

March 20, 2019

Holiday Alaska, LLC  
4567 American Boulevard West  
Bloomington, Minnesota 55437

Attn: Ms. Camie Pederson, P.E.

**RE: SOIL SAMPLING, HOLIDAY STATION STORE NO. 611, 1530 HUFFMAN ROAD, ANCHORAGE, ALASKA; ADEC SPILL NO. 18239933102**

This letter presents the results of Shannon & Wilson's soil sampling activities conducted at Holiday Station Store (HSS) No. 611, 1530 Huffman Road, Anchorage, Alaska. A vicinity map is included as Figure 1.

On behalf of Holiday Alaska, LLC (Holiday), Prism Design & Construction, LLC (Prism) conducted fuel dispenser upgrades at HSS. No. 611 in November 2018. Prism identified potential petroleum-impacted soil within two diesel dispenser excavations (Excavations 1 and 2) and one gasoline dispenser excavation (Excavation 3) during the upgrade activities. On November 27, 2018, approximately 15 cubic yards of potentially impacted soil were stockpiled on site by Prism (Photograph 1 in Attachment 1). At the request of Holiday, Shannon & Wilson characterized the potentially impacted dispenser excavations on November 28, 2018. Although additional dispensers were upgraded, Shannon & Wilson only evaluated the three potentially-impacted dispenser excavations identified by Prism. Based on a discussion with the ADEC on November 28, 2018, the stockpile was also characterized for disposal purposes. A site plan showing the potentially impacted dispenser excavations, stockpile location, and general site features is included as Figure 2.

### **PROJECT ACTIVITIES**

The project consisted of collecting field screening and analytical soil samples and coordinating treatment of impacted soil. Under subcontract to Holiday, SGS North America Inc. (SGS) provided the analytical testing of the soil samples and Prism provided the equipment and personnel to transport the potentially impacted soil to Alaska Soil Recycling (ASR) for thermal remediation. Site photographs are included in Attachment 1 and field notes are included in Attachment 2.

## Soil Sampling

Soil sampling activities were conducted by Shannon & Wilson on November 28 and 29, 2018. Prior to collecting soil samples, the dimensions of the dispenser excavations and stockpile were measured. Each dispenser excavation measured approximately 5 feet by 7 feet at the surface (approximately 35 square feet), with depths of about 2 to 2.5 feet below ground surface (bgs). During Shannon & Wilson's sampling activities, the dispenser housing was present within the center of each excavation (Photograph 2). The stockpile measured approximately 10 feet wide, 15 feet long, and 3 feet high.

Field screening samples were collected from the base of the dispenser excavations. Four field screening samples were collected from each of the diesel dispenser excavations and six field screenings were collected from the gasoline dispenser excavation. Based on a total stockpile volume of 15 cubic yards, five field screening samples were collected at a depth of approximately 1.5 to 2 feet below the stockpile surface. The field screening samples collected from the stockpile were collected in accordance with the Alaska Department of Environmental Conservation's (ADEC's) March 2016 *Field Sampling Guidance* document. Each soil sample was visually described and "screened" for volatile organic compounds (VOCs) using a photoionization detector (PID) and ADEC-approved headspace screening techniques. The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected by filling re-sealable plastic bags to approximately half of the capacity, warmed to at least 40 degrees Fahrenheit, agitated for 15 seconds at the beginning and end of the headspace development period, and tested within 60 minutes of collection. A description of the soil sample locations, depths, and headspace results are presented in Table 1. A sampling plan is included as Figure 3.

Based on photoionization detector (PID) readings, one analytical sample was collected from each dispenser excavation and two analytical soil samples were collected from the stockpile. The stockpile and excavation samples for laboratory analysis were collected in laboratory-supplied jars in decreasing order of volatility. For each volatile sample, at least 25 grams of soil, but no more than what can be completely submerged with 25-milliliters of methanol, were placed into a pre-weighted, 4-ounce jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates was added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar was completely filled with soil taking care to avoid pieces of gravel and debris. Sample jars were filled using decontaminated stainless-steel

spoons, placed in coolers with ice packs, and transferred to the laboratory using chain-of-custody procedures.

### **Stockpile Disposal**

Prior to the receipt of analytical sample results, ADEC approved the transport of the stockpiled soil to ASR on November 29, 2018. The approximately 15 cubic yard stockpile was transported to ASR by Prism on November 29 and December 4, 2018. Prism also transported the soil excavated from the remaining dispenser excavations to ASR. The material was stored separately at ASR pending analytical results. According to the ASR disposal receipt, 49.76 tons of soil were transported to ASR for disposal. Following receipt of the analytical sample results, ADEC approved the thermal treatment of the impacted soil on January 8, 2019. The completed ADEC *Transport, Treatment, Disposal Approval Forms for Contaminated Media* and ASR disposal receipts are included in Attachment 3.

### **LABORATORY ANALYSIS**

The soil samples were submitted to SGS using chain-of-custody procedures on a standard two-week turnaround time. The dispenser excavation samples were analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101, diesel range organics (DRO) by AK 102, VOCs by Environmental Protection Agency (EPA) Method 8260C, polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D selective ion method (SIM), and total lead by EPA Method 6020A. At the request of Robert Weimer of the ADEC, the stockpile samples were also analyzed for total lead by EPA Method 6020A for disposal purposes. The stockpile sample with the highest PID reading (Sample SP4) was also analyzed for 1,2-dibromoethane (EDB) by EPA Method 8260C SIM. The analytical soil sample results are summarized in Table 2.

### **DISCUSSION OF ANALYTICAL RESULTS**

The analytical soil results were compared to ADEC cleanup levels presented in the October 2018, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 or 18 AAC 75.341, for the “under 40-inch (precipitation) zone.” A copy of the analytical laboratory report is provided in Attachment 4.

### **Excavation Soil Samples**

Samples EX1 and EX5, collected from diesel dispenser Excavations 1 and 2, respectively, contained DRO (2,960 milligram per kilogram [mg/kg] and 1,000 mg/kg, respectively) exceeding the ADEC Method Two cleanup level of 250 mg/kg. The remaining target analytes in the excavation samples were either not detected or detected at concentrations less than the applicable ADEC cleanup levels.

### **Stockpile Soil Samples**

Samples SP2 and SP4 contained concentrations of 6.92 mg/kg and 4.81 mg/kg of total lead, respectively, which are less than the ADEC cleanup level of 400 mg/kg. Sample SP4 was also analyzed for EDB and the analyte was not detected.

### **Quality Control Samples**

The project laboratory follows on-going quality assurance/quality control procedures to evaluate conformance to applicable ADEC data quality objectives (DQOs). Internal laboratory controls to assess data quality for this project include surrogates, method blanks, matrix spike/matrix spike duplicates (MS/MSD), and laboratory control sample/laboratory control sample duplicates (LCS/LCSD) to assess precision, accuracy, and matrix bias. If a DQO was not met, the project laboratory provides a brief narrative concerning the problem in the case narrative of their laboratory reports (See Attachment 4).

Shannon & Wilson conducted a limited data assessment to review the laboratory's compliance with precision, accuracy, sensitivity, and completeness to the DQO. Shannon & Wilson reviewed the SGS data deliverables and completed the ADEC's Laboratory Data Review Checklist for each data package, which is included in Attachment 4. No non-conformances that would adversely affect the quality or usability of the data were noted.

## **CONCLUSIONS**

During fuel dispenser upgrades, approximately 15 cubic yards of impacted material were excavated and temporarily stockpiled onsite. Soil samples collected from the limits of diesel dispenser excavations (Excavations 1 and 2) contained concentrations of DRO exceeding the ADEC Method Two cleanup level. The remaining target analytes did not exceed the applicable ADEC Method Two cleanup levels. Soil samples collected from gasoline dispenser excavation

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**SHANNON & WILSON, INC.**

(Excavation 3) did not contain target analytes greater than the ADEC cleanup levels. The 49.76-ton soil stockpile was transported to ASR for thermal treatment.

### **CLOSURE/LIMITATIONS**

This report is prepared for the exclusive use of our client and their representatives in the study of this site. The findings presented within this report are based on the limited sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's soil quality. As a result, the sampling, analyses, and data interpretations can provide you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site assessment. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

You are advised that various state and federal agencies (ADEC, EPA, etc.) may require the reporting of this information. Shannon & Wilson does not assume the responsibility for reporting these findings and therefore has not, and will not, disclose the results of this study unless specifically requested and authorized by Holiday Companies, or as required by law.

Shannon & Wilson has prepared the information in Attachment 5, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report.

We appreciate this opportunity to be of service and your continued confidence in our firm. If you have questions or comments concerning this submittal, please contact Dan McMahon or the undersigned at (907) 561-2120.

**SHANNON & WILSON, INC.**

Jake Tracy  
Engineering Staff

Encl: Tables 1 and 2, Figures 1 through 3, and Attachments 1 through 5

**TABLE 1**  
**SAMPLE LOCATIONS AND DESCRIPTIONS**

Sample Number	Date	Sample Location (See Figure 3)	Depth (feet) ^^	Headspace (ppm) ^	Sample Description
<b>Excavation Soil Samples</b>					
* EX1	11/28/2018	East end of Excavation 1	2 - 2.5	19.3	Dark brown, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
EX2	11/28/2018	West end of Excavation 1	2 - 2.5	16.2	Dark brown, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
EX3	11/28/2018	North end of Excavation 1	2 - 2.5	10.8	Dark brown, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
EX4	11/28/2018	South end of Excavation 1	2 - 2.5	4.1	Dark brown, <i>Poorly Graded Sand with Gravel (SP)</i> ; moist
* EX5	11/28/2018	East end of Excavation 2	2 - 2.5	22.5	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX6	11/28/2018	West end of Excavation 2	2 - 2.5	12.5	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX7	11/28/2018	North end of Excavation 2	2 - 2.5	6.5	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX8	11/28/2018	South end of Excavation 2	2 - 2.5	2.6	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX9	11/28/2018	Southeast end of Excavation 3	2 - 2.5	2.4	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX10	11/28/2018	Northeast end of Excavation 3	2 - 2.5	1.6	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
* EX11	11/28/2018	Northwest end of Excavation 3	2 - 2.5	53.1	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX12	11/28/2018	Southwest end of Excavation 3	2 - 2.5	10.4	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX13	11/28/2018	North end of Excavation 3	2 - 2.5	3.5	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
EX14	11/28/2018	South end of Excavation 3	2 - 2.5	2.6	Gray, <i>Poorly Graded Gravel (GP)</i> ; moist (Pea Gravel)
<b>Stockpile Soil Samples</b>					
SP1	11/29/2018	South end of stockpile	1.5 - 2	10.6	Dark brown, <i>Poorly Graded Gravel with Silt and Sand (GP-GM)</i> ; moist (Pea Gravel)
* SP2	11/29/2018	West end of stockpile	1.5 - 2	35.1	Dark brown, <i>Poorly Graded Gravel with Silt and Sand (GP-GM)</i> ; moist (Pea Gravel)
SP3	11/29/2018	Northwest end of stockpile	1.5 - 2	28.0	Dark brown, <i>Poorly Graded Gravel with Silt and Sand (GP-GM)</i> ; moist (Pea Gravel)
* SP4	11/29/2018	Northeast end of stockpile	1.5 - 2	44.6	Dark brown, <i>Poorly Graded Gravel with Silt and Sand (GP-GM)</i> ; moist (Pea Gravel)
SP5	11/29/2018	East end of stockpile	1.5 - 2	31.6	Dark brown, <i>Poorly Graded Gravel with Silt and Sand (GP-GM)</i> ; moist (Pea Gravel)

## Notes:

\* = Sample analyzed by the project laboratory (See Table 2)

^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

^^ = Depth of soil samples measured below ground surface or below stockpile surface

