

Department of Transportation and Public Facilities  
Statewide Public Facilities  
Submittal Review

- No Exceptions Taken
- Make Corrections Noted
- Revise and Resubmit
- Rejected

Review of submittals indicates only that the general method of construction and detailing is consistent with the requirements of the Contract Documents and shall not relieve the CONTRACTOR of the responsibility for compliance with the requirements of the Contract Documents; or for errors, dimensions, and quantities unless specific exception is requested and approved on the submittal.

DEPARTMENT's review shall not extend to the means, methods, techniques, sequences or procedures of construction or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

Signature \_\_\_\_\_ Date \_\_\_\_\_

January 3, 2017

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## **RESTORATION**

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Subject: Homer Maintenance & Operations Station Retention Pond Installation  
Stockpile Soil Sampling Characterization Report  
ADOT&PF Project No. Z583650000/CSHWY00151; SPC2562-015

Restoration Science & Engineering, LLC (RSE) is providing this letter report outlining field activities for the characterization sampling of stockpiled soil associated with installation of a new retention pond currently located at the Alaska Department of Transportation and Public Facilities (ADOT&PF) Maintenance & Operations Facility (M&O) at 3450 Sterling Highway in Homer, Alaska. Field sampling of the stockpile was conducted on November 9, 2016. This stockpile was generated in July 2016 during the retention pond construction event and is separate from the fall 2016 underground injection control well removal effort at the same facility which is covered under a separate report.

### **Background Information**

On July 11 and 12, 2016 RSE personnel collected observations and field screened soil during excavation activities to install a lift station and approximately 265 linear feet of shallow buried arctic drain pipe for the construction of a drainage retention pond. Soil was characterized using a photoionization detector (PID) during the excavations to segregate potentially hydrocarbon-impacted soil from soil suitable for beneficial reuse. Approximately 60 cubic yards of presumed-impacted soil was placed on a 20-mil petroleum-resistant liner and covered on-site for subsequent characterization and disposal. The objective of the soil sampling effort was to determine proper treatment and disposal methods for the stockpiled soil.

### **Field Activities**

Field activities were performed in general accordance with the November 4, 2016 ADEC-approved work plan, 2016 ADEC Field Sampling Guidance, and general industry standards. Emily Mahanna, Qualified Environmental Sampler, under the supervision of Arran Forbes, Qualified Environmental Professional, collected the requisite field-screening and laboratory characterization samples. Sample locations and soil observations were recorded in a field book, a copy of which is attached.

Sample frequencies were determined based upon Table 2A in the ADEC 2016 Field Sampling Guidance, extracted below.

*ADEC Table 2A Excavated Soil Sample Collection Guide*

By Volume (CY)	Field-Screening Samples	Laboratory Samples
0-10	5	1
11-50	5	2
51-100	1 per 10 CY	3
More than 100	1 per 10 CY	3 samples, plus 1 sample for each additional 200 CY

Field measurements of the stockpile indicated it contains approximately 60 cubic yards of excavated material. As such, 6 field screening samples and 3 laboratory samples plus a duplicate were required for characterization of the stockpile. RSE satisfied the field screening and analytical frequencies detailed in Table 2A above.

Samples were submitted for laboratory analyses for the following analytes as specified in the November 4, 2016 ADEC-approved work plan:

*Table 1 – Contaminants of Concern*

COC	Matrix	COPC Abbreviation	ADEC-Approved Lab Method	ADEC Method 2 Soil Cleanup Level
Gasoline Range Organics	Soil	GRO	AK 101	300 mg/Kg
Diesel Range Organics	Soil	DRO	AK 102	250 mg/Kg
Residual Range Organics	Soil	RRO	AK 103	11,000 mg/Kg
Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver	Soil	Collectively referred to as Total Metals	EPA 6020A/SW-7471 (Mercury)	Varies
Volatile Organic Compounds	Soil	VOC	EPA 8260B	Varies
Semi Volatile Organic Compounds	Soil	SVOC	EPA 8270D	Varies

Laboratory samples were preferentially selected from locations exhibiting elevated field screening readings and/or near debris, staining, or other field indicators of potential impacts. Samples were subject to testing for all analytes listed in Table 1 above. A complete data set is attached to this report.

### **Field Screening Procedures**

RSE field personnel collected field screening samples from random locations and depths (greater than 1.5 feet below the surface of the stockpile and including the bottom of the stockpile) throughout the stockpile and recorded the approximate location from which the sample originated. RSE placed field-screening samples into a Ziploc™ quart-sized bag, warmed the bag to approximately 60° F, and measured the head space within the bag using a PID. The PID was calibrated with 100 parts per million by volume (ppmv) isobutylene prior to field work. Field-screening samples were collected using clean stainless steel spoons.

### **Analytical Sample Procedures**

Once PID readings were recorded and compared, RSE collected characterization samples from the locations that registered the highest PID readings ranging from 17.1 ppmv to 28.0 ppmv. RSE used clean stainless steel spoons to transfer the material to the method-specific containers provided by the laboratory. The soil sample containers were placed into a cooler packed with gel-ice. Soil samples were transported under chain-of-custody (COC) to SGS North America (SGS) located in Anchorage, Alaska. Samples were delivered to the laboratory at -0.3 °C and delivered on November 11, 2016, two days after sample collection.

### **Quality Assurance and Control**

RSE collected each soil sample in general accordance with applicable ADEC regulation and guidance documents. Blind duplicate samples were collected at a frequency of 10%, with one blind duplicate sample collected. Results of the blind duplicate sample indicate quality control procedures in the laboratory did not affect the quality or usability of the data.

RSE submitted one (1) trip blank for the sample cooler containing volatile samples. No detections for volatile organic compounds were reported for the trip blank.

On review of field activities and quality control measures, RSE has not identified deviations or issues would indicate the data has been affected for its intended purpose for comparison against ADEC Method 2 cleanup levels. Additional detail is provided in the ADEC data quality review checklist (Attachment E).

### **Investigative Derived Waste**

Consumables such as plastic bags, gloves and used jars were placed into a trash receptacle for disposal. Non-consumables such as spoons and other field equipment were decontaminated using Alconox and water at RSE's equipment room. Soil from field screening samples was discarded into the stockpile of origin.

## Visual Assessment

The stockpile was covered in visqueen upon arrival, and was placed in a bermed cell on a 20 mil liner. The stockpile was approximately 12 feet x 42 feet with an average depth of 3 feet. In total, RSE estimates 60 cubic yards of soil in the stockpile.

Soil was generally observed to be a sandy gravel and gravelly sand consistent with fill pad material. The stockpile was observed to have areas of stained soil with a hydrocarbon odor. Select photographs from the field event are included as an attachment to this report.

## Laboratory Results

Sample results for DRO ranged from 278 mg/Kg to 854 mg/Kg, all of which were in exceedance of the ADEC Method 2 Migration to Groundwater (MTGW) Cleanup standard of 250 mg/Kg. Detectable concentrations for RRO and GRO were below the respective ADEC Method 2 MTGW Cleanup Levels.

Sample A-4 yielded a concentration of 25.3 ug/Kg benzene, slightly elevated above the ADEC Method 2 MTGW Cleanup Level of 22 mg/Kg. Samples A-2 and A-5 were below cleanup standards for benzene. All samples reported concentrations below cleanup standards for toluene. All samples yielded detectable results for ethylbenzene ranging from 164 ug/Kg to 386 ug/Kg exceeding the ADEC Method 2 MTGW Cleanup Level of 130 ug/Kg. Samples A-2 and A-4 yielded 2,920 ug/Kg and 2,270 ug/Kg respectively for total xylenes. The ADEC Method 2 MTGW Cleanup Level for total xylenes is 1,500 ug/Kg.

All collected samples yielded detectable concentrations of arsenic ranging from 5.15 mg/Kg to 5.51 mg/Kg, exceeding the ADEC Method 2 MTGW Cleanup Level of 0.2 mg/Kg. However, these concentrations are within typical background concentrations for Alaska soil, and not believed to be anthropogenic. Sample results for barium, cadmium, trivalent chromium, lead, mercury, selenium and silver were below applicable cleanup standards.

All samples exhibited results for 1,2,4-Trimethylbenzene that exceeded the cleanup standard of 160 ug/Kg with concentrations ranging from 589 ug/Kg to 1320 ug/Kg. Results for naphthalene in all samples exceeded the ADEC Method 2 Migration to Groundwater Cleanup Level of 38 ug/Kg.

Detection limits for numerous VOC analytes were elevated above ADEC Method 2 MTGW cleanup levels. These results have been highlighted in light blue and may be seen in Attachment A, Table 4.

All results for SVOC analytes were below cleanup levels with the exception of samples A-2 and A-4 for 1-Methylnaphthalene (estimated at 0.912 and 1.03 mg/Kg respectively). Detection levels that exceeded cleanup standards for their respective analytes have been highlighted in light blue and may be seen in Attachment A, Table 5.

Analytes with detection limits greater than the ADEC Method 2 MTGW cleanup levels are not believed to affect the usability of the data for soil characterization. RSE believes that the data is

acceptable for soil characterization purposes to determine proper waste disposal actions. Complete tables and laboratory reports are provided as attachments to this summary in Attachment A.

### **Conclusion**

RSE conducted sampling of the stockpile located at the ADOT&PF Homer M&O station in accordance with an ADEC approved workplan and regulatory and industry standards. Based upon the exceedances reported in the four (4) samples submitted to SGS Laboratories, and results showing no chlorinated compounds or other constituents requiring special handling or approvals for Alaska Soil Recycling (ASR) treatment, RSE recommends the soil be transported to and disposed of at ASR, in Anchorage, Alaska. An ADEC Transport, Treatment, and Disposal Approval Form for Contaminated Media is attached.

If you have any questions or comments do not hesitate to contact me at 907-278-1023.



Emily Mahanna, EIT

Arran Forbes, Environmental Scientist

**RESTORATION SCIENCE & ENGINEERING, LLC**

### **ATTACHMENTS**

Attachment A – Laboratory Data Tables

Attachment B – Select Site Photographs

Attachment C – Copy of Field Notes

Attachment D – SGS Laboratory Report 1166783

Attachment E – ADEC Laboratory Data Review Checklist

Attachment F – ADEC Transport, Treatment, and Disposal Approval Form for Contaminated Media

### **Reference**

RSE. 2016. Homer Maintenance & Operations Station Retention Pond Installation Stockpile Soil Sampling Work Plan. November 2016.

# **ATTACHMENT A:**

# **Laboratory Data Tables**

**TABLE 1**  
**Field Screening Results**  
**ADOT Retention Pond Stockpile Homer, AK**

FIELD SCREENING RESULTS (RETENTION POND STOCKPILE)				
SAMPLE ID	DATE	DEPTH (FEET)	PID (PPMV)	NOTES
<i>PID Readings</i>				
A-1	11/9/2016	1	12.3	gravelly sand fill
<b>A-2</b>	<b>11/9/2016</b>	<b>1</b>	<b>20.1</b>	<b>gravelly sand fill</b>
A-3	11/9/2016	1.5	13.7	gravelly sand fill
<b>A-4</b>	<b>11/9/2016</b>	<b>1.5</b>	<b>28.0</b>	<b>gravelly sand fill</b>
<b>A-5</b>	<b>11/9/2016</b>	<b>1.5</b>	<b>17.1</b>	<b>gravelly sand fill</b>
A-6	11/9/2016	1.5	8.4	gravelly sand fill

NOTES:

- 1) Field-screening measurements collected using a RAE Systems MiniRAE Lite photo-ionization detector (PID) calibrated with 100 ppmv isobutylene
- 2) "PPMV" means "parts per million by volume"
- 3) Bold text indicates the samples was submitted for laboratory analyses



**TABLE 2**  
**Hydrocarbons in Soil**  
**ADOT Retention Pond Stockpile Homer, AK**

HYDROCARBONS IN SOIL (RETENTION POND STOCKPILE)												
SAMPLE ID	DATE	DEPTH (FEET)	PID (PPMV)	TOTAL SOLIDS (%)	DIESEL RANGE ORGANICS (mg/Kg)	RESIDUAL RANGE ORGANICS (mg/Kg)	GASOLINE RANGE ORGANICS (mg/Kg)	BENZENE (µg/Kg)	TOLUENE (µg/Kg)	ETHYL- BENZENE (µg/Kg)	TOTAL XYLENES (µg/Kg)	SGS NORTH AMERICA WORK ORDER NO.
A-2	11/9/2016	1	20.1	92.4	<b>854</b>	<b>51.4</b>	<b>16.9</b>	<b>15.3</b>	<b>769</b>	<b>368</b>	<b>2920</b>	1166783
A-4	11/9/2016	1.5	28.0	93.4	<b>735</b>	<b>205</b>	<b>18.1</b>	<b>25.3</b>	<b>758</b>	<b>386</b>	<b>2270</b>	1166783
A-5	11/9/2016	1.5	17.1	91.3	<b>278</b>	<b>493</b>	<b>8.32</b>	<b>18.9</b>	<b>466</b>	<b>247</b>	<b>1460</b>	1166783
A-X	11/9/2016	--	--	93.2	<b>715</b>	<b>140</b>	<b>10.3</b>	<b>8.67 J</b>	<b>206</b>	<b>164</b>	<b>999</b>	1166783
<b>ADEC METHOD TWO - TABLE B1 MIGRATION TO GROUNDWATER (18 AAC 75)</b>					<b>250</b>	<b>11,000</b>	<b>300</b>	<b>22</b>	<b>6,700</b>	<b>130</b>	<b>1,500</b>	

NOTES:

- 1) Diesel Range Organics (DRO) samples analyzed by AK Method 102; Residual Range Organics (RRO) samples analyzed by AK Method 103; Gasoline Range Organics (GRO) samples analyzed by AK Method 101; BTEX samples analyzed by EPA 8021b.
- 2) Total solids samples analyzed by EPA SM 2540G.
- 3) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
- 4) **Bold** font indicates the analyte, compound, or contaminant of potential concern was detected above the laboratory Limit of Detection (LOD)
- 5) J flag indicates the result is an estimated value
- 6) *Italicized* font with a U-qualifier indicates the analyte was not detected above the method detection limit (DL); the value presented is the limit of detection (LOD)
- 7) Yellow highlighting indicates the analyte, compound, or contaminant of potential concern was detected above the ADEC Method 2 - Migration to GroundwaterSoil Cleanup Level
- 8) Sample A-X is a blind duplicate of A-4

TABLE 3  
RCRA Metals in Soil  
ADOT Retention Pond Stockpile Homer, AK

METALS IN SOIL (RETENTION POND STOCKPILE)												
SAMPLE ID	DATE	DEPTH (FEET)	TOTAL SOLIDS (%)	ARSENIC (mg/Kg)	BARIUM (mg/Kg)	CADMIUM (mg/Kg)	CHROMIUM (mg/Kg)	LEAD (mg/Kg)	MERCURY (mg/Kg)	SELENIUM (mg/Kg)	SILVER (mg/Kg)	SGS NORTH AMERICA WORK ORDER NO.
A-2	11/9/2016	1	92.4	5.15	63.3	0.0720 J	20.7	3.91	0.429	0.535 U	0.108 U	1166783
A-4	11/9/2016	1.5	93.4	5.51	59.8	0.0862 J	21.6	3.83	0.0398 J	0.520 U	0.104 U	
A-5	11/9/2016	1.5	91.3	5.47	64.9	0.0791 J	23.6	3.90	0.0381 J	0.505 U	0.101 U	
A-X	11/9/2016	--	93.2	5.37	57.9	0.0792 J	20.6	3.89	0.0293 J	0.515 U	0.103 U	
ADEC Method 2 Soil Cleanup Levels for Migration to Groundwater (mg/Kg)				0.2	2,100	9.1	1 x 10 <sup>5</sup>	400	0.36	6.9	11	
Typical Background Values in Surficial Soils in Alaska (Geometric Mean)				6.7	595	--	50	12	--	--	28	

NOTES:

- 1) Metals samples analyzed by EPA Method 6020A; Total solids samples analyzed by EPA SM 2540G
- 2) "mg/Kg" means "milligrams per kilogram"; "µg/Kg" means "microgram per kilogram"
- 3) **Bold** font indicates the analyte was detected above the laboratory Limit of Quantitation (LOQ)
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the method detection limit (DL); the value presented is the limit of detection (LOD)
- 5) Yellow highlighting indicates the analyte was detected above the ADEC Method 2 - Soil Cleanup Level, but are consistent with typical background concentrations in Alaska soil (Gough et. al)
- 6) Sample A-X is a blind duplicate of A-4
- 7) Chromium cleanup value is for trivalent chromium. The trivalent chromium cleanup level applies at a site unless a hexavalent source has been identified or suspected.

**TABLE 4**  
**Volatile Organic Compounds (VOCs) in Soil**  
**ADOT Retention Pond Stockpile Homer, AK**

VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL (RETENTION POND STOCKPILE)					
SAMPLE ID	A-2	A-4	A-5	A-X	ADEC Method 2 Soil Cleanup Level For Migration to Groundwater (µg/Kg)
Date	11/9/2016	11/9/2016	11/9/2016	11/9/2016	
SGS Work Order	1166783	1166783	1166783	1166783	
Percent Solids	92.4	93.4	91.3	93.2	
Units	ug/Kg	ug/Kg	ug/Kg	ug/Kg	
1,1,1,2-Tetrachloroethane	10.2 U	12.2 U	9.95 U	11.7 U	22
1,1,1-Trichloroethane	10.2 U	12.2 U	9.95 U	11.7 U	32,000
1,1,2,2-Tetrachloroethane	5.10 U	6.05 U	4.99 U	5.85 U	3
1,1,2-Trichloroethane	4.09 U	4.86 U	3.98 U	4.69 U	1.4
1,1-Dichloroethane	10.2 U	12.2 U	9.95 U	11.7 U	92
1,1-Dichloroethene	10.2 U	12.2 U	9.95 U	11.7 U	1,200
1,1-Dichloropropene	10.2 U	12.2 U	9.95 U	11.7 U	--
1,2,3-Trichlorobenzene	20.4 U	24.3 U	19.9 U	23.4 U	150
1,2,3-Trichloropropane	10.2 U	12.2 U	9.95 U	11.7 U	3.1 x 10 <sup>-8</sup>
1,2,4-Trichlorobenzene	10.2 U	12.2 U	9.95 U	11.7 U	82
1,2,4-Trimethylbenzene	<b>1320</b>	<b>1070</b>	<b>589</b>	<b>688</b>	160
1,2-Dibromo-3-chloropropane	40.9 U	48.6 U	39.9 U	46.9 U	--
1,2-Dibromoethane	4.09 U	4.86 U	3.98 U	4.69 U	0.24
1,2-Dichlorobenzene	10.2 U	12.2 U	9.95 U	11.7 U	2,400
1,2-Dichloroethane	4.09 U	4.86 U	3.98 U	4.69 U	5.5
1,2-Dichloropropane	4.09 U	4.86 U	3.98 U	4.69 U	16
1,3,5-Trimethylbenzene	<b>651</b>	<b>397</b>	<b>203</b>	<b>252</b>	1,300
1,3-Dichlorobenzene	10.2 U	12.2 U	9.95 U	11.7 U	2,300
1,3-Dichloropropane	4.09 U	4.86 U	3.98 U	4.69 U	--
1,4-Dichlorobenzene	10.2 U	12.2 U	9.95 U	11.7 U	37
2,2-Dichloropropane	10.2 U	12.2 U	9.95 U	11.7 U	--
2-Butanone (MEK)	102 U	122 U	99.5 U	117 U	15,000
2-Chlorotoluene	10.2 U	12.2 U	9.95 U	11.7 U	--
2-Hexanone	102 U	122 U	99.5 U	117 U	110
4-Chlorotoluene	10.2 U	12.2 U	9.95 U	11.7 U	--
4-Isopropyltoluene	<b>50.5</b>	<b>44.7</b>	<b>19.3 J</b>	<b>28.6</b>	--
4-Methyl-2-pentanone (MIBK)	102 U	122 U	99.5 U	117 U	18,000
Benzene	<b>15.3</b>	<b>25.3</b>	<b>18.9</b>	<b>8.67 J</b>	22
Bromobenzene	10.2 U	12.2 U	9.95 U	11.7 U	360
Bromochloromethane	10.2 U	12.2 U	9.95 U	11.7 U	--
Bromodichloromethane	10.2 U	12.2 U	9.95 U	11.7 U	4.3
Bromoform	10.2 U	12.2 U	9.95 U	11.7 U	100
Bromomethane	81.5 U	97.0 U	79.5 U	94.0 U	24
Carbon disulfide	40.9 U	48.6 U	39.9 U	46.9 U	2,900
Carbon tetrachloride	5.10 U	6.05 U	4.99 U	5.85 U	21
Chlorobenzene	10.2 U	12.2 U	9.95 U	11.7 U	460
Chloroethane	81.5 U	97.0 U	79.5 U	94.0 U	72,000
Chloroform	10.2 U	12.2 U	9.95 U	11.7 U	7.1
Chloromethane	10.2 U	12.2 U	9.95 U	11.7 U	610
cis-1,2-Dichloroethene	10.2 U	12.2 U	9.95 U	11.7 U	120
cis-1,3-Dichloropropene	10.2 U	12.2 U	9.95 U	11.7 U	18
Dibromochloromethane	10.2 U	12.2 U	9.95 U	11.7 U	2.7
Dibromomethane	10.2 U	12.2 U	9.95 U	11.7 U	25
Dichlorodifluoromethane	20.4 U	24.3 U	19.9 U	23.4 U	3,900
Ethylbenzene	<b>368</b>	<b>386</b>	<b>247</b>	<b>164</b>	130
Freon-113	40.9 U	48.6 U	39.9 U	46.9 U	1.7 x 10 <sup>6</sup>
Hexachlorobutadiene	20.4 U	24.3 U	19.9 U	23.4 U	20
Isopropylbenzene (Cumene)	<b>56.8</b>	<b>56.4</b>	<b>35.1</b>	<b>30.5</b>	5,600
Methylene chloride	40.9 U	48.6 U	39.9 U	46.9 U	330
Methyl-t-butyl ether	40.9 U	48.6 U	39.9 U	46.9 U	400
Naphthalene	<b>207</b>	<b>264</b>	<b>45.6</b>	<b>129</b>	38
n-Butylbenzene	10.2 U	12.2 U	9.95 U	11.7 U	23,000
n-Propylbenzene	<b>149</b>	<b>151</b>	<b>94.9</b>	<b>88.6</b>	9,100
o-Xylene	<b>814</b>	<b>571</b>	<b>390</b>	<b>229</b>	See total Xylenes
P & M -Xylene	<b>2110</b>	<b>1700</b>	<b>1070</b>	<b>771</b>	
sec-Butylbenzene	<b>42.9</b>	<b>44.7</b>	<b>22.5</b>	<b>31.2</b>	42,000
Styrene	10.2 U	12.2 U	9.95 U	11.7 U	10,000
tert-Butylbenzene	10.2 U	12.2 U	9.95 U	11.7 U	11,000
Tetrachloroethene	5.10 U	6.05 U	4.99 U	5.85 U	190
Toluene	<b>769</b>	<b>758</b>	<b>466</b>	<b>206</b>	6,700
trans-1,2-Dichloroethene	10.2 U	12.2 U	9.95 U	11.7 U	1300
trans-1,3-Dichloropropene	10.2 U	12.2 U	9.95 U	11.7 U	18
Trichloroethene	5.10 U	6.05 U	4.99 U	5.85 U	11
Trichlorofluoromethane	20.4 U	24.3 U	19.9 U	23.4 U	41,000
Vinyl acetate	40.9 U	48.6 U	39.9 U	46.9 U	1,100
Vinyl chloride	4.09 U	4.86 U	3.98 U	4.69 U	0.8
Xylenes (total)	<b>2920</b>	<b>2270</b>	<b>1460</b>	<b>999</b>	1,500

NOTES:

- 1) Volatile organic compounds (VOC) analyses by Method EPA SW8260B.
- 2) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
- 3) **Bold** font indicates the analyte was detected above the method Detection Limit (DL)
- 4) *Italicized* font with a U-qualifier indicates the analyte was not detected above the method detection limit (DL); the value presented is the limit of detection (LOD)
- 5) J flag indicates the result is an estimated value
- 6) Yellow highlighting indicates the analyte, compound, or contaminant of potential concern was detected above the ADEC Method 2 - Soil Cleanup Level
- 7) Blue highlighting indicates the method Limit of Detection (LOD) is elevated above the ADEC Method 2 Migration to Groundwater Cleanup level.
- 8) Sample A-X is a blind duplicate of A-4

TABLE 5  
Semi-Volatile Organic Compounds (SVOCs) in Soil  
ADOT Retention Pond Stockpile Homer, AK

SEMI-VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL (RETENTION POND STOCKPILE)					
SAMPLE ID	A-2	A-4	A-5	A-X	ADEC Method 2 Soil
Date	11/9/2016	11/9/2016	11/9/2016	11/9/2016	Cleanup Level For
SGS Work Order	1166783	1166783	1166783	1166783	Migration to
Percent Solids	92.4	93.4	91.3	93.2	Groundwater
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	(mg/Kg)
1,2,4-Trichlorobenzene	0.540 U	0.665 U	0.545 U	0.535 U	0.082
1,2-Dichlorobenzene	0.540 U	0.665 U	0.545 U	0.535 U	2.4
1,3-Dichlorobenzene	0.540 U	0.665 U	0.545 U	0.535 U	2.3
1,4-Dichlorobenzene	0.540 U	0.665 U	0.545 U	0.535 U	0.037
1-Chloronaphthalene	0.540 U	0.665 U	0.545 U	0.535 U	26
1-Methylnaphthalene	0.912 J	1.03 J	0.545 U	0.961 J	0.410
2,4,5-Trichlorophenol	0.540 U	0.665 U	0.545 U	0.535 U	28
2,4,6-Trichlorophenol	0.540 U	0.665 U	0.545 U	0.535 U	0.092
2,4-Dichlorophenol	0.540 U	0.665 U	0.545 U	0.535 U	0.21
2,4-Dimethylphenol	0.540 U	0.665 U	0.545 U	0.535 U	3.2
2,4-Dinitrophenol	6.45 U	7.95 U	6.55 U	6.40 U	0.34
2,4-Dinitrotoluene	0.540 U	0.665 U	0.545 U	0.535 U	0.024
2,6-Dichlorophenol	0.540 U	0.665 U	0.545 U	0.535 U	--
2,6-Dinitrotoluene	0.540 U	0.665 U	0.545 U	0.535 U	0.005
2-Chloronaphthalene	0.540 U	0.665 U	0.545 U	0.535 U	26
2-Chlorophenol	0.540 U	0.665 U	0.545 U	0.535 U	0.71
2-Methyl-4,6-dinitrophenol	4.30 U	5.30 U	4.36 U	4.27 U	--
2-Methylnaphthalene	0.354 J	0.687 J	0.545 U	0.637 J	1.3
2-Methylphenol (o-Cresol)	0.540 U	0.665 U	0.545 U	0.535 U	6.2
2-Nitroaniline	0.540 U	0.665 U	0.545 U	0.535 U	--
2-Nitrophenol	0.540 U	0.665 U	0.545 U	0.535 U	--
3&4-Methylphenol (p&m-Cresol)	2.15 U	2.65 U	2.18 U	2.13 U	12 (p), 6.1 (m)
3,3-Dichlorobenzidine	1.35 U	2.65 U	2.73 U	1.34 U	0.056
3-Nitroaniline	1.08 U	1.33 U	1.09 U	1.06 U	--
4-Bromophenylphenylether	0.540 U	0.665 U	0.545 U	0.535 U	--
4-Chloro-3-methylphenol	0.540 U	0.665 U	0.545 U	0.535 U	--
4-Chloroaniline	1.08 U	1.33 U	1.09 U	1.06 U	0.015
4-Chlorophenylphenylether	0.540 U	0.665 U	0.545 U	0.535 U	--
4-Nitroaniline	6.45 U	7.95 U	6.55 U	6.40 U	--
4-Nitrophenol	2.15 U	2.65 U	2.18 U	2.13 U	--
Acenaphthene	0.540 U	0.665 U	0.545 U	0.535 U	37

NOTES:

- 1) Semivolatile Organic Compounds (SVOC) analyses by Method EPA 8270D
- 2) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
- 3) **Bold** font indicates the analyte, compound, or contaminant of potential concern was detected above the laboratory Limit of Detection (LOD)
- 4) 7) Italicized value with a U-flag indicates the analyte was measured as non-detectable at the DL. The value given is the method Limit of Detection (LOD).
- 5) J flag indicates the result is an estimated value
- 6) Blue highlighting indicates the method Limit of Detection (LOD) is elevated above the ADEC Method 2 Migration to Groundwater Cleanup level.
- 7) Sample A-X is a blind duplicate of A-4
- 8) Yellow highlighting indicates the analyte, compound, or contaminant of potential concern was detected above the ADEC Method 2 - Soil Cleanup Level

TABLE 5 (Cont.)

Semi-Volatile Organic Compounds (SVOCs) in Soil  
ADOT Retention Pond Stockpile Homer, AK

SEMI-VOLATILE ORGANIC COMPOUND CONCENTRATIONS IN SOIL (RETENTION POND STOCKPILE) (Cont.)					
SAMPLE ID	A-2	A-4	A-5	A-X	ADEC Method 2 Soil
Date	11/9/2016	11/9/2016	11/9/2016	11/9/2016	Cleanup Level For
SGS Work Order	1166783	1166783	1166783	1166783	Migration to
Percent Solids	92.4	93.4	91.3	93.2	Groundwater
Units	mg/Kg	mg/Kg	mg/Kg	mg/Kg	(mg/Kg)
Acenaphthylene	0.540 U	0.665 U	0.545 U	0.535 U	18
Aniline	4.30 U	5.30 U	4.36 U	4.27 U	--
Anthracene	0.540 U	0.665 U	0.545 U	0.535 U	390
Azobenzene	0.540 U	0.665 U	0.545 U	0.535 U	--
Benzo(a)Anthracene	1.35 U	2.65 U	2.73 U	1.34 U	0.28
Benzo(a)pyrene	0.540 U	0.665 U	0.545 U	0.535 U	0.27
Benzo(b)Fluoranthene	0.540 U	0.665 U	0.545 U	0.535 U	2.7
Benzo(g,h,i)perylene	0.540 U	0.665 U	0.545 U	0.535 U	15,000
Benzo(k)fluoranthene	0.540 U	0.665 U	0.545 U	0.535 U	27
Benzoic acid	3.23 U	3.98 U	3.27 U	3.20 U	200
Benzyl alcohol	0.540 U	0.665 U	0.545 U	0.535 U	5.7
Bis(2chloro1methylethyl) Ether	0.540 U	0.665 U	0.545 U	0.535 U	--
Bis(2-Chloroethoxy) methane	0.540 U	0.665 U	0.545 U	0.535 U	--
Bis(2-Chloroethyl)ether	0.540 U	0.665 U	0.545 U	0.535 U	0.00042
bis(2-Ethylhexyl)phthalate	1.35 U	2.65 U	2.73 U	1.34 U	88
Butylbenzylphthalate	1.35 U	2.65 U	2.73 U	1.34 U	16
Carbazole	0.540 U	0.665 U	0.545 U	0.535 U	--
Chrysene	1.35 U	2.65 U	2.73 U	1.34 U	82
Dibenzo[a,h]anthracene	0.540 U	0.665 U	0.545 U	0.535 U	0.87
Dibenzofuran	0.540 U	0.665 U	0.545 U	0.535 U	0.97
Diethylphthalate	0.540 U	0.665 U	0.545 U	0.535 U	60
Dimethylphthalate	0.540 U	0.665 U	0.545 U	0.535 U	48
Di-n-butylphthalate	0.540 U	0.665 U	0.545 U	0.535 U	16
di-n-Octylphthalate	2.69 U	5.30 U	5.45 U	2.67 U	370
Fluoranthene	0.540 U	0.665 U	0.545 U	0.535 U	590
Fluorene	0.540 U	0.665 U	0.545 U	0.535 U	36
Hexachlorobenzene	0.540 U	0.665 U	0.545 U	0.535 U	0.0082
Hexachlorobutadiene	0.540 U	0.665 U	0.545 U	0.535 U	0.020
Hexachlorocyclopentadiene	1.50 U	1.86 U	1.52 U	1.50 U	0.0093
Hexachloroethane	0.540 U	0.665 U	0.545 U	0.535 U	0.018
Indeno[1,2,3-c,d] pyrene	0.540 U	0.665 U	0.545 U	0.535 U	8.8
Isophorone	0.540 U	0.665 U	0.545 U	0.535 U	2.7
Naphthalene	0.540 U	0.665 U	0.545 U	0.535 U	0.038
Nitrobenzene	0.540 U	0.665 U	0.545 U	0.535 U	0.0079
N-Nitrosodimethylamine	0.540 U	0.665 U	0.545 U	0.535 U	3.3 x 10 <sup>-6</sup>
N-Nitroso-di-n-propylamine	0.540 U	0.665 U	0.545 U	0.535 U	0.00068
N-Nitrosodiphenylamine	0.540 U	0.665 U	0.545 U	0.535 U	4.6
Pentachlorophenol	4.30 U	5.30 U	4.36 U	4.27 U	0.0043
Phenanthrene	0.415 J	0.665 U	0.545 U	0.389 J	39
Phenol	0.540 U	0.665 U	0.545 U	0.535 U	29
Pyrene	1.35 U	2.65 U	2.73 U	1.34 U	87

## NOTES:

- 1) Semivolatile Organic Compounds (SVOC) analyses by Method EPA 8270D
- 2) "mg/Kg" means "milligrams per kilogram"; "ug/Kg" means "micrograms per kilogram"; "ppmv" means "parts per million by volume"
- 3) **Bold** font indicates the analyte, compound, or contaminant of potential concern was detected above the laboratory Limit of Detection (LOD)
- 4) *7)* Italicized value with a U-flag indicates the analyte was measured as non-detectable at the DL. The value given is the method Limit of Detection (LOD).
- 5) J flag indicates the result is an estimated value
- 6) Blue highlighting indicates the method Limit of Detection (LOD) is elevated above the ADEC Method 2 Migration to Groundwater Cleanup level.
- 7) Sample A-X is a blind duplicate of A-4

# **ATTACHMENT B:**

## **Select Site Photographs**



Stockpile covered with visqueen in secondary containment



Stockpile with the visqueen cover removed



Visqueen being replaced over stock pile once sampling is complete

**ATTACHMENT C:**  
**Copy of Field Notes**





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ALL-WEATHER

**FIELD**

No 353N

10-1890

ADOT UIC Removal

Nov. 2016 -

11/9/16

12:15 Begin sampling stockpile from previous installation of lagoon.

- Stockpile is covered + on liner

Dimensions: 42' x 12' x average 3' depth

Samples: 1 <sup>sample</sup> / 10 cu y → 6 field Screen samples

Volume =

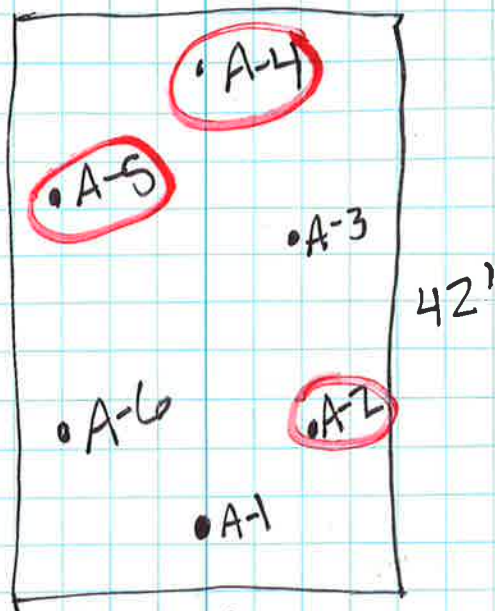
$$\frac{42 \text{ ft}}{3 \text{ ft/yard}} \times \frac{12}{3} \times \frac{3}{3} = 56 \text{ cu y}$$

ID	Depth	PID	Notes
A-1	1'	12.3	gravelly sand fill
*A-2	1'	20.1	13:15
A-3	1'	13.7	
*A-4	1.5'	28.0	13:17
*A-5	1'	17.1	13:19
A-6	1'	8.4	

A-x Dup of A-4

\* = Lab Sample

## Stockpile A



approximate depth <sup>12'</sup> is 3 feet

contaminated  
13:47 Begin stockpile ~~excavation~~ sampling from septage excavation ⇒ Stockpile B

**ATTACHMENT D:**  
**SGS Laboratory Report**  
**1166783**



## Laboratory Report of Analysis

To: Restoration Science & Eng  
911 West 8th Ave Suite 100  
Anchorage, AK 99501  
(907)278-1023

Report Number: **1166783**

Client Project: **Homer Stockpile DOT**

Dear Emily Mahanna,

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 Chuck 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.

---

Chuck Homestead  
Project Manager  
Charles.Homestead@sgs.com

Date

Print Date: 12/01/2016 4:08:17PM

## Case Narrative

SGS Client: **Restoration Science & Eng**  
SGS Project: **1166783**  
Project Name/Site: **Homer Stockpile DOT**  
Project Contact: **Emily Mahanna**

Refer to sample receipt form for information on sample condition.

### **A-2 (1166783001) PS**

Hexavalent Chromium was analyzed by ALS of Kelso, WA.

AK101 - Surrogate recovery for 4-bromofluorobenzene (198%) does not meet QC criteria due to matrix interference.

8270D - The LOQs are elevated due to sample dilution (4X). The sample was analyzed at a dilution due to matrix interference with internal standards.

### **A-4 (1166783002) PS**

AK101 - Surrogate recovery for 4-bromofluorobenzene (186%) does not meet QC criteria due to matrix interference.

8270D - The LOQs are elevated due to sample dilution (5X). The sample was analyzed at a dilution due to matrix interference with internal standards.

### **A-5 (1166783003) PS**

8270D - The LOQs are elevated due to sample dilution (4X/20X). The sample was analyzed at a dilution due to matrix interference with internal standards.

### **A-X (1166783004) PS**

8270D - The LOQs are elevated due to sample dilution (4X). The sample was analyzed at a dilution due to matrix interference with internal standards.

### **1166783001(1365487MS) (1365488) MS**

6020A - Metals MS recoveries for barium (132%), aluminum (4740%), and chromium (129%) do not meet QC criteria. The post digestion spike was successful.

### **1166783002MS (1365866) MS**

8260B - MS recoveries for several analytes do not meet QC criteria. See LCS for accuracy requirements.

### **1166783001(1365487MSD) (1365489) MSD**

6020A - Metals MSD recovery for aluminum (3890%) does not meet QC criteria. The post digestion spike was successful.

### **1166783002MSD (1365867) MSD**

8260B - MSD recoveries for several analytes do not meet QC criteria. See LCS for accuracy requirements.

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

### Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
<b>AK101</b>				
1365986	IB for HBN 1749080 (VFC/13475)	VFC13475	Gasoline Range Organics	BLC
<b>SW8260B</b>				
1166783001	A-2	VMS16400	4-Isopropyltoluene	SP
1166783002	A-4	VMS16400	4-Isopropyltoluene	SP
1166783003	A-5	VMS16400	4-Isopropyltoluene	SP
1166783004	A-X	VMS16400	4-Isopropyltoluene	SP
<b>SW8270D</b>				
1365715	LCS for HBN 1748670 [XXX/36707]	XMS9764	1-Chloronaphthalene	RSP
1365716	1166782018MS	XMS9764	1-Chloronaphthalene	RSP
1365717	1166782018MSD	XMS9764	1-Chloronaphthalene	RSP
1366623	CCV for HBN 1749543 [XMS/9764]	XMS9764	1-Chloronaphthalene	RP

#### Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. 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) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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

### Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
A-2	1166783001	11/09/2016	11/11/2016	Soil/Solid (dry weight)
A-4	1166783002	11/09/2016	11/11/2016	Soil/Solid (dry weight)
A-5	1166783003	11/09/2016	11/11/2016	Soil/Solid (dry weight)
A-X	1166783004	11/09/2016	11/11/2016	Soil/Solid (dry weight)
Trip Blank	1166783005	11/09/2016	11/11/2016	Soil/Solid (dry weight)

<u>Method</u>	<u>Method Description</u>
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8270D	SW846 8270 Semi-Volatiles by GC/MS (S)
SW8260B	VOC 8260 (S) Field Extracted

Print Date: 12/01/2016 4:08:22PM



### Detectable Results Summary

Client Sample ID: **A-2**  
 Lab Sample ID: 1166783001

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	5.15	mg/Kg
Barium	63.3	mg/Kg
Cadmium	0.0720J	mg/Kg
Chromium	20.7	mg/Kg
Lead	3.91	mg/Kg
Mercury	0.0429	mg/Kg

**Semivolatile Organic Fuels**

Diesel Range Organics	854	mg/Kg
Residual Range Organics	51.4	mg/Kg

**Semivolatile Organics GC/MS**

1-Methylnaphthalene	0.912J	mg/Kg
2-Methylnaphthalene	0.354J	mg/Kg
Phenanthrene	0.415J	mg/Kg

**Volatile Fuels**

**Volatile GC/MS**

Gasoline Range Organics	16.9	mg/Kg
1,2,4-Trimethylbenzene	1320	ug/Kg
1,3,5-Trimethylbenzene	651	ug/Kg
4-Isopropyltoluene	50.5	ug/Kg
Benzene	15.3	ug/Kg
Ethylbenzene	368	ug/Kg
Isopropylbenzene (Cumene)	56.8	ug/Kg
Naphthalene	207	ug/Kg
n-Propylbenzene	149	ug/Kg
o-Xylene	814	ug/Kg
P & M -Xylene	2110	ug/Kg
sec-Butylbenzene	42.9	ug/Kg
Toluene	769	ug/Kg
Xylenes (total)	2920	ug/Kg

### Detectable Results Summary

Client Sample ID: **A-4**  
 Lab Sample ID: 1166783002

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	5.51	mg/Kg
Barium	59.8	mg/Kg
Cadmium	0.0862J	mg/Kg
Chromium	21.6	mg/Kg
Lead	3.83	mg/Kg
Mercury	0.0398J	mg/Kg

**Semivolatile Organic Fuels**

Diesel Range Organics	735	mg/Kg
Residual Range Organics	205	mg/Kg

**Semivolatile Organics GC/MS**

1-Methylnaphthalene	1.03J	mg/Kg
2-Methylnaphthalene	0.687J	mg/Kg

**Volatile Fuels**

**Volatile GC/MS**

Gasoline Range Organics	18.1	mg/Kg
1,2,4-Trimethylbenzene	1070	ug/Kg
1,3,5-Trimethylbenzene	397	ug/Kg
4-Isopropyltoluene	44.7	ug/Kg
Benzene	25.3	ug/Kg
Ethylbenzene	386	ug/Kg
Isopropylbenzene (Cumene)	56.4	ug/Kg
Naphthalene	264	ug/Kg
n-Propylbenzene	151	ug/Kg
o-Xylene	571	ug/Kg
P & M -Xylene	1700	ug/Kg
sec-Butylbenzene	44.7	ug/Kg
Toluene	758	ug/Kg
Xylenes (total)	2270	ug/Kg

### Detectable Results Summary

Client Sample ID: **A-5**  
 Lab Sample ID: 1166783003

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	5.47	mg/Kg
Barium	64.9	mg/Kg
Cadmium	0.0791J	mg/Kg
Chromium	23.6	mg/Kg
Lead	3.90	mg/Kg
Mercury	0.0381J	mg/Kg

**Semivolatile Organic Fuels**

Diesel Range Organics	278	mg/Kg
Residual Range Organics	493	mg/Kg

**Volatile Fuels**

**Volatile GC/MS**

Gasoline Range Organics	8.32	mg/Kg
1,2,4-Trimethylbenzene	589	ug/Kg
1,3,5-Trimethylbenzene	203	ug/Kg
4-Isopropyltoluene	19.3J	ug/Kg
Benzene	18.9	ug/Kg
Ethylbenzene	247	ug/Kg
Isopropylbenzene (Cumene)	35.1	ug/Kg
Naphthalene	45.6	ug/Kg
n-Propylbenzene	94.9	ug/Kg
o-Xylene	390	ug/Kg
P & M -Xylene	1070	ug/Kg
sec-Butylbenzene	22.5	ug/Kg
Toluene	466	ug/Kg
Xylenes (total)	1460	ug/Kg

### Detectable Results Summary

Client Sample ID: **A-X**  
 Lab Sample ID: 1166783004

**Metals by ICP/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Arsenic	5.37	mg/Kg
Barium	57.9	mg/Kg
Cadmium	0.0792J	mg/Kg
Chromium	20.6	mg/Kg
Lead	3.89	mg/Kg
Mercury	0.0293J	mg/Kg

**Semivolatile Organic Fuels**

Diesel Range Organics	715	mg/Kg
Residual Range Organics	140	mg/Kg

**Semivolatile Organics GC/MS**

1-Methylnaphthalene	0.961J	mg/Kg
2-Methylnaphthalene	0.637J	mg/Kg
Phenanthrene	0.389J	mg/Kg

**Volatile Fuels**

**Volatile GC/MS**

Gasoline Range Organics	10.3	mg/Kg
1,2,4-Trimethylbenzene	688	ug/Kg
1,3,5-Trimethylbenzene	252	ug/Kg
4-Isopropyltoluene	28.6	ug/Kg
Benzene	8.67J	ug/Kg
Ethylbenzene	164	ug/Kg
Isopropylbenzene (Cumene)	30.5	ug/Kg
Naphthalene	129	ug/Kg
n-Propylbenzene	88.6	ug/Kg
o-Xylene	229	ug/Kg
P & M -Xylene	771	ug/Kg
sec-Butylbenzene	31.2	ug/Kg
Toluene	206	ug/Kg
Xylenes (total)	999	ug/Kg



### Results of A-2

Client Sample ID: **A-2**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783001  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.4  
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>
Arsenic	5.15	1.07	0.333	mg/Kg	10		11/17/16 11:32
Barium	63.3	0.322	0.101	mg/Kg	10		11/17/16 11:32
Cadmium	0.0720 J	0.215	0.0665	mg/Kg	10		11/17/16 11:32
Chromium	20.7	0.429	0.140	mg/Kg	10		11/17/16 11:32
Lead	3.91	0.215	0.0665	mg/Kg	10		11/17/16 11:32
Mercury	0.0429	0.0429	0.0129	mg/Kg	10		11/17/16 11:32
Selenium	0.535 U	1.07	0.333	mg/Kg	10		11/17/16 11:32
Silver	0.108 U	0.215	0.0665	mg/Kg	10		11/17/16 11:32

### Batch Information

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Analyst: VDL  
Analytical Date/Time: 11/17/16 11:32  
Container ID: 1166783001-A

Prep Batch: MX30359  
Prep Method: SW3050B  
Prep Date/Time: 11/17/16 07:50  
Prep Initial Wt./Vol.: 1.008 g  
Prep Extract Vol: 50 mL



Results of **A-2**

Client Sample ID: **A-2**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783001  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.4  
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	854	108	33.4	mg/Kg	5		11/16/16 16:14

**Surrogates**

5a Androstane (surr)	107	50-150		%	5		11/16/16 16:14
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**Batch Information**

Analytical Batch: XFC13070  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 11/16/16 16:14  
Container ID: 1166783001-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.098 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	51.4	21.6	6.68	mg/Kg	1		11/14/16 21:21

**Surrogates**

n-Triacontane-d62 (surr)	103	50-150		%	1		11/14/16 21:21
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**Batch Information**

Analytical Batch: XFC13060  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 11/14/16 21:21  
Container ID: 1166783001-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.098 g  
Prep Extract Vol: 1 mL



Results of A-2

Client Sample ID: A-2
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783001
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by Semivolatile Organics 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 A-2

Client Sample ID: A-2
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783001
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
Location:

Results by Semivolatile Organics 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 A-2**

Client Sample ID: **A-2**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783001  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.4  
Location:

**Results by Semivolatile Organics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
2-Fluorobiphenyl (surr)	99.5	44-115		%	4		11/29/16 02:22
2-Fluorophenol (surr)	80.3	35-115		%	4		11/29/16 02:22
Nitrobenzene-d5 (surr)	82.6	37-122		%	4		11/29/16 02:22
Phenol-d6 (surr)	89.7	33-122		%	4		11/29/16 02:22
Terphenyl-d14 (surr)	107	54-127		%	10		11/28/16 23:23

**Batch Information**

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/29/16 02:22  
Container ID: 1166783001-A

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.61 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/28/16 23:23  
Container ID: 1166783001-A

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.61 g  
Prep Extract Vol: 1 mL

## Results of A-2

Client Sample ID: **A-2**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783001  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):92.4  
 Location:

## Results by Volatile Fuels

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	16.9		4.09	1.23	mg/Kg	2		11/13/16 21:32
<b>Surrogates</b>								
4-Bromofluorobenzene (surr)	198	*	50-150		%	2		11/13/16 21:32

## Batch Information

Analytical Batch: VFC13471  
 Analytical Method: AK101  
 Analyst: NRO  
 Analytical Date/Time: 11/13/16 21:32  
 Container ID: 1166783001-D

Prep Batch: VXX29967  
 Prep Method: SW5035A  
 Prep Date/Time: 11/09/16 13:15  
 Prep Initial Wt./Vol.: 82.698 g  
 Prep Extract Vol: 31.2484 mL



Results of A-2

Client Sample ID: A-2  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783001  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.4  
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,1,1-Trichloroethane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,1,2,2-Tetrachloroethane	5.10 U	10.2	3.19	ug/Kg	1		11/18/16 20:42
1,1,2-Trichloroethane	4.09 U	8.17	2.53	ug/Kg	1		11/18/16 20:42
1,1-Dichloroethane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,1-Dichloroethene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,1-Dichloropropene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,2,3-Trichlorobenzene	20.4 U	40.9	12.3	ug/Kg	1		11/18/16 20:42
1,2,3-Trichloropropane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,2,4-Trichlorobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,2,4-Trimethylbenzene	1320	40.9	12.3	ug/Kg	1		11/18/16 20:42
1,2-Dibromo-3-chloropropane	40.9 U	81.7	25.3	ug/Kg	1		11/18/16 20:42
1,2-Dibromoethane	4.09 U	8.17	2.53	ug/Kg	1		11/18/16 20:42
1,2-Dichlorobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,2-Dichloroethane	4.09 U	8.17	2.53	ug/Kg	1		11/18/16 20:42
1,2-Dichloropropane	4.09 U	8.17	2.53	ug/Kg	1		11/18/16 20:42
1,3,5-Trimethylbenzene	651	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,3-Dichlorobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
1,3-Dichloropropane	4.09 U	8.17	2.53	ug/Kg	1		11/18/16 20:42
1,4-Dichlorobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
2,2-Dichloropropane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
2-Butanone (MEK)	102 U	204	63.8	ug/Kg	1		11/18/16 20:42
2-Chlorotoluene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
2-Hexanone	102 U	204	63.8	ug/Kg	1		11/18/16 20:42
4-Chlorotoluene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
4-Isopropyltoluene	50.5	20.4	6.38	ug/Kg	1		11/18/16 20:42
4-Methyl-2-pentanone (MIBK)	102 U	204	63.8	ug/Kg	1		11/18/16 20:42
Benzene	15.3	10.2	3.19	ug/Kg	1		11/18/16 20:42
Bromobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
Bromochloromethane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
Bromodichloromethane	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
Bromoform	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
Bromomethane	81.5 U	163	50.7	ug/Kg	1		11/18/16 20:42
Carbon disulfide	40.9 U	81.7	25.3	ug/Kg	1		11/18/16 20:42
Carbon tetrachloride	5.10 U	10.2	3.19	ug/Kg	1		11/18/16 20:42
Chlorobenzene	10.2 U	20.4	6.38	ug/Kg	1		11/18/16 20:42
Chloroethane	81.5 U	163	50.7	ug/Kg	1		11/18/16 20:42



Results of A-2

Client Sample ID: A-2
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783001
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):92.4
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 A-2

Client Sample ID: **A-2**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783001  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):92.4  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 11/18/16 20:42  
Container ID: 1166783001-D

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:15  
Prep Initial Wt./Vol.: 82.698 g  
Prep Extract Vol: 31.2484 mL

## Results of A-4

Client Sample ID: **A-4**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783002  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):93.4  
 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>
Arsenic	5.51	1.04	0.323	mg/Kg	10		11/17/16 12:27
Barium	59.8	0.313	0.0980	mg/Kg	10		11/17/16 12:27
Cadmium	0.0862 J	0.208	0.0646	mg/Kg	10		11/17/16 12:27
Chromium	21.6	0.417	0.136	mg/Kg	10		11/17/16 12:27
Lead	3.83	0.208	0.0646	mg/Kg	10		11/17/16 12:27
Mercury	0.0398 J	0.0417	0.0125	mg/Kg	10		11/17/16 12:27
Selenium	0.520 U	1.04	0.323	mg/Kg	10		11/17/16 12:27
Silver	0.104 U	0.208	0.0646	mg/Kg	10		11/17/16 12:27

## Batch Information

Analytical Batch: MMS9623  
 Analytical Method: SW6020A  
 Analyst: VDL  
 Analytical Date/Time: 11/17/16 12:27  
 Container ID: 1166783002-A

Prep Batch: MXX30359  
 Prep Method: SW3050B  
 Prep Date/Time: 11/17/16 07:50  
 Prep Initial Wt./Vol.: 1.027 g  
 Prep Extract Vol: 50 mL



Results of A-4

Client Sample ID: A-4  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
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	735	85.2	26.4	mg/Kg	4		11/14/16 21:31

Surrogates

5a Androstane (surr)	112	50-150		%	4		11/14/16 21:31
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Batch Information

Analytical Batch: XFC13060  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 11/14/16 21:31  
Container ID: 1166783002-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.174 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	205	85.2	26.4	mg/Kg	4		11/14/16 21:31

Surrogates

n-Triacontane-d62 (surr)	109	50-150		%	4		11/14/16 21:31
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Batch Information

Analytical Batch: XFC13060  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 11/14/16 21:31  
Container ID: 1166783002-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.174 g  
Prep Extract Vol: 1 mL



Results of A-4

Client Sample ID: A-4  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

Results by Semivolatile Organics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trichlorobenzene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
1,2-Dichlorobenzene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
1,3-Dichlorobenzene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
1,4-Dichlorobenzene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
1-Chloronaphthalene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
1-Methylnaphthalene	1.03 J	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,4,5-Trichlorophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,4,6-Trichlorophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,4-Dichlorophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,4-Dimethylphenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,4-Dinitrophenol	7.95 U	15.9	5.00	mg/Kg	5		11/29/16 01:33
2,4-Dinitrotoluene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,6-Dichlorophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2,6-Dinitrotoluene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Chloronaphthalene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Chlorophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Methyl-4,6-dinitrophenol	5.30 U	10.6	3.29	mg/Kg	5		11/29/16 01:33
2-Methylnaphthalene	0.687 J	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Methylphenol (o-Cresol)	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Nitroaniline	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
2-Nitrophenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
3&4-Methylphenol (p&m-Cresol)	2.65 U	5.31	1.65	mg/Kg	5		11/29/16 01:33
3,3-Dichlorobenzidine	2.65 U	5.31	1.66	mg/Kg	20		11/30/16 01:36
3-Nitroaniline	1.33 U	2.66	0.797	mg/Kg	5		11/29/16 01:33
4-Bromophenyl-phenylether	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
4-Chloro-3-methylphenol	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
4-Chloroaniline	1.33 U	2.66	0.797	mg/Kg	5		11/29/16 01:33
4-Chlorophenyl-phenylether	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
4-Nitroaniline	7.95 U	15.9	5.00	mg/Kg	5		11/29/16 01:33
4-Nitrophenol	2.65 U	5.31	1.65	mg/Kg	5		11/29/16 01:33
Acenaphthene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
Acenaphthylene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
Aniline	5.30 U	10.6	3.29	mg/Kg	5		11/29/16 01:33
Anthracene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
Azobenzene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33
Benzo(a)Anthracene	2.65 U	5.31	1.66	mg/Kg	20		11/30/16 01:36
Benzo[a]pyrene	0.665 U	1.33	0.414	mg/Kg	5		11/29/16 01:33





Results of A-4

Client Sample ID: A-4
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783002
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):93.4
Location:

Results by Semivolatile Organics GC/MS

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



**Results of A-4**

Client Sample ID: **A-4**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

**Results by Semivolatile Organics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
2-Fluorobiphenyl (surr)	93.2	44-115		%	5		11/29/16 01:33
2-Fluorophenol (surr)	70.5	35-115		%	5		11/29/16 01:33
Nitrobenzene-d5 (surr)	72.6	37-122		%	5		11/29/16 01:33
Phenol-d6 (surr)	84.9	33-122		%	5		11/29/16 01:33
Terphenyl-d14 (surr)	105	54-127		%	20		11/30/16 01:36

**Batch Information**

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/29/16 01:33  
Container ID: 1166783002-B

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.666 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS9767  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/30/16 01:36  
Container ID: 1166783002-B

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.666 g  
Prep Extract Vol: 1 mL



Results of **A-4**

Client Sample ID: **A-4**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

Results by **Volatile Fuels**

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Gasoline Range Organics	18.1		2.43	0.729	mg/Kg	1		11/13/16 22:10
<b>Surrogates</b>								
4-Bromofluorobenzene (surr)	186	*	50-150		%	1		11/13/16 22:10

**Batch Information**

Analytical Batch: VFC13471  
Analytical Method: AK101  
Analyst: NRO  
Analytical Date/Time: 11/13/16 22:10  
Container ID: 1166783002-D

Prep Batch: VXX29967  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:17  
Prep Initial Wt./Vol.: 64.467 g  
Prep Extract Vol: 29.252 mL



Results of A-4

Client Sample ID: A-4  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,1,1-Trichloroethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,1,2,2-Tetrachloroethane	6.05 U	12.1	3.79	ug/Kg	1		11/18/16 20:59
1,1,2-Trichloroethane	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
1,1-Dichloroethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,1-Dichloroethene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,1-Dichloropropene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,2,3-Trichlorobenzene	24.3 U	48.6	14.6	ug/Kg	1		11/18/16 20:59
1,2,3-Trichloropropane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,2,4-Trichlorobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,2,4-Trimethylbenzene	1070	48.6	14.6	ug/Kg	1		11/18/16 20:59
1,2-Dibromo-3-chloropropane	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
1,2-Dibromoethane	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
1,2-Dichlorobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,2-Dichloroethane	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
1,2-Dichloropropane	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
1,3,5-Trimethylbenzene	397	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,3-Dichlorobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
1,3-Dichloropropane	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
1,4-Dichlorobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
2,2-Dichloropropane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
2-Butanone (MEK)	122 U	243	75.8	ug/Kg	1		11/18/16 20:59
2-Chlorotoluene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
2-Hexanone	122 U	243	75.8	ug/Kg	1		11/18/16 20:59
4-Chlorotoluene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
4-Isopropyltoluene	44.7	24.3	7.58	ug/Kg	1		11/18/16 20:59
4-Methyl-2-pentanone (MIBK)	122 U	243	75.8	ug/Kg	1		11/18/16 20:59
Benzene	25.3	12.1	3.79	ug/Kg	1		11/18/16 20:59
Bromobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Bromochloromethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Bromodichloromethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Bromoform	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Bromomethane	97.0 U	194	60.2	ug/Kg	1		11/18/16 20:59
Carbon disulfide	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
Carbon tetrachloride	6.05 U	12.1	3.79	ug/Kg	1		11/18/16 20:59
Chlorobenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Chloroethane	97.0 U	194	60.2	ug/Kg	1		11/18/16 20:59



Results of A-4

Client Sample ID: A-4  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Chloromethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
cis-1,2-Dichloroethene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
cis-1,3-Dichloropropene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Dibromochloromethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Dibromomethane	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Dichlorodifluoromethane	24.3 U	48.6	14.6	ug/Kg	1		11/18/16 20:59
Ethylbenzene	386	24.3	7.58	ug/Kg	1		11/18/16 20:59
Freon-113	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
Hexachlorobutadiene	24.3 U	48.6	14.6	ug/Kg	1		11/18/16 20:59
Isopropylbenzene (Cumene)	56.4	24.3	7.58	ug/Kg	1		11/18/16 20:59
Methylene chloride	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
Methyl-t-butyl ether	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
Naphthalene	264	48.6	14.6	ug/Kg	1		11/18/16 20:59
n-Butylbenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
n-Propylbenzene	151	24.3	7.58	ug/Kg	1		11/18/16 20:59
o-Xylene	571	24.3	7.58	ug/Kg	1		11/18/16 20:59
P & M -Xylene	1700	48.6	14.6	ug/Kg	1		11/18/16 20:59
sec-Butylbenzene	44.7	24.3	7.58	ug/Kg	1		11/18/16 20:59
Styrene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
tert-Butylbenzene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Tetrachloroethene	6.05 U	12.1	3.79	ug/Kg	1		11/18/16 20:59
Toluene	758	24.3	7.58	ug/Kg	1		11/18/16 20:59
trans-1,2-Dichloroethene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
trans-1,3-Dichloropropene	12.2 U	24.3	7.58	ug/Kg	1		11/18/16 20:59
Trichloroethene	6.05 U	12.1	3.79	ug/Kg	1		11/18/16 20:59
Trichlorofluoromethane	24.3 U	48.6	14.6	ug/Kg	1		11/18/16 20:59
Vinyl acetate	48.6 U	97.2	30.1	ug/Kg	1		11/18/16 20:59
Vinyl chloride	4.86 U	9.72	3.01	ug/Kg	1		11/18/16 20:59
Xylenes (total)	2270	72.9	22.2	ug/Kg	1		11/18/16 20:59
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		11/18/16 20:59
4-Bromofluorobenzene (surr)	115	55-151		%	1		11/18/16 20:59
Toluene-d8 (surr)	105	85-116		%	1		11/18/16 20:59

## Results of A-4

Client Sample ID: **A-4**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783002  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:17  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.4  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 11/18/16 20:59  
Container ID: 1166783002-D

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:17  
Prep Initial Wt./Vol.: 64.467 g  
Prep Extract Vol: 29.252 mL



### Results of A-5

Client Sample ID: **A-5**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783003  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.3  
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>
Arsenic	5.47	1.01	0.312	mg/Kg	10		11/17/16 12:31
Barium	64.9	0.302	0.0947	mg/Kg	10		11/17/16 12:31
Cadmium	0.0791 J	0.201	0.0624	mg/Kg	10		11/17/16 12:31
Chromium	23.6	0.403	0.131	mg/Kg	10		11/17/16 12:31
Lead	3.90	0.201	0.0624	mg/Kg	10		11/17/16 12:31
Mercury	0.0381 J	0.0403	0.0121	mg/Kg	10		11/17/16 12:31
Selenium	0.505 U	1.01	0.312	mg/Kg	10		11/17/16 12:31
Silver	0.101 U	0.201	0.0624	mg/Kg	10		11/17/16 12:31

### Batch Information

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Analyst: VDL  
Analytical Date/Time: 11/17/16 12:31  
Container ID: 1166783003-A

Prep Batch: MXX30359  
Prep Method: SW3050B  
Prep Date/Time: 11/17/16 07:50  
Prep Initial Wt./Vol.: 1.087 g  
Prep Extract Vol: 50 mL



Results of A-5

Client Sample ID: A-5
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783003
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by Semivolatile Organic Fuels

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Diesel Range Organics, 278, 86.7, 26.9, mg/Kg, 4, 11/14/16 21:41

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: 5a Androstane (surr), 99.2, 50-150, %, 4, 11/14/16 21:41

Batch Information

Analytical Batch: XFC13060
Analytical Method: AK102
Analyst: CRA
Analytical Date/Time: 11/14/16 21:41
Container ID: 1166783003-A

Prep Batch: XXX36689
Prep Method: SW3550C
Prep Date/Time: 11/14/16 08:34
Prep Initial Wt./Vol.: 30.299 g
Prep Extract Vol: 1 mL

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: Residual Range Organics, 493, 86.7, 26.9, mg/Kg, 4, 11/14/16 21:41

Surrogates

Table with 8 columns: Parameter, Result Qual, LOQ/CL, DL, Units, DF, Allowable Limits, Date Analyzed. Row: n-Triacontane-d62 (surr), 122, 50-150, %, 4, 11/14/16 21:41

Batch Information

Analytical Batch: XFC13060
Analytical Method: AK103
Analyst: CRA
Analytical Date/Time: 11/14/16 21:41
Container ID: 1166783003-A

Prep Batch: XXX36689
Prep Method: SW3550C
Prep Date/Time: 11/14/16 08:34
Prep Initial Wt./Vol.: 30.299 g
Prep Extract Vol: 1 mL





Results of A-5

Client Sample ID: A-5  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783003  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.3  
Location:

Results by Semivolatile Organics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trichlorobenzene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
1,2-Dichlorobenzene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
1,3-Dichlorobenzene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
1,4-Dichlorobenzene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
1-Chloronaphthalene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
1-Methylnaphthalene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,4,5-Trichlorophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,4,6-Trichlorophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,4-Dichlorophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,4-Dimethylphenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,4-Dinitrophenol	6.55 U	13.1	4.10	mg/Kg	4		11/29/16 02:38
2,4-Dinitrotoluene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,6-Dichlorophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2,6-Dinitrotoluene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Chloronaphthalene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Chlorophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Methyl-4,6-dinitrophenol	4.36 U	8.72	2.70	mg/Kg	4		11/29/16 02:38
2-Methylnaphthalene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Methylphenol (o-Cresol)	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Nitroaniline	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
2-Nitrophenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
3&4-Methylphenol (p&m-Cresol)	2.18 U	4.36	1.35	mg/Kg	4		11/29/16 02:38
3,3-Dichlorobenzidine	2.73 U	5.45	1.70	mg/Kg	20		11/30/16 17:18
3-Nitroaniline	1.09 U	2.18	0.654	mg/Kg	4		11/29/16 02:38
4-Bromophenyl-phenylether	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
4-Chloro-3-methylphenol	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
4-Chloroaniline	1.09 U	2.18	0.654	mg/Kg	4		11/29/16 02:38
4-Chlorophenyl-phenylether	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
4-Nitroaniline	6.55 U	13.1	4.10	mg/Kg	4		11/29/16 02:38
4-Nitrophenol	2.18 U	4.36	1.35	mg/Kg	4		11/29/16 02:38
Acenaphthene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
Acenaphthylene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
Aniline	4.36 U	8.72	2.70	mg/Kg	4		11/29/16 02:38
Anthracene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
Azobenzene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38
Benzo(a)Anthracene	2.73 U	5.45	1.70	mg/Kg	20		11/30/16 17:18
Benzo[a]pyrene	0.545 U	1.09	0.340	mg/Kg	4		11/29/16 02:38



Results of A-5

Client Sample ID: A-5
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783003
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by Semivolatile Organics GC/MS

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



**Results of A-5**

Client Sample ID: **A-5**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783003  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.3  
Location:

**Results by Semivolatile Organics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
2-Fluorobiphenyl (surr)	92.1	44-115		%	4		11/29/16 02:38
2-Fluorophenol (surr)	71.3	35-115		%	4		11/29/16 02:38
Nitrobenzene-d5 (surr)	76.4	37-122		%	4		11/29/16 02:38
Phenol-d6 (surr)	82.7	33-122		%	4		11/29/16 02:38
Terphenyl-d14 (surr)	108	54-127		%	20		11/30/16 17:18

**Batch Information**

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/29/16 02:38  
Container ID: 1166783003-B

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.592 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS9769  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/30/16 17:18  
Container ID: 1166783003-B

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.592 g  
Prep Extract Vol: 1 mL

## Results of A-5

Client Sample ID: **A-5**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783003  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):91.3  
 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	8.32	1.99	0.598	mg/Kg	1		11/13/16 22:29
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	142	50-150		%	1		11/13/16 22:29

## Batch Information

Analytical Batch: VFC13471  
 Analytical Method: AK101  
 Analyst: NRO  
 Analytical Date/Time: 11/13/16 22:29  
 Container ID: 1166783003-D

Prep Batch: VXX29967  
 Prep Method: SW5035A  
 Prep Date/Time: 11/09/16 13:19  
 Prep Initial Wt./Vol.: 90.058 g  
 Prep Extract Vol: 32.7921 mL



Results of A-5

Client Sample ID: A-5  
Client Project ID: Homer Stockpile DOT  
Lab Sample ID: 1166783003  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.3  
Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,1,1-Trichloroethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,1,2,2-Tetrachloroethane	4.99 U	9.97	3.11	ug/Kg	1		11/18/16 21:16
1,1,2-Trichloroethane	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
1,1-Dichloroethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,1-Dichloroethene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,1-Dichloropropene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,2,3-Trichlorobenzene	19.9 U	39.9	12.0	ug/Kg	1		11/18/16 21:16
1,2,3-Trichloropropane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,2,4-Trichlorobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,2,4-Trimethylbenzene	589	39.9	12.0	ug/Kg	1		11/18/16 21:16
1,2-Dibromo-3-chloropropane	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
1,2-Dibromoethane	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
1,2-Dichlorobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,2-Dichloroethane	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
1,2-Dichloropropane	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
1,3,5-Trimethylbenzene	203	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,3-Dichlorobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
1,3-Dichloropropane	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
1,4-Dichlorobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
2,2-Dichloropropane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
2-Butanone (MEK)	99.5 U	199	62.2	ug/Kg	1		11/18/16 21:16
2-Chlorotoluene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
2-Hexanone	99.5 U	199	62.2	ug/Kg	1		11/18/16 21:16
4-Chlorotoluene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
4-Isopropyltoluene	19.3 J	19.9	6.22	ug/Kg	1		11/18/16 21:16
4-Methyl-2-pentanone (MIBK)	99.5 U	199	62.2	ug/Kg	1		11/18/16 21:16
Benzene	18.9	9.97	3.11	ug/Kg	1		11/18/16 21:16
Bromobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Bromochloromethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Bromodichloromethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Bromoform	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Bromomethane	79.5 U	159	49.4	ug/Kg	1		11/18/16 21:16
Carbon disulfide	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
Carbon tetrachloride	4.99 U	9.97	3.11	ug/Kg	1		11/18/16 21:16
Chlorobenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Chloroethane	79.5 U	159	49.4	ug/Kg	1		11/18/16 21:16

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J flagging is activated



### Results of A-5

Client Sample ID: **A-5**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783003  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):91.3  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Chloromethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
cis-1,2-Dichloroethene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
cis-1,3-Dichloropropene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Dibromochloromethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Dibromomethane	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Dichlorodifluoromethane	19.9 U	39.9	12.0	ug/Kg	1		11/18/16 21:16
Ethylbenzene	247	19.9	6.22	ug/Kg	1		11/18/16 21:16
Freon-113	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
Hexachlorobutadiene	19.9 U	39.9	12.0	ug/Kg	1		11/18/16 21:16
Isopropylbenzene (Cumene)	35.1	19.9	6.22	ug/Kg	1		11/18/16 21:16
Methylene chloride	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
Methyl-t-butyl ether	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
Naphthalene	45.6	39.9	12.0	ug/Kg	1		11/18/16 21:16
n-Butylbenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
n-Propylbenzene	94.9	19.9	6.22	ug/Kg	1		11/18/16 21:16
o-Xylene	390	19.9	6.22	ug/Kg	1		11/18/16 21:16
P & M -Xylene	1070	39.9	12.0	ug/Kg	1		11/18/16 21:16
sec-Butylbenzene	22.5	19.9	6.22	ug/Kg	1		11/18/16 21:16
Styrene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
tert-Butylbenzene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Tetrachloroethene	4.99 U	9.97	3.11	ug/Kg	1		11/18/16 21:16
Toluene	466	19.9	6.22	ug/Kg	1		11/18/16 21:16
trans-1,2-Dichloroethene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
trans-1,3-Dichloropropene	9.95 U	19.9	6.22	ug/Kg	1		11/18/16 21:16
Trichloroethene	4.99 U	9.97	3.11	ug/Kg	1		11/18/16 21:16
Trichlorofluoromethane	19.9 U	39.9	12.0	ug/Kg	1		11/18/16 21:16
Vinyl acetate	39.9 U	79.7	24.7	ug/Kg	1		11/18/16 21:16
Vinyl chloride	3.98 U	7.97	2.47	ug/Kg	1		11/18/16 21:16
Xylenes (total)	1460	59.8	18.2	ug/Kg	1		11/18/16 21:16
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	110	71-136		%	1		11/18/16 21:16
4-Bromofluorobenzene (surr)	116	55-151		%	1		11/18/16 21:16
Toluene-d8 (surr)	106	85-116		%	1		11/18/16 21:16

## Results of A-5

Client Sample ID: **A-5**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783003  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:19  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):91.3  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 11/18/16 21:16  
Container ID: 1166783003-D

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:19  
Prep Initial Wt./Vol.: 90.058 g  
Prep Extract Vol: 32.7921 mL



**Results of A-X**

Client Sample ID: **A-X**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783004  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.2  
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>
Arsenic	5.37	1.03	0.320	mg/Kg	10		11/17/16 12:36
Barium	57.9	0.310	0.0970	mg/Kg	10		11/17/16 12:36
Cadmium	0.0792 J	0.206	0.0640	mg/Kg	10		11/17/16 12:36
Chromium	20.6	0.413	0.134	mg/Kg	10		11/17/16 12:36
Lead	3.89	0.206	0.0640	mg/Kg	10		11/17/16 12:36
Mercury	0.0293 J	0.0413	0.0124	mg/Kg	10		11/17/16 12:36
Selenium	0.515 U	1.03	0.320	mg/Kg	10		11/17/16 12:36
Silver	0.103 U	0.206	0.0640	mg/Kg	10		11/17/16 12:36

**Batch Information**

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Analyst: VDL  
Analytical Date/Time: 11/17/16 12:36  
Container ID: 1166783004-A

Prep Batch: MXX30359  
Prep Method: SW3050B  
Prep Date/Time: 11/17/16 07:50  
Prep Initial Wt./Vol.: 1.04 g  
Prep Extract Vol: 50 mL





**Results of A-X**

Client Sample ID: **A-X**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783004  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.2  
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	715	84.7	26.2	mg/Kg	4		11/14/16 22:39

**Surrogates**

5a Androstane (surr)	110	50-150		%	4		11/14/16 22:39
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**Batch Information**

Analytical Batch: XFC13060  
Analytical Method: AK102  
Analyst: CRA  
Analytical Date/Time: 11/14/16 22:39  
Container ID: 1166783004-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.423 g  
Prep Extract Vol: 1 mL

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Residual Range Organics	140	84.7	26.2	mg/Kg	4		11/14/16 22:39

**Surrogates**

n-Triacontane-d62 (surr)	101	50-150		%	4		11/14/16 22:39
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**Batch Information**

Analytical Batch: XFC13060  
Analytical Method: AK103  
Analyst: CRA  
Analytical Date/Time: 11/14/16 22:39  
Container ID: 1166783004-A

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/16 08:34  
Prep Initial Wt./Vol.: 30.423 g  
Prep Extract Vol: 1 mL



### Results of A-X

Client Sample ID: **A-X**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783004  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.2  
Location:

### Results by Semivolatile Organics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,2,4-Trichlorobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
1,2-Dichlorobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
1,3-Dichlorobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
1,4-Dichlorobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
1-Chloronaphthalene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
1-Methylnaphthalene	0.961 J	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,4,5-Trichlorophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,4,6-Trichlorophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,4-Dichlorophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,4-Dimethylphenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,4-Dinitrophenol	6.40 U	12.8	4.01	mg/Kg	4		11/29/16 02:55
2,4-Dinitrotoluene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,6-Dichlorophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2,6-Dinitrotoluene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Chloronaphthalene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Chlorophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Methyl-4,6-dinitrophenol	4.27 U	8.54	2.65	mg/Kg	4		11/29/16 02:55
2-Methylnaphthalene	0.637 J	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Methylphenol (o-Cresol)	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Nitroaniline	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
2-Nitrophenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
3&4-Methylphenol (p&m-Cresol)	2.13 U	4.27	1.32	mg/Kg	4		11/29/16 02:55
3,3-Dichlorobenzidine	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
3-Nitroaniline	1.06 U	2.13	0.640	mg/Kg	4		11/29/16 02:55
4-Bromophenyl-phenylether	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
4-Chloro-3-methylphenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
4-Chloroaniline	1.06 U	2.13	0.640	mg/Kg	4		11/29/16 02:55
4-Chlorophenyl-phenylether	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
4-Nitroaniline	6.40 U	12.8	4.01	mg/Kg	4		11/29/16 02:55
4-Nitrophenol	2.13 U	4.27	1.32	mg/Kg	4		11/29/16 02:55
Acenaphthene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Acenaphthylene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Aniline	4.27 U	8.54	2.65	mg/Kg	4		11/29/16 02:55
Anthracene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Azobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Benzo(a)Anthracene	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
Benzo[a]pyrene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55

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J flagging is activated



### Results of A-X

Client Sample ID: **A-X**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783004  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):93.2  
 Location:

### Results by Semivolatile Organics GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Benzo[b]Fluoranthene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Benzo[g,h,i]perylene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Benzo[k]fluoranthene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Benzoic acid	3.20 U	6.40	2.01	mg/Kg	4		11/29/16 02:55
Benzyl alcohol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Bis(2chloro1methylethyl)Ether	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Bis(2-Chloroethoxy)methane	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Bis(2-Chloroethyl)ether	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
bis(2-Ethylhexyl)phthalate	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
Butylbenzylphthalate	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
Carbazole	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Chrysene	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
Dibenzo[a,h]anthracene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Dibenzofuran	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Diethylphthalate	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Dimethylphthalate	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Di-n-butylphthalate	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
di-n-Octylphthalate	2.67 U	5.34	1.60	mg/Kg	10		11/30/16 02:09
Fluoranthene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Fluorene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Hexachlorobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Hexachlorobutadiene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Hexachlorocyclopentadiene	1.50 U	2.99	0.854	mg/Kg	4		11/29/16 02:55
Hexachloroethane	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Indeno[1,2,3-c,d] pyrene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Isophorone	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Naphthalene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Nitrobenzene	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
N-Nitrosodimethylamine	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
N-Nitroso-di-n-propylamine	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
N-Nitrosodiphenylamine	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Pentachlorophenol	4.27 U	8.54	2.65	mg/Kg	4		11/29/16 02:55
Phenanthrene	0.389 J	1.07	0.333	mg/Kg	4		11/29/16 02:55
Phenol	0.535 U	1.07	0.333	mg/Kg	4		11/29/16 02:55
Pyrene	1.34 U	2.67	0.833	mg/Kg	10		11/30/16 02:09
<b>Surrogates</b>							
2,4,6-Tribromophenol (surr)	77.1	35-125		%	4		11/29/16 02:55

Print Date: 12/01/2016 4:08:24PM

J flagging is activated



**Results of A-X**

Client Sample ID: **A-X**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783004  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.2  
Location:

**Results by Semivolatile Organics GC/MS**

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
2-Fluorobiphenyl (surr)	90.7	44-115		%	4		11/29/16 02:55
2-Fluorophenol (surr)	72.2	35-115		%	4		11/29/16 02:55
Nitrobenzene-d5 (surr)	78.8	37-122		%	4		11/29/16 02:55
Phenol-d6 (surr)	84.1	33-122		%	4		11/29/16 02:55
Terphenyl-d14 (surr)	103	54-127		%	10		11/30/16 02:09

**Batch Information**

Analytical Batch: XMS9767  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/30/16 02:09  
Container ID: 1166783004-A

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.621 g  
Prep Extract Vol: 1 mL

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Analyst: DSH  
Analytical Date/Time: 11/29/16 02:55  
Container ID: 1166783004-A

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/16 13:00  
Prep Initial Wt./Vol.: 22.621 g  
Prep Extract Vol: 1 mL

## Results of A-X

Client Sample ID: **A-X**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783004  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):93.2  
 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	10.3	2.34	0.703	mg/Kg	1		11/15/16 22:21
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	137	50-150		%	1		11/15/16 22:21

## Batch Information

Analytical Batch: VFC13475  
 Analytical Method: AK101  
 Analyst: ST  
 Analytical Date/Time: 11/15/16 22:21  
 Container ID: 1166783004-D

Prep Batch: VXX29974  
 Prep Method: SW5035A  
 Prep Date/Time: 11/09/16 13:21  
 Prep Initial Wt./Vol.: 67.798 g  
 Prep Extract Vol: 29.6219 mL



Results of A-X

Client Sample ID: A-X
Client Project ID: Homer Stockpile DOT
Lab Sample ID: 1166783004
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21
Received Date: 11/11/16 10:44
Matrix: Soil/Solid (dry weight)
Solids (%):93.2
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 A-X

Client Sample ID: **A-X**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783004  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):93.2  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Chloromethane	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
cis-1,2-Dichloroethene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
cis-1,3-Dichloropropene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Dibromochloromethane	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Dibromomethane	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Dichlorodifluoromethane	23.4 U	46.9	14.1	ug/Kg	1		11/18/16 21:33
Ethylbenzene	164	23.4	7.31	ug/Kg	1		11/18/16 21:33
Freon-113	46.9 U	93.8	29.1	ug/Kg	1		11/18/16 21:33
Hexachlorobutadiene	23.4 U	46.9	14.1	ug/Kg	1		11/18/16 21:33
Isopropylbenzene (Cumene)	30.5	23.4	7.31	ug/Kg	1		11/18/16 21:33
Methylene chloride	46.9 U	93.8	29.1	ug/Kg	1		11/18/16 21:33
Methyl-t-butyl ether	46.9 U	93.8	29.1	ug/Kg	1		11/18/16 21:33
Naphthalene	129	46.9	14.1	ug/Kg	1		11/18/16 21:33
n-Butylbenzene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
n-Propylbenzene	88.6	23.4	7.31	ug/Kg	1		11/18/16 21:33
o-Xylene	229	23.4	7.31	ug/Kg	1		11/18/16 21:33
P & M -Xylene	771	46.9	14.1	ug/Kg	1		11/18/16 21:33
sec-Butylbenzene	31.2	23.4	7.31	ug/Kg	1		11/18/16 21:33
Styrene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
tert-Butylbenzene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Tetrachloroethene	5.85 U	11.7	3.66	ug/Kg	1		11/18/16 21:33
Toluene	206	23.4	7.31	ug/Kg	1		11/18/16 21:33
trans-1,2-Dichloroethene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
trans-1,3-Dichloropropene	11.7 U	23.4	7.31	ug/Kg	1		11/18/16 21:33
Trichloroethene	5.85 U	11.7	3.66	ug/Kg	1		11/18/16 21:33
Trichlorofluoromethane	23.4 U	46.9	14.1	ug/Kg	1		11/18/16 21:33
Vinyl acetate	46.9 U	93.8	29.1	ug/Kg	1		11/18/16 21:33
Vinyl chloride	4.69 U	9.38	2.91	ug/Kg	1		11/18/16 21:33
Xylenes (total)	999	70.3	21.4	ug/Kg	1		11/18/16 21:33
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	111	71-136		%	1		11/18/16 21:33
4-Bromofluorobenzene (surr)	114	55-151		%	1		11/18/16 21:33
Toluene-d8 (surr)	102	85-116		%	1		11/18/16 21:33

## Results of A-X

Client Sample ID: **A-X**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783004  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:21  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):93.2  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 11/18/16 21:33  
Container ID: 1166783004-D

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:21  
Prep Initial Wt./Vol.: 67.798 g  
Prep Extract Vol: 29.6219 mL





### Results of Trip Blank

Client Sample ID: **Trip Blank**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783005  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
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	1.28 U	2.56	0.767	mg/Kg	1		11/13/16 18:42
<b>Surrogates</b>							
4-Bromofluorobenzene (surr)	85.5	50-150		%	1		11/13/16 18:42

### Batch Information

Analytical Batch: VFC13471  
Analytical Method: AK101  
Analyst: NRO  
Analytical Date/Time: 11/13/16 18:42  
Container ID: 1166783005-A

Prep Batch: VXX29967  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:15  
Prep Initial Wt./Vol.: 48.894 g  
Prep Extract Vol: 25 mL



### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783005  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,1,1-Trichloroethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,1,2,2-Tetrachloroethane	6.40 U	12.8	3.99	ug/Kg	1		11/18/16 19:00
1,1,2-Trichloroethane	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
1,1-Dichloroethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,1-Dichloroethene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,1-Dichloropropene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,2,3-Trichlorobenzene	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
1,2,3-Trichloropropane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,2,4-Trichlorobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,2,4-Trimethylbenzene	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
1,2-Dibromo-3-chloropropane	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
1,2-Dibromoethane	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
1,2-Dichlorobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,2-Dichloroethane	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
1,2-Dichloropropane	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
1,3,5-Trimethylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,3-Dichlorobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
1,3-Dichloropropane	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
1,4-Dichlorobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
2,2-Dichloropropane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
2-Butanone (MEK)	128 U	256	79.8	ug/Kg	1		11/18/16 19:00
2-Chlorotoluene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
2-Hexanone	128 U	256	79.8	ug/Kg	1		11/18/16 19:00
4-Chlorotoluene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
4-Isopropyltoluene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
4-Methyl-2-pentanone (MIBK)	128 U	256	79.8	ug/Kg	1		11/18/16 19:00
Benzene	6.40 U	12.8	3.99	ug/Kg	1		11/18/16 19:00
Bromobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Bromochloromethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Bromodichloromethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Bromoform	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Bromomethane	103 U	205	63.4	ug/Kg	1		11/18/16 19:00
Carbon disulfide	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
Carbon tetrachloride	6.40 U	12.8	3.99	ug/Kg	1		11/18/16 19:00
Chlorobenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Chloroethane	103 U	205	63.4	ug/Kg	1		11/18/16 19:00



### Results of Trip Blank

Client Sample ID: **Trip Blank**  
 Client Project ID: **Homer Stockpile DOT**  
 Lab Sample ID: 1166783005  
 Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
 Received Date: 11/11/16 10:44  
 Matrix: Soil/Solid (dry weight)  
 Solids (%):  
 Location:

### Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Chloromethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
cis-1,2-Dichloroethene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
cis-1,3-Dichloropropene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Dibromochloromethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Dibromomethane	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Dichlorodifluoromethane	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
Ethylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Freon-113	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
Hexachlorobutadiene	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
Isopropylbenzene (Cumene)	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Methylene chloride	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
Methyl-t-butyl ether	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
Naphthalene	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
n-Butylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
n-Propylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
o-Xylene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
P & M -Xylene	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
sec-Butylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Styrene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
tert-Butylbenzene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Tetrachloroethene	6.40 U	12.8	3.99	ug/Kg	1		11/18/16 19:00
Toluene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
trans-1,2-Dichloroethene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
trans-1,3-Dichloropropene	12.8 U	25.6	7.98	ug/Kg	1		11/18/16 19:00
Trichloroethene	6.40 U	12.8	3.99	ug/Kg	1		11/18/16 19:00
Trichlorofluoromethane	25.6 U	51.1	15.3	ug/Kg	1		11/18/16 19:00
Vinyl acetate	51.0 U	102	31.7	ug/Kg	1		11/18/16 19:00
Vinyl chloride	5.10 U	10.2	3.17	ug/Kg	1		11/18/16 19:00
Xylenes (total)	38.4 U	76.7	23.3	ug/Kg	1		11/18/16 19:00
<b>Surrogates</b>							
1,2-Dichloroethane-D4 (surr)	117	71-136		%	1		11/18/16 19:00
4-Bromofluorobenzene (surr)	112	55-151		%	1		11/18/16 19:00
Toluene-d8 (surr)	104	85-116		%	1		11/18/16 19:00

## Results of Trip Blank

Client Sample ID: **Trip Blank**  
Client Project ID: **Homer Stockpile DOT**  
Lab Sample ID: 1166783005  
Lab Project ID: 1166783

Collection Date: 11/09/16 13:15  
Received Date: 11/11/16 10:44  
Matrix: Soil/Solid (dry weight)  
Solids (%):  
Location:

## Results by Volatile GC/MS

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Analyst: TJT  
Analytical Date/Time: 11/18/16 19:00  
Container ID: 1166783005-A

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/09/16 13:15  
Prep Initial Wt./Vol.: 48.894 g  
Prep Extract Vol: 25 mL



### Method Blank

Blank ID: MB for HBN 1748618 [MXX/30359]  
Blank Lab ID: 1365485

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004

### Results by SW6020A

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.140J	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0200U	0.0400	0.0120	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg

### Batch Information

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Instrument: Perkin Elmer Nexlon P5  
Analyst: VDL  
Analytical Date/Time: 11/17/2016 12:13:52PM

Prep Batch: MXX30359  
Prep Method: SW3050B  
Prep Date/Time: 11/17/2016 7:50:23AM  
Prep Initial Wt./Vol.: 1 g  
Prep Extract Vol: 50 mL

Print Date: 12/01/2016 4:08:27PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [MXX30359]

Blank Spike Lab ID: 1365486

Date Analyzed: 11/17/2016 12:18

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

## Results by SW6020A

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
Arsenic	50	50.0	100	( 82-118 )
Barium	50	46.5	93	( 86-116 )
Cadmium	5	4.78	96	( 84-116 )
Chromium	20	19.8	99	( 83-119 )
Lead	50	52.7	105	( 84-118 )
Mercury	0.5	0.595	119	( 74-126 )
Selenium	50	49.0	98	( 80-119 )
Silver	5	4.84	97	( 83-118 )

## Batch Information

Analytical Batch: **MMS9623**

Analytical Method: **SW6020A**

Instrument: **Perkin Elmer Nexlon P5**

Analyst: **VDL**

Prep Batch: **MXX30359**

Prep Method: **SW3050B**

Prep Date/Time: **11/17/2016 07:50**

Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL

Dupe Init Wt./Vol.: Extract Vol:



### Matrix Spike Summary

Original Sample ID: 1365487  
MS Sample ID: 1365488 MS  
MSD Sample ID: 1365489 MSD

Analysis Date: 11/17/2016 11:32  
Analysis Date: 11/17/2016 11:37  
Analysis Date: 11/17/2016 11:41  
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Arsenic	4.76	49.1	54	100	49.4	53.1	98	82-118	1.69	(< 20 )
Barium	58.5	49.1	123	132 *	49.4	111	106	86-116	10.30	(< 20 )
Cadmium	0.0666J	4.91	4.74	95	4.94	4.64	93	84-116	2.06	(< 20 )
Chromium	19.1	19.6	44.4	129 *	19.8	39.8	105	83-119	10.80	(< 20 )
Lead	3.61	49.1	54.2	103	49.4	53.7	101	84-118	0.90	(< 20 )
Mercury	0.0397	0.491	.571	108	0.494	0.555	104	74-126	2.80	(< 20 )
Selenium	0.496U	49.1	49.4	101	49.4	47.8	97	80-119	3.27	(< 20 )
Silver	0.0990U	4.91	4.7	96	4.94	4.58	93	83-118	2.58	(< 20 )

### Batch Information

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Instrument: Perkin Elmer NexIon P5  
Analyst: VDL  
Analytical Date/Time: 11/17/2016 11:37:03AM

Prep Batch: MXX30359  
Prep Method: Soils/Solids Digest for Metals by ICP-MS  
Prep Date/Time: 11/17/2016 7:50:23AM  
Prep Initial Wt./Vol.: 1.02g  
Prep Extract Vol: 50.00mL

Print Date: 12/01/2016 4:08:31PM



### Bench Spike Summary

Original Sample ID: 1365487  
MS Sample ID: 1365490 BND  
MSD Sample ID:

Analysis Date: 11/17/2016 11:32  
Analysis Date: 11/17/2016 11:46  
Analysis Date:  
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by SW6020A

Parameter	Sample	Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Barium	58.5	248	287	92				80-120		
Chromium	19.1	124	142	99				80-120		

### Batch Information

Analytical Batch: MMS9623  
Analytical Method: SW6020A  
Instrument: Perkin Elmer Nexlon P5  
Analyst: VDL  
Analytical Date/Time: 11/17/2016 11:46:01AM

Prep Batch: MXX30359  
Prep Method: Soils/Solids Digest for Metals by ICP-MS  
Prep Date/Time: 11/17/2016 7:50:23AM  
Prep Initial Wt./Vol.: 1.01g  
Prep Extract Vol: 50.00mL

Print Date: 12/01/2016 4:08:31PM





### Method Blank

Blank ID: MB for HBN 1748332 [SPT/10044]

Blank Lab ID: 1365035

QC for Samples:

1166783001, 1166783002, 1166783003, 1166783004

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: SPT10044

Analytical Method: SM21 2540G

Instrument:

Analyst: K.W

Analytical Date/Time: 11/11/2016 4:58:00PM

Print Date: 12/01/2016 4:08:32PM

## Duplicate Sample Summary

Original Sample ID: 1166773013

Duplicate Sample ID: 1365037

QC for Samples:

Analysis Date: 11/11/2016 16:58

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	76.9	77.5	%	0.84	(< 15 )

## Batch Information

Analytical Batch: SPT10044

Analytical Method: SM21 2540G

Instrument:

Analyst: K.W

Print Date: 12/01/2016 4:08:33PM



### Duplicate Sample Summary

Original Sample ID: 1166782002

Duplicate Sample ID: 1365038

QC for Samples:

1166783001, 1166783002, 1166783003, 1166783004

Analysis Date: 11/11/2016 16:58

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	89.0	89.5	%	0.59	(< 15 )

### Batch Information

Analytical Batch: SPT10044

Analytical Method: SM21 2540G

Instrument:

Analyst: K.W

Print Date: 12/01/2016 4:08:33PM



### Method Blank

Blank ID: MB for HBN 1748328 [VXX/29967]  
Blank Lab ID: 1365019

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783005

### 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)	84.4	50-150		%

### Batch Information

Analytical Batch: VFC13471  
Analytical Method: AK101  
Instrument: Agilent 7890 PID/FID  
Analyst: NRO  
Analytical Date/Time: 11/13/2016 4:49:00PM

Prep Batch: VXX29967  
Prep Method: SW5035A  
Prep Date/Time: 11/10/2016 12:30:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 12/01/2016 4:08:35PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [VXX29967]  
Blank Spike Lab ID: 1365022  
Date Analyzed: 11/13/2016 17:46

Spike Duplicate ID: LCSD for HBN 1166783 [VXX29967]  
Spike Duplicate Lab ID: 1365023  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783005

### 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	10.8	86	12.5	10.6	85	( 60-120 )	2.00	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	85.6	86	1.25	82.4	82	( 50-150 )	3.90	
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### Batch Information

Analytical Batch: VFC13471  
Analytical Method: AK101  
Instrument: Agilent 7890 PID/FID  
Analyst: NRO

Prep Batch: VXX29967  
Prep Method: SW5035A  
Prep Date/Time: 11/10/2016 00:30  
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL  
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 12/01/2016 4:08:36PM



### Method Blank

Blank ID: MB for HBN 1748522 [VXX/29974]  
Blank Lab ID: 1365379

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783004

### Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.44J	2.50	0.750	mg/Kg
<b>Surrogates</b>				
4-Bromofluorobenzene (surr)	74.6	50-150		%

### Batch Information

Analytical Batch: VFC13475  
Analytical Method: AK101  
Instrument: Agilent 7890 PID/FID  
Analyst: ST  
Analytical Date/Time: 11/15/2016 8:09:00PM

Prep Batch: VXX29974  
Prep Method: SW5035A  
Prep Date/Time: 11/15/2016 8:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 12/01/2016 4:08:39PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [VXX29974]  
Blank Spike Lab ID: 1365972  
Date Analyzed: 11/15/2016 21:06

Spike Duplicate ID: LCSD for HBN 1166783 [VXX29974]  
Spike Duplicate Lab ID: 1365973  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783004

### 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	25.0	21.2	85	25.0	22.0	88	( 60-120 )	3.40	(< 20 )

### Surrogates

4-Bromofluorobenzene (surr)	1.25	88.4	88	1.25	85.9	86	( 50-150 )	2.80	
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### Batch Information

Analytical Batch: **VFC13475**  
Analytical Method: **AK101**  
Instrument: **Agilent 7890 PID/FID**  
Analyst: **ST**

Prep Batch: **VXX29974**  
Prep Method: **SW5035A**  
Prep Date/Time: **11/15/2016 08:00**  
Spike Init Wt./Vol.: 25.0 mg/Kg Extract Vol: 25 mL  
Dupe Init Wt./Vol.: 25.0 mg/Kg Extract Vol: 25 mL

Print Date: 12/01/2016 4:08:40PM



### Method Blank

Blank ID: MB for HBN 1748967 [VXX/29987]  
Blank Lab ID: 1365810

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	12.5U	25.0	7.80	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	125U	250	78.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	12.5U	25.0	7.80	ug/Kg
4-Methyl-2-pentanone (MIBK)	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
Chloroform	12.5U	25.0	7.80	ug/Kg

Print Date: 12/01/2016 4:08:42PM





### Method Blank

Blank ID: MB for HBN 1748967 [VXX/29987]

Blank Lab ID: 1365810

QC for Samples:

1166783001, 1166783002, 1166783003, 1166783004, 1166783005

Matrix: Soil/Solid (dry weight)

### Results by SW8260B

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
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	12.5U	25.0	7.80	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	25.0U	50.0	15.0	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	25.0U	50.0	15.0	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	12.5U	25.0	7.80	ug/Kg
Trichloroethene	6.25U	12.5	3.90	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)	112	71-136		%
4-Bromofluorobenzene (surr)	111	55-151		%
Toluene-d8 (surr)	100	85-116		%

Print Date: 12/01/2016 4:08:42PM



**Method Blank**

Blank ID: MB for HBN 1748967 [VXX/29987]  
Blank Lab ID: 1365810

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004, 1166783005

**Results by SW8260B**

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

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Instrument: VQA 7890/5975 GC/MS  
Analyst: TJT  
Analytical Date/Time: 11/18/2016 3:16:00PM

Prep Batch: VXX29987  
Prep Method: SW5035A  
Prep Date/Time: 11/18/2016 6:00:00AM  
Prep Initial Wt./Vol.: 50 g  
Prep Extract Vol: 25 mL

Print Date: 12/01/2016 4:08:42PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [VXX29987]

Blank Spike Lab ID: 1365811

Date Analyzed: 11/18/2016 15:49

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
1,1,1,2-Tetrachloroethane	750	825	110	(78-125)
1,1,1-Trichloroethane	750	784	105	(73-130)
1,1,2,2-Tetrachloroethane	750	818	109	(70-124)
1,1,2-Trichloroethane	750	817	109	(78-121)
1,1-Dichloroethane	750	718	96	(76-125)
1,1-Dichloroethene	750	738	98	(70-131)
1,1-Dichloropropene	750	801	107	(76-125)
1,2,3-Trichlorobenzene	750	669	89	(66-130)
1,2,3-Trichloropropane	750	805	107	(73-125)
1,2,4-Trichlorobenzene	750	698	93	(67-129)
1,2,4-Trimethylbenzene	750	813	108	(75-123)
1,2-Dibromo-3-chloropropane	750	772	103	(61-132)
1,2-Dibromoethane	750	816	109	(78-122)
1,2-Dichlorobenzene	750	774	103	(78-121)
1,2-Dichloroethane	750	767	102	(73-128)
1,2-Dichloropropane	750	785	105	(76-123)
1,3,5-Trimethylbenzene	750	812	108	(73-124)
1,3-Dichlorobenzene	750	772	103	(77-121)
1,3-Dichloropropane	750	814	109	(77-121)
1,4-Dichlorobenzene	750	782	104	(75-120)
2,2-Dichloropropane	750	728	97	(67-133)
2-Butanone (MEK)	2250	2200	98	(51-148)
2-Chlorotoluene	750	810	108	(75-122)
2-Hexanone	2250	2140	95	(53-145)
4-Chlorotoluene	750	807	108	(72-124)
4-Isopropyltoluene	750	827	110	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	1990	88	(65-135)
Benzene	750	774	103	(77-121)
Bromobenzene	750	793	106	(78-121)
Bromochloromethane	750	751	100	(78-125)
Bromodichloromethane	750	779	104	(75-127)
Bromoform	750	833	111	(67-132)
Bromomethane	750	733	98	(53-143)
Carbon disulfide	1130	1070	95	(63-132)

Print Date: 12/01/2016 4:08:44PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [VXX29987]

Blank Spike Lab ID: 1365811

Date Analyzed: 11/18/2016 15:49

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

Parameter	Blank Spike (ug/Kg)			CL
	Spike	Result	Rec (%)	
Carbon tetrachloride	750	802	107	( 70-135 )
Chlorobenzene	750	773	103	( 79-120 )
Chloroethane	750	724	97	( 59-139 )
Chloroform	750	754	101	( 78-123 )
Chloromethane	750	725	97	( 50-136 )
cis-1,2-Dichloroethene	750	732	98	( 77-123 )
cis-1,3-Dichloropropene	750	794	106	( 74-126 )
Dibromochloromethane	750	824	110	( 74-126 )
Dibromomethane	750	690	92	( 78-125 )
Dichlorodifluoromethane	750	828	110	( 29-149 )
Ethylbenzene	750	785	105	( 76-122 )
Freon-113	1130	1170	104	( 66-136 )
Hexachlorobutadiene	750	741	99	( 61-135 )
Isopropylbenzene (Cumene)	750	807	108	( 68-134 )
Methylene chloride	750	722	96	( 70-128 )
Methyl-t-butyl ether	1130	1200	106	( 73-125 )
Naphthalene	750	645	86	( 62-129 )
n-Butylbenzene	750	820	109	( 70-128 )
n-Propylbenzene	750	819	109	( 73-125 )
o-Xylene	750	773	103	( 77-123 )
P & M -Xylene	1500	1540	102	( 77-124 )
sec-Butylbenzene	750	833	111	( 73-126 )
Styrene	750	757	101	( 76-124 )
tert-Butylbenzene	750	837	112	( 73-125 )
Tetrachloroethene	750	836	112	( 73-128 )
Toluene	750	767	102	( 77-121 )
trans-1,2-Dichloroethene	750	733	98	( 74-125 )
trans-1,3-Dichloropropene	750	810	108	( 71-130 )
Trichloroethene	750	776	103	( 77-123 )
Trichlorofluoromethane	750	834	111	( 62-140 )
Vinyl acetate	750	1030	137	( 50-151 )
Vinyl chloride	750	740	99	( 56-135 )
Xylenes (total)	2250	2310	103	( 78-124 )

Print Date: 12/01/2016 4:08:44PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [VXX29987]

Blank Spike Lab ID: 1365811

Date Analyzed: 11/18/2016 15:49

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

## Results by SW8260B

Parameter	Blank Spike (%)			CL
	Spike	Result	Rec (%)	
<b>Surrogates</b>				
1,2-Dichloroethane-D4 (surr)	750	101	101	( 71-136 )
4-Bromofluorobenzene (surr)	750	107	107	( 55-151 )
Toluene-d8 (surr)	750	97.6	98	( 85-116 )

## Batch Information

Analytical Batch: **VMS16400**

Analytical Method: **SW8260B**

Instrument: **VQA 7890/5975 GC/MS**

Analyst: **TJT**

Prep Batch: **VXX29987**

Prep Method: **SW5035A**

Prep Date/Time: **11/18/2016 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: 1166783002  
 MS Sample ID: 1365866 MS  
 MSD Sample ID: 1365867 MSD

Analysis Date: 11/18/2016 20:59  
 Analysis Date: 11/18/2016 17:35  
 Analysis Date: 11/18/2016 17:52  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

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	12.2U	623	699	112	623	715	115	78-125	2.30	(< 20 )
1,1,1-Trichloroethane	12.2U	623	671	108	623	682	109	73-130	1.50	(< 20 )
1,1,2,2-Tetrachloroethane	6.05U	623	802	129 *	623	773	124	70-124	3.60	(< 20 )
1,1,2-Trichloroethane	4.86U	623	893	143 *	623	919	147 *	78-121	2.90	(< 20 )
1,1-Dichloroethane	12.2U	623	609	98	623	620	100	76-125	1.80	(< 20 )
1,1-Dichloroethene	12.2U	623	639	103	623	633	102	70-131	1.10	(< 20 )
1,1-Dichloropropene	12.2U	623	691	111	623	702	113	76-125	1.70	(< 20 )
1,2,3-Trichlorobenzene	24.3U	623	712	114	623	877	141 *	66-130	20.80	* (< 20 )
1,2,3-Trichloropropane	12.2U	623	741	119	623	747	120	73-125	0.95	(< 20 )
1,2,4-Trichlorobenzene	12.2U	623	719	116	623	857	138 *	67-129	17.40	(< 20 )
1,2,4-Trimethylbenzene	1070	623	1552	79	623	1595	84	75-123	2.30	(< 20 )
1,2-Dibromo-3-chloropropane	48.6U	623	696	112	623	813	131	61-132	15.50	(< 20 )
1,2-Dibromoethane	4.86U	623	699	112	623	727	117	78-122	3.90	(< 20 )
1,2-Dichlorobenzene	12.2U	623	657	106	623	679	109	78-121	3.20	(< 20 )
1,2-Dichloroethane	4.86U	623	647	104	623	658	106	73-128	1.70	(< 20 )
1,2-Dichloropropane	4.86U	623	668	107	623	678	109	76-123	1.40	(< 20 )
1,3,5-Trimethylbenzene	397	623	1024	101	623	1046	104	73-124	2.10	(< 20 )
1,3-Dichlorobenzene	12.2U	623	658	106	623	685	110	77-121	4.00	(< 20 )
1,3-Dichloropropane	4.86U	623	691	111	623	715	115	77-121	3.50	(< 20 )
1,4-Dichlorobenzene	12.2U	623	668	107	623	682	109	75-120	2.00	(< 20 )
2,2-Dichloropropane	12.2U	623	627	101	623	631	101	67-133	0.53	(< 20 )
2-Butanone (MEK)	122U	1874	2120	113	1874	2259	121	51-148	6.30	(< 20 )
2-Chlorotoluene	12.2U	623	776	125 *	623	783	126 *	75-122	0.88	(< 20 )
2-Hexanone	122U	1874	1874	100	1874	2120	113	53-145	12.20	(< 20 )
4-Chlorotoluene	12.2U	623	666	107	623	673	108	72-124	1.20	(< 20 )
4-Isopropyltoluene	44.7	623	864	132 *	623	881	134 *	73-127	2.00	(< 20 )
4-Methyl-2-pentanone (MIBK)	122U	1874	1767	95	1874	1884	101	65-135	6.60	(< 20 )
Benzene	25.3	623	670	104	623	685	106	77-121	2.30	(< 20 )
Bromobenzene	12.2U	623	676	109	623	691	111	78-121	2.10	(< 20 )
Bromochloromethane	12.2U	623	625	100	623	624	100	78-125	0.20	(< 20 )
Bromodichloromethane	12.2U	623	657	106	623	667	107	75-127	1.50	(< 20 )
Bromoform	12.2U	623	717	115	623	742	119	67-132	3.40	(< 20 )
Bromomethane	97.0U	623	610	98	623	608	98	53-143	0.44	(< 20 )
Carbon disulfide	48.6U	935	923	99	935	923	99	63-132	0.07	(< 20 )
Carbon tetrachloride	6.05U	623	692	111	623	694	111	70-135	0.27	(< 20 )
Chlorobenzene	12.2U	623	646	104	623	677	109	79-120	4.70	(< 20 )
Chloroethane	97.0U	623	607	98	623	616	99	59-139	1.40	(< 20 )

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### Matrix Spike Summary

Original Sample ID: 1166783002  
 MS Sample ID: 1365866 MS  
 MSD Sample ID: 1365867 MSD

Analysis Date: 11/18/2016 20:59  
 Analysis Date: 11/18/2016 17:35  
 Analysis Date: 11/18/2016 17:52  
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	12.2U	623	635	102	623	648	104	78-123	2.10	(< 20 )
Chloromethane	12.2U	623	622	100	623	632	102	50-136	1.60	(< 20 )
cis-1,2-Dichloroethene	12.2U	623	616	99	623	638	103	77-123	3.60	(< 20 )
cis-1,3-Dichloropropene	12.2U	623	681	109	623	686	110	74-126	0.76	(< 20 )
Dibromochloromethane	12.2U	623	704	113	623	721	116	74-126	2.20	(< 20 )
Dibromomethane	12.2U	623	585	94	623	589	95	78-125	0.71	(< 20 )
Dichlorodifluoromethane	24.3U	623	719	116	623	725	116	29-149	0.83	(< 20 )
Ethylbenzene	386	623	934	88	623	975	95	76-122	4.40	(< 20 )
Freon-113	48.6U	935	988	106	935	1000	107	66-136	1.10	(< 20 )
Hexachlorobutadiene	24.3U	623	1048	168 *	623	1242	199 *	61-135	16.90	(< 20 )
Isopropylbenzene (Cumene)	56.4	623	704	104	623	738	109	68-134	4.60	(< 20 )
Methylene chloride	48.6U	623	616	99	623	622	100	70-128	1.10	(< 20 )
Methyl-t-butyl ether	48.6U	935	1007	108	935	1025	110	73-125	1.70	(< 20 )
Naphthalene	264	623	777	82	623	979	115	62-129	22.90	* (< 20 )
n-Butylbenzene	12.2U	623	978	157 *	623	1060	170 *	70-128	8.10	(< 20 )
n-Propylbenzene	151	623	812	106	623	835	110	73-125	2.80	(< 20 )
o-Xylene	571	623	1056	78	623	1092	83	77-123	3.00	(< 20 )
P & M -Xylene	1700	1242	2527	67 *	1242	2612	73 *	77-124	3.30	(< 20 )
sec-Butylbenzene	44.7	623	817	124	623	831	126	73-126	1.70	(< 20 )
Styrene	12.2U	623	637	102	623	660	106	76-124	3.40	(< 20 )
tert-Butylbenzene	12.2U	623	729	117	623	738	118	73-125	1.20	(< 20 )
Tetrachloroethene	6.05U	623	699	112	623	723	116	73-128	3.30	(< 20 )
Toluene	758	623	1231	76 *	623	1285	85	77-121	4.30	(< 20 )
trans-1,2-Dichloroethene	12.2U	623	626	101	623	634	102	74-125	1.20	(< 20 )
trans-1,3-Dichloropropene	12.2U	623	716	115	623	718	115	71-130	0.43	(< 20 )
Trichloroethene	6.05U	623	661	106	623	675	108	77-123	2.00	(< 20 )
Trichlorofluoromethane	24.3U	623	714	115	623	650	104	62-140	9.50	(< 20 )
Vinyl acetate	48.6U	623	895	144	623	808	130	50-151	10.10	(< 20 )
Vinyl chloride	4.86U	623	641	103	623	657	106	56-135	2.40	(< 20 )
Xylenes (total)	2270	1874	3587	70 *	1874	3704	77 *	78-124	3.20	(< 20 )
<b>Surrogates</b>										
1,2-Dichloroethane-D4 (surr)		623	642	103	623	654	105	71-136	1.80	
4-Bromofluorobenzene (surr)		1660	1660	100	1660	1702	103	55-151	2.70	
Toluene-d8 (surr)		623	623	100	623	649	104	85-116	4.00	

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### Matrix Spike Summary

Original Sample ID: 1166783002  
MS Sample ID: 1365866 MS  
MSD Sample ID: 1365867 MSD

Analysis Date:  
Analysis Date: 11/18/2016 17:35  
Analysis Date: 11/18/2016 17:52  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004, 1166783005

### Results by SW8260B

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

### Batch Information

Analytical Batch: VMS16400  
Analytical Method: SW8260B  
Instrument: VQA 7890/5975 GC/MS  
Analyst: TJT  
Analytical Date/Time: 11/18/2016 5:35:00PM

Prep Batch: VXX29987  
Prep Method: Vol. Extraction SW8260 Field Extracted L  
Prep Date/Time: 11/18/2016 6:00:00AM  
Prep Initial Wt./Vol.: 64.47g  
Prep Extract Vol: 25.00mL

Print Date: 12/01/2016 4:08:46PM





### Method Blank

Blank ID: MB for HBN 1748318 [XXX/36689]  
Blank Lab ID: 1364967

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004

### 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)	82.8	60-120		%

### Batch Information

Analytical Batch: XFC13060  
Analytical Method: AK102  
Instrument: Agilent 7890B R  
Analyst: CRA  
Analytical Date/Time: 11/14/2016 6:56:00PM

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/2016 8:34:41AM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL

Print Date: 12/01/2016 4:08:47PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [XXX36689]  
Blank Spike Lab ID: 1364968  
Date Analyzed: 11/14/2016 19:06

Spike Duplicate ID: LCSD for HBN 1166783 [XXX36689]  
Spike Duplicate Lab ID: 1364969  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	167	137	82	167	131	79	( 75-125 )	4.80	(< 20 )
<b>Surrogates</b>									
5a Androstane (surr)	3.33	95.8	96	3.33	90.3	90	( 60-120 )	5.90	

### Batch Information

Analytical Batch: **XFC13060**  
Analytical Method: **AK102**  
Instrument: **Agilent 7890B R**  
Analyst: **CRA**

Prep Batch: **XXX36689**  
Prep Method: **SW3550C**  
Prep Date/Time: **11/14/2016 08:34**  
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 12/01/2016 4:08:49PM



### Method Blank

Blank ID: MB for HBN 1748318 [XXX/36689]  
Blank Lab ID: 1364967

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004

### Results by AK103

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
<b>Surrogates</b>				
n-Triacontane-d62 (surr)	96	60-120		%

### Batch Information

Analytical Batch: XFC13060  
Analytical Method: AK103  
Instrument: Agilent 7890B R  
Analyst: CRA  
Analytical Date/Time: 11/14/2016 6:56:00PM

Prep Batch: XXX36689  
Prep Method: SW3550C  
Prep Date/Time: 11/14/2016 8:34:41AM  
Prep Initial Wt./Vol.: 30 g  
Prep Extract Vol: 1 mL

Print Date: 12/01/2016 4:08:51PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [XXX36689]  
Blank Spike Lab ID: 1364968  
Date Analyzed: 11/14/2016 19:06

Spike Duplicate ID: LCSD for HBN 1166783 [XXX36689]  
Spike Duplicate Lab ID: 1364969  
Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by AK103

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Residual Range Organics	167	163	98	167	152	91	( 60-120 )	7.00	(< 20 )

### Surrogates

n-Triacontane-d62 (surr)	3.33	104	104	3.33	94.6	95	( 60-120 )	9.70	
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### Batch Information

Analytical Batch: **XFC13060**  
Analytical Method: **AK103**  
Instrument: **Agilent 7890B R**  
Analyst: **CRA**

Prep Batch: **XXX36689**  
Prep Method: **SW3550C**  
Prep Date/Time: **11/14/2016 08:34**  
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL  
Dupe Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

Print Date: 12/01/2016 4:08:54PM



### Method Blank

Blank ID: MB for HBN 1748670 [XXX/36707]

Blank Lab ID: 1365714

QC for Samples:

1166783001, 1166783002, 1166783003, 1166783004

Matrix: Soil/Solid (dry weight)

### Results by SW8270D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2,4-Trichlorobenzene	0.125U	0.250	0.0780	mg/Kg
1,2-Dichlorobenzene	0.125U	0.250	0.0780	mg/Kg
1,3-Dichlorobenzene	0.125U	0.250	0.0780	mg/Kg
1,4-Dichlorobenzene	0.125U	0.250	0.0780	mg/Kg
1-Chloronaphthalene	0.125U	0.250	0.0780	mg/Kg
1-Methylnaphthalene	0.125U	0.250	0.0780	mg/Kg
2,4,5-Trichlorophenol	0.125U	0.250	0.0780	mg/Kg
2,4,6-Trichlorophenol	0.125U	0.250	0.0780	mg/Kg
2,4-Dichlorophenol	0.125U	0.250	0.0780	mg/Kg
2,4-Dimethylphenol	0.125U	0.250	0.0780	mg/Kg
2,4-Dinitrophenol	1.50U	3.00	0.940	mg/Kg
2,4-Dinitrotoluene	0.125U	0.250	0.0780	mg/Kg
2,6-Dichlorophenol	0.125U	0.250	0.0780	mg/Kg
2,6-Dinitrotoluene	0.125U	0.250	0.0780	mg/Kg
2-Chloronaphthalene	0.125U	0.250	0.0780	mg/Kg
2-Chlorophenol	0.125U	0.250	0.0780	mg/Kg
2-Methyl-4,6-dinitrophenol	1.00U	2.00	0.620	mg/Kg
2-Methylnaphthalene	0.125U	0.250	0.0780	mg/Kg
2-Methylphenol (o-Cresol)	0.125U	0.250	0.0780	mg/Kg
2-Nitroaniline	0.125U	0.250	0.0780	mg/Kg
2-Nitrophenol	0.125U	0.250	0.0780	mg/Kg
3&4-Methylphenol (p&m-Cresol)	0.500U	1.00	0.310	mg/Kg
3,3-Dichlorobenzidine	0.125U	0.250	0.0780	mg/Kg
3-Nitroaniline	0.250U	0.500	0.150	mg/Kg
4-Bromophenyl-phenylether	0.125U	0.250	0.0780	mg/Kg
4-Chloro-3-methylphenol	0.125U	0.250	0.0780	mg/Kg
4-Chloroaniline	0.250U	0.500	0.150	mg/Kg
4-Chlorophenyl-phenylether	0.125U	0.250	0.0780	mg/Kg
4-Nitroaniline	1.50U	3.00	0.940	mg/Kg
4-Nitrophenol	0.500U	1.00	0.310	mg/Kg
Acenaphthene	0.125U	0.250	0.0780	mg/Kg
Acenaphthylene	0.125U	0.250	0.0780	mg/Kg
Aniline	1.00U	2.00	0.620	mg/Kg
Anthracene	0.125U	0.250	0.0780	mg/Kg
Azobenzene	0.125U	0.250	0.0780	mg/Kg
Benzo(a)Anthracene	0.125U	0.250	0.0780	mg/Kg
Benzo[a]pyrene	0.125U	0.250	0.0780	mg/Kg
Benzo[b]Fluoranthene	0.125U	0.250	0.0780	mg/Kg

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### Method Blank

Blank ID: MB for HBN 1748670 [XXX/36707]

Blank Lab ID: 1365714

QC for Samples:

1166783001, 1166783002, 1166783003, 1166783004

Matrix: Soil/Solid (dry weight)

### Results by SW8270D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Benzo[g,h,i]perylene	0.125U	0.250	0.0780	mg/Kg
Benzo[k]fluoranthene	0.125U	0.250	0.0780	mg/Kg
Benzoic acid	0.750U	1.50	0.470	mg/Kg
Benzyl alcohol	0.125U	0.250	0.0780	mg/Kg
Bis(2chloro1methylethyl)Ether	0.125U	0.250	0.0780	mg/Kg
Bis(2-Chloroethoxy)methane	0.125U	0.250	0.0780	mg/Kg
Bis(2-Chloroethyl)ether	0.125U	0.250	0.0780	mg/Kg
bis(2-Ethylhexyl)phthalate	0.125U	0.250	0.0780	mg/Kg
Butylbenzylphthalate	0.125U	0.250	0.0780	mg/Kg
Carbazole	0.125U	0.250	0.0780	mg/Kg
Chrysene	0.125U	0.250	0.0780	mg/Kg
Dibenzo[a,h]anthracene	0.125U	0.250	0.0780	mg/Kg
Dibenzofuran	0.125U	0.250	0.0780	mg/Kg
Diethylphthalate	0.125U	0.250	0.0780	mg/Kg
Dimethylphthalate	0.125U	0.250	0.0780	mg/Kg
Di-n-butylphthalate	0.125U	0.250	0.0780	mg/Kg
di-n-Octylphthalate	0.250U	0.500	0.150	mg/Kg
Fluoranthene	0.125U	0.250	0.0780	mg/Kg
Fluorene	0.125U	0.250	0.0780	mg/Kg
Hexachlorobenzene	0.125U	0.250	0.0780	mg/Kg
Hexachlorobutadiene	0.125U	0.250	0.0780	mg/Kg
Hexachlorocyclopentadiene	0.350U	0.700	0.200	mg/Kg
Hexachloroethane	0.125U	0.250	0.0780	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.125U	0.250	0.0780	mg/Kg
Isophorone	0.125U	0.250	0.0780	mg/Kg
Naphthalene	0.125U	0.250	0.0780	mg/Kg
Nitrobenzene	0.125U	0.250	0.0780	mg/Kg
N-Nitrosodimethylamine	0.125U	0.250	0.0780	mg/Kg
N-Nitroso-di-n-propylamine	0.125U	0.250	0.0780	mg/Kg
N-Nitrosodiphenylamine	0.125U	0.250	0.0780	mg/Kg
Pentachlorophenol	1.00U	2.00	0.620	mg/Kg
Phenanthrene	0.125U	0.250	0.0780	mg/Kg
Phenol	0.125U	0.250	0.0780	mg/Kg
Pyrene	0.125U	0.250	0.0780	mg/Kg
<b>Surrogates</b>				
2,4,6-Tribromophenol (surr)	83.2	35-125		%
2-Fluorobiphenyl (surr)	78	44-115		%
2-Fluorophenol (surr)	72.5	35-115		%

Print Date: 12/01/2016 4:08:56PM



### Method Blank

Blank ID: MB for HBN 1748670 [XXX/36707]  
Blank Lab ID: 1365714

Matrix: Soil/Solid (dry weight)

QC for Samples:  
1166783001, 1166783002, 1166783003, 1166783004

### Results by SW8270D

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Nitrobenzene-d5 (surr)	74.3	37-122		%
Phenol-d6 (surr)	79.5	33-122		%
Terphenyl-d14 (surr)	100	54-127		%

### Batch Information

Analytical Batch: XMS9764  
Analytical Method: SW8270D  
Instrument: HP 6890/5973 SSA  
Analyst: DSH  
Analytical Date/Time: 11/28/2016 6:31:00PM

Prep Batch: XXX36707  
Prep Method: SW3550C  
Prep Date/Time: 11/18/2016 1:00:16PM  
Prep Initial Wt./Vol.: 22.5 g  
Prep Extract Vol: 1 mL

Print Date: 12/01/2016 4:08:56PM



### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [XXX36707]

Blank Spike Lab ID: 1365715

Date Analyzed: 11/28/2016 18:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by SW8270D

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
1,2,4-Trichlorobenzene	4.44	3.64	82	(34-118)
1,2-Dichlorobenzene	4.44	3.30	74	(33-117)
1,3-Dichlorobenzene	4.44	3.25	73	(30-115)
1,4-Dichlorobenzene	4.44	3.30	74	(31-115)
1-Chloronaphthalene	1.78	1.24	70	(48-115)
1-Methylnaphthalene	4.44	3.40	77	(40-119)
2,4,5-Trichlorophenol	4.44	4.59	103	(41-124)
2,4,6-Trichlorophenol	4.44	4.46	100	(39-126)
2,4-Dichlorophenol	4.44	3.99	90	(40-122)
2,4-Dimethylphenol	4.44	4.10	92	(30-127)
2,4-Dinitrophenol	8	8.29	104	(62-113)
2,4-Dinitrotoluene	4.44	4.28	96	(48-126)
2,6-Dichlorophenol	1.78	1.54	87	(41-117)
2,6-Dinitrotoluene	4.44	4.24	96	(46-124)
2-Chloronaphthalene	4.44	4.22	95	(41-114)
2-Chlorophenol	4.44	3.57	80	(34-121)
2-Methyl-4,6-dinitrophenol	8	9.12	114	(29-132)
2-Methylnaphthalene	4.44	3.54	80	(38-122)
2-Methylphenol (o-Cresol)	4.44	3.71	84	(32-122)
2-Nitroaniline	4.44	4.72	106	(44-127)
2-Nitrophenol	4.44	4.03	91	(36-123)
3&4-Methylphenol (p&m-Cresol)	6.22	5.74	92	(34-119)
3,3-Dichlorobenzidine	4.44	4.15	93	(22-121)
3-Nitroaniline	4.44	4.38	99	(33-119)
4-Bromophenyl-phenylether	4.44	4.64	104	(46-124)
4-Chloro-3-methylphenol	4.44	4.06	91	(45-122)
4-Chloroaniline	4.44	3.60	81	(17-106)
4-Chlorophenyl-phenylether	4.44	4.20	95	(45-121)
4-Nitroaniline	4.44	4.30	97	(77-120)
4-Nitrophenol	6.22	6.13	99	(30-132)
Acenaphthene	4.44	3.93	89	(40-123)
Acenaphthylene	4.44	4.03	91	(32-132)
Aniline	4.44	3.00	68	(24-89)
Anthracene	4.44	4.21	95	(47-123)

Print Date: 12/01/2016 4:08:57PM





### Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [XXX36707]

Blank Spike Lab ID: 1365715

Date Analyzed: 11/28/2016 18:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

### Results by SW8270D

Parameter	Blank Spike (mg/Kg)			CL
	Spike	Result	Rec (%)	
Azobenzene	4.44	4.63	104	( 39-125 )
Benzo(a)Anthracene	4.44	4.53	102	( 49-126 )
Benzo[a]pyrene	4.44	4.60	104	( 45-129 )
Benzo[b]Fluoranthene	4.44	4.67	105	( 45-132 )
Benzo[g,h,i]perylene	4.44	4.70	106	( 43-134 )
Benzo[k]fluoranthene	4.44	4.69	106	( 47-132 )
Benzoic acid	6.22	5.63	90	( 53-124 )
Benzyl alcohol	4.44	3.50	79	( 29-122 )
Bis(2chloro1methylethyl)Ether	4.44	3.70	83	( 33-131 )
Bis(2-Chloroethoxy)methane	4.44	3.87	87	( 36-121 )
Bis(2-Chloroethyl)ether	4.44	3.27	74	( 31-120 )
bis(2-Ethylhexyl)phthalate	4.44	4.83	109	( 51-133 )
Butylbenzylphthalate	4.44	4.92	111	( 48-132 )
Carbazole	4.44	4.60	103	( 50-123 )
Chrysene	4.44	4.72	106	( 50-124 )
Dibenzo[a,h]anthracene	4.44	4.73	106	( 45-134 )
Dibenzofuran	4.44	3.95	89	( 44-120 )
Diethylphthalate	4.44	4.25	96	( 50-124 )
Dimethylphthalate	4.44	4.23	95	( 48-124 )
Di-n-butylphthalate	4.44	4.83	109	( 51-128 )
di-n-Octylphthalate	4.44	4.85	109	( 45-140 )
Fluoranthene	4.44	4.46	100	( 50-127 )
Fluorene	4.44	4.06	91	( 43-125 )
Hexachlorobenzene	4.44	4.66	105	( 45-122 )
Hexachlorobutadiene	4.44	4.04	91	( 32-123 )
Hexachlorocyclopentadiene	4.44	3.93	88	( 48-97 )
Hexachloroethane	4.44	3.30	74	( 28-117 )
Indeno[1,2,3-c,d] pyrene	4.44	4.66	105	( 45-133 )
Isophorone	4.44	3.58	81	( 30-122 )
Naphthalene	4.44	3.49	78	( 35-123 )
Nitrobenzene	4.44	3.68	83	( 34-122 )
N-Nitrosodimethylamine	4.44	3.42	77	( 23-120 )
N-Nitroso-di-n-propylamine	4.44	3.70	83	( 36-120 )
N-Nitrosodiphenylamine	4.44	3.78	85	( 38-127 )

Print Date: 12/01/2016 4:08:57PM

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1166783 [XXX36707]

Blank Spike Lab ID: 1365715

Date Analyzed: 11/28/2016 18:47

Matrix: Soil/Solid (dry weight)

QC for Samples: 1166783001, 1166783002, 1166783003, 1166783004

## Results by SW8270D

### Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Pentachlorophenol	6.22	6.84	110	( 25-133 )
Phenanthrene	4.44	4.39	99	( 50-121 )
Phenol	4.44	3.64	82	( 34-121 )
Pyrene	4.44	4.65	105	( 47-127 )

### Surrogates

2,4,6-Tribromophenol (surr)	8.89	102	102	( 35-125 )
2-Fluorobiphenyl (surr)	4.44	85.2	85	( 44-115 )
2-Fluorophenol (surr)	8.89	73.7	74	( 35-115 )
Nitrobenzene-d5 (surr)	4.44	82.2	82	( 37-122 )
Phenol-d6 (surr)	8.89	79.1	79	( 33-122 )
Terphenyl-d14 (surr)	4.44	104	104	( 54-127 )

## Batch Information

Analytical Batch: XMS9764

Analytical Method: SW8270D

Instrument: HP 6890/5973 SSA

Analyst: DSH

Prep Batch: XXX36707

Prep Method: SW3550C

Prep Date/Time: 11/18/2016 13:00

Spike Init Wt./Vol.: 4.44 mg/Kg Extract Vol: 1 mL

Dupe Init Wt./Vol.: Extract Vol:

## Long, Alesha (Anchorage)

---

**From:** Homestead, Charles (Anchorage)  
**Sent:** Friday, November 11, 2016 4:01 PM  
**To:** Env.Alaska.RcvgLogin  
**Subject:** Change Order for 1166783 and 1166782

Please see change order below. - CGH

---

**From:** Lucas Gamble [<mailto:lgamble@restorsci.com>]  
**Sent:** Friday, November 11, 2016 3:57 PM  
**To:** Homestead, Charles (Anchorage); Emily Mahanna; Arran Forbes  
**Subject:** Changes/clarity for work orders 1166783 and 1166782

Chuck –

Please note the changes or clarification to the COCs for work orders 1166783 and 1166782. You already called about chromium for work order 1166782. The same applies to work order 116783. And, please run all X-series samples for the complete list of requested analysis despite the note on the COC to “Hold”. See below.

### Work Order 1166783

Please run all analyses (e.g. DRO/RRO, GRO, VOCs, SVOCs, RCRA Metals, Mercury and Chromium (total + Hex) for sample ID A-X

Please run all samples (A-2, A-4, A-5 and A-x) for Chromium (total + Hex), other RCRA metals (arsenic, barium, cadmium, lead, selenium and silver) and mercury

### Work Order 1166782

Please run all analyses (e.g. DRO/RRO, GRO, VOCs, SVOCs, RCRA Metals, Mercury and Chromium [total + Hex]) for sample ID F-X, S-X, C-X and B-X

Feel free to call if you have any questions.

Thank you,  
Lucas

Lucas E. Gamble  
Environmental Sciences Manager  
(o) 907-278-1023 ext. 106  
(c) 907-317-4348



## Homestead, Charles (Anchorage)

---

**To:** Env.Alaska.RcvgLogin  
**Subject:** 1166783\_CO Homer Project Hex Chromium

As per Arran Forbes, below, Hex Chromium analysis will only be run on four samples from 1166782. No Hex Chromium analysis for samples on 1166783.

-CGH

**Charles Homestead**  
**Environment, Health and Safety**  
General Manager, Alaska Division

**SGS North America Inc.**  
200 West Potter Drive  
Anchorage, Alaska 99518

Phone: (907) 562-2343  
Direct: (907) 550-3206  
Fax: (907) 562-0119  
E-mail : [charles.homestead@sgs.com](mailto:charles.homestead@sgs.com)

Data Deliverables At: [Engage - Home](#)

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**From:** Arran Forbes [<mailto:aforbes@restorsci.com>]  
**Sent:** Monday, November 14, 2016 4:11 PM  
**To:** Homestead, Charles (Anchorage)  
**Cc:** Emily Mahanna  
**Subject:** RE: Homer Project Hex Chromium

Chuck,

Per our phone conversation, you anticipate that chromium will exceed ADEC standards in all samples submitted. Based on this, please only run hex-chrom analysis on soil samples with the prefix "B"

B-3  
B-4  
B-5  
B-17  
B-X

Thank you,  
Arran



SGS North America Inc.  
CHAIN OF CUSTODY RECORD

11666783



11666783

CLIENT: **RSE**

CONTACT: **E. Mahanna** PHONE NO: **(907) 278-1023**

PROJECT PWSID/ PERMIT#: **Homeer Steepie DOT**

REPORTS TO: **E. Mahanna [emahanna@restorsi.com](mailto:emahanna@restorsi.com)**

INVOICE TO: **RSE** QUOTE #: P.O. #:

Section 1

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

Page      of     

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/MATRIX CODE	Section 3				REMARKS/LOC ID		
					Type	Preservative	DOD Project?	Yes No			
① A-D	A-2	11/9/10	13:15	Soil	X	PCCA Metal	X	X			
② A-D	A-4	11/9/10	13:17	Soil	X		X	X			
③ A-D	A-5	11/9/10	13:19	Soil	X		X	X			
④ A-D	A-X	11/9/10	13:21	Soil	X		X	X			
⑤ A	Trip Blank										

Section 2

Section 4

Section 5

Relinquished By: (1) *[Signature]* Date: 11/9/10 Time: 10:52

Relinquished By: (2) *[Signature]* Date: 11/11/10 Time: 10:44

Relinquished By: (3) *[Signature]* Date: Date: Time:

Relinquished By: (4) *[Signature]* Date: 11/11/10 Time: 10:44

Temp Blank °C: -0.3 # D20  
or Ambient  [ ]

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

Requested Turnaround Time and/or Special Instructions:

Data Deliverable Requirements:

(See attached Sample Receipt Form) **hand delivered**

(See attached Sample Receipt Form)



e-SAMPLE RECEIPT FORM

1166783



Review Criteria	Y/N (yes/no)	Exceptions Noted below
Were Custody Seals intact? Note # & location	<input type="checkbox"/>	<input checked="" type="checkbox"/> exemption permitted if sampler hand carries/delivers.
COC accompanied samples?	<input checked="" type="checkbox"/>	absent
<input type="checkbox"/> **exemption permitted if chilled & collected <8hrs ago or chilling not required (i.e., waste, oil)	<input checked="" type="checkbox"/>	
Temperature blank compliant* (i.e., 0-6 °C after CF)?	<input checked="" type="checkbox"/>	Cooler ID: 1 @ -0.3 °C Therm ID: D20
	<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"/>	
If <0°C, were sample containers ice free?	<input checked="" type="checkbox"/>	
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.		
Note: Refer to form F-083 "Sample Guide" for hold times.		
Were samples received within hold time?	<input checked="" type="checkbox"/>	
Do samples <b>match COC</b> ** (i.e., sample IDs, dates/times collected)?	<input checked="" type="checkbox"/>	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous?	<input checked="" type="checkbox"/>	
Were proper containers (type/mass/volume/preservative***)used?	<input checked="" type="checkbox"/>	<input type="checkbox"/> ***Exemption permitted for metals (e.g,200.8/6020A).
<b>IF APPLICABLE</b>		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	<input checked="" type="checkbox"/>	
Were all VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	<input type="checkbox"/>	
Were all soil VOAs field extracted with MeOH+BFB?	<input checked="" type="checkbox"/>	
<b>Note to Client:</b> Any "no" answer above indicates non-compliance with standard procedures and may impact data quality.		
Additional notes (if applicable):		
The client requested to proceed even with low temperature.		
Hexavalent Chromium analysis is needed as well per Lucas at RSE.		
Total RCRA metals are the only metals needed per CGH.		



## 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>
1166783001-A	No Preservative Required	OK			
1166783001-B	No Preservative Required	OK			
1166783001-C	No Preservative Required	OK			
1166783001-D	Methanol field pres. 4 C	OK			
1166783002-A	No Preservative Required	OK			
1166783002-B	No Preservative Required	OK			
1166783002-C	No Preservative Required	OK			
1166783002-D	Methanol field pres. 4 C	OK			
1166783003-A	No Preservative Required	OK			
1166783003-B	No Preservative Required	OK			
1166783003-C	No Preservative Required	OK			
1166783003-D	Methanol field pres. 4 C	OK			
1166783004-A	No Preservative Required	OK			
1166783004-B	No Preservative Required	OK			
1166783004-C	No Preservative Required	OK			
1166783004-D	Methanol field pres. 4 C	OK			
1166783005-A	Methanol field pres. 4 C	OK			

### Container Condition Glossary

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

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

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

DM- The container was received damaged.

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

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

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

**ATTACHMENT E:**  
**ADEC Laboratory Data**  
**Review Checklist**



## Laboratory Data Review Checklist

Completed by:

Title:  Date:

CS Report Name:  Report Date:

Consultant Firm:

Laboratory Name:  Laboratory Report Number:

ADEC File Number:  ADEC RecKey Number:

### 1. Laboratory

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

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

### 2. Chain of Custody (COC)

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

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

### 3. Laboratory Sample Receipt Documentation

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

- b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes  No  NA (Please explain.)                      Comments:

Volatile samples (BTEX & GRO & VOC) were preserved in methanol.

- c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes  No  NA (Please explain.)                      Comments:

Review of the sample receipt form indicated the samples were received in good condition.

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

Yes  No  NA (Please explain.)                      Comments:

No discrepancies occurred or were documented.

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

Comments:

Data quality and usability was not affected. The lower temperature of the cooler will not affect the samples' quality.

#### 4. Case Narrative

- a. Present and understandable?

Yes  No  NA (Please explain.)                      Comments:

The case narrative is present and understandable on page 2 of the lab report.

- b. Discrepancies, errors or QC failures identified by the lab?

Yes  No  NA (Please explain.)                      Comments:

The case narrative notes QC failure on page 2 of the lab report. LOQs were elevated due to sample dilution for all samples. Surrogate recovery was no meet for several analytes for samples A-2, A-4, and the MS, and MSD samples.

- c. Were all corrective actions documented?

Yes  No  NA (Please explain.)                      Comments:

Corrective actions were documented. Post digestion spikes for the MS and MSD recoveries were successful.

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

Comments:

There is no effect on data quality and usability. Dilutions were required due to matrix interference, and affected the recoveries.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes    No    NA (Please explain.)                      Comments:

The correct analyses were performed and reported as requested on the COC.

b. All applicable holding times met?

Holding times were met for all samples according to the lab method.

Yes     No     NA (Please explain.)                      Comments:

c. All soils reported on a dry weight basis?

Yes     No     NA (Please explain.)                      Comments:

Sample weights are reported on a dry weight basis on each page of the report describing the target sample.

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

Yes     No     NA (Please explain.)                      Comments:

SGS refers to the PQL as the LOQ and reports data below the PQL but above the detection limit (DL) as estimated results with a "J". Constituents that were analyzed for but not detected are reported as a value equal to 2 times the DL and flagged with a "U".

e. Data quality or usability affected?

Comments:

There is no effect on data quality or usability.

6. QC Samples

a. Method Blank

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

Yes     No     NA (Please explain.)                      Comments:

There is one method blank for each requested analyses and matrix per 20 samples submitted.

ii. All method blank results less than PQL?

Yes     No     NA (Please explain.)                      Comments:

All method blank results are less than the LOQ (PQL).

iii. If above PQL, what samples are affected?

Comments:

No method blank samples were reported above the LOQ (PQL).

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

No method blank samples were reported above the LOQ (PQL).

Yes  No  NA (Please explain.)

Comments:

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

Data quality or usability was not affected.

c. 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:

One LCS and LCSDs were performed per analysis (less than 20 samples submitted).

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

Yes  No  NA (Please explain.)                      Comments:

One LCS and one sample duplicate was reported per matrix, analysis and 20 samples.

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

Yes  No  NA (Please explain.)                      Comments:

All reported percent recoveries for the LCS/LCSD met QC criteria.

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

Yes  No  NA (Please explain.)                      Comments:

All RPDs reported were less than the method and laboratory limits.

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

Comments:

No samples were affected.

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

Yes  No  NA (Please explain.)                      Comments:

Data flags are clearly defined and described in the case narrative.

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

Comments:

The data quality and usability was not affected.

d. Surrogates – Organics Only

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

Yes  No  NA (Please explain.)                      Comments:

Surrogate recoveries are reported for all organic analyses.

- 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:

Percent recoveries for samples A-2 and A-4 were outside laboratory limits for GRO surrogate recovery.

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

Yes  No  NA (Please explain.)                      Comments:

The affected sample results with failed surrogate recoveries are marked with \*.

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

Comments:

Data quality or usability not affected. Surrogate failure was due to the required dilution for the sample analysis.

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

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

Yes  No  NA (Please explain.)                      Comments:

One trip blank included per sample cooler containing volatile samples (1).

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

Yes  No  NA (Please explain.)                      Comments:

Trip blank is clearly indicated on the COC.

- iii. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

All results are non-detect at the LOQ (PQL).

- iv. If above PQL, what samples are affected?

Comments:

No affected samples.

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

Comments:

Data quality and usability not affected.

f. Field Duplicate

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

Yes  No  NA (Please explain.)                      Comments:

A-X is a blind duplicate of A-4

ii. Submitted blind to lab?

Yes  No  NA (Please explain.)                      Comments:

Duplicate samples were submitted blind to the lab.

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

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

Where  $R_1$  = Sample Concentration

$R_2$  = Field Duplicate Concentration

Yes  No  NA (Please explain.)                      Comments:

RPDs for GRO, BTEX, Isopropylbenzene (Cumene), 3,3-Dichlorobenzidine, Phenanthrene, and pyrene are outside of specified limits..

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

Comments:

Where results differ, the higher result is used for regulatory purposes. Data quality and usability are not affected.

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

Yes  No  NA (Please explain.)                      Comments:

All equipment used in sampling was dedicated toward the specific sample. No decontamination procedures were employed.

i. All results less than PQL?

Yes  No  NA (Please explain.)                      Comments:

There are no decontamination or equipment blanks. Sampling equipment was dedicated to each discrete location.

ii. If above PQL, what samples are affected?

There are no decontamination equipment blanks.

Comments:

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

Data quality or usability was not affected.

Comments:

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

a. Defined and appropriate?

Yes    No    NA (Please explain.)

Comments:

Data flags and qualifiers are defined appropriately. Page 3 of the lab report describes the qualifiers used.



**ATTACHMENT F:**  
**ADEC Transport, Treatment,  
and Disposal Approval Form  
for Contaminated Media**



**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>	
		Homer Maintenance & Operations Station Retention Pond Installation Stockpile Soil	
<b>SITE OR SPILL LOCATION</b>			
Department of Transportation and Public Facilities (ADOT&PF) Maintenance & Operations Facility (M&O) at 3450 Sterling Highway in Homer, Alaska			
<b>CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA</b>		<b>SOURCE OF THE CONTAMINATION</b>	
3450 Sterling Highway in Homer, Alaska, Soil		An excavation to install a lift station and shallow buried arctic drain pipe for a drainage retention pond.	
<b>COMPOUNDS OF CONCERN</b>	<b>ESTIMATED VOLUME</b>	<b>DATE(S) GENERATED</b>	
DRO, BTEX	60 cubic yards	July 2016	
<b>POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)</b>			
DRO, BTEX			
<b>COMMENTS</b>			

**Facility Accepting the Contaminated Media**

<b>NAME OF THE FACILITY</b>	<b>PHYSICAL ADDRESS/PHONE NUMBER</b>
Alaska Soil Recycling Inc.	2301 Spar Avenue, Anchorage, Alaska 99501

**Responsible Party and Contractor Information**

<b>BUSINESS/NAME</b>	<b>ADDRESS/PHONE NUMBER</b>
Alaska DOT &PF	3450 Sterling Highway, Homer, Alaska
East Road Services - Contractor	33740 Jones Drive, Homer, Alaska/ (907) 235-6574

Arran Forbes  
Name of the Person Requesting Approval (printed)

[Signature]  
Signature

Env. Scientist  
Title/Association

1/3/17      907 278 1025  
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.

\_\_\_\_\_  
DEC Project Manager Name (printed)

\_\_\_\_\_  
Project Manager Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Phone Number