **KJO**

Prep Batch: **XXX34227**
Prep Method: **SW3520C**
Prep Date/Time: **09/24/2015 11:32**
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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Matrix Spike Summary

Original Sample ID: 1155358003
MS Sample ID: 1294034 MS
MSD Sample ID: 1294035 MSD

Analysis Date: 09/25/2015 13:54
Analysis Date: 09/25/2015 11:51
Analysis Date: 09/25/2015 11:31
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1158656001, 1158656002

Results by **AK102**

		Matrix Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	3.24	19.6	21.8	95	19.6	22.0	96	75-125	0.97	(< 30)
Surrogates										
5a Androstane (surr)		0.392	.365	93	0.392	0.368	94	50-150	0.70	

Batch Information

Analytical Batch: XFC12105
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: KJO
Analytical Date/Time: 9/25/2015 11:51:00AM

Prep Batch: XXX34227
Prep Method: Cnt. Liq/Liq Ext. for AK102/3 Low Vol
Prep Date/Time: 9/24/2015 11:32:57AM
Prep Initial Wt./Vol.: 255.00mL
Prep Extract Vol: 1.00mL

Print Date: 09/30/2015 5:15:54PM

1158656

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

CHAIN-C[...] RECORD

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Laboratory: SGS
Page 1 of 1
Attn: Jen Dawkins

DRAFT

Analysis Parameters/Sample Container Description (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	BTEX/GRO	DRO	PAH				Total Number of Containers	Remarks/Matrix
Post-Trmt FastTank-1	① A-G	1110	9.20.15		X	3	2	2				7	Snowmelt Water
Post-Trmt FastTank-2	② A-F	1100	9.20.15		X	2	2	2				6	" "
trip blank	③ A-C				X	3							→water supplied by SGS

RUSH

Project Information
Project Number: 1765-005
Project Name: NSB Shop #2
Contact: VEW
Ongoing Project? Yes ☐ No ☐
Sampler: SMH

Sample Receipt
Total Number of Containers: 13
COC Seals/Intact? Y/N/NA
Received Good Cond./Cold
Delivery Method: Hand
(attach shipping bill, if any)

Instructions
Requested Turnaround Time: 3-day rush
Special Instructions: Bill to Shannon & Wilson

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 0940	Signature: [signature] Time: 1500	Signature: Time:
Printed Name: Jennifer Davis Date: 9.21.15	Printed Name: Jen D Date: 9/21/15	Printed Name: Date:
Company: Shannon & Wilson Inc.	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 940	Signature: Time:	Signature: [signature] Time: 9:57
Printed Name: Jen Dawkins Date: 9-21-15	Printed Name: Date:	Printed Name: Komal Date: 9/22/15
Company: SGS	Company:	Company: SGS

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

F-19-91/UR

Amb 1B, 1B
1.6 / 2.2

No. 33585

TB = 5.8°C

SGS

RUSH

1158656

FAIRBANKS SAMPLE RECEIPT FORM

Note: This form is to be completed by Fairbanks Receiving Staff for all samples

Review Criteria:	Condition:	Comments/Actions Taken
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	~~Yes~~ No ~~N/A~~ ~~Yes~~ No N/A	□*Exemption permitted if sampler hand carries/delivers.*
Temperature blank compliant* (i.e., 0-6°C) *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID:____1___@__5.6__w/Therm. ID:__D7 Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ Cooler ID:_____@_____w/Therm. ID:_____ If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**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"	~~Yes~~ No Yes No ~~N/A~~ Yes No ~~N/A~~	□*Exemption permitted if chilled & collected <8hrs ago* ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery Method: ~~Client (hand carried)~~ Other:_____	Tracking/AB#: Or see attached ~~Or N/A~~	
→For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ~~Bubble Wrap~~ Separate plastic bags Vermiculite Other:_____	~~Yes~~ No N/A	***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.***
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	~~Yes~~ No N/A	
For ~~**RUSH/SHORT Hold Time**~~, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	~~Yes~~ No N/A Yes No N/A	Rush due: 9-25-15

Additional notes (if applicable):

*Sample 2 has limited volume for GRO/BTEX.

*GRO/BTEX combo (8021)

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

1158656

SAMPLE RECEIPT FORM

Review Criteria:	Yes	N/A	No	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable. COC accompanied samples?	☑ ☑	☐ ☐	☐ ☐	***Exemption permitted if sampler hand carries/delivers.*** 1F,1B
Temperature blank compliant* (i.e., 0-6°C after CF)? *If >6°C, were samples collected <8 hours ago?* *If <0°C, were all sample containers ice free?* Cooler ID: [1] _____ @ 1.6 _____ w/ Therm.ID: D2 _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ If samples are 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."	☑ ☐ ☐	☐ ☑ ☑	☐ ☐ ☐	***Exemption permitted if chilled & collected <8 hrs ago.*** ***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.***
Delivery method (specify all that apply): ☐Client (hand carried) ☐USPS ☑Lynden ☐AK Air ☐Alert Courier ☐UPS ☐FedEx ☐RAVN ☐C&D Delivery ☐Carlile ☐Pen Air ☐Warp Speed ☐Other: _____ → *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	☐	☑	☐	
	Yes	**N/A**	**No**	
Were samples received within hold time? Do samples **match COC*** (i.e., sample IDs, dates/times collected)? Were analyses requested unambiguous?	☑ ☑ ☑	☐ ☐ ☐	☐ ☐ ☐	***Note: Refer to form F-083 "Sample Guide" for hold times.*** ***Note: If times differ <1hr, record details and login per COC.***
Were samples in **good condition** (no leaks/cracks/breakage)? Packing material used (specify all that apply): ☑Bubble Wrap ☐Separate plastic bags ☐Vermiculite ☐Other:	☑	☐	☐	
Were **proper containers** (type/mass/volume/preservative*) used? Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)? Were all soil VOAs **field extracted** with MeOH+BFB?	☑ ☑ ☑ ☐	☐ ☐ ☐ ☑	☐ ☐ ☐ ☐	☐ ***Exemption permitted for metals (e.g., 200.8/6020A).***
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**? If pH was adjusted, were bottles flagged (i.e., stickers)?	☑ ☐	☐ ☑	☐ ☐	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	☑	☐	☐	Sample 2 has Limited Volume for GRO/BTEX.
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	☑	☑	☐	Rush due on 9/25/15 KPV 9/22/15
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	☐	☑	☐	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	☐	☑	☐	SRF Completed by: KPV 9/22/15 PM notified:
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	☑	☐	☐	Peer Reviewed by: EDJ

Additional notes (if applicable):

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

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1158656001-A	HCL to pH < 2	OK			
1158656001-B	HCL to pH < 2	OK			
1158656001-C	HCL to pH < 2	OK			
1158656001-D	HCL to pH < 2	OK			
1158656001-E	HCL to pH < 2	OK			
1158656001-F	No Preservative Required	OK			
1158656001-G	No Preservative Required	OK			
1158656002-A	HCL to pH < 2	OK			
1158656002-B	HCL to pH < 2	OK			
1158656002-C	HCL to pH < 2	OK			
1158656002-D	HCL to pH < 2	OK			
1158656002-E	No Preservative Required	OK			
1158656002-F	No Preservative Required	OK			
1158656003-A	HCL to pH < 2	OK			
1158656003-B	HCL to pH < 2	OK			
1158656003-C	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.
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.
BU - The container was received with headspace greater than 6mm.

Laboratory Data Review Checklist

Completed by: Sheila Hinckley

Title: Environmental Scientist Date: September 28, 2015

CS Report Name: NSB Barrow Shop #2 ULSD Release Report Date: September 28, 2015

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1158656_Rev1

ADEC File Number: ADEC RecKey Number:

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

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

      Analyses were performed by SGS North America, Inc. in Anchorage, Alaska.

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:

      The temperature blank was measured within the acceptable range of 0° C to 6° C upon arrival at SGS-Fairbanks and SGS-Anchorage. This temperature range has been approved by ADEC.

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 acceptable range, insufficient or missing samples, etc.?
☒Yes ☐ No ☐NA (Please explain.) Comments:

The laboratory noted that sample 2 (Post-TrmtFast Tank - 2) has limited volume for GRO/BTEX.

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

The data quality and usability are considered not affected by the limited volume for GRO/BTEX in sample 2. There was sufficient volume to run the required analyses.

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:

LCS/LCSD RPD for chrysene (28.7%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria. The LCSD was not surrogated due lab error. Refer to BMS/BMSD for precision requirements.

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

Corrective actions were not required.

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

The case narrative does not specify any effect on the data quality and usability. Refer to Section 6 for futher assessment.

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:

Soil samples were not submitted with this work order.

   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:

Reporting values were below ADEC-established groundwater-cleanup levels, where appicable.

   e. Data quality or usability affected?
      Comments:

The data quality and usability were not affected; see above.

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:

However, GRO and DRO were detected in the associated method blanks at estimated concentrations of 0.0474J mg/L and 0.181J mg/L, respectively.

      iii. If above PQL, what samples are affected?
      Comments:

Project samples Post-TrmtFast Tank-1 and Post-TrmtFast Tank-2 are associated with the method-blank detections.

GRO and DRO were detected in the project samples at concentrations below the LOQ. These concentrations were within five times the method blank detections. The results are considered not detected at the LOQ and are flagged 'B*' in the anaytical results table.

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
☒Yes ☐ No ☐NA (Please explain.) Comments:

Yes; see above.

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

Yes; see above.

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:

LCS/LCSD samples were reported for gasoline range organics (GRO), diesel range organics (DRO), BTEX and PAH.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
☐Yes ☐ No ☒NA (Please explain.) Comments:

Only organic analyses were requested.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)
☒Yes ☐ No ☐NA (Please explain.) Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)
☐Yes ☒ No ☐NA (Please explain.) Comments:

The LCS/LCSD RPD for chrysene does not meet QC criteria.

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

Project samples Post-TrmtFast Tank-1 and Post-TrmtFast Tank-2 are associated with the LCS/LCSD RPD failure.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☒Yes ☐ No ☐NA (Please explain.) Comments:

Chrysene was not detected in the project samples. The results are considered estimated due to the LCS/LCSD imprecision and are flagged 'J*' in the analytical table.

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

Yes; see above.

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:

Surrogate recoveries for 5a-androstane (0%) and n-triacontane (0%) do not meet QC criteria. The LCSD was not surrogated due to a laboratory error. Refer to BMS/BMSD for precision requirements.

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:

The gross surrogate recovery failure was due to laboratory error and the surrogate recovery failure is considered to affect the analytical results. However, the DRO results were already considered not detected due to a method blank detection. Further qualification is not required. The surrogate n-Triacontane is associated with RRO analysis. RRO analysis was not a requested and the surrogate recovery failure does not affect the data quality or usability.

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

No; see above.

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:

The COC does not clearly state that the trip blank was in the same cooler as the VOA samples. However, only one cooler was submitted to the laboratory and the sample receipt form indicates that the trip blank was in the cooler with the VOA samples. The sample results are not considered to be affected by this omission.

iii. All results less than PQL?
☒Yes ☐ No ☐NA (Please explain.) Comments:

However, GRO (0.0719J mg/L), o-xylene (0.320J µg/L) , p- &m-xylenes (0.680J µg/L), and toluene (0.490J µg/L) were detected in the associated trip blank at estimated concentrations.

iv. If above PQL, what samples are affected?

Comments:

The GRO detection in the trip blank is of the same order of magnitude as the method blank GRO detection. The trip blank GRO result is therefore considered affected by the method blank detection and the trip blank result is considered not detected at the LOQ.

o-Xylene, p- &m-xylenes, and toluene were not detected in the associated project samples, therefore results and data quality are not considered affected.

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

Comments:

Yes; see above.

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:

The field duplicate pair Post-TrmtFast Tank-1/Post-TrmtFast Tank-2 was submitted with this work order.

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

☐Yes ☒ No ☐NA (Please explain.) Comments:

The field duplicate RPDs were within acceptance criteria with the exceptions of naphthalene and gasoline range organics.

The napthalene results are considered estimated and flagged 'J*' in the analytical tables due to the imprecision.

The GRO results have previously been qualified as not detected in the samples due to a method-blank detection. Further qualification is not required.

Additionally, 1-methylnaphthalene was not detected in sample Post-TrmtFast Tank-1 but detected above the LOQ in Post-TrmtFast Tank-2. An RPD could not be calculated but the results are considered estimated and are flagged 'J*' in the analytical tables.

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

Comments:

Yes; see above.

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

☐Yes ☐ No ☒NA (Please explain.) Comments:

Samples were collected using equipment that was not re-usable. An equipment blank was not required for this project.

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

N/A; see above.

ii. If above PQL, what samples are affected?

Comments:

N/A; see above.

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

Comments:

N/A; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ☐ Yes ☐ No ☒ NA (Please explain.) Comments:

There were no other data flags/qualifiers.