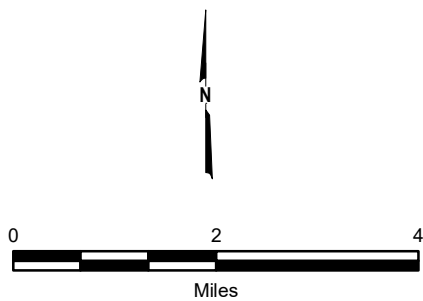
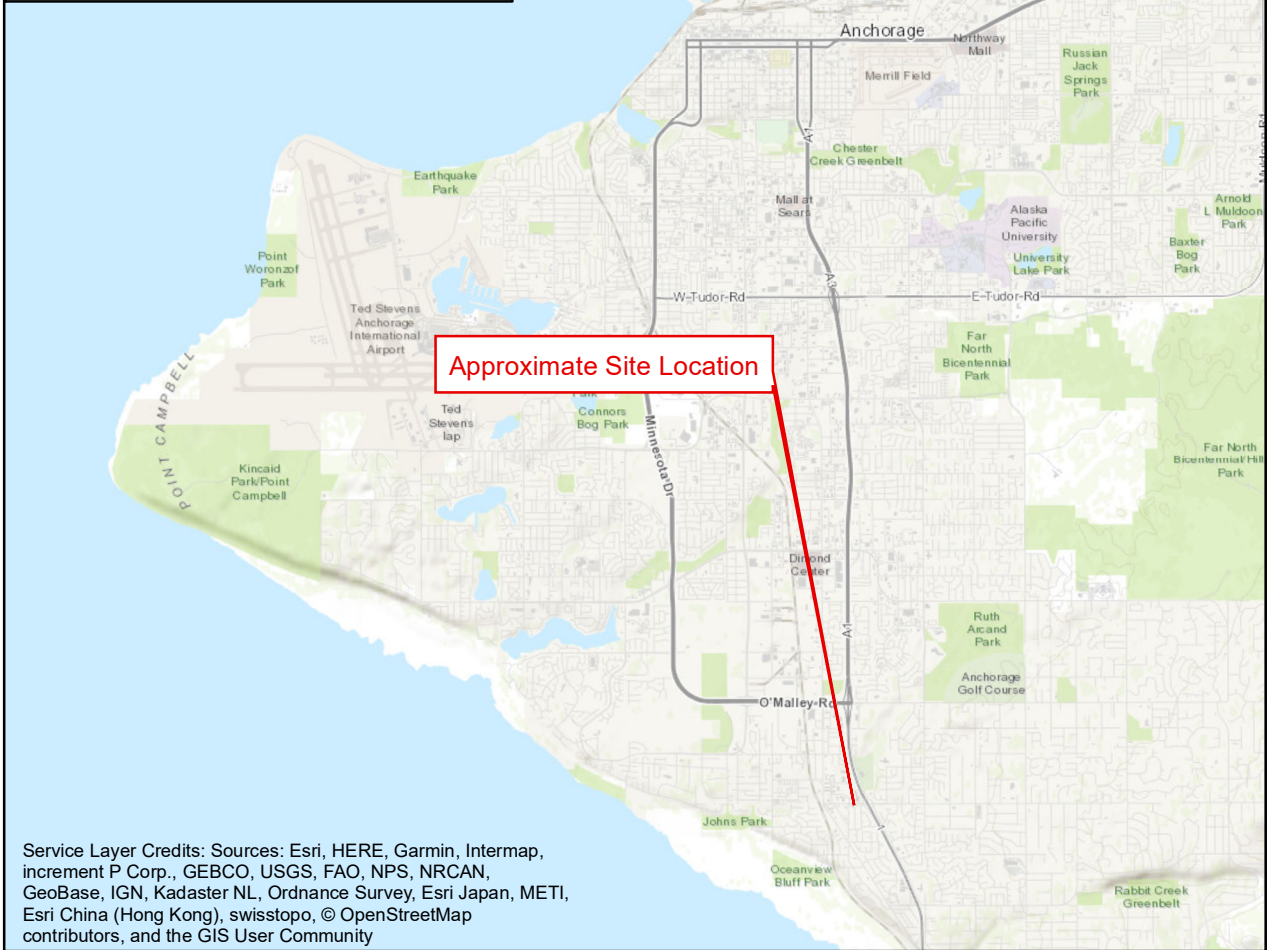
ppm = parts per million

**TABLE 2**  
**SUMMARY OF SOIL ANALYTICAL RESULTS**

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs or Feet Below Stockpile Surface (See Table 1 and Figure 3)				
			Excavation Samples			Stockpile Samples	
			EX1 2-2.5	EX5 2-2.5	EX11 2-2.5	SP2 1.5-2	SP4 1.5-2
PID Headspace Reading - ppm	OVM 580B	-	19.3	22.5	53.1	35.1	44.6
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	<b>0.888 J</b>	<b>1.65</b>	<0.815	-	-
Diesel Range Organics (DRO) - mg/kg	AK 102	250	<b>2,960</b>	<b>1,000</b>	<10.3	-	-
Volatile Organic Compounds (VOCs)							
Benzene - mg/kg	EPA 8260C	0.022	<0.00464	<b>0.00525 J</b>	<b>0.00681 J</b>	-	-
Toluene - mg/kg	EPA 8260C	6.7	<b>0.0326</b>	<b>0.0430</b>	<b>0.13</b>	-	-
Ethylbenzene - mg/kg	EPA 8260C	0.13	<0.00930	<b>0.00776 J</b>	<b>0.0267</b>	-	-
Xylenes (total) - mg/kg	EPA 8260C	1.5	<b>0.0310 J</b>	<b>0.0540</b>	<b>0.169</b>	-	-
1,2,4-Trimethylbenzene - mg/kg	EPA 8260C	0.61	<b>0.0302 J</b>	<b>0.0878</b>	<b>0.0336</b>	-	-
1,2-Dibromoethane (EDB) - mg/kg	EPA 8260C	0.00024	< <b>0.00371</b>	< <b>0.00274</b>	< <b>0.00327</b>	-	-
1,3,5-Trimethylbenzene - mg/kg	EPA 8260C	0.66	<b>0.0225</b>	<b>0.0343</b>	<b>0.0143 J</b>	-	-
2-Butanone (MEK) - mg/kg	EPA 8260C	15	<0.0930	<b>0.0876 J</b>	<0.0815	-	-
Acetone - mg/kg	EPA 8260C	38	<0.0930	<b>0.0853 J</b>	<0.0815	-	-
Naphthalene - mg/kg	EPA 8260C	0.038	<b>0.0250</b>	<b>0.0237</b>	<0.00815	-	-
n-Propylbenzene - mg/kg	EPA 8260C	9.1	<b>0.00614 J</b>	<b>0.0131 J</b>	<0.00815	-	-
sec-Butylbenzene - mg/kg	EPA 8260C	42	<0.00930	<b>0.00481 J</b>	<0.00815	-	-
Styrene - mg/kg	EPA 8260C	10	<0.00930	<b>0.0906</b>	<b>0.0491</b>	-	-
Other VOC Analytes - mg/kg	EPA 8260C	Various	ND	ND	ND	-	-
1,2-Dibromoethane (EDB) - mg/kg	EPA 8260C SIM	0.00024	-	-	-	-	<0.0000413
Polynuclear Aromatic Hydrocarbons (PAH)							
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	<0.0134	<b>0.0631</b>	<0.0645	-	-
2-Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	<0.0134	<b>0.0606</b>	<0.0645	-	-
Phenanthrene - mg/kg	EPA 8270D SIM	39	<0.0134	<b>0.0994</b>	<0.0645	-	-
Pyrene - mg/kg	EPA 8270D SIM	87	<b>0.0646</b>	<b>0.0212 J</b>	<0.0645	-	-
Other PAH Analytes - mg/kg	EPA 8270D SIM	Various	ND	ND	ND	-	-
Total Lead - mg/kg	EPA 6020A	400	<b>5.31</b>	<b>3.20</b>	<b>4.48</b>	<b>6.92</b>	<b>4.81</b>

## Notes:

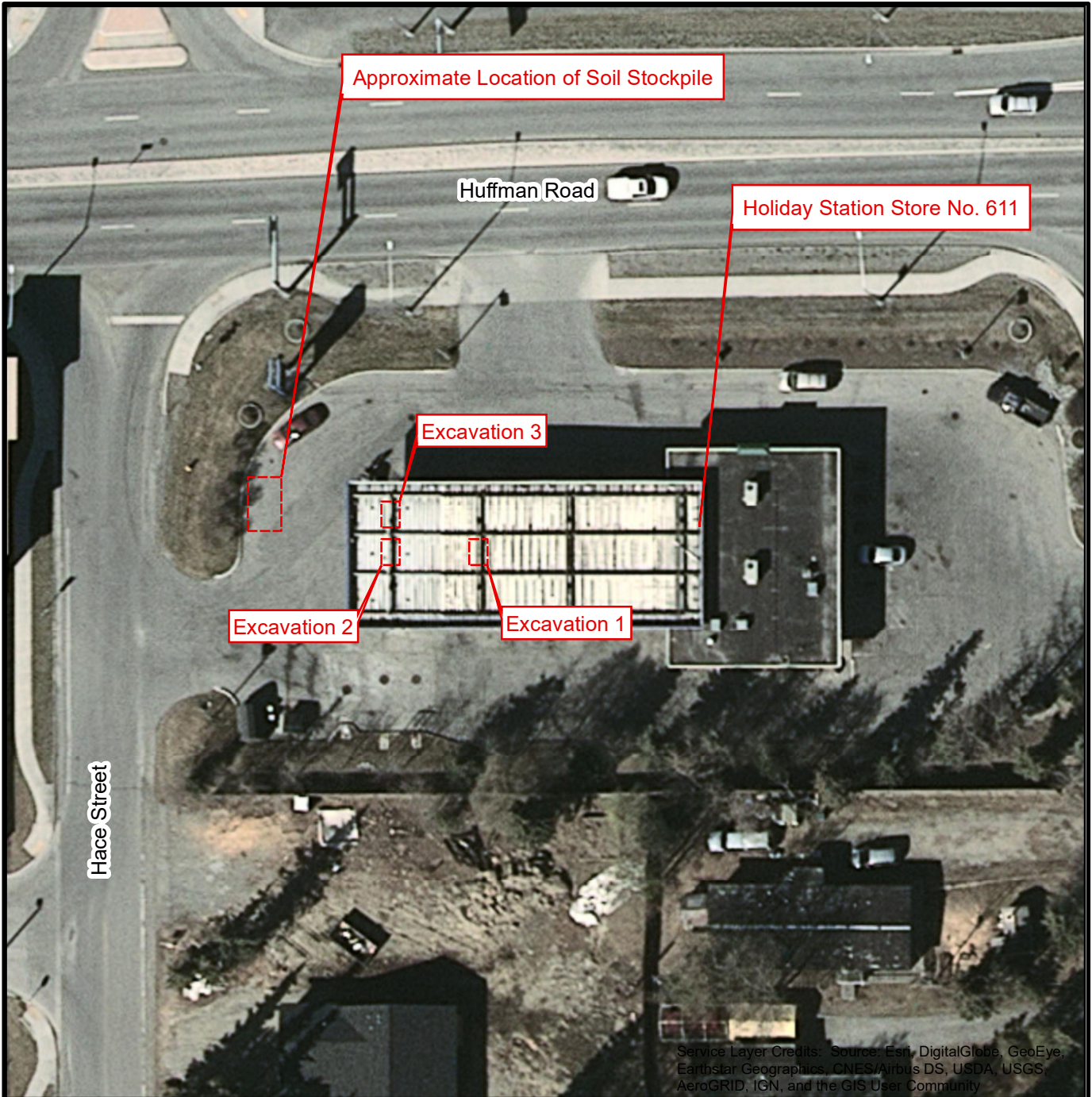
- \* = See Attachment 4 for compounds tested, methods, and laboratory reporting limits
- \*\* = Soil cleanup level is the most stringent ADEC Method Two standard listed in Table B1 or B2, 18 AAC 75 (September 2018), for the "under 40 inches (precipitation) zone"
- ^ = Sample ID number preceded by "102167-002" on the chain of custody form
- mg/kg = Milligram per kilogram
- PID = Photoionization detector
- <0.00464 = Analyte not detected; laboratory limit of detection of 0.00464 mg/kg
- <**0.00371** = Laboratory limit of detection is greater than the ADEC Method Two cleanup level
- 2,960** = Reported concentration exceeds the ADEC cleanup level
- = Not applicable or sample not tested for this analyte
- J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
- ppm = part per million
- ND = Not detected
- bgs = below ground surface



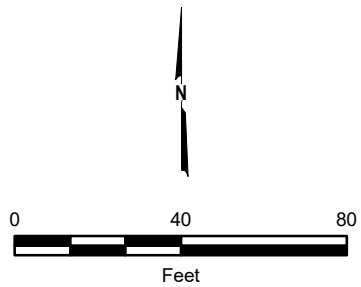
1530 Huffman Road  
Anchorage, Alaska

**VICINITY MAP**

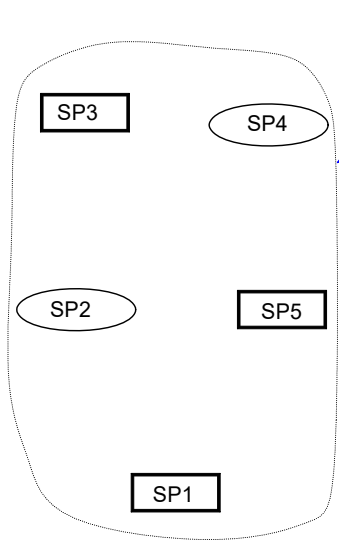
March 2019 102167-002



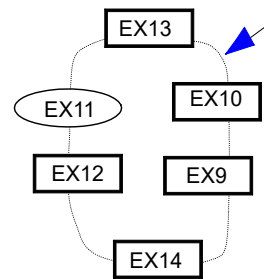
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, EarthStar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



1530 Huffman Road Anchorage, Alaska	
<b>SITE PLAN</b>	
March 2019	102167-002
<b>SHANNON &amp; WILSON, INC.</b> GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS	<b>FIG. 2</b>

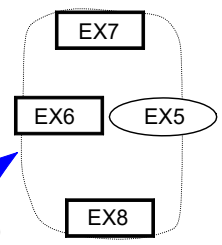


Approximate location of 15 cubic yard soil stockpile.

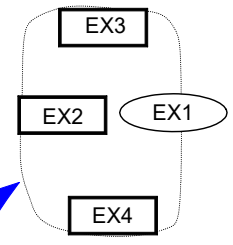


Approximate limits of Excavation 3 (Gasoline)

Distance between excavations and stockpile is not to scale.




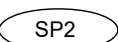
Approximate limits of Excavation 2 (Diesel)



Approximate limits of Excavation 1 (Diesel)

**LEGEND**

 EX13 Approximate location of field screening sample EX13 collected by Shannon and Wilson on November 28 or 29, 2018.

 SP2 Approximate location of field screening and analytical sample SP2 collected by Shannon and Wilson on November 28 or 29, 2018.



1530 Huffman Road Anchorage, Alaska	
<b>SAMPLING PLAN</b>	
February 2019	102167-002
 SHANNON & WILSON, INC. Geotechnical & Environmental Consultants	<b>Fig. 3</b>

**ATTACHMENT 1**  
**SITE PHOTOGRAPHS**



Photo 1: Looking west at the soil stockpile. (November 29, 2018)



Photo 2: Looking southwest at a diesel fuel dispenser excavation. (November 29, 2018)

1530 Huffman Road  
Anchorage, Alaska

**PHOTOS 1 AND 2**

March 2019

102167-002

**SHANNON & WILSON, INC.**  
Geotechnical & Environmental Consultants

**ATTACHMENT 2**  
**FIELD NOTES**

102167-002

HOLIDAY STORE 611

November 28

Jake Tracy

32°F Snow

1045 Arrive on site.

Talk to Randy about potentially contain soils.

Said soil in pile came from all dispenser excavations but "hottest" ones were from the 2 diesel and the northwest gas dispensers.

He would like to get rid of pile ASAP because equipment will be moving.

1055 Collect screening samples from "hot" dispenser excavations.

Spoke with Dan. Decide to submit 1 analytical sample from each "hot" dispenser area.

Plan to complete paperwork to transport and treat stockpiled soil at ASR.

Robert W. approved transport only. Says needs to be sampled for lead and EDB.

102167-002

HOLIDAY STORAGE 64

November 29

Lake Tracy

1400 Move to site to sample stockpile for 28'8 Clear  
total lead and ED3.

Stockpile is about 15 cy.

Stockpile will be stored separate at ASP  
until lead/ED3 results are complete.

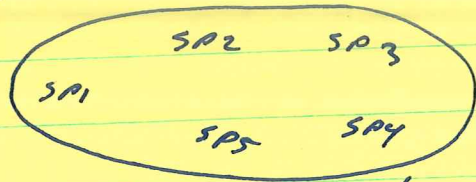
102167-002

Jake Tracy

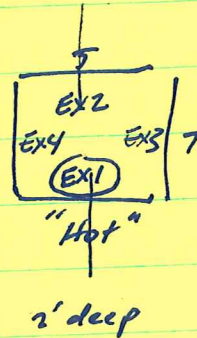
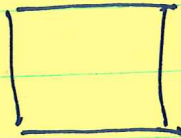
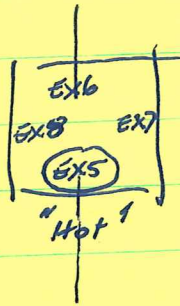
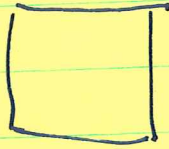
HOLIDAY STORE 611

15'

11/28-29



Contain stockpile



New dispenser excavations



According to Randy with Prism, Stockpiled soil came from all dispenser areas but the three "hottest" ones were the 2 diesel and Northwest most gas dispenser.



SAMPLE COLLECTION LOG

SHANNON & WILSON, INC

Sample Number	Location	Sample Time	Sample Depth	Sample Type	GPS Reading*	PID Reading	Soil Classification	Analyses
EX1	Diesel Fuel Dispenser	1145	2-2.5			19.3	* Dk brown Sand w/ gravel	
EX2						16.2		
EX3						10.8		
EX4						4.1		
EX5		1155				22.5	* Gray Pea Gravel mortar	
EX6						12.5		
EX7						6.5		
EX8						2.0		
EX9	Gas Dispenser					7.4		
EX10						1.6		
EX11		1205				53.1	* Gray Pea Gravel mortar	
EX12						10.4		
EX13						3.5		
EX14						2.6		

Project Number: 102167-002  
 Date: 11/20/18  
 Sampler: 125

Holiday Store 611  
 Huffman

Location:  
 Site:  
 Sheet Number:

Sample Type  
 ES Environmental sample  
 FD Field duplicate  
 FM Field Screening  
 TB Trip blank  
 \* GPS readings only collected from analytical sample locations

**ATTACHMENT 3**  
**DISPOSAL DOCUMENTATION**



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites and Prevention and Emergency Response Programs**

**Transport, Treatment, & Disposal Approval Form for Contaminated Media**

<b>DEC HAZARD/SPILL ID #</b>		<b>NAME OF SPILL OR CONTAMINATED SITE</b>	
		1530 Huffman Road, Anchorage, Alaska	
<b>SITE OR SPILL LOCATION</b>			
Holiday Station Store 611, 1530 Huffman Road, Anchorage, Alaska			
<b>CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA</b>		<b>SOURCE OF THE CONTAMINATION</b>	
1530 Huffman Road, Anchorage, Alaska - Soil		Fuel dispensers	
<b>COMPOUNDS OF CONCERN</b>		<b>ESTIMATED VOLUME</b>	<b>DATE(S) GENERATED</b>
		15 cubic yards	11/27/2018
<b>POST TREATMENT ANALYSIS REQUIRED</b> <i>(such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)</i>			
<b>COMMENTS</b>			
Soil will be direct hauled to Alaska Soil Recycling and stored separately pending total lead analytical results.			

**Facility Accepting the Contaminated Media**

<b>NAME OF THE FACILITY</b>	<b>PHYSICAL ADDRESS/PHONE NUMBER</b>
Alaska Soil Recycling	2301 Spar Avenue, Anchorage, Alaska / 907-348-6704

**Responsible Party and Contractor Information**

<b>BUSINESS NAME</b>	<b>ADDRESS/PHONE NUMBER</b>
Holiday	4567 American Boulevard West, Bloomington, MN 55437
	952-830-8700

**Jake Tracy**

Name of the Person Requesting Approval (printed)

Jake Tracy, E.I.T.

Signature

Digitally signed by Jake Tracy, E.I.T.  
DN: cn=Jake Tracy, E.I.T., o=Shannon & Wilson, Inc., ou,  
email=jt@shannon-wilson.com, c=US  
Date: 2018.11.28 16:42:49 -0900

**Engineering Staff**

Title/Association

11/28/2018

Date

907-433-3221

Phone Number

**-----DEC USE ONLY-----**

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

Robert Weimer

DEC Project Manager Name (printed)

*Robert Weimer*

Signature

DEC-CS

Project Manager Title

11/29/18

Date

269-7525

Phone Number



**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites and Prevention and Emergency Response Programs**

**Transport, Treatment, & Disposal Approval Form for Contaminated Media**

DEC HAZARD/SPILL ID #		NAME OF SPILL OR CONTAMINATED SITE	
18239933102		1530 Huffman Road, Anchorage, Alaska	
SITE OR SPILL LOCATION			
Holiday Station Store 611, 1530 Huffman Road, Anchorage, Alaska			
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA		SOURCE OF THE CONTAMINATION	
Alaska Soil Recycling - Soil		Fuel dispensers	
COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED	
GRO, DRO, VOCs, PAHs	15 cubic yards	11/27/2018	
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)			
GRO, DRO, VOCs(Petroleum), PAHs			
COMMENTS			

**Facility Accepting the Contaminated Media**

NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
Alaska Soil Recycling	2301 Spar Avenue, Anchorage, Alaska / 907-348-6704

**Responsible Party and Contractor Information**

BUSINESS NAME	ADDRESS/PHONE NUMBER
Holiday	4567 American Boulevard West, Bloomington, MN 55437
	952-830-8700

**Jake Tracy**

Name of the Person Requesting Approval (printed)  
 Jake Tracy, E.I.T. Digitally signed by Jake Tracy, E.I.T.  
 DN: cn=Jake Tracy, E.I.T., o=Shannon & Wilson, Inc.,  
 ou, email=jt@shawil.com, c=US  
 Date: 2019.01.08 09:35:45 -0900  
 Signature

**Engineering Staff**

Title/Association  
 1/8/2019      907-433-3221  
 Date      Phone Number

**-----DEC USE ONLY-----**

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

**Robert Weimer**  
 DEC Project Manager Name (printed)  
  
 Signature

**DEC-CS**  
 Project Manager Title  
 1/8/2019      907-269-7525  
 Date      Phone Number

# ASR

A Division of Anchorage Sand & Gravel Co. Inc.  
1040 O'Malley Road, Anchorage, Alaska 99515  
Phone (907) 349-3333, Fax (907) 344-2844

## ASR Received Material Total

**Customer:** Shannon & Wilson Inc

**Project:** Holiday Stn Store 611, Huffman Rd

**ASR Account #:** 443023-1803

Date	Truck #	Ticket # Tare	Tare (lbs)	Ticket # Gross	Gross (lbs)	Net (lbs)	Tons	SS Qty	Drums
11/29/18	82	09802	42,580	09801	90,780	48,200	24.10	0	0
12/4/18	82	09832	43,300	09831	94,620	51,320	25.66		
						0	0.00		

<b>Total</b>	<b>49.76</b>	<b>0</b>	<b>0</b>
<b>Billed</b>			
<b>Remaining</b>	<b>49.76</b>	<b>0.00</b>	<b>0.00</b>

# ASR ALASKA SOIL RECYCLING

A division of Anchorage Sand & Gravel Co., Inc.

1040 O'Malley Road, Anchorage, Alaska 99515  
Phone (907) 349-3333 Fax (907) 344-2844 www.anchsand.com

March 19, 2019

Mr. Robert Weimer  
State of Alaska  
Department of Environmental Conservation  
555 Cordova St.  
Anchorage, AK 99501

Via Email:  
Robert.Weimer@alaska.gov

Re: Soil treatment from 1530 Huffman Road  
ADEC Spill # 18239933102

Dear Mr. Harry, Weimer

On November 29, 2018 and December 4, 2018, Alaska Soil Recycling (ASR), a division of Anchorage Sand & Gravel Co. Inc. received a total of 49.76 tons of petroleum impacted soil from the above referenced site at ASR's facility located at 2301 Spar Ave., Anchorage, Alaska.

In accordance with ASR's State approved facility operations plan:

1. These soils are to be co-mingled with other soils unless otherwise indicated,
2. These soils are covered by the bonding requirements of the 18 AAC 75.365; and,
3. There is no further remedial action required by the responsible party for these soils.

Please contact me should you require additional information or have any questions; otherwise, please acknowledge receipt of this information by signing below and forward to my attention by fax or email.

Sincerely,

ALASKA SOIL RECYCLING



Kris Shippen  
Environmental Coordinator

Acknowledged By: 

Date: 3/19/19

Printed ADEC Representative Name and Title: Robert Weimer - DEC CS

Attachment: ADEC approval to transport  
Cc: Mr. Jake Tracy, Shannon & Wilson

**ATTACHMENT 4**  
**RESULTS OF ANALYTICAL TESTING BY SGS NORTH AMERICA INC.**  
**AND**  
**ADEC LABORATORY DATA REVIEW CHECKLIST**



## Laboratory Report of Analysis

To: Holiday Alaska, Inc.  
5430 Fairbanks St Ste 3  
Anchorage, AK 99518  
(907)561-2120

Report Number: **1186648**

Client Project: **102167-002 Holiday 611**

Dear Dan McMahon,

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

If there are any questions about the report or services performed during this project, please call Jillian 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.

---

Jillian Vlahovich  
Project Manager  
Jillian.Vlahovich@sgs.com

Date

## Case Narrative

SGS Client: **Holiday Alaska, Inc.**  
SGS Project: **1186648**  
Project Name/Site: **102167-002 Holiday 611**  
Project Contact: **Dan McMahon**

Refer to sample receipt form for information on sample condition.

**1186648003MS (1490697) MS**

8260C - MS recovery for hexachlorobutadiene do not meet QC criteria. Refer to LCS for accuracy requirements.

**1186648003MSD (1490698) MSD**

8260C - MSD recovery for hexachlorobutadiene do not meet QC criteria. Refer to LCS for accuracy requirements.

\*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: 12/12/2018 9:46:24AM

### Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>SW8260C</b>				
1186648001	102167-002-EX1	VMS18611	Naphthalene	RP

#### Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 12/12/2018 9:46:25AM

## Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
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>
102167-002-EX1	1186648001	11/28/2018	11/28/2018	Soil/Solid (dry weight)
102167-002-EX5	1186648002	11/28/2018	11/28/2018	Soil/Solid (dry weight)
102167-002-EX11	1186648003	11/28/2018	11/28/2018	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8260C	VOC 8260 (S) Field Extracted

Print Date: 12/12/2018 9:46:27AM

### Detectable Results Summary

Client Sample ID: **102167-002-EX1**

Lab Sample ID: 1186648001

**Metals by ICP/MS**

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

**Volatile GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Lead	5.31	mg/Kg
Pyrene	64.6	ug/Kg
Diesel Range Organics	2960	mg/Kg
Gasoline Range Organics	0.888J	mg/Kg
1,2,4-Trimethylbenzene	30.2J	ug/Kg
1,3,5-Trimethylbenzene	22.5	ug/Kg
Naphthalene	25.0	ug/Kg
n-Propylbenzene	6.14J	ug/Kg
o-Xylene	12.0J	ug/Kg
P & M -Xylene	19.0J	ug/Kg
Toluene	32.6	ug/Kg
Xylenes (total)	31.0J	ug/Kg

Client Sample ID: **102167-002-EX5**

Lab Sample ID: 1186648002

**Metals by ICP/MS**

**Polynuclear Aromatics GC/MS**

**Semivolatile Organic Fuels**

**Volatile Fuels**

**Volatile GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Lead	3.20	mg/Kg
1-Methylnaphthalene	63.1	ug/Kg
2-Methylnaphthalene	60.6	ug/Kg
Phenanthrene	99.4	ug/Kg
Pyrene	21.2J	ug/Kg
Diesel Range Organics	1000	mg/Kg
Gasoline Range Organics	1.65	mg/Kg
1,2,4-Trimethylbenzene	87.8	ug/Kg
1,3,5-Trimethylbenzene	34.3	ug/Kg
2-Butanone (MEK)	87.6J	ug/Kg
Acetone	85.3J	ug/Kg
Benzene	5.25J	ug/Kg
Ethylbenzene	7.76J	ug/Kg
Naphthalene	23.7	ug/Kg
n-Propylbenzene	13.1J	ug/Kg
o-Xylene	19.3	ug/Kg
P & M -Xylene	34.7	ug/Kg
sec-Butylbenzene	4.81J	ug/Kg
Styrene	90.6	ug/Kg
Toluene	43.0	ug/Kg
Xylenes (total)	54.0	ug/Kg

Print Date: 12/12/2018 9:46:27AM

## Detectable Results Summary

Client Sample ID: **102167-002-EX11**

Lab Sample ID: 1186648003

**Metals by ICP/MS**

**Volatile GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Lead	4.48	mg/Kg
1,2,4-Trimethylbenzene	33.6	ug/Kg
1,3,5-Trimethylbenzene	14.3J	ug/Kg
Benzene	6.81J	ug/Kg
Ethylbenzene	26.7	ug/Kg
o-Xylene	50.4	ug/Kg
P & M -Xylene	119	ug/Kg
Styrene	49.1	ug/Kg
Toluene	130	ug/Kg
Xylenes (total)	169	ug/Kg

Print Date: 12/12/2018 9:46:27AM

SGS North America Inc.

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

Member of SGS Group



**Results of 102167-002-EX1**

Client Sample ID: **102167-002-EX1**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186648001  
Lab Project ID: 1186648

Collection Date: 11/28/18 11:45  
Received Date: 11/28/18 14:41  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.4  
Location:

**Results by Metals by ICP/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>
Lead	5.31	1.07	0.333	mg/Kg	50		12/10/18 13:52

**Batch Information**

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Analyst: ACF  
Analytical Date/Time: 12/10/18 13:52  
Container ID: 1186648001-A

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/07/18 10:34  
Prep Initial Wt./Vol.: 1.019 g  
Prep Extract Vol: 50 mL



Results of 102167-002-EX1

Client Sample ID: 102167-002-EX1
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648001
Lab Project ID: 1186648

Collection Date: 11/28/18 11:45
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):91.4
Location:

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 surrogate compounds with associated values.

Batch Information

Analytical Batch: XMS11240
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 12/04/18 20:08
Container ID: 1186648001-A

Prep Batch: XXX40958
Prep Method: SW3550C
Prep Date/Time: 11/29/18 10:37
Prep Initial Wt./Vol.: 22.879 g
Prep Extract Vol: 5 mL

**Results of 102167-002-EX1**

Client Sample ID: **102167-002-EX1**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648001  
 Lab Project ID: 1186648

Collection Date: 11/28/18 11:45  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):91.4  
 Location:

**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	2960	87.4	27.1	mg/Kg	4		12/03/18 11:12
<b>Surrogates</b>							
5a Androstane (surr)	118	50-150		%	4		12/03/18 11:12

**Batch Information**

Analytical Batch: XFC14820  
 Analytical Method: AK102  
 Analyst: VDL  
 Analytical Date/Time: 12/03/18 11:12  
 Container ID: 1186648001-A

Prep Batch: XXX40957  
 Prep Method: SW3550C  
 Prep Date/Time: 11/29/18 09:18  
 Prep Initial Wt./Vol.: 30.058 g  
 Prep Extract Vol: 5 mL

## Results of 102167-002-EX1

Client Sample ID: **102167-002-EX1**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648001  
 Lab Project ID: 1186648

Collection Date: 11/28/18 11:45  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):91.4  
 Location:

## 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	0.888 J	1.86	0.557	mg/Kg	1		11/29/18 20:04
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	87.2	50-150		%	1		11/29/18 20:04

## Batch Information

Analytical Batch: VFC14584  
 Analytical Method: AK101  
 Analyst: ST  
 Analytical Date/Time: 11/29/18 20:04  
 Container ID: 1186648001-B

Prep Batch: VXX33589  
 Prep Method: SW5035A  
 Prep Date/Time: 11/28/18 11:45  
 Prep Initial Wt./Vol.: 98.799 g  
 Prep Extract Vol: 33.5089 mL



Results of 102167-002-EX1

Client Sample ID: 102167-002-EX1
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648001
Lab Project ID: 1186648

Collection Date: 11/28/18 11:45
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):91.4
Location:

Results by Volatile GC/MS

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



Results of 102167-002-EX1

Client Sample ID: 102167-002-EX1
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648001
Lab Project ID: 1186648

Collection Date: 11/28/18 11:45
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):91.4
Location:

Results by Volatile GC/MS

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

## Results of 102167-002-EX1

Client Sample ID: **102167-002-EX1**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186648001  
Lab Project ID: 1186648

Collection Date: 11/28/18 11:45  
Received Date: 11/28/18 14:41  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.4  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS18611  
Analytical Method: SW8260C  
Analyst: NRO  
Analytical Date/Time: 12/06/18 14:15  
Container ID: 1186648001-B

Prep Batch: VXX33607  
Prep Method: SW5035A  
Prep Date/Time: 11/28/18 11:45  
Prep Initial Wt./Vol.: 98.799 g  
Prep Extract Vol: 33.5089 mL



Results of **102167-002-EX5**

Client Sample ID: **102167-002-EX5**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186648002  
Lab Project ID: 1186648

Collection Date: 11/28/18 11:55  
Received Date: 11/28/18 14:41  
Matrix: Soil/Solid (dry weight)  
Solids (%):97.2  
Location:

Results by **Metals by ICP/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>
Lead	3.20	0.998	0.309	mg/Kg	50		12/10/18 13:57

**Batch Information**

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Analyst: ACF  
Analytical Date/Time: 12/10/18 13:57  
Container ID: 1186648002-A

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/07/18 10:34  
Prep Initial Wt./Vol.: 1.031 g  
Prep Extract Vol: 50 mL



Results of 102167-002-EX5

Client Sample ID: 102167-002-EX5
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648002
Lab Project ID: 1186648

Collection Date: 11/28/18 11:55
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):97.2
Location:

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 surrogate standards.

Batch Information

Analytical Batch: XMS11240
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 12/04/18 20:28
Container ID: 1186648002-A

Prep Batch: XXX40958
Prep Method: SW3550C
Prep Date/Time: 11/29/18 10:37
Prep Initial Wt./Vol.: 22.794 g
Prep Extract Vol: 5 mL

**Results of 102167-002-EX5**

Client Sample ID: **102167-002-EX5**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648002  
 Lab Project ID: 1186648

Collection Date: 11/28/18 11:55  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):97.2  
 Location:

**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	1000	20.5	6.36	mg/Kg	1		12/03/18 10:32
<b>Surrogates</b>							
5a Androstane (surr)	101	50-150		%	1		12/03/18 10:32

**Batch Information**

Analytical Batch: XFC14820  
 Analytical Method: AK102  
 Analyst: VDL  
 Analytical Date/Time: 12/03/18 10:32  
 Container ID: 1186648002-A

Prep Batch: XXX40957  
 Prep Method: SW3550C  
 Prep Date/Time: 11/29/18 09:18  
 Prep Initial Wt./Vol.: 30.117 g  
 Prep Extract Vol: 5 mL

## Results of 102167-002-EX5

Client Sample ID: **102167-002-EX5**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648002  
 Lab Project ID: 1186648

Collection Date: 11/28/18 11:55  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):97.2  
 Location:

## 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	1.65	1.37	0.411	mg/Kg	1		11/29/18 23:04
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	101	50-150		%	1		11/29/18 23:04

## Batch Information

Analytical Batch: VFC14584  
 Analytical Method: AK101  
 Analyst: ST  
 Analytical Date/Time: 11/29/18 23:04  
 Container ID: 1186648002-B

Prep Batch: VXX33589  
 Prep Method: SW5035A  
 Prep Date/Time: 11/28/18 11:55  
 Prep Initial Wt./Vol.: 105.092 g  
 Prep Extract Vol: 27.9815 mL



Results of 102167-002-EX5

Client Sample ID: 102167-002-EX5
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648002
Lab Project ID: 1186648

Collection Date: 11/28/18 11:55
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):97.2
Location:

Results by Volatile GC/MS

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



Results of 102167-002-EX5

Client Sample ID: 102167-002-EX5
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648002
Lab Project ID: 1186648

Collection Date: 11/28/18 11:55
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):97.2
Location:

Results by Volatile GC/MS

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

## Results of 102167-002-EX5

Client Sample ID: **102167-002-EX5**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186648002  
Lab Project ID: 1186648

Collection Date: 11/28/18 11:55  
Received Date: 11/28/18 14:41  
Matrix: Soil/Solid (dry weight)  
Solids (%):97.2  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS18611  
Analytical Method: SW8260C  
Analyst: NRO  
Analytical Date/Time: 12/06/18 14:31  
Container ID: 1186648002-B

Prep Batch: VXX33607  
Prep Method: SW5035A  
Prep Date/Time: 11/28/18 11:55  
Prep Initial Wt./Vol.: 105.092 g  
Prep Extract Vol: 27.9815 mL

**Results of 102167-002-EX11**

Client Sample ID: **102167-002-EX11**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648003  
 Lab Project ID: 1186648

Collection Date: 11/28/18 12:05  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):96.9  
 Location:

**Results by Metals by ICP/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>
Lead	4.48	1.02	0.316	mg/Kg	50		12/10/18 14:11

**Batch Information**

Analytical Batch: MMS10389  
 Analytical Method: SW6020A  
 Analyst: ACF  
 Analytical Date/Time: 12/10/18 14:11  
 Container ID: 1186648003-A

Prep Batch: MXX32133  
 Prep Method: SW3050B  
 Prep Date/Time: 12/07/18 10:34  
 Prep Initial Wt./Vol.: 1.014 g  
 Prep Extract Vol: 50 mL



Results of 102167-002-EX11

Client Sample ID: 102167-002-EX11
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648003
Lab Project ID: 1186648

Collection Date: 11/28/18 12:05
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):96.9
Location:

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: XMS11240
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 12/04/18 20:48
Container ID: 1186648003-A

Prep Batch: XXX40958
Prep Method: SW3550C
Prep Date/Time: 11/29/18 10:37
Prep Initial Wt./Vol.: 22.535 g
Prep Extract Vol: 5 mL

**Results of 102167-002-EX11**

Client Sample ID: **102167-002-EX11**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648003  
 Lab Project ID: 1186648

Collection Date: 11/28/18 12:05  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):96.9  
 Location:

**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	10.3 U	20.5	6.37	mg/Kg	1		12/03/18 10:42
<b>Surrogates</b>							
5a Androstane (surr)	90.4	50-150		%	1		12/03/18 10:42

**Batch Information**

Analytical Batch: XFC14820  
 Analytical Method: AK102  
 Analyst: VDL  
 Analytical Date/Time: 12/03/18 10:42  
 Container ID: 1186648003-A

Prep Batch: XXX40957  
 Prep Method: SW3550C  
 Prep Date/Time: 11/29/18 09:18  
 Prep Initial Wt./Vol.: 30.151 g  
 Prep Extract Vol: 5 mL

**Results of 102167-002-EX11**

Client Sample ID: **102167-002-EX11**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186648003  
 Lab Project ID: 1186648

Collection Date: 11/28/18 12:05  
 Received Date: 11/28/18 14:41  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):96.9  
 Location:

**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	0.815 U	1.63	0.490	mg/Kg	1		11/29/18 19:46
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	64.7	50-150		%	1		11/29/18 19:46

**Batch Information**

Analytical Batch: VFC14584  
 Analytical Method: AK101  
 Analyst: ST  
 Analytical Date/Time: 11/29/18 19:46  
 Container ID: 1186648003-B

Prep Batch: VXX33589  
 Prep Method: SW5035A  
 Prep Date/Time: 11/28/18 12:05  
 Prep Initial Wt./Vol.: 87.737 g  
 Prep Extract Vol: 27.7404 mL



Results of 102167-002-EX11

Client Sample ID: 102167-002-EX11
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648003
Lab Project ID: 1186648

Collection Date: 11/28/18 12:05
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):96.9
Location:

Results by Volatile GC/MS

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



Results of 102167-002-EX11

Client Sample ID: 102167-002-EX11
Client Project ID: 102167-002 Holiday 611
Lab Sample ID: 1186648003
Lab Project ID: 1186648

Collection Date: 11/28/18 12:05
Received Date: 11/28/18 14:41
Matrix: Soil/Solid (dry weight)
Solids (%):96.9
Location:

Results by Volatile GC/MS

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

## Results of 102167-002-EX11

Client Sample ID: **102167-002-EX11**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186648003  
Lab Project ID: 1186648

Collection Date: 11/28/18 12:05  
Received Date: 11/28/18 14:41  
Matrix: Soil/Solid (dry weight)  
Solids (%):96.9  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS18611  
Analytical Method: SW8260C  
Analyst: NRO  
Analytical Date/Time: 12/06/18 13:42  
Container ID: 1186648003-B

Prep Batch: VXX33607  
Prep Method: SW5035A  
Prep Date/Time: 11/28/18 12:05  
Prep Initial Wt./Vol.: 87.737 g  
Prep Extract Vol: 27.7404 mL

## Method Blank

Blank ID: MB for HBN 1789561 [MXX/32133]

Blank Lab ID: 1490529

QC for Samples:

1186648001, 1186648002, 1186648003

Matrix: Soil/Solid (dry weight)

## Results by SW6020A

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

## Batch Information

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Instrument: Perkin Elmer Nexlon P5  
Analyst: ACF  
Analytical Date/Time: 12/10/2018 1:15:12PM

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/7/2018 10:34:15AM  
Prep Initial Wt./Vol.: 1 g  
Prep Extract Vol: 50 mL

Print Date: 12/12/2018 9:46:30AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [MXX32133]  
Blank Spike Lab ID: 1490530  
Date Analyzed: 12/10/2018 13:19

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW6020A

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
Lead	50	50.1	100	( 84-118 )

## Batch Information

Analytical Batch: **MMS10389**  
Analytical Method: **SW6020A**  
Instrument: **Perkin Elmer Nexlon P5**  
Analyst: **ACF**

Prep Batch: **MXX32133**  
Prep Method: **SW3050B**  
Prep Date/Time: **12/07/2018 10:34**  
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL  
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/12/2018 9:46:32AM

## Matrix Spike Summary

Original Sample ID: 1186393011  
 MS Sample ID: 1490531 MS  
 MSD Sample ID: 1490532 MSD

Analysis Date: 12/10/2018 13:24  
 Analysis Date: 12/10/2018 13:29  
 Analysis Date: 12/10/2018 13:34  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Lead	7.96	51.7	57.3	96	51.9	57.3	95	84-118	0.02	(< 20 )

## Batch Information

Analytical Batch: MMS10389  
 Analytical Method: SW6020A  
 Instrument: Perkin Elmer Nexlon P5  
 Analyst: ACF  
 Analytical Date/Time: 12/10/2018 1:29:20PM

Prep Batch: MXX32133  
 Prep Method: Soils/Solids Digest for Metals by ICP-MS  
 Prep Date/Time: 12/7/2018 10:34:15AM  
 Prep Initial Wt./Vol.: 1.01g  
 Prep Extract Vol: 50.00mL

Print Date: 12/12/2018 9:46:32AM

## Method Blank

Blank ID: MB for HBN 1789438 [SPT/10695]

Blank Lab ID: 1489967

QC for Samples:

1186648001, 1186648002, 1186648003

Matrix: Soil/Solid (dry weight)

## 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: SPT10695

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Analytical Date/Time: 11/29/2018 3:27:00PM

Print Date: 12/12/2018 9:46:34AM

## Duplicate Sample Summary

Original Sample ID: 1186648001

Duplicate Sample ID: 1489968

QC for Samples:

1186648001, 1186648002, 1186648003

Analysis Date: 11/29/2018 15:27

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	91.4	92.3	%	1.00	(< 15 )

## Batch Information

Analytical Batch: SPT10695

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Print Date: 12/12/2018 9:46:35AM

## Method Blank

Blank ID: MB for HBN 1789439 [VXX/33589]  
Blank Lab ID: 1489969

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1186648001, 1186648002, 1186648003

## Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	76	50-150		%

## Batch Information

Analytical Batch: VFC14584  
Analytical Method: AK101  
Instrument: Agilent 7890A PID/FID  
Analyst: ST  
Analytical Date/Time: 11/29/2018 7:10:00PM

Prep Batch: VXX33589  
Prep Method: SW5035A  
Prep Date/Time: 11/29/2018 8:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 12/12/2018 9:46:37AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [VXX33589]  
 Blank Spike Lab ID: 1489972  
 Date Analyzed: 11/29/2018 18:34

Spike Duplicate ID: LCSD for HBN 1186648 [VXX33589]  
 Spike Duplicate Lab ID: 1489973  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## 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	12.5	11.0	88	12.5	11.6	93	( 60-120 )	5.40	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	76.1	76	1.25	85.9	86	( 50-150 )	12.10	
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## Batch Information

Analytical Batch: **VFC14584**  
 Analytical Method: **AK101**  
 Instrument: **Agilent 7890A PID/FID**  
 Analyst: **ST**

Prep Batch: **VXX33589**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **11/29/2018 08:00**  
 Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 12/12/2018 9:46:38AM

## Method Blank

Blank ID: MB for HBN 1789610 [VXX/33607]

Blank Lab ID: 1490695

QC for Samples:

1186648001, 1186648002, 1186648003

Matrix: Soil/Solid (dry weight)

## Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	6.25U	12.5	3.90	ug/Kg
1,1,2-Trichloroethane	5.00U	10.0	3.10	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	12.5U	25.0	7.80	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	50.0U	100	25.0	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Acetone	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	12.5U	25.0	7.80	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	100U	200	62.0	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg

Print Date: 12/12/2018 9:46:39AM

## Method Blank

Blank ID: MB for HBN 1789610 [VXX/33607]

Blank Lab ID: 1490695

QC for Samples:

1186648001, 1186648002, 1186648003

Matrix: Soil/Solid (dry weight)

## Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloroform	12.5U	25.0	7.80	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
<b>Surrogates</b>				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	111	55-151		%
Toluene-d8 (surr)	101	85-116		%

Print Date: 12/12/2018 9:46:39AM



**Method Blank**

Blank ID: MB for HBN 1789610 [VXX/33607]  
Blank Lab ID: 1490695

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1186648001, 1186648002, 1186648003

**Results by SW8260C**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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**Batch Information**

Analytical Batch: VMS18611  
Analytical Method: SW8260C  
Instrument: VQA 7890/5975 GC/MS  
Analyst: NRO  
Analytical Date/Time: 12/6/2018 9:40:00AM

Prep Batch: VXX33607  
Prep Method: SW5035A  
Prep Date/Time: 12/6/2018 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 12/12/2018 9:46:39AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [VXX33607]

Blank Spike Lab ID: 1490696

Date Analyzed: 12/06/2018 09:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	827	110	(78-125)
1,1,1-Trichloroethane	750	820	109	(73-130)
1,1,2,2-Tetrachloroethane	750	791	106	(70-124)
1,1,2-Trichloroethane	750	768	102	(78-121)
1,1-Dichloroethane	750	744	99	(76-125)
1,1-Dichloroethene	750	772	103	(70-131)
1,1-Dichloropropene	750	864	115	(76-125)
1,2,3-Trichlorobenzene	750	794	106	(66-130)
1,2,3-Trichloropropane	750	738	98	(73-125)
1,2,4-Trichlorobenzene	750	822	110	(67-129)
1,2,4-Trimethylbenzene	750	824	110	(75-123)
1,2-Dibromo-3-chloropropane	750	775	103	(61-132)
1,2-Dibromoethane	750	837	112	(78-122)
1,2-Dichlorobenzene	750	807	108	(78-121)
1,2-Dichloroethane	750	701	93	(73-128)
1,2-Dichloropropane	750	814	109	(76-123)
1,3,5-Trimethylbenzene	750	849	113	(73-124)
1,3-Dichlorobenzene	750	808	108	(77-121)
1,3-Dichloropropane	750	839	112	(77-121)
1,4-Dichlorobenzene	750	805	107	(75-120)
2,2-Dichloropropane	750	799	106	(67-133)
2-Butanone (MEK)	2250	2270	101	(51-148)
2-Chlorotoluene	750	829	111	(75-122)
2-Hexanone	2250	2270	101	(53-145)
4-Chlorotoluene	750	825	110	(72-124)
4-Isopropyltoluene	750	855	114	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2090	93	(65-135)
Acetone	2250	2060	92	(36-164)
Benzene	750	796	106	(77-121)
Bromobenzene	750	819	109	(78-121)
Bromochloromethane	750	702	94	(78-125)
Bromodichloromethane	750	787	105	(75-127)
Bromoform	750	808	108	(67-132)
Bromomethane	750	798	106	(53-143)

Print Date: 12/12/2018 9:46:40AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [VXX33607]

Blank Spike Lab ID: 1490696

Date Analyzed: 12/06/2018 09:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon disulfide	1130	1140	102	(63-132)
Carbon tetrachloride	750	842	112	(70-135)
Chlorobenzene	750	787	105	(79-120)
Chloroethane	750	778	104	(59-139)
Chloroform	750	763	102	(78-123)
Chloromethane	750	791	105	(50-136)
cis-1,2-Dichloroethene	750	747	100	(77-123)
cis-1,3-Dichloropropene	750	832	111	(74-126)
Dibromochloromethane	750	771	103	(74-126)
Dibromomethane	750	725	97	(78-125)
Dichlorodifluoromethane	750	797	106	(29-149)
Ethylbenzene	750	778	104	(76-122)
Freon-113	1130	1200	107	(66-136)
Hexachlorobutadiene	750	851	113	(61-135)
Isopropylbenzene (Cumene)	750	806	107	(68-134)
Methylene chloride	750	725	97	(70-128)
Methyl-t-butyl ether	1130	1200	107	(73-125)
Naphthalene	750	784	105	(62-129)
n-Butylbenzene	750	868	116	(70-128)
n-Propylbenzene	750	859	114	(73-125)
o-Xylene	750	762	102	(77-123)
P & M -Xylene	1500	1520	101	(77-124)
sec-Butylbenzene	750	860	115	(73-126)
Styrene	750	791	105	(76-124)
tert-Butylbenzene	750	855	114	(73-125)
Tetrachloroethene	750	848	113	(73-128)
Toluene	750	786	105	(77-121)
trans-1,2-Dichloroethene	750	770	103	(74-125)
trans-1,3-Dichloropropene	750	837	112	(71-130)
Trichloroethene	750	844	113	(77-123)
Trichlorofluoromethane	750	861	115	(62-140)
Vinyl acetate	750	847	113	(50-151)
Vinyl chloride	750	787	105	(56-135)
Xylenes (total)	2250	2280	101	(78-124)

Print Date: 12/12/2018 9:46:40AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [VXX33607]  
 Blank Spike Lab ID: 1490696  
 Date Analyzed: 12/06/2018 09:57

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
<b>Surrogates</b>				
1,2-Dichloroethane-D4 (surr)	750	94.4	94	( 71-136 )
4-Bromofluorobenzene (surr)	750	110	110	( 55-151 )
Toluene-d8 (surr)	750	101	101	( 85-116 )

## Batch Information

Analytical Batch: **VMS18611**  
 Analytical Method: **SW8260C**  
 Instrument: **VQA 7890/5975 GC/MS**  
 Analyst: **NRO**

Prep Batch: **VXX33607**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **12/06/2018 06:00**  
 Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: Extract Vol:

## Matrix Spike Summary

Original Sample ID: 1186648003  
 MS Sample ID: 1490697 MS  
 MSD Sample ID: 1490698 MSD

Analysis Date: 12/06/2018 13:42  
 Analysis Date: 12/06/2018 11:30  
 Analysis Date: 12/06/2018 11:47  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	6.55U	441	471	107	441	496	113	78-125	5.30	(< 20 )
1,1,1-Trichloroethane	8.15U	441	496	113	441	490	111	73-130	1.30	(< 20 )
1,1,2,2-Tetrachloroethane	4.08U	441	449	102	441	462	105	70-124	2.90	(< 20 )
1,1,2-Trichloroethane	3.27U	441	439	99	441	470	106	78-121	6.90	(< 20 )
1,1-Dichloroethane	8.15U	441	449	102	441	443	100	76-125	1.50	(< 20 )
1,1-Dichloroethene	8.15U	441	485	110	441	466	106	70-131	3.90	(< 20 )
1,1-Dichloropropene	8.15U	441	521	118	441	519	118	76-125	0.49	(< 20 )
1,2,3-Trichlorobenzene	16.3U	441	440	100	441	461	105	66-130	4.80	(< 20 )
1,2,3-Trichloropropane	8.15U	441	416	94	441	429	97	73-125	3.00	(< 20 )
1,2,4-Trichlorobenzene	8.15U	441	456	103	441	470	106	67-129	2.90	(< 20 )
1,2,4-Trimethylbenzene	33.6	441	482	102	441	499	106	75-123	3.60	(< 20 )
1,2-Dibromo-3-chloropropane	32.6U	441	459	104	441	486	110	61-132	5.70	(< 20 )
1,2-Dibromoethane	3.27U	441	490	111	441	519	118	78-122	5.60	(< 20 )
1,2-Dichlorobenzene	8.15U	441	449	102	441	463	105	78-121	3.10	(< 20 )
1,2-Dichloroethane	3.27U	441	417	95	441	425	96	73-128	2.00	(< 20 )
1,2-Dichloropropane	3.27U	441	478	108	441	487	110	76-123	2.00	(< 20 )
1,3,5-Trimethylbenzene	14.3J	441	477	105	441	502	110	73-124	5.00	(< 20 )
1,3-Dichlorobenzene	8.15U	441	455	103	441	461	104	77-121	1.30	(< 20 )
1,3-Dichloropropane	3.27U	441	482	109	441	517	117	77-121	6.90	(< 20 )
1,4-Dichlorobenzene	8.15U	441	453	103	441	461	105	75-120	1.90	(< 20 )
2,2-Dichloropropane	8.15U	441	478	108	441	469	106	67-133	2.00	(< 20 )
2-Butanone (MEK)	81.5U	1321	1290	97	1321	1445	109	51-148	11.80	(< 20 )
2-Chlorotoluene	8.15U	441	467	106	441	477	108	75-122	1.90	(< 20 )
2-Hexanone	32.6U	1321	1280	97	1321	1424	108	53-145	10.90	(< 20 )
4-Chlorotoluene	8.15U	441	465	106	441	466	106	72-124	0.29	(< 20 )
4-Isopropyltoluene	32.6U	441	467	106	441	496	113	73-127	6.10	(< 20 )
4-Methyl-2-pentanone (MIBK)	81.5U	1321	1197	90	1321	1300	98	65-135	8.10	(< 20 )
Acetone	81.5U	1321	1156	87	1321	1290	98	36-164	11.40	(< 20 )
Benzene	6.81J	441	474	106	441	478	107	77-121	1.00	(< 20 )
Bromobenzene	8.15U	441	462	105	441	470	106	78-121	1.40	(< 20 )
Bromochloromethane	8.15U	441	423	96	441	424	96	78-125	0.30	(< 20 )
Bromodichloromethane	8.15U	441	466	106	441	473	107	75-127	1.30	(< 20 )
Bromoform	8.15U	441	467	106	441	497	113	67-132	6.20	(< 20 )
Bromomethane	65.5U	441	506	115	441	478	108	53-143	5.70	(< 20 )
Carbon disulfide	32.6U	662	728	110	662	689	104	63-132	5.40	(< 20 )
Carbon tetrachloride	4.08U	441	514	117	441	504	114	70-135	2.00	(< 20 )
Chlorobenzene	8.15U	441	453	103	441	473	107	79-120	4.10	(< 20 )

Print Date: 12/12/2018 9:46:41AM

## Matrix Spike Summary

Original Sample ID: 1186648003  
 MS Sample ID: 1490697 MS  
 MSD Sample ID: 1490698 MSD

Analysis Date: 12/06/2018 13:42  
 Analysis Date: 12/06/2018 11:30  
 Analysis Date: 12/06/2018 11:47  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroethane	65.5U	441	490	111	441	463	105	59-139	5.70	(< 20 )
Chloroform	8.15U	441	458	104	441	456	103	78-123	0.35	(< 20 )
Chloromethane	8.15U	441	515	117	441	466	106	50-136	9.90	(< 20 )
cis-1,2-Dichloroethene	8.15U	441	460	104	441	442	100	77-123	4.10	(< 20 )
cis-1,3-Dichloropropene	4.08U	441	483	110	441	499	113	74-126	3.20	(< 20 )
Dibromochloromethane	8.15U	441	445	101	441	469	106	74-126	5.20	(< 20 )
Dibromomethane	8.15U	441	432	98	441	442	100	78-125	2.00	(< 20 )
Dichlorodifluoromethane	16.3U	441	516	117	441	474	107	29-149	8.40	(< 20 )
Ethylbenzene	26.7	441	470	100	441	488	105	76-122	3.90	(< 20 )
Freon-113	32.6U	662	740	112	662	724	109	66-136	2.20	(< 20 )
Hexachlorobutadiene	6.55U	441	689	156 *	441	659	150 *	61-135	4.30	(< 20 )
Isopropylbenzene (Cumene)	8.15U	441	463	105	441	487	111	68-134	5.00	(< 20 )
Methylene chloride	32.6U	441	443	100	441	436	99	70-128	1.70	(< 20 )
Methyl-t-butyl ether	32.6U	662	679	103	662	721	109	73-125	6.10	(< 20 )
Naphthalene	8.15U	441	432	98	441	463	105	62-129	7.00	(< 20 )
n-Butylbenzene	8.15U	441	492	112	441	515	117	70-128	4.50	(< 20 )
n-Propylbenzene	8.15U	441	479	109	441	493	112	73-125	2.90	(< 20 )
o-Xylene	50.4	441	483	98	441	505	103	77-123	4.30	(< 20 )
P & M -Xylene	119	882	989	99	882	1005	100	77-124	1.70	(< 20 )
sec-Butylbenzene	8.15U	441	480	109	441	501	113	73-126	4.20	(< 20 )
Styrene	49.1	441	499	102	441	520	107	76-124	4.10	(< 20 )
tert-Butylbenzene	8.15U	441	472	107	441	493	112	73-125	4.50	(< 20 )
Tetrachloroethene	4.08U	441	496	112	441	513	116	73-128	3.30	(< 20 )
Toluene	130	441	568	99	441	579	102	77-121	1.90	(< 20 )
trans-1,2-Dichloroethene	8.15U	441	470	106	441	460	104	74-125	2.00	(< 20 )
trans-1,3-Dichloropropene	4.08U	441	474	107	441	503	114	71-130	5.90	(< 20 )
Trichloroethene	3.27U	441	504	114	441	505	114	77-123	0.17	(< 20 )
Trichlorofluoromethane	16.3U	441	546	124	441	479	109	62-140	13.00	(< 20 )
Vinyl acetate	32.6U	441	480	109	441	507	115	50-151	5.50	(< 20 )
Vinyl chloride	3.27U	441	504	114	441	466	106	56-135	7.60	(< 20 )
Xylenes (total)	169	1321	1476	98	1321	1507	101	78-124	2.60	(< 20 )
<b>Surrogates</b>										
1,2-Dichloroethane-D4 (surr)		441	429	97	441	430	98	71-136	0.34	
4-Bromofluorobenzene (surr)		735	612	83	735	609	83	55-151	0.49	
Toluene-d8 (surr)		441	440	100	441	446	101	85-116	1.30	

Print Date: 12/12/2018 9:46:41AM

## Matrix Spike Summary

Original Sample ID: 1186648003  
 MS Sample ID: 1490697 MS  
 MSD Sample ID: 1490698 MSD

Analysis Date:  
 Analysis Date: 12/06/2018 11:30  
 Analysis Date: 12/06/2018 11:47  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by SW8260C

Parameter	Sample	Matrix Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			

## Batch Information

Analytical Batch: VMS18611  
 Analytical Method: SW8260C  
 Instrument: VQA 7890/5975 GC/MS  
 Analyst: NRO  
 Analytical Date/Time: 12/6/2018 11:30:00AM

Prep Batch: VXX33607  
 Prep Method: Vol. Extraction SW8260 Field Extracted L  
 Prep Date/Time: 12/6/2018 6:00:00AM  
 Prep Initial Wt./Vol.: 87.74g  
 Prep Extract Vol: 25.00mL

Print Date: 12/12/2018 9:46:41AM

## Method Blank

Blank ID: MB for HBN 1789400 [XXX/40957]

Blank Lab ID: 1489805

QC for Samples:

1186648001, 1186648002, 1186648003

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	10.0U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
5a Androstane (surr)	87.2	60-120		%

## Batch Information

Analytical Batch: XFC14820

Analytical Method: AK102

Instrument: Agilent 7890B R

Analyst: VDL

Analytical Date/Time: 12/3/2018 10:00:00AM

Prep Batch: XXX40957

Prep Method: SW3550C

Prep Date/Time: 11/29/2018 9:18:46AM

Prep Initial Wt./Vol.: 30 g

Prep Extract Vol: 5 mL

Print Date: 12/12/2018 9:46:42AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [XXX40957]  
 Blank Spike Lab ID: 1489806  
 Date Analyzed: 12/03/2018 10:11

Spike Duplicate ID: LCSD for HBN 1186648 [XXX40957]  
 Spike Duplicate Lab ID: 1489807  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## 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	833	792	95	833	806	97	( 75-125 )	1.70	(< 20 )
<b>Surrogates</b>									
5a Androstane (surr)	16.7	98.2	98	16.7	99.3	99	( 60-120 )	1.10	

## Batch Information

Analytical Batch: **XFC14820**  
 Analytical Method: **AK102**  
 Instrument: **Agilent 7890B R**  
 Analyst: **VDL**

Prep Batch: **XXX40957**  
 Prep Method: **SW3550C**  
 Prep Date/Time: **11/29/2018 09:18**  
 Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL  
 Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

## Method Blank

Blank ID: MB for HBN 1789405 [XXX/40958]  
 Blank Lab ID: 1489831

Matrix: Soil/Solid (dry weight)

QC for Samples:  
 1186648001, 1186648002, 1186648003

## Results by 8270D SIM (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	6.25	ug/Kg
Fluoranthene	12.5U	25.0	6.25	ug/Kg
Fluorene	12.5U	25.0	6.25	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	6.25	ug/Kg
Naphthalene	10.0U	20.0	5.00	ug/Kg
Phenanthrene	12.5U	25.0	6.25	ug/Kg
Pyrene	12.5U	25.0	6.25	ug/Kg
<b>Surrogates</b>				
2-Methylnaphthalene-d10 (surr)	78.6	58-103		%
Fluoranthene-d10 (surr)	84.6	54-113		%

## Batch Information

Analytical Batch: XMS11240  
 Analytical Method: 8270D SIM (PAH)  
 Instrument: SVA Agilent 780/5975 GC/MS  
 Analyst: BMZ  
 Analytical Date/Time: 12/4/2018 6:25:00PM

Prep Batch: XXX40958  
 Prep Method: SW3550C  
 Prep Date/Time: 11/29/2018 10:37:41AM  
 Prep Initial Wt./Vol.: 22.5 g  
 Prep Extract Vol: 5 mL

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186648 [XXX40958]

Blank Spike Lab ID: 1489832

Date Analyzed: 12/04/2018 18:46

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by 8270D SIM (PAH)

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	91.2	82	(43-111)
2-Methylnaphthalene	111	93.6	84	(39-114)
Acenaphthene	111	90.4	81	(44-111)
Acenaphthylene	111	93.9	85	(39-116)
Anthracene	111	101	91	(50-114)
Benzo(a)Anthracene	111	90.7	82	(54-122)
Benzo[a]pyrene	111	86.1	78	(50-125)
Benzo[b]Fluoranthene	111	87.9	79	(53-128)
Benzo[g,h,i]perylene	111	86.3	78	(49-127)
Benzo[k]fluoranthene	111	86.6	78	(56-123)
Chrysene	111	95.2	86	(57-118)
Dibenzo[a,h]anthracene	111	83.6	75	(50-129)
Fluoranthene	111	99.2	89	(55-119)
Fluorene	111	96.7	87	(47-114)
Indeno[1,2,3-c,d] pyrene	111	90.7	82	(49-130)
Naphthalene	111	91.6	82	(38-111)
Phenanthrene	111	96.6	87	(49-113)
Pyrene	111	101	91	(55-117)

## Surrogates

2-Methylnaphthalene-d10 (surr)	111	80.8	81	(58-103)
Fluoranthene-d10 (surr)	111	83.5	84	(54-113)

## Batch Information

Analytical Batch: XMS11240

Analytical Method: 8270D SIM (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: BMZ

Prep Batch: XXX40958

Prep Method: SW3550C

Prep Date/Time: 11/29/2018 10:37

Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL

Dupe Init Wt./Vol.: Extract Vol:

## Matrix Spike Summary

Original Sample ID: 1186589002  
 MS Sample ID: 1489833 MS  
 MSD Sample ID: 1489834 MSD

Analysis Date: 12/04/2018 19:06  
 Analysis Date: 12/04/2018 19:27  
 Analysis Date: 12/04/2018 19:47  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186648001, 1186648002, 1186648003

## Results by 8270D SIM (PAH)

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	15.5U	139	123	88	139	128	92	43-111	3.70	(< 20 )
2-Methylnaphthalene	15.5U	139	128	92	139	136	98	39-114	5.80	(< 20 )
Acenaphthene	15.5U	139	113	81	139	118	85	44-111	3.90	(< 20 )
Acenaphthylene	15.5U	139	125	89	139	129	94	39-116	4.20	(< 20 )
Anthracene	15.5U	139	129	93	139	134	97	50-114	3.90	(< 20 )
Benzo(a)Anthracene	15.5U	139	131	94	139	133	96	54-122	2.00	(< 20 )
Benzo(a)pyrene	15.5U	139	122	88	139	127	91	50-125	3.60	(< 20 )
Benzo(b)Fluoranthene	15.5U	139	131	94	139	132	95	53-128	1.30	(< 20 )
Benzo(g,h,i)perylene	15.5U	139	119	85	139	121	87	49-127	2.30	(< 20 )
Benzo(k)fluoranthene	15.5U	139	109	78	139	109	79	56-123	0.25	(< 20 )
Chrysene	15.5U	139	123	88	139	127	91	57-118	3.30	(< 20 )
Dibenzo(a,h)anthracene	15.5U	139	117	84	139	120	86	50-129	2.50	(< 20 )
Fluoranthene	15.5U	139	131	94	139	142	102	55-119	7.60	(< 20 )
Fluorene	15.5U	139	124	89	139	128	93	47-114	3.50	(< 20 )
Indeno[1,2,3-c,d] pyrene	15.5U	139	125	89	139	127	92	49-130	2.20	(< 20 )
Naphthalene	12.4U	139	119	86	139	123	89	38-111	3.10	(< 20 )
Phenanthrene	10.1J	139	139	93	139	153	103	49-113	9.00	(< 20 )
Pyrene	16.3J	139	149	95	139	158	102	55-117	5.80	(< 20 )
<b>Surrogates</b>										
2-Methylnaphthalene-d10 (surr)		139	113	81	139	118	85	58-103	4.20	
Fluoranthene-d10 (surr)		139	120	86	139	122	88	54-113	1.80	

## Batch Information

Analytical Batch: XMS11240  
 Analytical Method: 8270D SIM (PAH)  
 Instrument: SVA Agilent 780/5975 GC/MS  
 Analyst: BMZ  
 Analytical Date/Time: 12/4/2018 7:27:00PM

Prep Batch: XXX40958  
 Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml  
 Prep Date/Time: 11/29/2018 10:37:41AM  
 Prep Initial Wt./Vol.: 22.53g  
 Prep Extract Vol: 5.00mL

## Vlahovich, Jillian (Anchorage)

---

**From:** Jacob Tracy <JCT@shanwil.com>  
**Sent:** Thursday, November 29, 2018 10:34 AM  
**To:** Vlahovich, Jillian (Anchorage)  
**Subject:** work order 1186648

Hi Jillian,

Can we please add total lead to the analyses list for all samples on this work order? Please let me know if you have any questions.

Thanks,

Jake Tracy  
Shannon & Wilson, Inc.  
907.433.3221

1186648



**SHANNON & WILSON, INC.**  
Geotechnical and Environmental Consultants

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

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

**CHAIN-OF-CUSTODY RECORD**

Laboratory: SGS  
Attn: Wendy

Page 1 of 1

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	Analysis Parameters/Sample Container Description (include preservative if used)			Total Number of Containers	Remarks/Matrix
102167-002-EX1	① A-B	1145	11/28/10	X	X	X				Soil / Pea gravel
↓ EX5	② A-B	1155	↓	X	X	X				
↓ EX11	③ A-B	1205	↓	X	X	X				

Project Information	Sample Receipt
Project Number: <u>102167-002</u>	Total Number of Containers: _____
Project Name: <u>Holiday 611</u>	COC Seals/Intact? Y/N/NA <u>NA</u>
Contact: <u>JCT</u>	Received Good Cond. <u>(Cold)</u>
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method: <u>HD</u>
Sampler: _____	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions: <u>Invoice Holiday</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>1440</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name: <u>Jake Tracy</u> Date: <u>11/28/10</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: <u>STW</u>	Company: _____	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: <u>JKV</u> Time: <u>14:41</u>
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name: <u>JKV</u> Date: <u>11/28/10</u>
Company: _____	Company: _____	Company: <u>SGS</u>

TB: 1.9°C D11



e-Sample Receipt Form

SGS Workorder #:

1186648



1 1 8 6 6 4 8

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>		
Were Custody Seals intact? Note # & location	n/a	Exemption permitted if sampler hand carries/delivers.
COC accompanied samples?	yes	
n/a **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	yes	Cooler ID: 1 @ 1.9 °C Therm. ID: D11
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	n/a	
If <0°C, were sample containers ice free?	n/a	
If samples 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 nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>		
Were samples received within holding time?		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Do samples <b>match COC</b> ** (i.e., sample IDs, dates/times collected)?		yes
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)		yes
Were proper containers (type/mass/volume/preservative***) used?		n/a ***Exemption permitted for metals (e.g.200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	n/a	No trip blank received with the samples.
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	yes	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



### Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1186648001-A	No Preservative Required	OK			
1186648001-B	Methanol field pres. 4 C	OK			
1186648002-A	No Preservative Required	OK			
1186648002-B	Methanol field pres. 4 C	OK			
1186648003-A	No Preservative Required	OK			
1186648003-B	Methanol field pres. 4 C	OK			

#### Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

## LABORATORY DATA REVIEW CHECKLIST

**Completed by:** Jake Kesler

**Title:** Environmental Staff

**Date:** March 2019

**CS Report Name:** Holiday Station Store 611, 1530 Huffman Road, Anchorage, Alaska

**Laboratory Report Date:** December 13, 2018

**Consultant Firm:** Shannon & Wilson, Inc.

**Laboratory Name:** SGS North America Inc.

**Laboratory Report Number:** 1186648

**ADEC File Number:** Spill No. *18239933102*

**ADEC RecKey Number:** *NA*

(NOTE: *NA* = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

### 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: *The samples were not transferred to another network laboratory.*

### 2. Chain of Custody (COC)

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

- 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 (0° to 6° C)? **Yes** / No / NA (please explain)

Comments: *The temperature blank was recorded at 1.9° C.*

- b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)? **Yes** / No / NA (please explain)

Comments:

- c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)? **Yes** / No / NA (please explain)

Comments:

- d. If there were any discrepancies, were they documented? – For example, incorrect sample containers/preservation, sample temperature outside acceptance range, insufficient or missing samples, etc.? **Yes** / No / NA (please explain)

Comments: *The laboratory noted that a trip blank was not recovered with the project samples.*

- e. Data quality or usability affected? Please explain. **Yes** / No / NA (please explain)

Comments: *Because a trip blank was not included with the project samples, potential cross-contamination associated with sample handling could not be evaluated.*

#### 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: *MS/MSD recovery for hexachlorobutadiene do not meet QC criteria. Refer to LCS for accuracy requirements.*

- c. Were corrective actions documented? Yes / **No** / NA (please explain)

Comments:

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

Comments: *The case narrative does not comment on data quality/usability.*

#### 5. Sample 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. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes** / No / NA (please explain)

Comments: *The LOQs for several VOCs are greater than their respective ADEC Method Two cleanup levels.*

- d. Data quality or usability affected? **Yes / No / NA** (please explain)

Comments: *The data cannot be used to determine whether or not concentrations of these VOCs are present at concentrations greater than their respective ADEC cleanup levels. However, estimated (J-flagged) concentrations were not detected in the project samples for these analytes.*

## 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 LOQ? **Yes** / No / NA (please explain)

Comments:

- iii. If above LOQ, what samples are affected? **NA**

Comments:

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

**Yes** / No / **NA** (please explain)

Comments:

- v. Data quality or usability affected? **Yes** / No / **NA** (please explain)

Comments:

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

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?

(LCS/LCSD required per AK methods, LCS required per SW846) **Yes** / No / NA (please explain)

Comments:

- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes** / No / NA (please explain)

Comments:

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

Comments:

iv. Precision – All relative percent differences (RPDs) 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%, VOCs 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? **NA**

Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined? **Yes** / No / **NA** (please explain)

Comments:

vii. Data quality or usability affected? Please explain. **Yes** / No / **NA** (please explain)

Comments: *Data quality/usability is not affected; see above.*

**c. Surrogates - Organics Only**

i. Are surrogate recoveries reported for organic analyses, field, QC and laboratory samples? **Yes** / No / NA (please explain)

Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes** / No / NA (please explain)

Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined? **Yes** / No / **NA** (please explain)

Comments:

iv. Data quality or usability affected? Please explain. **Yes** / No / **NA** (please explain)

Comments: *See above.*

**d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.)**

i. One trip blank reported per matrix, analysis and cooler? (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 stating why must be entered below.) **Yes** / No / **NA** (please explain)

Comments:

iii. All results less than LOQ? **Yes** / No / **NA** (please explain)

Comments:

iv. If above LOQ, what samples are affected? **NA**

Comments:

v. Data quality or usability affected? Please explain. **Yes** / No / NA (please explain)

Comments: *Because a trip blank was not included with the project samples, potential cross-contamination associated with sample handling could not be evaluated.*

**e. Field Duplicate**

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

**Yes** / **No** / **NA** (please explain)

Comments:

ii. Submitted blind to the lab? **Yes** / No / **NA** (please explain)

Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs? (Recommended: 30% for water, 50% for soil) **Yes** / No / **NA** (please explain)

Comments:

iv. Data quality or usability affected? Please explain. **NA**

Comments:

**f. Decontamination or Equipment Blank (if not applicable)**

**Yes** / No / **NA** (please explain)

Comments:

i. All results less than LOQ? **Yes** / No / **NA** (please explain)

Comments:

ii. If above LOQ, what samples are affected? **NA**

Comments:

iii. Data quality or usability affected? Please explain. **NA**

Comments:

**7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)**

a. Defined and appropriate? **Yes** / No / NA (please explain)

Comments: *A key is provided on page 4 of the laboratory report.*



## Laboratory Report of Analysis

To: Holiday Alaska, Inc.  
5430 Fairbanks St Ste 3  
Anchorage, AK 99518  
(907)561-2120

Report Number: **1186681**

Client Project: **102167-002 Holiday 611**

Dear Dan McMahon,

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

If there are any questions about the report or services performed during this project, please call Jillian 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.

---

Jillian Vlahovich  
Project Manager  
Jillian.Vlahovich@sgs.com

Date

## Case Narrative

SGS Client: **Holiday Alaska, Inc.**  
SGS Project: **1186681**  
Project Name/Site: **102167-002 Holiday 611**  
Project Contact: **Dan McMahon**

Refer to sample receipt form for information on sample condition.

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

Print Date: 12/19/2018 8:48:04AM

## Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry (Provisionally Certified as of 12/06/2018 for Uranium by EPA200.8, TDS by SM 2540C and Nitrate by SM 4500-NO3-F) & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
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>
102167-002-SP2	1186681001	11/29/2018	11/29/2018	Soil/Solid (dry weight)
102167-002-SP4	1186681002	11/29/2018	11/29/2018	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8260C-SIM	SW8260-SIM (S)

Print Date: 12/19/2018 8:48:06AM

## Detectable Results Summary

Client Sample ID: **102167-002-SP2**

Lab Sample ID: 1186681001

**Metals by ICP/MS**

Parameter

Result

Units

Lead

6.92

mg/Kg

Client Sample ID: **102167-002-SP4**

Lab Sample ID: 1186681002

**Metals by ICP/MS**

Parameter

Result

Units

Lead

4.81

mg/Kg



Results of **102167-002-SP2**

Client Sample ID: **102167-002-SP2**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186681001  
Lab Project ID: 1186681

Collection Date: 11/29/18 15:05  
Received Date: 11/29/18 16:00  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.8  
Location:

Results by **Metals by ICP/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>
Lead	6.92	1.06	0.329	mg/Kg	50		12/10/18 14:16

**Batch Information**

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Analyst: ACF  
Analytical Date/Time: 12/10/18 14:16  
Container ID: 1186681001-A

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/07/18 10:34  
Prep Initial Wt./Vol.: 1.028 g  
Prep Extract Vol: 50 mL



Results of **102167-002-SP4**

Client Sample ID: **102167-002-SP4**  
Client Project ID: **102167-002 Holiday 611**  
Lab Sample ID: 1186681002  
Lab Project ID: 1186681

Collection Date: 11/29/18 15:10  
Received Date: 11/29/18 16:00  
Matrix: Soil/Solid (dry weight)  
Solids (%):94.8  
Location:

Results by **Metals by ICP/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>
Lead	4.81	0.979	0.303	mg/Kg	50		12/10/18 14:21

**Batch Information**

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Analyst: ACF  
Analytical Date/Time: 12/10/18 14:21  
Container ID: 1186681002-A

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/07/18 10:34  
Prep Initial Wt./Vol.: 1.077 g  
Prep Extract Vol: 50 mL

## Results of 102167-002-SP4

Client Sample ID: **102167-002-SP4**  
 Client Project ID: **102167-002 Holiday 611**  
 Lab Sample ID: 1186681002  
 Lab Project ID: 1186681

Collection Date: 11/29/18 15:10  
 Received Date: 11/29/18 16:00  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):94.8  
 Location:

## Results by Volatile-SIM

<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>
1,2-Dibromoethane	0.0413 U	0.0825	0.0205	ug/Kg	1		12/12/18 12:23
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	103	55-151		%	1		12/12/18 12:23
Toluene-d8 (surr)	97.9	85-116		%	1		12/12/18 12:23

## Batch Information

Analytical Batch: VMS18618  
 Analytical Method: SW8260C-SIM  
 Analyst: NRB  
 Analytical Date/Time: 12/12/18 12:23  
 Container ID: 1186681002-B

Prep Batch: VXX33615  
 Prep Method: SW5035A  
 Prep Date/Time: 11/29/18 15:10  
 Prep Initial Wt./Vol.: 95.686 g  
 Prep Extract Vol: 29.9351 mL

## Method Blank

Blank ID: MB for HBN 1789561 [MXX/32133]

Blank Lab ID: 1490529

QC for Samples:

1186681001, 1186681002

Matrix: Soil/Solid (dry weight)

## Results by SW6020A

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

## Batch Information

Analytical Batch: MMS10389  
Analytical Method: SW6020A  
Instrument: Perkin Elmer Nexlon P5  
Analyst: ACF  
Analytical Date/Time: 12/10/2018 1:15:12PM

Prep Batch: MXX32133  
Prep Method: SW3050B  
Prep Date/Time: 12/7/2018 10:34:15AM  
Prep Initial Wt./Vol.: 1 g  
Prep Extract Vol: 50 mL

Print Date: 12/19/2018 8:48:09AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186681 [MXX32133]  
Blank Spike Lab ID: 1490530  
Date Analyzed: 12/10/2018 13:19

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186681001, 1186681002

## Results by SW6020A

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
Lead	50	50.1	100	( 84-118 )

## Batch Information

Analytical Batch: **MMS10389**  
Analytical Method: **SW6020A**  
Instrument: **Perkin Elmer Nexlon P5**  
Analyst: **ACF**

Prep Batch: **MXX32133**  
Prep Method: **SW3050B**  
Prep Date/Time: **12/07/2018 10:34**  
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL  
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/19/2018 8:48:10AM

## Matrix Spike Summary

Original Sample ID: 1186393011  
 MS Sample ID: 1490531 MS  
 MSD Sample ID: 1490532 MSD

Analysis Date: 12/10/2018 13:24  
 Analysis Date: 12/10/2018 13:29  
 Analysis Date: 12/10/2018 13:34  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186681001, 1186681002

## Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Lead	7.96	51.7	57.3	96	51.9	57.3	95	84-118	0.02	(< 20 )

## Batch Information

Analytical Batch: MMS10389  
 Analytical Method: SW6020A  
 Instrument: Perkin Elmer Nexlon P5  
 Analyst: ACF  
 Analytical Date/Time: 12/10/2018 1:29:20PM

Prep Batch: MXX32133  
 Prep Method: Soils/Solids Digest for Metals by ICP-MS  
 Prep Date/Time: 12/7/2018 10:34:15AM  
 Prep Initial Wt./Vol.: 1.01g  
 Prep Extract Vol: 50.00mL

Print Date: 12/19/2018 8:48:11AM

## Method Blank

Blank ID: MB for HBN 1789564 [SPT/10696]

Blank Lab ID: 1490538

QC for Samples:

1186681001, 1186681002

Matrix: Soil/Solid (dry weight)

## 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: SPT10696

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Analytical Date/Time: 12/6/2018 5:14:00PM

Print Date: 12/19/2018 8:48:12AM

## Duplicate Sample Summary

Original Sample ID: 1186803003

Duplicate Sample ID: 1490539

QC for Samples:

1186681001, 1186681002

Analysis Date: 12/06/2018 17:14

Matrix: Soil/Solid (dry weight)

## Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	71.0	72.0	%	1.40	(< 15 )

## Batch Information

Analytical Batch: SPT10696

Analytical Method: SM21 2540G

Instrument:

Analyst: BRP

Print Date: 12/19/2018 8:48:13AM

## Method Blank

Blank ID: MB for HBN 1789715 [VXX/33615]

Blank Lab ID: 1491176

QC for Samples:

1186681002

Matrix: Solid/Soil (Wet Weight)

## Results by SW8260C-SIM

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2-Dibromoethane	0.0625U	0.125	0.0310	ug/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	107	55-151		%
Toluene-d8 (surr)	99.1	85-116		%

## Batch Information

Analytical Batch: VMS18618

Analytical Method: SW8260C-SIM

Instrument: VRA Agilent GC/MS 7890B/5977A

Analyst: NRB

Analytical Date/Time: 12/12/2018 10:43:00AM

Prep Batch: VXX33615

Prep Method: SW5035A

Prep Date/Time: 12/12/2018 12:30:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 12/19/2018 8:48:14AM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1186681 [VXX33615]  
 Blank Spike Lab ID: 1491177  
 Date Analyzed: 12/12/2018 10:58

Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1186681002

## Results by SW8260C-SIM

Parameter	Blank Spike (ug/Kg)			CL ( 78-122 )
	Spike	Result	Rec (%)	
1,2-Dibromoethane	5	4.93	99	
<b>Surrogates</b>				
Toluene-d8 (surr)	750	99.3	99	( 85-116 )

## Batch Information

Analytical Batch: **VMS18618**  
 Analytical Method: **SW8260C-SIM**  
 Instrument: **VRA Agilent GC/MS 7890B/5977A**  
 Analyst: **NRB**

Prep Batch: **VXX33615**  
 Prep Method: **SW5035A**  
 Prep Date/Time: **12/12/2018 00:30**  
 Spike Init Wt./Vol.: 5 ug/Kg Extract Vol: 25 mL  
 Dupe Init Wt./Vol.: Extract Vol:

Print Date: 12/19/2018 8:48:16AM

## Matrix Spike Summary

Original Sample ID: 1186681002  
 MS Sample ID: 1491178 MS  
 MSD Sample ID: 1491179 MSD

Analysis Date: 12/12/2018 12:23  
 Analysis Date: 12/12/2018 11:21  
 Analysis Date: 12/12/2018 11:36  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1186681002

## Results by SW8260C-SIM

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,2-Dibromoethane	0.0413U	3.31	3.38	102	3.31	3.51	106	78-122	4.10	(< 20 )
<b>Surrogates</b>										
4-Bromofluorobenzene (surr)		689	700	102	689	729	106	55-151	4.10	
Toluene-d8 (surr)		496	486	98	496	483	97	85-116	0.63	

## Batch Information

Analytical Batch: VMS18618  
 Analytical Method: SW8260C-SIM  
 Instrument: VRA Agilent GC/MS 7890B/5977A  
 Analyst: NRB  
 Analytical Date/Time: 12/12/2018 11:21:00AM

Prep Batch: VXX33615  
 Prep Method: 8260SIM (S) SW5035 Prep  
 Prep Date/Time: 12/12/2018 12:30:00AM  
 Prep Initial Wt./Vol.: 95.69g  
 Prep Extract Vol: 29.94mL

Print Date: 12/19/2018 8:48:17AM

## Vlahovich, Jillian (Anchorage)

---

**From:** Jacob Tracy <JCT@shanwil.com>  
**Sent:** Tuesday, December 18, 2018 2:22 PM  
**To:** Vlahovich, Jillian (Anchorage)  
**Subject:** RE: WO 1186681

Hi Jillian,

Please finalize the report.

Thanks,

Jake Tracy  
Shannon & Wilson, Inc.  
907.433.3221

---

**From:** Vlahovich, Jillian (Anchorage) <Jillian.Vlahovich@sgs.com>  
**Sent:** Tuesday, December 18, 2018 1:42 PM  
**To:** Jacob Tracy <JCT@shanwil.com>  
**Subject:** RE: WO 1186681

Hi Jake,

Your prelim report is attached.

Thanks!

**Jillian Vlahovich**  
**Environment, Health, and Safety**  
Project Manager

Office: +00 1 907 562-2343  
Direct: +00 1 907 550-3208

---

**From:** Jacob Tracy [<mailto:JCT@shanwil.com>]  
**Sent:** Tuesday, December 18, 2018 9:55 AM  
**To:** Vlahovich, Jillian (Anchorage) <[Jillian.Vlahovich@sgs.com](mailto:Jillian.Vlahovich@sgs.com)>  
**Subject:** WO 1186681

Hi Jillian,

I just wanted to check on the status of work order 1186681.

Thanks,

Jake Tracy  
Shannon & Wilson, Inc.  
907.433.3221

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1186681



**SHANNON & WILSON, INC.**  
Geotechnical and Environmental Consultants

**CHAIN-OF-CUSTODY RECORD**

Laboratory SGS Page 1 of 1  
Attn: JILLIAN

400 N. 34th Street, Suite 100 Seattle, WA 98103 (206) 632-8020  
2355 Hill Road Fairbanks, AK 99709 (907) 479-0600  
3990 Collins Way, Suite 100 Lake Oswego, OR 97035 (503) 223-6147  
2043 Westport Center Drive St. Louis, MO 63146-3564 (314) 699-9660  
5430 Fairbanks Street, Suite 3 Anchorage, AK 99518 (907) 561-2120  
1321 Bannock Street, Suite 200 Denver, CO 80204 (303) 825-3800  
2705 Saint Andrews Loop, Suite A Pasco, WA 99301-3378 (509) 946-6309

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

Sample Identity	Lab No.	Time	Date Sampled	Comp. Grab	Total Lead	EBS	EPA 8011	TCLP Lead	Total Number of Containers	Remarks/Matrix
102167-002-SP2	① A-B	1505	11/29/10	X	X	Hold	Hold			Soil / Pea Gravel
↓ SP4	② A-B	1510	●	X	X	X	Hold			↓

Project Information	Sample Receipt
Project Number: <u>102167-002</u>	Total Number of Containers
Project Name: <u>Holiday Hill</u>	COC Seals/Intact? Y/N/NA
Contact: <u>JCT</u>	Received Good Cond./Cold
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method:
Sampler: <u>JCT</u>	(attach shipping bill, if any)

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Jake Tracy</u> Time: <u>1559</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name: <u>Jake Tracy</u> Date: <u>11/29/10</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: <u>SGS</u>	Company: _____	Company: _____

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions: <u>Invoice Holiday</u>

Received By: 1.	Received By: 2.	Received By: 3.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: <u>NW</u> Time: <u>1600</u>
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name: <u>Nicole Warner</u> Date: <u>11/29/10</u>
Company: _____	Company: _____	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



e-Sample Receipt Form

SGS Workorder #:

1186681



1 1 8 6 6 8 1

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
<b>Chain of Custody / Temperature Requirements</b>	<input checked="" type="checkbox"/> Yes	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	<input type="checkbox"/> N/A	Absent
COC accompanied samples?	<input checked="" type="checkbox"/> Yes	
<input checked="" type="checkbox"/> Yes **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	<input checked="" type="checkbox"/> Yes	Cooler ID: 1 @ 0.3 °C Therm. ID: D11
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
	<input type="checkbox"/>	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	<input type="checkbox"/> N/A	
If <0°C, were sample containers ice free?	<input type="checkbox"/> N/A	
If samples 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 nor cooler temp can be obtained, note "ambient" or "chilled".		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
<b>Holding Time / Documentation / Sample Condition Requirements</b>		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	<input checked="" type="checkbox"/> Yes	
Do samples <b>match COC**</b> (i.e., sample IDs, dates/times collected)?	<input checked="" type="checkbox"/> Yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	<input checked="" type="checkbox"/> Yes	Client requested EDB by 8011. Will analyze by 8260C-SIM in house per client 12/3 JKV.
Were proper containers (type/mass/volume/preservative***) used?	<input type="checkbox"/> N/A	***Exemption permitted for metals (e.g.200.8/6020A).
<b>Volatile / LL-Hg Requirements</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<input type="checkbox"/> No	No Trip Blank received
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	<input type="checkbox"/> N/A	
Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/> Yes	
<b>Note to Client:</b> Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		



### Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1186681001-A	No Preservative Required	OK			
1186681001-B	Methanol field pres. 4 C	OK			
1186681002-A	No Preservative Required	OK			
1186681002-B	Methanol field pres. 4 C	OK			

#### Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.

BU - The container was received with headspace greater than 6mm.

DM - The container was received damaged.

FR - The container was received frozen and not usable for Bacteria or BOD analyses.

IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.

PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

## LABORATORY DATA REVIEW CHECKLIST

**Completed by:** Jake Kesler

**Title:** Environmental Staff

**Date:** March 2019

**CS Report Name:** Holiday Station Store 611, 1530 Huffman Road, Anchorage, Alaska

**Laboratory Report Date:** December 19, 2018

**Consultant Firm:** Shannon & Wilson, Inc.

**Laboratory Name:** SGS North America Inc.

**Laboratory Report Number:** 1186681

**ADEC File Number:** Spill No. 18239933102

**ADEC RecKey Number:** NA

(NOTE: NA = not applicable; Text in *italics* added by Shannon & Wilson, Inc.)

### 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: *The samples were not transferred to another network laboratory.*

### 2. Chain of Custody (COC)

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

- 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 (0° to 6° C)? **Yes** / No / NA (please explain)

Comments: *The temperature blank was recorded at 0.3° C.*

- b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)? **Yes** / No / NA (please explain)

Comments:

- c. Sample condition documented - broken, leaking (Methanol), zero headspace (VOC vials)? **Yes** / No / NA (please explain)

Comments:

- d. If there were any discrepancies, were they documented? – For example, incorrect sample containers/preservation, sample temperature outside acceptance range, insufficient or missing samples, etc.? **Yes** / No / NA (please explain)

Comments: *The laboratory noted that a trip blank was not recovered with the project samples.*

- e. Data quality or usability affected? Please explain. **Yes** / No / NA (please explain)

Comments: *Because a trip blank was not included with the project samples, potential cross-contamination associated with sample handling could not be evaluated.*

#### 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 case narrative notes to refer to sample receipt for information on sample condition.*

- c. Were corrective actions documented? **Yes** / No / **NA** (please explain)

Comments:

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

Comments: *The case narrative does not comment on data quality/usability.*

#### 5. Sample Results

- a. Correct analyses performed/reported as requested on COC? **Yes** / No / NA (please explain)

Comments: *The chain-of-custody requested EDB by EPA Method 8011. With Shannon & Wilson approval, EDB was analyzed by EPA Method 8260C SIM.*

- b. All applicable holding times met? **Yes** / No / NA (please explain)

Comments:

- c. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes** / No / NA (please explain)

Comments:

- d. Data quality or usability affected? **Yes** / No / **NA** (please explain)

Comments:

**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 LOQ? **Yes** / No / NA (please explain)  
Comments:
- iii.** If above LOQ, what samples are affected? **NA**  
Comments:
- iv.** Do the affected sample(s) have data flags? If so, are the data flags clearly defined?  
**Yes** / No / **NA** (please explain)  
Comments:
- v.** Data quality or usability affected? **Yes** / No / **NA** (please explain)  
Comments:

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

- i.** Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?  
(LCS/LCSD required per AK methods, LCS required per SW846) **Yes** / No / NA  
(please explain)  
Comments:
- ii.** Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis  
and 20 samples? **Yes** / No / NA (please explain)  
Comments:
- iii.** Accuracy – All percent recoveries (%R) reported and within method or laboratory  
limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101  
60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the  
laboratory QC pages) **Yes** / No / NA (please explain)  
Comments:
- iv.** Precision – All relative percent differences (RPDs) 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%, VOCs 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? **NA**  
Comments:

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?  
Yes / No / **NA** (please explain)  
Comments:

vii. Data quality or usability affected? Please explain. Yes / No / **NA** (please explain)  
Comments: *See above.*

**c. Surrogates - Organics Only**

i. Are surrogate recoveries reported for organic analyses, field, QC and laboratory samples? **Yes** / No / NA (please explain)  
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes** / No / NA (please explain)  
Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined? Yes / No / **NA** (please explain)  
Comments:

iv. Data quality or usability affected? Please explain. Yes / No / **NA** (please explain)  
Comments: *Data quality/usability are unaffected.*

**d. Trip Blank - Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.)**

i. One trip blank reported per matrix, analysis and cooler? (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 stating why must be entered below.) Yes / **No** / NA (please explain)  
Comments:

iii. All results less than LOQ? Yes / No / **NA** (please explain)  
Comments:

iv. If above LOQ, what samples are affected? **NA**  
Comments:

v. Data quality or usability affected? Please explain. **Yes** / No / NA (please explain)  
Comments: *Because a trip blank was not included with the project samples, potential cross-contamination associated with sample handling could not be evaluated.*

**e. Field Duplicate**

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

Yes / **No** / NA (please explain)

Comments:

- ii. Submitted blind to the lab? Yes / No / **NA** (please explain)

Comments:

- iii. Precision – All relative percent differences (RPDs) less than specified DQOs? (Recommended: 30% for water, 50% for soil) Yes / No / **NA** (please explain)

Comments:

- iv. Data quality or usability affected? Please explain. **NA**

Comments:

**f. Decontamination or Equipment Blank** (if not applicable)

Yes / **No** / NA (please explain)

Comments:

- i. All results less than LOQ? Yes / No / **NA** (please explain)

Comments:

- ii. If above LOQ, what samples are affected? **NA**

Comments:

- iii. Data quality or usability affected? Please explain. **NA**

Comments:

**7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab-specific, etc.)**

- a. Defined and appropriate? **Yes** / No / NA (please explain)

Comments: *A key is provided on page 3 of the laboratory report.*

**ATTACHMENT 5**  
**IMPORTANT INFORMATION ABOUT YOUR**  
**GEOTECHNICAL/ENVIRONMENTAL REPORT**



Date: March 2019  
To: Ms. Camie Pederson, P.E.  
Holiday Alaska, LLC

## **IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT**

### **CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.**

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

### **THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.**

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

### **SUBSURFACE CONDITIONS CAN CHANGE.**

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

### **MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.**

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

## **A REPORT'S CONCLUSIONS ARE PRELIMINARY.**

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

## **THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.**

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

## **BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.**

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

## **READ RESPONSIBILITY CLAUSES CLOSELY.**

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the  
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland