

**CORRECTIVE ACTION REPORT  
CITY OF TANANA NEW BUILDING EXCAVATION  
FORMER TANANA POWER COMPANY SITE  
TANANA, ALASKA**

April 2014

Submitted To:  
Alaska Department of Environmental Conservation  
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Fairbanks, Alaska 99709

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HAZARD ID 3946  
ADEC File 780.57.003 and 780.38.014**

April 2014

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**ACRONYMS AND ABBREVIATIONS**

°C	degree centigrade
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 yards
DQO	data quality objective
DRO	diesel range organics
EPA	United States Environmental Protection Agency
FT	Field Technician
GRO	gasoline range organics
IC	institutional controls
LOD	limit of detection
LOQ	limit of quantitation
LS/LSD	laboratory sample/LS duplicate
mg/kg	milligrams per kilogram
MS/MSD	matrix spike sample/MS duplicate
MTG	migration to groundwater
PAH	polynuclear aromatic hydrocarbon
PID	photoionization detector
ppm	parts per million
QA	quality assurance
QC	quality control
RPD	relative percent difference
SCL	ADEC soil-cleanup level
SGS	SGS North America, Inc.

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**1.0 INTRODUCTION**

Shannon & Wilson, Inc. prepared this report on our field-screening and soil-sampling activities during excavation at the Former Tanana Power Site in Tanana, Alaska. This report was prepared for the Alaska Department of Environmental Conservation (ADEC), under our Hazardous Substance Spill Prevention and Cleanup Term Contract 18-8036-03, Notices to Proceed 18803603007 and 18803603007B.

**1.1 Project Description and Objectives**

The ADEC is using the Reuse and Redevelopment (Brownfield) Program to assist the City of Tanana (City) in a redevelopment project at the Former Tanana Power Company Site. The City plans to construct two buildings on this property. The ADEC contracted Shannon & Wilson to work with the City of Tanana to excavate and treat petroleum-contaminated soil from areas proposed for redevelopment.

The project goal was to remove excavated soil from the building footprints that exceeds ADEC Maximum Allowable Concentrations (18 AAC 75.341 Table B2) and transport it offsite for long-term treatment; excavation would be terminated at a depth when material suitable for foundations of the proposed buildings was reached. Shannon & Wilson's field technician used observation, field screening, and sampling, as described in our September 2013 *Work Plan, City of Tanana New Building Excavation, Former Tanana Power Company Site, Tanana, Alaska*, to determine whether excavated soils were contaminated.

**1.2 Site Description**

The Former Tanana Power Site comprises Lot 8, Block 10 in the Townsite of Tanana and is at the southwest corner of Second Avenue and Hill Street in Tanana, Alaska (Figure 1). The site is about 0.4 acre and is described in US Survey 2754, Section 17, Township 4 North, Range 22 West, Fairbanks Meridian.

Tanana Power Company operated a power-generation facility at this site from 1966 to 1983. Improvements included a diesel-fired power plant, two 500-gallon day tanks, a livery on the northern portion of the property, and a 75,000-gallon capacity tank farm on its southern part. A

three-inch-diameter pipe connected the day tanks to the tank farm. The power plant operated on this site until 1983, when it was moved to a site north of Third Avenue.

This site has been the subject of several environmental assessments commissioned by Tanana Power Company in 2008 and 2010. These assessments documented soil and groundwater contamination at the site which was attributed to spills and releases from the fuel tanks and piping. Contaminants of potential concern on the site had been determined to be gasoline range organics (GRO); diesel range organics (DRO); and benzene, toluene, ethylbenzene, and xylenes (BTEX).

The ADEC prepared a Decision Document for this site in 2012, which indicated “Contamination remains on site above established default cleanup levels however ADEC has determined there is no unacceptable risk to human health or the environment. Therefore this site will be issued a ‘Cleanup Complete – Institutional Controls (ICs) determination’ subject to certain conditions.” One of those conditions was that future site development must be done in a manner that properly manages environmental concerns. This includes properly handling contaminated soil generated by excavation activities and mitigating potential vapor-intrusion into structures built on the property.

We prepared a preliminary conceptual site model (CSM) for this site based on the information provided by ADEC; the preliminary CSM was presented in Appendix A of the *Work Plan*.

### **1.3 Scope of Services**

Shannon & Wilson’s primary task was to field-screen excavated soils associated with excavations for two new buildings the City plans to build on the subject site. We used our field-screening results to determine whether petroleum hydrocarbon-contamination was present in excavated soil and at the limits of excavation, and to provide guidance for handling potentially contaminated soils.

We field-classified soil based on photoionization-detector (PID) field-screening results. Observation of soil staining and/or PID readings of 20 parts per million (ppm) or greater were considered indicative of potential petroleum hydrocarbon soil contamination exceeding ADEC soil-cleanup levels (SCLs). We considered soil with a PID reading less than 20 ppm to be “clean,” i.e., not exceeding SCLs. Field-classified contaminated soil was transported off-site to a designated area at the City Landfill for treatment by landfarming. We collected analytical samples from stockpiled clean soil and from contaminated soil to determine the concentrations of contaminants prior to landfarming or reuse of the soil.

We performed field screening and collected headspace samples for field screening at a minimum rate of one sample per 10 cubic yards (cy). The City provided equipment and personnel to

excavate and handle the soil and construct a landfarm to treat the contaminated soil, and will manage the landfarmed soil.

We collected analytical samples to characterize the landfarm area prior to use, the limits of excavation, clean stockpiles, and landfarmed soil. We submitted the samples for analysis of GRO, BTEX, DRO, and polynuclear aromatic hydrocarbons (PAHs). This report includes analytical laboratory results, conclusions, and recommendations relevant to vapor-intrusion mitigation.

## **2.0 FIELD ACTIVITIES AND OBSERVATIONS**

Following is a summary of our field observations and sampling activities conducted in accordance with Shannon & Wilson's September 2013 *Work Plan*, which was approved by ADEC. Field-screening and analytical-sample locations are shown in Figure 2. A copy of the field notes, including field-screening results, is provided in Appendix A. Representative photographs of the excavation and landfarm areas and work progress are presented in Appendix B. Appendix C contains a DVD with brief videos of the field activities.

Jake Tracy, EIT, Shannon & Wilson's field technician, performed the field activities from September 17-25, 2013. Mr. Patrick Moore, City Building and Maintenance Department, was the Site Superintendent and also operated the excavator on the subject site.

### **2.1 Landfarm Area**

The City prepared an area north of the City Landfill for landfarming the contaminated soil excavated during this project (Figure 1). Photographs 1 and 2 show the landfarm area with surrounding soil berms. On September 17, prior to placement of contaminated soil in the landfarm, Jake collected 40 soil samples for field-screening in a grid pattern in the designated landfarm area (Photo 3). Jake measured the outside area of the landfarm at 135 feet by 173 feet, with 4-foot-wide, 3-foot-high soil berms. Soil in the landfarm area was moist brown silt with a trace of organics. PID results on this soil were 4 ppm or less. He then collected ten primary and one duplicate analytical soil samples from a depth of six inches from the locations with the highest PID results. Refer to page 3 of the field notes for a sketch of field-screening and analytical-sample locations in the landfarm area.

### **2.2 Excavations**

In early September, City personnel began clearing and grubbing the surface vegetation at the site. They reportedly removed 330 cy of vegetation and surface soil and placed it at the landfill. Exposed soil at the northwest portion of the site was noted to have a petroleum hydrocarbon odor. Photo 4 shows the site prior to excavation.

Soil excavation and supporting field activities occurred September 17-25, 2013. The City used a Volvo 460 track-mounted excavator to excavate soil from the designated excavation areas. Jake performed headspace sample field screening using the procedures described in our *Work Plan* and a PID (MiniRae 2000 Portable VOC Monitor, Model PGM 7600). During excavation at the site, he used observation of staining or petroleum odors and PID field-screening to identify contaminated soil. Contaminated soil was placed directly into the 10-cubic-yard end-dump trucks for transport to the landfarm (Photo 8).

Jake collected headspace field screening samples after excavation was completed. He selected analytical-sample locations based on field-screening results, collecting analytical samples from locations with the highest field-screening results. He collected and handled analytical samples in accordance with our September 2013 *Work Plan*.

Under the vegetation and surface soil grubbed by the City, soils encountered in both excavations were generally moist brown silt with occasional organics, underlain by moist brown to gray gravel with sand at about 8 feet below the ground surface (bgs). Excavation was terminated when suitable material (undisturbed gravel) was reached in the footer location, as determined by the City. The total volume of contaminated soil transported to the landfarm was 230 truckloads, or about 2,300 cy.

### **2.2.1 Excavation 1**

On September 17, 2013, the City started the excavation on the southern half of the Tanana Power Company site (Excavation 1; Photos 5-6). Soil in the southern portion of Excavation 1 exhibited a hydrocarbon odor and elevated field-screening results (as high as 415 ppm at a depth of 1 foot to 2 feet bgs).

Gray silt with a hydrocarbon odor was encountered at southwestern portion of Excavation 1 (Photos 11-12). The end of a 4-inch-diameter steel pipe was unearthed at the southwestern portion of Excavation 1 (Photos 14-17). The pipe appeared empty, but soil to the east of the pipe appeared stained and had a strong hydrocarbon odor. The pipe was broken off at the edge of the wall with the excavator.

Soil in the northern portion of Excavation 1 appeared to be clean. About 100 cy of apparently clean soil was stockpiled to the west of it (Photo 18).

Excavation 1 was completed on September 19. The final dimensions of Excavation 1 were about 59 feet north-south by 59 feet east-west (Figure 2). The final excavation depth was about 4 feet bgs with an 8-foot-deep trench at the perimeter (footer location).

Jake collected 40 samples from the sidewalls and base of Excavation 1 for field-screening; PID results ranged from 6 ppm to 1,683 ppm. He then collected 20 primary and three duplicate analytical samples at representative locations. Figure 2 shows the field-screening and analytical sample locations in Excavation 1.

### **2.2.2 Excavation 2**

On September 20, 2013, the City started the excavation on the northern half of the Tanana Power Company site (Excavation 2; Photo 19). Soil at the northwest portion of Excavation 2 exhibited elevated PID results and a hydrocarbon odor. He collected 65 field-screening samples; PID results ranged from zero ppm to 1,366 ppm. He collected 20 samples plus three field-duplicate samples, for laboratory analysis. Figure 2 shows the field-screening and analytical sample locations in Excavation 2.

Excavation 2 was completed on September 24. The final dimensions of Excavation 2 were about 65 feet north-south by 75 feet east-west (Figure 2). Its final depth was about 4 feet bgs in the center and 8 feet bgs at the perimeter (footer location; Photo 20).

### **2.3 Clean Stockpile Sampling**

“Clean” soil (with PID readings that did not exceed 20 ppm) was stockpiled on the site. Clean soil stockpiles required laboratory analysis of samples to verify they did not exceed SCLs. Jake collected ten field-screening samples from the Excavation-1 stockpile and 20 field-screening samples from the Excavation-2 stockpile. He then collected analytical samples from the locations with the highest PID reading at a depth of 18 inches. He collected three samples from Excavation 1 stockpile and four samples from Excavation 2 stockpile.

### **2.4 Landfarmed Soil**

Following placement of the contaminated soil, City personnel spread it to a depth of about 2 feet with a bulldozer (Photos 22, 26). On September 25, Jake collected analytical soil samples to characterize the levels of soil contamination after it was placed in the landfarm. He collected 40 field-screening samples in a grid pattern of the soil spread in the landfarm area. PID results ranged from 81 ppm to 624 ppm. He then collected eight primary and three duplicate analytical soil samples from a depth of one foot from the locations with the highest PID results. Refer to page 13 in the field notes for a sketch of landfarm field-screening and analytical-sample locations.

## 2.5 Laboratory Analyses

We submitted the analytical samples to SGS North America, Inc. (SGS) in Anchorage, Alaska for analysis using chain-of-custody (COC) procedures. We submitted all soil samples for analysis of BTEX by Environmental Protection Agency (EPA) Method 8021B, DRO by Alaska Method AK 102, and GRO by AK 101. We submitted three samples and one duplicate sample from Excavation 1, three samples from Excavation 2, one sample each from the two clean soil stockpiles, and one from the landfarmed soil for analysis of PAHs by EPA Method 8270D. Three soil trip-blank samples accompanied the sample coolers and were submitted for GRO and BTEX analysis by the methods noted above.

## 2.6 Excavation Backfilling and Follow-Up Visit

The soil-excavation, landfarm construction, and soil sampling activities were completed by September 25, 2013, and Shannon & Wilson departed Tanana. Subsequent to our completion of these activities and departure from the site, the ADEC received reports from residents of Tanana of petroleum odors in the area of the site. Residents also reportedly expressed concerns about potential exposure to contaminant vapors from the site. To facilitate backfilling of the excavations, ADEC amended Shannon & Wilson's contract to provide funding for the City to purchase and transport backfill material and for Shannon & Wilson to observe and document these activities. Between October 4 and 7, 2013, the City backfilled the excavations with 650 cy of sandy gravel fill. Photos 28-35 show the excavations following placement of the fill.

The ADEC requested we conduct air monitoring to address community concerns of hydrocarbon odors associated with the Former Tanana Power Company Site. On October 8, 2013, Andrew Frick, an environmental scientist with Shannon & Wilson, performed a follow-up visit to the site to field-test the air at the excavations. He used benzene-specific Dräger detector tubes to estimate benzene concentrations in air and a PID to test the air for total volatile compounds. PID readings within the excavations (less than one ppm) and at their perimeter (zero ppm) did not indicate volatile compounds were present in the air. Benzene Dräger-tube measurements using tubes with a measurement range of 0.5 ppm to 10 ppm at the west side of Excavation 1 and the northwest corner of Excavation 2 did not indicate the presence of benzene in the air.

### 3.0 QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples and also conducted our own QA assessment for this project. We reviewed the COC record and laboratory-receipt form to check that custody was not breached, sample holding-times were met, and the samples were properly handled from the point of collection through analysis by the laboratory. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

We reviewed analytical soil-sample results (SGS work orders 1138499, 1138516, and 1138517) for this project. The SGS laboratory reports, including the case narratives describing the laboratory QA results in detail, are included with the completed ADEC data-review checklists in Appendix D. Details regarding the results of our QA review are presented in Appendix E, and summarized below.

By working in general accordance with our proposed scope of services, we consider the samples we collected for this project to be representative of site conditions at the locations and times they were obtained. Based on our QA review, no samples were rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In general, the quality of the analytical data for this project does not appear to have been compromised by analytical irregularities and is adequate for the purposes of our assessment.

## 4.0 EVALUATION OF FIELD AND ANALYTICAL RESULTS

PID field-screening results are presented on pages 14-22 of the field notes (Appendix A). Tables 1, 3, and 5 summarize the DRO, GRO, and BTEX results for the soil samples, as well as their locations and depths. Tables 2, 4, and 6 summarize detected PAH results and sample locations. The laboratory reports and associated ADEC data-review checklists are included in Appendix D.

### 4.1 Regulatory Levels

We compared soil-sample analytical results to the soil-cleanup levels in 18 AAC 75.341. The applicable SCLs are described below and presented in Tables 1 through 6.

For the landfarm-area soils, prior to placement of excavated, contaminated soil, the soil cleanup levels were the MTG SCLs for the Under 40-inch precipitation zones.

The landspread soil will be used as daily cover on the Tanana landfill. For beneficial reuse as cover on the landfill, landspread soil must meet these target levels for GRO and DRO established by the ADEC Solid Waste Division; criteria for other analytes to be established by ADEC.

The MTG pathway has been shown to be incomplete at the subject site. For the soil remaining in the excavations, the applicable soil-cleanup levels are from 18 AAC 75.341 Table B2 (Maximum Allowable Concentration for GRO and DRO) and Table B1 [most stringent of the 1) Direct Contact and 2) Outdoor Inhalation cleanup levels for the Under 40-inch Zone and 3) the MTG pathway].

For the excavated clean soil, the applicable ADEC soil-cleanup levels are from 18 AAC 75.341 Table B1 for the most stringent of the Direct Contact and Outdoor Inhalation for the Under 40-inch Zone, and the MTG pathway.

### 4.2 Landfarm Area

PID results of the 40 field-screening samples in the landfarm area were 4 ppm or less. GRO and BTEX analytes were not detected in the ten soil samples and one field duplicate sample from the landfarm area prior to the placement of contaminated soil. DRO was detected in three of the samples at up to 23.6 milligrams per kilogram (mg/kg), which is less than the SCL (Table 1). Samples from this area were not submitted for PAH analysis.

### 4.3 Excavation 1

PID results of the field-screening samples from Excavation 1 were as high as 1,397 ppm, with the highest readings in the southern half of the excavation. DRO was detected in 14 samples and three duplicate samples from Excavation 1 at up to 15,600 mg/kg. Two of the samples exceeded

the DRO SCL. GRO was detected in 13 samples and three duplicate samples at up to 765 mg/kg. None of the Excavation-1 samples exceeded the GRO SCL (Table 3).

Benzene was not detected in the samples from Excavation 1. Toluene, ethylbenzene, *o*-xylene, and *p*- & *m*-xylenes were detected in 9, 8, 17, and 12 samples (including duplicates), respectively. None of the Excavation-1 samples exceeded BTEX SCLs (Table 3).

Eight PAH analytes were reported in one or more of the three samples and one duplicate sample submitted for this analysis. 1-methylnaphthalene had the highest PAH concentrations in the samples at up to 44.3 mg/kg. None of the Excavation-1 samples exceeded PAH SCLs (Table 4).

#### 4.4 Excavation 2

PID results of the field-screening samples from Excavation 2 were as high as 1,366 ppm, with the highest readings in the northwest corner of the excavation. DRO was detected in 14 samples and three duplicate samples at up to 22,500 mg/kg. Four of the primary samples and two duplicate samples exceeded the DRO SCL. GRO was detected in 16 samples and three duplicate samples at up to an estimated 256 mg/kg. None of the samples exceeded the GRO SCL (Table 5).

Benzene was detected in three samples and two duplicate samples at up to an estimated 0.116 mg/kg. Toluene, ethylbenzene, *o*-xylene, and *p*- & *m*-xylenes were detected in 6, 10, 15, and 11 samples (including duplicates), respectively. None of the Excavation-2 samples exceeded the BTEX SCLs (Table 5).

Seven PAH analytes were reported in the three submitted samples. None of the Excavation-2 samples exceeded the PAH SCLs (Table 6).

#### 4.5 Clean Stockpiles

PID results of the field-screening samples from Excavation-1 clean stockpile ranged from 3.7 ppm to 50.9 ppm. GRO and DRO were detected in the three samples at up to 5.14 mg/kg and 166 mg/kg, respectively. Benzene, toluene, ethylbenzene, and *p*- & *m*-xylenes were not detected in the samples. *O*-xylene was detected in one sample. None of the detected concentrations exceeded applicable SCLs (Table 3).

PID results of the field-screening samples from Excavation-2 clean stockpile ranged from 1.0 ppm to 14.6 ppm. GRO and DRO were detected in the four samples at up to 5.05 mg/kg and 238 mg/kg, respectively. Benzene, toluene, ethylbenzene, and *p*- & *m*-xylenes were not detected in the samples. *O*-xylene was detected in one sample. None of the detected concentrations exceeded applicable SCLs (Table 5).

#### 4.6 Landfarmed Contaminated Soil

PID results of the field-screening samples from the soil placed in the landfarm ranged from 81 ppm to 635 ppm. GRO and DRO were detected in each of the samples at up to 177 mg/kg and 11,700 mg/kg, respectively. GRO concentrations did not exceed ADEC's target level for disposal, but DRO concentrations in six primary samples and three duplicate samples exceeded ADEC's target level for disposal (Table 1).

As stated earlier, the target levels for analytes other than GRO and DRO will be established by ADEC. For the sake of comparison, we compared other analytes' levels to the most stringent ADEC SCLs.

Benzene was not detected in the landfarmed soil samples. Toluene was detected in three samples and three duplicate samples, but concentrations did not exceed ADEC's most stringent SCLs. Ethylbenzene, *o*-xylene, and *p*- & *m*-xylenes were detected in all of the landfarm samples. None of the BTEX concentrations exceeded ADEC's most stringent SCLs (Table 1).

Seven PAH analytes were detected in the sample; PAH concentrations did not exceed ADEC's most stringent SCLs.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our observations and field and analytical results, we present the following conclusions.

### 5.1 Landfarm Area

Native soil in the landfarm area, prior to contaminated-soil placement, did not exceed the ADEC Migration to Groundwater soil-cleanup levels.

### 5.2 Excavation 1

DRO concentrations exceeding the Maximum Allowable Concentration remain in the excavation sidewall and base in the southern half of Excavation 1 (Figure 2).

### 5.3 Excavation 2

DRO concentrations exceeding the Maximum Allowable Concentration remain in the excavation sidewalls and base in the northwest corner of Excavation 2 (Figure 2).

### 5.4 Clean Stockpiles

Analytical results indicate samples from the two clean soil stockpiles do not exceed the applicable SCLs, so this soil can be reused on-site or transported to another location for unrestricted use.

### 5.5 Landfarmed Soils

All but two of the samples we collected from the approximately 2,300 cy of soil placed in the landfarm exceed ADEC's Target Level for Disposal for DRO (2,000 mg/kg). We recommend the City follow the treatment recommendations we presented in our September 2013 *Contaminated Soil Landfarming Plan* to meet the ADEC Target Levels for beneficial reuse at the City of Tanana landfill.

### 5.6 Conceptual Site Model

Our preliminary CSM for this site was presented in Appendix A of the *Work Plan*. We have updated the CSM using the results of this corrective action. We present the revised CSM in Appendix F.

## 5.7 Recommendations

### 5.7.1 Vapor-Intrusion Exposure Pathway

Vapor intrusion is defined as the migration of volatile chemicals from a subsurface vapor source into overlying buildings. Based on the results of our field-screening and soil-sampling activities described in this report and our understanding of the City's proposed future use of the site, we conclude that vapor intrusion is a potential exposure pathway.

GRO and DRO are present in in-situ soil remaining in both Excavation 1 and Excavation 2. Of these, DRO is present at almost twice its SCL; GRO was present but at concentrations below its SCL. The volatile compounds benzene, ethylbenzene, toluene, xylenes, naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene are also present in in-situ soils in both excavations. These VOCs are referred to as "volatile compounds of potential concern" for the purpose of evaluating the indoor-air exposure pathway as part of a CSM. In addition, CSM guidance requires that inhalation of indoor air be considered an exposure pathway if a structure is within 30 feet of petroleum-contaminated soil and volatile compounds are present. The presence of petroleum hydrocarbons and VOCs in site soil is the basis for our conclusion. It should be noted, however, that the ADEC's October 2012 *Vapor Intrusion Guidance for Contaminated Sites* includes the following statement regarding the use of soil data alone to assess vapor intrusion potential:

Soil data collection is useful for investigating the nature and extent of contamination and evaluating the potential for vapor intrusion; however, DEC has not calculated target levels for soil, and soil data can only be used qualitatively.

Another uncertainty regarding the potential for vapor intrusion (VI) is the lack of specific site-development plans, including foundation designs and possible VI mitigation measures to be implemented for structures to be built on site.

### 5.7.2 Vapor-Intrusion Mitigation

When planning a new structure to be built atop a potential VI source such as petroleum-contaminated soil, the designer should consider methods to prevent contaminated vapors from migrating into the structure. The VI exposure pathway can be mitigated using various passive or active measures, most of which can be integrated into the building's design to limit excessive additional construction costs. Active measures such as sub-slab depressurization systems, indoor-air purifiers, and adjustments to building air handling systems are typically considered when assessing mitigation efforts to existing structures.

Passive measures such as installing a sub-slab ventilation system or chemical-resistant passive membranes, sealing the building envelope, and building on piles or piers, are appropriate

measures the City should consider when planning future development at the site. We recommend the City incorporate one or more of these passive measures into the design and construction of proposed structures at the site.

a. Sub-slab ventilation

Sub-slab ventilation can be achieved by installing a network of horizontal piping under and/or around the perimeter of a building prior to its construction. The network may include manifolds to connect ventilation piping, and should be vented to the outdoors. Wind-driven turbine caps may be used to increase air flow.

b. Passive membranes

Passive membranes are intended to provide a physical barrier to vapor intrusion. These barriers should be placed between the VI source (contaminated soil) and the underside of the structure. Sheet membranes are typically 40-60 mil high-density polyethylene or a similar chemical-resistant material. Fluid-applied membranes are mixtures sprayed on the ground surface to a specified thickness, then allowed to cure.

c. Sealing the building envelope

During construction of a structure over contaminated soil, care should be taken to ensure the building envelope is properly sealed. The objective of this process is to limit the potential for contaminated vapors to enter the building. Standard vapor-barrier construction techniques should meet this objective.

d. Pile construction

Structures built on piles or piers, leaving an open area between the structure and ground surface, will rarely need VI mitigation. The free flow of outdoor air through the open area will limit the potential for vapor intrusion into the overlying structure.

## 6.0 LIMITATIONS

This report was prepared for the use of the ADEC and its representatives to document soil conditions at the Former Tanana Power Plant site, in Tanana, Alaska. This work presents our professional judgment as to the conditions in the site. Information presented here is based on the sampling and analyses we performed. It should not be construed as a definite conclusion about the soil conditions in the area, and it is possible our tests do not represent the highest levels of contamination at the site.

The information included in this report should be considered representative of the time and location at which the sampling occurred. It was not the intent of our investigation to detect the presence of soil 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 changes due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, or other factors 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.

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**APPENDIX A**  
**COPY OF FIELD NOTES**

Sept. 16, 2013

Tanana, Ak

11697-002

JET

500 - Prep equipment and mob to Anchorage Airport

700 - Depart Anchorage

800 - Arrive Fairbanks

John picks JET up at airport.

Prep equipment at Shannon & Wilson Fairbanks

1130 - Check in at Wright Air Service in Fairbanks

1230 - Depart Fairbanks for Tanana

1330 - Arrive in Tanana.

Call ~~R~~ John for pick up.

John takes JET to City shop to get vehicle.

Drive around town and look at site.

1350 - Check into Bed and Breakfast

Lunch

1500 - Check back in with John at excavation site

Drive up to dump site to look at landfarm

1430 - Back at hotel.

Organize equipment and jars for sampling tomorrow

---

Sept. 17, 2013

Tanana, Ak

11697-002

JCT

- 800 - Mobilize to site  
 Meet with John and Patrick  
 Talk with them about plan
- 830 - Go up to land farm site. Walls look good.
- 900 - Begin putting flags in land farm site to create a grid to sample from. Used 25' by 25' squares
- 930 - Patrick comes and says they are ready to begin excavating.  
 Calibrate MiniRAE 3000 (PID). Calibrated to 100 ppm
- 1000 - Hit contamination in southeast corner of property.  
 PID read 212 from direct screen in bucket.
- 1010 - John went to go get a dump truck to put soil in.  
 Will collect <sup>Amplified</sup> samples from excavation and not from bucket per Julie.
- 1030 - Went to land farm to sample bottom (0.5' deep) before trucks dump contaminated soil.  
 See logs and figure for sample times and locations
- 1300 - Back at site.  
 Told drivers they could dump soil in land farm.  
 Continued to direct screen in excavation.  
 Had PID = 415 ppm at 1-2' below ground surface
- 1700 - Off site  
 15 dump trucks of 10cy unloaded at land farm  
 PID ranged from 0.0 to 415 ppm.  
 Started a potentially clean pile.

Chris Darrah 458-3143

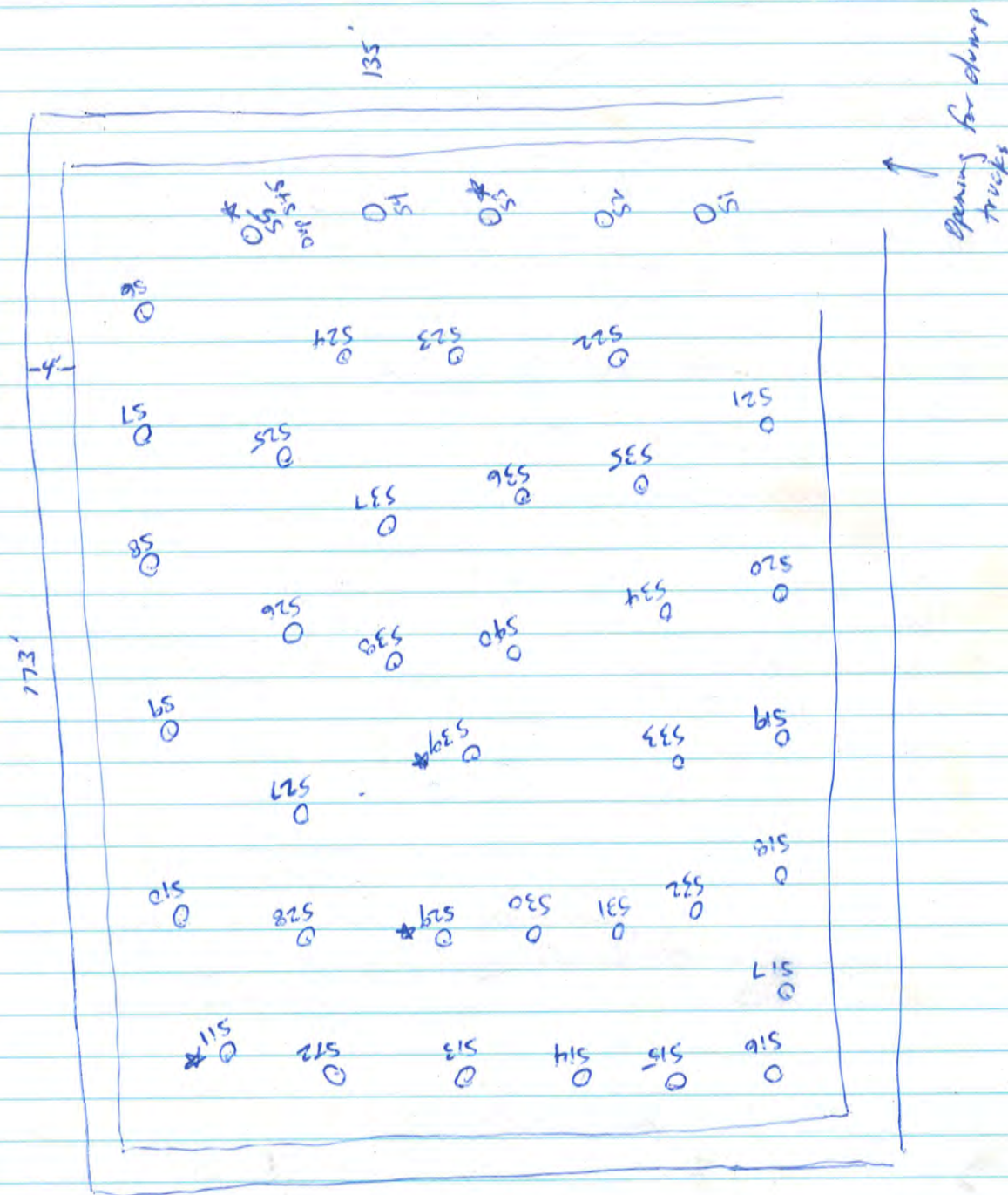
Sept. 18, 2013

Tanana, Ak

11697-002

JCT

- 745 - Mob to site  
 John the operator already on site
- 800 - Begin excavating. Calibrate PID to 100 ppm  
 Most of the soil is above 20 ppm and loaded into dump trucks.  
 Hit PIDs around 400 on south portion of excavation.  
 Continued to direct screen soil. North side of excavation appeared to be "clean" and was stock piled on site
- 1200 - Lunch
- 1230 - Back on site  
 Continued to verify soil is "contaminated".  
 Started putting flags out for headspace screening
- 1730 - Off site  
 Back at B&B to organize equipment and label jars



Wall is approx 3' high.

Duplicate sample from highest PID reading at <sup>LF</sup>SS denoted <sup>LF</sup>S45

Sept. 19, 2013

Tanana, Ak

11697-002

JCT

730 - Arrive on site.

Plan where to take headspace samples in Excavation 1.

Used orange flags to mark locations. See photos.

Truck drivers not available in morning. Will wait until

Excavation 1 is complete before collecting headspace samples.

815 - John Basket begins to mark out second excavation.

Dimensions should be 66' x 62' per Pat.

Asked John to have one "clean" stockpile from Excavation 1

and one from Excavation 2. He will get loader and make

two stockpiles.

900 - Took pictures to send to Julie and John C.

945 - Back to B&amp;B to send pictures while John B. moves "clean" soil into a stockpile.

1030 - Emailed pictures and called Chris D. to ask how many headspace samples inside excavations.

Chris says, according to DE&amp;C sampling guide, its based on sqft

More than 250 sqft 10 screening samples plus 1 per additional 100 sqft

Around 42 screening for excavation 1.

Said to call John C. and let him know the plan and what is happening on site.

Discussed with Chris about taking representative samples around the excavation instead of just from the hottest ones.

1115 - Back to site to check status.

1200 - Lunch

1245 - Back at site

Begin hauling rest of contaminated soil from EX1 to landfarm.

Check PID

1345 - Prep equipment for headspace sampling and analytical sampling for Excavation 1

Per work plan: Plan to take 20 samples from EX1 and

Spoke with John C. He 20 from EX2.

agrees with Chris' convo. 3 duplicates from EX1 and 3 from EX2

3 PAH from EX1 and 3 from EX2

1500 - Found open pipe sticking into the excavation. Could be possible contamination source (see photos)

John B. plans to bend it back to get it out of the way. a

Pat said there used to be a fuel tank across the street and it appears the pipe came from that tank.

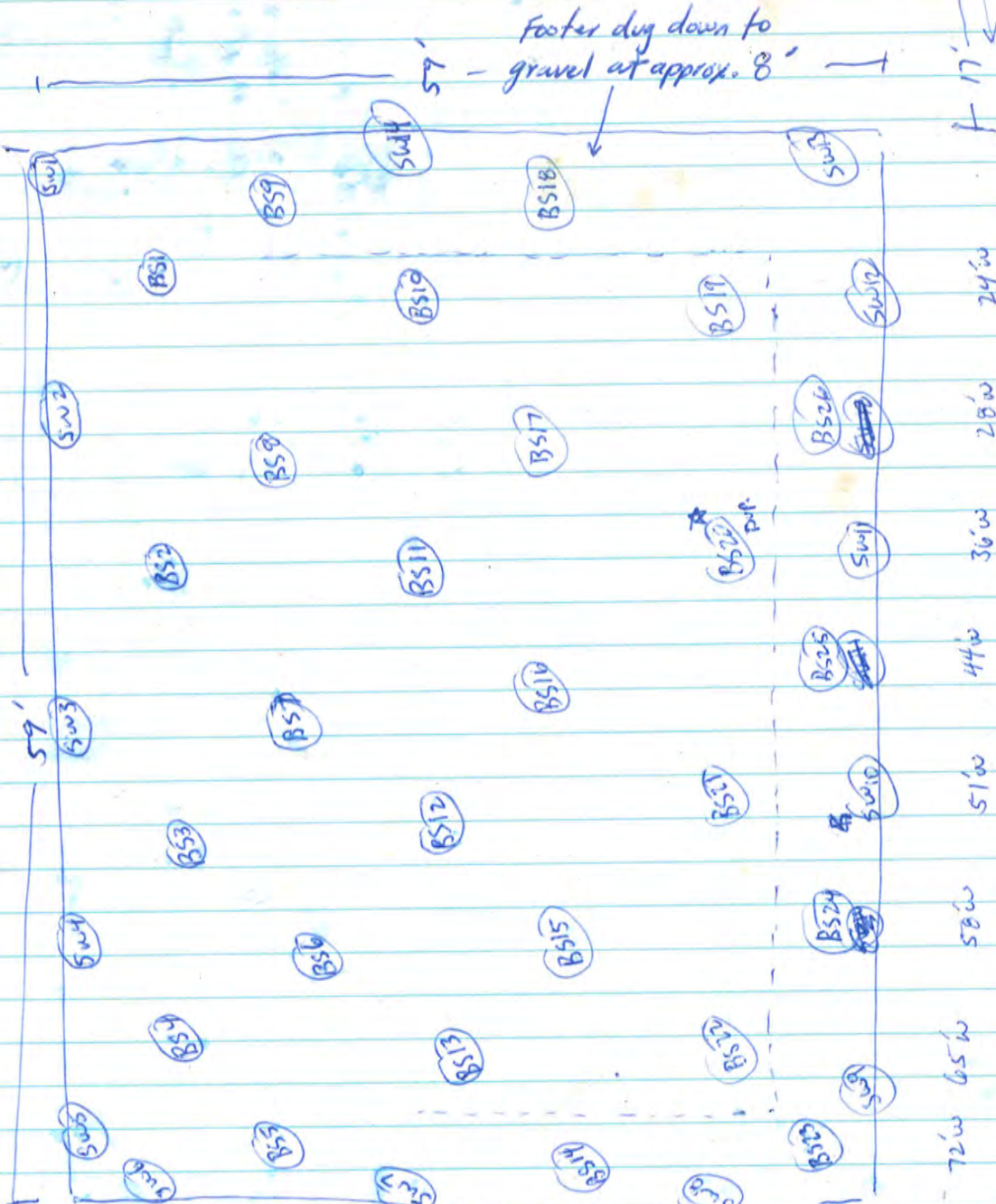
Sept. 19, 2013

Tanana, AK

11697-002  
JOT

To Yoken River  
Property corner

Excavation 1



61'N  
50'N  
39'N  
30'N  
19'N  
11'N

"Clean" Stockpile from Ex 1  
Approx. 100cy

Front Street

Hill street

Sept. 20, 2013

745 - Mobilize to site

800 - Calibrate PID with 100 ppm Isobutylene

Begin checking soil in Excavation 2. Had PID hits of ~~app~~ around 40 ppm.

Found a few pieces of tar that was making PID jump.

Removed ~~soil~~ tar and soil around tar and loaded in dump truck

Soil appeared clean ~~other than~~ otherwise

845 - Began collecting headspace samples in Excavation 1

See field logs and figure for details.

1230 - Finished sampling Excavation 1.

40 Field screens

20 Analytical samples

3 Duplicates from highest PID screens

1245 - Lunch

1830 - Back at site

John is compiling the "clean" soil from the east side of Excavation 2.

The surface is "hot" on the northwest corner of Ex. 2.

Was able to separate "clean" from the "contaminated".

Appeared to be in a "clean area" on the south side of the excavation.

1545 - Found contaminated soil in the "clean" stockpile.

Working to separate it out, and haul it to the landfarm

Will continue hauling tomorrow. Had PID readings of ~250 ppm

1700 - Clean up equipment.

Put samples on ice

8 Truck loads of soil taken to landfarm. ~10cy each

Label samples

Sept. 21, 2013

Tanana

11697-002

0800 - Pack equipment and mobilize to site. Calibrated PFD to 100 ppm

John had to get fuel truck to fuel equipment

Continued to separate and load out contaminated soil.

It appears that the landfarm will not hold all of the contaminated soil.

Sent Julie an email asking about material to put down for additional soil that will not fit in landfarm.

0930 - Back to B&B to organize and label soil samples while John loads soil in trucks.

1015 - Called John to check in. Says he is still loading the contaminated soil. Only have one truck driver.

1200 - Lunch

1245 - Back at site. Should have 2 drivers at 1300

1300 - Started hauling soil to landfarm.

Tried to segregate "clean" from "dirty" soil.

33 Truck loads of soil to landfarm today.

Sept. 22, 2013

Tanana, Ak

11697-002

JCT

800 - Mobilize to site.

John drove dozer up to landfarm area to make soil ~2' thick.

Took photos and video of activities.

930 - Back at Excavation 2.

Calibrated PID to 100 ppm

Began measuring PIDs in NE corner to distinguish "clean" soil

1030 - Was starting to get PIDs in the teens and did not want to risk contaminating our "clean" stockpile.

Did not have any truck drivers so could not load out material.

1130 - John and I talked about expanding the landfarm so there would be enough room to fit all the material.

Will ask John C in the morning if that will work.

1200 - Lunch

1245 - Back at site.

Took measurements and depths in Excavation 1.

Wrote down soil classification.

Came up with an approx cubic yards for Ex1 Stockpile.

→ ~100 cy of "clean" soil

Will take 10 screening samples and Analytical samples

Plan on sampling stockpiles tomorrow and finish Ex2

Sept. 23, 2013

Tanana

11697-002

- 0800 - Mobilize to site  
John on site already loading trucks with contaminated soil.
- 845 - Went up to landfarm to see how much space is left.  
It appears that we will have enough room to fit the soil called Julie and gave her update on job status.  
Asked about moving side berm of landfarm if needed so all the material can fit. Said should be fine.
- 930 - Told her I will send a cooler of samples today since PHT has a 7 day hold time.
- 945 - Started packing up cooler.  
Planes are not landing due to low fog. Should be over at 1230.
- 1200 - Lunch
- 1230 - Shipped a cooler of samples on Wright Arr. Will contact Julie and let her know they are on the way.  
John continued to haul soil. Calibrate PID to 100 ppm  
Found a very contaminated spot in the NW corner.  
Soil is ~~dark~~<sup>dr</sup> dark grey and has a strong HC odor.
- 1500 - Started laying out flags for headspace samples
- 1600 - Sampled the Excavation 1 potentially clean stockpile
- 1730 - Off site
- 1800 - Organized equipment and samples.  
Plan to finish sampling tomorrow.  
45 Truck loads to landfarm today.
- 56

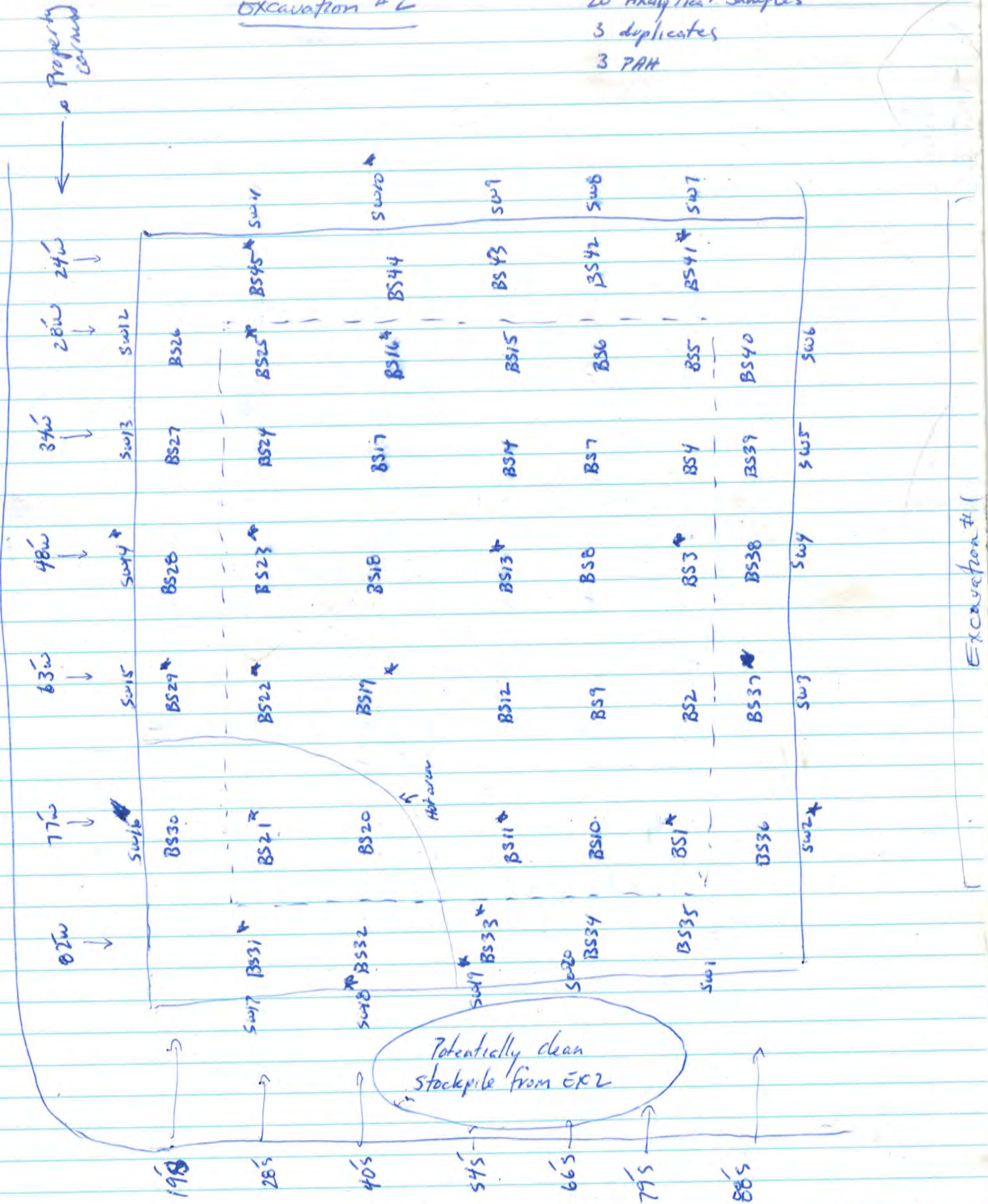
Sept. 23, 2013

Tangay, Ak

11697-002

Excavation #2

20 Analytical samples  
3 duplicates  
3 PAH



Sept. 24, 2013

0800 - Mobilize to site

John and truck drivers hauling "contaminated" material to land farm.

Use Calibrante PID to 100 ppm

Screen every few buckets

↳ Readings around 200 ppm and higher in NW corner

1000 - Check on space up at land farm. It appears ~~that~~ that there will be enough for all of the material to fit on a 2' lift.

1200 - John finishes moving material

Begin flagging excavation 2 to collect PID/handspace samples.

1230 - Lunch

1300 - Begin sampling Excavation 2

1600 - Sample the potentially "clean" stockpile from EX 2.

PID results appear to indicate the stockpile is "clean".

1700 - Back up to land farm to check on John. He is leveling material to be 2' thick.

Will not be done in time to sample today. Plan to

sample material tomorrow.

1730 - Off site. Back to B & B to label samples and pack up for possible departure tomorrow.

Sept. 25, 2013

Tanana, AK

11697-002

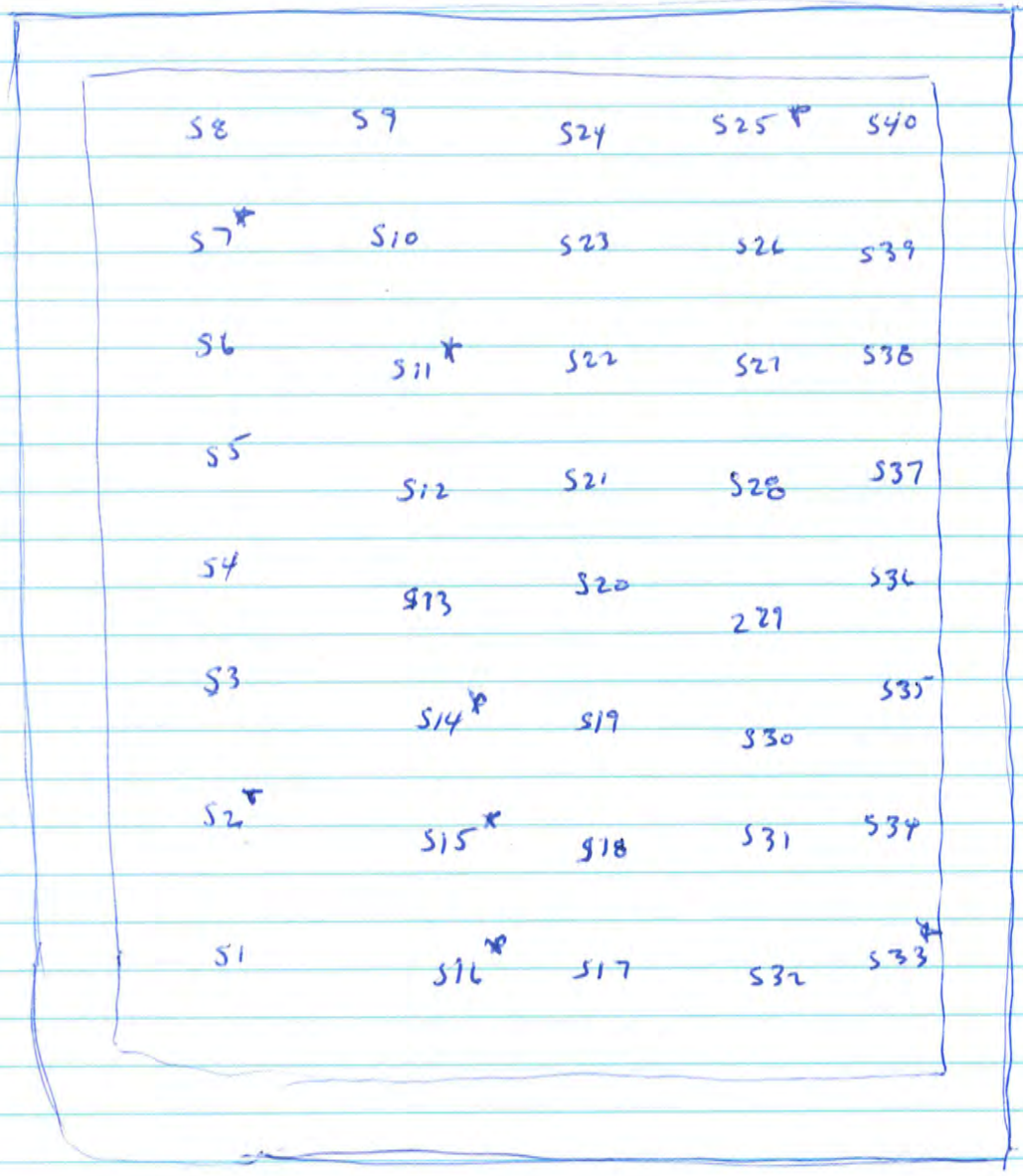
JCT

- 0800 - Meet John and Pat at the city shop.  
Talk about today's activities and plan to depart this afternoon/evening.
- 0900 - Travel up to landfarm to collect headspace and analytical samples. Calibrate PID to 100 ppm
- 1130 - Pack up samples and label them at B&B.
- 1230 - Back at excavations to take depths and measurements.
- 1300 - Call John C. to ask about backfilling and give him updates on project status.  
John says he will have city take pictures of backfilling and says to not worry about it.
- 1330 - Finish labeling samples. Pack them in coolers with ice.
- 1500 - Travel to airport. John said to leave car at airport.
- 1630 - Arrive in Fairbanks. Call Julie for ride to other terminal.  
Sign over samples to Julie.
- 1645 - Check in at Ak Air for 1745 flight to Anchorage.
- 1745 - Depart Fairbanks.
- 1845 - Arrive Anchorage

Sept. 25, 2013

Tanana, Ak

11697-002



Land spread area 2 feet thick

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697 Project Name: Tanana

Date: Sept. 17/2013

Sampler: Jake Tracy

Sample Number	Location	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
DS1	Southeast corner of excavation. Dirt from bucket	1015	2.5	FS	172.9	NA
11697-LFS1	See Land form figure in notes	—	0.5	FS	1.2	NA
11697-LFS2	Brown; SILT with sand; moist; trace organics	—		FS	1.6	NA
LFS3		1210		ES	2.6	GRO/BTEX, DRO
LFS4	duplicate LFS45	—		FS	1.9	NA
LFS5		1215		ES/FD	4.0	GRO/BTEX, DRO
LFS6		—		FS	1.4	NA
LFS7		—		FS	1.0	NA
LFS8		—		FS	1.9	NA
LFS9		—		FS	2.0	NA
LFS10		—		FS	1.8	NA
LFS11		1218		ES	2.7	GRO/BTEX, DRO
LFS12		—		FS	1.0	NA
LFS13		—		FS	1.4	NA
LFS14		—		FS	1.0	NA
LFS15		—		FS	1.8	NA
LFS16		1222		ES	2.3	GRO/BTEX, DRO
LFS17		—		FS	1.1	NA
LFS18		—		FS	0.9	NA
LFS19		1225		ES	2.8	GRO/BTEX, DRO
LFS20		—		FS	1.4	NA
LFS21		—		FS	1.7	NA
LFS22		—		FS	1.6	NA
LFS23		1230		ES	2.6	GRO/BTEX, DRO
LFS24		1232		ES	2.4	" "
LFS25		1235		ES	2.6	" "
LFS26		—		FS	2.1	NA
LFS27		—		FS	2.0	NA
LFS28		—		FS	1.4	NA
LFS29		1240		ES	2.5	GRO/BTEX, DRO
LFS30		—		FS	1.9	NA
LFS31		—		FS	2.1	NA
LFS32		—		FS	1.2	NA
LFS33		—		FS	1.5	NA
LFS34		—		FS	0.8	NA

Sample Type: FS = Field screening measurement only · ES = Environmental sample · FD = Field duplicate · TB = Trip blank



## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: *Tanawa*Date: ~~9/19/2013~~ 9/20/2013Sampler: *Jake Tracy*

Sample Number	Location and Soil type	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
EX1BS1	Excavation #1, south side of property Same as BS2	-	3.9	FS	6.4	-
EX1BS2	Brown SILT; moist	-	4.0	FS	8.8	-
EX1BS3	Brown SILT; moist	1058	4.0	ES	21.4	GR0/BTEX, DRO
EX1BS4	Light brown SILT; moist	-	3.5	FS	16.8	-
EX1BS5	Same	1109	3.9	ES	25.4	GR0/BTEX, DRO
EX1BS6	Same	-	3.9	FS	46.1	-
EX1BS7	Same	1114	4.0	ES	380	GR0/BTEX, DRO
EX1BS8	Light brown SILT; moist trace organics	-	4.0	FS	50	-
EX1BS9	Light brown SILT; moist	-	4.3	FS	15	-
EX1BS10	Brown SILT; moist trace organics	1117	4.2	ES	100	GR0/BTEX, DRO
EX1BS11	Same as above Dup at 1143	1123	4.0	ES/FD	815	GR0/BTEX, DRO, PAH <sup>ST</sup>
EX1BS12	Light brown/gray SILT; moist	-	4.3	FS	377	-
EX1BS13	Same	1127	4.3	ES	561	GR0/BTEX, DRO
EX1BS14	Brown; SILT; moist; trace sand	-	<del>3.7</del> 3.8	FS	27	-
EX1BS15	Brown SILT; moist; trace organics	1130	4.5	ES	584	GR0/BTEX, DRO, PAH
EX1BS16	Light brown SILT; moist; HC odor	-	4.5	FS	350	-
EX1BS17	Brown SILT; moist; trace organics	1133	4.5	ES	14	GR0/BTEX, DRO
EX1BS18	Same as 14	-	<del>4.1</del> 4.1	FS	15	-
EX1BS19	Light brown SILT; moist	-	4.1	FS	32	-
EX1BS20	" " HC odor Dup at 1156	1138	4.3	ES/FD	1683	GR0/BTEX, DRO, PAH
EX1BS21	" " HC odor	-	4.5	FS	328	-
EX1BS22	Brown SILT; moist; trace sand	1147	4.3	ES	323	GR0/BTEX, DRO
EX1BS23	Gray sand with gravel; dry	1157	7.9	ES	179	GR0/BTEX, DRO
EX1BS24	Same "	-	7.8	FS	91	-
EX1BS25	Light brown SILT; moist	1154	7.5	ES	378	GR0/BTEX, DRO
EX1BS26	Same	-	8.4	FS	19	-
EX1SW1	Light brown SILT; moist	1158	2.0	ES	9.9	GR0/BTEX, DRO
EX1SW2	" "	-	1.7	FS	7.0	-
EX1SW3	" "	-	2.7	FS	11.7	-
EX1SW4	" "	1200	2.1	ES	18.5	GR0/BTEX, DRO
EX1SW5	" "	-	1.9	FS	17.4	-
EX1SW6	" "	1204	2.2	ES	15.9	GR0/BTEX, DRO
EX1SW7	" "	-	4.3	FS	12.2	-
EX1SW8	" "	1209	4.5	ES	14.3	GR0/BTEX, DRO
EX1SW9	" " HC odor Dup at 1233	1213	4.0	ES/FD	1397	GR0/BTEX, DRO, PAH <sup>ST</sup>

Sample Type: FS = Field screening measurement only · ES = Environmental sample · FD = Field duplicate · TB = Trip blank

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: Tanana

Date: 9/20/13 &amp; 9/23/13

Sampler: Take Travy

Sample Number	Location And Soil Type	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
11697-EX1 SW10	Excavation 1 Light Brown Silt; moist HC odor	1215	3.3	ES	577	GR0/BTEX, DRO, PAH
EX1 SW11	"	-	4.0	FS	10.2	-
EX1 SW12	"	1219	5.5	ES	26	GR0/BTEX, DRO
EX1 SW13	"	-	4.2	FS	6.8	-
EX1 SW14	"	1222	3.2	ES	3.2	GR0/BTEX, DRO
<del>SOOTS</del>						
9/23/13						
11697-EX1 SPS1	Potentially clean stockpile from Ex1 Brown Silt; moist	1645	1.5	ES	24.8	GR0/BTEX, DRO
EX1 SPS2	"	1650	1.5	ES	15	GR0/BTEX, DRO
EX1 SPS3	"	1655	1.5	ES	50.9	GR0/BTEX, DRO/PAH
EX1 SPS4	"	-	1.5	FS	8.1	
EX1 SPS5	"	-	1.5	FS	7.4	
EX1 SPS6	"	-	1.5	FS	9.0	
EX1 SPS7	"	-	1.5	FS	13.7	
EX1 SPS8	"	-	1.5	FS	14.3	
EX1 SPS9	"	-	1.5	FS	3.7	
EX1 SPS10	"	-	1.5	FS	7.8	

Sample Type: FS = Field screening measurement only · ES = Environmental sample · FD = Field duplicate · TB = Trip blank

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: *Tanana*Date: *9/29/13*Sampler: *Jake Tracy*

RAM

Sample Number	Location and Soil Type Location	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
<i>11697-EX2BS1</i>	<i>Base of Excavation 2 (See Figure) / Brown, SILT; moist</i>	<i>1333</i>	<i>2.6 4.2</i>	<i>ES</i>	<i>47.8</i>	<i>GR0/BTEX, DR0</i>
<i>BS2</i>		<i>-</i>	<i>9.6 4.8</i>	<i>FS</i>	<i>3.0</i>	<i>-</i>
<i>BS3</i>		<i>1337</i>	<i>9.9 5.1</i>	<i>ES</i>	<i>0.7</i>	<i>GR0/BTEX, DR0</i>
<i>BS4</i>		<i>-</i>	<i>9.9 5.1</i>	<i>FS</i>	<i>0.5</i>	<i>-</i>
<i>BS5</i>		<i>-</i>	<i>9.5 4.7</i>	<i>FS</i>	<i>0.2</i>	<i>-</i>
<i>BS6</i>		<i>-</i>	<i>9.5 4.7</i>	<i>FS</i>	<i>0.0</i>	<i>-</i>
<i>BS7</i>		<i>-</i>	<i>8.0 4</i>	<i>FS</i>	<i>0.3</i>	<i>-</i>
<i>BS8</i>		<i>-</i>	<i>8.7 3.9</i>	<i>FS</i>	<i>1.1</i>	<i>-</i>
<i>BS9</i>		<i>-</i>	<i>8.7 3.9</i>	<i>FS</i>	<i>0.6</i>	<i>-</i>
<i>BS10</i>		<i>-</i>	<i>8.8 4</i>	<i>FS</i>	<i>22.4</i>	<i>-</i>
<i>BS11</i>	<i>Brown, SILT moist HC odor BS51 Dup. at 1346</i>	<i>1341</i>	<i>8.0 3.8</i>	<i>ES/FD</i>	<i>435</i>	<i>GR0/BTEX, DR0</i>
<i>BS12</i>	<i>Brown, SILT; moist</i>	<i>-</i>	<i>8.6 3.8</i>	<i>FS</i>	<i>17.3</i>	<i>-</i>
<i>BS13</i>		<i>1344</i>	<i>8.0 4</i>	<i>ES</i>	<i>6.5</i>	<i>GR0/BTEX, DR0</i>
<i>BS14</i>		<i>-</i>	<i>9 4.2</i>	<i>FS</i>	<i>0.9</i>	<i>-</i>
<i>BS15</i>		<i>-</i>	<i>9.2 4.4</i>	<i>FS</i>	<i>0.9</i>	<i>-</i>
<i>BS16</i>		<i>1349</i>	<i>9.0 4.4</i>	<i>ES</i>	<i>1.7</i>	<i>GR0/BTEX, DR0</i>
<i>BS17</i>		<i>-</i>	<i>9 4.2</i>	<i>FS</i>	<i>1.6</i>	<i>-</i>
<i>BS18</i>		<i>-</i>	<i>8.0 4</i>	<i>FS</i>	<i>23.6</i>	<i>-</i>
<i>BS19</i>	<i>Brown SILT; moist; HC odor</i>	<i>1352</i>	<i>9.1 4.3</i>	<i>ES</i>	<i>668</i>	<i>GR0/BTEX, DR0/PAH</i>
<i>BS20</i>	<i>Gray</i>	<i>-</i>	<i>8.2 3.4</i>	<i>FS</i>	<i>487</i>	<i>-</i>
<i>BS21</i>	<i>Gray</i>	<i>1355</i>	<i>9.9 4.6</i>	<i>ES</i>	<i>1366</i>	<i>GR0/BTEX, DR0/PAH</i>
<i>BS22</i>	<i>Gray</i>	<i>1358</i>	<i>9 4.2</i>	<i>ES</i>	<i>565</i>	<i>GR0/BTEX, DR0/PAH</i>
<i>BS23</i>	<i>Brown SILT; moist</i>	<i>1402</i>	<i>8.6 3.8</i>	<i>ES</i>	<i>32.6</i>	<i>GR0/BTEX, DR0</i>
<i>BS24</i>		<i>-</i>	<i>8.9 4.1</i>	<i>FS</i>	<i>9.3</i>	<i>-</i>
<i>BS25</i>		<i>1406</i>	<i>8 4.2</i>	<i>ES</i>	<i>16.1</i>	<i>GR0/BTEX, DR0</i>
<i>BS26</i>	<i>Brown/gray, GRAVEL with sand; moist</i>	<i>-</i>	<i>135 8.7</i>	<i>FS</i>	<i>2.0</i>	<i>-</i>
<i>BS27</i>		<i>-</i>	<i>138.2</i>	<i>FS</i>	<i>1.2</i>	<i>-</i>
<i>BS28</i>		<i>-</i>	<i>127 7.9</i>	<i>FS</i>	<i>4.3</i>	<i>-</i>
<i>BS29</i>	<i>HC odor</i>	<i>1410</i>	<i>11.8 8.1</i>	<i>ES</i>	<i>195</i>	<i>GR0/BTEX, DR0</i>
<i>BS30</i>	<i>HC odor</i>	<i>-</i>	<i>131 8.3</i>	<i>FS</i>	<i>393</i>	<i>-</i>
<i>BS31</i>	<i>HC odor BS61 Dup. at 1420</i>	<i>1413</i>	<i>11.7 8.9</i>	<i>ES/FD</i>	<i>557</i>	<i>GR0/BTEX, DR0</i>
<i>BS32</i>	<i>HC odor</i>	<i>-</i>	<i>116 7.8</i>	<i>FS</i>	<i>379</i>	<i>-</i>
<i>BS33</i>	<i>HC odor</i>	<i>1417</i>	<i>11.2 9.4</i>	<i>ES</i>	<i>284</i>	<i>GR0/BTEX, DR0</i>
<i>BS34</i>		<i>-</i>	<i>146 9.8</i>	<i>FS</i>	<i>4.3</i>	<i>-</i>
<i>BS35</i>		<i>-</i>	<i>141 9.3</i>	<i>FS</i>	<i>1.7</i>	<i>-</i>

Sample Type: FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

*subtract 4.8 from depth*

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: Tanana

Date: 9/24/13

Sampler: Jake Tracy

Sample Number	Location	Location	Soil Type	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
11697-EX2BS36	Base of Excavation 2 (see Figure)		Brown/Gray GRAVEL with sand moist	—	13.0	FS	3.4	—
BS37				—	15.7	FS	0.5	—
BS38				—	14.1	FS	0.4	—
BS39				—	13.3	FS	0.5	—
BS40				—	13.5	FS	0.7	—
BS41				1424	13.2	ES	0.8	GR0/BTEX, DRO
BS42				—	14	FS	0.6	—
BS43				—	14.1	FS	0.4	—
BS44				—	14.4	FS	0.6	—
BS45				1428	13.2	ES	0.9	GR0/BTEX, DRO
EX2SW1	Sidewall of Excavation 2 (see Figure)		Brown, SILT; moist	—	9.9	FS	0.1	—
SW2				1432	11.5	ES	0.3	GR0/BTEX, DRO
SW3				—	13.1	FS	0.2	—
SW4				—	8.8	FS	0.0	—
SW5				—	8.1	FS	0.0	—
SW6				—	11.6	FS	0.1	—
SW7				—	11.1	FS	0.4	—
SW8				—	12.1	FS	0.2	—
SW9				—	8.7	FS	0.5	—
SW10				1435	12.5	ES	0.6	GR0/BTEX, DRO
SW11				—	9.3	FS	0.5	—
SW12				—	11.5	FS	0.5	—
SW13				—	11	FS	2.0	—
SW14				1440	11.1	ES	17.1	GR0/BTEX, DRO
SW15			Gray SILT; moist; HC odor	—	7.1	FS	278	—
SW16				—	10.5	FS	707	<del>GR0/BTEX, DRO</del>
SW17				—	11.6	FS	693	—
SW18			SW18 Dup at 1450	1444	8.1	4/ES/FD	794	GR0/BTEX, DRO
SW19				1453	12	ES	420	GR0/BTEX, DRO
SW20			Brown SILT; moist	—	11.8	FS	30.6	—
EX2SPS1	Potentially clean stockpile from Excavation 2			1530	1.5	ES	6.6	GR0/BTEX, DRO
SPS2			Brown, SILT; moist; trace organics	1535	1.5	ES	12.7	GR0/BTEX, DRO
SPS3				—	1.5	FS	3.6	—
SPS4				—	1.5	FS	1.2	—
SPS5				1542	1.5	ES	14.6	GR0/BTEX, DRO/PAH

Sample Type: FS = Field screening measurement only · ES = Environmental sample · FD = Field duplicate · TB = Trip blank

Subtract 4.8

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: *Tanaher*Date: *9/24/13*Sampler: *Take Tray*

Sample Number	Location	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses
<i>11697-EX2SPS6</i>	<i>Potentially clean stockpile from Excavation 2</i>	<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>1.6</i>	<i>-</i>
<i>SPS7</i>	<i>Brown SILT; moist; trace organics</i>	<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>2.3</i>	<i>-</i>
<i>SPS8</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>4.4</i>	<i>-</i>
<i>SPS9</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>5.8</i>	<i>-</i>
<i>SPS10</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>1.0</i>	<i>-</i>
<i>SPS11</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>4.0</i>	<i>-</i>
<i>SPS12</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>1.9</i>	<i>-</i>
<i>SPS13</i>		<i>1548</i>	<i>1.5</i>	<i>ES</i>	<i>7.8</i>	<i>GR0/BTEX DR0</i>
<i>SPS14</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>5.2</i>	<i>-</i>
<i>SPS15</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>2.8</i>	<i>-</i>
<i>SPS16</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>3.6</i>	<i>-</i>
<i>SPS17</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>3.6</i>	<i>-</i>
<i>SPS18</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>2.7</i>	<i>-</i>
<i>SPS19</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>3.1</i>	<i>-</i>
<i>SPS20</i>		<i>-</i>	<i>1.5</i>	<i>FS</i>	<i>2.0</i>	<i>-</i>

Sample Type: FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

## SOIL SAMPLE COLLECTION LOG

Project Number: 11697-002 Project Name: Tanah

Date: 9/25/16

Sampler: Jake Traug

Sample Number	Location	Sample Time	Depth (ft)	Sample Type	PID Reading	Analyses	
11697-LSS1	Landspread area (potentially contaminated soil) Brown silt moist HC odor for all	—	1'	FS	308	—	
LSS2		1040	1'	ES	394	GRO/BTEX, DRO	
LSS3		—	1	FS	148	—	
LSS4		—	1	FS	125	—	
LSS5		—	1	FS	169	—	
LSS6		—	1	FS	322	—	
LSS7		—	1045	1	ES	395	GRO/BTEX DRO
LSS8		—	—	1	FS	345	—
LSS9		—	—	1	FS	371	—
LSS10		—	—	1	FS	185	—
LSS11		LSS41 Duplicate 1120	1050	1	ES&FD	624	GRO/BTEX, DRO
LSS12		—	—	1	FS	502	—
LSS13		—	—	1	FS	326	—
LSS14		LSS44 Duplicate 1125	1055	1	ES&FD	498	GRO/BTEX, DRO
LSS15		—	1100	1	FS	635	GRO/BTEX DRO/PAH
LSS16		LSS46 Duplicate 1130	1105	1	ES&FD	610	GRO/BTEX DRO
LSS17		—	—	1	FS	239	—
LSS18		—	—	1	FS	135	—
LSS19		—	—	1	FS	325	—
LSS20		—	—	1	FS	250	—
LSS21		—	—	1	FS	225	—
LSS22		—	—	1	FS	246	—
LSS23		—	—	1	FS	177	—
LSS24		—	—	1	FS	149	—
LSS25		—	1110	1	ES	303	GRO/BTEX DRO
LSS26		—	—	1	FS	123	—
LSS27		—	—	1	FS	121	—
LSS28		—	—	1	FS	246	—
LSS29		—	—	1	FS	104	—
LSS30		—	—	1	FS	134	—
LSS31		—	—	1	FS	122	—
LSS32		—	—	1	FS	263	—
LSS33		—	1115	1	ES	371	GRO/BTEX DRO
LSS34		—	—	1	FS	161	—
LSS35		—	—	1	FS	87	—

Sample Type: FS = Field screening measurement only - ES = Environmental sample FD = Field duplicate TB = Trip blank



## FIELD ACTIVITIES DAILY LOG

Date 10-8-13Sheet 1 of     Project No. 1697-001Project Name: Former Tanana Power Site - Backfilling ExcavationsField activity subject: Field screening/sampling for volatiles.

Description of daily activities and events:

9:00 Packed equipment and supplies. Calibrated  
PID, reading 97.7ppm.

11:20 Departed office.

11:30 Arrived at Wright's Air Service. Checked in for  
flight to Tanana.

12:40-13:30 Flight to Tanana.

13:30 Pat Moore picked me up at airstrip drove me  
to ~~the~~ site.

13:40-14:00 Took atmospheric PID readings around  
perimeter of excavations, within excavations, and  
along the sidewalls of excavations. PID did not  
register any volatiles (0.0 ppm continuously).

14:10-15:40 Took field screening samples from  
sidewall of excavation - see figure. The north  
wall and north section of the west wall had  
PID readings from 88-56ppm.

15:40-16:20 Called JAK to let her know about  
PID hits and ask how to proceed. Walked  
around perimeter and inside excavations with  
PID again because there was less wind. PID  
still continuously 0.0 ppm.

16:20-17:00 Took Dräger tube samples at  
 Visitors on site: NW corner of N excavation, and W side  
of S excavation. No indication of benzene.

Changes from plans/specifications and other special orders and important decisions:

17:00-17:20 cleaned up work site. Drove to  
airstrip. Arrived in FAT at 18:50.

Weather conditions: Winds from the East, 10-25 mph. ~#10°F.Important telephone calls: See abovePersonnel on site: ALFSignature: Andrew JarkDate: 10-9-13



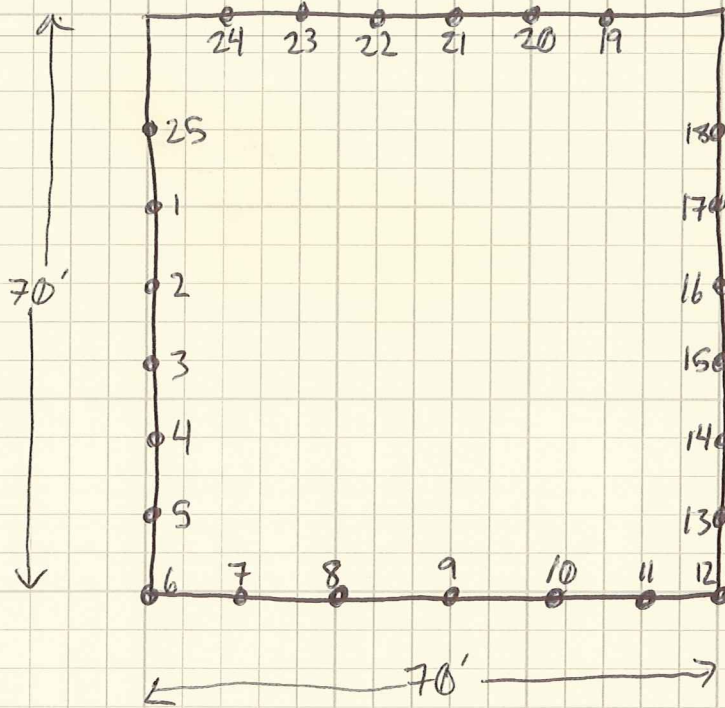
SHANNON & WILSON, INC.  
Geotechnical and Environmental Consultants

Former

JOB NAME Tanana Power Site  
SUBJECT PID Field Screening  
BY ALF CHK'D \_\_\_\_\_

JOB NO. 11697-001  
DATE 10-8-13  
SHEET 1 of 1

# Sidewall Soil Screening of North Excavation



FS#	ppm	FS#	ppm
1	56	21	78
2	60	22	56
3	<1	23	8
4	<1	24	<1 New Fill
5	<1	25	63
6	<1		
7	<1		
8	2.73		
9	1		
10	1.72		
11	1.62		
12	<1		
13	6.46		
14	1.82		
15	2		
16	2		
17	<1		
18	<1 New Fill		
19	14.3		
20	88		

↑  
N

**APPENDIX B**

**SELECTED PROJECT PHOTOGRAPHS**



1) Landfarm area prior to placement of contaminated soil. August 20, 2013.



4) September 17, 2013. Site following grubbing, facing north. September 17, 2013.



2) Landfarm area prior to placement of contaminated soil. August 20, 2013.



5) Starting to excavate at southeast corner of site, following grubbing. Facing northeast. September 17, 2013.



3) Sampling grid at pinflags in landfarm area, facing northwest. September 17, 2013.



6) Starting Excavation 1 at southern half of site, facing northeast. September 17, 2013.



7) Start of Excavation 1, facing north. September 17, 2013.



10) Northeast corner of Excavation 1 with deeper excavation for footer at perimeter, facing north. September 17, 2013.



8) Loading contaminated soil from Excavation 1 into 10-cubic-yard dump truck for transport to the landfarm, facing north. September 17, 2013.



11) Dark gray silt with hydrocarbon odor in southwest portion of Excavation 1, facing south. September 18, 2013.



9) Plastic fencing placed around Excavation 1, facing northeast. September 17, 2013.



12) Dark gray silt with hydrocarbon odor in southwest portion of Excavation 1, facing south. September 18, 2013.



13) Northeast corner of Excavation 1, facing north. September 18, 2013.



16) Another view of pipe in southwest corner of Excavation 1, facing west. September 19, 2013.



14) Pipe unearthed in southwest corner of Excavation 1, facing west. September 19, 2013.



17) Another view of pipe in southwest corner of Excavation 1, facing east. September 19, 2013.



15) Another view of pipe in southwest corner of Excavation 1, facing north. September 19, 2013.



18) Stockpile of clean soil from Excavation 1, facing north. September 19, 2013.



**19)** Starting Excavation 2, facing southwest. September 20, 2013.



**22)** Dozer spreading out dumped contaminated soil in landfarm. September 22, 2013.



**20)** Southeast corner of Excavation 2, facing east. September 21, 2013.



**23)** Excavation 2, facing northeast. September 23, 2013.



**21)** Excavation 1, facing southeast. September 21, 2013.



**24)** Western half of Excavation 2, facing north, showing area of dark-gray contaminated soil with strong hydrocarbon odor at northwest corner of excavation. September 23, 2013.



25) Eastern half of Excavation 2, facing south. September 24, 2013.



28) Excavation 2, facing east. October 8, 2013.



26) Completed landfarm. September 25, 2013.



29) Excavation 2, facing north. October 8, 2013.



27) Recently placed fill soil (gravelly sand). October 8, 2013.



30) Excavation 2, facing south. October 8, 2013.



31) Excavation 2, facing west. Clean stockpile in background. October 8, 2013.



34) Excavation 1, facing south. October 8, 2013.



32) Excavation 1, facing east. October 8, 2013.



35) Excavation 1, facing west. Clean soil stockpile in background. October 8, 2013.



33) Excavation 1, facing north. October 8, 2013.

**APPENDIX C**  
**VIDEO DOCUMENTATION**  
**(ON DVD)**

## **APPENDIX D**

### **SGS ANALYTICAL LABORATORY REPORTS AND ADEC LABORATORY DATA-REVIEW CHECKLISTS**

- 1138499
- 1138516
- 1138517

## Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks  
2355 Hill Road  
Fairbanks, AK 997095244  
(907)479-0600

Report Number: 1138499

Client Project: 11697-002 Tanana

Dear Julie Keener,

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 five 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.



Alaska Division Technical Director

Stephen Ede

2013.10.14

09:19:21 -08'00'

Jennifer Dawkins  
Project Manager

Date

### Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138499**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

**11697-LFS29 (1138499009) PS**

AK102 - Unknown hydrocarbon with several peaks is present.

**11697-EX1BS10 (1138499015) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1BS11 (1138499016) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1BS13 (1138499017) PS**

AK102 - The pattern is consistent with a light weathered middle distillate.

**11697-EX1BS15 (1138499018) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

**11697-EX1BS17 (1138499019) PS**

AK102 - Unknown hydrocarbon with several peaks is present.

**11697-EX1BS20 (1138499020) PS**

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered gasoline and a weathered middle distillate.

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

**11697-EX1BS31 (1138499021) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1BS22 (1138499022) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

**11697-EX1BS23 (1138499023) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1BS25 (1138499024) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1BS40 (1138499025) PS**

## Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138499**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

### **11697-EX1SW10 (1138499026) PS**

AK102 - The pattern is consistent with a light weathered middle distillate.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

8270D SIM - Surrogate (2-fluorobiphenyl and terphenyl-d14) recovery is outside of QC criteria due to sample dilution.

### **1138499020MS (1180814) MS**

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.

### **1138499020MSD (1180815) MSD**

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.

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

Print Date: 10/14/2013 8:43:29AM

### Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>8270D SIMS (PAH)</b>				
1180814	1138499020MS	XMS7643	Benzo[k]fluoranthene	BLC
1180815	1138499020MSD	XMS7643	Benzo[k]fluoranthene	BLC

#### 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.

## 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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
11697-LFS3	1138499001	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS5	1138499002	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS11	1138499003	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS16	1138499004	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS19	1138499005	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS23	1138499006	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS24	1138499007	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS25	1138499008	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS29	1138499009	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS39	1138499010	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-LFS45	1138499011	09/17/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS3	1138499012	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS5	1138499013	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS7	1138499014	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS10	1138499015	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS11	1138499016	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS13	1138499017	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS15	1138499018	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS17	1138499019	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS20	1138499020	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS31	1138499021	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS22	1138499022	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS23	1138499023	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS25	1138499024	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1BS40	1138499025	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-EX1SW10	1138499026	09/20/2013	09/24/2013	Soil/Solid (dry weight)
11697-TB1	1138499027	09/17/2013	09/24/2013	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel Range Organics (S)
SM21 2540G	Percent Solids SM2540G

Print Date: 10/14/2013 8:43:31AM

### Detectable Results Summary

Client Sample ID: <b>11697-LFS19</b>			
Lab Sample ID: 1138499005	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	8.44J	mg/Kg
Client Sample ID: <b>11697-LFS25</b>			
Lab Sample ID: 1138499008	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	8.70J	mg/Kg
Client Sample ID: <b>11697-LFS29</b>			
Lab Sample ID: 1138499009	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	23.6	mg/Kg
Client Sample ID: <b>11697-EX1BS3</b>			
Lab Sample ID: 1138499012	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Volatile Fuels</b>	Toluene	0.0130J	mg/Kg
Client Sample ID: <b>11697-EX1BS5</b>			
Lab Sample ID: 1138499013	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	9.90J	mg/Kg
<b>Volatile Fuels</b>	o-Xylene	0.0147J	mg/Kg
Client Sample ID: <b>11697-EX1BS10</b>			
Lab Sample ID: 1138499015	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	265	mg/Kg
<b>Volatile Fuels</b>	Gasoline Range Organics	3.74J	mg/Kg
	o-Xylene	0.0148J	mg/Kg
Client Sample ID: <b>11697-EX1BS11</b>			
Lab Sample ID: 1138499016	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	386	mg/Kg
<b>Volatile Fuels</b>	Gasoline Range Organics	3.82J	mg/Kg
	o-Xylene	0.0633	mg/Kg
	P & M -Xylene	0.0331J	mg/Kg
	Toluene	0.0173J	mg/Kg
Client Sample ID: <b>11697-EX1BS13</b>			
Lab Sample ID: 1138499017	<u>Parameter</u>	<u>Result</u>	<u>Units</u>
<b>Semivolatile Organic Fuels</b>	Diesel Range Organics	8770	mg/Kg
<b>Volatile Fuels</b>	Gasoline Range Organics	14.4	mg/Kg
	o-Xylene	0.0993	mg/Kg
	P & M -Xylene	0.0564J	mg/Kg
	Toluene	0.0117J	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX1BS15**

Lab Sample ID: 1138499018

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	44.3	mg/Kg
2-Methylnaphthalene	11.3	mg/Kg
Chrysene	0.0205J	mg/Kg
Fluorene	1.38	mg/Kg
Naphthalene	1.32	mg/Kg
Phenanthrene	3.55	mg/Kg
Pyrene	0.0546	mg/Kg

**Semivolatile Organic Fuels**

**Volatile Fuels**

Diesel Range Organics	10500	mg/Kg
Ethylbenzene	0.122	mg/Kg
Gasoline Range Organics	104	mg/Kg
o-Xylene	0.744	mg/Kg
P & M -Xylene	0.592	mg/Kg
Toluene	0.0183J	mg/Kg

Client Sample ID: **11697-EX1BS17**

Lab Sample ID: 1138499019

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	33.9	mg/Kg
Gasoline Range Organics	4.09	mg/Kg
o-Xylene	0.0169J	mg/Kg

Client Sample ID: **11697-EX1BS20**

Lab Sample ID: 1138499020

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	26.9	mg/Kg
2-Methylnaphthalene	1.27	mg/Kg
Fluorene	0.592	mg/Kg
Phenanthrene	1.29	mg/Kg

**Semivolatile Organic Fuels**

**Volatile Fuels**

Diesel Range Organics	10600	mg/Kg
Ethylbenzene	0.937	mg/Kg
Gasoline Range Organics	765	mg/Kg
o-Xylene	8.95	mg/Kg
P & M -Xylene	3.98	mg/Kg

Client Sample ID: **11697-EX1BS31**

Lab Sample ID: 1138499021

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	377	mg/Kg
Gasoline Range Organics	4.70	mg/Kg
o-Xylene	0.0283J	mg/Kg
P & M -Xylene	0.0403J	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX1BS22**

Lab Sample ID: 1138499022

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	15600	mg/Kg
Ethylbenzene	0.0809	mg/Kg
Gasoline Range Organics	262	mg/Kg
o-Xylene	3.91	mg/Kg
P & M -Xylene	1.23	mg/Kg
Toluene	0.0135J	mg/Kg

Client Sample ID: **11697-EX1BS23**

Lab Sample ID: 1138499023

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	469	mg/Kg
Gasoline Range Organics	20.4	mg/Kg
o-Xylene	0.102	mg/Kg
P & M -Xylene	0.0873	mg/Kg
Toluene	0.00747J	mg/Kg

Client Sample ID: **11697-EX1BS25**

Lab Sample ID: 1138499024

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1050	mg/Kg
Ethylbenzene	0.113	mg/Kg
Gasoline Range Organics	61.8	mg/Kg
o-Xylene	0.889	mg/Kg
P & M -Xylene	0.955	mg/Kg
Toluene	0.0124J	mg/Kg

Client Sample ID: **11697-EX1BS40**

Lab Sample ID: 1138499025

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	29.3	mg/Kg
2-Methylnaphthalene	1.21	mg/Kg
Fluorene	0.503	mg/Kg
Phenanthrene	1.21	mg/Kg
Diesel Range Organics	961	mg/Kg
Ethylbenzene	1.23	mg/Kg
Gasoline Range Organics	719	mg/Kg
o-Xylene	10.5	mg/Kg
P & M -Xylene	4.96	mg/Kg
Toluene	0.0965J	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX1SW10**

Lab Sample ID: 1138499026

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	1.30	mg/Kg
Fluoranthene	0.0445J	mg/Kg
Pyrene	0.102J	mg/Kg
Diesel Range Organics	9350	mg/Kg
Ethylbenzene	0.109	mg/Kg
Gasoline Range Organics	121	mg/Kg
o-Xylene	0.864	mg/Kg
P & M -Xylene	0.974	mg/Kg
Toluene	0.0183J	mg/Kg



### Results of 11697-LFS3

Client Sample ID: **11697-LFS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499001  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:10  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.5

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.8 U	22.3	6.90	mg/Kg	1		09/28/13 20:57
<b>Surrogates</b>							
5a Androstane	84	50-150		%	1		09/28/13 20:57

### Batch Information

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 20:57  
Container ID: 1138499001-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.439 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-LFS3

Client Sample ID: 11697-LFS3
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499001
Lab Project ID: 1138499

Collection Date: 09/17/13 12:10
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 88.5

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.04 U, 3.39, 1.02, mg/Kg, 1, 09/25/13 11:29

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 99.5, 50-150, %, 1, 09/25/13 11:29

Batch Information

Analytical Batch: VFC11650
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/25/13 11:29
Container ID: 1138499001-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/17/13 12:10
Prep Initial Wt./Vol.: 51.427 g
Prep Extract Vol: 30.8989 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 90.4, 72-119, %, 1, 09/25/13 11:29

Batch Information

Analytical Batch: VFC11650
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/25/13 11:29
Container ID: 1138499001-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/17/13 12:10
Prep Initial Wt./Vol.: 51.427 g
Prep Extract Vol: 30.8989 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS5**

Client Sample ID: **11697-LFS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499002  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:15  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.8 U	22.2	6.89	mg/Kg	1		09/28/13 21:18
<b>Surrogates</b>							
5a Androstane	85.2	50-150		%	1		09/28/13 21:18

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 21:18  
Container ID: 1138499002-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.348 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS5**

Client Sample ID: **11697-LFS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499002  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:15  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.06 U	3.42	1.03	mg/Kg	1		09/25/13 12:43

**Surrogates**

4-Bromofluorobenzene	99	50-150		%	1		09/25/13 12:43
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 12:43  
Container ID: 1138499002-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:15  
Prep Initial Wt./Vol.: 50.101 g  
Prep Extract Vol: 30.5185 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0110 U	0.0171	0.00548	mg/Kg	1		09/25/13 12:43
Ethylbenzene	0.0214 U	0.0342	0.0107	mg/Kg	1		09/25/13 12:43
o-Xylene	0.0214 U	0.0342	0.0107	mg/Kg	1		09/25/13 12:43
P & M -Xylene	0.0410 U	0.0685	0.0205	mg/Kg	1		09/25/13 12:43
Toluene	0.0214 U	0.0342	0.0107	mg/Kg	1		09/25/13 12:43

**Surrogates**

1,4-Difluorobenzene	89.7	72-119		%	1		09/25/13 12:43
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 12:43  
Container ID: 1138499002-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:15  
Prep Initial Wt./Vol.: 50.101 g  
Prep Extract Vol: 30.5185 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS11**

Client Sample ID: **11697-LFS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499003  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:18  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.6 U	22.0	6.81	mg/Kg	1		09/28/13 21:38
<b>Surrogates</b>							
5a Androstane	85.6	50-150		%	1		09/28/13 21:38

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 21:38  
Container ID: 1138499003-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.228 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS11**

Client Sample ID: **11697-LFS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499003  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:18  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.3

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.61 U	2.69	0.807	mg/Kg	1		09/25/13 13:01
<b>Surrogates</b>							
4-Bromofluorobenzene	104	50-150		%	1		09/25/13 13:01

**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:01  
Container ID: 1138499003-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:18  
Prep Initial Wt./Vol.: 64.263 g  
Prep Extract Vol: 31.2121 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00860 U	0.0134	0.00430	mg/Kg	1		09/25/13 13:01
Ethylbenzene	0.0168 U	0.0269	0.00839	mg/Kg	1		09/25/13 13:01
o-Xylene	0.0168 U	0.0269	0.00839	mg/Kg	1		09/25/13 13:01
P & M -Xylene	0.0322 U	0.0538	0.0161	mg/Kg	1		09/25/13 13:01
Toluene	0.0168 U	0.0269	0.00839	mg/Kg	1		09/25/13 13:01
<b>Surrogates</b>							
1,4-Difluorobenzene	91.4	72-119		%	1		09/25/13 13:01

**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:01  
Container ID: 1138499003-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:18  
Prep Initial Wt./Vol.: 64.263 g  
Prep Extract Vol: 31.2121 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS16**

Client Sample ID: **11697-LFS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499004  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:22  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.8

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.9 U	22.4	6.95	mg/Kg	1		09/28/13 21:59
<b>Surrogates</b>							
5a Androstane	84.5	50-150		%	1		09/28/13 21:59

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 21:59  
Container ID: 1138499004-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.492 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS16**

Client Sample ID: **11697-LFS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499004  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:22  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.8

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.66 U	2.76	0.828	mg/Kg	1		09/25/13 13:20

**Surrogates**

4-Bromofluorobenzene	98.4	50-150		%	1		09/25/13 13:20
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:20  
Container ID: 1138499004-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:22  
Prep Initial Wt./Vol.: 68.863 g  
Prep Extract Vol: 33.39 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00884 U	0.0138	0.00442	mg/Kg	1		09/25/13 13:20
Ethylbenzene	0.0172 U	0.0276	0.00861	mg/Kg	1		09/25/13 13:20
o-Xylene	0.0172 U	0.0276	0.00861	mg/Kg	1		09/25/13 13:20
P & M -Xylene	0.0332 U	0.0552	0.0166	mg/Kg	1		09/25/13 13:20
Toluene	0.0172 U	0.0276	0.00861	mg/Kg	1		09/25/13 13:20

**Surrogates**

1,4-Difluorobenzene	91.7	72-119		%	1		09/25/13 13:20
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:20  
Container ID: 1138499004-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:22  
Prep Initial Wt./Vol.: 68.863 g  
Prep Extract Vol: 33.39 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS19**

Client Sample ID: **11697-LFS19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499005  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:25  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.2

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	8.44 J	22.7	7.03	mg/Kg	1		09/28/13 22:20
<b>Surrogates</b>							
5a Androstane	85.9	50-150		%	1		09/28/13 22:20

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 22:20  
Container ID: 1138499005-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.004 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS19**

Client Sample ID: **11697-LFS19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499005  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:25  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.2

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.88 U	3.13	0.940	mg/Kg	1		09/25/13 13:38

**Surrogates**

4-Bromofluorobenzene	95.2	50-150		%	1		09/25/13 13:38
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:38  
Container ID: 1138499005-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:25  
Prep Initial Wt./Vol.: 57.53 g  
Prep Extract Vol: 31.8011 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0100 U	0.0157	0.00502	mg/Kg	1		09/25/13 13:38
Ethylbenzene	0.0196 U	0.0313	0.00978	mg/Kg	1		09/25/13 13:38
o-Xylene	0.0196 U	0.0313	0.00978	mg/Kg	1		09/25/13 13:38
P & M -Xylene	0.0376 U	0.0627	0.0188	mg/Kg	1		09/25/13 13:38
Toluene	0.0196 U	0.0313	0.00978	mg/Kg	1		09/25/13 13:38

**Surrogates**

1,4-Difluorobenzene	91.2	72-119		%	1		09/25/13 13:38
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:38  
Container ID: 1138499005-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:25  
Prep Initial Wt./Vol.: 57.53 g  
Prep Extract Vol: 31.8011 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS23**

Client Sample ID: **11697-LFS23**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499006  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:30  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.1

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.7 U	22.1	6.85	mg/Kg	1		09/28/13 22:41
<b>Surrogates</b>							
5a Androstane	82.4	50-150		%	1		09/28/13 22:41

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 22:41  
Container ID: 1138499006-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.462 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS23**

Client Sample ID: **11697-LFS23**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499006  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:30  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.87 U	3.12	0.936	mg/Kg	1		09/25/13 13:57

**Surrogates**

4-Bromofluorobenzene	99.6	50-150		%	1		09/25/13 13:57
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:57  
Container ID: 1138499006-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:30  
Prep Initial Wt./Vol.: 55.937 g  
Prep Extract Vol: 31.098 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00998 U	0.0156	0.00499	mg/Kg	1		09/25/13 13:57
Ethylbenzene	0.0195 U	0.0312	0.00973	mg/Kg	1		09/25/13 13:57
o-Xylene	0.0195 U	0.0312	0.00973	mg/Kg	1		09/25/13 13:57
P & M -Xylene	0.0374 U	0.0624	0.0187	mg/Kg	1		09/25/13 13:57
Toluene	0.0195 U	0.0312	0.00973	mg/Kg	1		09/25/13 13:57

**Surrogates**

1,4-Difluorobenzene	91.3	72-119		%	1		09/25/13 13:57
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 13:57  
Container ID: 1138499006-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:30  
Prep Initial Wt./Vol.: 55.937 g  
Prep Extract Vol: 31.098 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS24**

Client Sample ID: **11697-LFS24**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499007  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:32  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.1

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.6 U	21.9	6.78	mg/Kg	1		09/28/13 23:02
<b>Surrogates</b>							
5a Androstane	80.6	50-150		%	1		09/28/13 23:02

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 23:02  
Container ID: 1138499007-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.481 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS24**

Client Sample ID: **11697-LFS24**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499007  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:32  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.79 U	2.99	0.896	mg/Kg	1		09/25/13 14:15

**Surrogates**

4-Bromofluorobenzene	98.2	50-150		%	1		09/25/13 14:15
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:15  
Container ID: 1138499007-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:32  
Prep Initial Wt./Vol.: 56.956 g  
Prep Extract Vol: 30.6586 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00956 U	0.0149	0.00478	mg/Kg	1		09/25/13 14:15
Ethylbenzene	0.0186 U	0.0299	0.00932	mg/Kg	1		09/25/13 14:15
o-Xylene	0.0186 U	0.0299	0.00932	mg/Kg	1		09/25/13 14:15
P & M -Xylene	0.0358 U	0.0598	0.0179	mg/Kg	1		09/25/13 14:15
Toluene	0.0186 U	0.0299	0.00932	mg/Kg	1		09/25/13 14:15

**Surrogates**

1,4-Difluorobenzene	91.2	72-119		%	1		09/25/13 14:15
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:15  
Container ID: 1138499007-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:32  
Prep Initial Wt./Vol.: 56.956 g  
Prep Extract Vol: 30.6586 mL

Print Date: 10/14/2013 8:43:32AM



Results of **11697-LFS25**

Client Sample ID: **11697-LFS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499008  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:35  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.7

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	8.70 J	21.9	6.80	mg/Kg	1		09/28/13 23:22
<b>Surrogates</b>							
5a Androstane	78.5	50-150		%	1		09/28/13 23:22

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 23:22  
Container ID: 1138499008-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.493 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS25**

Client Sample ID: **11697-LFS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499008  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:35  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.7

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.79 U	2.99	0.897	mg/Kg	1		09/25/13 14:34

**Surrogates**

4-Bromofluorobenzene	96.7	50-150		%	1		09/25/13 14:34
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:34  
Container ID: 1138499008-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:35  
Prep Initial Wt./Vol.: 57.616 g  
Prep Extract Vol: 30.9174 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00956 U	0.0150	0.00478	mg/Kg	1		09/25/13 14:34
Ethylbenzene	0.0187 U	0.0299	0.00933	mg/Kg	1		09/25/13 14:34
o-Xylene	0.0187 U	0.0299	0.00933	mg/Kg	1		09/25/13 14:34
P & M -Xylene	0.0358 U	0.0598	0.0179	mg/Kg	1		09/25/13 14:34
Toluene	0.0187 U	0.0299	0.00933	mg/Kg	1		09/25/13 14:34

**Surrogates**

1,4-Difluorobenzene	90.4	72-119		%	1		09/25/13 14:34
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:34  
Container ID: 1138499008-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:35  
Prep Initial Wt./Vol.: 57.616 g  
Prep Extract Vol: 30.9174 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS29**

Client Sample ID: **11697-LFS29**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499009  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:40  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.6

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	23.6	22.0	6.82	mg/Kg	1		09/28/13 23:43
<b>Surrogates</b>							
5a Androstane	80.5	50-150		%	1		09/28/13 23:43

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 23:43  
Container ID: 1138499009-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.448 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS29**

Client Sample ID: **11697-LFS29**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499009  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:40  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.6

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.90 U	3.17	0.952	mg/Kg	1		09/25/13 14:52

**Surrogates**

4-Bromofluorobenzene	93.4	50-150		%	1		09/25/13 14:52
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:52  
Container ID: 1138499009-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:40  
Prep Initial Wt./Vol.: 53.796 g  
Prep Extract Vol: 30.5978 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0102 U	0.0159	0.00508	mg/Kg	1		09/25/13 14:52
Ethylbenzene	0.0198 U	0.0317	0.00990	mg/Kg	1		09/25/13 14:52
o-Xylene	0.0198 U	0.0317	0.00990	mg/Kg	1		09/25/13 14:52
P & M -Xylene	0.0380 U	0.0635	0.0190	mg/Kg	1		09/25/13 14:52
Toluene	0.0198 U	0.0317	0.00990	mg/Kg	1		09/25/13 14:52

**Surrogates**

1,4-Difluorobenzene	90.4	72-119		%	1		09/25/13 14:52
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 14:52  
Container ID: 1138499009-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:40  
Prep Initial Wt./Vol.: 53.796 g  
Prep Extract Vol: 30.5978 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS39**

Client Sample ID: **11697-LFS39**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499010  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:45  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 92.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.5 U	21.7	6.74	mg/Kg	1		09/29/13 00:04
<b>Surrogates</b>							
5a Androstane	83.8	50-150		%	1		09/29/13 00:04

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 00:04  
Container ID: 1138499010-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.017 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS39**

Client Sample ID: **11697-LFS39**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499010  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:45  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 92.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.64 U	2.73	0.819	mg/Kg	1		09/25/13 15:10

**Surrogates**

4-Bromofluorobenzene	94.1	50-150		%	1		09/25/13 15:10
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 15:10  
Container ID: 1138499010-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:45  
Prep Initial Wt./Vol.: 59.237 g  
Prep Extract Vol: 29.7555 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00874 U	0.0137	0.00437	mg/Kg	1		09/25/13 15:10
Ethylbenzene	0.0170 U	0.0273	0.00852	mg/Kg	1		09/25/13 15:10
o-Xylene	0.0170 U	0.0273	0.00852	mg/Kg	1		09/25/13 15:10
P & M -Xylene	0.0328 U	0.0546	0.0164	mg/Kg	1		09/25/13 15:10
Toluene	0.0170 U	0.0273	0.00852	mg/Kg	1		09/25/13 15:10

**Surrogates**

1,4-Difluorobenzene	90.5	72-119		%	1		09/25/13 15:10
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 15:10  
Container ID: 1138499010-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:45  
Prep Initial Wt./Vol.: 59.237 g  
Prep Extract Vol: 29.7555 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS45**

Client Sample ID: **11697-LFS45**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499011  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:50  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.6

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.8 U	22.2	6.90	mg/Kg	1		09/29/13 01:06
<b>Surrogates</b>							
5a Androstane	83.8	50-150		%	1		09/29/13 01:06

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 01:06  
Container ID: 1138499011-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.104 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-LFS45**

Client Sample ID: **11697-LFS45**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499011  
Lab Project ID: 1138499

Collection Date: 09/17/13 12:50  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.6

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.98 U	3.29	0.988	mg/Kg	1		09/25/13 15:29

**Surrogates**

4-Bromofluorobenzene	95.8	50-150		%	1		09/25/13 15:29
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 15:29  
Container ID: 1138499011-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:50  
Prep Initial Wt./Vol.: 51.399 g  
Prep Extract Vol: 30.343 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0105 U	0.0165	0.00527	mg/Kg	1		09/25/13 15:29
Ethylbenzene	0.0206 U	0.0329	0.0103	mg/Kg	1		09/25/13 15:29
o-Xylene	0.0206 U	0.0329	0.0103	mg/Kg	1		09/25/13 15:29
P & M -Xylene	0.0396 U	0.0659	0.0198	mg/Kg	1		09/25/13 15:29
Toluene	0.0206 U	0.0329	0.0103	mg/Kg	1		09/25/13 15:29

**Surrogates**

1,4-Difluorobenzene	88.8	72-119		%	1		09/25/13 15:29
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 15:29  
Container ID: 1138499011-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 12:50  
Prep Initial Wt./Vol.: 51.399 g  
Prep Extract Vol: 30.343 mL

Print Date: 10/14/2013 8:43:32AM

## Results of 11697-EX1BS3

Client Sample ID: **11697-EX1BS3**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138499012  
 Lab Project ID: 1138499

Collection Date: 09/20/13 10:58  
 Received Date: 09/24/13 08:40  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 83.2

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	15.0 U	24.1	7.48	mg/Kg	1		09/29/13 01:27
<b>Surrogates</b>							
5a Androstane	87.6	50-150		%	1		09/29/13 01:27

## Batch Information

Analytical Batch: XFC11097  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 09/29/13 01:27  
 Container ID: 1138499012-A

Prep Batch: XXX29999  
 Prep Method: SW3550C  
 Prep Date/Time: 09/24/13 19:30  
 Prep Initial Wt./Vol.: 29.87 g  
 Prep Extract Vol: 1 mL



**Results of 11697-EX1BS3**

Client Sample ID: **11697-EX1BS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499012  
Lab Project ID: 1138499

Collection Date: 09/20/13 10:58  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.2

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.36 U	3.93	1.18	mg/Kg	1		09/25/13 16:24

**Surrogates**

4-Bromofluorobenzene	99.9	50-150		%	1		09/25/13 16:24
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 16:24  
Container ID: 1138499012-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 10:58  
Prep Initial Wt./Vol.: 51.428 g  
Prep Extract Vol: 33.6212 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0126 U	0.0196	0.00628	mg/Kg	1		09/25/13 16:24
Ethylbenzene	0.0246 U	0.0393	0.0123	mg/Kg	1		09/25/13 16:24
o-Xylene	0.0246 U	0.0393	0.0123	mg/Kg	1		09/25/13 16:24
P & M -Xylene	0.0472 U	0.0785	0.0236	mg/Kg	1		09/25/13 16:24
Toluene	0.0130 J	0.0393	0.0123	mg/Kg	1		09/25/13 16:24

**Surrogates**

1,4-Difluorobenzene	91.8	72-119		%	1		09/25/13 16:24
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 16:24  
Container ID: 1138499012-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 10:58  
Prep Initial Wt./Vol.: 51.428 g  
Prep Extract Vol: 33.6212 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS5**

Client Sample ID: **11697-EX1BS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499013  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:09  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	9.90 J	23.7	7.34	mg/Kg	1		09/29/13 01:47
<b>Surrogates</b>							
5a Androstane	80.6	50-150		%	1		09/29/13 01:47

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 01:47  
Container ID: 1138499013-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.172 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS5**

Client Sample ID: **11697-EX1BS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499013  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:09  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.16 U	3.60	1.08	mg/Kg	1		09/25/13 16:43

**Surrogates**

4-Bromofluorobenzene	102	50-150		%	1		09/25/13 16:43
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 16:43  
Container ID: 1138499013-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:09  
Prep Initial Wt./Vol.: 56.314 g  
Prep Extract Vol: 34.0192 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0115 U	0.0180	0.00575	mg/Kg	1		09/25/13 16:43
Ethylbenzene	0.0224 U	0.0360	0.0112	mg/Kg	1		09/25/13 16:43
o-Xylene	0.0147 J	0.0360	0.0112	mg/Kg	1		09/25/13 16:43
P & M -Xylene	0.0432 U	0.0719	0.0216	mg/Kg	1		09/25/13 16:43
Toluene	0.0224 U	0.0360	0.0112	mg/Kg	1		09/25/13 16:43

**Surrogates**

1,4-Difluorobenzene	90.2	72-119		%	1		09/25/13 16:43
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 16:43  
Container ID: 1138499013-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:09  
Prep Initial Wt./Vol.: 56.314 g  
Prep Extract Vol: 34.0192 mL

Print Date: 10/14/2013 8:43:32AM



Results of **11697-EX1BS7**

Client Sample ID: **11697-EX1BS7**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499014  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:14  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.9

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.0 U	22.6	7.00	mg/Kg	1		09/29/13 02:08
<b>Surrogates</b>							
5a Androstane	83.8	50-150		%	1		09/29/13 02:08

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 02:08  
Container ID: 1138499014-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.221 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1BS7

Client Sample ID: 11697-EX1BS7
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499014
Lab Project ID: 1138499

Collection Date: 09/20/13 11:14
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 87.9

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.04 U, 3.40, 1.02, mg/Kg, 1, 09/25/13 17:01

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 102, 50-150, %, 1, 09/25/13 17:01

Batch Information

Analytical Batch: VFC11650
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/25/13 17:01
Container ID: 1138499014-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:14
Prep Initial Wt./Vol.: 52.478 g
Prep Extract Vol: 31.3495 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 89.7, 72-119, %, 1, 09/25/13 17:01

Batch Information

Analytical Batch: VFC11650
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/25/13 17:01
Container ID: 1138499014-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:14
Prep Initial Wt./Vol.: 52.478 g
Prep Extract Vol: 31.3495 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS10**

Client Sample ID: **11697-EX1BS10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499015  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:17  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.1

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	265	23.4	7.26	mg/Kg	1		09/29/13 02:29
<b>Surrogates</b>							
5a Androstane	71.6	50-150		%	1		09/29/13 02:29

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 02:29  
Container ID: 1138499015-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.072 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS10**

Client Sample ID: **11697-EX1BS10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499015  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:17  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	3.74 J	3.99	1.20	mg/Kg	1		09/25/13 17:20

**Surrogates**

4-Bromofluorobenzene	103	50-150		%	1		09/25/13 17:20
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 17:20  
Container ID: 1138499015-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:17  
Prep Initial Wt./Vol.: 47.066 g  
Prep Extract Vol: 31.9957 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0128 U	0.0200	0.00639	mg/Kg	1		09/25/13 17:20
Ethylbenzene	0.0250 U	0.0399	0.0125	mg/Kg	1		09/25/13 17:20
o-Xylene	0.0148 J	0.0399	0.0125	mg/Kg	1		09/25/13 17:20
P & M -Xylene	0.0480 U	0.0798	0.0240	mg/Kg	1		09/25/13 17:20
Toluene	0.0250 U	0.0399	0.0125	mg/Kg	1		09/25/13 17:20

**Surrogates**

1,4-Difluorobenzene	92	72-119		%	1		09/25/13 17:20
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 17:20  
Container ID: 1138499015-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:17  
Prep Initial Wt./Vol.: 47.066 g  
Prep Extract Vol: 31.9957 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS11**

Client Sample ID: **11697-EX1BS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499016  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:23  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	386	22.3	6.90	mg/Kg	1		09/29/13 02:49
<b>Surrogates</b>							
5a Androstane	88.6	50-150		%	1		09/29/13 02:49

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 02:49  
Container ID: 1138499016-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.174 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1BS11

Client Sample ID: 11697-EX1BS11
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499016
Lab Project ID: 1138499

Collection Date: 09/20/13 11:23
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 89.3

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 3.82 J, 4.03, 1.21, mg/Kg, 1, 09/25/13 17:38

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 102, 50-150, %, 1, 09/25/13 17:38

Batch Information

Analytical Batch: VFC11650
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/25/13 17:38
Container ID: 1138499016-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:23
Prep Initial Wt./Vol.: 40.725 g
Prep Extract Vol: 29.3426 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 89.6, 72-119, %, 1, 09/25/13 17:38

Batch Information

Analytical Batch: VFC11650
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/25/13 17:38
Container ID: 1138499016-B

Prep Batch: VXX25242
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:23
Prep Initial Wt./Vol.: 40.725 g
Prep Extract Vol: 29.3426 mL

Print Date: 10/14/2013 8:43:32AM



Results of **11697-EX1BS13**

Client Sample ID: **11697-EX1BS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499017  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:27  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.4

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	8770	447	138	mg/Kg	20		09/29/13 23:09
<b>Surrogates</b>							
5a Androstane	66.7	50-150		%	20		09/29/13 23:09

**Batch Information**

Analytical Batch: XFC11099  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 23:09  
Container ID: 1138499017-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.384 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS13**

Client Sample ID: **11697-EX1BS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499017  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:27  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	14.4	3.15	0.946	mg/Kg	1		09/25/13 17:57

**Surrogates**

4-Bromofluorobenzene	118	50-150		%	1		09/25/13 17:57
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 17:57  
Container ID: 1138499017-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:27  
Prep Initial Wt./Vol.: 56.604 g  
Prep Extract Vol: 31.5586 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0101 U	0.0158	0.00504	mg/Kg	1		09/25/13 17:57
Ethylbenzene	0.0197 U	0.0315	0.00984	mg/Kg	1		09/25/13 17:57
o-Xylene	0.0993	0.0315	0.00984	mg/Kg	1		09/25/13 17:57
P & M -Xylene	0.0564 J	0.0631	0.0189	mg/Kg	1		09/25/13 17:57
Toluene	0.0117 J	0.0315	0.00984	mg/Kg	1		09/25/13 17:57

**Surrogates**

1,4-Difluorobenzene	92.5	72-119		%	1		09/25/13 17:57
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 17:57  
Container ID: 1138499017-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:27  
Prep Initial Wt./Vol.: 56.604 g  
Prep Extract Vol: 31.5586 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1BS15

Client Sample ID: 11697-EX1BS15
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499018
Lab Project ID: 1138499

Collection Date: 09/20/13 11:30
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 83.9

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.



**Results of 11697-EX1BS15**

Client Sample ID: **11697-EX1BS15**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499018  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:30  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.9

**Results by Polynuclear Aromatics GC/MS**

**Batch Information**

Analytical Batch: XMS7643  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 09/30/13 23:22  
Container ID: 1138499018-A

Prep Batch: XXX30006  
Prep Method: SW3550C  
Prep Date/Time: 09/25/13 14:15  
Prep Initial Wt./Vol.: 22.851 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS7653  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/03/13 20:36  
Container ID: 1138499018-A

Prep Batch: XXX30006  
Prep Method: SW3550C  
Prep Date/Time: 09/25/13 14:15  
Prep Initial Wt./Vol.: 22.851 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS7656  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/04/13 22:44  
Container ID: 1138499018-A

Prep Batch: XXX30006  
Prep Method: SW3550C  
Prep Date/Time: 09/25/13 14:15  
Prep Initial Wt./Vol.: 22.851 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS15**

Client Sample ID: **11697-EX1BS15**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499018  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:30  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10500	470	146	mg/Kg	20		09/29/13 23:29
<b>Surrogates</b>							
5a Androstane	77.5	50-150		%	20		09/29/13 23:29

**Batch Information**

Analytical Batch: XFC11099  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 23:29  
Container ID: 1138499018-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.46 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS15**

Client Sample ID: **11697-EX1BS15**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499018  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:30  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	104	3.39	1.02	mg/Kg	1		09/25/13 18:15

**Surrogates**

4-Bromofluorobenzene	390 *	50-150		%	1		09/25/13 18:15
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:15  
Container ID: 1138499018-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:30  
Prep Initial Wt./Vol.: 61.431 g  
Prep Extract Vol: 34.9036 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0108 U	0.0169	0.00542	mg/Kg	1		09/25/13 18:15
Ethylbenzene	0.122	0.0339	0.0106	mg/Kg	1		09/25/13 18:15
o-Xylene	0.744	0.0339	0.0106	mg/Kg	1		09/25/13 18:15
P & M -Xylene	0.592	0.0677	0.0203	mg/Kg	1		09/25/13 18:15
Toluene	0.0183 J	0.0339	0.0106	mg/Kg	1		09/25/13 18:15

**Surrogates**

1,4-Difluorobenzene	92.4	72-119		%	1		09/25/13 18:15
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:15  
Container ID: 1138499018-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:30  
Prep Initial Wt./Vol.: 61.431 g  
Prep Extract Vol: 34.9036 mL

Print Date: 10/14/2013 8:43:32AM



### Results of 11697-EX1BS17

Client Sample ID: 11697-EX1BS17  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138499019  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:33  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.1

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	33.9	23.4	7.26	mg/Kg	1		09/29/13 03:31
<b>Surrogates</b>							
5a Androstane	84.3	50-150		%	1		09/29/13 03:31

### Batch Information

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 03:31  
Container ID: 1138499019-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.466 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS17**

Client Sample ID: **11697-EX1BS17**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499019  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:33  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	4.09	3.83	1.15	mg/Kg	1		09/25/13 18:34

**Surrogates**

4-Bromofluorobenzene	107	50-150		%	1		09/25/13 18:34
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:34  
Container ID: 1138499019-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:33  
Prep Initial Wt./Vol.: 51.492 g  
Prep Extract Vol: 33.1851 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0123 U	0.0192	0.00613	mg/Kg	1		09/25/13 18:34
Ethylbenzene	0.0240 U	0.0383	0.0120	mg/Kg	1		09/25/13 18:34
o-Xylene	0.0169 J	0.0383	0.0120	mg/Kg	1		09/25/13 18:34
P & M -Xylene	0.0460 U	0.0766	0.0230	mg/Kg	1		09/25/13 18:34
Toluene	0.0240 U	0.0383	0.0120	mg/Kg	1		09/25/13 18:34

**Surrogates**

1,4-Difluorobenzene	90.1	72-119		%	1		09/25/13 18:34
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:34  
Container ID: 1138499019-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:33  
Prep Initial Wt./Vol.: 51.492 g  
Prep Extract Vol: 33.1851 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1BS20

Client Sample ID: 11697-EX1BS20
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499020
Lab Project ID: 1138499

Collection Date: 09/20/13 11:38
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 90.3

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists surrogate compounds like 2-Fluorobiphenyl and Terphenyl-d14.

Batch Information

Analytical Batch: XMS7643
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/30/13 23:36
Container ID: 1138499020-A

Prep Batch: XXX30006
Prep Method: SW3550C
Prep Date/Time: 09/25/13 14:15
Prep Initial Wt./Vol.: 22.637 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS7653
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 10/03/13 20:50
Container ID: 1138499020-A

Prep Batch: XXX30006
Prep Method: SW3550C
Prep Date/Time: 09/25/13 14:15
Prep Initial Wt./Vol.: 22.637 g
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS20**

Client Sample ID: **11697-EX1BS20**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499020  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:38  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10600	437	136	mg/Kg	20		09/29/13 23:50
<b>Surrogates</b>							
5a Androstane	96.8	50-150		%	20		09/29/13 23:50

**Batch Information**

Analytical Batch: XFC11099  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/29/13 23:50  
Container ID: 1138499020-A

Prep Batch: XXX29999  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 19:30  
Prep Initial Wt./Vol.: 30.389 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS20**

Client Sample ID: **11697-EX1BS20**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499020  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:38  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.3

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	765	35.2	10.5	mg/Kg	10		09/25/13 18:52

**Surrogates**

4-Bromofluorobenzene	2770 *	50-150		%	10		09/25/13 18:52
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:52  
Container ID: 1138499020-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:38  
Prep Initial Wt./Vol.: 46.439 g  
Prep Extract Vol: 29.4911 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.112 U	0.176	0.0562	mg/Kg	10		09/25/13 18:52
Ethylbenzene	0.937	0.352	0.110	mg/Kg	10		09/25/13 18:52
o-Xylene	8.95	0.352	0.110	mg/Kg	10		09/25/13 18:52
P & M -Xylene	3.98	0.703	0.211	mg/Kg	10		09/25/13 18:52
Toluene	0.220 U	0.352	0.110	mg/Kg	10		09/25/13 18:52

**Surrogates**

1,4-Difluorobenzene	89.6	72-119		%	10		09/25/13 18:52
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**Batch Information**

Analytical Batch: VFC11650  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/25/13 18:52  
Container ID: 1138499020-B

Prep Batch: VXX25242  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:38  
Prep Initial Wt./Vol.: 46.439 g  
Prep Extract Vol: 29.4911 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS31**

Client Sample ID: **11697-EX1BS31**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499021  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:43  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.4

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	377	21.7	6.72	mg/Kg	1		09/28/13 10:04
<b>Surrogates</b>							
5a Androstane	88.8	50-150		%	1		09/28/13 10:04

**Batch Information**

Analytical Batch: XFC11092  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 10:04  
Container ID: 1138499021-A

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 21:30  
Prep Initial Wt./Vol.: 30.629 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS31**

Client Sample ID: **11697-EX1BS31**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499021  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:43  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 90.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	4.70	3.99	1.20	mg/Kg	1		09/26/13 15:36

**Surrogates**

4-Bromofluorobenzene	110	50-150		%	1		09/26/13 15:36
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/13 15:36  
Container ID: 1138499021-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:43  
Prep Initial Wt./Vol.: 39.915 g  
Prep Extract Vol: 28.8204 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0128 U	0.0200	0.00639	mg/Kg	1		09/26/13 15:36
Ethylbenzene	0.0250 U	0.0399	0.0125	mg/Kg	1		09/26/13 15:36
o-Xylene	0.0283 J	0.0399	0.0125	mg/Kg	1		09/26/13 15:36
P & M -Xylene	0.0403 J	0.0798	0.0240	mg/Kg	1		09/26/13 15:36
Toluene	0.0250 U	0.0399	0.0125	mg/Kg	1		09/26/13 15:36

**Surrogates**

1,4-Difluorobenzene	95	72-119		%	1		09/26/13 15:36
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 15:36  
Container ID: 1138499021-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:43  
Prep Initial Wt./Vol.: 39.915 g  
Prep Extract Vol: 28.8204 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS22**

Client Sample ID: **11697-EX1BS22**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499022  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:47  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.4

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	15600		1110	344	mg/Kg	50		09/28/13 18:32
<b>Surrogates</b>								
5a Androstane	0	*	50-150		%	50		09/28/13 18:32

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 18:32  
Container ID: 1138499022-A

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 21:30  
Prep Initial Wt./Vol.: 30.243 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS22**

Client Sample ID: **11697-EX1BS22**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499022  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:47  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	262	39.5	11.8	mg/Kg	10		09/26/13 21:42

**Surrogates**

4-Bromofluorobenzene	605 *	50-150		%	10		09/26/13 21:42
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/13 21:42  
Container ID: 1138499022-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:47  
Prep Initial Wt./Vol.: 41.747 g  
Prep Extract Vol: 29.4443 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0126 U	0.0197	0.00631	mg/Kg	1		09/26/13 14:59
Ethylbenzene	0.0809	0.0395	0.0123	mg/Kg	1		09/26/13 14:59
o-Xylene	3.91	0.0395	0.0123	mg/Kg	1		09/26/13 14:59
P & M -Xylene	1.23	0.0789	0.0237	mg/Kg	1		09/26/13 14:59
Toluene	0.0135 J	0.0395	0.0123	mg/Kg	1		09/26/13 14:59

**Surrogates**

1,4-Difluorobenzene	92.8	72-119		%	1		09/26/13 14:59
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 14:59  
Container ID: 1138499022-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:47  
Prep Initial Wt./Vol.: 41.747 g  
Prep Extract Vol: 29.4443 mL

Print Date: 10/14/2013 8:43:32AM

## Results of 11697-EX1BS23

Client Sample ID: **11697-EX1BS23**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138499023  
 Lab Project ID: 1138499

Collection Date: 09/20/13 11:51  
 Received Date: 09/24/13 08:40  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 93.9

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	469	21.2	6.58	mg/Kg	1		09/28/13 10:25
<b>Surrogates</b>							
5a Androstane	96.4	50-150		%	1		09/28/13 10:25

## Batch Information

Analytical Batch: XFC11092  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 09/28/13 10:25  
 Container ID: 1138499023-A

Prep Batch: XXX30000  
 Prep Method: SW3550C  
 Prep Date/Time: 09/24/13 21:30  
 Prep Initial Wt./Vol.: 30.093 g  
 Prep Extract Vol: 1 mL



Results of 11697-EX1BS23

Client Sample ID: 11697-EX1BS23
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499023
Lab Project ID: 1138499

Collection Date: 09/20/13 11:51
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 93.9

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 20.4, 2.33, 0.700, mg/Kg, 1, 09/26/13 16:48

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 173, \*, 50-150, %, 1, 09/26/13 16:48

Batch Information

Analytical Batch: VFC11653
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/26/13 16:48
Container ID: 1138499023-B

Prep Batch: VXX25246
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:51
Prep Initial Wt./Vol.: 66.2 g
Prep Extract Vol: 29.0287 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 95.5, 72-119, %, 1, 09/26/13 16:48

Batch Information

Analytical Batch: VFC11653
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 09/26/13 16:48
Container ID: 1138499023-B

Prep Batch: VXX25246
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:51
Prep Initial Wt./Vol.: 66.2 g
Prep Extract Vol: 29.0287 mL

Print Date: 10/14/2013 8:43:32AM



### Results of 11697-EX1BS25

Client Sample ID: 11697-EX1BS25  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138499024  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:54  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 93.8

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1050	85.2	26.4	mg/Kg	4		09/28/13 10:25
<b>Surrogates</b>							
5a Androstane	86.7	50-150		%	4		09/28/13 10:25

### Batch Information

Analytical Batch: XFC11094  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 10:25  
Container ID: 1138499024-A

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 21:30  
Prep Initial Wt./Vol.: 30.047 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS25**

Client Sample ID: **11697-EX1BS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499024  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:54  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 93.8

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	61.8	2.34	0.701	mg/Kg	1		09/26/13 17:24

**Surrogates**

4-Bromofluorobenzene	527 *	50-150		%	1		09/26/13 17:24
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/13 17:24  
Container ID: 1138499024-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:54  
Prep Initial Wt./Vol.: 66.368 g  
Prep Extract Vol: 29.1133 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00748 U	0.0117	0.00374	mg/Kg	1		09/26/13 17:24
Ethylbenzene	0.113	0.0234	0.00730	mg/Kg	1		09/26/13 17:24
o-Xylene	0.889	0.0234	0.00730	mg/Kg	1		09/26/13 17:24
P & M -Xylene	0.955	0.0468	0.0140	mg/Kg	1		09/26/13 17:24
Toluene	0.0124 J	0.0234	0.00730	mg/Kg	1		09/26/13 17:24

**Surrogates**

1,4-Difluorobenzene	94.9	72-119		%	1		09/26/13 17:24
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 17:24  
Container ID: 1138499024-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:54  
Prep Initial Wt./Vol.: 66.368 g  
Prep Extract Vol: 29.1133 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1BS40

Client Sample ID: 11697-EX1BS40
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499025
Lab Project ID: 1138499

Collection Date: 09/20/13 11:56
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 94.4

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists surrogate compounds like 2-Fluorobiphenyl and Terphenyl-d14.

Batch Information

Analytical Batch: XMS7643
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 10/01/13 00:19
Container ID: 1138499025-A

Prep Batch: XXX30006
Prep Method: SW3550C
Prep Date/Time: 09/25/13 14:15
Prep Initial Wt./Vol.: 22.582 g
Prep Extract Vol: 1 mL

Analytical Batch: XMS7653
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 10/03/13 21:32
Container ID: 1138499025-A

Prep Batch: XXX30006
Prep Method: SW3550C
Prep Date/Time: 09/25/13 14:15
Prep Initial Wt./Vol.: 22.582 g
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS40**

Client Sample ID: **11697-EX1BS40**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499025  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:56  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 94.4

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	961	83.8	26.0	mg/Kg	4		09/28/13 10:45
<b>Surrogates</b>							
5a Androstane	90.6	50-150		%	4		09/28/13 10:45

**Batch Information**

Analytical Batch: XFC11094  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 10:45  
Container ID: 1138499025-A

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 21:30  
Prep Initial Wt./Vol.: 30.364 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1BS40**

Client Sample ID: **11697-EX1BS40**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499025  
Lab Project ID: 1138499

Collection Date: 09/20/13 11:56  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 94.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	719	30.8	9.25	mg/Kg	10		09/26/13 17:42

**Surrogates**

4-Bromofluorobenzene	3170 *	50-150		%	10		09/26/13 17:42
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/13 17:42  
Container ID: 1138499025-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:56  
Prep Initial Wt./Vol.: 47.584 g  
Prep Extract Vol: 27.6844 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0986 U	0.154	0.0493	mg/Kg	10		09/26/13 17:42
Ethylbenzene	1.23	0.308	0.0962	mg/Kg	10		09/26/13 17:42
o-Xylene	10.5	0.308	0.0962	mg/Kg	10		09/26/13 17:42
P & M -Xylene	4.96	0.617	0.185	mg/Kg	10		09/26/13 17:42
Toluene	0.0965 J	0.308	0.0962	mg/Kg	10		09/26/13 17:42

**Surrogates**

1,4-Difluorobenzene	95	72-119		%	10		09/26/13 17:42
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 17:42  
Container ID: 1138499025-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:56  
Prep Initial Wt./Vol.: 47.584 g  
Prep Extract Vol: 27.6844 mL

Print Date: 10/14/2013 8:43:32AM



Results of 11697-EX1SW10

Client Sample ID: 11697-EX1SW10
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138499026
Lab Project ID: 1138499

Collection Date: 09/20/13 12:15
Received Date: 09/24/13 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 87.0

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS7643
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 10/01/13 00:33
Container ID: 1138499026-A

Prep Batch: XXX30006
Prep Method: SW3550C
Prep Date/Time: 09/25/13 14:15
Prep Initial Wt./Vol.: 22.889 g
Prep Extract Vol: 1 mL



**Results of 11697-EX1SW10**

Client Sample ID: **11697-EX1SW10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499026  
Lab Project ID: 1138499

Collection Date: 09/20/13 12:15  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	9350	458	142	mg/Kg	20		09/28/13 17:51
<b>Surrogates</b>							
5a Androstane	81.7	50-150		%	20		09/28/13 17:51

**Batch Information**

Analytical Batch: XFC11097  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/28/13 17:51  
Container ID: 1138499026-A

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 09/24/13 21:30  
Prep Initial Wt./Vol.: 30.126 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-EX1SW10**

Client Sample ID: **11697-EX1SW10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499026  
Lab Project ID: 1138499

Collection Date: 09/20/13 12:15  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	121	38.9	11.7	mg/Kg	10		09/30/13 17:17

**Surrogates**

4-Bromofluorobenzene	345 *	50-150		%	10		09/30/13 17:17
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**Batch Information**

Analytical Batch: VFC11659  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/30/13 17:17  
Container ID: 1138499026-B

Prep Batch: VXX25260  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:15  
Prep Initial Wt./Vol.: 45.821 g  
Prep Extract Vol: 30.9702 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0124 U	0.0194	0.00622	mg/Kg	1		09/26/13 18:19
Ethylbenzene	0.109	0.0389	0.0121	mg/Kg	1		09/26/13 18:19
o-Xylene	0.864	0.0389	0.0121	mg/Kg	1		09/26/13 18:19
P & M -Xylene	0.974	0.0777	0.0233	mg/Kg	1		09/26/13 18:19
Toluene	0.0183 J	0.0389	0.0121	mg/Kg	1		09/26/13 18:19

**Surrogates**

1,4-Difluorobenzene	93.8	72-119		%	1		09/26/13 18:19
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 18:19  
Container ID: 1138499026-B

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:15  
Prep Initial Wt./Vol.: 45.821 g  
Prep Extract Vol: 30.9702 mL

Print Date: 10/14/2013 8:43:32AM



**Results of 11697-TB1**

Client Sample ID: **11697-TB1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138499027  
Lab Project ID: 1138499

Collection Date: 09/17/13 09:00  
Received Date: 09/24/13 08:40  
Matrix: Soil/Solid (dry weight)  
Solids (%):

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.53 U	2.55	0.765	mg/Kg	1		09/26/13 13:26

**Surrogates**

4-Bromofluorobenzene	103	50-150		%	1		09/26/13 13:26
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 09/26/13 13:26  
Container ID: 1138499027-A

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 09:00  
Prep Initial Wt./Vol.: 48.992 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00816 U	0.0128	0.00408	mg/Kg	1		09/26/13 13:26
Ethylbenzene	0.0159 U	0.0255	0.00796	mg/Kg	1		09/26/13 13:26
o-Xylene	0.0159 U	0.0255	0.00796	mg/Kg	1		09/26/13 13:26
P & M -Xylene	0.0306 U	0.0510	0.0153	mg/Kg	1		09/26/13 13:26
Toluene	0.0159 U	0.0255	0.00796	mg/Kg	1		09/26/13 13:26

**Surrogates**

1,4-Difluorobenzene	94.7	72-119		%	1		09/26/13 13:26
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**Batch Information**

Analytical Batch: VFC11653  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 09/26/13 13:26  
Container ID: 1138499027-A

Prep Batch: VXX25246  
Prep Method: SW5035A  
Prep Date/Time: 09/17/13 09:00  
Prep Initial Wt./Vol.: 48.992 g  
Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:43:32AM

## Method Blank

Blank ID: MB for HBN 1486162 [SPT/9158]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1180661

QC for Samples:

1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020, 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT9158

Analytical Method: SM21 2540G

Instrument:

Analyst: KRL

Analytical Date/Time: 9/24/2013 6:30:00PM

## Duplicate Sample Summary

Original Sample ID: 1138499001

Analysis Date: 09/24/2013 18:30

Duplicate Sample ID: 1180662

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020, 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026

## Results by SM21 2540G

<u>NAME</u>	<u>Original ()</u>	<u>Duplicate ()</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	88.5	88.9	0.39	15.00

## Batch Information

Analytical Batch: SPT9158

Analytical Method: SM21 2540G

Instrument:

Analyst: KRL

Print Date: 10/14/2013 8:43:37AM

## Method Blank

Blank ID: MB for HBN 1486407 [VXX/25242]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1181257

### QC for Samples:

1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	91.4	50-150		%

## Batch Information

Analytical Batch: VFC11650  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/25/2013 9:57:00AM

Prep Batch: VXX25242  
 Prep Method: SW5035A  
 Prep Date/Time: 9/25/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [VXX25242]  
Blank Spike Lab ID: 1181260  
Date Analyzed: 09/25/2013 10:52

Spike Duplicate ID: LCSD for HBN 1138499 [VXX25242]  
Spike Duplicate Lab ID: 1181261  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.71	97	10.0	9.78	98	( 60-120 )	0.74	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	94.9	95	1.25	94.6	95	( 50-150 )	0.30	

### Batch Information

Analytical Batch: **VFC11650**  
Analytical Method: **AK101**  
Instrument: **Agilent 7890A PID/FID**  
Analyst: **ST**

Prep Batch: **VXX25242**  
Prep Method: **SW5035A**  
Prep Date/Time: **09/25/2013 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

Print Date: 10/14/2013 8:43:38AM

## Method Blank

Blank ID: MB for HBN 1486407 [VXX/25242]  
 Blank Lab ID: 1181257

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009,  
 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018,  
 1138499019, 1138499020

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.0156U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	91.5	72-119		%

## Batch Information

Analytical Batch: VFC11650  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/25/2013 9:57:00AM

Prep Batch: VXX25242  
 Prep Method: SW5035A  
 Prep Date/Time: 9/25/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [VXX25242]  
 Blank Spike Lab ID: 1181258  
 Date Analyzed: 09/25/2013 10:15

Spike Duplicate ID: LCSD for HBN 1138499 [VXX25242]  
 Spike Duplicate Lab ID: 1181259  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020

### Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.16	93	1.25	1.07	86	( 75-125 )	7.90	(< 20 )
Ethylbenzene	1.25	1.29	103	1.25	1.20	96	( 75-125 )	7.40	(< 20 )
o-Xylene	1.25	1.26	101	1.25	1.17	93	( 75-125 )	7.40	(< 20 )
P & M -Xylene	2.50	2.60	104	2.50	2.42	97	( 80-125 )	7.30	(< 20 )
Toluene	1.25	1.32	106	1.25	1.23	98	( 70-125 )	7.10	(< 20 )
<b>Surrogates</b>									
1,4-Difluorobenzene	1.25	91.5	92	1.25	90.6	91	( 72-119 )	0.97	

### Batch Information

Analytical Batch: **VFC11650**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25242**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **09/25/2013 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

Print Date: 10/14/2013 8:43:40AM

## Matrix Spike Summary

Original Sample ID: 1138499001  
 MS Sample ID: 1181262 MS  
 MSD Sample ID: 1181263 MSD

Analysis Date: 09/25/2013 11:29  
 Analysis Date: 09/25/2013 11:47  
 Analysis Date: 09/25/2013 12:06  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0109U	1.38	1.29	94	1.38	1.23	90	75-125	4.20	(< 20 )
Ethylbenzene	0.0212U	1.38	1.40	102	1.38	1.34	98	75-125	4.40	(< 20 )
o-Xylene	0.0212U	1.38	1.37	100	1.38	1.31	96	75-125	4.30	(< 20 )
P & M -Xylene	0.0408U	2.75	2.84	103	2.75	2.71	99	80-125	4.40	(< 20 )
Toluene	0.0212U	1.38	1.42	104	1.38	1.37	99	70-125	4.50	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		1.38	1.27	92	1.38	1.27	92	72-119	0.02	

## Batch Information

Analytical Batch: VFC11650  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/25/2013 11:47:00AM

Prep Batch: VXX25242  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 9/25/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 51.43g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1486474 [VXX/25246]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1181538

QC for Samples:

1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026, 1138499027

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	86.4	50-150		%

## Batch Information

Analytical Batch: VFC11653

Analytical Method: AK101

Instrument: Agilent 7890 PID/FID

Analyst: ST

Analytical Date/Time: 9/26/2013 10:21:00AM

Prep Batch: VXX25246

Prep Method: SW5035A

Prep Date/Time: 9/26/2013 8:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:43:41AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [VXX25246]  
Blank Spike Lab ID: 1181541  
Date Analyzed: 09/26/2013 11:16

Spike Duplicate ID: LCSD for HBN 1138499 [VXX25246]  
Spike Duplicate Lab ID: 1181542  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026, 1138499027

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	10.3	103	10.0	10.5	105	( 60-120 )	1.80	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	81.3	81	1.25	84.1	84	( 50-150 )	3.40	

### Batch Information

Analytical Batch: **VFC11653**  
Analytical Method: **AK101**  
Instrument: **Agilent 7890 PID/FID**  
Analyst: **ST**

Prep Batch: **VXX25246**  
Prep Method: **SW5035A**  
Prep Date/Time: **09/26/2013 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

Print Date: 10/14/2013 8:43:42AM

## Method Blank

Blank ID: MB for HBN 1486474 [VXX/25246]  
 Blank Lab ID: 1181538

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026, 1138499027

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.0156U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	94.9	72-119		%

## Batch Information

Analytical Batch: VFC11653  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/26/2013 10:21:00AM

Prep Batch: VXX25246  
 Prep Method: SW5035A  
 Prep Date/Time: 9/26/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [VXX25246]  
 Blank Spike Lab ID: 1181539  
 Date Analyzed: 09/26/2013 11:53

Spike Duplicate ID: LCSD for HBN 1138499 [VXX25246]  
 Spike Duplicate Lab ID: 1181540  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026, 1138499027

### Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.29	103	1.25	1.46	117	( 75-125 )	12.50	(< 20 )
Ethylbenzene	1.25	1.24	99	1.25	1.41	113	( 75-125 )	13.30	(< 20 )
o-Xylene	1.25	1.17	94	1.25	1.33	107	( 75-125 )	12.80	(< 20 )
P & M -Xylene	2.50	2.40	96	2.50	2.73	109	( 80-125 )	13.10	(< 20 )
Toluene	1.25	1.27	101	1.25	1.44	115	( 70-125 )	12.70	(< 20 )

### Surrogates

1,4-Difluorobenzene	1.25	98.1	98	1.25	98.5	99	( 72-119 )	0.35	
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### Batch Information

Analytical Batch: **VFC11653**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890 PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25246**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **09/26/2013 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

Print Date: 10/14/2013 8:43:43AM

## Matrix Spike Summary

Original Sample ID: 1138500001  
 MS Sample ID: 1181543 MS  
 MSD Sample ID: 1181544 MSD

Analysis Date: 09/26/2013 12:11  
 Analysis Date: 09/26/2013 12:30  
 Analysis Date: 09/26/2013 12:49  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026, 1138499027

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0137J	1.36	1.67	122	1.36	1.49	109	75-125	11.00	(< 20 )
Ethylbenzene	0.0218J	1.36	1.58	115	1.36	1.46	106	75-125	8.00	(< 20 )
o-Xylene	0.0257J	1.36	1.50	109	1.36	1.38	100	75-125	8.90	(< 20 )
P & M -Xylene	0.0884	2.72	3.13	112	2.72	2.87	102	80-125	8.70	(< 20 )
Toluene	0.0202U	1.36	1.60	118	1.36	1.48	109	70-125	8.00	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		1.36	1.32	97	1.36	1.29	95	72-119	1.90	

## Batch Information

Analytical Batch: VFC11653  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890 PID/FID  
 Analyst: ST  
 Analytical Date/Time: 9/26/2013 12:30:00PM

Prep Batch: VXX25246  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 9/26/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50.89g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1487162 [VXX/25260]

Blank Lab ID: 1182430

QC for Samples:

1138499026

Matrix: Soil/Solid (dry weight)

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	94.9	50-150		%

## Batch Information

Analytical Batch: VFC11659

Analytical Method: AK101

Instrument: Agilent 7890A PID/FID

Analyst: ST

Analytical Date/Time: 9/30/2013 1:34:00PM

Prep Batch: VXX25260

Prep Method: SW5035A

Prep Date/Time: 9/30/2013 8:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:43:44AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [VXX25260]  
Blank Spike Lab ID: 1182433  
Date Analyzed: 09/30/2013 14:30

Spike Duplicate ID: LCSD for HBN 1138499 [VXX25260]  
Spike Duplicate Lab ID: 1182434  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499026

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.96	100	10.0	9.74	97	( 60-120 )	2.20	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	95.6	96	1.25	96.2	96	( 50-150 )	0.63	

### Batch Information

Analytical Batch: **VFC11659**  
Analytical Method: **AK101**  
Instrument: **Agilent 7890A PID/FID**  
Analyst: **ST**

Prep Batch: **VXX25260**  
Prep Method: **SW5035A**  
Prep Date/Time: **09/30/2013 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

Print Date: 10/14/2013 8:43:45AM

## Method Blank

Blank ID: MB for HBN 1486122 [XXX/29999]  
 Blank Lab ID: 1180640

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009,  
 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018,  
 1138499019, 1138499020

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	73.8	60-120		%

## Batch Information

Analytical Batch: XFC11097  
 Analytical Method: AK102  
 Instrument: HP 7890A FID SV E F  
 Analyst: EAB  
 Analytical Date/Time: 9/28/2013 7:55:00PM

Prep Batch: XXX29999  
 Prep Method: SW3550C  
 Prep Date/Time: 9/24/2013 7:30:00PM  
 Prep Initial Wt./Vol.: 30 g  
 Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [XXX29999]  
 Blank Spike Lab ID: 1180641  
 Date Analyzed: 09/28/2013 20:15

Spike Duplicate ID: LCSD for HBN 1138499 [XXX29999]  
 Spike Duplicate Lab ID: 1180642  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499001, 1138499002, 1138499003, 1138499004, 1138499005, 1138499006, 1138499007, 1138499008, 1138499009, 1138499010, 1138499011, 1138499012, 1138499013, 1138499014, 1138499015, 1138499016, 1138499017, 1138499018, 1138499019, 1138499020

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	159	96	167	161	97	( 75-125 )	1.30	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	87.7	88	3.33	89.5	90	( 60-120 )	2.00	

### Batch Information

Analytical Batch: **XFC11097**  
 Analytical Method: **AK102**  
 Instrument: **HP 7890A FID SV E F**  
 Analyst: **EAB**

Prep Batch: **XXX29999**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/24/2013 19:30**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:46AM

## Method Blank

Blank ID: MB for HBN 1486123 [XXX/30000]  
Blank Lab ID: 1180643

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	88.3	60-120		%

## Batch Information

Analytical Batch: XFC11092  
Analytical Method: AK102  
Instrument: HP 7890A FID SV E F  
Analyst: EAB  
Analytical Date/Time: 9/28/2013 6:14:00AM

Prep Batch: XXX30000  
Prep Method: SW3550C  
Prep Date/Time: 9/24/2013 9:30:00PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [XXX30000]  
 Blank Spike Lab ID: 1180644  
 Date Analyzed: 09/28/2013 06:35

Spike Duplicate ID: LCSD for HBN 1138499 [XXX30000]  
 Spike Duplicate Lab ID: 1180645  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499021, 1138499022, 1138499023, 1138499024, 1138499025, 1138499026

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	144	86	167	174	104	( 75-125 )	19.20	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	77.4	77	3.33	95.8	96	( 60-120 )	21.20	

### Batch Information

Analytical Batch: **XFC11092**  
 Analytical Method: **AK102**  
 Instrument: **HP 7890A FID SV E F**  
 Analyst: **EAB**

Prep Batch: **XXX30000**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/24/2013 21:30**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:43:48AM

## Method Blank

Blank ID: MB for HBN 1486185 [XXX/30006]  
 Blank Lab ID: 1180812

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1138499018, 1138499020, 1138499025, 1138499026

## Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.00300U	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00300U	0.00500	0.00150	mg/Kg
Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Chrysene	0.00300U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00300U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Fluorene	0.00300U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00300U	0.00500	0.00150	mg/Kg
Naphthalene	0.00300U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00300U	0.00500	0.00150	mg/Kg
Pyrene	0.00300U	0.00500	0.00150	mg/Kg
<b>Surrogates</b>				
2-Fluorobiphenyl	60.9	45-105		%
Terphenyl-d14	97.7	30-125		%

## Batch Information

Analytical Batch: XMS7643  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 9/30/2013 10:39:00PM

Prep Batch: XXX30006  
 Prep Method: SW3550C  
 Prep Date/Time: 9/25/2013 2:15:00PM  
 Prep Initial Wt./Vol.: 22.5 g  
 Prep Extract Vol: 1 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1138499 [XXX30006]  
 Blank Spike Lab ID: 1180813  
 Date Analyzed: 09/30/2013 22:53

Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499018, 1138499020, 1138499025, 1138499026

## Results by 8270D SIMS (PAH)

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
1-Methylnaphthalene	0.0222	0.0180	81	( 44-107 )
2-Methylnaphthalene	0.0222	0.0163	73	( 45-105 )
Acenaphthene	0.0222	0.0157	71	( 45-110 )
Acenaphthylene	0.0222	0.0161	72	( 45-105 )
Anthracene	0.0222	0.0130	59	( 55-105 )
Benzo(a)Anthracene	0.0222	0.0184	83	( 50-110 )
Benzo[a]pyrene	0.0222	0.0125	56	( 50-110 )
Benzo[b]Fluoranthene	0.0222	0.0199	90	( 45-115 )
Benzo[g,h,i]perylene	0.0222	0.0179	81	( 40-125 )
Benzo[k]fluoranthene	0.0222	0.0200	90	( 45-125 )
Chrysene	0.0222	0.0219	99	( 55-110 )
Dibenzo[a,h]anthracene	0.0222	0.0184	83	( 40-125 )
Fluoranthene	0.0222	0.0204	92	( 55-115 )
Fluorene	0.0222	0.0177	80	( 50-110 )
Indeno[1,2,3-c,d] pyrene	0.0222	0.0184	83	( 40-120 )
Naphthalene	0.0222	0.0145	65	( 40-105 )
Phenanthrene	0.0222	0.0173	78	( 50-110 )
Pyrene	0.0222	0.0197	89	( 45-125 )
<b>Surrogates</b>				
2-Fluorobiphenyl	0.0222	66.8	67	( 45-105 )
Terphenyl-d14	0.0222	90.6	91	( 30-125 )

## Batch Information

Analytical Batch: XMS7643  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS

Prep Batch: XXX30006  
 Prep Method: SW3550C  
 Prep Date/Time: 09/25/2013 14:15  
 Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/14/2013 8:43:49AM

## Matrix Spike Summary

Original Sample ID: 1138499020  
 MS Sample ID: 1180814 MS  
 MSD Sample ID: 1180815 MSD

Analysis Date: 09/30/2013 23:36  
 Analysis Date: 09/30/2013 23:50  
 Analysis Date: 10/01/2013 0:04  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138499018, 1138499020, 1138499025, 1138499026

## Results by 8270D SIMS (PAH)

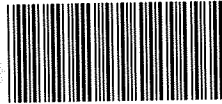
Parameter	Sample	Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)				CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	*	Spike	Result	Rec (%)	*			
2-Methylnaphthalene	1.27	0.0245	1.26	-11	*	0.0243	1.17	-402	*	45-105	7.80	(< 30)
Acenaphthene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	45-110	0.00	(< 30)
Acenaphthylene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	45-105	0.00	(< 30)
Anthracene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	55-105	0.00	(< 30)
Benzo(a)Anthracene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	50-110	0.00	(< 30)
Benzo(a)pyrene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	50-110	0.00	(< 30)
Benzo(b)Fluoranthene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	45-115	0.00	(< 30)
Benzo(g,h,i)perylene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	40-125	0.00	(< 30)
Benzo(k)fluoranthene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	45-125	0.00	(< 30)
Chrysene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	55-110	0.00	(< 30)
Dibenzo(a,h)anthracene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	40-125	0.00	(< 30)
Fluoranthene	0.0660U	0.0245	0.0341J	140	*	0.0243	0.0421J	174	*	55-115	20.80	(< 30)
Fluorene	0.592	0.0245	0.601	40	*	0.0243	0.583	-41	*	50-110	3.30	(< 30)
Indeno[1,2,3-c,d] pyrene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	40-120	0.00	(< 30)
Naphthalene	0.0660U	0.0245	0.0660U	0	*	0.0243	0.00J	0	*	40-105	0.00	(< 30)
Phenanthrene	1.29	0.0245	1.33	157	*	0.0243	1.25	-141	*	50-110	5.60	(< 30)
Pyrene	0.0660U	0.0245	0.0384J	157	*	0.0243	0.0361J	149	*	45-125	6.20	(< 30)
1-Methylnaphthalene	26.9	0.0245	28.2	5750	*	0.0243	23.0	-16000	*	44-107	20.60	(< 30)
<b>Surrogates</b>												
2-Fluorobiphenyl		0.0245	0.00U	0	*	0.0243	0.00	0	*	45-105	0.00	
Terphenyl-d14		0.0245	0.0300	123		0.0243	0.0208	86		30-125	36.40	

## Batch Information

Analytical Batch: XMS7643  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 9/30/2013 11:50:00PM

Prep Batch: XXX30006  
 Prep Method: Sonication Extraction Soil 8270 PAH SIM  
 Prep Date/Time: 9/25/2013 2:15:00PM  
 Prep Initial Wt./Vol.: 22.64g  
 Prep Extract Vol: 1.00mL

# 1138499



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Laboratory SGS  
Attn: Steve Crupi

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRAB / BTEX	AK101 / EPA 8021B	DRD	AK102	PAH - ST	EPA 8010D	Total Number of Containers	Remarks/Matrix
11697-LFS3	① A-B	1210	9/17/13	X	X	X						2	Sol
11697-LFS5	② A-B	1215	↓	X	X	X						2	↓
11697-LFS11	③ A-B	1218		X	X	X						2	
11697-LFS16	④ A-B	1222		X	X	X						2	
11697-LFS19	⑤ A-B	1225		X	X	X						2	
11697-LFS23	⑥ A-B	1230		X	X	X						2	
11697-LFS24	⑦ A-B	1232		X	X	X						2	
11697-LFS25	⑧ A-B	1235		X	X	X						2	
11697-LFS29	⑨ A-B	1240		X	X	X						2	
11697-LFS39	⑩ A-B	1245		X	X	X						2	

Project Information	Sample Receipt
Project Number: <u>11697-002</u>	Total Number of Containers
Project Name: <u>Tarana</u>	COC Seals/Intact? <u>Y</u> /N/NA
Contact: <u>Jake Keener</u>	Received Good Cond./Cold
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method:
Sampler: <u>Jake Tracy</u>	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions: <u>Level II deliverables</u>

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Jake Tracy</u> Time: <u>9:30</u>	Signature: <u>[Signature]</u> Time: <u>16:00</u>	Signature: _____ Time: _____
Printed Name: <u>Jake Tracy</u> Date: <u>9/23/13</u>	Printed Name: <u>[Name]</u> Date: <u>9-23-13</u>	Printed Name: _____ Date: _____
Company: <u>Shannon &amp; Wilson</u>	Company: <u>SGS</u>	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: <u>[Signature]</u> Time: <u>16:10</u>	Signature: _____ Time: _____	Signature: _____ Time: <u>8:40</u>
Printed Name: <u>[Name]</u> Date: <u>9-23-13</u>	Printed Name: _____ Date: _____	Printed Name: <u>Emily Secret</u> Date: <u>9/24/13</u>
Company: <u>SGS</u>	Company: _____	Company: <u>SGS</u>

TB = 2.9°C ID 200

# 1138499



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## CHAIN-O

## CRD

Laboratory SGS  
Attn: Steve Crupi

### Analysis Parameters/Sample Container Description

(include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Analysis Parameters/Sample Container Description								Total Number of Containers	Remarks/Matrix	
				Comp.	Grab	GR0/BTGX	AZ101/EPA 821B	PR0	AK102	PAH	EPA 82100			
11697-LFS45	(1) A-B	1250	9/17/13	X	X	X							2	Soil
EX1BS3	(2) A-B	1058	9/20/13	X	X	X							2	↓
EX1BS5	(3) A-B	1109		X	X	X							2	
EX1BS7	(4) A-B	1114		X	X	X							2	
EX1BS10	(5) A-B	1117		X	X	X							2	
EX1BS11	(6) A-B	1123		X	X	X							2	
EX1BS13	(7) A-B	1127		X	X	X							2	
EX1BS15	(8) A-B	1130		X	X	X	X						2	
EX1BS17	(9) A-B	1133		X	X	X							2	
EX1BS20	(20) A-B	1138		X	X	X	X						2	

Project Information	Sample Receipt
Project Number: <u>11697-002</u>	Total Number of Containers: _____
Project Name: <u>Tanana</u>	COC Seals/Intact? <input checked="" type="checkbox"/> Y/N/NA
Contact: <u>Julie Keener</u>	Received Good Cond./Cold: _____
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method: _____
Sampler: <u>Jake Tracy</u>	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions: <u>Level II deliverables</u>

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Jake Tracy</u> Time: <u>930</u>	Signature: <u>[Signature]</u> Time: <u>1650</u>	Signature: _____ Time: _____
Printed Name: <u>Jake Tracy</u> Date: <u>9/23/13</u>	Printed Name: <u>SEND</u> Date: <u>9/23/13</u>	Printed Name: _____ Date: _____
Company: <u>Shannon &amp; Wilson</u>	Company: <u>SGS</u>	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: <u>[Signature]</u> Time: <u>1610</u>	Signature: _____ Time: _____	Signature: <u>Emirest</u> Time: <u>840</u>
Printed Name: <u>Sen Pawkins</u> Date: <u>9/23/13</u>	Printed Name: _____ Date: _____	Printed Name: <u>Emily Secrest</u> Date: <u>9/24/13</u>
Company: <u>SGS</u>	Company: _____	Company: <u>SGS</u>

# 1138499



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Page 3 of 3

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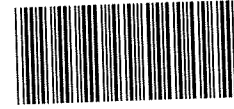
Laboratory 565  
Attn: Steve Crupi

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GR0 / BTEX	AR-101 / EPA 8021B	DR0	AK102	PAH	EPA 8270D	Total Number of Containers	Remarks/Matrix
11697-EX1B524	(21)A-B	1143	9/20/13	X	X	X						2	Soil
EX1B522	(22)A-B	1147	↓	X	X	X						2	↓
EX1B523	(23)A-B	1151		X	X	X						2	
EX1B525	(24)A-B	1154		X	X	X						2	
EX1B540	(25)A-B	1156		X	X	X	X					2	
TBI		0900	9/17/13		X							1	Trip blank
EX1SW10	(26)A-B	1215	9/20/13	X	X	X	X						Soil
TBI	(27)A	0900	9/17/13		X								Trip blank

<b>Project Information</b> Project Number: <u>11697-002</u> Project Name: <u>Tanana</u> Contact: <u>Julie Keener</u> Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Sampler: <u>Jake Tracy</u>		<b>Sample Receipt</b> Total Number of Containers COC Seals/Intact? <u>Y</u> /N/NA Received Good Cond./Cold Delivery Method: (attach shipping bill, if any)		<b>Relinquished By: 1.</b> Signature: <u>Jake Tracy</u> Time: <u>9:30</u> Printed Name: <u>Jake Tracy</u> Date: <u>9/23/13</u> Company: <u>Shannon &amp; Wilson</u>		<b>Relinquished By: 2.</b> Signature: <u>Sen</u> Time: <u>16:50</u> Printed Name: <u>Sen</u> Date: <u>9/23/13</u> Company: <u>565</u>		<b>Relinquished By: 3.</b> Signature: _____ Time: _____ Printed Name: _____ Date: _____ Company: _____	
<b>Instructions</b> Requested Turnaround Time: <u>Standard</u> Special Instructions: <u>Level # deliverables</u>				<b>Received By: 1.</b> Signature: <u>Sen</u> Time: <u>16:10</u> Printed Name: <u>Sen</u> Date: <u>9/23/13</u> Company: <u>565</u>		<b>Received By: 2.</b> Signature: _____ Time: _____ Printed Name: _____ Date: _____ Company: _____		<b>Received By: 3.</b> Signature: <u>E Secret</u> Time: <u>8:40</u> Printed Name: <u>Emily Secret</u> Date: <u>9/24/13</u> Company: <u>SGS</u>	

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



## SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were <b>custody seals</b> intact? Note # & location, if applicable. COC accompanied samples?	Yes No N/A Yes No N/A	IF / B
<b>Temperature blank</b> compliant* (i.e., 0-6°C after correction factor)? * Note: Exemption permitted for chilled samples collected less than 8 hours ago. Cooler ID: <u>1</u> @ <u>29</u> w/ Therm.ID: <u>200</u> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Note: If non-compliant, use form FS-0029 to document affected samples/analyses. If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."	Yes No N/A Yes No N/A	
<b>If temperature(s) &lt;0°C, were all sample containers ice free?</b>	Yes No <u>N/A</u>	
Delivery method (specify all that apply): <u>Client</u> USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	Note ABN/ tracking #  See Attached or N/A  Yes No <u>N/A</u>	
→ For samples received with payment, note amount (\$) and cash / check / CC (circle one) or note: → For samples <b>received in FBKS</b> , ANCH staff will verify all criteria are reviewed.		SRF Initiated by: <u>JP</u> <u>N/A</u> N/A
Were samples received within hold time? Note: Refer to form F-083 "Sample Guide" for hold time information. Do samples <b>match COC*</b> (i.e., sample IDs, dates/times collected)? * Note: Exemption permitted if times differ <1hr; in which case, use times on COC. Were analyses requested unambiguous?	Yes No N/A Yes No N/A Yes No N/A	
Were samples in <b>good condition</b> (no leaks/cracks/breakage)? Packing material used (specify all that apply): <u>Bubble Wrap</u> Separate plastic bags Vermiculite <u>Other: Box</u>	Yes No N/A Yes No N/A	
Were all VOA vials <b>free of headspace</b> (i.e., bubbles ≤6 mm)? Were all soil VOAs <b>field extracted</b> with MeOH+BFB?	Yes No <u>N/A</u> Yes No N/A	
Were <b>proper containers</b> (type/mass/volume/preservative*) used? * Note: Exemption permitted for waters to be analyzed for metals. Were <b>Trip Blanks</b> (i.e., VOAs, LL-Hg) in cooler with samples?	Yes No N/A Yes No N/A	
For <b>special handling</b> (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No <u>N/A</u>	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was <b>pH verified and compliant</b> ? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No <u>N/A</u> Yes No <u>N/A</u>	
For <b>RUSH/SHORT Hold Time</b> , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No <u>N/A</u>	
For <b>SITE-SPECIFIC QC</b> , e.g. BMS/BMSD/BDUP, were containers / paperwork flagged accordingly?	Yes No <u>N/A</u>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No <u>N/A</u>	SRF Completed by: <u>MD</u> <u>CA/24/13</u> PM = <u>FBES</u> N/A
Was <b>PEER REVIEW</b> of <b>sample numbering/labeling completed</b> ?	Yes No <u>N/A</u>	Peer Reviewed by: <u>N/A</u>

Additional notes (if applicable):

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



SGS WO#

1138499

## SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff (attached).	Yes <input checked="" type="radio"/> No <input type="radio"/> N/A	Use space below for additional notes...
<b>Review Criteria:</b>	<b>Condition:</b>	<b>Comments/Action Taken:</b>
Were custody seals intact? Note # & location:	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	1 F 1 B
COC accompanied samples?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	
<b>Temperature blank compliant (i.e., 0-6°C after correction factor)?</b>	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> N/A	
Cooler ID: _____ @ <u>1.2</u> w/ Therm.ID: <u>239</u>		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
<i>Note: If non-compliant, use form FS-0029 to document affected samples/analyses.</i>		
If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled."		
<b>If temperature(s) &lt;0°C, were all containers ice free?</b>	Yes <input type="radio"/> No <input type="radio"/> <input checked="" type="radio"/> N/A	
Delivery method: <u>Lynden</u>		
Other: _____		
Completed by: <u>E. Peeres</u>		

## Laboratory Data Review Checklist

Completed by:

Title:  Date:

CS Report Name:  Report Date:

Consultant Firm:

Laboratory Name:  Laboratory Report Number:

ADEC File Number:  ADEC RecKey Number:

### 1. Laboratory

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

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

### 2. Chain of Custody (COC)

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

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

### 3. Laboratory Sample Receipt Documentation

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

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

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

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 note any discrepancies with the samples reported in this work order.

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

No; please 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 GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX1BS15, 11697-EX1BS20, 11697-EX1BS22, 11697-EX1BS23, 11697-EX1BS25, 11697-EX1BS40, and 11697-EX1SW10. The GRO results for these samples are considered biased high.

The DRO surrogate recovery was above QC criteria due to sample dilution for sample 11697-EX1BS22. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX1BS15, 11697-EX1SB20, 11697-EX1SB40, and 11697-EX1SW10. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH MS/MSD surrogate recoveries were above QC criteria due to sample dilution. The parent spiked sample, 11697-EX1SB20, was considered unaffected. Sample results are unaffected by surrogate failures due to dilution.

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 affected GRO sample results for the samples noted above are considered to be biased high.

## 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:

LODs (reporting value) were below the ADEC migration-to-groundwater soil-cleanup levels, with the exceptions of the benzene LODs for samples 11697-EX1BS20 and 11697-EX1BS40, which were 0.112 mg/kg and 0.0986 mg/kg, respectively. These samples were not detected above the reporting limit and it cannot be determined if the samples' benzene concentrations were below the ADEC migration-to-groundwater soil-cleanup level of 0.025 mg/kg.

e. Data quality or usability affected?

Comments:

It cannot be determined if benzene concentrations in samples 11697-EX1BS20 and 11697-EX1BS40 were below the cleanup level.

## 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:

There were no analytes detected in the method blanks.

iii. If above PQL, what samples are affected?

Comments:

N/A, please see above.

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

Yes  No  NA (Please explain.)

Comments:

There were no analytes detected in the method blanks.

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

Comments:

N/A; please 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:

MS/MSD are also assessed in this section.

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:

There were multiple MS/MSD recovery failures for the PAH analytes in sample 11697-EX1BS20. The failures were due to dilution of the spiked sample, and the spiking concentration was small compared to the native analyte concentrations; the sample is considered unaffected. The LCS recoveries associated with this sample were within control limits, and the results are considered accurate.

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:

None; please see above.

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

Yes  No  NA (Please explain.)                      Comments:

No samples were affected by LCS or MS recovery failures; please see above.

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

Comments:

No; the MS/MSD failures were due to dilution of the spiked sample and the results are considered unaffected.

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 GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX1BS15, 11697-EX1BS20, 11697-EX1BS22, 11697-EX1BS23, 11697-EX1BS25, 11697-EX1BS40 AND 11697-EX1SW10. The GRO results for these samples are considered biased high.

The DRO surrogate recoveries were above QC criteria due to sample dilution for sample 11697-EX1BS22. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX1BS15, 11697-EX1SB20, 11697-EX1SB40 AND 11697-EX1SW10. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

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 affected GRO sample results will be flagged 'JH\*'.  

---

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

Comments:

Yes; please 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:

One cooler was used to transport all samples to the SGS sample-receiving office. Samples were then shipped to the SGS analytical laboratory in Anchorage. The trip blank accompanied the VOA samples throughout sampling and shipping.  

---

iii. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

No analytes were detected in the trip blank.  

---

iv. If above PQL, what samples are affected?

Comments:

N/A; please see above.  

---

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

Comments:

No; please see above.  

---

e. Field Duplicate

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

Yes  No  NA (Please explain.)                      Comments:

Field-duplicates 11697-LFS5/ 11697-LSF45, 11697-EX1BS11/ 11697-EX1BS31, and 11697-EX1BS20/ 11697-EX1BS40 were submitted in this work order.

ii. Submitted blind to lab?

Yes  No  NA (Please explain.)                      Comments:

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

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

Where  $R_1$  = Sample Concentration  
 $R_2$  = Field Duplicate Concentration

Yes  No  NA (Please explain.)                      Comments:

The field duplicate pair 11697-EX1BS20/ 11697-EX1BS40 had a RPD 167% for DRO.

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

Comments:

The results for these samples will be flagged 'J\*' to indicate the results are estimates due to imprecision. Both samples were diluted due to high concentrations of DRO and both concentrations are above cleanup level.

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

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order, in accordance with the project work plan.

i. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order.

ii. If above PQL, what samples are affected?

Comments:

N/A; please see above.

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

Comments:

N/A; please 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.



Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks  
2355 Hill Road  
Fairbanks, AK 997095244  
(907)479-0600

Report Number: 1138516

Client Project: 11697-002 Tanana

Dear Julie Keener,

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 five 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.

Alaska Division Technical Director

Stephen Ede

2013.10.14

09:09:26 -08'00'

Jennifer Dawkins  
Project Manager

Date

Print Date: 10/14/2013 8:45:34AM

### Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138516**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

**11697-EX1SW8 (1138516004) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1SW9 (1138516005) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

**11697-EX1SW12 (1138516006) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1SW29 (1138516008) PS**

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

**11697-EX1SPS1 (1138516009) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1SPS2 (1138516010) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX1SPS3 (1138516011) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

**11697-EX2BS1 (1138516012) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-EX2BS11 (1138516014) PS**

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

**11697-EX2BS51 (1138516016) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

**11697-EX2BS19 (1138516018) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

8270D SIM - Surrogate (2-fluorobiphenyl and terphenyl-14) recovery is outside of QC criteria due to sample dilution.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

**11697-EX2BS21 (1138516019) PS**

## Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138516**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

### **11697-EX2BS22 (1138516020) PS**

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

8270D SIM - Surrogate (2-fluorobiphenyl and terphenyl-14) recovery is outside of QC criteria due to sample dilution.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

### **11697-EX2BS25 (1138516022) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

### **11697-EX2BS29 (1138516023) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a light weathered middle distillate.

### **11697-EX2SPS1 (1138516024) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

### **11697-EX2SPS2 (1138516025) PS**

AK102 - The pattern is consistent with a weathered middle distillate.

### **1138516020MS (1181856) MS**

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

### **1138516020MSD (1181857) MSD**

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM - MS/MSD recovery for multiple analytes is outside of QC criteria. Refer to LCS for accuracy.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

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

### Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>8270D SIMS (PAH)</b>				
1138516026	11697-EX2SPS5	XMS7656	Benzo[b]Fluoranthene	BLC
1181856	1138516020MS	XMS7653	Benzo(a)Anthracene	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.

## 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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
11697-EX1SW1	1138516001	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW4	1138516002	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW6	1138516003	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW8	1138516004	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW9	1138516005	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW12	1138516006	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW14	1138516007	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SW29	1138516008	09/20/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SPS1	1138516009	09/23/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SPS2	1138516010	09/23/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX1SPS3	1138516011	09/23/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS1	1138516012	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS3	1138516013	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS11	1138516014	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS13	1138516015	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS51	1138516016	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS16	1138516017	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS19	1138516018	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS21	1138516019	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS22	1138516020	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS23	1138516021	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS25	1138516022	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS29	1138516023	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SPS1	1138516024	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SPS2	1138516025	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SPS5	1138516026	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SPS13	1138516027	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-TB2	1138516028	09/20/2013	09/27/2013	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK101	AK101/8021 Combo. (S)
SW8021B	AK101/8021 Combo. (S)
AK102	Diesel Range Organics (S)
SM21 2540G	Percent Solids SM2540G

### Detectable Results Summary

Client Sample ID: **11697-EX1SW4**

Lab Sample ID: 1138516002

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Toluene	0.0123J	mg/Kg

Client Sample ID: **11697-EX1SW8**

Lab Sample ID: 1138516004

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	44.6	mg/Kg

Client Sample ID: **11697-EX1SW9**

Lab Sample ID: 1138516005

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	11900	mg/Kg
Ethylbenzene	0.0285J	mg/Kg
Gasoline Range Organics	67.4	mg/Kg
o-Xylene	1.24	mg/Kg
P & M -Xylene	0.402	mg/Kg

Client Sample ID: **11697-EX1SW12**

Lab Sample ID: 1138516006

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	41.4	mg/Kg
Gasoline Range Organics	2.49J	mg/Kg
o-Xylene	0.0133J	mg/Kg

Client Sample ID: **11697-EX1SW14**

Lab Sample ID: 1138516007

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	1.47J	mg/Kg
o-Xylene	0.0204J	mg/Kg

Client Sample ID: **11697-EX1SW29**

Lab Sample ID: 1138516008

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	14100	mg/Kg
Ethylbenzene	0.0332J	mg/Kg
Gasoline Range Organics	80.3	mg/Kg
o-Xylene	1.50	mg/Kg
P & M -Xylene	0.470	mg/Kg

Client Sample ID: **11697-EX1SPS1**

Lab Sample ID: 1138516009

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	102	mg/Kg
Gasoline Range Organics	1.55J	mg/Kg

Client Sample ID: **11697-EX1SPS2**

Lab Sample ID: 1138516010

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	91.2	mg/Kg
Gasoline Range Organics	1.28J	mg/Kg

Client Sample ID: **11697-EX1SPS3**

Lab Sample ID: 1138516011

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
2-Methylnaphthalene	0.0201J	mg/Kg
Diesel Range Organics	166	mg/Kg
Gasoline Range Organics	5.14	mg/Kg
o-Xylene	0.0725	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX2BS1**

Lab Sample ID: 1138516012

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	88.2	mg/Kg
Gasoline Range Organics	2.07J	mg/Kg
o-Xylene	0.0278J	mg/Kg
Toluene	0.0166J	mg/Kg

Client Sample ID: **11697-EX2BS11**

Lab Sample ID: 1138516014

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	22500	mg/Kg
Ethylbenzene	0.0533J	mg/Kg
Gasoline Range Organics	95.0	mg/Kg
o-Xylene	1.75	mg/Kg
P & M -Xylene	0.382	mg/Kg

Client Sample ID: **11697-EX2BS13**

Lab Sample ID: 1138516015

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	20.4J	mg/Kg
Gasoline Range Organics	1.75J	mg/Kg
o-Xylene	0.0137J	mg/Kg

Client Sample ID: **11697-EX2BS51**

Lab Sample ID: 1138516016

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	20500	mg/Kg
Ethylbenzene	0.0347	mg/Kg
Gasoline Range Organics	66.2	mg/Kg
o-Xylene	1.18	mg/Kg
P & M -Xylene	0.259	mg/Kg

Client Sample ID: **11697-EX2BS16**

Lab Sample ID: 1138516017

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	2.32J	mg/Kg
o-Xylene	0.0279J	mg/Kg

Client Sample ID: **11697-EX2BS19**

Lab Sample ID: 1138516018

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	4.91	mg/Kg
Fluoranthene	0.122	mg/Kg
Phenanthrene	2.11	mg/Kg
Pyrene	0.167	mg/Kg
Diesel Range Organics	14000	mg/Kg
Ethylbenzene	0.0276J	mg/Kg
Gasoline Range Organics	116	mg/Kg
o-Xylene	2.22	mg/Kg
P & M -Xylene	0.554	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX2BS21**

Lab Sample ID: 1138516019

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	44.1	mg/Kg
2-Methylnaphthalene	56.9	mg/Kg
Fluoranthene	0.0566J	mg/Kg
Fluorene	2.79	mg/Kg
Naphthalene	23.8	mg/Kg
Phenanthrene	3.67	mg/Kg
Pyrene	0.0928	mg/Kg
Diesel Range Organics	12200	mg/Kg

**Semivolatile Organic Fuels**

**Volatile Fuels**

Benzene	0.116J	mg/Kg
Ethylbenzene	13.1	mg/Kg
Gasoline Range Organics	256	mg/Kg
o-Xylene	1.30	mg/Kg
P & M -Xylene	15.3	mg/Kg
Toluene	0.267J	mg/Kg

Client Sample ID: **11697-EX2BS22**

Lab Sample ID: 1138516020

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Fluoranthene	0.0446J	mg/Kg
Diesel Range Organics	11700	mg/Kg
Ethylbenzene	0.0979	mg/Kg
Gasoline Range Organics	88.3	mg/Kg
o-Xylene	2.09	mg/Kg
P & M -Xylene	0.522	mg/Kg
Toluene	0.142	mg/Kg

Client Sample ID: **11697-EX2BS25**

Lab Sample ID: 1138516022

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	59.9	mg/Kg
Gasoline Range Organics	1.86J	mg/Kg

Client Sample ID: **11697-EX2BS29**

Lab Sample ID: 1138516023

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4180	mg/Kg
Ethylbenzene	0.0151J	mg/Kg
Gasoline Range Organics	34.7	mg/Kg
o-Xylene	0.807	mg/Kg
P & M -Xylene	0.266	mg/Kg

Client Sample ID: **11697-EX2SPS1**

Lab Sample ID: 1138516024

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	238	mg/Kg
Gasoline Range Organics	5.05	mg/Kg
o-Xylene	0.0818	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX2SPS2**

Lab Sample ID: 1138516025

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	52.1	mg/Kg
Gasoline Range Organics	2.73J	mg/Kg

Client Sample ID: **11697-EX2SPS5**

Lab Sample ID: 1138516026

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	0.00429J	mg/Kg
2-Methylnaphthalene	0.00391J	mg/Kg
Benzo[b]Fluoranthene	0.00281J	mg/Kg
Benzo[g,h,i]perylene	0.00175J	mg/Kg
Chrysene	0.00388J	mg/Kg
Fluoranthene	0.00227J	mg/Kg
Naphthalene	0.00259J	mg/Kg
Phenanthrene	0.00527J	mg/Kg
Pyrene	0.00252J	mg/Kg
Diesel Range Organics	10.8J	mg/Kg
Gasoline Range Organics	1.47J	mg/Kg

**Semivolatile Organic Fuels**

**Volatile Fuels**

Client Sample ID: **11697-EX2SPS13**

Lab Sample ID: 1138516027

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	17.9J	mg/Kg
Gasoline Range Organics	2.12J	mg/Kg



Results of **11697-EX1SW1**

Client Sample ID: **11697-EX1SW1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516001  
Lab Project ID: 1138516

Collection Date: 09/20/13 11:58  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 82.8

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.9 U	24.0	7.43	mg/Kg	1		09/30/13 19:44
<b>Surrogates</b>							
5a Androstane	82.3	50-150		%	1		09/30/13 19:44

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/30/13 19:44  
Container ID: 1138516001-A

Prep Batch: XXX30041  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 17:15  
Prep Initial Wt./Vol.: 30.243 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX1SW1

Client Sample ID: 11697-EX1SW1
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516001
Lab Project ID: 1138516

Collection Date: 09/20/13 11:58
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 82.8

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.12 U, 3.54, 1.06, mg/Kg, 1, 10/01/13 12:59

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 95.6, 50-150, %, 1, 10/01/13 12:59

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 12:59
Container ID: 1138516001-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:58
Prep Initial Wt./Vol.: 60.174 g
Prep Extract Vol: 35.3353 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 89.5, 72-119, %, 1, 10/01/13 12:59

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 12:59
Container ID: 1138516001-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 11:58
Prep Initial Wt./Vol.: 60.174 g
Prep Extract Vol: 35.3353 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW4**

Client Sample ID: **11697-EX1SW4**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516002  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.9 U	22.5	6.97	mg/Kg	1		09/30/13 20:04
<b>Surrogates</b>							
5a Androstane	79	50-150		%	1		09/30/13 20:04

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/30/13 20:04  
Container ID: 1138516002-A

Prep Batch: XXX30041  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 17:15  
Prep Initial Wt./Vol.: 30.328 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW4**

Client Sample ID: **11697-EX1SW4**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516002  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.10 U	3.50	1.05	mg/Kg	1		10/01/13 11:46

**Surrogates**

4-Bromofluorobenzene	98.4	50-150		%	1		10/01/13 11:46
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 11:46  
Container ID: 1138516002-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:00  
Prep Initial Wt./Vol.: 50.292 g  
Prep Extract Vol: 31.0108 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0112 U	0.0175	0.00560	mg/Kg	1		10/01/13 11:46
Ethylbenzene	0.0218 U	0.0350	0.0109	mg/Kg	1		10/01/13 11:46
o-Xylene	0.0218 U	0.0350	0.0109	mg/Kg	1		10/01/13 11:46
P & M -Xylene	0.0420 U	0.0700	0.0210	mg/Kg	1		10/01/13 11:46
Toluene	0.0123 J	0.0350	0.0109	mg/Kg	1		10/01/13 11:46

**Surrogates**

1,4-Difluorobenzene	88.8	72-119		%	1		10/01/13 11:46
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 11:46  
Container ID: 1138516002-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:00  
Prep Initial Wt./Vol.: 50.292 g  
Prep Extract Vol: 31.0108 mL

Print Date: 10/14/2013 8:45:37AM



### Results of 11697-EX1SW6

Client Sample ID: 11697-EX1SW6  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138516003  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:04  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.5

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.1 U	22.7	7.03	mg/Kg	1		09/30/13 20:25
<b>Surrogates</b>							
5a Androstane	82.7	50-150		%	1		09/30/13 20:25

### Batch Information

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 09/30/13 20:25  
Container ID: 1138516003-A

Prep Batch: XXX30041  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 17:15  
Prep Initial Wt./Vol.: 30.234 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW6**

Client Sample ID: **11697-EX1SW6**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516003  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:04  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.5

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.28 U	3.79	1.14	mg/Kg	1		10/01/13 13:18

**Surrogates**

4-Bromofluorobenzene	97	50-150		%	1		10/01/13 13:18
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 13:18  
Container ID: 1138516003-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:04  
Prep Initial Wt./Vol.: 46.469 g  
Prep Extract Vol: 30.8127 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0121 U	0.0189	0.00606	mg/Kg	1		10/01/13 13:18
Ethylbenzene	0.0236 U	0.0379	0.0118	mg/Kg	1		10/01/13 13:18
o-Xylene	0.0236 U	0.0379	0.0118	mg/Kg	1		10/01/13 13:18
P & M -Xylene	0.0454 U	0.0758	0.0227	mg/Kg	1		10/01/13 13:18
Toluene	0.0236 U	0.0379	0.0118	mg/Kg	1		10/01/13 13:18

**Surrogates**

1,4-Difluorobenzene	90.3	72-119		%	1		10/01/13 13:18
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 13:18  
Container ID: 1138516003-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:04  
Prep Initial Wt./Vol.: 46.469 g  
Prep Extract Vol: 30.8127 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW8**

Client Sample ID: **11697-EX1SW8**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516004  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:09  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.6

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	44.6	23.1	7.17	mg/Kg	1		10/02/13 15:48
<b>Surrogates</b>							
5a Androstane	83.7	50-150		%	1		10/02/13 15:48

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 15:48  
Container ID: 1138516004-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.301 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX1SW8

Client Sample ID: 11697-EX1SW8
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516004
Lab Project ID: 1138516

Collection Date: 09/20/13 12:09
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 85.6

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.58 U, 4.30, 1.29, mg/Kg, 1, 10/01/13 13:36

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 94.2, 50-150, %, 1, 10/01/13 13:36

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 13:36
Container ID: 1138516004-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:09
Prep Initial Wt./Vol.: 42.29 g
Prep Extract Vol: 31.0982 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 91.6, 72-119, %, 1, 10/01/13 13:36

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 13:36
Container ID: 1138516004-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:09
Prep Initial Wt./Vol.: 42.29 g
Prep Extract Vol: 31.0982 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX1SW9**

Client Sample ID: **11697-EX1SW9**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516005  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:13  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.7

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11900	1140	352	mg/Kg	50		10/03/13 21:37
<b>Surrogates</b>							
5a Androstane	68.8	50-150		%	50		10/03/13 21:37

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 21:37  
Container ID: 1138516005-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.439 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX1SW9

Client Sample ID: 11697-EX1SW9
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516005
Lab Project ID: 1138516

Collection Date: 09/20/13 12:13
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 86.7

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 67.4, 4.02, 1.20, mg/Kg, 1, 10/01/13 13:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 235, \*, 50-150, %, 1, 10/01/13 13:54

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 13:54
Container ID: 1138516005-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:13
Prep Initial Wt./Vol.: 44.349 g
Prep Extract Vol: 30.8891 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 92.5, 72-119, %, 1, 10/01/13 13:54

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 13:54
Container ID: 1138516005-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:13
Prep Initial Wt./Vol.: 44.349 g
Prep Extract Vol: 30.8891 mL

Print Date: 10/14/2013 8:45:37AM

## Results of 11697-EX1SW12

Client Sample ID: **11697-EX1SW12**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138516006  
 Lab Project ID: 1138516

Collection Date: 09/20/13 12:18  
 Received Date: 09/27/13 09:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 86.9

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	41.4	23.0	7.13	mg/Kg	1		10/02/13 16:09
<b>Surrogates</b>							
5a Androstane	81.8	50-150		%	1		10/02/13 16:09

## Batch Information

Analytical Batch: XFC11103  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 10/02/13 16:09  
 Container ID: 1138516006-A

Prep Batch: XXX30044  
 Prep Method: SW3550C  
 Prep Date/Time: 09/28/13 21:10  
 Prep Initial Wt./Vol.: 30.009 g  
 Prep Extract Vol: 1 mL



**Results of 11697-EX1SW12**

Client Sample ID: **11697-EX1SW12**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516006  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:18  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.49 J	4.17	1.25	mg/Kg	1		10/01/13 14:31
<b>Surrogates</b>							
4-Bromofluorobenzene	97.4	50-150		%	1		10/01/13 14:31

**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 14:31  
Container ID: 1138516006-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:18  
Prep Initial Wt./Vol.: 42.118 g  
Prep Extract Vol: 30.5156 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0133 U	0.0208	0.00667	mg/Kg	1		10/01/13 14:31
Ethylbenzene	0.0260 U	0.0417	0.0130	mg/Kg	1		10/01/13 14:31
o-Xylene	0.0133 J	0.0417	0.0130	mg/Kg	1		10/01/13 14:31
P & M -Xylene	0.0500 U	0.0834	0.0250	mg/Kg	1		10/01/13 14:31
Toluene	0.0260 U	0.0417	0.0130	mg/Kg	1		10/01/13 14:31
<b>Surrogates</b>							
1,4-Difluorobenzene	91.3	72-119		%	1		10/01/13 14:31

**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 14:31  
Container ID: 1138516006-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:18  
Prep Initial Wt./Vol.: 42.118 g  
Prep Extract Vol: 30.5156 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX1SW14**

Client Sample ID: **11697-EX1SW14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516007  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:22  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.2

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.5 U	23.4	7.24	mg/Kg	1		10/02/13 16:30
<b>Surrogates</b>							
5a Androstane	90.3	50-150		%	1		10/02/13 16:30

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 16:30  
Container ID: 1138516007-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.162 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW14**

Client Sample ID: **11697-EX1SW14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516007  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:22  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.2

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.47 J	3.64	1.09	mg/Kg	1		10/01/13 14:50

**Surrogates**

4-Bromofluorobenzene	97	50-150		%	1		10/01/13 14:50
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 14:50  
Container ID: 1138516007-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:22  
Prep Initial Wt./Vol.: 52.906 g  
Prep Extract Vol: 32.8397 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0117 U	0.0182	0.00583	mg/Kg	1		10/01/13 14:50
Ethylbenzene	0.0228 U	0.0364	0.0114	mg/Kg	1		10/01/13 14:50
o-Xylene	0.0204 J	0.0364	0.0114	mg/Kg	1		10/01/13 14:50
P & M -Xylene	0.0438 U	0.0729	0.0219	mg/Kg	1		10/01/13 14:50
Toluene	0.0228 U	0.0364	0.0114	mg/Kg	1		10/01/13 14:50

**Surrogates**

1,4-Difluorobenzene	92	72-119		%	1		10/01/13 14:50
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 14:50  
Container ID: 1138516007-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 12:22  
Prep Initial Wt./Vol.: 52.906 g  
Prep Extract Vol: 32.8397 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SW29**

Client Sample ID: **11697-EX1SW29**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516008  
Lab Project ID: 1138516

Collection Date: 09/20/13 12:33  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.8

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14100	454	141	mg/Kg	20		10/03/13 20:55
<b>Surrogates</b>							
5a Androstane	95.4	50-150		%	20		10/03/13 20:55

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 20:55  
Container ID: 1138516008-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.41 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX1SW29

Client Sample ID: 11697-EX1SW29
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516008
Lab Project ID: 1138516

Collection Date: 09/20/13 12:33
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 86.8

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 80.3, 8.10, 2.43, mg/Kg, 2, 10/01/13 15:45

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 264, 50-150, %, 2, 10/01/13 15:45

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 15:45
Container ID: 1138516008-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:33
Prep Initial Wt./Vol.: 43.733 g
Prep Extract Vol: 30.7525 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 90.9, 72-119, %, 2, 10/01/13 15:45

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 15:45
Container ID: 1138516008-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/20/13 12:33
Prep Initial Wt./Vol.: 43.733 g
Prep Extract Vol: 30.7525 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS1**

Client Sample ID: **11697-EX1SPS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516009  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:45  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.4

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	102	22.8	7.07	mg/Kg	1		10/02/13 16:51
<b>Surrogates</b>							
5a Androstane	88.5	50-150		%	1		10/02/13 16:51

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 16:51  
Container ID: 1138516009-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.463 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS1**

Client Sample ID: **11697-EX1SPS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516009  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:45  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.55 J	4.32	1.30	mg/Kg	1		10/01/13 15:08

**Surrogates**

4-Bromofluorobenzene	90	50-150		%	1		10/01/13 15:08
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 15:08  
Container ID: 1138516009-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:45  
Prep Initial Wt./Vol.: 41.003 g  
Prep Extract Vol: 30.5828 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0138 U	0.0216	0.00691	mg/Kg	1		10/01/13 15:08
Ethylbenzene	0.0270 U	0.0432	0.0135	mg/Kg	1		10/01/13 15:08
o-Xylene	0.0270 U	0.0432	0.0135	mg/Kg	1		10/01/13 15:08
P & M -Xylene	0.0518 U	0.0863	0.0259	mg/Kg	1		10/01/13 15:08
Toluene	0.0270 U	0.0432	0.0135	mg/Kg	1		10/01/13 15:08

**Surrogates**

1,4-Difluorobenzene	91.5	72-119		%	1		10/01/13 15:08
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 15:08  
Container ID: 1138516009-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:45  
Prep Initial Wt./Vol.: 41.003 g  
Prep Extract Vol: 30.5828 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS2**

Client Sample ID: **11697-EX1SPS2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516010  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	91.2	22.7	7.05	mg/Kg	1		10/02/13 17:12
<b>Surrogates</b>							
5a Androstane	83.1	50-150		%	1		10/02/13 17:12

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 17:12  
Container ID: 1138516010-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.388 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS2**

Client Sample ID: **11697-EX1SPS2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516010  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.28 J	3.75	1.12	mg/Kg	1		10/01/13 15:27

**Surrogates**

4-Bromofluorobenzene	89.7	50-150		%	1		10/01/13 15:27
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 15:27  
Container ID: 1138516010-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:50  
Prep Initial Wt./Vol.: 48.159 g  
Prep Extract Vol: 31.3321 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0120 U	0.0187	0.00599	mg/Kg	1		10/01/13 15:27
Ethylbenzene	0.0234 U	0.0375	0.0117	mg/Kg	1		10/01/13 15:27
o-Xylene	0.0234 U	0.0375	0.0117	mg/Kg	1		10/01/13 15:27
P & M -Xylene	0.0450 U	0.0749	0.0225	mg/Kg	1		10/01/13 15:27
Toluene	0.0234 U	0.0375	0.0117	mg/Kg	1		10/01/13 15:27

**Surrogates**

1,4-Difluorobenzene	92.3	72-119		%	1		10/01/13 15:27
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 15:27  
Container ID: 1138516010-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:50  
Prep Initial Wt./Vol.: 48.159 g  
Prep Extract Vol: 31.3321 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS3**

Client Sample ID: **11697-EX1SPS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516011  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
2-Methylnaphthalene	0.0201 J	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Acenaphthene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Acenaphthylene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Anthracene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Benzo(a)Anthracene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Benzo[a]pyrene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Benzo[b]Fluoranthene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Benzo[g,h,i]perylene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Benzo[k]fluoranthene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Chrysene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Dibenzo[a,h]anthracene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Fluoranthene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Fluorene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Indeno[1,2,3-c,d] pyrene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Naphthalene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Phenanthrene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
Pyrene	0.0342 U	0.0571	0.0171	mg/Kg	10		10/03/13 23:52
<b>Surrogates</b>							
2-Fluorobiphenyl	77.3	45-105		%	10		10/03/13 23:52
Terphenyl-d14	104	30-125		%	10		10/03/13 23:52

**Batch Information**

Analytical Batch: XMS7653  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/03/13 23:52  
Container ID: 1138516011-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.644 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX1SPS3**

Client Sample ID: **11697-EX1SPS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516011  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	166		22.8	7.08	mg/Kg	1		10/02/13 17:32
<b>Surrogates</b>								
5a Androstane	74.8		50-150		%	1		10/02/13 17:32

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 17:32  
Container ID: 1138516011-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.223 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX1SPS3**

Client Sample ID: **11697-EX1SPS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516011  
Lab Project ID: 1138516

Collection Date: 09/23/13 16:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	5.14	4.10	1.23	mg/Kg	1		10/01/13 19:27

**Surrogates**

4-Bromofluorobenzene	100	50-150		%	1		10/01/13 19:27
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:27  
Container ID: 1138516011-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:55  
Prep Initial Wt./Vol.: 42.929 g  
Prep Extract Vol: 30.5889 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0131 U	0.0205	0.00655	mg/Kg	1		10/01/13 19:27
Ethylbenzene	0.0256 U	0.0410	0.0128	mg/Kg	1		10/01/13 19:27
o-Xylene	0.0725	0.0410	0.0128	mg/Kg	1		10/01/13 19:27
P & M -Xylene	0.0492 U	0.0819	0.0246	mg/Kg	1		10/01/13 19:27
Toluene	0.0256 U	0.0410	0.0128	mg/Kg	1		10/01/13 19:27

**Surrogates**

1,4-Difluorobenzene	91.9	72-119		%	1		10/01/13 19:27
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:27  
Container ID: 1138516011-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/23/13 16:55  
Prep Initial Wt./Vol.: 42.929 g  
Prep Extract Vol: 30.5889 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2BS1**

Client Sample ID: **11697-EX2BS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516012  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:33  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.4

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	88.2	22.1	6.84	mg/Kg	1		10/02/13 17:53
<b>Surrogates</b>							
5a Androstane	84	50-150		%	1		10/02/13 17:53

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 17:53  
Container ID: 1138516012-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.395 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS1**

Client Sample ID: **11697-EX2BS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516012  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:33  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.07 J	3.61	1.08	mg/Kg	1		10/01/13 16:59

**Surrogates**

4-Bromofluorobenzene	101	50-150		%	1		10/01/13 16:59
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 16:59  
Container ID: 1138516012-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:33  
Prep Initial Wt./Vol.: 46.326 g  
Prep Extract Vol: 29.8951 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0115 U	0.0180	0.00577	mg/Kg	1		10/01/13 16:59
Ethylbenzene	0.0226 U	0.0361	0.0113	mg/Kg	1		10/01/13 16:59
o-Xylene	0.0278 J	0.0361	0.0113	mg/Kg	1		10/01/13 16:59
P & M -Xylene	0.0432 U	0.0722	0.0216	mg/Kg	1		10/01/13 16:59
Toluene	0.0166 J	0.0361	0.0113	mg/Kg	1		10/01/13 16:59

**Surrogates**

1,4-Difluorobenzene	90.5	72-119		%	1		10/01/13 16:59
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 16:59  
Container ID: 1138516012-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:33  
Prep Initial Wt./Vol.: 46.326 g  
Prep Extract Vol: 29.8951 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2BS3**

Client Sample ID: **11697-EX2BS3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516013  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:37  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.9

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.0 U	22.5	6.98	mg/Kg	1		10/02/13 18:14
<b>Surrogates</b>							
5a Androstane	79.8	50-150		%	1		10/02/13 18:14

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 18:14  
Container ID: 1138516013-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.312 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2BS3

Client Sample ID: 11697-EX2BS3
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516013
Lab Project ID: 1138516

Collection Date: 09/24/13 13:37
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 87.9

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 2.44 U, 4.08, 1.22, mg/Kg, 1, 10/01/13 17:17

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 99.3, 50-150, %, 1, 10/01/13 17:17

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 17:17
Container ID: 1138516013-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/24/13 13:37
Prep Initial Wt./Vol.: 41.906 g
Prep Extract Vol: 30.0502 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 90.3, 72-119, %, 1, 10/01/13 17:17

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 17:17
Container ID: 1138516013-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/24/13 13:37
Prep Initial Wt./Vol.: 41.906 g
Prep Extract Vol: 30.0502 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS11**

Client Sample ID: **11697-EX2BS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516014  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:41  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 92.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	22500	1510	467	mg/Kg	50		10/03/13 21:59
<b>Surrogates</b>							
5a Androstane	107	50-150		%	50		10/03/13 21:59

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 21:59  
Container ID: 1138516014-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.003 g  
Prep Extract Vol: 1.4 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS11**

Client Sample ID: **11697-EX2BS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516014  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:41  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 92.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	95.0	6.88	2.06	mg/Kg	2		10/01/13 17:36

**Surrogates**

4-Bromofluorobenzene	260 *	50-150		%	2		10/01/13 17:36
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 17:36  
Container ID: 1138516014-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:41  
Prep Initial Wt./Vol.: 43.979 g  
Prep Extract Vol: 28.1176 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0220 U	0.0344	0.0110	mg/Kg	2		10/01/13 17:36
Ethylbenzene	0.0533 J	0.0688	0.0215	mg/Kg	2		10/01/13 17:36
o-Xylene	1.75	0.0688	0.0215	mg/Kg	2		10/01/13 17:36
P & M -Xylene	0.382	0.138	0.0413	mg/Kg	2		10/01/13 17:36
Toluene	0.0430 U	0.0688	0.0215	mg/Kg	2		10/01/13 17:36

**Surrogates**

1,4-Difluorobenzene	95.2	72-119		%	2		10/01/13 17:36
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 17:36  
Container ID: 1138516014-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:41  
Prep Initial Wt./Vol.: 43.979 g  
Prep Extract Vol: 28.1176 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2BS13**

Client Sample ID: **11697-EX2BS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516015  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:44  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.5

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	20.4 J	22.4	6.95	mg/Kg	1		10/02/13 18:35
<b>Surrogates</b>							
5a Androstane	88	50-150		%	1		10/02/13 18:35

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 18:35  
Container ID: 1138516015-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.233 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS13**

Client Sample ID: **11697-EX2BS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516015  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:44  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.5

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.75 J	3.79	1.14	mg/Kg	1		10/01/13 19:45

**Surrogates**

4-Bromofluorobenzene	95.1	50-150		%	1		10/01/13 19:45
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:45  
Container ID: 1138516015-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:44  
Prep Initial Wt./Vol.: 44.883 g  
Prep Extract Vol: 30.1462 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0121 U	0.0190	0.00607	mg/Kg	1		10/01/13 19:45
Ethylbenzene	0.0236 U	0.0379	0.0118	mg/Kg	1		10/01/13 19:45
o-Xylene	0.0137 J	0.0379	0.0118	mg/Kg	1		10/01/13 19:45
P & M -Xylene	0.0456 U	0.0759	0.0228	mg/Kg	1		10/01/13 19:45
Toluene	0.0236 U	0.0379	0.0118	mg/Kg	1		10/01/13 19:45

**Surrogates**

1,4-Difluorobenzene	89.6	72-119		%	1		10/01/13 19:45
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:45  
Container ID: 1138516015-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:44  
Prep Initial Wt./Vol.: 44.883 g  
Prep Extract Vol: 30.1462 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS51**

Client Sample ID: **11697-EX2BS51**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516016  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:46  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 93.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	20500	1380	427	mg/Kg	50		10/03/13 22:20
<b>Surrogates</b>							
5a Androstane	106	50-150		%	50		10/03/13 22:20

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 22:20  
Container ID: 1138516016-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.454 g  
Prep Extract Vol: 1.3 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS51**

Client Sample ID: **11697-EX2BS51**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516016  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:46  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 93.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	66.2	3.40	1.02	mg/Kg	1		10/01/13 18:32

**Surrogates**

4-Bromofluorobenzene	205 *	50-150		%	1		10/01/13 18:32
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 18:32  
Container ID: 1138516016-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:46  
Prep Initial Wt./Vol.: 44.483 g  
Prep Extract Vol: 28.1114 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0109 U	0.0170	0.00544	mg/Kg	1		10/01/13 18:32
Ethylbenzene	0.0347	0.0340	0.0106	mg/Kg	1		10/01/13 18:32
o-Xylene	1.18	0.0340	0.0106	mg/Kg	1		10/01/13 18:32
P & M -Xylene	0.259	0.0679	0.0204	mg/Kg	1		10/01/13 18:32
Toluene	0.0212 U	0.0340	0.0106	mg/Kg	1		10/01/13 18:32

**Surrogates**

1,4-Difluorobenzene	96	72-119		%	1		10/01/13 18:32
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 18:32  
Container ID: 1138516016-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:46  
Prep Initial Wt./Vol.: 44.483 g  
Prep Extract Vol: 28.1114 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS16**

Client Sample ID: **11697-EX2BS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516017  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:49  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.4

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.3 U	23.1	7.17	mg/Kg	1		10/02/13 18:57
<b>Surrogates</b>							
5a Androstane	80.9	50-150		%	1		10/02/13 18:57

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 18:57  
Container ID: 1138516017-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.384 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS16**

Client Sample ID: **11697-EX2BS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516017  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:49  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.32 J	3.63	1.09	mg/Kg	1		10/01/13 18:50

**Surrogates**

4-Bromofluorobenzene	101	50-150		%	1		10/01/13 18:50
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 18:50  
Container ID: 1138516017-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:49  
Prep Initial Wt./Vol.: 52.786 g  
Prep Extract Vol: 32.7044 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0116 U	0.0181	0.00580	mg/Kg	1		10/01/13 18:50
Ethylbenzene	0.0226 U	0.0363	0.0113	mg/Kg	1		10/01/13 18:50
o-Xylene	0.0279 J	0.0363	0.0113	mg/Kg	1		10/01/13 18:50
P & M -Xylene	0.0436 U	0.0725	0.0218	mg/Kg	1		10/01/13 18:50
Toluene	0.0226 U	0.0363	0.0113	mg/Kg	1		10/01/13 18:50

**Surrogates**

1,4-Difluorobenzene	90.7	72-119		%	1		10/01/13 18:50
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 18:50  
Container ID: 1138516017-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:49  
Prep Initial Wt./Vol.: 52.786 g  
Prep Extract Vol: 32.7044 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS19**

Client Sample ID: **11697-EX2BS19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516018  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:52  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 91.7

**Results by Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	4.91	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
2-Methylnaphthalene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Acenaphthene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Acenaphthylene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Anthracene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Benzo(a)Anthracene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Benzo[a]pyrene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Benzo[b]Fluoranthene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Benzo[g,h,i]perylene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Benzo[k]fluoranthene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Chrysene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Dibenzo[a,h]anthracene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Fluoranthene	0.122	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Fluorene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Indeno[1,2,3-c,d] pyrene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Naphthalene	0.0324 U	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Phenanthrene	2.11	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
Pyrene	0.167	0.0540	0.0162	mg/Kg	10		10/04/13 00:06
<b>Surrogates</b>							
2-Fluorobiphenyl	224 *	45-105		%	10		10/04/13 00:06
Terphenyl-d14	126 *	30-125		%	10		10/04/13 00:06

**Batch Information**

Analytical Batch: XMS7653  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/04/13 00:06  
Container ID: 1138516018-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.703 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2BS19**

Client Sample ID: **11697-EX2BS19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516018  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:52  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 91.7

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14000	1080	335	mg/Kg	50		10/03/13 22:41
<b>Surrogates</b>							
5a Androstane	109	50-150		%	50		10/03/13 22:41

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 22:41  
Container ID: 1138516018-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.224 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS19**

Client Sample ID: **11697-EX2BS19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516018  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:52  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 91.7

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	116	3.25	0.976	mg/Kg	1		10/01/13 19:09

**Surrogates**

4-Bromofluorobenzene	496 *	50-150		%	1		10/01/13 19:09
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:09  
Container ID: 1138516018-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:52  
Prep Initial Wt./Vol.: 48.644 g  
Prep Extract Vol: 29.0269 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0104 U	0.0163	0.00520	mg/Kg	1		10/01/13 19:09
Ethylbenzene	0.0276 J	0.0325	0.0101	mg/Kg	1		10/01/13 19:09
o-Xylene	2.22	0.0325	0.0101	mg/Kg	1		10/01/13 19:09
P & M -Xylene	0.554	0.0651	0.0195	mg/Kg	1		10/01/13 19:09
Toluene	0.0202 U	0.0325	0.0101	mg/Kg	1		10/01/13 19:09

**Surrogates**

1,4-Difluorobenzene	100	72-119		%	1		10/01/13 19:09
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 19:09  
Container ID: 1138516018-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:52  
Prep Initial Wt./Vol.: 48.644 g  
Prep Extract Vol: 29.0269 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2BS21

Client Sample ID: 11697-EX2BS21
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516019
Lab Project ID: 1138516

Collection Date: 09/24/13 13:55
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 81.3

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

## Results of 11697-EX2BS21

Client Sample ID: **11697-EX2BS21**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516019  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.3

## Results by Polynuclear Aromatics GC/MS

### Batch Information

Analytical Batch: XMS7653  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/04/13 00:20  
Container ID: 1138516019-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.757 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS7656  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/04/13 22:16  
Container ID: 1138516019-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.757 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS7663  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/07/13 21:50  
Container ID: 1138516019-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.757 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS21**

Client Sample ID: **11697-EX2BS21**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516019  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	12200		487	151	mg/Kg	20		10/03/13 21:16
<b>Surrogates</b>								
5a Androstane	0	*	50-150		%	20		10/03/13 21:16

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 21:16  
Container ID: 1138516019-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.347 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS21**

Client Sample ID: **11697-EX2BS21**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516019  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.3

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	256	38.0	11.4	mg/Kg	10		10/01/13 20:04

**Surrogates**

4-Bromofluorobenzene	1840 *	50-150		%	10		10/01/13 20:04
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/01/13 20:04  
Container ID: 1138516019-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:55  
Prep Initial Wt./Vol.: 58.003 g  
Prep Extract Vol: 35.8689 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.116 J	0.190	0.0609	mg/Kg	10		10/01/13 20:04
Ethylbenzene	13.1	0.380	0.119	mg/Kg	10		10/01/13 20:04
o-Xylene	1.30	0.380	0.119	mg/Kg	10		10/01/13 20:04
P & M -Xylene	15.3	0.761	0.228	mg/Kg	10		10/01/13 20:04
Toluene	0.267 J	0.380	0.119	mg/Kg	10		10/01/13 20:04

**Surrogates**

1,4-Difluorobenzene	91.6	72-119		%	10		10/01/13 20:04
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**Batch Information**

Analytical Batch: VFC11662  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/01/13 20:04  
Container ID: 1138516019-B

Prep Batch: VXX25270  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 13:55  
Prep Initial Wt./Vol.: 58.003 g  
Prep Extract Vol: 35.8689 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2BS22

Client Sample ID: 11697-EX2BS22
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516020
Lab Project ID: 1138516

Collection Date: 09/24/13 13:58
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 88.0

Results by Polynuclear Aromatics GC/MS

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Lists various polynuclear aromatic hydrocarbons and their detection results.

Batch Information

Analytical Batch: XMS7653
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 10/04/13 00:34
Container ID: 1138516020-A

Prep Batch: XXX30045
Prep Method: SW3550C
Prep Date/Time: 09/28/13 23:00
Prep Initial Wt./Vol.: 22.87 g
Prep Extract Vol: 1 mL



Results of **11697-EX2BS22**

Client Sample ID: **11697-EX2BS22**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516020  
Lab Project ID: 1138516

Collection Date: 09/24/13 13:58  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.0

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11700	1130	352	mg/Kg	50		10/03/13 23:03
<b>Surrogates</b>							
5a Androstane	87.5	50-150		%	50		10/03/13 23:03

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 23:03  
Container ID: 1138516020-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.046 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2BS22

Client Sample ID: 11697-EX2BS22
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516020
Lab Project ID: 1138516

Collection Date: 09/24/13 13:58
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 88.0

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 88.3, 7.80, 2.34, mg/Kg, 2, 10/01/13 17:54

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 253, 50-150, %, 2, 10/01/13 17:54

Batch Information

Analytical Batch: VFC11662
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/01/13 17:54
Container ID: 1138516020-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/24/13 13:58
Prep Initial Wt./Vol.: 44.112 g
Prep Extract Vol: 30.2788 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 94.5, 72-119, %, 2, 10/01/13 17:54

Batch Information

Analytical Batch: VFC11662
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/01/13 17:54
Container ID: 1138516020-B

Prep Batch: VXX25270
Prep Method: SW5035A
Prep Date/Time: 09/24/13 13:58
Prep Initial Wt./Vol.: 44.112 g
Prep Extract Vol: 30.2788 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2BS23**

Client Sample ID: **11697-EX2BS23**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516021  
Lab Project ID: 1138516

Collection Date: 09/24/13 14:02  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.0

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.0 U	22.7	7.02	mg/Kg	1		10/02/13 19:17
<b>Surrogates</b>							
5a Androstane	86.4	50-150		%	1		10/02/13 19:17

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 19:17  
Container ID: 1138516021-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.086 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS23**

Client Sample ID: **11697-EX2BS23**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516021  
Lab Project ID: 1138516

Collection Date: 09/24/13 14:02  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 88.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.12 U	3.53	1.06	mg/Kg	1		10/02/13 11:42

**Surrogates**

4-Bromofluorobenzene	96.9	50-150		%	1		10/02/13 11:42
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 11:42  
Container ID: 1138516021-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:02  
Prep Initial Wt./Vol.: 49.802 g  
Prep Extract Vol: 30.9698 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0113 U	0.0177	0.00565	mg/Kg	1		10/02/13 11:42
Ethylbenzene	0.0220 U	0.0353	0.0110	mg/Kg	1		10/02/13 11:42
o-Xylene	0.0220 U	0.0353	0.0110	mg/Kg	1		10/02/13 11:42
P & M -Xylene	0.0424 U	0.0707	0.0212	mg/Kg	1		10/02/13 11:42
Toluene	0.0220 U	0.0353	0.0110	mg/Kg	1		10/02/13 11:42

**Surrogates**

1,4-Difluorobenzene	89.4	72-119		%	1		10/02/13 11:42
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 11:42  
Container ID: 1138516021-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:02  
Prep Initial Wt./Vol.: 49.802 g  
Prep Extract Vol: 30.9698 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS25**

Client Sample ID: **11697-EX2BS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516022  
Lab Project ID: 1138516

Collection Date: 09/24/13 14:06  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	59.9	23.4	7.27	mg/Kg	1		10/02/13 19:38
<b>Surrogates</b>							
5a Androstane	76.9	50-150		%	1		10/02/13 19:38

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/02/13 19:38  
Container ID: 1138516022-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.452 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS25**

Client Sample ID: **11697-EX2BS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516022  
Lab Project ID: 1138516

Collection Date: 09/24/13 14:06  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 84.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.86 J	3.72	1.12	mg/Kg	1		10/02/13 13:33

**Surrogates**

4-Bromofluorobenzene	102	50-150		%	1		10/02/13 13:33
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 13:33  
Container ID: 1138516022-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:06  
Prep Initial Wt./Vol.: 53.636 g  
Prep Extract Vol: 33.5636 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0119 U	0.0186	0.00596	mg/Kg	1		10/02/13 13:33
Ethylbenzene	0.0232 U	0.0372	0.0116	mg/Kg	1		10/02/13 13:33
o-Xylene	0.0232 U	0.0372	0.0116	mg/Kg	1		10/02/13 13:33
P & M -Xylene	0.0446 U	0.0745	0.0223	mg/Kg	1		10/02/13 13:33
Toluene	0.0232 U	0.0372	0.0116	mg/Kg	1		10/02/13 13:33

**Surrogates**

1,4-Difluorobenzene	92.2	72-119		%	1		10/02/13 13:33
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 13:33  
Container ID: 1138516022-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:06  
Prep Initial Wt./Vol.: 53.636 g  
Prep Extract Vol: 33.5636 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2BS29**

Client Sample ID: **11697-EX2BS29**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516023  
Lab Project ID: 1138516

Collection Date: 09/24/13 14:10  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 91.8

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	4180	218	67.5	mg/Kg	10		10/03/13 20:35
<b>Surrogates</b>							
5a Androstane	76.5	50-150		%	10		10/03/13 20:35

**Batch Information**

Analytical Batch: XFC11106  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 20:35  
Container ID: 1138516023-A

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 21:10  
Prep Initial Wt./Vol.: 30.005 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2BS29

Client Sample ID: 11697-EX2BS29
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516023
Lab Project ID: 1138516

Collection Date: 09/24/13 14:10
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 91.8

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 34.7, 2.85, 0.855, mg/Kg, 1, 10/02/13 13:51

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 161, \*, 50-150, %, 1, 10/02/13 13:51

Batch Information

Analytical Batch: VFC11663
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/13 13:51
Container ID: 1138516023-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/24/13 14:10
Prep Initial Wt./Vol.: 56.56 g
Prep Extract Vol: 29.615 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 93.9, 72-119, %, 1, 10/02/13 13:51

Batch Information

Analytical Batch: VFC11663
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/02/13 13:51
Container ID: 1138516023-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/24/13 14:10
Prep Initial Wt./Vol.: 56.56 g
Prep Extract Vol: 29.615 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS1**

Client Sample ID: **11697-EX2SPS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516024  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:30  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	238	23.2	7.20	mg/Kg	1		10/01/13 03:38
<b>Surrogates</b>							
5a Androstane	91.4	50-150		%	1		10/01/13 03:38

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/01/13 03:38  
Container ID: 1138516024-A

Prep Batch: XXX30050  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 17:00  
Prep Initial Wt./Vol.: 30.06 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS1**

Client Sample ID: **11697-EX2SPS1**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516024  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:30  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	5.05	4.11	1.23	mg/Kg	1		10/02/13 14:10

**Surrogates**

4-Bromofluorobenzene	102	50-150		%	1		10/02/13 14:10
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 14:10  
Container ID: 1138516024-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:30  
Prep Initial Wt./Vol.: 44.217 g  
Prep Extract Vol: 31.2391 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0132 U	0.0206	0.00658	mg/Kg	1		10/02/13 14:10
Ethylbenzene	0.0256 U	0.0411	0.0128	mg/Kg	1		10/02/13 14:10
o-Xylene	0.0818	0.0411	0.0128	mg/Kg	1		10/02/13 14:10
P & M -Xylene	0.0494 U	0.0823	0.0247	mg/Kg	1		10/02/13 14:10
Toluene	0.0256 U	0.0411	0.0128	mg/Kg	1		10/02/13 14:10

**Surrogates**

1,4-Difluorobenzene	90	72-119		%	1		10/02/13 14:10
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 14:10  
Container ID: 1138516024-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:30  
Prep Initial Wt./Vol.: 44.217 g  
Prep Extract Vol: 31.2391 mL

Print Date: 10/14/2013 8:45:37AM



Results of **11697-EX2SPS2**

Client Sample ID: **11697-EX2SPS2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516025  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:35  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.5

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	52.1	23.2	7.18	mg/Kg	1		10/01/13 03:59
<b>Surrogates</b>							
5a Androstane	90.8	50-150		%	1		10/01/13 03:59

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/01/13 03:59  
Container ID: 1138516025-A

Prep Batch: XXX30050  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 17:00  
Prep Initial Wt./Vol.: 30.297 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS2**

Client Sample ID: **11697-EX2SPS2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516025  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:35  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.5

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.73 J	4.38	1.31	mg/Kg	1		10/02/13 14:28

**Surrogates**

4-Bromofluorobenzene	96.4	50-150		%	1		10/02/13 14:28
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 14:28  
Container ID: 1138516025-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:35  
Prep Initial Wt./Vol.: 41.398 g  
Prep Extract Vol: 30.9952 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0140 U	0.0219	0.00700	mg/Kg	1		10/02/13 14:28
Ethylbenzene	0.0274 U	0.0438	0.0137	mg/Kg	1		10/02/13 14:28
o-Xylene	0.0274 U	0.0438	0.0137	mg/Kg	1		10/02/13 14:28
P & M -Xylene	0.0526 U	0.0875	0.0263	mg/Kg	1		10/02/13 14:28
Toluene	0.0274 U	0.0438	0.0137	mg/Kg	1		10/02/13 14:28

**Surrogates**

1,4-Difluorobenzene	91.6	72-119		%	1		10/02/13 14:28
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 14:28  
Container ID: 1138516025-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:35  
Prep Initial Wt./Vol.: 41.398 g  
Prep Extract Vol: 30.9952 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS5**

Client Sample ID: **11697-EX2SPS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516026  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:42  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.9

**Results by Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	0.00429 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
2-Methylnaphthalene	0.00391 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Acenaphthene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Acenaphthylene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Anthracene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Benzo(a)Anthracene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Benzo[a]pyrene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Benzo[b]Fluoranthene	0.00281 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Benzo[g,h,i]perylene	0.00175 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Benzo[k]fluoranthene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Chrysene	0.00388 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Dibenzo[a,h]anthracene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Fluoranthene	0.00227 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Fluorene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Indeno[1,2,3-c,d] pyrene	0.00348 U	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Naphthalene	0.00259 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Phenanthrene	0.00527 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
Pyrene	0.00252 J	0.00581	0.00174	mg/Kg	1		10/04/13 21:06
<b>Surrogates</b>							
2-Fluorobiphenyl	83.9	45-105		%	1		10/04/13 21:06
Terphenyl-d14	97	30-125		%	1		10/04/13 21:06

**Batch Information**

Analytical Batch: XMS7656  
Analytical Method: 8270D SIMS (PAH)  
Analyst: RTS  
Analytical Date/Time: 10/04/13 21:06  
Container ID: 1138516026-A

Prep Batch: XXX30045  
Prep Method: SW3550C  
Prep Date/Time: 09/28/13 23:00  
Prep Initial Wt./Vol.: 22.564 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS5**

Client Sample ID: **11697-EX2SPS5**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516026  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:42  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10.8 J	23.0	7.14	mg/Kg	1		10/01/13 04:19
<b>Surrogates</b>							
5a Androstane	86.1	50-150		%	1		10/01/13 04:19

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/01/13 04:19  
Container ID: 1138516026-A

Prep Batch: XXX30050  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 17:00  
Prep Initial Wt./Vol.: 30.352 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



Results of 11697-EX2SPS5

Client Sample ID: 11697-EX2SPS5
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138516026
Lab Project ID: 1138516

Collection Date: 09/24/13 15:42
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 85.9

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 1.47 J, 4.07, 1.22, mg/Kg, 1, 10/02/13 14:46

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 99.1, 50-150, %, 1, 10/02/13 14:46

Batch Information

Analytical Batch: VFC11663
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/13 14:46
Container ID: 1138516026-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/24/13 15:42
Prep Initial Wt./Vol.: 44.84 g
Prep Extract Vol: 31.341 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 91.8, 72-119, %, 1, 10/02/13 14:46

Batch Information

Analytical Batch: VFC11663
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/02/13 14:46
Container ID: 1138516026-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/24/13 15:42
Prep Initial Wt./Vol.: 44.84 g
Prep Extract Vol: 31.341 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS13**

Client Sample ID: **11697-EX2SPS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516027  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:48  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	17.9 J	22.8	7.08	mg/Kg	1		10/01/13 04:40
<b>Surrogates</b>							
5a Androstane	86.5	50-150		%	1		10/01/13 04:40

**Batch Information**

Analytical Batch: XFC11102  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/01/13 04:40  
Container ID: 1138516027-A

Prep Batch: XXX30050  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 17:00  
Prep Initial Wt./Vol.: 30.219 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-EX2SPS13**

Client Sample ID: **11697-EX2SPS13**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516027  
Lab Project ID: 1138516

Collection Date: 09/24/13 15:48  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.12 J	4.00	1.20	mg/Kg	1		10/02/13 15:05

**Surrogates**

4-Bromofluorobenzene	101	50-150		%	1		10/02/13 15:05
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:05  
Container ID: 1138516027-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:48  
Prep Initial Wt./Vol.: 44.134 g  
Prep Extract Vol: 30.7457 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0128 U	0.0200	0.00641	mg/Kg	1		10/02/13 15:05
Ethylbenzene	0.0250 U	0.0400	0.0125	mg/Kg	1		10/02/13 15:05
o-Xylene	0.0250 U	0.0400	0.0125	mg/Kg	1		10/02/13 15:05
P & M -Xylene	0.0480 U	0.0801	0.0240	mg/Kg	1		10/02/13 15:05
Toluene	0.0250 U	0.0400	0.0125	mg/Kg	1		10/02/13 15:05

**Surrogates**

1,4-Difluorobenzene	90	72-119		%	1		10/02/13 15:05
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:05  
Container ID: 1138516027-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 15:48  
Prep Initial Wt./Vol.: 44.134 g  
Prep Extract Vol: 30.7457 mL

Print Date: 10/14/2013 8:45:37AM



**Results of 11697-TB2**

Client Sample ID: **11697-TB2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138516028  
Lab Project ID: 1138516

Collection Date: 09/20/13 10:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.52 U	2.53	0.759	mg/Kg	1		10/02/13 12:56

**Surrogates**

4-Bromofluorobenzene	96.2	50-150		%	1		10/02/13 12:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 12:56  
Container ID: 1138516028-A

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 10:00  
Prep Initial Wt./Vol.: 49.395 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00810 U	0.0127	0.00405	mg/Kg	1		10/02/13 12:56
Ethylbenzene	0.0158 U	0.0253	0.00790	mg/Kg	1		10/02/13 12:56
o-Xylene	0.0158 U	0.0253	0.00790	mg/Kg	1		10/02/13 12:56
P & M -Xylene	0.0304 U	0.0506	0.0152	mg/Kg	1		10/02/13 12:56
Toluene	0.0158 U	0.0253	0.00790	mg/Kg	1		10/02/13 12:56

**Surrogates**

1,4-Difluorobenzene	89.1	72-119		%	1		10/02/13 12:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 12:56  
Container ID: 1138516028-A

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 10:00  
Prep Initial Wt./Vol.: 49.395 g  
Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:45:37AM

## Method Blank

Blank ID: MB for HBN 1486661 [SPT/9162]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1181756

QC for Samples:

1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT9162

Analytical Method: SM21 2540G

Instrument:

Analyst: RKJ

Analytical Date/Time: 9/27/2013 4:30:00PM

Print Date: 10/14/2013 8:45:41AM

## Duplicate Sample Summary

Original Sample ID: 1134757001

Analysis Date: 09/27/2013 16:30

Duplicate Sample ID: 1181755

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010

## Results by SM21 2540G

<u>NAME</u>	<u>Original ( )</u>	<u>Duplicate ( )</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	80.2	80.0	0.20	15.00

## Batch Information

Analytical Batch: SPT9162

Analytical Method: SM21 2540G

Instrument:

Analyst: RKJ

Print Date: 10/14/2013 8:45:42AM

## Method Blank

Blank ID: MB for HBN 1486865 [SPT/9163]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1181956

QC for Samples:

1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020, 1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT9163

Analytical Method: SM21 2540G

Instrument:

Analyst: CZ

Analytical Date/Time: 9/28/2013 10:45:00PM

Print Date: 10/14/2013 8:45:44AM

## Duplicate Sample Summary

Original Sample ID: 1134779001

Duplicate Sample ID: 1181957

Analysis Date: 09/28/2013 22:45

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019,  
1138516020, 1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027

## Results by SM21 2540G

<u>NAME</u>	<u>Original ()</u>	<u>Duplicate ()</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	80.5	82.1	1.90	15.00

## Batch Information

Analytical Batch: SPT9163

Analytical Method: SM21 2540G

Instrument:

Analyst: CZ

Print Date: 10/14/2013 8:45:44AM

## Method Blank

Blank ID: MB for HBN 1487398 [VXX/25270]  
 Blank Lab ID: 1182752

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009,  
 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018,  
 1138516019, 1138516020

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	91.3	50-150		%

## Batch Information

Analytical Batch: VFC11662  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/1/2013 10:13:00AM

Prep Batch: VXX25270  
 Prep Method: SW5035A  
 Prep Date/Time: 10/1/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [VXX25270]  
 Blank Spike Lab ID: 1182755  
 Date Analyzed: 10/01/2013 11:09

Spike Duplicate ID: LCSD for HBN 1138516 [VXX25270]  
 Spike Duplicate Lab ID: 1182756  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020

## Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.79	98	10.0	9.70	97	( 60-120 )	0.85	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	95.2	95	1.25	96.5	97	( 50-150 )	1.30	

## Batch Information

Analytical Batch: **VFC11662**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25270**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/01/2013 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 1487398 [VXX/25270]  
 Blank Lab ID: 1182752

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009,  
 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018,  
 1138516019, 1138516020

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.0156U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	92.4	72-119		%

## Batch Information

Analytical Batch: VFC11662  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/1/2013 10:13:00AM

Prep Batch: VXX25270  
 Prep Method: SW5035A  
 Prep Date/Time: 10/1/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [VXX25270]  
 Blank Spike Lab ID: 1182753  
 Date Analyzed: 10/01/2013 10:32

Spike Duplicate ID: LCSD for HBN 1138516 [VXX25270]  
 Spike Duplicate Lab ID: 1182754  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020

### Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.09	87	1.25	1.12	89	( 75-125 )	2.60	(< 20 )
Ethylbenzene	1.25	1.25	100	1.25	1.28	103	( 75-125 )	2.60	(< 20 )
o-Xylene	1.25	1.21	97	1.25	1.25	100	( 75-125 )	2.70	(< 20 )
P & M -Xylene	2.50	2.51	101	2.50	2.58	103	( 80-125 )	2.60	(< 20 )
Toluene	1.25	1.26	101	1.25	1.29	103	( 70-125 )	2.60	(< 20 )

### Surrogates

1,4-Difluorobenzene	1.25	91.8	92	1.25	91.6	92	( 72-119 )	0.22	
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### Batch Information

Analytical Batch: **VFC11662**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25270**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/01/2013 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

Print Date: 10/14/2013 8:45:48AM

## Matrix Spike Summary

Original Sample ID: 1138516002  
 MS Sample ID: 1182757 MS  
 MSD Sample ID: 1182758 MSD

Analysis Date: 10/01/2013 11:46  
 Analysis Date: 10/01/2013 12:04  
 Analysis Date: 10/01/2013 12:22  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516001, 1138516002, 1138516003, 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0112U	1.41	1.24	88	1.41	1.26	89	75-125	1.20	(< 20 )
Ethylbenzene	0.0218U	1.41	1.43	101	1.41	1.43	101	75-125	0.12	(< 20 )
o-Xylene	0.0218U	1.41	1.38	97	1.41	1.39	99	75-125	1.10	(< 20 )
P & M -Xylene	0.0420U	2.83	2.86	101	2.83	2.88	102	80-125	0.51	(< 20 )
Toluene	0.0123J	1.41	1.44	101	1.41	1.44	101	70-125	0.43	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		1.41	1.30	91	1.41	1.31	92	72-119	0.85	

## Batch Information

Analytical Batch: VFC11662  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/1/2013 12:04:00PM

Prep Batch: VXX25270  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 10/1/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50.29g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1487473 [VXX/25275]  
Blank Lab ID: 1182919

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027, 1138516028

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	90.3	50-150		%

## Batch Information

Analytical Batch: VFC11663  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 10/2/2013 10:10:00AM

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 10/2/2013 8:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:45:49AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [VXX25275]  
 Blank Spike Lab ID: 1182922  
 Date Analyzed: 10/02/2013 11:05

Spike Duplicate ID: LCSD for HBN 1138516 [VXX25275]  
 Spike Duplicate Lab ID: 1182923  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027, 1138516028

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.63	96	10.0	9.51	95	( 60-120 )	1.30	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	94.8	95	1.25	90.7	91	( 50-150 )	4.40	

### Batch Information

Analytical Batch: **VFC11663**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25275**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/02/2013 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

Print Date: 10/14/2013 8:45:49AM

## Method Blank

Blank ID: MB for HBN 1487473 [VXX/25275]  
 Blank Lab ID: 1182919

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027, 1138516028

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.00875J	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	93.2	72-119		%

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 10:10:00AM

Prep Batch: VXX25275  
 Prep Method: SW5035A  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [VXX25275]  
 Blank Spike Lab ID: 1182920  
 Date Analyzed: 10/02/2013 10:28

Spike Duplicate ID: LCSD for HBN 1138516 [VXX25275]  
 Spike Duplicate Lab ID: 1182921  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027, 1138516028

## Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.20	96	1.25	1.17	94	( 75-125 )	2.20	(< 20 )
Ethylbenzene	1.25	1.33	106	1.25	1.28	102	( 75-125 )	4.00	(< 20 )
o-Xylene	1.25	1.28	102	1.25	1.24	99	( 75-125 )	3.30	(< 20 )
P & M -Xylene	2.50	2.66	106	2.50	2.57	103	( 80-125 )	3.60	(< 20 )
Toluene	1.25	1.36	109	1.25	1.30	104	( 70-125 )	4.70	(< 20 )

## Surrogates

1,4-Difluorobenzene	1.25	90.7	91	1.25	92.1	92	( 72-119 )	1.50	
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## Batch Information

Analytical Batch: **VFC11663**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25275**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/02/2013 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: 1138516021  
 MS Sample ID: 1182924 MS  
 MSD Sample ID: 1182925 MSD

Analysis Date: 10/02/2013 11:42  
 Analysis Date: 10/02/2013 12:01  
 Analysis Date: 10/02/2013 12:19  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516021, 1138516022, 1138516023, 1138516024, 1138516025, 1138516026, 1138516027, 1138516028

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0113U	1.42	1.30	91	1.42	1.39	97	75-125	6.30	(< 20 )
Ethylbenzene	0.0220U	1.42	1.45	102	1.42	1.44	102	75-125	0.28	(< 20 )
o-Xylene	0.0220U	1.42	1.40	98	1.42	1.41	99	75-125	0.65	(< 20 )
P & M -Xylene	0.0424U	2.85	2.91	102	2.85	2.92	102	80-125	0.31	(< 20 )
Toluene	0.0220U	1.42	1.49	104	1.42	1.47	103	70-125	1.30	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		1.42	1.30	91	1.42	1.34	94	72-119	3.90	

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 12:01:00PM

Prep Batch: VXX25275  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 49.80g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1486676 [XXX/30041]

Blank Lab ID: 1181838

QC for Samples:

1138516001, 1138516002, 1138516003

Matrix: Soil/Solid (dry weight)

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	85	60-120		%

## Batch Information

Analytical Batch: XFC11102

Analytical Method: AK102

Instrument: HP 7890A FID SV E F

Analyst: EAB

Analytical Date/Time: 9/30/2013 4:21:00PM

Prep Batch: XXX30041

Prep Method: SW3550C

Prep Date/Time: 9/28/2013 5:15:00PM

Prep Initial Wt./Vol.: 30 g

Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [XXX30041]  
Blank Spike Lab ID: 1181839  
Date Analyzed: 09/30/2013 16:41

Spike Duplicate ID: LCSD for HBN 1138516 [XXX30041]  
Spike Duplicate Lab ID: 1181840  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516001, 1138516002, 1138516003

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	167	100	167	162	97	( 75-125 )	3.50	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	88.6	89	3.33	85.3	85	( 60-120 )	3.80	

### Batch Information

Analytical Batch: **XFC11102**  
Analytical Method: **AK102**  
Instrument: **HP 7890A FID SV E F**  
Analyst: **EAB**

Prep Batch: **XXX30041**  
Prep Method: **SW3550C**  
Prep Date/Time: **09/28/2013 17:15**  
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:52AM

## Method Blank

Blank ID: MB for HBN 1486682 [XXX/30044]  
Blank Lab ID: 1181851

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020, 1138516021, 1138516022, 1138516023

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	81.8	60-120		%

## Batch Information

Analytical Batch: XFC11103  
Analytical Method: AK102  
Instrument: HP 7890A FID SV E F  
Analyst: EAB  
Analytical Date/Time: 10/2/2013 2:45:00PM

Prep Batch: XXX30044  
Prep Method: SW3550C  
Prep Date/Time: 9/28/2013 9:10:00PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [XXX30044]  
 Blank Spike Lab ID: 1181852  
 Date Analyzed: 10/02/2013 15:05

Spike Duplicate ID: LCSD for HBN 1138516 [XXX30044]  
 Spike Duplicate Lab ID: 1181853  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516004, 1138516005, 1138516006, 1138516007, 1138516008, 1138516009, 1138516010, 1138516011, 1138516012, 1138516013, 1138516014, 1138516015, 1138516016, 1138516017, 1138516018, 1138516019, 1138516020, 1138516021, 1138516022, 1138516023

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	165	99	167	164	98	( 75-125 )	0.91	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	83.4	83	3.33	83.5	84	( 60-120 )	0.00	

### Batch Information

Analytical Batch: XFC11103  
 Analytical Method: AK102  
 Instrument: HP 7890A FID SV E F  
 Analyst: EAB

Prep Batch: XXX30044  
 Prep Method: SW3550C  
 Prep Date/Time: 09/28/2013 21:10  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:53AM

## Method Blank

Blank ID: MB for HBN 1486683 [XXX/30045]  
 Blank Lab ID: 1181854

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1138516011, 1138516018, 1138516019, 1138516020, 1138516026

## Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.00209J	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00300U	0.00500	0.00150	mg/Kg
Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Chrysene	0.00300U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00300U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Fluorene	0.00300U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00300U	0.00500	0.00150	mg/Kg
Naphthalene	0.00300U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00300U	0.00500	0.00150	mg/Kg
Pyrene	0.00300U	0.00500	0.00150	mg/Kg
<b>Surrogates</b>				
2-Fluorobiphenyl	75.5	45-105		%
Terphenyl-d14	101	30-125		%

## Batch Information

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 10/3/2013 7:40:00PM

Prep Batch: XXX30045  
 Prep Method: SW3550C  
 Prep Date/Time: 9/28/2013 11:00:00PM  
 Prep Initial Wt./Vol.: 22.5 g  
 Prep Extract Vol: 1 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [XXX30045]  
 Blank Spike Lab ID: 1181855  
 Date Analyzed: 10/03/2013 19:54

Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516011, 1138516018, 1138516019, 1138516020, 1138516026

## Results by 8270D SIMS (PAH)

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
1-Methylnaphthalene	0.0222	0.0206	93	( 44-107 )
2-Methylnaphthalene	0.0222	0.0198	89	( 45-105 )
Acenaphthene	0.0222	0.0173	78	( 45-110 )
Acenaphthylene	0.0222	0.0176	79	( 45-105 )
Anthracene	0.0222	0.0155	70	( 55-105 )
Benzo(a)Anthracene	0.0222	0.0200	90	( 50-110 )
Benzo[a]pyrene	0.0222	0.0140	63	( 50-110 )
Benzo[b]Fluoranthene	0.0222	0.0194	87	( 45-115 )
Benzo[g,h,i]perylene	0.0222	0.0179	81	( 40-125 )
Benzo[k]fluoranthene	0.0222	0.0209	94	( 45-125 )
Chrysene	0.0222	0.0232	105	( 55-110 )
Dibenzo[a,h]anthracene	0.0222	0.0187	84	( 40-125 )
Fluoranthene	0.0222	0.0239	107	( 55-115 )
Fluorene	0.0222	0.0185	83	( 50-110 )
Indeno[1,2,3-c,d] pyrene	0.0222	0.0186	84	( 40-120 )
Naphthalene	0.0222	0.0187	84	( 40-105 )
Phenanthrene	0.0222	0.0181	81	( 50-110 )
Pyrene	0.0222	0.0226	102	( 45-125 )
<b>Surrogates</b>				
2-Fluorobiphenyl	0.0222	83.7	84	( 45-105 )
Terphenyl-d14	0.0222	109	109	( 30-125 )

## Batch Information

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS

Prep Batch: XXX30045  
 Prep Method: SW3550C  
 Prep Date/Time: 09/28/2013 23:00  
 Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: Extract Vol:

## Matrix Spike Summary

Original Sample ID: 1138516020  
 MS Sample ID: 1181856 MS  
 MSD Sample ID: 1181857 MSD

Analysis Date: 10/04/2013 0:34  
 Analysis Date: 10/04/2013 0:48  
 Analysis Date: 10/04/2013 1:02  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516011, 1138516018, 1138516019, 1138516020, 1138516026

## Results by 8270D SIMS (PAH)

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	44-107	0.00	(< 30)
2-Methylnaphthalene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	45-105	0.00	(< 30)
Acenaphthene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	45-110	0.00	(< 30)
Acenaphthylene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	45-105	0.00	(< 30)
Anthracene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	55-105	0.00	(< 30)
Benzo(a)Anthracene	0.0336U	0.0249	0.0241J	97	0.0250	0.0231J	92	50-110	4.70	(< 30)
Benzo(a)pyrene	0.0336U	0.0249	0.0180J	72	0.0250	0.0175J	70	50-110	2.50	(< 30)
Benzo(b)Fluoranthene	0.0336U	0.0249	0.0227J	91	0.0250	0.0231J	92	45-115	1.30	(< 30)
Benzo(g,h,i)perylene	0.0336U	0.0249	0.0174J	70	0.0250	0.0192J	77	40-125	9.90	(< 30)
Benzo(k)fluoranthene	0.0336U	0.0249	0.0208J	83	0.0250	0.0184J	74	45-125	12.10	(< 30)
Chrysene	0.0336U	0.0249	0.0435J	175 *	0.0250	0.0364J	146 *	55-110	17.70	(< 30)
Dibenzo(a,h)anthracene	0.0336U	0.0249	0.0173J	69	0.0250	0.0194J	78	40-125	12.10	(< 30)
Fluoranthene	0.0446J	0.0249	0.0639	77	0.0250	0.0658	85	55-115	2.90	(< 30)
Fluorene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	50-110	0.00	(< 30)
Indeno[1,2,3-c,d] pyrene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.0173J	69	40-120	0.00	(< 30)
Naphthalene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	40-105	0.00	(< 30)
Phenanthrene	0.0336U	0.0249	0.0336U	0 *	0.0250	0.00J	0 *	50-110	0.00	(< 30)
Pyrene	0.0336U	0.0249	0.180	719 *	0.0250	0.170	681 *	45-125	5.00	(< 30)
<b>Surrogates</b>										
2-Fluorobiphenyl		0.0249	0.00U	0 *	0.0250	0.00	0 *	45-105	0.00	
Terphenyl-d14		0.0249	0.0272	109	0.0250	0.0260	104	30-125	4.20	

## Batch Information

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 10/4/2013 12:48:00AM

Prep Batch: XXX30045  
 Prep Method: Sonication Extraction Soil 8270 PAH SIM  
 Prep Date/Time: 9/28/2013 11:00:00PM  
 Prep Initial Wt./Vol.: 22.81g  
 Prep Extract Vol: 1.00mL

## Method Blank

Blank ID: MB for HBN 1486862 [XXX/30050]  
 Blank Lab ID: 1181923

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1138516024, 1138516025, 1138516026, 1138516027

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	81.9	60-120		%

## Batch Information

Analytical Batch: XFC11102  
 Analytical Method: AK102  
 Instrument: HP 7890A FID SV E F  
 Analyst: EAB  
 Analytical Date/Time: 10/1/2013 2:15:00AM

Prep Batch: XXX30050  
 Prep Method: SW3550C  
 Prep Date/Time: 9/29/2013 5:00:00PM  
 Prep Initial Wt./Vol.: 30 g  
 Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138516 [XXX30050]  
 Blank Spike Lab ID: 1181924  
 Date Analyzed: 10/01/2013 02:36

Spike Duplicate ID: LCSD for HBN 1138516 [XXX30050]  
 Spike Duplicate Lab ID: 1181925  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138516024, 1138516025, 1138516026, 1138516027

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	168	101	167	162	97	( 75-125 )	4.10	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	90.3	90	3.33	89.3	89	( 60-120 )	1.10	

### Batch Information

Analytical Batch: **XFC11102**  
 Analytical Method: **AK102**  
 Instrument: **HP 7890A FID SV E F**  
 Analyst: **EAB**

Prep Batch: **XXX30050**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **09/29/2013 17:00**  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:45:56AM



1138516



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CORD

CHAIN-

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1200 17th Street, Suite 1024  
Denver, Co 80202  
(303) 825-3800

Laboratory SGS  
Attn: Steve Crupi

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

Comp. Grab	GRA 6270D	PAH	EMR 8270D	Total Number of Containers	Remarks/Matrix
GRA 107	GRA 107	PAH	EMR 8270D	2	Soil
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	
GRA 107	GRA 107	PAH	EMR 8270D	2	

Sample Identity	Lab No.	Time	Date Sampled
11697-EP15P52	10 A+B	1650	9/23/13
EX15P53	11 A+B	1655	↓
EX2BS1	12 A+B	1333	9/24/13
EX2BS3	13 A+B	1337	↓
EX2BS11	14 A+B	1341	↓
EX2BS13	15 A+B	1344	↓
EX2BS51	16 A+B	1346	↓
EX2BS16	17 A+B	1349	↓
EX2BS19	18 A+B	1352	↓
EX2BS21	19 A+B	1355	↓

**Project Information**

Project Number: 11697-002  
 Project Name: Tanning  
 Contact: Julie Keenan  
 Ongoing Project? Yes  No   
 Sampler: Jake Tracy

**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: Standard  
 Special Instructions: Level II deliverables

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Jake Tracy</u> Printed Name: <u>Jake Tracy</u> Company: <u>Shannon &amp; Wilson</u>	Signature: <u>Julie Keenan</u> Printed Name: <u>Julie Keenan</u> Company: <u>SGS</u>	Signature: <u>Steve Crupi</u> Printed Name: <u>Steve Crupi</u> Company: <u>SGS</u>
Time: 1620 Date: 9/23/13	Time: 0833 Date: 9/23/13	Time: 1730 Date: 9/23/13
Received By: <u>Julie Keenan</u> Signature: <u>Julie Keenan</u> Printed Name: <u>Julie Keenan</u> Company: <u>SGS</u>	Received By: <u>Steve Crupi</u> Signature: <u>Steve Crupi</u> Printed Name: <u>Steve Crupi</u> Company: <u>SGS</u>	Received By: <u>Steve Crupi</u> Signature: <u>Steve Crupi</u> Printed Name: <u>Steve Crupi</u> Company: <u>SGS</u>
Time: 1620 Date: 9/23/13	Time: 833 Date: 9/23/13	Time: 924 Date: 9/23/13

1138516



**CHAIN-**

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Laboratory SGS Page 3 of 3  
 Attn: Steve Crupi

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

Comp.	Grab	Geo 1 BTGP	AK-101 / BT 80215	PRM 82105	AK-102	Total Number of Containers

Sample Identity	Lab No.	Time	Date Sampled	Remarks/Matrix
11697-EX2BS22	(20) A+B	1358	9/24/13	2 Soil
EX2BS23	(21) A+B	1402		2
EX2BS25	(22) A+B	1406		2
EX2BS29	(23) A+B	1410		2
EX2SPS1	(24) A+B	1530		2
EX2SPS2	(25) A+B	1535		2
EX2SPS5	(26) A+B	1542		2
EX2SPS13	(27) A+B	1548		2
TR2	(28) A	1000	9/20/13	1 Trip blank

**Project Information**

Project Number: 11697-002  
 Project Name: Tanana  
 Contact: Julie Keener  
 Ongoing Project? Yes  No   
 Sampler: Jake Tracy

**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: Standard  
 Special Instructions: Level II deliverables

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Jake Tracy</u> Printed Name: <u>Jake Tracy</u> Company: <u>Shannon &amp; Wilson</u>	Signature: <u>Julie Keener</u> Printed Name: <u>Julie Keener</u> Company: <u>SGS</u>	Signature: <u>Stephane Chery</u> Printed Name: <u>Stephane Chery</u> Company: <u>SGS</u>
Time: <u>1420</u> Date: <u>9/25/13</u>	Time: <u>1433</u> Date: <u>9/26/13</u>	Time: <u>1430</u> Date: <u>9/26/13</u>
Received By: 1.	Received By: 2.	Received By: 3.
Signature: <u>Julie Keener</u> Printed Name: <u>Julie Keener</u> Company: <u>STW</u>	Signature: <u>Julie Keener</u> Printed Name: <u>Julie Keener</u> Company: <u>STW</u>	Signature: <u>Stephane Chery</u> Printed Name: <u>Stephane Chery</u> Company: <u>SGS</u>
Time: <u>1420</u> Date: <u>9/25/13</u>	Time: <u>1433</u> Date: <u>9/26/13</u>	Time: <u>1424</u> Date: <u>9/27/13</u>



## SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were <b>custody seals</b> intact? Note # & location, if applicable. COC accompanied samples?	Yes No <u>N/A</u> <u>Yes</u> No N/A	
<b>Temperature blank</b> compliant* (i.e., 0-6°C after correction factor)? * Note: Exemption permitted for chilled samples collected less than 8 hours ago. Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Note: If non-compliant, use form FS-0029 to document affected samples/analyses. If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled." <b>If temperature(s) &lt;0°C, were all sample containers ice free?</b>	Yes No <u>N/A</u>  Cooler temp: 5.9°C 10200  Yes No <u>N/A</u>	
Delivery method (specify all that apply): <u>Client</u> USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	Note ABN/ tracking #  See Attached or N/A  Yes No <u>N/A</u>	
→ For samples received with payment, note amount (\$) and cash / check / CC (circle one) or note: → For samples <b>received in FBKS</b> , ANCH staff will verify all criteria are reviewed.		SRF Initiated by: <u>JD</u> <u>N/A</u> N/A
Were samples received within hold time? Note: Refer to form F-083 "Sample Guide" for hold time information. Do samples <b>match COC</b> * (i.e., sample IDs, dates/times collected)? * Note: Exemption permitted if times differ <1hr; in which case, use times on COC. Were analyses requested unambiguous?	<u>Yes</u> No N/A <u>Yes</u> No N/A <u>Yes</u> No N/A	
Were samples in <b>good condition</b> (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	Yes No N/A	
Were all VOA vials <b>free of headspace</b> (i.e., bubbles ≤6 mm)? Were all soil VOAs <b>field extracted</b> with MeOH+BFB?	Yes No <u>N/A</u> <u>Yes</u> No N/A	
Were <b>proper containers</b> (type/mass/volume/preservative*) used? * Note: Exemption permitted for waters to be analyzed for metals. Were <b>Trip Blanks</b> (i.e., VOAs, LL-Hg) in cooler with samples?	<u>Yes</u> No N/A <u>Yes</u> No N/A	
For <b>special handling</b> (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No <u>N/A</u>	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was <b>pH verified and compliant</b> ? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No <u>N/A</u> Yes No <u>N/A</u>	
For <b>RUSH/SHORT Hold Time</b> , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No <u>N/A</u>	First samples taken 9-20
For <b>SITE-SPECIFIC QC</b> , e.g. BMS/BMSD/BDUP, were containers / paperwork flagged accordingly?	Yes No <u>N/A</u>	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No <u>N/A</u>	SRF Completed by: <u>ES</u> PM = <u>JD</u> N/A
Was <b>PEER REVIEW</b> of sample numbering/labeling completed?	Yes No <u>N/A</u>	Peer Reviewed by: N/A
Additional notes (if applicable):		

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



## Laboratory Data Review Checklist

Completed by:

Title:  Date:

CS Report Name:  Report Date:

Consultant Firm:

Laboratory Name:  Laboratory Report Number:

ADEC File Number:  ADEC RecKey Number:

### 1. Laboratory

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

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

### 2. Chain of Custody (COC)

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

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

### 3. Laboratory Sample Receipt Documentation

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

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

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

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 note any discrepancies with the samples reported in this work order.

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

N/A; please 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 GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX1SW9, 11697-EX1SW29, 11697-EX2BS11, 11697-EX2BS51, 11697-EX2BS19, 11697-EX2BS21, 11697-EX2BS22, and 11697-EX2BS29. The GRO results for these samples are considered biased high.

The DRO surrogate recovery was above QC criteria due to sample dilution for sample 11697-EX2BS21. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX2BS19, 11697-EX2SB21, and 11697-EX2BS22. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH MS/MSD surrogate recoveries were above QC criteria due to sample dilution. The parent spiked sample, 11697-EX2SB22, was considered unaffected by the surrogate-recovery failure. Sample results are unaffected by surrogate failures due to dilution.

The MS/MSD recoveries were outside control criteria for several PAH analytes. The results for the parent spiked sample (11697-EX2BS22) were affected. The recoveries were low for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthalene, anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene. The recoveries were high for chrysene and pyrene. The analytes with high and low MS/MSD recoveries were not detected in the parent spiked sample; the analytes with low MS/MSD recoveries are considered biased low in the original sample and are flagged "UJ" and the analytes with high MS/MSD recoveries are unaffected.

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 GRO results for the samples noted above are considered to be biased high, and the PAH results for analytes with low MS/MSD recoveries are considered to be biased low in sample 11697-EX2BS22.

## 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:

LODs (reporting value) were below the ADEC migration-to-groundwater soil-cleanup levels with the exception of the benzene LOD for sample 11697-EX1SW29 (0.026 mg/kg). This sample did not contain detectable benzene, and it cannot be determined if the sample concentration was below the LOD but above the benzene migration-to-groundwater soil-cleanup level of 0.025 mg/kg.

e. Data quality or usability affected?

Comments:

It cannot be determined if benzene concentration in sample 11697-EX1SW29 was above the soil-cleanup level.

## 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, there were detections in the method blank for toluene and 1-methylnaphthalene at concentrations below the LOQ (flagged as estimated with a "J" by the laboratory ) of 0.00875J mg/kg and 0.00209J mg/kg, respectively.

iii. If above PQL, what samples are affected?

No samples in the preparatory or analytical batches associated with the method blank containing toluene had toluene detections within five times the method blank detection, so no samples were affected by the toluene in the method blank.

Sample 11697-EX2SPS5 had a 1-methylnaphthalene detection that was within five times the method blank detection below the LOQ and considered affected. The sample will be considered not detected at the LOQ and flagged "B\*" to indicate an analytical bias due to the method blank.

Comments:

- iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?  
 Yes  No  NA (Please explain.)

Comments:

The 1-methylnaphthalene sample result for 11697-EX2SPS5 will be considered not detected at the LOQ and flagged "B\*" to indicate an analytical bias due to the method blank.

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

Comments:

Yes; please 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:

MS/MSD are also assessed in this section.

- 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:

There were multiple MS/MSD recovery failures for the PAH analytes for sample 11697-EX2BS22.

The following analytes were recovered below control limits in this sample, were not detected in the parent spiked sample, and are considered biased low:

1-methylnaphthalene; 2-methylnaphthalene; acenaphthene; acenaphthylene; anthracene; fluorene; indeno[1,2,3-c,d] pyrene; naphthalene; and phenanthrene. The analytes on this list that are presented on the project's results table will be flagged "†" to indicate the results are biased low.

Chrysene and pyrene were recovered above control limits in sample 11697-EX2BS22 but were not detected; their results were therefore unaffected.

- 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:

Sample 11697-EX2BS22 was affected; please see above for details about the affected analytes.

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

Yes  No  NA (Please explain.)

Comments:

Please see above.

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:

The GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX1SW9, 11697-EX1SW29, 11697-EX2BS11, 11697-EX2BS51, 11697-EX2BS19, 11697-EX2BS21, 11697-EX2BS22, and 11697-EX2BS29. The GRO results for these samples are considered biased high.

The DRO surrogate recovery was above QC criteria due to sample dilution for sample 11697-EX2BS21. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX2BS19, 11697-EX2SB21, and 11697-EX2BS22. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

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 affected GRO sample results will be flagged 'JH'.

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

Comments:

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:

One cooler was used to transport all samples to the SGS sample-receiving office. Samples were then shipped to the SGS analytical laboratory in Anchorage. The trip blank accompanied the VOA samples throughout sampling and shipping.

iii. All results less than PQL?

Yes  No  NA (Please explain.)

Comments:

All analytes were non-detect in the trip blank.

iv. If above PQL, what samples are affected?

Comments:

N/A; please see above.

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

Comments:

N/A; please see above.

e. Field Duplicate

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

Yes  No  NA (Please explain.)

Comments:

Field-duplicates 11697-EX1SW9/ 11697-EX1SW29 and 11697-EX2BS11/ 11697-EX2BS51 were submitted in this work order.

ii. Submitted blind to lab?

Yes  No  NA (Please explain.)                      Comments:

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

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

Where  $R_1$  = Sample Concentration  
 $R_2$  = Field Duplicate Concentration

Yes  No  NA (Please explain.)                      Comments:

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

Comments:

All calculable RPDs were below the recommended DQOs for soil.

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

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order, in accordance with the project work plan.

i. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order.

ii. If above PQL, what samples are affected?

Comments:

N/A; please see above.

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

Comments:

N/A; please 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.

## Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks  
2355 Hill Road  
Fairbanks, AK 997095244  
(907)479-0600

Report Number: 1138517

Client Project: 11697-002 Tanana

Dear Julie Keener,

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 five 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.



Alaska Division Technical Director

Stephen Ede

2013.10.14

09:00:06 -08'00'

Jennifer Dawkins  
Project Manager

Date

Print Date: 10/14/2013 8:46:35AM

## Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138517**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

### **11697-EX2BS31 (1138517001) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

### **11697-EX2BS33 (1138517002) PS**

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

### **11697-EX2BS61 (1138517003) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

### **11697-EX2SW18 (1138517009) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

### **11697-EX2SW48 (1138517010) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

### **11697-EX2SW19 (1138517011) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

### **11697-LSS2 (1138517012) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

### **11697-LSS7 (1138517013) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

### **11697-LSS11 (1138517014) PS**

**Case Narrative**

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138517**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample matrix.

**11697-LSS14 (1138517015) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample dilution.

**11697-LSS15 (1138517016) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Elevated LOQ due to matrix

8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.

8270D SIM- LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-LSS16 (1138517017) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-LSS25 (1138517018) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-LSS33 (1138517019) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-LSS41 (1138517020) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

AK102 - 5a-Androstane (surrogate) recovery is outside QC criteria due to sample matrix.

**11697-LSS44 (1138517021) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK102 - The pattern is consistent with a weathered middle distillate.

**11697-LSS46 (1138517022) PS**

AK101 - BFB (surrogate) recovery does not meet QC criteria (biased high) due to matrix interference.

AK101/8021B - Sample cannot be re-analyzed at lower dilution due to non-target analytes with a peak height greater than 6 times the internal standard.

AK102 - The pattern is consistent with a weathered middle distillate.

**1134480068(1183615MS) (1182833) MS**

8270D SIM - Sample was re-extracted outside of hold time for QC purposes only.

**1134480068(1183615MSD) (1182834) MSD**

## Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**

SGS Project: **1138517**

Project Name/Site: **11697-002 Tanana**

Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

8270D SIM - Sample was re-extracted outside of hold time for QC purposes only.

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

Print Date: 10/14/2013 8:46:36AM

### Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>8270D SIMS (PAH)</b>				
1183615	LABREFQC	XMS7653	1-Methylnaphthalene	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.

## 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. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<[http://www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm)>), unless other written agreements have been accepted by both parties.

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: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 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	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., 2xDL)
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.

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
11697-EX2BS31	1138517001	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS33	1138517002	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS61	1138517003	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS41	1138517004	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2BS45	1138517005	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW2	1138517006	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW10	1138517007	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW14	1138517008	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW18	1138517009	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW48	1138517010	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-EX2SW19	1138517011	09/24/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS2	1138517012	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS7	1138517013	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS11	1138517014	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS14	1138517015	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS15	1138517016	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS16	1138517017	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS25	1138517018	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS33	1138517019	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS41	1138517020	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS44	1138517021	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-LSS46	1138517022	09/25/2013	09/27/2013	Soil/Solid (dry weight)
11697-TB3	1138517023	09/20/2013	09/27/2013	Soil/Solid (dry weight)

Method

8270D SIMS (PAH)  
 AK101  
 SW8021B  
 AK102  
 SM21 2540G

Method Description

8270 PAH SIM Semi-Volatiles GC/MS  
 AK101/8021 Combo. (S)  
 AK101/8021 Combo. (S)  
 Diesel Range Organics (S)  
 Percent Solids SM2540G

### Detectable Results Summary

Client Sample ID: **11697-EX2BS31**

Lab Sample ID: 1138517001

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	3930	mg/Kg
Benzene	0.0168J	mg/Kg
Ethylbenzene	2.03	mg/Kg
Gasoline Range Organics	123	mg/Kg
o-Xylene	3.27	mg/Kg
P & M -Xylene	6.04	mg/Kg
Toluene	0.103	mg/Kg

Client Sample ID: **11697-EX2BS33**

Lab Sample ID: 1138517002

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	2060	mg/Kg
Gasoline Range Organics	10.3	mg/Kg
o-Xylene	0.143	mg/Kg
P & M -Xylene	0.0388J	mg/Kg

Client Sample ID: **11697-EX2BS61**

Lab Sample ID: 1138517003

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	3770	mg/Kg
Benzene	0.00988J	mg/Kg
Ethylbenzene	1.60	mg/Kg
Gasoline Range Organics	107	mg/Kg
o-Xylene	2.62	mg/Kg
P & M -Xylene	4.78	mg/Kg
Toluene	0.0762	mg/Kg

Client Sample ID: **11697-EX2BS41**

Lab Sample ID: 1138517004

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.919J	mg/Kg

Client Sample ID: **11697-EX2BS45**

Lab Sample ID: 1138517005

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	1.00J	mg/Kg

Client Sample ID: **11697-EX2SW2**

Lab Sample ID: 1138517006

**Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	7.05J	mg/Kg

Client Sample ID: **11697-EX2SW14**

Lab Sample ID: 1138517008

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	15.7J	mg/Kg
Gasoline Range Organics	1.21J	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-EX2SW18**

Lab Sample ID: 1138517009

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	19900	mg/Kg
Benzene	0.0184	mg/Kg
Ethylbenzene	0.368	mg/Kg
Gasoline Range Organics	120	mg/Kg
o-Xylene	0.848	mg/Kg
P & M -Xylene	2.19	mg/Kg
Toluene	0.0375	mg/Kg

Client Sample ID: **11697-EX2SW48**

Lab Sample ID: 1138517010

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	20500	mg/Kg
Benzene	0.0214J	mg/Kg
Ethylbenzene	0.490	mg/Kg
Gasoline Range Organics	176	mg/Kg
o-Xylene	1.06	mg/Kg
P & M -Xylene	2.90	mg/Kg
Toluene	0.0547J	mg/Kg

Client Sample ID: **11697-EX2SW19**

Lab Sample ID: 1138517011

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	16000	mg/Kg
Gasoline Range Organics	39.8	mg/Kg
o-Xylene	0.675	mg/Kg
P & M -Xylene	0.166	mg/Kg

Client Sample ID: **11697-LSS2**

Lab Sample ID: 1138517012

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	10600	mg/Kg
Ethylbenzene	1.30	mg/Kg
Gasoline Range Organics	177	mg/Kg
o-Xylene	2.00	mg/Kg
P & M -Xylene	3.41	mg/Kg
Toluene	0.0508J	mg/Kg

Client Sample ID: **11697-LSS7**

Lab Sample ID: 1138517013

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	11700	mg/Kg
Ethylbenzene	0.599	mg/Kg
Gasoline Range Organics	42.3	mg/Kg
o-Xylene	0.586	mg/Kg
P & M -Xylene	1.26	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-LSS11**

Lab Sample ID: 1138517014

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5600	mg/Kg
Ethylbenzene	0.0995	mg/Kg
Gasoline Range Organics	104	mg/Kg
o-Xylene	2.28	mg/Kg
P & M -Xylene	0.543	mg/Kg
Toluene	0.0163J	mg/Kg

Client Sample ID: **11697-LSS14**

Lab Sample ID: 1138517015

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	7550	mg/Kg
Ethylbenzene	0.396	mg/Kg
Gasoline Range Organics	76.7	mg/Kg
o-Xylene	0.997	mg/Kg
P & M -Xylene	1.30	mg/Kg
Toluene	0.0191J	mg/Kg

Client Sample ID: **11697-LSS15**

Lab Sample ID: 1138517016

**Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	3.61	mg/Kg
2-Methylnaphthalene	0.288	mg/Kg
Chrysene	0.00646	mg/Kg
Fluoranthene	0.0149	mg/Kg
Fluorene	0.272	mg/Kg
Phenanthrene	0.497	mg/Kg
Pyrene	0.0295	mg/Kg
Diesel Range Organics	2270	mg/Kg
Ethylbenzene	0.163	mg/Kg
Gasoline Range Organics	61.9	mg/Kg
o-Xylene	0.634	mg/Kg
P & M -Xylene	0.692	mg/Kg

**Semivolatile Organic Fuels**

**Volatile Fuels**

Client Sample ID: **11697-LSS16**

Lab Sample ID: 1138517017

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5650	mg/Kg
Ethylbenzene	0.729	mg/Kg
Gasoline Range Organics	105	mg/Kg
o-Xylene	1.29	mg/Kg
P & M -Xylene	1.99	mg/Kg

Client Sample ID: **11697-LSS25**

Lab Sample ID: 1138517018

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1490	mg/Kg
Ethylbenzene	0.109	mg/Kg
Gasoline Range Organics	105	mg/Kg
o-Xylene	0.670	mg/Kg
P & M -Xylene	0.354	mg/Kg

### Detectable Results Summary

Client Sample ID: **11697-LSS33**

Lab Sample ID: 1138517019

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1490	mg/Kg
Ethylbenzene	0.0350J	mg/Kg
Gasoline Range Organics	34.5	mg/Kg
o-Xylene	0.260	mg/Kg
P & M -Xylene	0.114	mg/Kg

Client Sample ID: **11697-LSS41**

Lab Sample ID: 1138517020

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5460	mg/Kg
Ethylbenzene	0.126	mg/Kg
Gasoline Range Organics	135	mg/Kg
o-Xylene	2.61	mg/Kg
P & M -Xylene	0.552	mg/Kg
Toluene	0.226	mg/Kg

Client Sample ID: **11697-LSS44**

Lab Sample ID: 1138517021

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5920	mg/Kg
Ethylbenzene	0.358	mg/Kg
Gasoline Range Organics	69.0	mg/Kg
o-Xylene	0.953	mg/Kg
P & M -Xylene	1.21	mg/Kg
Toluene	0.0144J	mg/Kg

Client Sample ID: **11697-LSS46**

Lab Sample ID: 1138517022

**Semivolatile Organic Fuels**

**Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	5910	mg/Kg
Ethylbenzene	1.05	mg/Kg
Gasoline Range Organics	138	mg/Kg
o-Xylene	1.83	mg/Kg
P & M -Xylene	2.87	mg/Kg
Toluene	0.0377J	mg/Kg



### Results of 11697-EX2BS31

Client Sample ID: 11697-EX2BS31  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138517001  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:13  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 95.1

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	3930	210	65.1	mg/Kg	10		10/05/13 17:07
<b>Surrogates</b>							
5a Androstane	143	50-150		%	10		10/05/13 17:07

### Batch Information

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 17:07  
Container ID: 1138517001-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.02 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS31**

Client Sample ID: **11697-EX2BS31**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517001  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:13  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 95.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	123	4.54	1.36	mg/Kg	2		10/02/13 15:42

**Surrogates**

4-Bromofluorobenzene	1130 *	50-150		%	2		10/02/13 15:42
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:42  
Container ID: 1138517001-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:13  
Prep Initial Wt./Vol.: 65.174 g  
Prep Extract Vol: 28.1704 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0168 J	0.0227	0.00727	mg/Kg	2		10/02/13 15:42
Ethylbenzene	2.03	0.0454	0.0142	mg/Kg	2		10/02/13 15:42
o-Xylene	3.27	0.0454	0.0142	mg/Kg	2		10/02/13 15:42
P & M -Xylene	6.04	0.0909	0.0273	mg/Kg	2		10/02/13 15:42
Toluene	0.103	0.0454	0.0142	mg/Kg	2		10/02/13 15:42

**Surrogates**

1,4-Difluorobenzene	94.8	72-119		%	2		10/02/13 15:42
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:42  
Container ID: 1138517001-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:13  
Prep Initial Wt./Vol.: 65.174 g  
Prep Extract Vol: 28.1704 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS33**

Client Sample ID: **11697-EX2BS33**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517002  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:17  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 96.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	2060	82.1	25.5	mg/Kg	4		10/03/13 22:20
<b>Surrogates</b>							
5a Androstane	56	50-150		%	4		10/03/13 22:20

**Batch Information**

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 22:20  
Container ID: 1138517002-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.423 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS33**

Client Sample ID: **11697-EX2BS33**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517002  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:17  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 96.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	10.3	3.96	1.19	mg/Kg	2		10/02/13 15:23

**Surrogates**

4-Bromofluorobenzene	132	50-150		%	2		10/02/13 15:23
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:23  
Container ID: 1138517002-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:17  
Prep Initial Wt./Vol.: 73.424 g  
Prep Extract Vol: 27.9045 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0127 U	0.0198	0.00633	mg/Kg	2		10/02/13 15:23
Ethylbenzene	0.0246 U	0.0396	0.0123	mg/Kg	2		10/02/13 15:23
o-Xylene	0.143	0.0396	0.0123	mg/Kg	2		10/02/13 15:23
P & M -Xylene	0.0388 J	0.0791	0.0237	mg/Kg	2		10/02/13 15:23
Toluene	0.0246 U	0.0396	0.0123	mg/Kg	2		10/02/13 15:23

**Surrogates**

1,4-Difluorobenzene	91.3	72-119		%	2		10/02/13 15:23
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 15:23  
Container ID: 1138517002-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:17  
Prep Initial Wt./Vol.: 73.424 g  
Prep Extract Vol: 27.9045 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS61**

Client Sample ID: **11697-EX2BS61**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517003  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:20  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 95.7

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	3770	206	64.0	mg/Kg	10		10/05/13 17:17
<b>Surrogates</b>							
5a Androstane	138	50-150		%	10		10/05/13 17:17

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 17:17  
Container ID: 1138517003-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.356 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS61**

Client Sample ID: **11697-EX2BS61**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517003  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:20  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 95.7

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	107	4.39	1.32	mg/Kg	2		10/02/13 18:47

**Surrogates**

4-Bromofluorobenzene	1060 *	50-150		%	2		10/02/13 18:47
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 18:47  
Container ID: 1138517003-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:20  
Prep Initial Wt./Vol.: 66.144 g  
Prep Extract Vol: 27.8165 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00988 J	0.0220	0.00703	mg/Kg	2		10/02/13 18:47
Ethylbenzene	1.60	0.0439	0.0137	mg/Kg	2		10/02/13 18:47
o-Xylene	2.62	0.0439	0.0137	mg/Kg	2		10/02/13 18:47
P & M -Xylene	4.78	0.0878	0.0264	mg/Kg	2		10/02/13 18:47
Toluene	0.0762	0.0439	0.0137	mg/Kg	2		10/02/13 18:47

**Surrogates**

1,4-Difluorobenzene	94.1	72-119		%	2		10/02/13 18:47
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 18:47  
Container ID: 1138517003-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:20  
Prep Initial Wt./Vol.: 66.144 g  
Prep Extract Vol: 27.8165 mL

Print Date: 10/14/2013 8:46:39AM



### Results of 11697-EX2BS41

Client Sample ID: 11697-EX2BS41  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138517004  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:24  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 94.0

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	13.1 U	21.1	6.53	mg/Kg	1		10/03/13 18:08
<b>Surrogates</b>							
5a Androstane	72.6	50-150		%	1		10/03/13 18:08

### Batch Information

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 18:08  
Container ID: 1138517004-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.301 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS41**

Client Sample ID: **11697-EX2BS41**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517004  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:24  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 94.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	0.919 J	2.42	0.726	mg/Kg	1		10/02/13 16:56

**Surrogates**

4-Bromofluorobenzene	100	50-150		%	1		10/02/13 16:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 16:56  
Container ID: 1138517004-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:24  
Prep Initial Wt./Vol.: 63.389 g  
Prep Extract Vol: 28.8292 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00774 U	0.0121	0.00387	mg/Kg	1		10/02/13 16:56
Ethylbenzene	0.0151 U	0.0242	0.00755	mg/Kg	1		10/02/13 16:56
o-Xylene	0.0151 U	0.0242	0.00755	mg/Kg	1		10/02/13 16:56
P & M -Xylene	0.0290 U	0.0484	0.0145	mg/Kg	1		10/02/13 16:56
Toluene	0.0151 U	0.0242	0.00755	mg/Kg	1		10/02/13 16:56

**Surrogates**

1,4-Difluorobenzene	89.4	72-119		%	1		10/02/13 16:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 16:56  
Container ID: 1138517004-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:24  
Prep Initial Wt./Vol.: 63.389 g  
Prep Extract Vol: 28.8292 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS45**

Client Sample ID: **11697-EX2BS45**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517005  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:28  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.1

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.1 U	22.7	7.05	mg/Kg	1		10/03/13 18:29
<b>Surrogates</b>							
5a Androstane	65.9	50-150		%	1		10/03/13 18:29

**Batch Information**

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 18:29  
Container ID: 1138517005-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.645 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2BS45**

Client Sample ID: **11697-EX2BS45**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517005  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:28  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.1

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.00 J	3.29	0.986	mg/Kg	1		10/02/13 17:14

**Surrogates**

4-Bromofluorobenzene	99.4	50-150		%	1		10/02/13 17:14
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:14  
Container ID: 1138517005-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:28  
Prep Initial Wt./Vol.: 58.493 g  
Prep Extract Vol: 33.11 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0105 U	0.0164	0.00526	mg/Kg	1		10/02/13 17:14
Ethylbenzene	0.0206 U	0.0329	0.0103	mg/Kg	1		10/02/13 17:14
o-Xylene	0.0206 U	0.0329	0.0103	mg/Kg	1		10/02/13 17:14
P & M -Xylene	0.0394 U	0.0657	0.0197	mg/Kg	1		10/02/13 17:14
Toluene	0.0206 U	0.0329	0.0103	mg/Kg	1		10/02/13 17:14

**Surrogates**

1,4-Difluorobenzene	89.7	72-119		%	1		10/02/13 17:14
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:14  
Container ID: 1138517005-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:28  
Prep Initial Wt./Vol.: 58.493 g  
Prep Extract Vol: 33.11 mL

Print Date: 10/14/2013 8:46:39AM



Results of **11697-EX2SW2**

Client Sample ID: **11697-EX2SW2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517006  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:32  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.7

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	7.05 J	22.6	6.99	mg/Kg	1		10/03/13 18:49
<b>Surrogates</b>							
5a Androstane	71.9	50-150		%	1		10/03/13 18:49

**Batch Information**

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 18:49  
Container ID: 1138517006-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.343 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW2**

Client Sample ID: **11697-EX2SW2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517006  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:32  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.7

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.04 U	3.41	1.02	mg/Kg	1		10/02/13 17:32

**Surrogates**

4-Bromofluorobenzene	98.2	50-150		%	1		10/02/13 17:32
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:32  
Container ID: 1138517006-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:32  
Prep Initial Wt./Vol.: 52.643 g  
Prep Extract Vol: 31.4857 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0109 U	0.0171	0.00546	mg/Kg	1		10/02/13 17:32
Ethylbenzene	0.0212 U	0.0341	0.0106	mg/Kg	1		10/02/13 17:32
o-Xylene	0.0212 U	0.0341	0.0106	mg/Kg	1		10/02/13 17:32
P & M -Xylene	0.0410 U	0.0682	0.0205	mg/Kg	1		10/02/13 17:32
Toluene	0.0212 U	0.0341	0.0106	mg/Kg	1		10/02/13 17:32

**Surrogates**

1,4-Difluorobenzene	90.1	72-119		%	1		10/02/13 17:32
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:32  
Container ID: 1138517006-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:32  
Prep Initial Wt./Vol.: 52.643 g  
Prep Extract Vol: 31.4857 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW10**

Client Sample ID: **11697-EX2SW10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517007  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:35  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.9

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	14.1 U	22.7	7.03	mg/Kg	1		10/03/13 19:10
<b>Surrogates</b>							
5a Androstane	64	50-150		%	1		10/03/13 19:10

**Batch Information**

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 19:10  
Container ID: 1138517007-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.106 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW10**

Client Sample ID: **11697-EX2SW10**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517007  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:35  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 87.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	2.18 U	3.65	1.09	mg/Kg	1		10/02/13 17:51

**Surrogates**

4-Bromofluorobenzene	93.6	50-150		%	1		10/02/13 17:51
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:51  
Container ID: 1138517007-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:35  
Prep Initial Wt./Vol.: 48.005 g  
Prep Extract Vol: 30.7995 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0117 U	0.0182	0.00584	mg/Kg	1		10/02/13 17:51
Ethylbenzene	0.0228 U	0.0365	0.0114	mg/Kg	1		10/02/13 17:51
o-Xylene	0.0228 U	0.0365	0.0114	mg/Kg	1		10/02/13 17:51
P & M -Xylene	0.0438 U	0.0730	0.0219	mg/Kg	1		10/02/13 17:51
Toluene	0.0228 U	0.0365	0.0114	mg/Kg	1		10/02/13 17:51

**Surrogates**

1,4-Difluorobenzene	93.2	72-119		%	1		10/02/13 17:51
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 17:51  
Container ID: 1138517007-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:35  
Prep Initial Wt./Vol.: 48.005 g  
Prep Extract Vol: 30.7995 mL

Print Date: 10/14/2013 8:46:39AM



Results of **11697-EX2SW14**

Client Sample ID: **11697-EX2SW14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517008  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:40  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.8

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	15.7 J	23.0	7.12	mg/Kg	1		10/03/13 19:31
<b>Surrogates</b>							
5a Androstane	73.5	50-150		%	1		10/03/13 19:31

**Batch Information**

Analytical Batch: XFC11107  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 19:31  
Container ID: 1138517008-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.444 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW14**

Client Sample ID: **11697-EX2SW14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517008  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:40  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.8

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.21 J	3.70	1.11	mg/Kg	1		10/02/13 18:10

**Surrogates**

4-Bromofluorobenzene	99.1	50-150		%	1		10/02/13 18:10
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 18:10  
Container ID: 1138517008-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:40  
Prep Initial Wt./Vol.: 50.776 g  
Prep Extract Vol: 32.2121 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0118 U	0.0185	0.00592	mg/Kg	1		10/02/13 18:10
Ethylbenzene	0.0230 U	0.0370	0.0115	mg/Kg	1		10/02/13 18:10
o-Xylene	0.0230 U	0.0370	0.0115	mg/Kg	1		10/02/13 18:10
P & M -Xylene	0.0444 U	0.0739	0.0222	mg/Kg	1		10/02/13 18:10
Toluene	0.0230 U	0.0370	0.0115	mg/Kg	1		10/02/13 18:10

**Surrogates**

1,4-Difluorobenzene	89.6	72-119		%	1		10/02/13 18:10
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 18:10  
Container ID: 1138517008-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:40  
Prep Initial Wt./Vol.: 50.776 g  
Prep Extract Vol: 32.2121 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW18**

Client Sample ID: **11697-EX2SW18**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517009  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:44  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	19900	1160	358	mg/Kg	50		10/05/13 18:55
<b>Surrogates</b>							
5a Androstane	0 *	50-150		%	50		10/05/13 18:55

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 18:55  
Container ID: 1138517009-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.062 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW18**

Client Sample ID: **11697-EX2SW18**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517009  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:44  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.3

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	120	3.41	1.02	mg/Kg	1		10/03/13 01:52

**Surrogates**

4-Bromofluorobenzene	604 *	50-150		%	1		10/03/13 01:52
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 01:52  
Container ID: 1138517009-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:44  
Prep Initial Wt./Vol.: 55.453 g  
Prep Extract Vol: 32.5957 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0184	0.0170	0.00545	mg/Kg	1		10/03/13 01:52
Ethylbenzene	0.368	0.0341	0.0106	mg/Kg	1		10/03/13 01:52
o-Xylene	0.848	0.0341	0.0106	mg/Kg	1		10/03/13 01:52
P & M -Xylene	2.19	0.0681	0.0204	mg/Kg	1		10/03/13 01:52
Toluene	0.0375	0.0341	0.0106	mg/Kg	1		10/03/13 01:52

**Surrogates**

1,4-Difluorobenzene	96.8	72-119		%	1		10/03/13 01:52
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 01:52  
Container ID: 1138517009-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:44  
Prep Initial Wt./Vol.: 55.453 g  
Prep Extract Vol: 32.5957 mL

Print Date: 10/14/2013 8:46:39AM



Results of **11697-EX2SW48**

Client Sample ID: **11697-EX2SW48**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517010  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.0

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	20500	1160	358	mg/Kg	50		10/05/13 19:05
<b>Surrogates</b>							
5a Androstane	0 *	50-150		%	50		10/05/13 19:05

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 19:05  
Container ID: 1138517010-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.177 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW48**

Client Sample ID: **11697-EX2SW48**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517010  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 86.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	176	7.39	2.22	mg/Kg	2		10/02/13 19:06

**Surrogates**

4-Bromofluorobenzene	794 *	50-150		%	2		10/02/13 19:06
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 19:06  
Container ID: 1138517010-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:50  
Prep Initial Wt./Vol.: 50.373 g  
Prep Extract Vol: 32.0426 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0214 J	0.0370	0.0118	mg/Kg	2		10/02/13 19:06
Ethylbenzene	0.490	0.0739	0.0231	mg/Kg	2		10/02/13 19:06
o-Xylene	1.06	0.0739	0.0231	mg/Kg	2		10/02/13 19:06
P & M -Xylene	2.90	0.148	0.0444	mg/Kg	2		10/02/13 19:06
Toluene	0.0547 J	0.0739	0.0231	mg/Kg	2		10/02/13 19:06

**Surrogates**

1,4-Difluorobenzene	95	72-119		%	2		10/02/13 19:06
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 19:06  
Container ID: 1138517010-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:50  
Prep Initial Wt./Vol.: 50.373 g  
Prep Extract Vol: 32.0426 mL

Print Date: 10/14/2013 8:46:39AM



Results of **11697-EX2SW19**

Client Sample ID: **11697-EX2SW19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517011  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:53  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.0

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	16000	1120	347	mg/Kg	50		10/05/13 19:15
<b>Surrogates</b>							
5a Androstane	0 *	50-150		%	50		10/05/13 19:15

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 19:15  
Container ID: 1138517011-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.123 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-EX2SW19**

Client Sample ID: **11697-EX2SW19**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517011  
Lab Project ID: 1138517

Collection Date: 09/24/13 14:53  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 89.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	39.8	3.40	1.02	mg/Kg	1		10/03/13 01:33

**Surrogates**

4-Bromofluorobenzene	181 *	50-150		%	1		10/03/13 01:33
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 01:33  
Container ID: 1138517011-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:53  
Prep Initial Wt./Vol.: 50.553 g  
Prep Extract Vol: 30.5791 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0109 U	0.0170	0.00544	mg/Kg	1		10/03/13 01:33
Ethylbenzene	0.0212 U	0.0340	0.0106	mg/Kg	1		10/03/13 01:33
o-Xylene	0.675	0.0340	0.0106	mg/Kg	1		10/03/13 01:33
P & M -Xylene	0.166	0.0680	0.0204	mg/Kg	1		10/03/13 01:33
Toluene	0.0212 U	0.0340	0.0106	mg/Kg	1		10/03/13 01:33

**Surrogates**

1,4-Difluorobenzene	92.5	72-119		%	1		10/03/13 01:33
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 01:33  
Container ID: 1138517011-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/24/13 14:53  
Prep Initial Wt./Vol.: 50.553 g  
Prep Extract Vol: 30.5791 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS2**

Client Sample ID: **11697-LSS2**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517012  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:40  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.3

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	10600	491	152	mg/Kg	20		10/05/13 18:06
<b>Surrogates</b>							
5a Androstane	0 *	50-150		%	20		10/05/13 18:06

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 18:06  
Container ID: 1138517012-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.064 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



Results of 11697-LSS2

Client Sample ID: 11697-LSS2
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138517012
Lab Project ID: 1138517

Collection Date: 09/25/13 10:40
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 81.3

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 177, 8.61, 2.58, mg/Kg, 2, 10/02/13 19:24

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 816, \*, 50-150, %, 2, 10/02/13 19:24

Batch Information

Analytical Batch: VFC11663
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/13 19:24
Container ID: 1138517012-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/25/13 10:40
Prep Initial Wt./Vol.: 48.799 g
Prep Extract Vol: 34.1391 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 92.5, 72-119, %, 2, 10/02/13 19:24

Batch Information

Analytical Batch: VFC11663
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/02/13 19:24
Container ID: 1138517012-B

Prep Batch: VXX25275
Prep Method: SW5035A
Prep Date/Time: 09/25/13 10:40
Prep Initial Wt./Vol.: 48.799 g
Prep Extract Vol: 34.1391 mL

Print Date: 10/14/2013 8:46:39AM

## Results of 11697-LSS7

Client Sample ID: **11697-LSS7**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138517013  
 Lab Project ID: 1138517

Collection Date: 09/25/13 10:45  
 Received Date: 09/27/13 09:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 82.4

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	11700	480	149	mg/Kg	20		10/05/13 18:16
<b>Surrogates</b>							
5a Androstane	0 *	50-150		%	20		10/05/13 18:16

## Batch Information

Analytical Batch: XFC11111  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 10/05/13 18:16  
 Container ID: 1138517013-A

Prep Batch: XXX30049  
 Prep Method: SW3550C  
 Prep Date/Time: 09/29/13 16:40  
 Prep Initial Wt./Vol.: 30.344 g  
 Prep Extract Vol: 1 mL



**Results of 11697-LSS7**

Client Sample ID: **11697-LSS7**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517013  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:45  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 82.4

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	42.3	7.61	2.28	mg/Kg	2		10/02/13 19:43

**Surrogates**

4-Bromofluorobenzene	253 *	50-150		%	2		10/02/13 19:43
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 19:43  
Container ID: 1138517013-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:45  
Prep Initial Wt./Vol.: 55.459 g  
Prep Extract Vol: 34.7642 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0244 U	0.0380	0.0122	mg/Kg	2		10/02/13 19:43
Ethylbenzene	0.599	0.0761	0.0237	mg/Kg	2		10/02/13 19:43
o-Xylene	0.586	0.0761	0.0237	mg/Kg	2		10/02/13 19:43
P & M -Xylene	1.26	0.152	0.0456	mg/Kg	2		10/02/13 19:43
Toluene	0.0474 U	0.0761	0.0237	mg/Kg	2		10/02/13 19:43

**Surrogates**

1,4-Difluorobenzene	91.7	72-119		%	2		10/02/13 19:43
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 19:43  
Container ID: 1138517013-B

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:45  
Prep Initial Wt./Vol.: 55.459 g  
Prep Extract Vol: 34.7642 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS11**

Client Sample ID: **11697-LSS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517014  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.0

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5600	234	72.7	mg/Kg	10		10/05/13 17:27
<b>Surrogates</b>							
5a Androstane	155 *	50-150		%	10		10/05/13 17:27

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 17:27  
Container ID: 1138517014-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.136 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS11**

Client Sample ID: **11697-LSS11**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517014  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:50  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.0

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	104	3.62	1.09	mg/Kg	1		10/03/13 03:06

**Surrogates**

4-Bromofluorobenzene	454 *	50-150		%	1		10/03/13 03:06
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:06  
Container ID: 1138517014-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:50  
Prep Initial Wt./Vol.: 53.843 g  
Prep Extract Vol: 33.1032 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0116 U	0.0181	0.00579	mg/Kg	1		10/03/13 03:06
Ethylbenzene	0.0995	0.0362	0.0113	mg/Kg	1		10/03/13 03:06
o-Xylene	2.28	0.0362	0.0113	mg/Kg	1		10/03/13 03:06
P & M -Xylene	0.543	0.0724	0.0217	mg/Kg	1		10/03/13 03:06
Toluene	0.0163 J	0.0362	0.0113	mg/Kg	1		10/03/13 03:06

**Surrogates**

1,4-Difluorobenzene	93	72-119		%	1		10/03/13 03:06
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:06  
Container ID: 1138517014-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:50  
Prep Initial Wt./Vol.: 53.843 g  
Prep Extract Vol: 33.1032 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS14**

Client Sample ID: **11697-LSS14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517015  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.7

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	7550		467	145	mg/Kg	20		10/05/13 18:26
<b>Surrogates</b>								
5a Androstane	0	*	50-150		%	20		10/05/13 18:26

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 18:26  
Container ID: 1138517015-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.739 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS14**

Client Sample ID: **11697-LSS14**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517015  
Lab Project ID: 1138517

Collection Date: 09/25/13 10:55  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.7

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	76.7	3.97	1.19	mg/Kg	1		10/03/13 03:24

**Surrogates**

4-Bromofluorobenzene	379 *	50-150		%	1		10/03/13 03:24
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:24  
Container ID: 1138517015-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:55  
Prep Initial Wt./Vol.: 49.846 g  
Prep Extract Vol: 33.1428 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0127 U	0.0199	0.00636	mg/Kg	1		10/03/13 03:24
Ethylbenzene	0.396	0.0397	0.0124	mg/Kg	1		10/03/13 03:24
o-Xylene	0.997	0.0397	0.0124	mg/Kg	1		10/03/13 03:24
P & M -Xylene	1.30	0.0795	0.0238	mg/Kg	1		10/03/13 03:24
Toluene	0.0191 J	0.0397	0.0124	mg/Kg	1		10/03/13 03:24

**Surrogates**

1,4-Difluorobenzene	92.3	72-119		%	1		10/03/13 03:24
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:24  
Container ID: 1138517015-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 10:55  
Prep Initial Wt./Vol.: 49.846 g  
Prep Extract Vol: 33.1428 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS15**

Client Sample ID: **11697-LSS15**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138517016  
 Lab Project ID: 1138517

Collection Date: 09/25/13 11:00  
 Received Date: 09/27/13 09:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 85.5

**Results by Polynuclear Aromatics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	3.61	0.583	0.175	mg/Kg	100		10/04/13 21:20
2-Methylnaphthalene	0.288	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Acenaphthene	0.0350 U	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Acenaphthylene	0.0350 U	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Anthracene	0.0350 U	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Benzo(a)Anthracene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Benzo[a]pyrene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Benzo[b]Fluoranthene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Benzo[g,h,i]perylene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Benzo[k]fluoranthene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Chrysene	0.00646	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Dibenzo[a,h]anthracene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Fluoranthene	0.0149	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Fluorene	0.272	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Indeno[1,2,3-c,d] pyrene	0.00350 U	0.00583	0.00175	mg/Kg	1		10/03/13 19:26
Naphthalene	0.0350 U	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Phenanthrene	0.497	0.0583	0.0175	mg/Kg	10		10/03/13 20:22
Pyrene	0.0295	0.00583	0.00175	mg/Kg	1		10/03/13 19:26

**Surrogates**

2-Fluorobiphenyl	0	*	45-105	%	10		10/03/13 20:22
Terphenyl-d14	93.7		30-125	%	1		10/03/13 19:26

**Batch Information**

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Analyst: RTS  
 Analytical Date/Time: 10/03/13 20:22  
 Container ID: 1138517016-A

Prep Batch: XXX30075  
 Prep Method: SW3550C  
 Prep Date/Time: 10/02/13 22:00  
 Prep Initial Wt./Vol.: 22.573 g  
 Prep Extract Vol: 1 mL

Analytical Batch: XMS7656  
 Analytical Method: 8270D SIMS (PAH)  
 Analyst: RTS  
 Analytical Date/Time: 10/04/13 21:20  
 Container ID: 1138517016-A

Prep Batch: XXX30075  
 Prep Method: SW3550C  
 Prep Date/Time: 10/02/13 22:00  
 Prep Initial Wt./Vol.: 22.573 g  
 Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS15**

Client Sample ID: **11697-LSS15**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517016  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.5

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	2270	93.3	28.9	mg/Kg	4		10/05/13 16:38
<b>Surrogates</b>							
5a Androstane	130	50-150		%	4		10/05/13 16:38

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 16:38  
Container ID: 1138517016-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.094 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS15**

Client Sample ID: **11697-LSS15**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517016  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 85.5

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	61.9	7.31	2.19	mg/Kg	2		10/03/13 00:19

**Surrogates**

4-Bromofluorobenzene	346 *	50-150		%	2		10/03/13 00:19
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:19  
Container ID: 1138517016-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:00  
Prep Initial Wt./Vol.: 52.194 g  
Prep Extract Vol: 32.59 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0234 U	0.0365	0.0117	mg/Kg	2		10/03/13 00:19
Ethylbenzene	0.163	0.0731	0.0228	mg/Kg	2		10/03/13 00:19
o-Xylene	0.634	0.0731	0.0228	mg/Kg	2		10/03/13 00:19
P & M -Xylene	0.692	0.146	0.0438	mg/Kg	2		10/03/13 00:19
Toluene	0.0456 U	0.0731	0.0228	mg/Kg	2		10/03/13 00:19

**Surrogates**

1,4-Difluorobenzene	92	72-119		%	2		10/03/13 00:19
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:19  
Container ID: 1138517016-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:00  
Prep Initial Wt./Vol.: 52.194 g  
Prep Extract Vol: 32.59 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS16**

Client Sample ID: **11697-LSS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517017  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:05  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.6

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5650	239	74.0	mg/Kg	10		10/05/13 17:37
<b>Surrogates</b>							
5a Androstane	148	50-150		%	10		10/05/13 17:37

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 17:37  
Container ID: 1138517017-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.815 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS16**

Client Sample ID: **11697-LSS16**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517017  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:05  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.6

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	105	9.13	2.74	mg/Kg	2		10/03/13 00:38

**Surrogates**

4-Bromofluorobenzene	440 *	50-150		%	2		10/03/13 00:38
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:38  
Container ID: 1138517017-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:05  
Prep Initial Wt./Vol.: 44.561 g  
Prep Extract Vol: 33.2079 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0292 U	0.0457	0.0146	mg/Kg	2		10/03/13 00:38
Ethylbenzene	0.729	0.0913	0.0285	mg/Kg	2		10/03/13 00:38
o-Xylene	1.29	0.0913	0.0285	mg/Kg	2		10/03/13 00:38
P & M -Xylene	1.99	0.183	0.0548	mg/Kg	2		10/03/13 00:38
Toluene	0.0570 U	0.0913	0.0285	mg/Kg	2		10/03/13 00:38

**Surrogates**

1,4-Difluorobenzene	90.4	72-119		%	2		10/03/13 00:38
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:38  
Container ID: 1138517017-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:05  
Prep Initial Wt./Vol.: 44.561 g  
Prep Extract Vol: 33.2079 mL

Print Date: 10/14/2013 8:46:39AM

## Results of 11697-LSS25

Client Sample ID: **11697-LSS25**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138517018  
 Lab Project ID: 1138517

Collection Date: 09/25/13 11:10  
 Received Date: 09/27/13 09:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 82.3

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1490	94.9	29.4	mg/Kg	4		10/05/13 16:48
<b>Surrogates</b>							
5a Androstane	91	50-150		%	4		10/05/13 16:48

## Batch Information

Analytical Batch: XFC11111  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 10/05/13 16:48  
 Container ID: 1138517018-A

Prep Batch: XXX30049  
 Prep Method: SW3550C  
 Prep Date/Time: 09/29/13 16:40  
 Prep Initial Wt./Vol.: 30.734 g  
 Prep Extract Vol: 1 mL



**Results of 11697-LSS25**

Client Sample ID: **11697-LSS25**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517018  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:10  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 82.3

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	105	4.10	1.23	mg/Kg	1		10/03/13 03:43

**Surrogates**

4-Bromofluorobenzene	699 *	50-150		%	1		10/03/13 03:43
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:43  
Container ID: 1138517018-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:10  
Prep Initial Wt./Vol.: 50.276 g  
Prep Extract Vol: 33.9069 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0131 U	0.0205	0.00656	mg/Kg	1		10/03/13 03:43
Ethylbenzene	0.109	0.0410	0.0128	mg/Kg	1		10/03/13 03:43
o-Xylene	0.670	0.0410	0.0128	mg/Kg	1		10/03/13 03:43
P & M -Xylene	0.354	0.0820	0.0246	mg/Kg	1		10/03/13 03:43
Toluene	0.0256 U	0.0410	0.0128	mg/Kg	1		10/03/13 03:43

**Surrogates**

1,4-Difluorobenzene	87.6	72-119		%	1		10/03/13 03:43
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 03:43  
Container ID: 1138517018-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:10  
Prep Initial Wt./Vol.: 50.276 g  
Prep Extract Vol: 33.9069 mL

Print Date: 10/14/2013 8:46:39AM



Results of **11697-LSS33**

Client Sample ID: **11697-LSS33**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517019  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:15  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 82.6

Results by **Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	1490	96.5	29.9	mg/Kg	4		10/05/13 16:58
<b>Surrogates</b>							
5a Androstane	110	50-150		%	4		10/05/13 16:58

**Batch Information**

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 16:58  
Container ID: 1138517019-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.094 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



Results of 11697-LSS33

Client Sample ID: 11697-LSS33
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138517019
Lab Project ID: 1138517

Collection Date: 09/25/13 11:15
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 82.6

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Gasoline Range Organics and Surrogates (4-Bromofluorobenzene).

Batch Information

Analytical Batch: VFC11663
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/03/13 04:01
Container ID: 1138517019-B

Prep Batch: VXX25276
Prep Method: SW5035A
Prep Date/Time: 09/25/13 11:15
Prep Initial Wt./Vol.: 49.279 g
Prep Extract Vol: 33.5658 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows include Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene, and Surrogates (1,4-Difluorobenzene).

Batch Information

Analytical Batch: VFC11663
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/03/13 04:01
Container ID: 1138517019-B

Prep Batch: VXX25276
Prep Method: SW5035A
Prep Date/Time: 09/25/13 11:15
Prep Initial Wt./Vol.: 49.279 g
Prep Extract Vol: 33.5658 mL



### Results of 11697-LSS41

Client Sample ID: 11697-LSS41  
Client Project ID: 11697-002 Tanana  
Lab Sample ID: 1138517020  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:20  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.8

### Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable</u> <u>Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5460		239	74.0	mg/Kg	10		10/05/13 17:47
<b>Surrogates</b>								
5a Androstane	160	*	50-150		%	10		10/05/13 17:47

### Batch Information

Analytical Batch: XFC11111  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/05/13 17:47  
Container ID: 1138517020-A

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 16:40  
Prep Initial Wt./Vol.: 30.02 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



Results of 11697-LSS41

Client Sample ID: 11697-LSS41
Client Project ID: 11697-002 Tanana
Lab Sample ID: 1138517020
Lab Project ID: 1138517

Collection Date: 09/25/13 11:20
Received Date: 09/27/13 09:24
Matrix: Soil/Solid (dry weight)
Solids (%): 83.8

Results by Volatile Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Gasoline Range Organics, 135, 3.82, 1.15, mg/Kg, 1, 10/03/13 04:20

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 4-Bromofluorobenzene, 565, \*, 50-150, %, 1, 10/03/13 04:20

Batch Information

Analytical Batch: VFC11663
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/03/13 04:20
Container ID: 1138517020-B

Prep Batch: VXX25276
Prep Method: SW5035A
Prep Date/Time: 09/25/13 11:20
Prep Initial Wt./Vol.: 52.399 g
Prep Extract Vol: 33.5057 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Rows: Benzene, Ethylbenzene, o-Xylene, P & M -Xylene, Toluene

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 1,4-Difluorobenzene, 93.1, 72-119, %, 1, 10/03/13 04:20

Batch Information

Analytical Batch: VFC11663
Analytical Method: SW8021B
Analyst: ST
Analytical Date/Time: 10/03/13 04:20
Container ID: 1138517020-B

Prep Batch: VXX25276
Prep Method: SW5035A
Prep Date/Time: 09/25/13 11:20
Prep Initial Wt./Vol.: 52.399 g
Prep Extract Vol: 33.5057 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS44**

Client Sample ID: **11697-LSS44**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517021  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:25  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.8

**Results by Semivolatile Organic Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5920	473	147	mg/Kg	20		10/03/13 00:30
<b>Surrogates</b>							
5a Androstane	88.6	50-150		%	20		10/03/13 00:30

**Batch Information**

Analytical Batch: XFC11103  
Analytical Method: AK102  
Analyst: EAB  
Analytical Date/Time: 10/03/13 00:30  
Container ID: 1138517021-A

Prep Batch: XXX30050  
Prep Method: SW3550C  
Prep Date/Time: 09/29/13 17:00  
Prep Initial Wt./Vol.: 30.261 g  
Prep Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-LSS44**

Client Sample ID: **11697-LSS44**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517021  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:25  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 83.8

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	69.0	4.00	1.20	mg/Kg	1		10/03/13 04:38

**Surrogates**

4-Bromofluorobenzene	335 *	50-150		%	1		10/03/13 04:38
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 04:38  
Container ID: 1138517021-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:25  
Prep Initial Wt./Vol.: 49.174 g  
Prep Extract Vol: 32.9786 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0128 U	0.0200	0.00640	mg/Kg	1		10/03/13 04:38
Ethylbenzene	0.358	0.0400	0.0125	mg/Kg	1		10/03/13 04:38
o-Xylene	0.953	0.0400	0.0125	mg/Kg	1		10/03/13 04:38
P & M -Xylene	1.21	0.0801	0.0240	mg/Kg	1		10/03/13 04:38
Toluene	0.0144 J	0.0400	0.0125	mg/Kg	1		10/03/13 04:38

**Surrogates**

1,4-Difluorobenzene	96	72-119		%	1		10/03/13 04:38
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 04:38  
Container ID: 1138517021-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:25  
Prep Initial Wt./Vol.: 49.174 g  
Prep Extract Vol: 32.9786 mL

Print Date: 10/14/2013 8:46:39AM

## Results of 11697-LSS46

Client Sample ID: **11697-LSS46**  
 Client Project ID: **11697-002 Tanana**  
 Lab Sample ID: 1138517022  
 Lab Project ID: 1138517

Collection Date: 09/25/13 11:30  
 Received Date: 09/27/13 09:24  
 Matrix: Soil/Solid (dry weight)  
 Solids (%): 81.9

## Results by Semivolatile Organic Fuels

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Diesel Range Organics	5910	244	75.5	mg/Kg	10		10/03/13 20:13
<b>Surrogates</b>							
5a Androstane	71.1	50-150		%	10		10/03/13 20:13

## Batch Information

Analytical Batch: XFC11106  
 Analytical Method: AK102  
 Analyst: EAB  
 Analytical Date/Time: 10/03/13 20:13  
 Container ID: 1138517022-A

Prep Batch: XXX30050  
 Prep Method: SW3550C  
 Prep Date/Time: 09/29/13 17:00  
 Prep Initial Wt./Vol.: 30.083 g  
 Prep Extract Vol: 1 mL



**Results of 11697-LSS46**

Client Sample ID: **11697-LSS46**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517022  
Lab Project ID: 1138517

Collection Date: 09/25/13 11:30  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%): 81.9

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	138	8.20	2.46	mg/Kg	2		10/03/13 00:56

**Surrogates**

4-Bromofluorobenzene	661 *	50-150		%	2		10/03/13 00:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:56  
Container ID: 1138517022-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:30  
Prep Initial Wt./Vol.: 51.041 g  
Prep Extract Vol: 34.249 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.0262 U	0.0410	0.0131	mg/Kg	2		10/03/13 00:56
Ethylbenzene	1.05	0.0820	0.0256	mg/Kg	2		10/03/13 00:56
o-Xylene	1.83	0.0820	0.0256	mg/Kg	2		10/03/13 00:56
P & M -Xylene	2.87	0.164	0.0492	mg/Kg	2		10/03/13 00:56
Toluene	0.0377 J	0.0820	0.0256	mg/Kg	2		10/03/13 00:56

**Surrogates**

1,4-Difluorobenzene	91.8	72-119		%	2		10/03/13 00:56
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/03/13 00:56  
Container ID: 1138517022-B

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 09/25/13 11:30  
Prep Initial Wt./Vol.: 51.041 g  
Prep Extract Vol: 34.249 mL

Print Date: 10/14/2013 8:46:39AM



**Results of 11697-TB3**

Client Sample ID: **11697-TB3**  
Client Project ID: **11697-002 Tanana**  
Lab Sample ID: 1138517023  
Lab Project ID: 1138517

Collection Date: 09/20/13 11:00  
Received Date: 09/27/13 09:24  
Matrix: Soil/Solid (dry weight)  
Solids (%):

**Results by Volatile Fuels**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	1.53 U	2.55	0.764	mg/Kg	1		10/02/13 13:14

**Surrogates**

4-Bromofluorobenzene	94.9	50-150		%	1		10/02/13 13:14
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: AK101  
Analyst: ST  
Analytical Date/Time: 10/02/13 13:14  
Container ID: 1138517023-A

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:00  
Prep Initial Wt./Vol.: 49.068 g  
Prep Extract Vol: 25 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzene	0.00816 U	0.0127	0.00408	mg/Kg	1		10/02/13 13:14
Ethylbenzene	0.0159 U	0.0255	0.00795	mg/Kg	1		10/02/13 13:14
o-Xylene	0.0159 U	0.0255	0.00795	mg/Kg	1		10/02/13 13:14
P & M -Xylene	0.0306 U	0.0509	0.0153	mg/Kg	1		10/02/13 13:14
Toluene	0.0159 U	0.0255	0.00795	mg/Kg	1		10/02/13 13:14

**Surrogates**

1,4-Difluorobenzene	89.2	72-119		%	1		10/02/13 13:14
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**Batch Information**

Analytical Batch: VFC11663  
Analytical Method: SW8021B  
Analyst: ST  
Analytical Date/Time: 10/02/13 13:14  
Container ID: 1138517023-A

Prep Batch: VXX25275  
Prep Method: SW5035A  
Prep Date/Time: 09/20/13 11:00  
Prep Initial Wt./Vol.: 49.068 g  
Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:46:39AM

## Method Blank

Blank ID: MB for HBN 1486962 [SPT/9164]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1181985

QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517009, 1138517010, 1138517011, 1138517012, 1138517013, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

## Batch Information

Analytical Batch: SPT9164

Analytical Method: SM21 2540G

Instrument:

Analyst: KCT

Analytical Date/Time: 9/29/2013 3:00:00PM

Print Date: 10/14/2013 8:46:42AM

## Duplicate Sample Summary

Original Sample ID: 1134762001

Duplicate Sample ID: 1181986

Analysis Date: 09/29/2013 15:00

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517009, 1138517010, 1138517011, 1138517012, 1138517013, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by SM21 2540G

<u>NAME</u>	<u>Original ( )</u>	<u>Duplicate ( )</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	93.2	93.9	0.76	15.00

## Batch Information

Analytical Batch: SPT9164

Analytical Method: SM21 2540G

Instrument:

Analyst: KCT

Print Date: 10/14/2013 8:46:42AM

## Duplicate Sample Summary

Original Sample ID: 1138521013

Analysis Date: 09/29/2013 15:00

Duplicate Sample ID: 1181987

Matrix: Soil/Solid (dry weight)

QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517009, 1138517010, 1138517011, 1138517012, 1138517013, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by SM21 2540G

<u>NAME</u>	<u>Original ( )</u>	<u>Duplicate ( )</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	84.4	84.0	0.47	15.00

## Batch Information

Analytical Batch: SPT9164

Analytical Method: SM21 2540G

Instrument:

Analyst: KCT

Print Date: 10/14/2013 8:46:42AM

## Method Blank

Blank ID: MB for HBN 1487473 [VXX/25275]  
 Blank Lab ID: 1182919

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517010, 1138517012, 1138517013, 1138517023

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	90.3	50-150		%

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: AK101  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 10:10:00AM

Prep Batch: VXX25275  
 Prep Method: SW5035A  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:46:44AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [VXX25275]  
Blank Spike Lab ID: 1182922  
Date Analyzed: 10/02/2013 11:05

Spike Duplicate ID: LCSD for HBN 1138517 [VXX25275]  
Spike Duplicate Lab ID: 1182923  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517010, 1138517012, 1138517013, 1138517023

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.63	96	10.0	9.51	95	( 60-120 )	1.30	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	94.8	95	1.25	90.7	91	( 50-150 )	4.40	

### Batch Information

Analytical Batch: **VFC11663**  
Analytical Method: **AK101**  
Instrument: **Agilent 7890A PID/FID**  
Analyst: **ST**

Prep Batch: **VXX25275**  
Prep Method: **SW5035A**  
Prep Date/Time: **10/02/2013 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

Print Date: 10/14/2013 8:46:44AM

## Method Blank

Blank ID: MB for HBN 1487473 [VXX/25275]  
 Blank Lab ID: 1182919

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517010, 1138517012, 1138517013, 1138517023

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.00875J	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	93.2	72-119		%

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 10:10:00AM

Prep Batch: VXX25275  
 Prep Method: SW5035A  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [VXX25275]  
 Blank Spike Lab ID: 1182920  
 Date Analyzed: 10/02/2013 10:28

Spike Duplicate ID: LCSD for HBN 1138517 [VXX25275]  
 Spike Duplicate Lab ID: 1182921  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517010, 1138517012, 1138517013, 1138517023

### Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.20	96	1.25	1.17	94	( 75-125 )	2.20	(< 20 )
Ethylbenzene	1.25	1.33	106	1.25	1.28	102	( 75-125 )	4.00	(< 20 )
o-Xylene	1.25	1.28	102	1.25	1.24	99	( 75-125 )	3.30	(< 20 )
P & M -Xylene	2.50	2.66	106	2.50	2.57	103	( 80-125 )	3.60	(< 20 )
Toluene	1.25	1.36	109	1.25	1.30	104	( 70-125 )	4.70	(< 20 )

### Surrogates

1,4-Difluorobenzene	1.25	90.7	91	1.25	92.1	92	( 72-119 )	1.50	
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### Batch Information

Analytical Batch: **VFC11663**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25275**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/02/2013 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

Print Date: 10/14/2013 8:46:46AM

## Matrix Spike Summary

Original Sample ID: 1138516021  
 MS Sample ID: 1182924 MS  
 MSD Sample ID: 1182925 MSD

Analysis Date: 10/02/2013 11:42  
 Analysis Date: 10/02/2013 12:01  
 Analysis Date: 10/02/2013 12:19  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517010, 1138517012, 1138517013, 1138517023

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.0113U	1.42	1.30	91	1.42	1.39	97	75-125	6.30	(< 20 )
Ethylbenzene	0.0220U	1.42	1.45	102	1.42	1.44	102	75-125	0.28	(< 20 )
o-Xylene	0.0220U	1.42	1.40	98	1.42	1.41	99	75-125	0.65	(< 20 )
P & M -Xylene	0.0424U	2.85	2.91	102	2.85	2.92	102	80-125	0.31	(< 20 )
Toluene	0.0220U	1.42	1.49	104	1.42	1.47	103	70-125	1.30	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		1.42	1.30	91	1.42	1.34	94	72-119	3.90	

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 12:01:00PM

Prep Batch: VXX25275  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 49.80g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1487475 [VXX/25276]

Matrix: Soil/Solid (dry weight)

Blank Lab ID: 1182928

QC for Samples:

1138517009, 1138517011, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.50U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene	87.2	50-150		%

## Batch Information

Analytical Batch: VFC11663  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 10/2/2013 9:15:00PM

Prep Batch: VXX25276  
Prep Method: SW5035A  
Prep Date/Time: 10/2/2013 8:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:46:47AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [VXX25276]  
 Blank Spike Lab ID: 1182931  
 Date Analyzed: 10/02/2013 22:10

Spike Duplicate ID: LCSD for HBN 1138517 [VXX25276]  
 Spike Duplicate Lab ID: 1182932  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517009, 1138517011, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

### Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	10.0	9.50	95	10.0	9.74	97	( 60-120 )	2.50	(< 20 )
<b>Surrogates</b>									
4-Bromofluorobenzene	1.25	92.9	93	1.25	93.8	94	( 50-150 )	0.94	

### Batch Information

Analytical Batch: **VFC11663**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25276**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/02/2013 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

Print Date: 10/14/2013 8:46:48AM

## Method Blank

Blank ID: MB for HBN 1487475 [VXX/25276]  
 Blank Lab ID: 1182928

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138517009, 1138517011, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by SW8021B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzene	0.00800U	0.0125	0.00400	mg/Kg
Ethylbenzene	0.0156U	0.0250	0.00780	mg/Kg
o-Xylene	0.0156U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0300U	0.0500	0.0150	mg/Kg
Toluene	0.0156U	0.0250	0.00780	mg/Kg
<b>Surrogates</b>				
1,4-Difluorobenzene	91.7	72-119		%

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 9:15:00PM

Prep Batch: VXX25276  
 Prep Method: SW5035A  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 50 g  
 Prep Extract Vol: 25 mL

Print Date: 10/14/2013 8:46:49AM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [VXX25276]  
 Blank Spike Lab ID: 1182929  
 Date Analyzed: 10/02/2013 21:33

Spike Duplicate ID: LCSD for HBN 1138517 [VXX25276]  
 Spike Duplicate Lab ID: 1182930  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517009, 1138517011, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

### Results by SW8021B

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	1.25	1.18	94	1.25	1.24	100	( 75-125 )	5.60	(< 20 )
Ethylbenzene	1.25	1.28	103	1.25	1.33	106	( 75-125 )	3.60	(< 20 )
o-Xylene	1.25	1.26	101	1.25	1.30	104	( 75-125 )	3.10	(< 20 )
P & M -Xylene	2.50	2.58	103	2.50	2.68	107	( 80-125 )	3.70	(< 20 )
Toluene	1.25	1.31	105	1.25	1.35	108	( 70-125 )	3.10	(< 20 )

### Surrogates

1,4-Difluorobenzene	1.25	91.8	92	1.25	93.2	93	( 72-119 )	1.50	
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### Batch Information

Analytical Batch: **VFC11663**  
 Analytical Method: **SW8021B**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX25276**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **10/02/2013 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

Print Date: 10/14/2013 8:46:51AM

## Matrix Spike Summary

Original Sample ID: 1134760013  
 MS Sample ID: 1182933 MS  
 MSD Sample ID: 1182934 MSD

Analysis Date: 10/02/2013 22:47  
 Analysis Date: 10/02/2013 23:06  
 Analysis Date: 10/02/2013 23:24  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517009, 1138517011, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020, 1138517021, 1138517022

## Results by SW8021B

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Benzene	0.00860U	0.965	0.934	97	0.965	0.894	93	75-125	4.50	(< 20 )
Ethylbenzene	0.0142J	0.965	1.03	105	0.965	1.01	103	75-125	1.50	(< 20 )
o-Xylene	0.0468	0.965	1.01	100	0.965	1.00	99	75-125	1.30	(< 20 )
P & M -Xylene	0.0629	1.94	2.09	105	1.94	2.05	103	80-125	1.80	(< 20 )
Toluene	0.0245J	0.965	1.05	106	0.965	1.04	106	70-125	0.81	(< 20 )
<b>Surrogates</b>										
1,4-Difluorobenzene		0.965	0.886	92	0.965	0.868	90	72-119	2.10	

## Batch Information

Analytical Batch: VFC11663  
 Analytical Method: SW8021B  
 Instrument: Agilent 7890A PID/FID  
 Analyst: ST  
 Analytical Date/Time: 10/2/2013 11:06:00PM

Prep Batch: VXX25276  
 Prep Method: AK101 Extraction (S)  
 Prep Date/Time: 10/2/2013 8:00:00AM  
 Prep Initial Wt./Vol.: 74.63g  
 Prep Extract Vol: 25.00mL

## Method Blank

Blank ID: MB for HBN 1486861 [XXX/30049]  
Blank Lab ID: 1181920

Matrix: Soil/Solid (dry weight)

### QC for Samples:

1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517009,  
1138517010, 1138517011, 1138517012, 1138517013, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018,  
1138517019, 1138517020

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	67.2	60-120		%

## Batch Information

Analytical Batch: XFC11107  
Analytical Method: AK102  
Instrument: HP 7890A FID SV E F  
Analyst: EAB  
Analytical Date/Time: 10/3/2013 5:06:00PM

Prep Batch: XXX30049  
Prep Method: SW3550C  
Prep Date/Time: 9/29/2013 4:40:00PM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [XXX30049]  
 Blank Spike Lab ID: 1181921  
 Date Analyzed: 10/03/2013 17:27

Spike Duplicate ID: LCSD for HBN 1138517 [XXX30049]  
 Spike Duplicate Lab ID: 1181922  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517001, 1138517002, 1138517003, 1138517004, 1138517005, 1138517006, 1138517007, 1138517008, 1138517009, 1138517010, 1138517011, 1138517012, 1138517013, 1138517014, 1138517015, 1138517016, 1138517017, 1138517018, 1138517019, 1138517020

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	143	86	167	138	83	( 75-125 )	3.30	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	77.7	78	3.33	74.6	75	( 60-120 )	4.00	

### Batch Information

Analytical Batch: XFC11107  
 Analytical Method: AK102  
 Instrument: HP 7890A FID SV E F  
 Analyst: EAB

Prep Batch: XXX30049  
 Prep Method: SW3550C  
 Prep Date/Time: 09/29/2013 16:40  
 Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
 Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:53AM

## Method Blank

Blank ID: MB for HBN 1486862 [XXX/30050]

Blank Lab ID: 1181923

QC for Samples:

1138517021, 1138517022

Matrix: Soil/Solid (dry weight)

## Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	12.4U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane	81.9	60-120		%

## Batch Information

Analytical Batch: XFC11102

Analytical Method: AK102

Instrument: HP 7890A FID SV E F

Analyst: EAB

Analytical Date/Time: 10/1/2013 2:15:00AM

Prep Batch: XXX30050

Prep Method: SW3550C

Prep Date/Time: 9/29/2013 5:00:00PM

Prep Initial Wt./Vol.: 30 g

Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [XXX30050]  
Blank Spike Lab ID: 1181924  
Date Analyzed: 10/01/2013 02:36

Spike Duplicate ID: LCSD for HBN 1138517 [XXX30050]  
Spike Duplicate Lab ID: 1181925  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517021, 1138517022

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	168	101	167	162	97	( 75-125 )	4.10	(< 20 )
<b>Surrogates</b>									
5a Androstane	3.33	90.3	90	3.33	89.3	89	( 60-120 )	1.10	

### Batch Information

Analytical Batch: **XFC11102**  
Analytical Method: **AK102**  
Instrument: **HP 7890A FID SV E F**  
Analyst: **EAB**

Prep Batch: **XXX30050**  
Prep Method: **SW3550C**  
Prep Date/Time: **09/29/2013 17:00**  
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 10/14/2013 8:46:54AM

## Method Blank

Blank ID: MB for HBN 1487413 [XXX/30075]  
 Blank Lab ID: 1182831

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1138517016

## Results by 8270D SIMS (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.00300U	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00300U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00300U	0.00500	0.00150	mg/Kg
Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00300U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Chrysene	0.00300U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00300U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00300U	0.00500	0.00150	mg/Kg
Fluorene	0.00300U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00300U	0.00500	0.00150	mg/Kg
Naphthalene	0.00300U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00300U	0.00500	0.00150	mg/Kg
Pyrene	0.00300U	0.00500	0.00150	mg/Kg
<b>Surrogates</b>				
2-Fluorobiphenyl	69.9	45-105		%
Terphenyl-d14	93.4	30-125		%

## Batch Information

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 10/3/2013 5:19:00PM

Prep Batch: XXX30075  
 Prep Method: SW3550C  
 Prep Date/Time: 10/2/2013 10:00:00PM  
 Prep Initial Wt./Vol.: 22.5 g  
 Prep Extract Vol: 1 mL



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1138517 [XXX30075]  
Blank Spike Lab ID: 1182832  
Date Analyzed: 10/03/2013 17:33

Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517016

### Results by 8270D SIMS (PAH)

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	0.0222	0.0169	76	( 44-107 )
2-Methylnaphthalene	0.0222	0.0143	64	( 45-105 )
Acenaphthene	0.0222	0.0151	68	( 45-110 )
Acenaphthylene	0.0222	0.0156	70	( 45-105 )
Anthracene	0.0222	0.0146	66	( 55-105 )
Benzo(a)Anthracene	0.0222	0.0179	81	( 50-110 )
Benzo[a]pyrene	0.0222	0.0133	60	( 50-110 )
Benzo[b]Fluoranthene	0.0222	0.0197	89	( 45-115 )
Benzo[g,h,i]perylene	0.0222	0.0182	82	( 40-125 )
Benzo[k]fluoranthene	0.0222	0.0190	86	( 45-125 )
Chrysene	0.0222	0.0217	98	( 55-110 )
Dibenzo[a,h]anthracene	0.0222	0.0188	85	( 40-125 )
Fluoranthene	0.0222	0.0208	94	( 55-115 )
Fluorene	0.0222	0.0158	71	( 50-110 )
Indeno[1,2,3-c,d] pyrene	0.0222	0.0188	85	( 40-120 )
Naphthalene	0.0222	0.0145	65	( 40-105 )
Phenanthrene	0.0222	0.0161	72	( 50-110 )
Pyrene	0.0222	0.0206	93	( 45-125 )

### Surrogates

2-Fluorobiphenyl	0.0222	72.9	73	( 45-105 )
Terphenyl-d14	0.0222	96.3	96	( 30-125 )

### Batch Information

Analytical Batch: XMS7653  
Analytical Method: 8270D SIMS (PAH)  
Instrument: HP 6890/5973 MS SVQA  
Analyst: RTS

Prep Batch: XXX30075  
Prep Method: SW3550C  
Prep Date/Time: 10/02/2013 22:00  
Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/14/2013 8:46:55AM

## Matrix Spike Summary

Original Sample ID: 1183615  
 MS Sample ID: 1182833 MS  
 MSD Sample ID: 1182834 MSD

Analysis Date: 10/03/2013 18:01  
 Analysis Date: 10/03/2013 18:15  
 Analysis Date: 10/03/2013 18:29  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1138517016

## Results by 8270D SIMS (PAH)

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	0.00300U	0.0219	0.0176	81	0.0222	0.0186	84	44-107	5.30	(< 30)
2-Methylnaphthalene	0.00247J	0.0219	0.0161	62	0.0222	0.0171	66	45-105	6.10	(< 30)
Acenaphthene	0.00300U	0.0219	0.0166	76	0.0222	0.0174	79	45-110	5.20	(< 30)
Acenaphthylene	0.00300U	0.0219	0.0169	77	0.0222	0.0179	80	45-105	5.60	(< 30)
Anthracene	0.00300U	0.0219	0.0138	63	0.0222	0.0174	78	55-105	22.90	(< 30)
Benzo(a)Anthracene	0.00300U	0.0219	0.0178	82	0.0222	0.0195	88	50-110	9.30	(< 30)
Benzo(a)pyrene	0.00300U	0.0219	0.0144	66	0.0222	0.0156	70	50-110	8.20	(< 30)
Benzo(b)Fluoranthene	0.00300U	0.0219	0.0177	81	0.0222	0.0182	82	45-115	2.60	(< 30)
Benzo(g,h,i)perylene	0.00300U	0.0219	0.0165	76	0.0222	0.0182	82	40-125	9.60	(< 30)
Benzo(k)fluoranthene	0.00300U	0.0219	0.0185	85	0.0222	0.0190	86	45-125	2.70	(< 30)
Chrysene	0.00300U	0.0219	0.0199	91	0.0222	0.0222	100	55-110	10.70	(< 30)
Dibenzo(a,h)anthracene	0.00300U	0.0219	0.0174	80	0.0222	0.0186	84	40-125	6.80	(< 30)
Fluoranthene	0.00300U	0.0219	0.0205	94	0.0222	0.0219	99	55-115	6.40	(< 30)
Fluorene	0.00300U	0.0219	0.0174	80	0.0222	0.0184	83	50-110	5.60	(< 30)
Indeno[1,2,3-c,d] pyrene	0.00300U	0.0219	0.0178	81	0.0222	0.0186	84	40-120	4.20	(< 30)
Naphthalene	0.00300U	0.0219	0.0158	72	0.0222	0.0168	76	40-105	6.10	(< 30)
Phenanthrene	0.00300U	0.0219	0.0166	76	0.0222	0.0180	81	50-110	7.70	(< 30)
Pyrene	0.00300U	0.0219	0.0194	89	0.0222	0.0207	93	45-125	6.50	(< 30)
<b>Surrogates</b>										
2-Fluorobiphenyl		0.0219	0.0180	82	0.0222	0.0198	89	45-105	9.70	
Terphenyl-d14		0.0219	0.0212	97	0.0222	0.0231	104	30-125	8.40	

## Batch Information

Analytical Batch: XMS7653  
 Analytical Method: 8270D SIMS (PAH)  
 Instrument: HP 6890/5973 MS SVQA  
 Analyst: RTS  
 Analytical Date/Time: 10/3/2013 6:15:00PM

Prep Batch: XXX30075  
 Prep Method: Sonication Extraction Soil 8270 PAH SIM  
 Prep Date/Time: 10/2/2013 10:00:00PM  
 Prep Initial Wt./Vol.: 22.88g  
 Prep Extract Vol: 1.00mL

1138517



CHAIN

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

303 Wellesian Way Richland, WA 99352 (509) 946-6309

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

1200 17th Street, Suite 1024 Denver, Co 80202 (303) 825-3800

ECORD

Laboratory 565 Attn: Steve Crupi Page 1 of 3

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

Table with columns: Comp., Grab, GPO/BTEX, AK-101, AK-102, Total Number of Containers

Main data table with columns: Sample Identity, Lab No., Time, Date Sampled, Remarks/Matrix

Project Information, Sample Receipt, Instructions, Relinquished By, Received By, Rejected By sections with signatures and dates.

Cooler temp: 4.9°C ID11

1138517



CHAIN

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CORD

Page 2 of 3

Laboratory SGS Attn: Steve Cray

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

Table with columns: Comp. Grab, Total Number of Containers, Remarks/Matrix. Includes handwritten notes like 'GRAB BTXO', 'AK-101', 'AK-102', 'AK-103', 'AK-104', 'AK-105', 'AK-106', 'AK-107', 'AK-108', 'AK-109', 'AK-110', 'AK-111', 'AK-112', 'AK-113', 'AK-114', 'AK-115'.

Main data table with columns: Sample Identity, Lab No., Time, Date Sampled, Remarks/Matrix. Rows include sample IDs like 11697-EX25W48, EX25W19, L552, L557, L5511, L5514, L5515, L5516, L5525, L5533.

Project Information form: Project Number: 11697-002, Project Name: Tavana, Contact: Julie Keener, Ongoing Project? Yes [X] No [ ], Sampler: Jake Tracy.

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

Instructions form: Requested Turnaround Time: Standard, Special Instructions: Level II deliverables.

Relinquished By table with 3 columns. Each column has Signature, Printed Name, Date, Time, Company. Includes names like Jake Tracy, Julie Keener, Shawn & Wilson, etc.

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





## SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were <b>custody seals</b> intact? Note # & location, if applicable. COC accompanied samples?	Yes No <u>N/A</u> <u>Yes</u> No N/A	
<b>Temperature blank</b> compliant* (i.e., 0-6°C after correction factor)? <i>* Note: Exemption permitted for chilled samples collected less than 8 hours ago.</i> Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ Cooler ID: _____ @ _____ w/ Therm.ID: _____ <i>Note: If non-compliant, use form FS-0029 to document affected samples/analyses.</i> If samples are received <u>without</u> 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 <u>nor</u> cooler temp can be obtained, note "ambient" or "chilled." <b>If temperature(s) &lt;0°C, were all sample containers ice free?</b>	Yes No <u>N/A</u>  <i>Cooler temp: 4.9 ID 11</i>  Yes No <u>N/A</u>	
Delivery method (specify all that apply): <u>Client</u> USPS Alert Courier C&D Delivery AK Air Lynden Carlile ERA PenAir FedEx UPS NAC Other: → For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?	Note ABN/tracking #  See Attached or N/A  Yes No <u>N/A</u>	
→ For samples received with payment, note amount (\$) and cash / check / CC ( <b>circle one</b> ) or note: → For samples <b>received in FBKS</b> , ANCH staff will verify all criteria are reviewed.		SRF Initiated by: <u>JD</u> <u>N/A</u> N/A
Were samples received within hold time? <i>Note: Refer to form F-083 "Sample Guide" for hold time information.</i> Do samples <b>match COC*</b> (i.e., sample IDs, dates/times collected)? <i>* Note: Exemption permitted if times differ &lt;1hr; in which case, use times on COC.</i> Were analyses requested unambiguous?	<u>Yes</u> No N/A <u>Yes</u> No N/A <u>Yes</u> No N/A	
Were samples in <b>good condition</b> (no leaks/cracks/breakage)? Packing material used (specify all that apply): Bubble Wrap Separate plastic bags Vermiculite Other:	<u>Yes</u> No N/A	
Were all VOA vials <b>free of headspace</b> (i.e., bubbles ≤6 mm)? Were all soil VOAs <b>field extracted</b> with MeOH+BFB?	Yes No <u>N/A</u> <u>Yes</u> No N/A	
Were <b>proper containers</b> (type/mass/volume/preservative*) used? <i>* Note: Exemption permitted for waters to be analyzed for metals.</i> Were <b>Trip Blanks</b> (i.e., VOAs, LL-Hg) in cooler with samples?	<u>Yes</u> No N/A <u>Yes</u> No N/A	
For <b>special handling</b> (e.g., "MI" or foreign soils, lab filter, limited volume, Ref Lab), were bottles/paperwork flagged (e.g., sticker)?	Yes No <u>N/A</u>	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was <b>pH verified and compliant</b> ? If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No <u>N/A</u> Yes No <u>N/A</u>	
For <b>RUSH/SHORT Hold Time</b> , were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No <u>N/A</u>	
For <b>SITE-SPECIFIC QC</b> , e.g. BMS/BMSD/BDUP, were containers / paperwork flagged accordingly?	Yes No <u>N/A</u>	
<b>For any question answered "No,"</b> has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No <u>N/A</u>	SRF Completed by: <u>CES</u> PM = <u>FBKS</u> <u>N/A</u>
Was <b>PEER REVIEW</b> of <i>sample numbering/labeling completed</i> ?	<u>Yes</u> No N/A	Peer Reviewed by: <u>MD</u> N/A
Additional notes (if applicable):		

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



## Laboratory Data Review Checklist

Completed by:

Title:  Date:

CS Report Name:  Report Date:

Consultant Firm:

Laboratory Name:  Laboratory Report Number:

ADEC File Number:  ADEC RecKey Number:

### 1. Laboratory

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

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

### 2. Chain of Custody (COC)

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

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

### 3. Laboratory Sample Receipt Documentation

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

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

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

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 note any discrepancies with the samples reported in this work order.

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

N/A; samples were received in good condition.

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 GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX2BS31, 11697-EX2BS61, 11697-EX2SW18, 11697-EX2SW48, 11697-EX2SW19, 11697-LSS2, 11697-LSS7, 11697-LSS11, 11697-LSS14, 11697-LSS15, 11697-LSS16, 11697-LSS25, 11697-LSS33, 11697-LSS41, 11697-LSS44, and 11697-LSS46. The GRO results for these samples are considered biased high.

The DRO surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX2SW18, 11697-EX2SW48, 11697-EX2SW19, 11697-LSS2, 11697-LSS7, 11697-LSS11, 11697-LSS14, and 11697-LSS41. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recovery was above QC criteria due to sample dilution for sample 11697-LSS15. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH MS/MSD sample was re-extracted outside of hold times for QC purposes only. The MS/MSD results were within QC criteria and the results are considered unaffected.

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 GRO results for the samples noted above are considered to be biased high.

## 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 PAH MS/MSD sample was re-extracted outside of hold times for QC purposes only. The MS/MSD results were within QC criteria and the results are considered unaffected.

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:

LODs (reporting value) were below the ADEC migration-to-groundwater soil-cleanup level with the following exceptions. The benzene LOD for samples 11697-LSS2, 11697-LSS16, and 11697-LSS46 were 0.0292, 0.0276 and 0.0262 mg/kg. Benzene was not detected in these samples and it cannot be determined if the sample concentrations were above the ADEC migration-to-groundwater cleanup level (0.025 mg/kg) but below the LOD.

e. Data quality or usability affected?

Comments:

It cannot be determined if samples 11697-LSS2, 11697-LSS16, and 11697-LSS46 were above the migration-to-groundwater cleanup level.

## 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:

A detection in the method blank for toluene 0.00875J mg/kg.

iii. If above PQL, what samples are affected?

Comments:

Samples 11697-EX2SW18, 11697-LSS11, 11697-LSS14, 11697-LSS44, and 11697-LSS46 contained toluene within a factor of five of the method blank. Toluene in these samples will be considered not detected at the LOQ if the samples contained estimated concentrations below the LOQ, and toluene will be considered not detected at the reported concentration if it was detected above the LOQ.

Samples that did not contain detectable toluene are considered unaffected.

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

Yes  No  NA (Please explain.)

Comments:

Please see above.

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

Comments:

Yes; please 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:

MS/MSD are also assessed in this section.

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; please see above.

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

Yes  No  NA (Please explain.)                      Comments:

Please see above.

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

Comments:

There were no LCS/LCSD or MS/MSD recovery failures.

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 GRO surrogate recoveries did not meet QC criteria (biased high) due to matrix interferences for samples 11697-EX2BS31, 11697-EX2BS61, 11697-EX2SW18, 11697-EX2SW48, 11697-EX2SW19, 11697-LSS2, 11697-LSS7, 11697-LSS11, 11697-LSS14, 11697-LSS15, 11697-LSS16, 11697-LSS25, 11697-LSS33, 11697-LSS41, 11697-LSS44, and 11697-LSS46. The GRO results for these samples are considered biased high.

The DRO surrogate recoveries were above QC criteria due to sample dilution for samples 11697-EX2SW18, 11697-EX2SW48, 11697-EX2SW19, 11697-LSS2, 11697-LSS7, 11697-LSS11, 11697-LSS14, and 11697-LSS41. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

The PAH surrogate recovery was above QC criteria due to sample dilution for sample 11697-LSS15. The associated sample results are unaffected. Sample results are unaffected by surrogate failures due to dilution.

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 affected GRO sample results will be flagged 'JH\*'.  

---

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

Comments:

Yes; please 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:

One cooler was used to transport all samples to the SGS sample-receiving office. Samples were then shipped to the SGS analytical laboratory in Anchorage. The trip blank accompanied the VOA samples throughout sampling and shipping.  

---

iii. All results less than PQL?

Yes  No  NA (Please explain.)

Comments:

No analytes were detected in the trip blank.  

---

iv. If above PQL, what samples are affected?

Comments:

N/A; please see above.  

---

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

Comments:

N/A; please see above.  

---

e. Field Duplicate

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

Yes  No  NA (Please explain.)                      Comments:

Field-duplicates pairs 11697-EX2BS31/ 11697-EX2BS61, 11697-EX2SW18/ 11697-EX2SW48, 11697-LSS11/ 11607-LSS41, 11697-LSS14/ 11607-LSS44, and 11697-LSS16/ 11607-LSS46 were submitted in this work order.

ii. Submitted blind to lab?

Yes  No  NA (Please explain.)                      Comments:

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

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

Where  $R_1$  = Sample Concentration

$R_2$  = Field Duplicate Concentration

Yes  No  NA (Please explain.)                      Comments:

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

Comments:

All calculable RPDs were below the recommended DQOs for soil.

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

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order, in accordance with the project work plan.

i. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

No equipment blanks were submitted in this work order.

ii. If above PQL, what samples are affected?

Comments:

N/A; please see above.

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

Comments:

N/A; please 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 E**

**QUALITY ASSURANCE/QUALITY CONTROL REVIEW**

## QUALITY ASSURANCE/QUALITY CONTROL REVIEW

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples, and also conducted our own QA assessment for this project. We reviewed the chain-of-custody (COC) record and laboratory-receipt form to check that custody was not breached, sample holding-times were met, and the samples were kept properly chilled (between 0 °C and 6 °C) during shipping. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

We reviewed analytical soil-sample results reported by SGS in work orders 1138499, 1138516, and 1138517. The laboratory reports and associated ADEC data-review checklists are included in Appendix D. The following presents our QA/QC review.

### Sample Handling

The temperature blank and cooler temperatures were within the recommended range of 0 °C to 6 °C upon receipt of samples in Anchorage. The laboratory did not note any discrepancies with the samples reported in these work orders. There were no sample-handling anomalies.

### Analytical Sensitivity

GRO, DRO, and PAH limits of detection (LODs) were less than the applicable ADEC soil-cleanup levels. The following samples had benzene LODs greater than the most stringent ADEC soil-cleanup level: *11697-LSS2*, *11697-LSS16*, and *11697-LSS46*. Benzene was not detected in these samples and we cannot determine if the benzene concentration was below the LOD but above the benzene migration-to-groundwater soil-cleanup level of 0.025 mg/kg. The actual target levels analytes other than GRO and DRO will be established by ADEC.

Soil trip blanks accompanied the soil samples to determine if cross-contamination or contamination from an outside source may have occurred during shipment or storage. The trip blanks were analyzed for GRO/BTEX by methods AK101/SW8021B. No analytes were detected above LODs in the trip blanks.

Laboratory method blanks were also analyzed in association with samples collected for this project to check for contributions to the analytical results possibly attributable to laboratory-based contamination. If the analyte was detected in a sample associated with a method blank at an estimated concentration below the LOQ, the result is considered not detected at the LOQ due to a method-blank detection and flagged "B\*." If the analyte was detected above the LOQ and within a factor of five of the method-blank concentration, then the result is considered not

detected at the reported concentration due to the method-blank detection, and flagged “B\*.” If the analyte was not detected in the sample, the result was unaffected by the method-blank detections.

Toluene and 1-methylnaphthalene were detected in a method blank associated with two of this project’s work orders. Samples *11697-LSS11*, *11697-LSS14*, *11697-LSS44*, and *11697-LSS46*, and *11697-EX2SW18* contained toluene within a factor of five of the method blank. Toluene in these samples is considered not detected at the LOQ if the samples contained estimated concentrations below the LOQ, and toluene is considered not detected at the reported concentration if it was detected above the LOQ; these results are flagged “B\*” in Table 1 and Table 5. The 1-methylnaphthalene result for sample *11697-EX2SPS5* is considered not detected at the LOQ because its concentration was less than five times the method blank detection and less than the LOQ; this result is flagged “B\*” in Table 6. All other sample concentrations were either greater than five times the method blank concentration or not detected; these samples are not affected by the method blank detection. Overall, analytical sensitivity was sufficient for the purposes of this site assessment.

### Accuracy

The laboratory assessed the accuracy of their analytical procedure through a variety of QA procedures. Analysis of matrix spike (MS) and MS duplicate (MSD) samples allowed the laboratory to assess the accuracy of their procedures by checking their ability to recover analytes added to field samples with matrices similar to our project samples. They also analyzed laboratory control samples (LCSs) and LCS duplicates (LCSDs); they are similar to MS/MSD analysis, but evaluate the laboratory’s ability to recover analytes added to clean matrices, as opposed to field samples. The laboratory accuracy was also evaluated for each sample by assessing recovery of analyte surrogates added to individual project samples.

The surrogate, LCS/LCSD and MS/MSD recoveries for the soil samples were generally within laboratory- or method-established limits, with some exceptions. The following 31 samples had GRO surrogate recoveries that were above laboratory-control limits due to matrix interference:

<i>11697-EX1BS15,</i>	<i>11697-EX1SW29,</i>	<i>11697-EX2BS61,</i>	<i>11697-LSS14,</i>
<i>11697-EX1BS20,</i>	<i>11697-EX2BS11,</i>	<i>11697-EX2SW18,</i>	<i>11697-LSS44,</i>
<i>11697-EX1BS40,</i>	<i>11697-EX2BS51,</i>	<i>11697-EX2SW48,</i>	<i>11697-LSS15,</i>
<i>11697-EX1BS22,</i>	<i>11697-EX2BS19,</i>	<i>11697-EX2SW19,</i>	<i>11697-LSS16,</i>
<i>11697-EX1BS23,</i>	<i>11697-EX2BS21,</i>	<i>11697-LSS2,</i>	<i>11697-LSS46,</i>
<i>11697-EX1BS25,</i>	<i>11697-EX2BS22,</i>	<i>11697-LSS7,</i>	<i>11697-LSS25, and</i>
<i>11697-EX1SW10,</i>	<i>11697-EX2BS29,</i>	<i>11697-LSS11,</i>	<i>11697-LSS33.</i>
<i>11697-EX1SW9,</i>	<i>11697-EX2BS31,</i>	<i>11697-LSS41,</i>	

The GRO analytical results for these samples are considered biased high, and flagged “B\*” in this report’s data tables.

Numerous RRO and PAH surrogate recoveries were above the laboratory-control limit due to dilution. The US Army Corps of Engineers Engineering Manual EM-200-1-10 states,

Do not qualify environmental samples for matrix interference when surrogate recoveries are unacceptable because of dilutions. For example, if all of the surrogate recoveries for an environmental sample are unacceptable because the surrogates were “diluted out,” but the surrogate recoveries for the LCS and associated blanks are acceptable, then no further action is typically required.

The MS/MSD recoveries were outside control criteria for several PAH analytes. The results for the parent spiked sample (11697-EX2BS22) were affected. The recoveries were low for 1-methylnaphthalene, 2-methylnaphthalene, acenaphthene, acenaphthalene, anthracene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, and phenanthrene. The recoveries were high for chrysene and pyrene. The analytes with high and low MS/MSD recoveries were not detected in the parent spiked sample; the analytes with low MS/MSD recoveries are considered biased low in the original sample and are flagged “†.” The analytes’ results in this sample with high MS/MSD recoveries were unaffected.

The LCS recoveries for these samples were within control limits, so the results were unaffected. Aside from those instances noted above, the MS/MSD, LCS/LCSD, and surrogate recoveries for soil samples were within laboratory- or method-established limits, indicating the analyses were accurate.

## Precision

Nine sets of soil field-duplicate samples were submitted for analysis of petroleum hydrocarbons and BTEX to evaluate the precision of analytical measurements and the reproducibility of our sampling technique:

<i>11697-EX1BS11/11697-EX1BS31,</i>	<i>11697EX2SW18/11697EX2SW48,</i>
<i>11697-EX1BS20/11697-EX1BS40,</i>	<i>11697-LSS11/11697-LSS41,</i>
<i>11697-EX1SW9/11697-EX1SW29,</i>	<i>11697-LSS14/111697-LSS44, and</i>
<i>11697-EX2BS11/11697-EX2BS51,</i>	<i>11697-LSS16/11697-LSS46.</i>
<i>11697-EX2BS31/11697-EX2BS61,</i>	

To evaluate precision of the soil data, we calculated the relative percent difference (RPD; the difference between the sample and its field duplicate divided by the mean of the two); RPD can be evaluated only if the results of the analysis for both the sample and its duplicate exceed the method-detection limits. All calculable RPDs were within QC criteria with the exception of the

DRO results for duplicate pair *11697-EX1BS20/11697-EX1BS40*, which was 167 percent. The DRO results for the duplicate pair are considered estimated values and are flagged “J\*” to indicate imprecision. The data are considered usable for the purposes of this project.

Laboratory analytical precision can also be evaluated by RPD calculations. The laboratory MS/MSD RPDs and LCS/LCSD RPDs provide information regarding the reproducibility of their procedures and are therefore a measure of analytical precision. The MS/MSD RPDs and LCS/LCSD RPDs for the soil analyses fell within the laboratory- or method-established limits.

### **Data Quality Summary**

By working in accordance with our proposed scope of services, the samples we collected are considered to be representative of site conditions at the locations and times they were obtained. Based on our QA review, no samples were rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In general, the quality of the analytical data for this project does not appear to have been compromised by analytical irregularities and is adequate for the purposes of our assessment.

The laboratory reports for the project’s samples, including the case narratives describing the laboratory QA results in detail, are included with the ADEC laboratory data-review checklists in Appendix D.

**APPENDIX F**

**REVISED CONCEPTUAL SITE MODEL**

# HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Former Tanana Power Site, Tanana, Alaskas  
Hazard ID 3946, ADEC File No. 780.57.003

Completed By: Shannon & Wilson, Inc.  
 Date Completed: February, 2014

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

(1) Media	(2) Transport Mechanisms	
<input checked="" type="checkbox"/> Surface Soil (0-2 ft bgs)	<input checked="" type="checkbox"/> Direct release to surface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to subsurface <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input checked="" type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Runoff or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____	
	<input checked="" type="checkbox"/> Subsurface Soil (2-15 ft bgs)	<input checked="" type="checkbox"/> Direct release to subsurface soil <i>check soil</i> <input checked="" type="checkbox"/> Migration to groundwater <i>check groundwater</i> <input checked="" type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
	<input type="checkbox"/> Ground-water	<input type="checkbox"/> Direct release to groundwater <i>check groundwater</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Flow to surface water body <i>check surface water</i> <input type="checkbox"/> Flow to sediment <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
	<input type="checkbox"/> Surface Water	<input type="checkbox"/> Direct release to surface water <i>check surface water</i> <input type="checkbox"/> Volatilization <i>check air</i> <input type="checkbox"/> Sedimentation <i>check sediment</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____
	<input type="checkbox"/> Sediment	<input type="checkbox"/> Direct release to sediment <i>check sediment</i> <input type="checkbox"/> Resuspension, runoff, or erosion <i>check surface water</i> <input type="checkbox"/> Uptake by plants or animals <i>check biota</i> <input type="checkbox"/> Other (list): _____

(3) Exposure Media	(4) Exposure Pathway/Route	(5) 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
<input checked="" type="checkbox"/> soil	<input checked="" type="checkbox"/> Incidental Soil Ingestion <input checked="" type="checkbox"/> Dermal Absorption of Contaminants from Soil <input checked="" type="checkbox"/> Inhalation of Fugitive Dust				C/F			
<input checked="" type="checkbox"/> groundwater	<input type="checkbox"/> Ingestion of Groundwater <input checked="" type="checkbox"/> Dermal Absorption of Contaminants in Groundwater <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input checked="" type="checkbox"/> air	<input checked="" type="checkbox"/> Inhalation of Outdoor Air <input checked="" type="checkbox"/> Inhalation of Indoor Air <input checked="" type="checkbox"/> Inhalation of Fugitive Dust				C/F	C/F		
<input type="checkbox"/> surface water	<input type="checkbox"/> Ingestion of Surface Water <input type="checkbox"/> Dermal Absorption of Contaminants in Surface Water <input type="checkbox"/> Inhalation of Volatile Compounds in Tap Water							
<input type="checkbox"/> sediment	<input type="checkbox"/> Direct Contact with Sediment							
<input type="checkbox"/> biota	<input type="checkbox"/> Ingestion of Wild or Farmed Foods							

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