APPENDIX F

ADEC SPILL REPORT

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL & HAZARDOUS SUBSTANCES SPILL NOTIFICATION FORM

ADEC USE ONLY

ADEC SPILL #:	ADEC FILE #:	ADEC LC:
15399908701		

PERSON REPORTING:	PHONE NUMBER:	REPORTED HOW? (ADEC USE ONLY)
Lokeni Lokeni	908-855-0500	☐ Phone ☐ Fax ☐ PERS ☐ E-mail
DATE/TIME OF SPILL:	**DATE/TIME DISCOVERED:**	**DATE/TIME REPORTED TO ADEC:**
03.28.2015 @ 11:00 A.M.	03.28.15 @11:00 A.M.	3.31.2015

INCIDENT LOCATION/ADDRESS:	DATUM: ☐ NAD27 ☐ NAD83 ☐ WGS84 ☐ Other	PRODUCT SPILLED:
North Slope Borough Public Works, Shop 2 pad. Barrow, AK. 99723	LAT. LONG.	ULSD

QUANTITY SPILLED:	QUANTITY CONTAINED:	QUANTITY RECOVERED:	QUANTITY DISPOSED:
approx. 100 ☑ gallons ☐ pounds	0 ☑ gallons ☐ pounds	25 ☑ gallons ☐ pounds	0 ☑ gallons ☐ pounds

	POTENTIAL RESPONSIBLE PARTY:	OTHER PRP, IF ANY:	VESSEL NAME:
Name/Business:	North Slope Borough, Public Works.		
Mailing Address:	P.O. Box 350		VESSEL NUMBER:
	Barrow AK. 99723		
Contact Name:	Lokeni Lokeni		> 400 GROSS TON VESSEL: ☐ Yes ☐ No
Contact Number:	907-855-0500		

SOURCE OF SPILL:
Ultra Low Sulfur Diesel

CAUSE OF SPILL: ☐ Under Investigation

diesel overfill fuel tanker during transfer tank to tank.

CAUSE CLASSIFICATION:
☐ Accident
☐ Human Factors
☐ Structural/Mechanical
☐ Other

CLEANUP ACTIONS:
absorbent materials deployed to collect product pooled under the fuel tanker. Contaminated snow/ice excavated and put in 7 85gal. overpacks and a 10yd. double lined dumpster and brought in the shop for filtration and disposal.

DISPOSAL METHODS AND LOCATION:
Contaminated snow/ice will be treated in shop. Contaminated absorbents will be burn in Smart Ash Burner.

AFFECTED AREA SIZE:	SURFACE TYPE: *(gravel, asphalt, name of river etc.)*	RESOURCES AFFECTED/THREATENED: *(Water sources, wildlife, wells, etc.)*
6 yrd.	snow/ice pad	None

COMMENTS:
During fuel transfer operation by Shop2 oilers, they had used a 1,500 gal tanker to transfer fuel from their 6k tanker to service frost fighters in town. Operators did not follow SOP on fuel transfer, Product overfill tanker and pooled under the fuel truck. Operators shuts the transfer pump and notified he's supervisor. I was notified Monday March 30, 2015 at 11:45 A.M. about the spill, I arrived at the site at 12:00pm Mar 30, 2015 and start investigating the spill site. I activated our spill response crew and start the clean up phase at 1:45p.m. March 30, 2015. At 9:00p.m. March 30, 2015 we excavated approximate 10 yards of contaminated snow/ice from the pad. Contaminated materials will be brought in Shop 2 garage to melt, skimmed out fuel product and run contaminated water through filtration unit. Contaminated absorbent will burn in a smart ash burner.

ADEC USE ONLY

SPILL NAME:	NAME OF DEC STAFF RESPONDING:	C-PLAN MGR NOTIFIED? ☐ Yes ☐ No

DEC RESPONSE: ☐ Phone follow-up ☐ Field visit ☐ Took Report	CASELOAD CODE: ☐ First and Final ☐ Open/No LC ☐ LC Assigned	CLEANUP CLOSURE ACTION: ☐ NFA ☐ Monitoring ☐ Transferred to CS or STP

COMMENTS:

Status of Case: ☐ Open ☐ Closed DATE CASE CLOSED:

REPORT PREPARED BY:	DATE:

Revised 6/16/2014

#302 2015 NART

(CHARLIE SAKEAGAK PUBLIC WORKS DIRECTOR)

APPENDIX G

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL SITE ASSESSMENT/EVALUATION REPORT

IMPORTANT INFORMATION ABOUT YOUR ENVIRONMENTAL SITE ASSESSMENT/EVALUATION REPORT

ENVIRONMENTAL SITE ASSESSMENTS/EVALUATIONS ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

This report was prepared to meet the needs you specified with respect to your specific site and your risk management preferences. Unless indicated otherwise, we prepared your report expressly for you and for the purposes you indicated. No one other than you should use this report for any purpose without first conferring with us. No one is authorized to use this report for any purpose other than that originally contemplated without our prior written consent.

The findings and conclusions documented in this site assessment/evaluation have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in this area. The conclusions presented are based on interpretation of information currently available to us and are made within the operational scope, budget, and schedule constraints of this project. No warranty, express or implied, is made.

OUR REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

Our environmental site assessment is based on several factors and may include (but not be limited to): reviewing public documents to chronicle site ownership for the past 30, 40, or more years; investigating the site's regulatory history to learn about permits granted or citations issued; determining prior uses of the site and those adjacent to it; reviewing available topographic and real estate maps, historical aerial photos, geologic information, and hydrologic data; reviewing readily available published information about surface and subsurface conditions; reviewing federal and state lists of known and potentially contaminated sites; evaluating the potential for naturally occurring hazards; and interviewing public officials, owners/operators, and/or adjacent owners with respect to local concerns and environmental conditions.

Except as noted within the text of the report, no sampling or quantitative laboratory testing was performed by us as part of this site assessment. Where such analyses were conducted by an outside laboratory, Shannon & Wilson relied upon the data provided and did not conduct an independent evaluation regarding the reliability of the data.

CONDITIONS CAN CHANGE.

Site conditions, both surface and subsurface, may be affected as a result of natural processes or human influence. An environmental site assessment/evaluation is based on conditions that existed at the time of the evaluation. Because so many aspects of a historical review rely on third party information, most consultants will refuse to certify (warrant) that a site is free of contaminants, as it is impossible to know with absolute certainty if such a condition exists. Contaminants may be present in areas that were not surveyed or sampled, or may migrate to areas that showed no signs of contamination at the time they were studied.

Unless your consultant indicates otherwise, your report should not be construed to represent geotechnical subsurface conditions at or adjacent to the site and does not provide sufficient information for construction-related activities. Your report also should not be used following floods, earthquakes, or other acts of nature; if the size or configuration of the site is altered; if the location of the site is modified; or if there is a change of ownership and/or use of the property.

INCIDENTAL DAMAGE MAY OCCUR DURING SAMPLING ACTIVITIES.

Incidental damage to a facility may occur during sampling activities. Asbestos and lead-based paint sampling often require destructive sampling of pipe insulation, floor tile, walls, doors, ceiling tile, roofing, and other building materials. Shannon & Wilson does not provide for paint repair. Limited repair of asbestos sample locations are provided. However, Shannon & Wilson neither warranties repairs made by our field personnel, nor are we held liable for injuries or damages as a result of those repairs. If you desire a specific

form of repair, such as those provided by a licensed roofing contractor, you need to request the specific repair at the time of the proposal. The owner is responsible for repair methods that are not specified in the proposal.

READ RESPONSIBILITY CLAUSES CAREFULLY.

Environmental site assessments/evaluations are less exact than other design disciplines because they are based extensively on judgment and opinion, and there may not have been any (or very limited) investigation of actual subsurface conditions. Wholly unwarranted claims have been lodged against consultants. To limit this exposure, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses may appear in this report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

Consultants cannot accept responsibility for problems that may develop if they are not consulted after factors considered in their reports have changed, or conditions at the site have changed. Therefore, it is incumbent upon you to notify your consultant of any factors that may have changed prior to submission of the final assessment/evaluation.

An assessment/evaluation of a site helps reduce your risk, but does not eliminate it. Even the most rigorous professional assessment may fail to identify all existing conditions.

ONE OF THE OBLIGATIONS OF YOUR CONSULTANT IS TO PROTECT THE SAFETY, HEALTH, PROPERTY, AND WELFARE OF THE PUBLIC.

If our environmental site assessment/evaluation discloses the existence of conditions that may endanger the safety, health, property, or welfare of the public, we may be obligated under rules of professional conduct, statutory law, or common law to notify you and others of these conditions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland