SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

ALASKA
CALIFORNIA
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FLORIDA
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WASHINGTON

November 11, 2014

City of Fairbanks
800 Cushman Street
Fairbanks, AK 99701

Attn: Jackson Fox

RE: REPORT ON PHASE 1 BURN PIT SAMPLING, REGIONAL FIRE TRAINING CENTER, FAIRBANKS, ALASKA

This report documents Shannon & Wilson's sampling activities at the City of Fairbanks Regional Fire Training Center burn pit at 1710 30th Avenue, in Fairbanks, Alaska. We collected samples to determine concentrations of contaminants of potential concern (COPCs) in the pit resulting from historical uses of the burn pit for firefighting training exercises. Shannon & Wilson's services were conducted under our contract (Project No. FB-14-25), and in accordance with our August 2014 *Work Plan*.

We are pursuing this investigation in two phases. This first phase focuses on sampling the water and sediment in the burn pit itself, to determine concentrations of COPCs in the pit. Based on our findings from Phase 1, we will determine the appropriate analyses to be performed in a second phase intended to investigate possible soil and groundwater contamination outside the burn pit. This report summarizes our Phase 1 field activities and observations, and the analytical laboratory results of the water and sediment samples we collected from the burn pit.

SITE DESCRIPTION, BACKGROUND, AND POTENTIAL SOURCES OF CONTAMINATION

The City of Fairbanks Regional Fire Training Center is located at 1710 30th Avenue, in Fairbanks, Alaska. The burn pit and associated sump are in the northwest portion of the facility (Figure 1). According to the as-built drawings, the pit is about 30 feet in diameter, has an impervious liner and concrete rim, and contains about 18 inches of gravel atop the liner. The area surrounding the burn pit is asphalt-paved. We understand the burn pit commonly contains water.

The burn pit, or "combustible liquids pit," was constructed in 1984 and used for approximately 20 years in firefighting-training exercises. These exercises consisted of filling the pit with water, adding fuel such as gasoline or diesel to float on the water, and igniting and extinguishing the fires using fire-fighting agents. It is possible that other combustible liquids, such as used oil,

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were burned in the pit. Fire-fighting agents used during training in the City of Fairbanks burn pit include water, protein-based foam, and aqueous film-forming foam (AFFF).

CONTAMINANTS OF POTENTIAL CONCERN AND REGULATORY LEVELS

COPCs associated with the combustible liquids used or potentially used in the burn pit are gasoline range organics (GRO); diesel range organics (DRO); residual range organics (RRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), including 1,2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB); metals; and polychlorinated biphenyls (PCBs). The Alaska Department of Environmental Conservation (ADEC) requires analysis for VOCs, PCBs, and metals (arsenic, barium, cadmium, chromium, lead, nickel, and vanadium) where used oils are potentially present (ADEC *Draft Field Sampling Guidance*, 2010).

Perfluorinated compounds (PFCs) are COPCs potentially associated with AFFF. PFCs are manmade, persistent organic pollutants. PFCs, commonly used in AFFF, are a family of fluorine-containing chemicals used in heat-, stain-, and water-resistant products. Perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) are PFCs commonly found at sites where AFFFs were used. Due to their persistence, toxicity, and bioaccumulative potential, these compounds are of increasing concern to environment and health agencies.

PHASE 1 FIELD ACTIVITIES AND OBSERVATIONS

The following is a summary of our Phase 1 field observations and sampling activities at the Regional Fire Training Center's burn pit. Selected site photographs are attached.

Julie Keener of Shannon & Wilson, Inc. visited the site on June 26, 2014, to observe the burn pit. The standing water within the pit was dark, cloudy, and had a slight petroleum sheen and distinct petroleum odor. The material on the bottom of the pit was not visible through the water. The gravel within the pit appeared to slope down into the water from a small area on its northwest side. "Pineapple weed" (*Matricaria discoidea*) was growing in this area (Photo 1).

On September 5, 2014, Julie Keener and Jennifer Davis performed the Phase 1 sampling. They collected a water sample and field duplicate sample from the southern end of the burn pit using a new sample bottle as a dipper (Figure 1). They attempted to avoid including petroleum sheen in the samples, but the water depth, less than one foot, made this difficult. They then collected a

sediment sample and field duplicate about 20 feet to the northeast of the water sample location (Photo 2). They collected the sample using a clean steel scoop, placing the sediment in a new aluminum pan. They collected the black, gravelly sediment under the overlying green algal surface slime (Photo 3). Both water and sediment samples locations were within three feet of the edge of the burn pit.

They submitted the water and sediment samples to SGS North America, Inc. (SGS) for laboratory analysis of GRO, DRO, RRO, VOCs, EDB, and PAHs. They also submitted the water samples to TestAmerica Laboratories, Inc. (TestAmerica) for analysis of PFOS and PFOA. The sediment samples were also submitted to ALS Environmental (ALS) for analysis of PCBs and metals.

ANALYTICAL RESULTS

Water Samples

Water sample results are summarized in Table 1. DRO and RRO were detected in both the water samples at up to 1.51 milligrams per liter (mg/L) and 1.65 mg/L, respectively. GRO and EDB were not detected in the samples. Chloromethane was the only detected VOC, found at an estimated 0.550 micrograms per liter (µg/L) in one of the samples. PFOS and PFOA were detected in both samples at up to 0.710 µg/L and 0.130 µg/L, respectively.

Sediment Samples

Sediment sample results are summarized in Table 2. GRO was detected in one of the samples at an estimated 3.00 milligrams per kilogram (mg/kg). DRO and RRO were detected in both sediment samples at up to 33,900 mg/kg and 187,000 mg/kg, respectively. BTEX analytes, as well as the VOC naphthalene, were detected in one or both of the sediment samples. Nine PAH analytes were detected in one or both of the sediment samples. PCBs were not detected in the sediment samples, though their limits of detection (LODs) were elevated. The laboratory was able to analyze a portion of the sediment samples for “PCBs in Oil” by EPA Method SW8082A; PCBs were not detected by that analysis. Except for arsenic, all other requested metal analytes were detected in the sediment samples.

QUALITY ASSURANCE AND QUALITY CONTROL

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples, and also conducted our own QA assessment for this project. We reviewed the chain-of-custody (COC) records and laboratory-receipt forms to check that custody was not breached, sample holding-times were met, and the samples were kept properly chilled (between 0 ºC and 6 ºC) during shipping. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

Data Quality Summary

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

The laboratory report for the project's samples, including the case narrative describing the laboratory QA results in detail, are included with the ADEC data-review checklist as attachments to this report.

CONCLUSIONS AND RECOMMENDATIONS

Regulatory Levels

We compared water sample results to the ADEC groundwater-cleanup levels presented in 18 AAC 75.341 Table C. ADEC has established PFOS and PFOA groundwater-cleanup levels of 1.1 µg/L and 0.73 µg/L, respectively. In addition, EPA has established the following Provisional Health Advisories for drinking water: 0.2 µg/L PFOS and 0.4 µg/L PFOA. We compared sediment-sample data to the most stringent of the ADEC soil-cleanup levels in 18 AAC 75.341, Tables B1 and B2, Method Two, for the Under 40 inch Zone. These values are presented in the data-summary tables for comparison.

Water in Burn Pit

The DRO and RRO concentrations in the primary sample exceeded the ADEC groundwater-cleanup levels. No other detected analytes exceeded the ADEC groundwater-cleanup level. While PFOS and PFOA concentrations exceeded the EPA Provisional Health Advisory Level for drinking water, they did not exceed the ADEC groundwater-cleanup levels. Since the water within the burn pit is not a source of drinking water, the latter PFC regulatory level is a more appropriate screening level for these analytes. We have no evidence showing the burn-pit liner is not intact, or that the standing water within the burn pit is leaching to the underlying groundwater. The standing water may require treatment prior to disposal. Treatment and disposal methods will require approval by the ADEC. Potential treatment methods include use of oleophilic material to remove the petroleum sheen and use of granular activated carbon (GAC) to remove PFCs from the water. The waste GAC may in turn require special treatment. A possible disposal method for the water may be the Golden Heart Utilities Wastewater Treatment Plant.

Sediment/Gravel in Burn Pit

DRO, RRO, and benzene concentrations in the sediment samples from the burn pit exceeded their ADEC soil-cleanup levels. Based on the results of the "PCBs in Oil" analysis, we can infer that the PCBs were not detected in the sediment samples, and therefore did not exceed the ADEC soil-cleanup level of 1 mg/kg. All other requested VOC analytes (including EDB), PAHs, PCBs, and metals did not exceed their ADEC soil-cleanup levels.

Recommendations

We recommend working with the ADEC to determine appropriate treatment and disposal options for the contents of the Regional Fire Training Center burn pit. We understand that ADEC may require additional characterization of the pit contents before approving of a disposal method.

LIMITATIONS

This report was prepared for the use of the City of Fairbanks and its representatives to document conditions in the burn pit at the City of Fairbanks Regional Fire Training Center, Fairbanks, Alaska. This work presents our professional judgment as to the conditions at the site. Information presented here is based on the sampling and analyses we performed. It should not be construed

as a definite conclusion about the soil conditions in the area, and it is possible our tests do not represent the highest levels of contamination in the burn pit.

The information included in this report should be considered representative of the time and location at which the sampling occurred. It was not the intent of our investigation to detect the presence of soil contaminants other than those for which laboratory analyses were performed. No conclusions can be drawn on the presence or absence of other contaminants. The observed levels of contamination may be dependent upon changes due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Due to such changes, or other factors beyond our control, our observations and recommendations applicable to this site may need to be revised. If substantial time has elapsed between submission of this report and the start of activities or action based upon it, we recommend this report be reviewed to determine the applicability of the conclusions.

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

Copies of documents that may be relied upon by our client are limited to the printed copies (also known as hard copies) signed or sealed by Shannon & Wilson. Text, data, or graphics files in electronic media format are furnished solely for the convenience of our client. Any conclusion or information obtained or derived from such electronic files shall be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

Because data stored in electronic media can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the client should perform acceptance tests or procedures within 60 days after its receipt, after which, unless notice of any errors are given in writing to Shannon & Wilson, the client shall be deemed to have accepted the data thus transferred. Any errors reported within the 60-day acceptance period shall be corrected by Shannon & Wilson. Shannon & Wilson shall not be responsible for maintaining documents stored in electronic media format after acceptance by the client.

When transferring documents in electronic media format, Shannon & Wilson does not make any representations as to long-term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used for the document's creation.

We are pleased to continue working with the City. If you have any questions regarding this report, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Julie Keener, P.E.
Senior Engineer

Reviewed by:

Jon E. Lindstrom, Ph.D.
Senior Associate Chemist

Attachments: Figure 1 – Phase 1 Sample Locations
Selected Site Photographs
Table 1 – Summary of Phase 1 Water-Sample Results
Table 2 – Summary of Phase 1 Sediment-Sample Results
SGS Analytical Laboratory Report 1148467
Quality Assurance/Quality Control Summary
ADEC Quality Control Checklist
Important Information About Your Geotechnical/Environmental Report

Image provided courtesy of Pictometry International 2012.
Photograph date: 2012.

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Regional Fire Training Center
Burn Pit Site Investigation
Fairbanks, Alaska

PHASE 1 SAMPLE LOCATIONS

November 2014 31-1-11735-001

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Figure 1

1) Vegetation growing in burn pit sediment, facing southeast (light rain falling). June 25, 2014.

2) Burn pit area prior to sediment sampling, facing northwest. September 5, 2014.

3) Sediment from burn pit underneath green algal slime. September 5, 2014.

TABLE 1. SUMMARY OF PHASE 1 WATER-SAMPLE RESULTS
FAIRBANKS REGIONAL FIRE TRAINING CENTER BURN PIT INVESTIGATION

Analyte	Analytical Method	ADEC Groundwater-Cleanup Level	Units	Sample Number	
				1735-01	*1735-02*
Gasoline Range Organics	AK 101	2.2	mg/L	<0.0500	<0.0500
Diesel Range Organics	AK 102	1.5	mg/L	**1.51 J***	1.03 J*
Residual Range Organics	AK 103	1.1	mg/L	**1.65 J***	0.810 J*
Volatile Organic Compounds					
Chloromethane	SW 8260B	66	µg/L	0.550 J	<0.500
Ethylene dibromide	EPA 504.1	0.05	µg/L	<0.020	<0.020
Perfluorooctane Sulfonate	EPA 537, v1.1	1.1	µg/L	0.710	0.710
Perfluorooctanoic Acid	EPA 537, v1.1	0.73	µg/L	0.130	0.120

Notes: Sample *1735-02* is a field duplicate of sample of *1735-01* .
Only detected VOCs are tabulated. Refer to laboratory report for complete list of analytes and detection limits.

mg/L milligram per liter
µg/L microgram per liter
< Analyte not reported above given limit of detection (LOD).
bold Analyte concentration or LOD exceeds ADEC groundwater-cleanup level.
J Analyte detected at less than the limit of quantitation (LOQ).
J* Result is an estimate due to field-duplicate sample RPD failure. Flag applied by Shannon & Wilson, Inc.

The LODs for 1,2-dibromo-3-chloropropane and 1,2,3-trichloropropane were greater than their ADEC groundwater-cleanup levels.

TABLE 2. SUMMARY OF PHASE 1 SEDIMENT-SAMPLE RESULTS
FAIRBANKS REGIONAL FIRE TRAINING CENTER BURN PIT INVESTIGATION

Analyte (Analytical Method)	Analytical Method	ADEC Soil-Cleanup Level	Units	Sample Number	
				1735-03	*1735-04*
Gasoline Range Organics	AK 101	300	mg/kg	<4.25 J*	3.00 J*
Diesel Range Organics	AK 102	250	mg/kg	**33,900**	**24,500**
Residual Range Organics	AK 103	10,000	mg/kg	**187,000**	**142,000**
Volatile Organic Compounds					
Benzene	SW 8260B	0.025	mg/kg	**0.0400 J***	**0.142 J***
Toluene	SW 8260B	6.5	mg/kg	0.155 J*	0.481 J*
Ethylbenzene	SW 8260B	6.9	mg/kg	<0.0425	0.0575 J
p & m-Xylene	SW 8260B	63 total	mg/kg	0.0639 J*	0.196 J*
o-Xylene	SW 8260B		mg/kg	<0.0425	0.0637 J
Total Xylenes	SW 8260B	63	mg/kg	0.0903 J*	0.259 J*
Naphthalene	SW 8260B	20	mg/kg	0.0656 J*	<0.0466 J*
Ethylene dibromide	SW 8011M	0.16	mg/kg	<0.0016	<0.0014
Polynuclear Aromatic Hydrocarbons					
1-Methylnaphthalene	SW 8270D SIM	6.2	mg/kg	1.69	1.76 J
2-Methylnaphthalene	SW 8270D SIM	6.1	mg/kg	1.85	1.90
Anthracene	SW 8270D SIM	3,000	mg/kg	0.955 J	0.981 J
Benzo(a)anthracene	SW 8270D SIM	3.6	mg/kg	<1.56	0.731 J
Chrysene	SW 8270D SIM	360	mg/kg	<1.56	3.37
Fluoranthene	SW 8270D SIM	1,400	mg/kg	<1.56	0.978 J
Fluorene	SW 8270D SIM	220	mg/kg	2.22	2.18
Phenanthrene	SW 8270D SIM	3,000	mg/kg	4.47	4.69
Pyrene	SW 8270D SIM	1,000	mg/kg	<1.56	2.22
Polychlorinated Biphenyls[1]	SW 8082A	1	mg/kg	**<7.30**	**<9.25**
Metals					
Arsenic	SW 6020A	3.9	mg/kg	<1.80B*	<1.63 B*
Barium	SW 6020A	1,100	mg/kg	388	405
Cadmium	SW 6020A	5	mg/kg	1.66	1.35
Chromium (total)	SW 6020A	25	mg/kg	17.7	22.3
Lead	SW 6020A	400	mg/kg	48.3 J*	26.7 J*
Nickel	SW 6020A	86	mg/kg	11.1 J*	8.05 J*
Vanadium	SW 6020A	710	mg/kg	11.1	9.44

Notes:
Sample *1735-04* is a field duplicate of sample of *1735-03.*
Only detected VOCs and PAHs are tabulated. Refer to laboratory report for complete list of analytes and detection limits.
mg/kg milligram per kilogram
< Analyte not reported above given limit of detection (LOD). Flag applied by the laboratory.
J Analyte detected at less than the limit of quantitation (LOQ). Flag applied by the laboratory.
bold Analyte concentration or LOD exceeds ADEC groundwater-cleanup level.
B* Result is considered not detected at the limit of quantitation (LOQ) or reported concentration (higher value), due to contamination identified in a blank QC sample. Flag applied by Shannon & Wilson, Inc.
J* Result is an estimate due to field-duplicate sample RPD failure. Flag applied by Shannon & Wilson, Inc.
[1] Refer to report text for discusssion of "PCBs in Oil" analysis and results.
The analyte trichlorofluoromethane was not detected in project sample *1735-03*. However, due to an MS/MSD RPD failure, the LOD is considered estimated.
The project sample *1735-03* had surrogate recovery failures. The associated analytes are 1,1,2,2-tetrachloroethane; 1,2,3-trichlorobenzene; 1,2,3-trichloropropane; 1,2,4-trimethylbenzene; 1,2-dibromo-3-chloropropane; 1,2-dichlorobenzene; 1,3,5-trimethylbenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; 2-chlorotoluene; 4-chlorotoluene; 4-isopropyltoluene; bromobenzene; hexachlorobutadiene; naphthalene; n-butylbenzene; n-propylbenzene; sec-butylbenzene; and tert-butylbenzene. These analytes were not detected in the project samples with the exception of naphthalene. The LODs are considered estimated.
The LODs for PCBs; 1,2-dichloroethane; dibromochloromethane; bromomethane; chloromethane; vinyl chloride; methylene chloride; 1,1-dichloroethylene; 1,2-dichloropropane; 1,1,2-trichloroethane; trichlorethylene; 1,1,2,2-tetrachloroethane; and 1,2,3-trichloropropane were greater than the ADEC soil-cleanup level.

SGS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Road
Fairbanks, AK 99709
(907)458-3144

Report Number: **1148467**

Client Project: **1735 Burn Pit**

Dear Julie Keener,

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

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

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

Sincerely,
SGS North America Inc.

Stephen C. Ede
Alaska Division Technical Director

Stephen Ede
2014.10.29
15:52:10 -08'00'

Jennifer Dawkins
Project Manager

Date

Print Date: 10/29/2014 3:14:11PM

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1148467**
Project Name/Site: **1735 Burn Pit**
Project Contact: **Julie Keener**

Refer to sample receipt form for information on sample condition.

1735-01 (1148467001) PS

504.1 - EDB was analyzed by Test America of Arvada, CO.
PFOS/PFOA were analyzed by ALS of Kelso, WA.
AK101 - Sample has a pH greater than two; however, analysis was completed within the 7 day hold time for unpreserved volatiles, so the result is not affected.
AK102/103 - Unknown hydrocarbon with several peaks is present.

1735-02 (1148467002) PS

504.1 - EDB was analyzed by Test America of Arvada, CO.
PFOS/PFOA were analyzed by ALS of Kelso, WA.
8260B - Sample has a pH greater than two; however, analysis was completed within the 7 day hold time for unpreserved volatiles, so the results are not affected.
AK102/103 - Unknown hydrocarbon with several peaks is present.

1735-04 (1148467004) PS

8011 - EDB was analyzed by Test America of Arvada, CO.
AK101 - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice and results confirmed.
AK102/103 - 5a-Androstane and n-triacontane (surrogates) recoveries are outside QC criteria due to dilution.
AK102 - The pattern is consistent with a weathered middle distillate.
AK103 - Unknown hydrocarbon with several peaks is present.
8082A - LOQs elevated due to dark extract.
8082A - Decachlorobiphenyl (surrogate) recovery does not meet QC criteria due to sample dilution.
8270D SIM - Surrogate (2-fluorobiphenyl and terphenyl-14) recovery is outside of QC criteria due to sample dilution.
8270D SIM - Elevated LOQs due to sample dilution. Sample diluted due to dark extract.

1735-03 (1148467005) PS

8011 - EDB was analyzed by Test America of Arvada, CO.
AK101 - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice and results confirmed.
AK102/103 - 5a-Androstane and n-triacontane (surrogates) recoveries are outside QC criteria due to dilution.
AK102 - The pattern is consistent with a weathered middle distillate.
AK103 - The pattern is consistent with a lube oil.
8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed multiple times for confirmation and result was confirmed.
8082A - LOQs elevated due to dark extract.
8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - Elevated LOQs due to sample dilution. Sample diluted due to dark extract.
8270D SIM - Surrogate (2-fluorobiphenyl) recovery is outside of QC criteria due to sample dilution.
8270D SIM - LOQs are elevated due to sample dilution. Sample analyzed at a dilution due to matrix interference with internal standards.

MB for HBN 1635481 [MXX/28060] (1232622) MB

6020A - Selenium was detected in the MB greater than the LOQ. This analyte was not detected above the LOQ in the associated samples.

SS1-0909(1144391001MS) (1232625) MS

6020A - MS/MSD recoveries for several analytes were outside of QC criteria. Post-digestion spike was successful.

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t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1148467**
Project Name/Site: **1735 Burn Pit**
Project Contact: **Julie Keener**

1144122006MS (1232713) MS

8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.
8260B - MS/MSD recoveries do not meet QC criteria. Refer to LCS for accuracy.

1144380001MS (1232715) MS

8260B - MS/MSD recoveries do not meet QC criteria. Refer to LCS for accuracy.

1148467005MS (1233017) MS

8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed multiple times for confirmation and result was confirmed.

SS1-0909(1144391001MSD) (1232626) MSD

6020A - MS/MSD recoveries for several analytes were outside of QC criteria. Post-digestion spike was successful.
6020A - MS/MSD RPD for arsenic is outside of QC criteria. Sample/duplicate RPD is within QC criteria.

1144122006MSD (1232714) MSD

8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed twice for confirmation and result was confirmed.
8260B - MS/MSD recoveries do not meet QC criteria. Refer to LCS for accuracy.

1144380001MSD (1232716) MSD

8260B - MS/MSD recoveries do not meet QC criteria. Refer to LCS for accuracy.

1148467005MSD (1233018) MSD

8260B - BFB (surrogate) recovery does not meet QC criteria (biased low). Sample was analyzed multiple times for confirmation and result was confirmed.
8260B - MS/MSD RPD for trichlorofluoromethane does not meet QC criteria. Results for these analytes are estimated in the associated samples.

Trip Blank (1148467003) TB

504.1 - EDB was analyzed by Test America of Arvada, CO.

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

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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8082A				
1242270	LCS for HBN 1661000 [XXX/32287	XGC8923	Aroclor-1260	PNF
1242271	LCSD for HBN 1661000 [XXX/3228	XGC8923	Aroclor-1016	PNF
1242271	LCSD for HBN 1661000 [XXX/3228	XGC8923	Aroclor-1260	PNF
1242541	CCV for HBN 1661463 (XGC/8923)	XGC8923	Aroclor-1260	BLC
1242542	CCV2 for HBN 1661463 (XGC/8923	XGC8923	Aroclor-1254	BLC
SW8260B				
1144122006	LABREFQC	VMS14438	4-Isopropyltoluene	SP
1144380001	LABREFQC	VMS14438	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 10/29/2014 3:14:12PM

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

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

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

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

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

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
1735-01	1148467001	09/05/2014	09/09/2014	Water (Surface, Eff., Ground)
1735-02	1148467002	09/05/2014	09/09/2014	Water (Surface, Eff., Ground)
Trip Blank	1148467003	09/05/2014	09/09/2014	Water (Surface, Eff., Ground)
1735-04	1148467004	09/05/2014	09/09/2014	Soil/Solid (dry weight)
1735-03	1148467005	09/05/2014	09/09/2014	Soil/Solid (dry weight)
Trip Blank	1148467006	09/05/2014	09/09/2014	Soil/Solid (dry weight)
1735-04	1148467007	09/05/2014	09/09/2014	Oil/Xylene Miscible Liquid
1735-03	1148467008	09/05/2014	09/09/2014	Oil/Xylene Miscible Liquid

Method	Method Description
8270D SIMS (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK102	Diesel/Residual Range Organics Water
AK103	Diesel/Residual Range Organics Water
AK101	Gasoline Range Organics (S)
AK101	Gasoline Range Organics (W)
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260B	VOC 8260 (S) Field Extracted
SW8260B	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **1735-01**
Lab Sample ID: 1148467001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.51	mg/L
	Residual Range Organics	1.65	mg/L
Volatile Gas Chromatography/Mass Spectrom	Chloromethane	0.550J	ug/L

Client Sample ID: **1735-02**
Lab Sample ID: 1148467002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1.03	mg/L
	Residual Range Organics	0.810	mg/L

Client Sample ID: **Trip Blank**
Lab Sample ID: 1148467003

	Parameter	Result	Units
Volatile Gas Chromatography/Mass Spectrom	1,4-Dichlorobenzene	0.660	ug/L

Client Sample ID: **1735-04**
Lab Sample ID: 1148467004

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	1.38J	mg/Kg
	Barium	405	mg/Kg
	Cadmium	1.35	mg/Kg
	Chromium	22.3	mg/Kg
	Lead	26.7	mg/Kg
	Nickel	8.05	mg/Kg
	Vanadium	9.44	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1.76J	mg/Kg
	2-Methylnaphthalene	1.90	mg/Kg
	Anthracene	0.981J	mg/Kg
	Benzo(a)Anthracene	0.731J	mg/Kg
	Chrysene	3.37	mg/Kg
	Fluoranthene	0.978J	mg/Kg
	Fluorene	2.18	mg/Kg
	Phenanthrene	4.69	mg/Kg
	Pyrene	2.22	mg/Kg
Semivolatile Organic Fuels	Diesel Range Organics	24500	mg/Kg
	Residual Range Organics	142000	mg/Kg
Volatile Fuels	Gasoline Range Organics	3.00J	mg/Kg
Volatile Gas Chromatography/Mass Spectrom	Benzene	0.142	mg/Kg
	Ethylbenzene	0.0575J	mg/Kg
	o-Xylene	0.0637J	mg/Kg
	P & M -Xylene	0.196	mg/Kg
	Toluene	0.481	mg/Kg
	Xylenes (total)	0.259	mg/Kg

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Detectable Results Summary

Client Sample ID: **1735-03**
Lab Sample ID: 1148467005

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	1.80	mg/Kg
	Barium	388	mg/Kg
	Cadmium	1.66	mg/Kg
	Chromium	17.7	mg/Kg
	Lead	48.3	mg/Kg
	Nickel	11.1	mg/Kg
	Vanadium	11.1	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1.69	mg/Kg
	2-Methylnaphthalene	1.85	mg/Kg
	Anthracene	0.955J	mg/Kg
	Fluorene	2.22	mg/Kg
	Phenanthrene	4.47	mg/Kg
Semivolatile Organic Fuels	Diesel Range Organics	33900	mg/Kg
	Residual Range Organics	187000	mg/Kg
Volatile Gas Chromatography/Mass Spectrom	Benzene	0.0400J	mg/Kg
	Naphthalene	0.0656J	mg/Kg
	P & M -Xylene	0.0639J	mg/Kg
	Toluene	0.155	mg/Kg
	Xylenes (total)	0.0903J	mg/Kg

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Results of **1735-01**

Client Sample ID: **1735-01**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467001
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.51		0.638	0.191	mg/L	1		09/12/14 23:00
Surrogates								
5a Androstane	74.1		50-150		%	1		09/12/14 23:00

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK102
Analyst: MCM
Analytical Date/Time: 09/12/14 23:00
Container ID: 1148467001-D

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 09/10/14 09:05
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1.65		0.532	0.160	mg/L	1		09/12/14 23:00
Surrogates								
n-Triacontane-d62	77.6		50-150		%	1		09/12/14 23:00

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK103
Analyst: MCM
Analytical Date/Time: 09/12/14 23:00
Container ID: 1148467001-D

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 09/10/14 09:05
Prep Initial Wt./Vol.: 940 mL
Prep Extract Vol: 1 mL

Results of **1735-01**

Client Sample ID: **1735-01**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467001
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		09/10/14 08:24
Surrogates								
4-Bromofluorobenzene	95		50-150		%	1		09/10/14 08:24

Batch Information

Analytical Batch: VFC12097
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/14 08:24
Container ID: 1148467001-B

Prep Batch: VXX26415
Prep Method: SW5030B
Prep Date/Time: 09/09/14 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **1735-01**

Client Sample ID: **1735-01**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467001
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
1,1,2-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
1,2-Dibromoethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
Benzene	0.200	U	0.400	0.120	ug/L	1		09/09/14 18:41
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Bromomethane	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41

Results of **1735-01**

Client Sample ID: **1735-01**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467001
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.300	ug/L	1		09/09/14 18:41
Chloromethane	0.550	J	1.00	0.310	ug/L	1		09/09/14 18:41
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:41
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/09/14 18:41
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Naphthalene	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:41
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/09/14 18:41
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Styrene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Toluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Vinyl chloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:41
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/09/14 18:41
Surrogates								
1,2-Dichloroethane-D4	110		70-120		%	1		09/09/14 18:41
4-Bromofluorobenzene	98.6		75-120		%	1		09/09/14 18:41
Toluene-d8	103		85-120		%	1		09/09/14 18:41

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Results of **1735-01**

Client Sample ID: **1735-01**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467001
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14441
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/09/14 18:41
Container ID: 1148467001-F

Prep Batch: VXX26421
Prep Method: SW5030B
Prep Date/Time: 09/09/14 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **1735-02**

Client Sample ID: **1735-02**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467002
Lab Project ID: 1148467

Collection Date: 09/05/14 13:40
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.03		0.674	0.202	mg/L	1		09/12/14 23:21
Surrogates								
5a Androstane	69.4		50-150		%	1		09/12/14 23:21

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK102
Analyst: MCM
Analytical Date/Time: 09/12/14 23:21
Container ID: 1148467002-D

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 09/10/14 09:05
Prep Initial Wt./Vol.: 890 mL
Prep Extract Vol: 1 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	0.810		0.562	0.169	mg/L	1		09/12/14 23:21
Surrogates								
n-Triacontane-d62	75.3		50-150		%	1		09/12/14 23:21

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK103
Analyst: MCM
Analytical Date/Time: 09/12/14 23:21
Container ID: 1148467002-D

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 09/10/14 09:05
Prep Initial Wt./Vol.: 890 mL
Prep Extract Vol: 1 mL

Results of **1735-02**

Client Sample ID: **1735-02**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467002
Lab Project ID: 1148467

Collection Date: 09/05/14 13:40
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		09/10/14 07:46
Surrogates								
4-Bromofluorobenzene	96.3		50-150		%	1		09/10/14 07:46

Batch Information

Analytical Batch: VFC12097
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/14 07:46
Container ID: 1148467002-A

Prep Batch: VXX26415
Prep Method: SW5030B
Prep Date/Time: 09/09/14 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **1735-02**

Client Sample ID: **1735-02**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467002
Lab Project ID: 1148467

Collection Date: 09/05/14 13:40
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
1,1,2-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
1,2-Dibromoethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
Benzene	0.200	U	0.400	0.120	ug/L	1		09/09/14 18:58
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Bromomethane	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58

Results of **1735-02**

Client Sample ID: **1735-02**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467002
Lab Project ID: 1148467

Collection Date: 09/05/14 13:40
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.300	ug/L	1		09/09/14 18:58
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 18:58
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/09/14 18:58
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Naphthalene	5.00	U	10.0	3.10	ug/L	1		09/09/14 18:58
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/09/14 18:58
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Styrene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Toluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Vinyl chloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 18:58
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/09/14 18:58
Surrogates								
1,2-Dichloroethane-D4	108		70-120		%	1		09/09/14 18:58
4-Bromofluorobenzene	99.7		75-120		%	1		09/09/14 18:58
Toluene-d8	102		85-120		%	1		09/09/14 18:58

Results of **1735-02**

Client Sample ID: **1735-02**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467002
Lab Project ID: 1148467

Collection Date: 09/05/14 13:40
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14441
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/09/14 18:58
Container ID: 1148467002-F

Prep Batch: VXX26421
Prep Method: SW5030B
Prep Date/Time: 09/09/14 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467003
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0310	mg/L	1		09/10/14 05:30
Surrogates								
4-Bromofluorobenzene	99		50-150		%	1		09/10/14 05:30

Batch Information

Analytical Batch: VFC12097
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/14 05:30
Container ID: 1148467003-A

Prep Batch: VXX26415
Prep Method: SW5030B
Prep Date/Time: 09/09/14 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467003
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
1,1,2-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
1,2-Dibromoethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
1,4-Dichlorobenzene	0.660		0.500	0.150	ug/L	1		09/09/14 17:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
Benzene	0.200	U	0.400	0.120	ug/L	1		09/09/14 17:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Bromomethane	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467003
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.300	ug/L	1		09/09/14 17:52
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/09/14 17:52
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/09/14 17:52
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Naphthalene	5.00	U	10.0	3.10	ug/L	1		09/09/14 17:52
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/09/14 17:52
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Styrene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Toluene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Vinyl chloride	0.500	U	1.00	0.310	ug/L	1		09/09/14 17:52
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/09/14 17:52
Surrogates								
1,2-Dichloroethane-D4	106		70-120		%	1		09/09/14 17:52
4-Bromofluorobenzene	102		75-120		%	1		09/09/14 17:52
Toluene-d8	104		85-120		%	1		09/09/14 17:52

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467003
Lab Project ID: 1148467

Collection Date: 09/05/14 13:30
Received Date: 09/09/14 08:40
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14441
Analytical Method: SW8260B
Analyst: SP
Analytical Date/Time: 09/09/14 17:52
Container ID: 1148467003-D

Prep Batch: VXX26421
Prep Method: SW5030B
Prep Date/Time: 09/09/14 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	1.38	J	1.63	0.506	mg/Kg	10		09/10/14 13:01
Barium	405		0.490	0.153	mg/Kg	10		09/10/14 13:01
Cadmium	1.35		0.326	0.101	mg/Kg	10		09/10/14 13:01
Chromium	22.3		0.653	0.196	mg/Kg	10		09/10/14 13:01
Lead	26.7		0.326	0.101	mg/Kg	10		09/10/14 13:01
Nickel	8.05		0.326	0.101	mg/Kg	10		09/10/14 13:01
Vanadium	9.44		4.90	1.53	mg/Kg	10		09/10/14 13:01

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Analyst: NRB
Analytical Date/Time: 09/10/14 13:01
Container ID: 1148467004-A

Prep Batch: MXX28060
Prep Method: SW3050B
Prep Date/Time: 09/10/14 07:22
Prep Initial Wt./Vol.: 1.018 g
Prep Extract Vol: 50 mL

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1221	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1232	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1242	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1248	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1254	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Aroclor-1260	9.25	U	18.5	5.54	mg/Kg	10		09/13/14 03:22
Surrogates								
Decachlorobiphenyl	181	*	60-125		%	10		09/13/14 03:22

Batch Information

Analytical Batch: XGC8886
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/13/14 03:22
Container ID: 1148467004-A

Prep Batch: XXX31959
Prep Method: SW3550C
Prep Date/Time: 09/11/14 16:20
Prep Initial Wt./Vol.: 22.867 g
Prep Extract Vol: 113 mL

Print Date: 10/29/2014 3:14:14PM

Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual		LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	1.76	J		1.81	0.543	mg/Kg	5		09/15/14 07:57
2-Methylnaphthalene	1.90			1.81	0.543	mg/Kg	5		09/15/14 07:57
Acenaphthene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Acenaphthylene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Anthracene	0.981	J		1.81	0.543	mg/Kg	5		09/15/14 07:57
Benzo(a)Anthracene	0.731	J		1.81	0.543	mg/Kg	5		09/15/14 07:57
Benzo[a]pyrene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Benzo[b]Fluoranthene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Benzo[g,h,i]perylene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Benzo[k]fluoranthene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Chrysene	3.37			1.81	0.543	mg/Kg	5		09/15/14 07:57
Dibenzo[a,h]anthracene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Fluoranthene	0.978	J		1.81	0.543	mg/Kg	5		09/15/14 07:57
Fluorene	2.18			1.81	0.543	mg/Kg	5		09/15/14 07:57
Indeno[1,2,3-c,d] pyrene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Naphthalene	0.905	U		1.81	0.543	mg/Kg	5		09/15/14 07:57
Phenanthrene	4.69			1.81	0.543	mg/Kg	5		09/15/14 07:57
Pyrene	2.22			1.81	0.543	mg/Kg	5		09/15/14 07:57
Surrogates									
2-Fluorobiphenyl	434		*	45-105		%	5		09/15/14 07:57
Terphenyl-d14	249		*	30-125		%	5		09/15/14 07:57

Batch Information

Analytical Batch: XMS8285
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/15/14 07:57
Container ID: 1148467004-A

Prep Batch: XXX31939
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:42
Prep Initial Wt./Vol.: 22.469 g
Prep Extract Vol: 43.5 mL

Print Date: 10/29/2014 3:14:14PM

Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	24500		18700	5780	mg/Kg	10		09/10/14 16:32
Surrogates								
5a Androstane	0	*	50-150		%	10		09/10/14 16:32

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK102
Analyst: MCM
Analytical Date/Time: 09/10/14 16:32
Container ID: 1148467004-A

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:34
Prep Initial Wt./Vol.: 5.342 g
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	142000		18700	5780	mg/Kg	10		09/10/14 16:32
Surrogates								
n-Triacontane-d62	0	*	50-150		%	10		09/10/14 16:32

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK103
Analyst: MCM
Analytical Date/Time: 09/10/14 16:32
Container ID: 1148467004-A

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:34
Prep Initial Wt./Vol.: 5.342 g
Prep Extract Vol: 10 mL

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.00	J	7.76	2.33	mg/Kg	1		09/10/14 00:49
Surrogates								
4-Bromofluorobenzene	31.2	*	50-150		%	1		09/10/14 00:49

Batch Information

Analytical Batch: VFC12099
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/14 00:49
Container ID: 1148467004-C

Prep Batch: VXX26419
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 46.591 g
Prep Extract Vol: 43.5482 mL

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,1,1-Trichloroethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,1,2,2-Tetrachloroethane	0.0194	U	0.0388	0.0121	mg/Kg	1		09/09/14 19:31
1,1,2-Trichloroethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,1-Dichloroethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,1-Dichloroethene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,1-Dichloropropene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2,3-Trichlorobenzene	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
1,2,3-Trichloropropane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2,4-Trichlorobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2,4-Trimethylbenzene	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
1,2-Dibromo-3-chloropropane	0.156	U	0.311	0.0963	mg/Kg	1		09/09/14 19:31
1,2-Dibromoethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2-Dichlorobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2-Dichloroethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,2-Dichloropropane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,3,5-Trimethylbenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,3-Dichlorobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,3-Dichloropropane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
1,4-Dichlorobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
2,2-Dichloropropane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
2-Butanone (MEK)	0.388	U	0.776	0.242	mg/Kg	1		09/09/14 19:31
2-Chlorotoluene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
2-Hexanone	0.388	U	0.776	0.242	mg/Kg	1		09/09/14 19:31
4-Chlorotoluene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
4-Isopropyltoluene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
4-Methyl-2-pentanone (MIBK)	0.388	U	0.776	0.242	mg/Kg	1		09/09/14 19:31
Benzene	0.142		0.0388	0.0121	mg/Kg	1		09/09/14 19:31
Bromobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Bromochloromethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Bromodichloromethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Bromoform	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Bromomethane	0.311	U	0.621	0.193	mg/Kg	1		09/09/14 19:31
Carbon disulfide	0.156	U	0.311	0.0963	mg/Kg	1		09/09/14 19:31
Carbon tetrachloride	0.0194	U	0.0388	0.0121	mg/Kg	1		09/09/14 19:31
Chlorobenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Chloroethane	0.311	U	0.621	0.193	mg/Kg	1		09/09/14 19:31

Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Chloromethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
cis-1,2-Dichloroethene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
cis-1,3-Dichloropropene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Dibromochloromethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Dibromomethane	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Dichlorodifluoromethane	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
Ethylbenzene	0.0575	J	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Hexachlorobutadiene	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
Isopropylbenzene (Cumene)	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Methyl-t-butyl ether	0.156	U	0.311	0.0963	mg/Kg	1		09/09/14 19:31
Methylene chloride	0.156	U	0.311	0.0963	mg/Kg	1		09/09/14 19:31
n-Butylbenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
n-Propylbenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Naphthalene	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
o-Xylene	0.0637	J	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
P & M -Xylene	0.196		0.155	0.0466	mg/Kg	1		09/09/14 19:31
sec-Butylbenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Styrene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
tert-Butylbenzene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Tetrachloroethene	0.0194	U	0.0388	0.0121	mg/Kg	1		09/09/14 19:31
Toluene	0.481		0.0776	0.0242	mg/Kg	1		09/09/14 19:31
trans-1,2-Dichloroethene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
trans-1,3-Dichloropropene	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Trichloroethene	0.0194	U	0.0388	0.0121	mg/Kg	1		09/09/14 19:31
Trichlorofluoromethane	0.0775	U	0.155	0.0466	mg/Kg	1		09/09/14 19:31
Vinyl chloride	0.0388	U	0.0776	0.0242	mg/Kg	1		09/09/14 19:31
Xylenes (total)	0.259		0.233	0.0708	mg/Kg	1		09/09/14 19:31
Surrogates								
1,2-Dichloroethane-D4	102		79-118		%	1		09/09/14 19:31
4-Bromofluorobenzene	68.7		67-138		%	1		09/09/14 19:31
Toluene-d8	105		85-115		%	1		09/09/14 19:31

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467004
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 60.2
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14438
Analytical Method: SW8260B
Analyst: KCT
Analytical Date/Time: 09/09/14 19:31
Container ID: 1148467004-C

Prep Batch: VXX26418
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 46.591 g
Prep Extract Vol: 43.5482 mL

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Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	1.80		1.37	0.425	mg/Kg	10		09/10/14 13:03
Barium	388		0.411	0.129	mg/Kg	10		09/10/14 13:03
Cadmium	1.66		0.274	0.0850	mg/Kg	10		09/10/14 13:03
Chromium	17.7		0.549	0.165	mg/Kg	10		09/10/14 13:03
Lead	48.3		0.274	0.0850	mg/Kg	10		09/10/14 13:03
Nickel	11.1		0.274	0.0850	mg/Kg	10		09/10/14 13:03
Vanadium	11.1		4.11	1.29	mg/Kg	10		09/10/14 13:03

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Analyst: NRB
Analytical Date/Time: 09/10/14 13:03
Container ID: 1148467005-A

Prep Batch: MXX28060
Prep Method: SW3050B
Prep Date/Time: 09/10/14 07:22
Prep Initial Wt./Vol.: 1.117 g
Prep Extract Vol: 50 mL

Print Date: 10/29/2014 3:14:14PM

Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1221	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1232	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1242	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1248	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1254	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Aroclor-1260	7.30	U	14.6	4.37	mg/Kg	10		09/13/14 03:34
Surrogates								
Decachlorobiphenyl	76		60-125		%	10		09/13/14 03:34

Batch Information

Analytical Batch: XGC8886
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 09/13/14 03:34
Container ID: 1148467005-A

Prep Batch: XXX31959
Prep Method: SW3550C
Prep Date/Time: 09/11/14 16:20
Prep Initial Wt./Vol.: 22.504 g
Prep Extract Vol: 95 mL

Print Date: 10/29/2014 3:14:14PM

Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	1.69		1.56	0.468	mg/Kg	5		09/15/14 08:14
2-Methylnaphthalene	1.85		1.56	0.468	mg/Kg	5		09/15/14 08:14
Acenaphthene	0.780	U	1.56	0.468	mg/Kg	5		09/15/14 08:14
Acenaphthylene	0.780	U	1.56	0.468	mg/Kg	5		09/15/14 08:14
Anthracene	0.955	J	1.56	0.468	mg/Kg	5		09/15/14 08:14
Benzo(a)Anthracene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Benzo[a]pyrene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Benzo[b]Fluoranthene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Benzo[g,h,i]perylene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Benzo[k]fluoranthene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Chrysene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Dibenzo[a,h]anthracene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Fluoranthene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Fluorene	2.22		1.56	0.468	mg/Kg	5		09/15/14 08:14
Indeno[1,2,3-c,d] pyrene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Naphthalene	0.780	U	1.56	0.468	mg/Kg	5		09/15/14 08:14
Phenanthrene	4.47		1.56	0.468	mg/Kg	5		09/15/14 08:14
Pyrene	1.56	U	3.12	0.936	mg/Kg	10		09/17/14 19:05
Surrogates								
2-Fluorobiphenyl	568	*	45-105		%	5		09/15/14 08:14
Terphenyl-d14	0	*	30-125		%	10		09/17/14 19:05

Batch Information

Analytical Batch: XMS8285
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/15/14 08:14
Container ID: 1148467005-A

Prep Batch: XXX31939
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:42
Prep Initial Wt./Vol.: 22.553 g
Prep Extract Vol: 40.85 mL

Analytical Batch: XMS8292
Analytical Method: 8270D SIMS (PAH)
Analyst: RTS
Analytical Date/Time: 09/17/14 19:05
Container ID: 1148467005-A

Prep Batch: XXX31939
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:42
Prep Initial Wt./Vol.: 22.553 g
Prep Extract Vol: 40.85 mL

Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	33900		18100	5600	mg/Kg	10		09/10/14 17:14
Surrogates								
5a Androstane	0	*	50-150		%	10		09/10/14 17:14

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK102
Analyst: MCM
Analytical Date/Time: 09/10/14 17:14
Container ID: 1148467005-A

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:34
Prep Initial Wt./Vol.: 5.085 g
Prep Extract Vol: 10 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	187000		18100	5600	mg/Kg	10		09/10/14 17:14
Surrogates								
n-Triacontane-d62	0	*	50-150		%	10		09/10/14 17:14

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK103
Analyst: MCM
Analytical Date/Time: 09/10/14 17:14
Container ID: 1148467005-A

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 09/09/14 10:34
Prep Initial Wt./Vol.: 5.085 g
Prep Extract Vol: 10 mL

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Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.25	U	8.51	2.55	mg/Kg	1		09/10/14 02:23
Surrogates								
4-Bromofluorobenzene	18.7	*	50-150		%	1		09/10/14 02:23

Batch Information

Analytical Batch: VFC12099
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/10/14 02:23
Container ID: 1148467005-C

Prep Batch: VXX26419
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 32.706 g
Prep Extract Vol: 36.3567 mL

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Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,1,1-Trichloroethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,1,2,2-Tetrachloroethane	0.0213	U	0.0426	0.0133	mg/Kg	1		09/10/14 16:53
1,1,2-Trichloroethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,1-Dichloroethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,1-Dichloroethene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,1-Dichloropropene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2,3-Trichlorobenzene	0.0850	U	0.170	0.0511	mg/Kg	1		09/10/14 16:53
1,2,3-Trichloropropane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2,4-Trichlorobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2,4-Trimethylbenzene	0.0850	U	0.170	0.0511	mg/Kg	1		09/10/14 16:53
1,2-Dibromo-3-chloropropane	0.171	U	0.341	0.106	mg/Kg	1		09/10/14 16:53
1,2-Dibromoethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2-Dichlorobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2-Dichloroethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,2-Dichloropropane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,3,5-Trimethylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,3-Dichlorobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,3-Dichloropropane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
1,4-Dichlorobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
2,2-Dichloropropane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
2-Butanone (MEK)	0.425	U	0.851	0.266	mg/Kg	1		09/10/14 16:53
2-Chlorotoluene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
2-Hexanone	0.425	U	0.851	0.266	mg/Kg	1		09/10/14 16:53
4-Chlorotoluene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
4-Isopropyltoluene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
4-Methyl-2-pentanone (MIBK)	0.425	U	0.851	0.266	mg/Kg	1		09/10/14 16:53
Benzene	0.0400	J	0.0426	0.0133	mg/Kg	1		09/10/14 16:53
Bromobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Bromochloromethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Bromodichloromethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Bromoform	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Bromomethane	0.341	U	0.681	0.211	mg/Kg	1		09/10/14 16:53
Carbon disulfide	0.171	U	0.341	0.106	mg/Kg	1		09/10/14 16:53
Carbon tetrachloride	0.0213	U	0.0426	0.0133	mg/Kg	1		09/10/14 16:53
Chlorobenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Chloroethane	0.341	U	0.681	0.211	mg/Kg	1		09/10/14 16:53

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Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Chloromethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
cis-1,2-Dichloroethene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
cis-1,3-Dichloropropene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Dibromochloromethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Dibromomethane	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Dichlorodifluoromethane	0.0850	U	0.170	0.0511	mg/Kg	1		09/10/14 16:53
Ethylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Hexachlorobutadiene	0.0850	U	0.170	0.0511	mg/Kg	1		09/10/14 16:53
Isopropylbenzene (Cumene)	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Methyl-t-butyl ether	0.171	U	0.341	0.106	mg/Kg	1		09/10/14 16:53
Methylene chloride	0.171	U	0.341	0.106	mg/Kg	1		09/10/14 16:53
n-Butylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
n-Propylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Naphthalene	0.0656	J	0.170	0.0511	mg/Kg	1		09/10/14 16:53
o-Xylene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
P & M -Xylene	0.0639	J	0.170	0.0511	mg/Kg	1		09/10/14 16:53
sec-Butylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Styrene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
tert-Butylbenzene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Tetrachloroethene	0.0213	U	0.0426	0.0133	mg/Kg	1		09/10/14 16:53
Toluene	0.155		0.0851	0.0266	mg/Kg	1		09/10/14 16:53
trans-1,2-Dichloroethene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
trans-1,3-Dichloropropene	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Trichloroethene	0.0213	U	0.0426	0.0133	mg/Kg	1		09/10/14 16:53
Trichlorofluoromethane	0.0850	U	0.170	0.0511	mg/Kg	1		09/10/14 16:53
Vinyl chloride	0.0425	U	0.0851	0.0266	mg/Kg	1		09/10/14 16:53
Xylenes (total)	0.0903	J	0.255	0.0777	mg/Kg	1		09/10/14 16:53
Surrogates								
1,2-Dichloroethane-D4	104		79-118		%	1		09/10/14 16:53
4-Bromofluorobenzene	56.9	*	67-138		%	1		09/10/14 16:53
Toluene-d8	104		85-115		%	1		09/10/14 16:53

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Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467005
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%): 65.3
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14442
Analytical Method: SW8260B
Analyst: KCT
Analytical Date/Time: 09/10/14 16:53
Container ID: 1148467005-C

Prep Batch: VXX26425
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 32.706 g
Prep Extract Vol: 36.3567 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467006
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25	U	2.50	0.750	mg/Kg	1		09/09/14 21:38
Surrogates								
4-Bromofluorobenzene	92.1		50-150		%	1		09/09/14 21:38

Batch Information

Analytical Batch: VFC12098
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 09/09/14 21:38
Container ID: 1148467006-A

Prep Batch: VXX26417
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 50.027 g
Prep Extract Vol: 25 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467006
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,1,1-Trichloroethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,1,2,2-Tetrachloroethane	0.00625	U	0.0125	0.00390	mg/Kg	1		09/09/14 18:43
1,1,2-Trichloroethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,1-Dichloroethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,1-Dichloroethene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,1-Dichloropropene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2,3-Trichlorobenzene	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
1,2,3-Trichloropropane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2,4-Trichlorobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2,4-Trimethylbenzene	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
1,2-Dibromo-3-chloropropane	0.0500	U	0.0999	0.0310	mg/Kg	1		09/09/14 18:43
1,2-Dibromoethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2-Dichlorobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2-Dichloroethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,2-Dichloropropane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,3,5-Trimethylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,3-Dichlorobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,3-Dichloropropane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
1,4-Dichlorobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
2,2-Dichloropropane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
2-Butanone (MEK)	0.125	U	0.250	0.0780	mg/Kg	1		09/09/14 18:43
2-Chlorotoluene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
2-Hexanone	0.125	U	0.250	0.0780	mg/Kg	1		09/09/14 18:43
4-Chlorotoluene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
4-Isopropyltoluene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
4-Methyl-2-pentanone (MIBK)	0.125	U	0.250	0.0780	mg/Kg	1		09/09/14 18:43
Benzene	0.00625	U	0.0125	0.00390	mg/Kg	1		09/09/14 18:43
Bromobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Bromochloromethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Bromodichloromethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Bromoform	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Bromomethane	0.100	U	0.200	0.0620	mg/Kg	1		09/09/14 18:43
Carbon disulfide	0.0500	U	0.0999	0.0310	mg/Kg	1		09/09/14 18:43
Carbon tetrachloride	0.00625	U	0.0125	0.00390	mg/Kg	1		09/09/14 18:43
Chlorobenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Chloroethane	0.100	U	0.200	0.0620	mg/Kg	1		09/09/14 18:43

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467006
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Chloromethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
cis-1,2-Dichloroethene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
cis-1,3-Dichloropropene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Dibromochloromethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Dibromomethane	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Dichlorodifluoromethane	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
Ethylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Hexachlorobutadiene	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
Isopropylbenzene (Cumene)	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Methyl-t-butyl ether	0.0500	U	0.0999	0.0310	mg/Kg	1		09/09/14 18:43
Methylene chloride	0.0500	U	0.0999	0.0310	mg/Kg	1		09/09/14 18:43
n-Butylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
n-Propylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Naphthalene	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
o-Xylene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
P & M -Xylene	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
sec-Butylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Styrene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
tert-Butylbenzene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Tetrachloroethene	0.00625	U	0.0125	0.00390	mg/Kg	1		09/09/14 18:43
Toluene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
trans-1,2-Dichloroethene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
trans-1,3-Dichloropropene	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Trichloroethene	0.00625	U	0.0125	0.00390	mg/Kg	1		09/09/14 18:43
Trichlorofluoromethane	0.0250	U	0.0500	0.0150	mg/Kg	1		09/09/14 18:43
Vinyl chloride	0.0125	U	0.0250	0.00780	mg/Kg	1		09/09/14 18:43
Xylenes (total)	0.0375	U	0.0750	0.0228	mg/Kg	1		09/09/14 18:43
Surrogates								
1,2-Dichloroethane-D4	106		79-118		%	1		09/09/14 18:43
4-Bromofluorobenzene	103		67-138		%	1		09/09/14 18:43
Toluene-d8	101		85-115		%	1		09/09/14 18:43

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467006
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Gas Chromatography/Mass Spectrome**

Batch Information

Analytical Batch: VMS14438
Analytical Method: SW8260B
Analyst: KCT
Analytical Date/Time: 09/09/14 18:43
Container ID: 1148467006-A

Prep Batch: VXX26418
Prep Method: SW5035A
Prep Date/Time: 09/05/14 14:16
Prep Initial Wt./Vol.: 50.027 g
Prep Extract Vol: 25 mL

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Results of **1735-04**

Client Sample ID: **1735-04**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467007
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Oil/Xylene Miscible Liquid
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1221	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1232	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1242	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1248	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1254	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Aroclor-1260	0.815	U	1.63	0.504	mg/Kg	2		10/28/14 14:44
Surrogates								
Decachlorobiphenyl	100		60-125		%	2		10/28/14 14:44

Batch Information

Analytical Batch: XGC8923
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 10/28/14 14:44
Container ID: 1148467007-A

Prep Batch: XXX32287
Prep Method: SW3580A
Prep Date/Time: 10/27/14 18:00
Prep Initial Wt./Vol.: 1.2301 g
Prep Extract Vol: 10 mL

Print Date: 10/29/2014 3:14:14PM

Results of **1735-03**

Client Sample ID: **1735-03**
Client Project ID: **1735 Burn Pit**
Lab Sample ID: 1148467008
Lab Project ID: 1148467

Collection Date: 09/05/14 14:16
Received Date: 09/09/14 08:40
Matrix: Oil/Xylene Miscible Liquid
Solids (%):
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1221	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1232	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1242	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1248	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1254	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Aroclor-1260	0.795	U	1.59	0.492	mg/Kg	2		10/28/14 16:01
Surrogates								
Decachlorobiphenyl	98		60-125		%	2		10/28/14 16:01

Batch Information

Analytical Batch: XGC8923
Analytical Method: SW8082A
Analyst: SCL
Analytical Date/Time: 10/28/14 16:01
Container ID: 1148467008-A

Prep Batch: XXX32287
Prep Method: SW3580A
Prep Date/Time: 10/27/14 18:00
Prep Initial Wt./Vol.: 1.2591 g
Prep Extract Vol: 10 mL

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Method Blank

Blank ID: MB for HBN 1635481 [MXX/28060]
Blank Lab ID: 1232622

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.639J	1.00	0.310	mg/Kg
Barium	0.246J	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.200U	0.400	0.120	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Nickel	0.100U	0.200	0.0620	mg/Kg
Vanadium	1.50U	3.00	0.940	mg/Kg

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Instrument: Perkin Elmer Sciex ICP-MS P3
Analyst: NRB
Analytical Date/Time: 9/10/2014 1:42:11PM

Prep Batch: MXX28060
Prep Method: SW3050B
Prep Date/Time: 9/10/2014 7:22:44AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Duplicate Sample Summary

Original Sample ID: 1232628
Duplicate Sample ID: 1232624
QC for Samples:
1148467004, 1148467005

Analysis Date: 09/10/2014 13:25
Matrix: Soil/Solid (dry weight)

Results by **SW6020A**

NAME	Original (MXX28060	Duplicate (MXX28060)	RPD (%)	RPD CL
Arsenic	8.69	9.53	9.19	20.00

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Instrument: Perkin Elmer Sciex ICP-MS P3
Analyst: NRB

Prep Batch: Soil/Solid (dry weight)
Prep Method: MMS8670
Prep Date/Time: MXX28060

Print Date: 10/29/2014 3:14:16PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [MXX28060]
Blank Spike Lab ID: 1232623
Date Analyzed: 09/10/2014 13:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	50	50.7	101	(80-120)
Barium	50	51.8	104	(80-120)
Cadmium	5	5.43	109	(80-120)
Chromium	20	21.2	106	(80-120)
Lead	50	57.3	115	(80-120)
Nickel	50	51.6	103	(80-120)
Vanadium	10	10.4	104	(80-120)

Batch Information

Analytical Batch: **MMS8670**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Sciex ICP-MS P3**
Analyst: **NRB**

Prep Batch: **MXX28060**
Prep Method: **SW3050B**
Prep Date/Time: **09/10/2014 07:22**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1232628
MS Sample ID: 1232625 MS
MSD Sample ID: 1232626 MSD

Analysis Date: 09/10/2014 13:23
Analysis Date: 09/10/2014 13:28
Analysis Date: 09/10/2014 13:30
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **SW6020A**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Arsenic	8.69	49.6	90.5	165	*	47.6	58.6	105		80-120	42.70	* (< 20)
Barium	80.0	49.6	149	139	*	47.6	146	139	*	80-120	2.10	(< 20)
Cadmium	0.0992J	4.96	5.67	112		4.76	5.37	111		80-120	5.56	(< 20)
Chromium	39.9	19.8	64.1	122	*	19.0	64.4	129	*	80-120	0.58	(< 20)
Lead	8.21	49.6	71.4	128	*	47.6	61.2	111		80-120	15.40	(< 20)
Nickel	49.5	49.6	102	106		47.6	103	112		80-120	0.62	(< 20)
Vanadium	55.9	9.91	74	182	*	9.51	71.9	168	*	80-120	2.89	(< 20)

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Instrument: Perkin Elmer Sciex ICP-MS P3
Analyst: NRB
Analytical Date/Time: 9/10/2014 1:28:02PM

Prep Batch: MXX28060
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/10/2014 7:22:44AM
Prep Initial Wt./Vol.: 1.01g
Prep Extract Vol: 50.00mL

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Bench Spike Summary

Original Sample ID: 1232628
MS Sample ID: 1232627 BND
MSD Sample ID:

Analysis Date: 09/10/2014 13:23
Analysis Date: 09/10/2014 13:32
Analysis Date:
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	8.69	12.4	21.3	101				75-125		
Barium	80.0	248	325	99				75-125		
Chromium	39.9	124	163	100				75-125		
Lead	8.21	124	135	102				75-125		
Vanadium	55.9	124	183	102				75-125		

Batch Information

Analytical Batch: MMS8670
Analytical Method: SW6020A
Instrument: Perkin Elmer Sciex ICP-MS P3
Analyst: NRB
Analytical Date/Time: 9/10/2014 1:32:45PM

Prep Batch: MXX28060
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 9/10/2014 7:22:44AM
Prep Initial Wt./Vol.: 1.01g
Prep Extract Vol: 50.00mL

Print Date: 10/29/2014 3:14:17PM

Method Blank

Blank ID: MB for HBN 1635483 [SPT/9444]
Blank Lab ID: 1232634

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT9444
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN
Analytical Date/Time: 9/9/2014 6:00:00PM

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Duplicate Sample Summary

Original Sample ID: 1144380001
Duplicate Sample ID: 1232635
QC for Samples:
1148467004, 1148467005

Analysis Date: 09/09/2014 18:00
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original ()	Duplicate ()	RPD (%)	RPD CL
Total Solids	88.9	87.5	1.60	15.00

Batch Information

Analytical Batch: SPT9444
Analytical Method: SM21 2540G
Instrument:
Analyst: MJN

Print Date: 10/29/2014 3:14:18PM

Method Blank

Blank ID: MB for HBN 1635490 [VXX/26415]
Blank Lab ID: 1232655

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002, 1148467003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L
Surrogates				
4-Bromofluorobenzene	98.3	50-150		%

Batch Information

Analytical Batch: VFC12097
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/10/2014 12:47:00AM

Prep Batch: VXX26415
Prep Method: SW5030B
Prep Date/Time: 9/9/2014 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26415]
Blank Spike Lab ID: 1232658
Date Analyzed: 09/09/2014 23:31

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26415]
Spike Duplicate Lab ID: 1232659
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002, 1148467003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.953	95	1.00	0.932	93	(60-120)	2.20	(< 20)
Surrogates									
4-Bromofluorobenzene	0.0500		105	0.0500		103	(50-150)	2.20	

Batch Information

Analytical Batch: **VFC12097**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26415**
Prep Method: **SW5030B**
Prep Date/Time: **09/09/2014 08:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dup Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1635495 [VXX/26417]
Blank Lab ID: 1232689

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	101	50-150		%

Batch Information

Analytical Batch: VFC12098
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2014 11:33:00AM

Prep Batch: VXX26417
Prep Method: SW5035A
Prep Date/Time: 9/9/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26417]
Blank Spike Lab ID: 1232692
Date Analyzed: 09/09/2014 12:29

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26417]
Spike Duplicate Lab ID: 1232693
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467006

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	9.87	99	10.0	9.84	98	(60-120)	0.30	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		99	1.25		101	(50-150)	2.00	

Batch Information

Analytical Batch: **VFC12098**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX26417**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1635500 [VXX/26418]
Blank Lab ID: 1232709

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467006

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,2,2-Tetrachloroethane	0.00625U	0.0125	0.00390	mg/Kg
1,1,2-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2,3-Trichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/Kg
1,2-Dibromoethane	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/Kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
2-Hexanone	0.125U	0.250	0.0780	mg/Kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Isopropyltoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/Kg
Benzene	0.00625U	0.0125	0.00390	mg/Kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/Kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromodichloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromoform	0.0125U	0.0250	0.00780	mg/Kg
Bromomethane	0.100U	0.200	0.0620	mg/Kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/Kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/Kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
Chloroethane	0.100U	0.200	0.0620	mg/Kg
Chloroform	0.0125U	0.0250	0.00780	mg/Kg

Method Blank

Blank ID: MB for HBN 1635500 [VXX/26418]
Blank Lab ID: 1232709

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467006

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.0125U	0.0250	0.00780	mg/Kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
cis-1,3-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
Dibromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/Kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Hexachlorobutadiene	0.0250U	0.0500	0.0150	mg/Kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/Kg
Methylene chloride	0.0500U	0.100	0.0310	mg/Kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/Kg
Naphthalene	0.0250U	0.0500	0.0150	mg/Kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Styrene	0.0125U	0.0250	0.00780	mg/Kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,3-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
Trichloroethene	0.00625U	0.0125	0.00390	mg/Kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Vinyl chloride	0.0125U	0.0250	0.00780	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,2-Dichloroethane-D4	100	79-118		%
4-Bromofluorobenzene	94.3	67-138		%
Toluene-d8	97.6	85-115		%

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Method Blank

Blank ID: MB for HBN 1635500 [VXX/26418]
Blank Lab ID: 1232709

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467006

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS14438
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/9/2014 3:26:00PM

Prep Batch: VXX26418
Prep Method: SW5035A
Prep Date/Time: 9/9/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 10/29/2014 3:14:21PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26418]
Blank Spike Lab ID: 1232710
Date Analyzed: 09/09/2014 16:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.765	102	(75-125)
1,1,1-Trichloroethane	0.750	0.756	101	(70-135)
1,1,2,2-Tetrachloroethane	0.750	0.773	103	(55-130)
1,1,2-Trichloroethane	0.750	0.797	106	(60-125)
1,1-Dichloroethane	0.750	0.711	95	(75-125)
1,1-Dichloroethene	0.750	0.672	90	(65-135)
1,1-Dichloropropene	0.750	0.728	97	(70-135)
1,2,3-Trichlorobenzene	0.750	0.715	95	(60-135)
1,2,3-Trichloropropane	0.750	0.766	102	(65-130)
1,2,4-Trichlorobenzene	0.750	0.772	103	(65-130)
1,2,4-Trimethylbenzene	0.750	0.776	103	(65-135)
1,2-Dibromo-3-chloropropane	0.750	0.780	104	(40-135)
1,2-Dibromoethane	0.750	0.847	113	(70-125)
1,2-Dichlorobenzene	0.750	0.767	102	(75-120)
1,2-Dichloroethane	0.750	0.731	97	(70-135)
1,2-Dichloropropane	0.750	0.776	103	(70-120)
1,3,5-Trimethylbenzene	0.750	0.778	104	(65-135)
1,3-Dichlorobenzene	0.750	0.764	102	(70-125)
1,3-Dichloropropane	0.750	0.809	108	(75-125)
1,4-Dichlorobenzene	0.750	0.783	104	(70-125)
2,2-Dichloropropane	0.750	0.796	106	(65-135)
2-Butanone (MEK)	2.25	1.88	84	(30-160)
2-Chlorotoluene	0.750	0.750	100	(70-130)
2-Hexanone	2.25	2.27	101	(45-145)
4-Chlorotoluene	0.750	0.728	97	(75-125)
4-Isopropyltoluene	0.750	0.784	105	(75-135)
4-Methyl-2-pentanone (MIBK)	2.25	2.31	102	(45-145)
Benzene	0.750	0.746	100	(75-125)
Bromobenzene	0.750	0.787	105	(65-120)
Bromochloromethane	0.750	0.755	101	(70-125)
Bromodichloromethane	0.750	0.853	114	(70-130)
Bromoform	0.750	0.822	110	(55-135)
Bromomethane	0.750	0.741	99	(30-160)
Carbon disulfide	1.13	0.927	82	(45-160)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26418]
Blank Spike Lab ID: 1232710
Date Analyzed: 09/09/2014 16:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	0.750	0.789	105	(65-135)
Chlorobenzene	0.750	0.790	105	(75-125)
Chloroethane	0.750	0.835	111	(40-155)
Chloroform	0.750	0.735	98	(70-125)
Chloromethane	0.750	0.695	93	(50-130)
cis-1,2-Dichloroethene	0.750	0.741	99	(65-125)
cis-1,3-Dichloropropene	0.750	0.862	115	(70-125)
Dibromochloromethane	0.750	0.795	106	(65-130)
Dibromomethane	0.750	0.807	108	(75-130)
Dichlorodifluoromethane	0.750	0.739	99	(35-135)
Ethylbenzene	0.750	0.795	106	(75-125)
Hexachlorobutadiene	0.750	0.821	110	(55-140)
Isopropylbenzene (Cumene)	0.750	0.800	107	(75-130)
Methyl-t-butyl ether	1.13	1.07	95	(63-149)
Methylene chloride	0.750	0.714	95	(55-140)
n-Butylbenzene	0.750	0.772	103	(65-140)
n-Propylbenzene	0.750	0.761	102	(65-135)
Naphthalene	0.750	0.736	98	(40-125)
o-Xylene	0.750	0.806	107	(75-125)
P & M -Xylene	1.50	1.62	108	(80-125)
sec-Butylbenzene	0.750	0.769	103	(65-130)
Styrene	0.750	0.827	110	(75-125)
tert-Butylbenzene	0.750	0.765	102	(65-130)
Tetrachloroethene	0.750	0.809	108	(65-140)
Toluene	0.750	0.785	105	(70-125)
trans-1,2-Dichloroethene	0.750	0.697	93	(65-135)
trans-1,3-Dichloropropene	0.750	0.779	104	(65-125)
Trichloroethene	0.750	0.787	105	(75-125)
Trichlorofluoromethane	0.750	0.783	104	(25-185)
Vinyl chloride	0.750	0.753	100	(60-125)
Xylenes (total)	2.25	2.43	108	(80-125)
Surrogates				
1,2-Dichloroethane-D4	0.750		94	(79-118)

Print Date: 10/29/2014 3:14:22PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26418]
Blank Spike Lab ID: 1232710
Date Analyzed: 09/09/2014 16:40

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

	Blank Spike (%)			
Parameter	Spike	Result	Rec (%)	CL
4-Bromofluorobenzene	0.750		94	(67-138)
Toluene-d8	0.750		102	(85-115)

Batch Information

Analytical Batch: **VMS14438**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **KCT**

Prep Batch: **VXX26418**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2014 00:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

Matrix Spike Summary

Original Sample ID: 1144122006
MS Sample ID: 1232713 MS
MSD Sample ID: 1232714 MSD

Analysis Date: 09/09/2014 18:59
Analysis Date: 09/09/2014 17:06
Analysis Date: 09/09/2014 17:22
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0179U	0.864	0.857	99		0.864	0.854	99		75-125	0.44	(< 20)
1,1,1-Trichloroethane	0.0179U	0.864	0.875	101		0.864	0.867	100		70-135	0.96	(< 20)
1,1,2,2-Tetrachloroethane	0.00895U	0.864	0.888	103		0.864	0.872	101		55-130	1.70	(< 20)
1,1,2-Trichloroethane	0.0179U	0.864	1.48	172	*	0.864	1.48	171	*	60-125	0.39	(< 20)
1,1-Dichloroethane	0.0179U	0.864	0.827	96		0.864	0.820	95		75-125	0.77	(< 20)
1,1-Dichloroethene	0.0179U	0.864	0.815	94		0.864	0.812	94		65-135	0.42	(< 20)
1,1-Dichloropropene	0.0179U	0.864	0.834	97		0.864	0.839	97		70-135	0.65	(< 20)
1,2,3-Trichlorobenzene	0.0358U	0.864	0.944	109		0.864	1.00	116		60-135	5.80	(< 20)
1,2,3-Trichloropropane	0.0179U	0.864	0.868	100		0.864	0.851	99		65-130	1.90	(< 20)
1,2,4-Trichlorobenzene	0.0179U	0.864	0.973	113		0.864	0.953	110		65-130	2.00	(< 20)
1,2,4-Trimethylbenzene	0.135	0.864	0.997	100		0.864	0.970	97		65-135	2.70	(< 20)
1,2-Dibromo-3-chloropropane	0.0715U	0.864	0.911	105		0.864	0.909	105		40-135	0.22	(< 20)
1,2-Dibromoethane	0.0179U	0.864	0.929	108		0.864	0.932	108		70-125	0.15	(< 20)
1,2-Dichlorobenzene	0.0179U	0.864	0.868	100		0.864	0.847	98		75-120	2.40	(< 20)
1,2-Dichloroethane	0.0179U	0.864	0.824	96		0.864	0.821	95		70-135	0.42	(< 20)
1,2-Dichloropropane	0.0179U	0.864	0.883	102		0.864	0.886	103		70-120	0.42	(< 20)
1,3,5-Trimethylbenzene	0.136	0.864	0.990	99		0.864	0.957	95		65-135	3.40	(< 20)
1,3-Dichlorobenzene	0.0179U	0.864	0.861	100		0.864	0.840	97		70-125	2.40	(< 20)
1,3-Dichloropropane	0.0179U	0.864	0.881	102		0.864	0.900	104		75-125	2.00	(< 20)
1,4-Dichlorobenzene	0.0179U	0.864	0.878	102		0.864	0.863	100		70-125	1.70	(< 20)
2,2-Dichloropropane	0.0179U	0.864	0.886	103		0.864	0.883	102		65-135	0.39	(< 20)
2-Butanone (MEK)	0.121J	2.59	2.43	89		2.59	2.50	92		30-160	2.60	(< 20)
2-Chlorotoluene	0.0179U	0.864	0.854	99		0.864	0.843	98		70-130	1.40	(< 20)
2-Hexanone	0.179U	2.59	2.70	104		2.59	2.73	105		45-145	1.00	(< 20)
4-Chlorotoluene	0.0179U	0.864	0.846	98		0.864	0.790	91		75-125	6.90	(< 20)
4-Isopropyltoluene	0.0620	0.864	1.01	109		0.864	0.979	106		75-135	2.60	(< 20)
4-Methyl-2-pentanone (MIBK)	1.15	2.59	3.64	96		2.59	3.63	95		45-145	0.40	(< 20)
Benzene	0.0355	0.864	0.888	99		0.864	0.886	99		75-125	0.26	(< 20)
Bromobenzene	0.0179U	0.864	0.878	102		0.864	0.873	101		65-120	0.53	(< 20)
Bromochloromethane	0.0179U	0.864	0.854	99		0.864	0.852	99		70-125	0.34	(< 20)
Bromodichloromethane	0.0179U	0.864	0.964	112		0.864	0.948	110		70-130	1.70	(< 20)
Bromoform	0.0179U	0.864	0.917	106		0.864	0.895	104		55-135	2.40	(< 20)
Bromomethane	0.143U	0.864	0.893	103		0.864	0.870	101		30-160	2.60	(< 20)
Carbon disulfide	0.0715U	1.30	1.12	86		1.30	1.10	85		45-160	1.80	(< 20)
Carbon tetrachloride	0.00895U	0.864	0.911	106		0.864	0.896	104		65-135	1.80	(< 20)
Chlorobenzene	0.0179U	0.864	0.892	103		0.864	0.869	101		75-125	2.50	(< 20)
Chloroethane	0.143U	0.864	0.920	107		0.864	0.851	99		40-155	7.80	(< 20)

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Matrix Spike Summary

Original Sample ID: 1144122006
MS Sample ID: 1232713 MS
MSD Sample ID: 1232714 MSD

Analysis Date: 09/09/2014 18:59
Analysis Date: 09/09/2014 17:06
Analysis Date: 09/09/2014 17:22
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroform	0.0154J	0.864	0.851	97		0.864	0.849	97		70-125	0.10	(< 20)
Chloromethane	0.0179U	0.864	0.799	93		0.864	0.775	90		50-130	3.10	(< 20)
cis-1,2-Dichloroethene	0.0219J	0.864	0.871	98		0.864	0.868	98		65-125	0.43	(< 20)
cis-1,3-Dichloropropene	0.0179U	0.864	0.977	113		0.864	0.971	112		70-125	0.53	(< 20)
Dibromochloromethane	0.0179U	0.864	0.871	101		0.864	0.875	101		65-130	0.46	(< 20)
Dibromomethane	0.0179U	0.864	0.904	105		0.864	0.889	103		75-130	1.60	(< 20)
Dichlorodifluoromethane	0.0358U	0.864	0.847	98		0.864	0.823	95		35-135	2.90	(< 20)
Ethylbenzene	0.339	0.864	1.15	94		0.864	1.16	95		75-125	0.82	(< 20)
Hexachlorobutadiene	0.0358U	0.864	1.51	175	*	0.864	1.48	172	*	55-140	1.90	(< 20)
Isopropylbenzene (Cumene)	0.0580	0.864	0.971	106		0.864	0.966	105		75-130	0.62	(< 20)
Methyl-t-butyl ether	0.0715U	1.30	1.22	94		1.30	1.22	94		63-149	0.14	(< 20)
Methylene chloride	0.152	0.864	0.885	85		0.864	0.875	84		55-140	1.10	(< 20)
n-Butylbenzene	0.0179U	0.864	0.974	113		0.864	0.936	108		65-140	4.00	(< 20)
n-Propylbenzene	0.0412	0.864	0.889	98		0.864	0.875	97		65-135	1.60	(< 20)
Naphthalene	0.0358U	0.864	0.920	107		0.864	0.928	107		40-125	0.90	(< 20)
o-Xylene	0.267	0.864	1.11	98		0.864	1.13	100		75-125	1.10	(< 20)
P & M -Xylene	0.706	1.73	2.34	94		1.73	2.36	96		80-125	1.20	(< 20)
sec-Butylbenzene	0.0749	0.864	0.966	103		0.864	0.936	100		65-130	3.10	(< 20)
Styrene	0.0179U	0.864	0.924	107		0.864	0.930	108		75-125	0.71	(< 20)
tert-Butylbenzene	0.0179U	0.864	0.880	102		0.864	0.859	99		65-130	2.40	(< 20)
Tetrachloroethene	0.0559	0.864	0.986	108		0.864	0.952	104		65-140	3.60	(< 20)
Toluene	0.983	0.864	1.64	77		0.864	1.63	75		70-125	0.99	(< 20)
trans-1,2-Dichloroethene	0.0179U	0.864	0.813	94		0.864	0.811	94		65-135	0.25	(< 20)
trans-1,3-Dichloropropene	0.0179U	0.864	0.868	100		0.864	0.863	100		65-125	0.57	(< 20)
Trichloroethene	0.0355	0.864	0.938	104		0.864	0.927	103		75-125	1.10	(< 20)
Trichlorofluoromethane	0.0254J	0.864	0.960	108		0.864	0.911	102		25-185	5.20	(< 20)
Vinyl chloride	0.0179U	0.864	0.865	100		0.864	0.838	97		60-125	3.20	(< 20)
Xylenes (total)	0.973	2.59	3.45	96		2.59	3.49	97		80-125	1.10	(< 20)
Surrogates												
1,2-Dichloroethane-D4		0.864	0.811	94		0.864	0.806	93		79-118	0.43	
4-Bromofluorobenzene		2.30	0.916	40	*	2.30	0.916	40	*	67-138	0.03	
Toluene-d8		0.864	0.892	103		0.864	0.880	102		85-115	1.20	

Print Date: 10/29/2014 3:14:22PM

Matrix Spike Summary

Original Sample ID: 1144122006
MS Sample ID: 1232713 MS
MSD Sample ID: 1232714 MSD

QC for Samples: 1148467004, 1148467006

Analysis Date:
Analysis Date: 09/09/2014 17:06
Analysis Date: 09/09/2014 17:22
Matrix: Soil/Solid (dry weight)

Results by **SW8260B**

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

Batch Information

Analytical Batch: VMS14438
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/9/2014 5:06:00PM

Prep Batch: VXX26418
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/9/2014 12:00:00AM
Prep Initial Wt./Vol.: 49.49g
Prep Extract Vol: 25.00mL

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Matrix Spike Summary

Original Sample ID: 1144380001
MS Sample ID: 1232715 MS
MSD Sample ID: 1232716 MSD

Analysis Date: 09/09/2014 19:15
Analysis Date: 09/09/2014 17:38
Analysis Date: 09/09/2014 17:54
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0171U	0.843	0.821	98	0.843	0.857	102	75-125	4.30	(< 20)
1,1,1-Trichloroethane	0.0171U	0.843	0.867	103	0.843	0.876	104	70-135	0.97	(< 20)
1,1,2,2-Tetrachloroethane	0.00860U	0.843	0.847	101	0.843	0.897	106	55-130	5.70	(< 20)
1,1,2-Trichloroethane	0.0171U	0.843	0.930	110	0.843	0.936	111	60-125	0.60	(< 20)
1,1-Dichloroethane	0.0171U	0.843	0.817	97	0.843	0.821	98	75-125	0.62	(< 20)
1,1-Dichloroethene	0.0171U	0.843	0.807	96	0.843	0.816	97	65-135	1.20	(< 20)
1,1-Dichloropropene	0.0171U	0.843	0.838	100	0.843	0.834	99	70-135	0.54	(< 20)
1,2,3-Trichlorobenzene	0.0343U	0.843	0.900	107	0.843	0.966	115	60-135	7.00	(< 20)
1,2,3-Trichloropropane	0.0171U	0.843	0.793	94	0.843	0.794	94	65-130	0.18	(< 20)
1,2,4-Trichlorobenzene	0.0171U	0.843	0.894	106	0.843	0.960	114	65-130	7.00	(< 20)
1,2,4-Trimethylbenzene	0.0278J	0.843	0.816	94	0.843	0.852	98	65-135	4.30	(< 20)
1,2-Dibromo-3-chloropropane	0.0685U	0.843	0.795	94	0.843	0.853	101	40-135	7.00	(< 20)
1,2-Dibromoethane	0.0171U	0.843	0.904	107	0.843	0.933	111	70-125	3.00	(< 20)
1,2-Dichlorobenzene	0.0171U	0.843	0.796	95	0.843	0.826	98	75-120	3.70	(< 20)
1,2-Dichloroethane	0.0171U	0.843	0.826	98	0.843	0.823	98	70-135	0.31	(< 20)
1,2-Dichloropropane	0.0171U	0.843	0.885	105	0.843	0.883	105	70-120	0.25	(< 20)
1,3,5-Trimethylbenzene	0.0171U	0.843	0.795	94	0.843	0.803	95	65-135	1.10	(< 20)
1,3-Dichlorobenzene	0.0171U	0.843	0.785	93	0.843	0.822	98	70-125	4.50	(< 20)
1,3-Dichloropropane	0.0171U	0.843	0.874	104	0.843	0.899	107	75-125	2.80	(< 20)
1,4-Dichlorobenzene	0.0171U	0.843	0.798	95	0.843	0.831	99	70-125	4.20	(< 20)
2,2-Dichloropropane	0.0171U	0.843	0.898	107	0.843	0.891	106	65-135	0.75	(< 20)
2-Butanone (MEK)	0.172U	2.53	2.20	87	2.53	2.40	95	30-160	8.30	(< 20)
2-Chlorotoluene	0.0171U	0.843	0.753	89	0.843	0.781	93	70-130	3.70	(< 20)
2-Hexanone	0.172U	2.53	2.54	101	2.53	2.69	106	45-145	5.40	(< 20)
4-Chlorotoluene	0.0171U	0.843	0.754	90	0.843	0.790	94	75-125	4.70	(< 20)
4-Isopropyltoluene	0.0237J	0.843	0.862	100	0.843	0.883	102	75-135	2.50	(< 20)
4-Methyl-2-pentanone (MIBK)	0.172U	2.53	2.60	103	2.53	2.71	107	45-145	4.30	(< 20)
Benzene	0.00860U	0.843	0.872	104	0.843	0.856	102	75-125	1.90	(< 20)
Bromobenzene	0.0171U	0.843	0.796	95	0.843	0.826	98	65-120	3.60	(< 20)
Bromochloromethane	0.0171U	0.843	0.861	102	0.843	0.856	102	70-125	0.49	(< 20)
Bromodichloromethane	0.0171U	0.843	0.956	114	0.843	0.949	113	70-130	0.74	(< 20)
Bromoform	0.0171U	0.843	0.866	103	0.843	0.883	105	55-135	2.00	(< 20)
Bromomethane	0.138U	0.843	0.889	105	0.843	0.893	106	30-160	0.54	(< 20)
Carbon disulfide	0.0685U	1.26	1.08	86	1.26	1.09	86	45-160	0.90	(< 20)
Carbon tetrachloride	0.00860U	0.843	0.894	106	0.843	0.898	107	65-135	0.41	(< 20)
Chlorobenzene	0.0171U	0.843	0.874	104	0.843	0.893	106	75-125	2.20	(< 20)
Chloroethane	0.138U	0.843	0.852	101	0.843	0.830	99	40-155	2.60	(< 20)

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Matrix Spike Summary

Original Sample ID: 1144380001
MS Sample ID: 1232715 MS
MSD Sample ID: 1232716 MSD

Analysis Date: 09/09/2014 19:15
Analysis Date: 09/09/2014 17:38
Analysis Date: 09/09/2014 17:54
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467006

Results by **SW8260B**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroform	0.0171U	0.843	0.843	100		0.843	0.839	100		70-125	0.40	(< 20)
Chloromethane	0.0171U	0.843	0.785	93		0.843	0.791	94		50-130	0.75	(< 20)
cis-1,2-Dichloroethene	0.0171U	0.843	0.854	101		0.843	0.844	100		65-125	1.10	(< 20)
cis-1,3-Dichloropropene	0.0171U	0.843	0.969	115		0.843	0.978	116		70-125	0.89	(< 20)
Dibromochloromethane	0.0171U	0.843	0.857	102		0.843	0.853	101		65-130	0.56	(< 20)
Dibromomethane	0.0171U	0.843	0.908	108		0.843	0.900	107		75-130	0.90	(< 20)
Dichlorodifluoromethane	0.0343U	0.843	0.831	99		0.843	0.834	99		35-135	0.20	(< 20)
Ethylbenzene	0.0171U	0.843	0.899	107		0.843	0.906	108		75-125	0.84	(< 20)
Hexachlorobutadiene	0.0343U	0.843	1.34	159	*	0.843	1.37	162	*	55-140	2.20	(< 20)
Isopropylbenzene (Cumene)	0.0171U	0.843	0.906	108		0.843	0.915	109		75-130	0.96	(< 20)
Methyl-t-butyl ether	0.0685U	1.26	1.20	96		1.26	1.23	97		63-149	1.70	(< 20)
Methylene chloride	0.0685U	0.843	0.785	93		0.843	0.791	94		55-140	0.68	(< 20)
n-Butylbenzene	0.0171U	0.843	0.853	101		0.843	0.891	106		65-140	4.30	(< 20)
n-Propylbenzene	0.0171U	0.843	0.771	92		0.843	0.802	95		65-135	3.90	(< 20)
Naphthalene	0.0988	0.843	0.916	97		0.843	0.999	107		40-125	8.60	(< 20)
o-Xylene	0.0171U	0.843	0.908	108		0.843	0.906	107		75-125	0.28	(< 20)
P & M -Xylene	0.0343U	1.69	1.79	106		1.69	1.80	107		80-125	0.16	(< 20)
sec-Butylbenzene	0.0151J	0.843	0.809	94		0.843	0.834	97		65-130	3.00	(< 20)
Styrene	0.0171U	0.843	0.917	109		0.843	0.921	109		75-125	0.55	(< 20)
tert-Butylbenzene	0.0171U	0.843	0.787	93		0.843	0.817	97		65-130	3.70	(< 20)
Tetrachloroethene	0.00860U	0.843	0.895	106		0.843	0.931	111		65-140	3.90	(< 20)
Toluene	0.0130J	0.843	0.862	101		0.843	0.890	104		70-125	3.10	(< 20)
trans-1,2-Dichloroethene	0.0171U	0.843	0.809	96		0.843	0.813	97		65-135	0.52	(< 20)
trans-1,3-Dichloropropene	0.0171U	0.843	0.846	100		0.843	0.858	102		65-125	1.50	(< 20)
Trichloroethene	0.00860U	0.843	0.886	105		0.843	0.907	108		75-125	2.20	(< 20)
Trichlorofluoromethane	0.0343U	0.843	0.906	107		0.843	0.880	104		25-185	2.90	(< 20)
Vinyl chloride	0.0171U	0.843	0.850	101		0.843	0.843	100		60-125	0.86	(< 20)
Xylenes (total)	0.0515U	2.53	2.70	107		2.53	2.70	107		80-125	0.01	(< 20)
Surrogates												
1,2-Dichloroethane-D4		0.843	0.814	97		0.843	0.817	97		79-118	0.24	
4-Bromofluorobenzene		2.25	1.80	80		2.25	1.90	84		67-138	5.10	
Toluene-d8		0.843	0.856	102		0.843	0.901	107		85-115	5.10	

Print Date: 10/29/2014 3:14:22PM

Matrix Spike Summary

Original Sample ID: 1144380001
MS Sample ID: 1232715 MS
MSD Sample ID: 1232716 MSD

QC for Samples: 1148467004, 1148467006

Analysis Date:
Analysis Date: 09/09/2014 17:38
Analysis Date: 09/09/2014 17:54
Matrix: Soil/Solid (dry weight)

Results by **SW8260B**

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

Batch Information

Analytical Batch: VMS14438
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/9/2014 5:38:00PM

Prep Batch: VXX26418
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/9/2014 12:00:00AM
Prep Initial Wt./Vol.: 50.07g
Prep Extract Vol: 25.00mL

Print Date: 10/29/2014 3:14:22PM

Method Blank

Blank ID: MB for HBN 1635506 [VXX/26419]
Blank Lab ID: 1232722

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene	103	50-150		%

Batch Information

Analytical Batch: VFC12099
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 9/9/2014 7:46:00PM

Prep Batch: VXX26419
Prep Method: SW5035A
Prep Date/Time: 9/9/2014 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26419]
Blank Spike Lab ID: 1232725
Date Analyzed: 09/09/2014 20:43

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26419]
Spike Duplicate Lab ID: 1232726
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **AK101**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	10.0	10.3	103	10.0	9.96	100	(60-120)	3.30	(< 20)
Surrogates									
4-Bromofluorobenzene	1.25		108	1.25		101	(50-150)	6.60	

Batch Information

Analytical Batch: **VFC12099**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX26419**
Prep Method: **SW5035A**
Prep Date/Time: **09/09/2014 08:00**
Spike Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: 10.0 mg/Kg Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1635528 [VXX/26421]
Blank Lab ID: 1232794

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002, 1148467003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.500U	1.00	0.310	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	5.00U	10.0	3.10	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.300	ug/L

Method Blank

Blank ID: MB for HBN 1635528 [VXX/26421]
Blank Lab ID: 1232794

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002, 1148467003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	5.00U	10.0	3.10	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl chloride	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4	104	70-120		%
4-Bromofluorobenzene	104	75-120		%
Toluene-d8	102	85-120		%

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Method Blank

Blank ID: MB for HBN 1635528 [VXX/26421]
Blank Lab ID: 1232794

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002, 1148467003

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS14441
Analytical Method: SW8260B
Instrument: VPA 780/5975 GC/MS
Analyst: SP
Analytical Date/Time: 9/9/2014 2:49:00PM

Prep Batch: VXX26421
Prep Method: SW5030B
Prep Date/Time: 9/9/2014 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26421]
Blank Spike Lab ID: 1232795
Date Analyzed: 09/09/2014 15:22

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26421]
Spike Duplicate Lab ID: 1232796
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002, 1148467003

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.3	104	30	31.8	106	(80-130)	1.50	(< 20)
1,1,1-Trichloroethane	30	27.5	92	30	27.2	91	(65-130)	1.30	(< 20)
1,1,2,2-Tetrachloroethane	30	31.5	105	30	30.2	101	(65-130)	4.40	(< 20)
1,1,2-Trichloroethane	30	29.4	98	30	29.7	99	(75-125)	0.78	(< 20)
1,1-Dichloroethane	30	27.2	91	30	26.6	89	(70-135)	2.20	(< 20)
1,1-Dichloroethene	30	26.6	89	30	26.1	87	(70-130)	1.70	(< 20)
1,1-Dichloropropene	30	27.9	93	30	27.8	93	(75-130)	0.47	(< 20)
1,2,3-Trichlorobenzene	30	31.8	106	30	29.6	99	(55-140)	7.10	(< 20)
1,2,3-Trichloropropane	30	30.8	103	30	29.5	98	(75-125)	4.60	(< 20)
1,2,4-Trichlorobenzene	30	31.9	106	30	30.3	101	(65-135)	5.30	(< 20)
1,2,4-Trimethylbenzene	30	32.7	109	30	32.0	107	(75-130)	2.10	(< 20)
1,2-Dibromo-3-chloropropane	30	31.8	106	30	30.4	101	(50-130)	4.70	(< 20)
1,2-Dibromoethane	30	29.8	99	30	29.8	99	(80-120)	0.00	(< 20)
1,2-Dichlorobenzene	30	30.3	101	30	29.6	99	(70-120)	2.20	(< 20)
1,2-Dichloroethane	30	28.6	95	30	28.5	95	(70-130)	0.53	(< 20)
1,2-Dichloropropane	30	28.7	96	30	28.5	95	(75-125)	0.63	(< 20)
1,3,5-Trimethylbenzene	30	32.2	107	30	31.5	105	(75-130)	2.30	(< 20)
1,3-Dichlorobenzene	30	31.5	105	30	30.8	103	(75-125)	2.10	(< 20)
1,3-Dichloropropane	30	29.4	98	30	29.8	99	(75-125)	1.40	(< 20)
1,4-Dichlorobenzene	30	31.9	106	30	31.2	104	(75-125)	2.00	(< 20)
2,2-Dichloropropane	30	28.2	94	30	28.3	94	(70-135)	0.25	(< 20)
2-Butanone (MEK)	90	89.8	100	90	88.3	98	(30-150)	1.60	(< 20)
2-Chlorotoluene	30	31.4	105	30	30.2	101	(75-125)	3.80	(< 20)
2-Hexanone	90	95.4	106	90	94.8	105	(55-130)	0.66	(< 20)
4-Chlorotoluene	30	32.1	107	30	31.1	104	(75-130)	3.30	(< 20)
4-Isopropyltoluene	30	32.8	109	30	32.5	108	(75-130)	1.00	(< 20)
4-Methyl-2-pentanone (MIBK)	90	88.5	98	90	85.6	95	(60-135)	3.30	(< 20)
Benzene	30	28.1	94	30	27.8	93	(80-120)	1.20	(< 20)
Bromobenzene	30	31.1	104	30	29.6	99	(75-125)	4.80	(< 20)
Bromochloromethane	30	28.1	94	30	27.7	92	(65-130)	1.40	(< 20)
Bromodichloromethane	30	28.9	96	30	28.6	95	(75-120)	1.10	(< 20)
Bromoform	30	28.6	95	30	28.7	96	(70-130)	0.45	(< 20)
Bromomethane	30	26.4	88	30	26.4	88	(30-145)	0.15	(< 20)
Carbon disulfide	45	36.5	81	45	35.6	79	(35-160)	2.40	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26421]
Blank Spike Lab ID: 1232795
Date Analyzed: 09/09/2014 15:22

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26421]
Spike Duplicate Lab ID: 1232796
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002, 1148467003

Results by **SW8260B**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	27.7	92	30	27.5	92	(65-140)	0.43	(< 20)
Chlorobenzene	30	29.5	98	30	29.4	98	(80-120)	0.31	(< 20)
Chloroethane	30	29.5	99	30	27.7	92	(60-135)	6.40	(< 20)
Chloroform	30	27.8	93	30	27.3	91	(65-135)	1.80	(< 20)
Chloromethane	30	30.0	100	30	28.0	93	(40-125)	7.00	(< 20)
cis-1,2-Dichloroethene	30	25.7	86	30	25.7	86	(70-125)	0.12	(< 20)
cis-1,3-Dichloropropene	30	29.6	99	30	29.3	98	(70-130)	1.10	(< 20)
Dibromochloromethane	30	31.0	103	30	31.5	105	(60-135)	1.60	(< 20)
Dibromomethane	30	27.9	93	30	26.9	90	(75-125)	3.50	(< 20)
Dichlorodifluoromethane	30	25.6	85	30	25.5	85	(30-155)	0.20	(< 20)
Ethylbenzene	30	30.6	102	30	30.9	103	(75-125)	1.00	(< 20)
Hexachlorobutadiene	30	32.3	108	30	31.8	106	(50-140)	1.60	(< 20)
Isopropylbenzene (Cumene)	30	30.7	102	30	31.4	105	(75-125)	2.20	(< 20)
Methyl-t-butyl ether	45	43.6	97	45	42.9	95	(65-125)	1.70	(< 20)
Methylene chloride	30	29.4	98	30	28.7	96	(55-140)	2.50	(< 20)
n-Butylbenzene	30	33.5	112	30	33.4	111	(70-135)	0.51	(< 20)
n-Propylbenzene	30	31.3	104	30	31.0	103	(70-130)	0.87	(< 20)
Naphthalene	30	32.6	109	30	30.7	102	(55-140)	6.20	(< 20)
o-Xylene	30	30.6	102	30	30.6	102	(80-120)	0.10	(< 20)
P & M -Xylene	60	59.2	99	60	60.1	100	(75-130)	1.40	(< 20)
sec-Butylbenzene	30	31.9	106	30	32.0	107	(70-125)	0.28	(< 20)
Styrene	30	31.5	105	30	31.4	105	(65-135)	0.38	(< 20)
tert-Butylbenzene	30	31.7	106	30	30.9	103	(70-130)	2.50	(< 20)
Tetrachloroethene	30	29.2	97	30	30.0	100	(45-150)	2.80	(< 20)
Toluene	30	28.7	96	30	28.9	96	(75-120)	0.63	(< 20)
trans-1,2-Dichloroethene	30	27.3	91	30	26.6	89	(60-140)	2.60	(< 20)
trans-1,3-Dichloropropene	30	31.4	105	30	32.0	107	(55-140)	1.70	(< 20)
Trichloroethene	30	27.7	92	30	27.3	91	(70-125)	1.40	(< 20)
Trichlorofluoromethane	30	26.8	89	30	26.4	88	(60-145)	1.60	(< 20)
Vinyl chloride	30	25.7	86	30	25.4	85	(50-145)	1.20	(< 20)
Xylenes (total)	90	89.8	100	90	90.7	101	(80-120)	0.97	(< 20)
Surrogates									
1,2-Dichloroethane-D4	30		99	30		97	(70-120)	2.40	

Print Date: 10/29/2014 3:14:24PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26421]
Blank Spike Lab ID: 1232795
Date Analyzed: 09/09/2014 15:22

Spike Duplicate ID: LCSD for HBN 1148467 [VXX26421]
Spike Duplicate Lab ID: 1232796
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002, 1148467003

Results by **SW8260B**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
4-Bromofluorobenzene	30		101	30		98	(75-120)	2.90	
Toluene-d8	30		100	30		102	(85-120)	1.50	

Batch Information

Analytical Batch: **VMS14441**
Analytical Method: **SW8260B**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **SP**

Prep Batch: **VXX26421**
Prep Method: **SW5030B**
Prep Date/Time: **09/09/2014 00:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dup Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1636661 [VXX/26425]
Blank Lab ID: 1233015

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,2,2-Tetrachloroethane	0.00625U	0.0125	0.00390	mg/Kg
1,1,2-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2,3-Trichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/Kg
1,2-Dibromoethane	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/Kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
2-Hexanone	0.125U	0.250	0.0780	mg/Kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Isopropyltoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/Kg
Benzene	0.00625U	0.0125	0.00390	mg/Kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/Kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromodichloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromoform	0.0125U	0.0250	0.00780	mg/Kg
Bromomethane	0.100U	0.200	0.0620	mg/Kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/Kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/Kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
Chloroethane	0.100U	0.200	0.0620	mg/Kg
Chloroform	0.0125U	0.0250	0.00780	mg/Kg

Method Blank

Blank ID: MB for HBN 1636661 [VXX/26425]
Blank Lab ID: 1233015

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.0125U	0.0250	0.00780	mg/Kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
cis-1,3-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
Dibromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/Kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Hexachlorobutadiene	0.0250U	0.0500	0.0150	mg/Kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/Kg
Methylene chloride	0.0400J	0.100	0.0310	mg/Kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/Kg
Naphthalene	0.0250U	0.0500	0.0150	mg/Kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Styrene	0.0125U	0.0250	0.00780	mg/Kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,3-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
Trichloroethene	0.00625U	0.0125	0.00390	mg/Kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Vinyl chloride	0.0125U	0.0250	0.00780	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,2-Dichloroethane-D4	103	79-118		%
4-Bromofluorobenzene	98.1	67-138		%
Toluene-d8	99.9	85-115		%

Method Blank

Blank ID: MB for HBN 1636661 [VXX/26425]
Blank Lab ID: 1233015

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467005

Results by **SW8260B**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS14442
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/10/2014 1:15:00PM

Prep Batch: VXX26425
Prep Method: SW5035A
Prep Date/Time: 9/10/2014 12:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26425]
Blank Spike Lab ID: 1233016
Date Analyzed: 09/10/2014 13:48

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467005

Results by **SW8260B**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.757	101	(75-125)
1,1,1-Trichloroethane	0.750	0.763	102	(70-135)
1,1,2,2-Tetrachloroethane	0.750	0.752	100	(55-130)
1,1,2-Trichloroethane	0.750	0.801	107	(60-125)
1,1-Dichloroethane	0.750	0.726	97	(75-125)
1,1-Dichloroethene	0.750	0.663	88	(65-135)
1,1-Dichloropropene	0.750	0.741	99	(70-135)
1,2,3-Trichlorobenzene	0.750	0.659	88	(60-135)
1,2,3-Trichloropropane	0.750	0.748	100	(65-130)
1,2,4-Trichlorobenzene	0.750	0.723	96	(65-130)
1,2,4-Trimethylbenzene	0.750	0.778	104	(65-135)
1,2-Dibromo-3-chloropropane	0.750	0.742	99	(40-135)
1,2-Dibromoethane	0.750	0.827	110	(70-125)
1,2-Dichlorobenzene	0.750	0.758	101	(75-120)
1,2-Dichloroethane	0.750	0.741	99	(70-135)
1,2-Dichloropropane	0.750	0.787	105	(70-120)
1,3,5-Trimethylbenzene	0.750	0.768	102	(65-135)
1,3-Dichlorobenzene	0.750	0.751	100	(70-125)
1,3-Dichloropropane	0.750	0.796	106	(75-125)
1,4-Dichlorobenzene	0.750	0.765	102	(70-125)
2,2-Dichloropropane	0.750	0.795	106	(65-135)
2-Butanone (MEK)	2.25	1.89	84	(30-160)
2-Chlorotoluene	0.750	0.744	99	(70-130)
2-Hexanone	2.25	2.25	100	(45-145)
4-Chlorotoluene	0.750	0.765	102	(75-125)
4-Isopropyltoluene	0.750	0.778	104	(75-135)
4-Methyl-2-pentanone (MIBK)	2.25	2.30	102	(45-145)
Benzene	0.750	0.766	102	(75-125)
Bromobenzene	0.750	0.775	103	(65-120)
Bromochloromethane	0.750	0.745	99	(70-125)
Bromodichloromethane	0.750	0.862	115	(70-130)
Bromoform	0.750	0.810	108	(55-135)
Bromomethane	0.750	0.769	103	(30-160)
Carbon disulfide	1.13	0.911	81	(45-160)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26425]
Blank Spike Lab ID: 1233016
Date Analyzed: 09/10/2014 13:48

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467005

Results by **SW8260B**

	Blank Spike (mg/Kg)			
Parameter	Spike	Result	Rec (%)	CL
Carbon tetrachloride	0.750	0.790	105	(65-135)
Chlorobenzene	0.750	0.783	104	(75-125)
Chloroethane	0.750	0.786	105	(40-155)
Chloroform	0.750	0.745	99	(70-125)
Chloromethane	0.750	0.708	94	(50-130)
cis-1,2-Dichloroethene	0.750	0.747	100	(65-125)
cis-1,3-Dichloropropene	0.750	0.861	115	(70-125)
Dibromochloromethane	0.750	0.778	104	(65-130)
Dibromomethane	0.750	0.809	108	(75-130)
Dichlorodifluoromethane	0.750	0.757	101	(35-135)
Ethylbenzene	0.750	0.804	107	(75-125)
Hexachlorobutadiene	0.750	0.777	104	(55-140)
Isopropylbenzene (Cumene)	0.750	0.821	109	(75-130)
Methyl-t-butyl ether	1.13	1.06	95	(63-149)
Methylene chloride	0.750	0.676	90	(55-140)
n-Butylbenzene	0.750	0.765	102	(65-140)
n-Propylbenzene	0.750	0.764	102	(65-135)
Naphthalene	0.750	0.675	90	(40-125)
o-Xylene	0.750	0.816	109	(75-125)
P & M -Xylene	1.50	1.64	110	(80-125)
sec-Butylbenzene	0.750	0.778	104	(65-130)
Styrene	0.750	0.828	110	(75-125)
tert-Butylbenzene	0.750	0.755	101	(65-130)
Tetrachloroethene	0.750	0.796	106	(65-140)
Toluene	0.750	0.765	102	(70-125)
trans-1,2-Dichloroethene	0.750	0.700	93	(65-135)
trans-1,3-Dichloropropene	0.750	0.787	105	(65-125)
Trichloroethene	0.750	0.791	105	(75-125)
Trichlorofluoromethane	0.750	0.705	94	(25-185)
Vinyl chloride	0.750	0.770	103	(60-125)
Xylenes (total)	2.25	2.46	109	(80-125)
Surrogates				
1,2-Dichloroethane-D4	0.750		99	(79-118)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [VXX26425]
Blank Spike Lab ID: 1233016
Date Analyzed: 09/10/2014 13:48

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467005

Results by **SW8260B**

		Blank Spike (%)		
Parameter	Spike	Result	Rec (%)	CL
4-Bromofluorobenzene	0.750		99	(67-138)
Toluene-d8	0.750		105	(85-115)

Batch Information

Analytical Batch: **VMS14442**
Analytical Method: **SW8260B**
Instrument: **Agilent 7890-75MS**
Analyst: **KCT**

Prep Batch: **VXX26425**
Prep Method: **SW5035A**
Prep Date/Time: **09/10/2014 00:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dup Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
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Matrix Spike Summary

Original Sample ID: 1148467005
MS Sample ID: 1233017 MS
MSD Sample ID: 1233018 MSD

Analysis Date: 09/10/2014 16:53
Analysis Date: 09/10/2014 14:42
Analysis Date: 09/10/2014 15:49
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467005

Results by **SW8260B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0425U	1.76	1.79	102	1.76	1.78	101	75-125	0.62	(< 20)
1,1,1-Trichloroethane	0.0425U	1.76	1.93	110	1.76	1.93	110	70-135	0.00	(< 20)
1,1,2,2-Tetrachloroethane	0.0213U	1.76	1.87	106	1.76	1.88	108	55-130	1.50	(< 20)
1,1,2-Trichloroethane	0.0425U	1.76	1.87	107	1.76	1.82	104	60-125	2.70	(< 20)
1,1-Dichloroethane	0.0425U	1.76	1.81	103	1.76	1.82	104	75-125	0.96	(< 20)
1,1-Dichloroethene	0.0425U	1.76	1.68	96	1.76	1.73	99	65-135	2.50	(< 20)
1,1-Dichloropropene	0.0425U	1.76	1.87	106	1.76	1.82	104	70-135	2.40	(< 20)
1,2,3-Trichlorobenzene	0.0850U	1.76	1.67	95	1.76	1.81	103	60-135	8.60	(< 20)
1,2,3-Trichloropropane	0.0425U	1.76	1.85	105	1.76	1.85	106	65-130	0.47	(< 20)
1,2,4-Trichlorobenzene	0.0425U	1.76	1.84	105	1.76	1.91	109	65-130	4.30	(< 20)
1,2,4-Trimethylbenzene	0.0850U	1.76	1.94	110	1.76	1.90	108	65-135	2.10	(< 20)
1,2-Dibromo-3-chloropropane	0.171U	1.76	1.84	105	1.76	2.05	117	40-135	11.20	(< 20)
1,2-Dibromoethane	0.0425U	1.76	1.94	111	1.76	1.90	108	70-125	2.20	(< 20)
1,2-Dichlorobenzene	0.0425U	1.76	1.87	106	1.76	1.81	103	75-120	2.70	(< 20)
1,2-Dichloroethane	0.0425U	1.76	1.82	104	1.76	1.84	105	70-135	0.64	(< 20)
1,2-Dichloropropane	0.0425U	1.76	1.96	111	1.76	1.91	109	70-120	2.10	(< 20)
1,3,5-Trimethylbenzene	0.0425U	1.76	1.94	111	1.76	1.88	107	65-135	3.00	(< 20)
1,3-Dichlorobenzene	0.0425U	1.76	1.88	107	1.76	1.84	105	70-125	1.90	(< 20)
1,3-Dichloropropane	0.0425U	1.76	1.91	109	1.76	1.84	104	75-125	4.40	(< 20)
1,4-Dichlorobenzene	0.0425U	1.76	1.90	108	1.76	1.87	106	70-125	1.80	(< 20)
2,2-Dichloropropane	0.0425U	1.76	2.04	116	1.76	2.02	115	65-135	0.87	(< 20)
2-Butanone (MEK)	0.425U	5.27	4.55	86	5.27	5.22	99	30-160	13.90	(< 20)
2-Chlorotoluene	0.0425U	1.76	1.87	107	1.76	1.82	104	70-130	2.20	(< 20)
2-Hexanone	0.425U	5.27	5.38	102	5.27	5.88	112	45-145	9.00	(< 20)
4-Chlorotoluene	0.0425U	1.76	1.82	103	1.76	1.78	101	75-125	2.10	(< 20)
4-Isopropyltoluene	0.0425U	1.76	1.99	113	1.76	1.93	110	75-135	3.10	(< 20)
4-Methyl-2-pentanone (MIBK)	0.425U	5.27	5.62	107	5.27	6.08	115	45-145	7.80	(< 20)
Benzene	0.0400J	1.76	1.88	105	1.76	1.91	107	75-125	1.50	(< 20)
Bromobenzene	0.0425U	1.76	1.93	110	1.76	1.91	109	65-120	0.64	(< 20)
Bromochloromethane	0.0425U	1.76	1.87	107	1.76	1.87	106	70-125	0.56	(< 20)
Bromodichloromethane	0.0425U	1.76	2.16	123	1.76	2.11	121	70-130	1.80	(< 20)
Bromoform	0.0425U	1.76	1.90	108	1.76	1.88	107	55-135	1.00	(< 20)
Bromomethane	0.341U	1.76	1.99	113	1.76	1.90	108	30-160	4.60	(< 20)
Carbon disulfide	0.171U	2.63	2.31	88	2.63	2.34	89	45-160	1.50	(< 20)
Carbon tetrachloride	0.0213U	1.76	2.04	116	1.76	2.01	114	65-135	1.40	(< 20)
Chlorobenzene	0.0425U	1.76	1.87	107	1.76	1.90	108	75-125	1.30	(< 20)
Chloroethane	0.341U	1.76	2.02	115	1.76	2.13	121	40-155	5.30	(< 20)

Print Date: 10/29/2014 3:14:26PM

Matrix Spike Summary

Original Sample ID: 1148467005
MS Sample ID: 1233017 MS
MSD Sample ID: 1233018 MSD

Analysis Date: 09/10/2014 16:53
Analysis Date: 09/10/2014 14:42
Analysis Date: 09/10/2014 15:49
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467005

Results by **SW8260B**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroform	0.0425U	1.76	1.87	106	1.76	1.85	106	70-125	0.63	(< 20)
Chloromethane	0.0425U	1.76	1.82	104	1.76	1.76	100	50-130	3.80	(< 20)
cis-1,2-Dichloroethene	0.0425U	1.76	1.87	106	1.76	1.84	105	65-125	1.40	(< 20)
cis-1,3-Dichloropropene	0.0425U	1.76	2.13	121	1.76	2.07	118	70-125	2.50	(< 20)
Dibromochloromethane	0.0425U	1.76	1.87	107	1.76	1.79	102	65-130	3.90	(< 20)
Dibromomethane	0.0425U	1.76	1.99	113	1.76	1.99	114	75-130	0.44	(< 20)
Dichlorodifluoromethane	0.0850U	1.76	1.98	113	1.76	1.90	108	35-135	4.60	(< 20)
Ethylbenzene	0.0425U	1.76	1.96	112	1.76	1.93	110	75-125	1.30	(< 20)
Hexachlorobutadiene	0.0850U	1.76	2.36	135	1.76	2.37	135	55-140	0.42	(< 20)
Isopropylbenzene (Cumene)	0.0425U	1.76	1.98	112	1.76	1.93	110	75-130	2.00	(< 20)
Methyl-t-butyl ether	0.171U	2.63	2.56	97	2.63	2.59	98	63-149	1.30	(< 20)
Methylene chloride	0.171U	1.76	1.68	96	1.76	1.70	97	55-140	1.00	(< 20)
n-Butylbenzene	0.0425U	1.76	1.99	114	1.76	1.94	110	65-140	2.90	(< 20)
n-Propylbenzene	0.0425U	1.76	1.91	109	1.76	1.87	106	65-135	2.30	(< 20)
Naphthalene	0.0656J	1.76	1.73	95	1.76	1.90	105	40-125	9.70	(< 20)
o-Xylene	0.0425U	1.76	1.98	113	1.76	1.94	111	75-125	2.00	(< 20)
P & M -Xylene	0.0639J	3.51	4.00	112	3.51	3.84	108	80-125	3.80	(< 20)
sec-Butylbenzene	0.0425U	1.76	1.94	111	1.76	1.88	107	65-130	3.00	(< 20)
Styrene	0.0425U	1.76	1.99	114	1.76	1.96	111	75-125	2.20	(< 20)
tert-Butylbenzene	0.0425U	1.76	1.90	108	1.76	1.85	105	65-130	2.70	(< 20)
Tetrachloroethene	0.0213U	1.76	1.94	111	1.76	1.88	107	65-140	3.30	(< 20)
Toluene	0.155	1.76	1.96	103	1.76	1.96	102	70-125	0.69	(< 20)
trans-1,2-Dichloroethene	0.0425U	1.76	1.78	101	1.76	1.79	102	65-135	0.66	(< 20)
trans-1,3-Dichloropropene	0.0425U	1.76	1.85	106	1.76	1.78	101	65-125	4.90	(< 20)
Trichloroethene	0.0213U	1.76	1.99	113	1.76	1.94	110	75-125	2.60	(< 20)
Trichlorofluoromethane	0.0850U	1.76	1.79	102	1.76	2.21	126	25-185	20.90 *	(< 20)
Vinyl chloride	0.0425U	1.76	2.01	114	1.76	1.93	110	60-125	3.70	(< 20)
Xylenes (total)	0.0903J	5.27	5.99	112	5.27	5.79	108	80-125	3.20	(< 20)
Surrogates										
1,2-Dichloroethane-D4		1.76	1.78	101	1.76	1.76	100	79-118	0.60	
4-Bromofluorobenzene		4.69	2.13	46 *	4.69	2.08	44 *	67-138	2.60	
Toluene-d8		1.76	1.81	103	1.76	1.82	104	85-115	1.30	

Print Date: 10/29/2014 3:14:26PM

Matrix Spike Summary

Original Sample ID: 1148467005
MS Sample ID: 1233017 MS
MSD Sample ID: 1233018 MSD

QC for Samples: 1148467005

Analysis Date:
Analysis Date: 09/10/2014 14:42
Analysis Date: 09/10/2014 15:49
Matrix: Soil/Solid (dry weight)

Results by **SW8260B**

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

Batch Information

Analytical Batch: VMS14442
Analytical Method: SW8260B
Instrument: Agilent 7890-75MS
Analyst: KCT
Analytical Date/Time: 9/10/2014 2:42:00PM

Prep Batch: VXX26425
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/10/2014 12:00:00AM
Prep Initial Wt./Vol.: 32.71g
Prep Extract Vol: 25.00mL

Print Date: 10/29/2014 3:14:26PM

Method Blank

Blank ID: MB for HBN 1635364 [XXX/31938]
Blank Lab ID: 1232468

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane	78	60-120		%

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: MCM
Analytical Date/Time: 9/10/2014 11:42:00AM

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 9/9/2014 10:34:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31938]
Blank Spike Lab ID: 1232469
Date Analyzed: 09/10/2014 12:02

Spike Duplicate ID: LCSD for HBN 1148467 [XXX31938]
Spike Duplicate Lab ID: 1232470
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	167	149	89	167	155	93	(75-125)	4.00	(< 20)
Surrogates									
5a Androstane	3.33		83	3.33		88	(60-120)	6.40	

Batch Information

Analytical Batch: **XFC11559**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **MCM**

Prep Batch: **XXX31938**
Prep Method: **SW3550C**
Prep Date/Time: **09/09/2014 10:34**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1635364 [XXX/31938]
Blank Lab ID: 1232468

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62	89.2	60-120		%

Batch Information

Analytical Batch: XFC11559
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: MCM
Analytical Date/Time: 9/10/2014 11:42:00AM

Prep Batch: XXX31938
Prep Method: SW3550C
Prep Date/Time: 9/9/2014 10:34:44AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31938]
Blank Spike Lab ID: 1232469
Date Analyzed: 09/10/2014 12:02

Spike Duplicate ID: LCSD for HBN 1148467 [XXX31938]
Spike Duplicate Lab ID: 1232470
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	167	155	93	167	163	98	(60-120)	5.00	(< 20)
Surrogates									
n-Triacontane-d62	3.33		90	3.33		96	(60-120)	6.20	

Batch Information

Analytical Batch: **XFC11559**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **MCM**

Prep Batch: **XXX31938**
Prep Method: **SW3550C**
Prep Date/Time: **09/09/2014 10:34**
Spike Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: 167 mg/Kg Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1635368 [XXX/31939]
Blank Lab ID: 1232490

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
2-Methylnaphthalene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthene	0.00250U	0.00500	0.00150	mg/Kg
Acenaphthylene	0.00250U	0.00500	0.00150	mg/Kg
Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo(a)Anthracene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[a]pyrene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[b]Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[g,h,i]perylene	0.00250U	0.00500	0.00150	mg/Kg
Benzo[k]fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Chrysene	0.00250U	0.00500	0.00150	mg/Kg
Dibenzo[a,h]anthracene	0.00250U	0.00500	0.00150	mg/Kg
Fluoranthene	0.00250U	0.00500	0.00150	mg/Kg
Fluorene	0.00250U	0.00500	0.00150	mg/Kg
Indeno[1,2,3-c,d] pyrene	0.00250U	0.00500	0.00150	mg/Kg
Naphthalene	0.00250U	0.00500	0.00150	mg/Kg
Phenanthrene	0.00250U	0.00500	0.00150	mg/Kg
Pyrene	0.00250U	0.00500	0.00150	mg/Kg
Surrogates				
2-Fluorobiphenyl	71.3	45-105		%
Terphenyl-d14	91.8	30-125		%

Batch Information

Analytical Batch: XMS8285
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/14/2014 9:02:00PM

Prep Batch: XXX31939
Prep Method: SW3550C
Prep Date/Time: 9/9/2014 10:42:44AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31939]
Blank Spike Lab ID: 1232491
Date Analyzed: 09/14/2014 21:19

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

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

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	0.0222	0.0175	79	(44-107)
2-Methylnaphthalene	0.0222	0.0155	70	(45-105)
Acenaphthene	0.0222	0.0173	78	(45-110)
Acenaphthylene	0.0222	0.0166	75	(45-105)
Anthracene	0.0222	0.0192	86	(55-105)
Benzo(a)Anthracene	0.0222	0.0204	92	(50-110)
Benzo[a]pyrene	0.0222	0.0185	84	(50-110)
Benzo[b]Fluoranthene	0.0222	0.0209	94	(45-115)
Benzo[g,h,i]perylene	0.0222	0.0224	101	(40-125)
Benzo[k]fluoranthene	0.0222	0.0228	103	(45-125)
Chrysene	0.0222	0.0218	98	(55-110)
Dibenzo[a,h]anthracene	0.0222	0.0225	101	(40-125)
Fluoranthene	0.0222	0.0197	89	(55-115)
Fluorene	0.0222	0.0184	83	(50-110)
Indeno[1,2,3-c,d] pyrene	0.0222	0.0224	101	(40-120)
Naphthalene	0.0222	0.0164	74	(40-105)
Phenanthrene	0.0222	0.0198	89	(50-110)
Pyrene	0.0222	0.0191	86	(45-125)
Surrogates				
2-Fluorobiphenyl	0.0222		79	(45-105)
Terphenyl-d14	0.0222		94	(30-125)

Batch Information

Analytical Batch: **XMS8285**
Analytical Method: **8270D SIMS (PAH)**
Instrument: **HP 6890/5973 MS SVQA**
Analyst: **RTS**

Prep Batch: **XXX31939**
Prep Method: **SW3550C**
Prep Date/Time: **09/09/2014 10:42**
Spike Init Wt./Vol.: 0.0222 mg/Kg Extract Vol: 1 mL
Dup Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1144338002
MS Sample ID: 1232492 MS
MSD Sample ID: 1232493 MSD

Analysis Date: 09/14/2014 21:36
Analysis Date: 09/14/2014 21:52
Analysis Date: 09/14/2014 22:09
Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

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

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.00184J	0.0240	0.0217	83	0.0245	0.0200	74	44-107	8.30	(< 30)
2-Methylnaphthalene	0.00222J	0.0240	0.0203	75	0.0245	0.0187	68	45-105	7.80	(< 30)
Acenaphthene	0.00275U	0.0240	0.0203	84	0.0245	0.0186	76	45-110	8.50	(< 30)
Acenaphthylene	0.00275U	0.0240	0.0190	79	0.0245	0.0180	73	45-105	5.70	(< 30)
Anthracene	0.00275U	0.0240	0.0202	84	0.0245	0.0195	80	55-105	3.40	(< 30)
Benzo(a)Anthracene	0.00275U	0.0240	0.0201	83	0.0245	0.0197	81	50-110	1.70	(< 30)
Benzo[a]pyrene	0.00275U	0.0240	0.0175	73	0.0245	0.0174	71	50-110	0.84	(< 30)
Benzo[b]Fluoranthene	0.00275U	0.0240	0.0204	85	0.0245	0.0185	76	45-115	9.70	(< 30)
Benzo[g,h,i]perylene	0.00275U	0.0240	0.0205	85	0.0245	0.0198	81	40-125	3.10	(< 30)
Benzo[k]fluoranthene	0.00275U	0.0240	0.0209	87	0.0245	0.0219	90	45-125	4.60	(< 30)
Chrysene	0.00275U	0.0240	0.0215	89	0.0245	0.0209	85	55-110	2.60	(< 30)
Dibenzo[a,h]anthracene	0.00275U	0.0240	0.0206	86	0.0245	0.0198	81	40-125	3.80	(< 30)
Fluoranthene	0.00275U	0.0240	0.0205	85	0.0245	0.0200	82	55-115	2.80	(< 30)
Fluorene	0.00275U	0.0240	0.0208	87	0.0245	0.0198	81	50-110	4.90	(< 30)
Indeno[1,2,3-c,d] pyrene	0.00275U	0.0240	0.0201	83	0.0245	0.0196	80	40-120	2.40	(< 30)
Naphthalene	0.00275U	0.0240	0.0193	80	0.0245	0.0181	74	40-105	6.50	(< 30)
Phenanthrene	0.00275U	0.0240	0.0215	89	0.0245	0.0207	85	50-110	3.60	(< 30)
Pyrene	0.00275U	0.0240	0.0196	82	0.0245	0.0190	78	45-125	3.40	(< 30)
Surrogates										
2-Fluorobiphenyl		0.0240	0.0206	86	0.0245	0.0196	80	45-105	4.60	
Terphenyl-d14		0.0240	0.0222	92	0.0245	0.0221	90	30-125	0.51	

Batch Information

Analytical Batch: XMS8285
Analytical Method: 8270D SIMS (PAH)
Instrument: HP 6890/5973 MS SVQA
Analyst: RTS
Analytical Date/Time: 9/14/2014 9:52:00PM

Prep Batch: XXX31939
Prep Method: Sonication Extraction Soil 8270 PAH SIM
Prep Date/Time: 9/9/2014 10:42:44AM
Prep Initial Wt./Vol.: 22.91g
Prep Extract Vol: 1.00mL

Print Date: 10/29/2014 3:14:30PM

Method Blank

Blank ID: MB for HBN 1635487 [XXX/31944]
Blank Lab ID: 1232649

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane	76.9	60-120		%

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK102
Instrument: HP 7890A FID SV E R
Analyst: MCM
Analytical Date/Time: 9/12/2014 8:35:00PM

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 9/10/2014 9:05:44AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31944]
Blank Spike Lab ID: 1232650
Date Analyzed: 09/12/2014 20:56

Spike Duplicate ID: LCSD for HBN 1148467 [XXX31944]
Spike Duplicate Lab ID: 1232651
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	5	4.38	88	5	4.63	93	(75-125)	5.60	(< 20)
Surrogates									
5a Androstane	0.1		83	0.1		84	(60-120)	1.30	

Batch Information

Analytical Batch: **XFC11563**
Analytical Method: **AK102**
Instrument: **HP 7890A FID SV E R**
Analyst: **MCM**

Prep Batch: **XXX31944**
Prep Method: **SW3520C**
Prep Date/Time: **09/10/2014 09:05**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dup Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1635487 [XXX/31944]
Blank Lab ID: 1232649

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1148467001, 1148467002

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	0.250U	0.500	0.150	mg/L
Surrogates				
n-Triacontane-d62	84.6	60-120		%

Batch Information

Analytical Batch: XFC11563
Analytical Method: AK103
Instrument: HP 7890A FID SV E R
Analyst: MCM
Analytical Date/Time: 9/12/2014 8:35:00PM

Prep Batch: XXX31944
Prep Method: SW3520C
Prep Date/Time: 9/10/2014 9:05:44AM
Prep Initial Wt./Vol.: 1000 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31944]
Blank Spike Lab ID: 1232650
Date Analyzed: 09/12/2014 20:56

Spike Duplicate ID: LCSD for HBN 1148467 [XXX31944]
Spike Duplicate Lab ID: 1232651
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1148467001, 1148467002

Results by **AK103**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	5	4.71	94	5	4.72	95	(60-120)	0.32	(< 20)
Surrogates									
n-Triacontane-d62	0.1		87	0.1		87	(60-120)	0.13	

Batch Information

Analytical Batch: **XFC11563**
Analytical Method: **AK103**
Instrument: **HP 7890A FID SV E R**
Analyst: **MCM**

Prep Batch: **XXX31944**
Prep Method: **SW3520C**
Prep Date/Time: **09/10/2014 09:05**
Spike Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL
Dup Init Wt./Vol.: 5 mg/L Extract Vol: 1 mL

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Method Blank

Blank ID: MB for HBN 1638064 [XXX/31959]
Blank Lab ID: 1233109

Matrix: Soil/Solid (dry weight)

QC for Samples:
1148467004, 1148467005

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1221	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1232	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1242	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1248	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1254	0.0250U	0.0500	0.0150	mg/Kg
Aroclor-1260	0.0250U	0.0500	0.0150	mg/Kg
Surrogates				
Decachlorobiphenyl	101	60-125		%

Batch Information

Analytical Batch: XGC8886
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV L R
Analyst: SCL
Analytical Date/Time: 9/13/2014 1:09:00AM

Prep Batch: XXX31959
Prep Method: SW3550C
Prep Date/Time: 9/11/2014 4:20:44PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX31959]
Blank Spike Lab ID: 1233110
Date Analyzed: 09/13/2014 01:21

Matrix: Soil/Solid (dry weight)

QC for Samples: 1148467004, 1148467005

Results by **SW8082A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	0.222	0.178	80	(40-140)
Aroclor-1260	0.222	0.218	98	(60-130)
Surrogates				
Decachlorobiphenyl	0.222		104	(60-125)

Batch Information

Analytical Batch: **XGC8886**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV L R**
Analyst: **SCL**

Prep Batch: **XXX31959**
Prep Method: **SW3550C**
Prep Date/Time: **09/11/2014 16:20**
Spike Init Wt./Vol.: 0.222 mg/Kg Extract Vol: 5 mL
Dup Init Wt./Vol.: Extract Vol:

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Method Blank

Blank ID: MB for HBN 1661000 [XXX/32287]
Blank Lab ID: 1242269

Matrix: Oil/Xylene Miscible Liquid

QC for Samples:
1148467007, 1148467008

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	0.476U	0.952	0.295	mg/Kg
Aroclor-1221	0.476U	0.952	0.295	mg/Kg
Aroclor-1232	0.476U	0.952	0.295	mg/Kg
Aroclor-1242	0.476U	0.952	0.295	mg/Kg
Aroclor-1248	0.476U	0.952	0.295	mg/Kg
Aroclor-1254	0.476U	0.952	0.295	mg/Kg
Aroclor-1260	0.476U	0.952	0.295	mg/Kg
Surrogates				
Decachlorobiphenyl	112	60-125		%

Batch Information

Analytical Batch: XGC8923
Analytical Method: SW8082A
Instrument: HP 5890 Series II ECD SV I F
Analyst: SCL
Analytical Date/Time: 10/28/2014 1:29:00PM

Prep Batch: XXX32287
Prep Method: SW3580A
Prep Date/Time: 10/27/2014 6:00:44PM
Prep Initial Wt./Vol.: 1.0502 g
Prep Extract Vol: 10 mL

Print Date: 10/29/2014 3:14:33PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1148467 [XXX32287]
Blank Spike Lab ID: 1242270
Date Analyzed: 10/28/2014 13:54

Spike Duplicate ID: LCSD for HBN 1148467 [XXX32287]
Spike Duplicate Lab ID: 1242271
Matrix: Oil/Xylene Miscible Liquid

QC for Samples: 1148467007, 1148467008

Results by **SW8082A**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	9.24	10.5	114	9.49	10.3	109	(40-140)	1.82	(< 30)
Aroclor-1260	9.24	9.79	106	9.49	9.77	103	(60-130)	0.20	(< 30)
Surrogates									
Decachlorobiphenyl	9.24		111	9.49		102	(60-125)	5.79	

Batch Information

Analytical Batch: **XGC8923**
Analytical Method: **SW8082A**
Instrument: **HP 5890 Series II ECD SV I F**
Analyst: **SCL**

Prep Batch: **XXX32287**
Prep Method: **SW3580A**
Prep Date/Time: **10/27/2014 18:00**
Spike Init Wt./Vol.: 9.24 mg/Kg Extract Vol: 10 mL
Dup Init Wt./Vol.: 9.49 mg/Kg Extract Vol: 10 mL

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1148467

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Geotechnical and Environmental Consultants

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Laboratory: SGS
Attn: Jen Dawkins

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	GRO (HCl)	DRO/RRO (HCl)	VOC (8260) (HCl)	EDB	PFOS/PFOA	Total Number of Containers	Remarks/Matrix
1735-01	① A-L	1330	9/5/14		X	X	X	X	X	X	12	Surface water
1735-02	② A-L	1340	9/5/14		X	X	X	X	X	X	12	Surface water
Trip Blank	③ A-C	—	—			X					3	water
Trip Blank	~~④ A-C~~ ③ D-F	—	—					X			3	water
Trip Blank	⑤ ~~A-C~~ ③ G-I	—	—						X		3	water, unpreserved

Project Information		Sample Receipt	
Project Number:	1735	Total Number of Containers	
Project Name:	Burn Pit	COC Seals/Intact? Y/N/NA	
Contact:	Julie Keener	Received Good Cond./Cold	
Ongoing Project?	Yes ☑ No ☐	Delivery Method:	
Sampler:	JK/JD	(attach shipping bill, if any)	

Instructions

Requested Turnaround Time:

Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 915	Signature: Time: 1400	Signature: Time:
Printed Name: Jennifer L Davis Date: 9/8/14	Printed Name: Jen D Date: 9-8-14	Printed Name: Date:
Company: Shannon & Wilson	Company: SGS	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time: 915	Signature: Time:	Signature: Time: 8:40
Printed Name: Jen Dawkins Date: 9-9-14	Printed Name: Date:	Printed Name: Terri Draeger Date: 9/9/14
Company: SGS	Company:	Company: SGS

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

F-19-91/UR

TB = 5.0°C ID 35

3.5 #24 No. 32273

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

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

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

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

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

Laboratory SGS
Attn: Jen Dawkins

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	DRO/RRO + PAH, PCBs + metals	EDB	GRO/VOC (MeOH)				Total Number of Containers	Remarks/Matrix
1735-04	(4) A-C (7) A	1416	9/5/14			X	X	X				3	SOIL
1735-03	(5) A-C (8) A	1416	9/5/14			X	X	X				3	SOIL
Trip blank	(6) A	—	—					X					

Project Information		Sample Receipt	
Project Number:	Burn Pit	Total Number of Containers	
Project Name:	1735	COC Seals/Intact? Y/N/NA	
Contact:	Julie Keener	Received Good Cond./Cold	
Ongoing Project?	Yes ☑ No ☐	Delivery Method:	
Sampler:	JK/JD	(attach shipping bill, if any)	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Jennifer L Davis Time: 915	Signature: Jen D Time: 1420	Signature: Time:
Printed Name: Jennifer L Davis Date: 9/8/14	Printed Name: Jen D Date: 9-8-14	Printed Name: Date:
Company: Shannon & Wilson	Company: SGS	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time: 915	Signature: Time:	Signature: Jeni Draeger Time: 8:40
Printed Name: Jen Dawkins Date: 9-8-14	Printed Name: Date:	Printed Name: Jeni Draeger Date: 9/9/14
Company: SGS	Company:	Company: SGS

Instructions
Requested Turnaround Time:
Special Instructions:

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

F-19-91/UR

No. 32707

SGS

1148467

SAMPLE RECEIPT FORM

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location, if applicable.	Yes No (N/A)	☐ *Exemption permitted if sampler hand carries/delivers.*
COC accompanied samples?	(Yes) No	
Temperature blank compliant* (i.e., 0-6°C after CF)?	(Yes) No	☐ *Exemption permitted if chilled & collected <8 hrs ago.*
If >6°C, were samples collected <8 hours ago?	Yes No (N/A)	
If <0°C, were all sample containers ice free?	Yes No (N/A)	
Cooler ID: 1 @ 5.0 w/ Therm.ID: 35		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled."		*Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*
Delivery method (specify all that apply): (Client (hand carried))	Tracking/AB # or see attached or N/A	
USPS Lynden AK Air ~~Alert Courier~~		
UPS FedEx RAVN C&D Delivery		
Carlile Pen Air Warp Speed Other: _____		
→ *For WO# with airbills, was the WO# & airbill info recorded in the Front Counter eLog?*	Yes No (N/A)	
→ For samples received with payment, note amount ($) and whether cash / check / CC (**circle one**) was received.		
→ For samples **received in FBKS**, ANCH staff will verify all criteria are reviewed. SRF initiated in FBKS by: JD		
Were samples received within hold time?	(Yes) No N/A	*Note: Refer to form F-083 "Sample Guide" for hold times.*
Do samples **match COC*** (i.e., sample IDs, dates/times collected)?	(Yes) No N/A	*Note: If times differ <1hr, record details and login per COC.*
Were analyses requested unambiguous?	(Yes) No N/A	
Were samples in **good condition** (no leaks/cracks/breakage)?	(Yes) No	
Packing material used (specify all that apply): (Bubble Wrap)		
Separate plastic bags Vermiculite Other:		
Were **proper containers** (type/mass/volume/preservative*) used?	(Yes) No N/A	☐ *Exemption permitted for metals (e.g., 200.8/6020A).*
Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples?	(Yes) No N/A	
Were all VOA vials **free of headspace** (i.e., bubbles ≤6 mm)?	(Yes) No N/A	
Were all soil VOAs **field extracted** with MeOH+BFB?	(Yes) No N/A	
For preserved waters (other than VOA vials, LL-Mercury or microbiological analyses), was **pH verified and compliant**?	(Yes) No N/A	
If pH was adjusted, were bottles flagged (i.e., stickers)?	Yes No (N/A)	
For **special handling** (e.g., "MI" soils, foreign soils, lab filter for dissolved…, lab extract for volatiles, Ref Lab, limited volume), were bottles/paperwork flagged (e.g., sticker)?	(Yes) No N/A	PFOS/PFOA
For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable?	Yes No (N/A)	
For **SITE-SPECIFIC QC, e.g. BMS/BMSD/BDUP**, were containers / paperwork flagged accordingly?	Yes No (N/A)	
For any question answered "No," has the PM been notified and the problem resolved (or paperwork put in their bin)?	Yes No (N/A)	SRF Completed by: TLD PM notified: N/A
Was **PEER REVIEW** of ***sample numbering/labeling completed?***	Yes No (N/A)	Peer Reviewed by: N/A

Additional notes (if applicable):

PM (JEN) said to use Quote 12282. Got metals from Quote and got Soil VOC ~~from~~ method ~~analysis~~ from Quote.

NOTE: Client labels on VOA vials did not align with analyses
eg some "GRO" vials were unpreserved
+ some "VOC" vials were unpreserved
+ some/all "EDB" vials were HCl preserved } ####9/23/14

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

SGS

SGS WO#
1148467

SAMPLE RECEIPT FORM FOR TRANSFERS

Note: This form is to be completed by Anchorage Sample Receiving staff for all shipments received at SGS-Anchorage from SGS-Fairbanks.

Were samples received numbered with all criteria on Sample Receipt Form F0004 documented by Fairbanks Sample Receiving staff? If "No," ***Anchorage Sample Receiving staff must complete the receiving process & document pH verification, sample condition, etc. on the SRF initiated by Fairbanks staff*** (attached).	Yes (No) N/A	Use space below for additional notes…
If work was pre-logged, was the predefined comment cleared?	Yes No (N/A)	

Review Criteria:	Condition:	Comments/Action Taken:
Were **custody seals** intact? Note # & location:	(Yes) No N/A	1F 1B
COC accompanied samples?	(Yes) No N/A	
Temperature blank compliant (i.e., 0-6°C after correction factor)?	(Yes) No N/A	
Cooler ID: 1 @ 3.5 w/ Therm.ID: 241		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Cooler ID: _____ @ _____ w/ Therm.ID: _____		
Note: If non-compliant, use form FS-0029 to document affected samples/analyses. If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP** will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled." **If temperature(s) <0°C, were all containers ice free?**	Yes No (N/A)	
RUSH/SHORT Hold e-mail **forwarded** to lab if applicable?	Yes No (N/A)	
Delivery method: (Lynden) Other:		
Completed by: TLD 9/9/14 8:40		

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1148467001-A	No Preservative Required	OK			
1148467001-B	No Preservative Required	OK			
1148467001-C	No Preservative Required	OK			
1148467001-D	HCL to pH < 2	OK			
1148467001-E	HCL to pH < 2	OK			
1148467001-F	HCL to pH < 2	OK			
1148467001-G	HCL to pH < 2	OK			
1148467001-H	HCL to pH < 2	OK			
1148467001-I	HCL to pH < 2	OK			
1148467001-J	HCL to pH < 2	OK			
1148467001-K	HCL to pH < 2	OK			
1148467001-L	No Preservative Required	OK			
1148467002-A	HCL to pH < 2	OK			
1148467002-B	HCL to pH < 2	OK			
1148467002-C	HCL to pH < 2	OK			
1148467002-D	HCL to pH < 2	OK			
1148467002-E	HCL to pH < 2	OK			
1148467002-F	No Preservative Required	OK			
1148467002-G	No Preservative Required	OK			
1148467002-H	No Preservative Required	OK			
1148467002-I	HCL to pH < 2	OK			
1148467002-J	HCL to pH < 2	OK			
1148467002-K	HCL to pH < 2	OK			
1148467002-L	No Preservative Required	OK			
1148467003-A	HCL to pH < 2	OK			
1148467003-B	HCL to pH < 2	OK			
1148467003-C	HCL to pH < 2	OK			
1148467003-D	HCL to pH < 2	OK			
1148467003-E	HCL to pH < 2	OK			
1148467003-F	HCL to pH < 2	OK			
1148467003-G	No Preservative Required	OK			
1148467003-H	No Preservative Required	OK			
1148467003-I	No Preservative Required	OK			
1148467004-A	No Preservative Required	OK			
1148467004-B	No Preservative Required	OK			
1148467004-C	Methanol field pres. 4 C	OK			
1148467005-A	No Preservative Required	OK			
1148467005-B	No Preservative Required	OK			
1148467005-C	Methanol field pres. 4 C	OK			
1148467006-A	Methanol field pres. 4 C	OK			
1148467007-A	No Preservative Required	OK			
1148467008-A	No Preservative Required	OK			

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

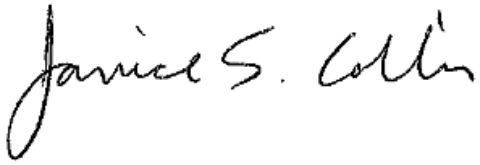
ANALYTICAL REPORT

Job Number: 280-59823-1

Job Description: SGS AK - 1148467

For:
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518

Attention: Mr. Forest Taylor



Approved for release.
Janice S Collins
Project Management Assistant I
9/22/2014 4:13 PM

Designee for
Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
09/22/2014

cc: Ms. Julie Shumway

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: SGS North America, Inc

Project: SGS AK - 1148467

Report Number: 280-59823-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving

The samples were received on 09/10/2014; the samples arrived in good condition and on ice. The temperature of the cooler at receipt was 3.0 C.

The samples 1735-01 and 1735-02 were improperly preserved in the field. The method 504.1 samples should be preserved with sodium thiosulfate as a dechlorinating agent to scavenge residual chlorine. Although the client label indicated unpreserved, the bottles had a hydrochloric acid (HCl) preservation sticker and the pH indicated 1.

The sample TRIP BLANK was improperly preserved in the field: The method 504.1 samples should be preserved with sodium thiosulfate as a dechlorinating agent to scavenge residual chlorine. This sample was unpreserved.

Holding Times

All holding times were met.

Method Blanks

The Method Blank was within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

The percent recoveries of the MS/MSD and surrogate recoveries performed on sample 1735-03 were not calculated for 1,2-Dibromoethane Method 8011 due to dilution or the presence of interfering analytes.

Organics

The samples 1735-04 and 1735-03 were analyzed at dilutions for Method 8011 due to matrix interference. As a result, the reporting limits were elevated. In addition, the Method 8011 surrogate results of 1,2-Dibromopropane were below the laboratories quantitation levels due to the dilutions performed on the samples. As a result, the laboratory does not control on the reported recovery.

EXECUTIVE SUMMARY - Detections

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID / Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-59823-5	**1735-04**					
Percent Moisture		30		0.10	%	Moisture
280-59823-6	**1735-03**					
Percent Moisture		34		0.10	%	Moisture

METHOD SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
EDB, DBCP, and 1,2,3-TCP (GC)	TAL DEN	SW846 8011	
Microextraction	TAL DEN		SW846 8011
Percent Moisture	TAL DEN	EPA Moisture	
Matrix: Water			
EDB, DBCP and 1,2,3-TCP (GC)	TAL DEN	EPA-DW 504.1	
Microextraction	TAL DEN		EPA-DW 504.1

Lab References:

TAL DEN = TestAmerica Denver

Method References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Method	Analyst	Analyst ID
EPA-DW 504.1	Smith, Matthew P	MPS
SW846 8011	Smith, Matthew P	MPS
EPA Moisture	Schwemin, Andrew J	AJS

SAMPLE SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-59823-2	1735-01	Water	09/05/2014 1330	09/10/2014 0945
280-59823-3	1735-02	Water	09/05/2014 1340	09/10/2014 0945
280-59823-4TB	TRIP BLANK	Water	09/05/2014 1330	09/10/2014 0945
280-59823-5	1735-04	Solid	09/05/2014 1416	09/10/2014 0945
280-59823-6	1735-03	Solid	09/05/2014 1416	09/10/2014 0945

SAMPLE RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-01**

Lab Sample ID: 280-59823-2
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.6 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2059			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	109		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-02**

Lab Sample ID: 280-59823-3
Client Matrix: Water

Date Sampled: 09/05/2014 1340
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.4 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2118			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	101		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-59823-4TB
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.3 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2137			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	117		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5
Client Matrix: Solid
% Moisture: 29.8

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.91 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1020			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.22	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6
Client Matrix: Solid
% Moisture: 33.5

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.68 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1116			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.23	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

General Chemistry

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	30		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

General Chemistry

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	34		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

DATA REPORTING QUALIFIERS

Client: SGS North America, Inc Job Number: 280-59823-1

Lab Section	Qualifier	Description
GC Semi VOA		
	F1	MS and/or MSD Recovery exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
	X	Surrogate is outside control limits

QUALITY CONTROL RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 280-243326					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	
MB 280-243326/5-A	Method Blank	T	Water	504.1	
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	
280-59823-2	1735-01	T	Water	504.1	
280-59823-3	1735-02	T	Water	504.1	
280-59823-4TB	TRIP BLANK	T	Water	504.1	
Analysis Batch:280-243330					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	280-243326
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	280-243326
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	280-243326
MB 280-243326/5-A	Method Blank	T	Water	504.1	280-243326
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	280-243326
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	280-243326
280-59823-2	1735-01	T	Water	504.1	280-243326
280-59823-3	1735-02	T	Water	504.1	280-243326
280-59823-4TB	TRIP BLANK	T	Water	504.1	280-243326
Prep Batch: 280-243484					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	
MB 280-243484/4-A	Method Blank	T	Solid	8011	
280-59823-5	1735-04	T	Solid	8011	
280-59823-6	1735-03	T	Solid	8011	
280-59823-6MS	Matrix Spike	T	Solid	8011	
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	
Analysis Batch:280-243513					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	280-243484
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	280-243484
MB 280-243484/4-A	Method Blank	T	Solid	8011	280-243484
280-59823-5	1735-04	T	Solid	8011	280-243484
280-59823-6	1735-03	T	Solid	8011	280-243484
280-59823-6MS	Matrix Spike	T	Solid	8011	280-243484
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	280-243484

Report Basis
T = Total

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-243553					
280-59823-5	1735-04	T	Solid	Moisture	
280-59823-6	1735-03	T	Solid	Moisture	
280-59981-B-1 DU	Duplicate	T	Solid	Moisture	

Report Basis
T = Total

Surrogate Recovery Report

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	12DBP1 %Rec	12DBP2 %Rec
280-59823-2	1735-01		109
280-59823-3	1735-02		101
280-59823-4	TRIP BLANK	117	
MB 280-243326/5-A		102	
LCS 280-243326/2-A		96	
LCSD 280-243326/3-A		98	
LLCS 280-243326/4-A		96	
580-45361-P-3-A MS		97	
580-45361-O-3-A MSD		96	

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	70-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Surrogate Recovery Report

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	12DBP1 %Rec
280-59823-5	1735-04	0X D
280-59823-6	1735-03	0X D
MB 280-243484/4-A		99
LCS 280-243484/2-A		97
LCSD 280-243484/3-A		98
280-59823-6 MS	1735-03 MS	0X D
280-59823-6 MSD	1735-03 MSD	0X D

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	55-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	MB 280-243326/5-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091507.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1944	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	102	70 - 130

Low Level Control Sample - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	LLCS 280-243326/4-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091506.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1924	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2-Dibromoethane	0.0200	0.0193	97	70 - 130	J

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

LCS Lab Sample ID:	LCS 280-243326/2-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091504.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1846	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243326/3-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091505.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1905	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	93	94	70 - 130	1	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	96	98	70 - 130

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

MS Lab Sample ID:	580-45361-P-3-A MS	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091509.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2022			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	580-45361-O-3-A MSD	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091510.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	34.8 mL
Analysis Date:	09/15/2014 2041			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	93	94	70 - 130	2	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243484

Method: 8011
Preparation: 8011

Lab Sample ID:	MB 280-243484/4-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091606.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1824	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.015	0.10

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	99	55 - 130

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

LCS Lab Sample ID:	LCS 280-243484/2-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091604.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1746	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243484/3-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091605.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1805	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	97	99	70 - 130	2	10		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	98	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

MS Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091618.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	9.62 g
Analysis Date:	09/17/2014 1212			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091619.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	10.37 g
Analysis Date:	09/17/2014 1308			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	67	69	70 - 130	4	10	J F1	J F1

Surrogate	MS % Rec		MSD % Rec		Acceptance Limits
1,2-Dibromopropane	0	X D	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Duplicate - Batch: 280-243553

Method: Moisture
Preparation: N/A

Lab Sample ID:	280-59981-B-1 DU	Analysis Batch:	280-243553	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/16/2014 1851	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	4.5	4.5	1	20	

3.0+0 IR-6
9/10/14 20

280-59823 Chain of Custody

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

1 CLIENT: SGS - AK

SGS Reference: TA CO

Additional Comments: All soils report out in dry weight unless otherwise requested.

Page ____ of ____

CONTACT: Julie Shumway PHONE NO: (907) 562-2343

PROJECT NAME: 1148467 PWSID/ PERMIT#:

REPORTS TO: Julie Shumway E-MAIL: Julie.Shumway@sgs.com

INVOICE TO: SGS QUOTE #: P.O. #: 1148467

3 Preservative Used: None / None

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX	# CONTAINERS	C = COMP G = GRAB Incremental Soils	EBD by 8011	EBD by 504.1			MS	MSD	SGS lab #	Loc ID	REMARKS
	1735-01	09/05/14	13:30	Water	3			x					1148467001		
	1735-02	09/05/14	13:40	Water	3			x					1148467002		
	Trip Blank	09/05/14	13:30	Water	3			x					1148467003		
	1735-04	09/05/14	14:16	Soil	1		x						1148467004		
	1735-03	09/05/14	14:16	Soil	1		x						1148467005		

5

Relinquished By: (1)	Date 9/9/14	Time 1030	Received By: 9/10/14 945
Relinquished By: (2)	Date / /	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

4 DOD Project? YES NO

Cooler ID: _____

Data Deliverable Requirements: Level 2 + Excel EDD

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: _____ or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

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

Login Sample Receipt Checklist

Client: SGS North America, Inc

Job Number: 280-59823-1

Login Number: 59823

List Source: TestAmerica Denver

List Number: 1

Creator: Orfield, Tayler C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-59823-1

Job Description: SGS AK - 1148467

For:
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518

Attention: Mr. Forest Taylor

Approved for release.
Betsy A Sara
Project Manager II
10/7/2014 4:20 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/07/2014
Revision: 1

cc: Ms. Julie Shumway

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: SGS North America, Inc

Project: SGS AK - 1148467

Report Number: 280-59823-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving

The samples were received on 09/10/2014; the samples arrived in good condition and on ice. The temperature of the cooler at receipt was 3.0 C.

The samples 1735-01 and 1735-02 were improperly preserved in the field. Although the client label indicated unpreserved, the bottles had a hydrochloric acid preservation sticker and the pH indicated 1.

The sample TRIP BLANK was unpreserved.

Holding Times

All holding times were met.

Method Blanks

The Method Blank was within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

The percent recoveries of the MS/MSD and surrogate recoveries performed on sample 1735-03 were not calculated for 1,2-Dibromoethane Method 8011 due to dilution or the presence of interfering analytes.

Organics

The samples 1735-04 and 1735-03 were analyzed at dilutions for Method 8011 due to matrix interference. As a result, the reporting limits were elevated. In addition, the Method 8011 surrogate results of 1,2-Dibromopropane were below the laboratories quantitation levels due to the dilutions performed on the samples. As a result, the laboratory does not control on the reported recovery.

EXECUTIVE SUMMARY - Detections

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-59823-5	**1735-04**					
Percent Moisture		30		0.10	%	Moisture
280-59823-6	**1735-03**					
Percent Moisture		34		0.10	%	Moisture

METHOD SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
EDB, DBCP, and 1,2,3-TCP (GC)	TAL DEN	SW846 8011	
Microextraction	TAL DEN		SW846 8011
Percent Moisture	TAL DEN	EPA Moisture	
Matrix: Water			
EDB, DBCP and 1,2,3-TCP (GC)	TAL DEN	EPA-DW 504.1	
Microextraction	TAL DEN		EPA-DW 504.1

Lab References:

TAL DEN = TestAmerica Denver

Method References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Method	Analyst	Analyst ID
EPA-DW 504.1	Smith, Matthew P	MPS
SW846 8011	Smith, Matthew P	MPS
EPA Moisture	Schwemin, Andrew J	AJS

SAMPLE SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-59823-2	1735-01	Water	09/05/2014 1330	09/10/2014 0945
280-59823-3	1735-02	Water	09/05/2014 1340	09/10/2014 0945
280-59823-4TB	TRIP BLANK	Water	09/05/2014 1330	09/10/2014 0945
280-59823-5	1735-04	Solid	09/05/2014 1416	09/10/2014 0945
280-59823-6	1735-03	Solid	09/05/2014 1416	09/10/2014 0945

SAMPLE RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-01**

Lab Sample ID: 280-59823-2
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.6 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2059			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	109		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-02**

Lab Sample ID: 280-59823-3
Client Matrix: Water

Date Sampled: 09/05/2014 1340
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.4 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2118			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	101		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-59823-4TB
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.3 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2137			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	117		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5
Client Matrix: Solid

% Moisture: 29.8

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.91 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1020			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.22	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6
Client Matrix: Solid
% Moisture: 33.5

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.68 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1116			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.23	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

General Chemistry

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	30		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

General Chemistry

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	34		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

DATA REPORTING QUALIFIERS

Client: SGS North America, Inc Job Number: 280-59823-1

Lab Section	Qualifier	Description
GC Semi VOA		
	F1	MS and/or MSD Recovery exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
	X	Surrogate is outside control limits

QUALITY CONTROL RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 280-243326					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	
MB 280-243326/5-A	Method Blank	T	Water	504.1	
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	
280-59823-2	1735-01	T	Water	504.1	
280-59823-3	1735-02	T	Water	504.1	
280-59823-4TB	TRIP BLANK	T	Water	504.1	
Analysis Batch:280-243330					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	280-243326
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	280-243326
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	280-243326
MB 280-243326/5-A	Method Blank	T	Water	504.1	280-243326
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	280-243326
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	280-243326
280-59823-2	1735-01	T	Water	504.1	280-243326
280-59823-3	1735-02	T	Water	504.1	280-243326
280-59823-4TB	TRIP BLANK	T	Water	504.1	280-243326
Prep Batch: 280-243484					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	
MB 280-243484/4-A	Method Blank	T	Solid	8011	
280-59823-5	1735-04	T	Solid	8011	
280-59823-6	1735-03	T	Solid	8011	
280-59823-6MS	Matrix Spike	T	Solid	8011	
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	
Analysis Batch:280-243513					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	280-243484
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	280-243484
MB 280-243484/4-A	Method Blank	T	Solid	8011	280-243484
280-59823-5	1735-04	T	Solid	8011	280-243484
280-59823-6	1735-03	T	Solid	8011	280-243484
280-59823-6MS	Matrix Spike	T	Solid	8011	280-243484
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	280-243484

Report Basis

T = Total

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-243553					
280-59823-5	1735-04	T	Solid	Moisture	
280-59823-6	1735-03	T	Solid	Moisture	
280-59981-B-1 DU	Duplicate	T	Solid	Moisture	

Report Basis
T = Total

Client: SGS North America, Inc

Job Number: 280-59823-1

Surrogate Recovery Report

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	12DBP1 %Rec	12DBP2 %Rec
280-59823-2	1735-01		109
280-59823-3	1735-02		101
280-59823-4	TRIP BLANK	117	
MB 280-243326/5-A		102	
LCS 280-243326/2-A		96	
LCSD 280-243326/3-A		98	
LLCS 280-243326/4-A		96	
580-45361-P-3-A MS		97	
580-45361-O-3-A MSD		96	

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	70-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Surrogate Recovery Report

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	12DBP1 %Rec
280-59823-5	1735-04	0X D
280-59823-6	1735-03	0X D
MB 280-243484/4-A		99
LCS 280-243484/2-A		97
LCSD 280-243484/3-A		98
280-59823-6 MS	1735-03 MS	0X D
280-59823-6 MSD	1735-03 MSD	0X D

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	55-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	MB 280-243326/5-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091507.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1944	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	102	70 - 130

Low Level Control Sample - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	LLCS 280-243326/4-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091506.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1924	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2-Dibromoethane	0.0200	0.0193	97	70 - 130	J

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

LCS Lab Sample ID:	LCS 280-243326/2-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091504.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1846	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243326/3-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091505.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1905	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	93	94	70 - 130	1	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	96	98	70 - 130

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

MS Lab Sample ID:	580-45361-P-3-A MS	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091509.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2022			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	580-45361-O-3-A MSD	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091510.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	34.8 mL
Analysis Date:	09/15/2014 2041			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	93	94	70 - 130	2	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243484

Method: 8011
Preparation: 8011

Lab Sample ID:	MB 280-243484/4-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091606.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1824	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.015	0.10

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	99	55 - 130

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

LCS Lab Sample ID:	LCS 280-243484/2-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091604.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1746	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243484/3-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091605.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1805	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	97	99	70 - 130	2	10		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	98	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

MS Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091618.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	9.62 g
Analysis Date:	09/17/2014 1212			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091619.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	10.37 g
Analysis Date:	09/17/2014 1308			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	67	69	70 - 130	4	10	J F1	J F1

Surrogate	MS % Rec		MSD % Rec		Acceptance Limits
1,2-Dibromopropane	0	X D	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Duplicate - Batch: 280-243553

Method: Moisture
Preparation: N/A

Lab Sample ID:	280-59981-B-1 DU	Analysis Batch:	280-243553	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/16/2014 1851	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	4.5	4.5	1	20	

3.0+0 IR-6
9/10/14 20

280-59823 Chain of Custody

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

1 CLIENT: SGS - AK

SGS Reference: TA CO

Additional Comments: All soils report out in dry weight unless otherwise requested.

Page ____ of ____

CONTACT: Julie Shumway PHONE NO: (907) 562-2343

PROJECT NAME: 1148467 PWSID/ PERMIT#:

REPORTS TO: Julie Shumway E-MAIL: Julie.Shumway@sgs.com

INVOICE TO: SGS QUOTE #: P.O. #: 1148467

3 Preservative Used: None / None

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX	# CONTAINERS	C = COMP G = GRAB Incremental Soils	EBD by 8011	EBD by 504.1			MS	MSD	SGS lab #	Loc ID	REMARKS
	1735-01	09/05/14	13:30	Water	3			x					1148467001		
	1735-02	09/05/14	13:40	Water	3			x					1148467002		
	Trip Blank	09/05/14	13:30	Water	3			x					1148467003		
	1735-04	09/05/14	14:16	Soil	1		x						1148467004		
	1735-03	09/05/14	14:16	Soil	1		x						1148467005		

5

Relinquished By: (1)	Date 9/9/14	Time 1030	Received By: 9/10/14 945
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

4 DOD Project? YES NO

Cooler ID: _____

Data Deliverable Requirements: Level 2 + Excel EDD

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: _____ or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

Login Sample Receipt Checklist

Client: SGS North America, Inc

Job Number: 280-59823-1

Login Number: 59823

List Source: TestAmerica Denver

List Number: 1

Creator: Orfield, Tayler C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 280-59823-1

Job Description: SGS AK - 1148467

For:
SGS North America, Inc
200 W. Potter Drive
Anchorage, AK 99518

Attention: Mr. Forest Taylor

Approved for release.
Betsy A Sara
Project Manager II
10/7/2014 4:20 PM

Betsy A Sara, Project Manager II
4955 Yarrow Street, Arvada, CO, 80002
(303)736-0189
betsy.sara@testamericainc.com
10/07/2014
Revision: 1

cc: Ms. Julie Shumway

The test results in this report relate only to the samples in this report and meet all requirements of NELAC, with any exceptions noted. Pursuant to NELAP, this report shall not be reproduced except in full, without the written approval of the laboratory. All questions regarding this report should be directed to the TestAmerica Denver Project Manager.

The Lab Certification ID# is 4025.

Reporting limits are adjusted for sample size used, dilutions and moisture content if applicable.

Table of Contents

CASE NARRATIVE

Client: SGS North America, Inc

Project: SGS AK - 1148467

Report Number: 280-59823-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving

The samples were received on 09/10/2014; the samples arrived in good condition and on ice. The temperature of the cooler at receipt was 3.0 C.

The samples 1735-01 and 1735-02 were improperly preserved in the field. Although the client label indicated unpreserved, the bottles had a hydrochloric acid preservation sticker and the pH indicated 1.

The sample TRIP BLANK was unpreserved.

Holding Times

All holding times were met.

Method Blanks

The Method Blank was within established control limits.

Laboratory Control Samples (LCS)

All Laboratory Control Samples were within established control limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

The percent recoveries of the MS/MSD and surrogate recoveries performed on sample 1735-03 were not calculated for 1,2-Dibromoethane Method 8011 due to dilution or the presence of interfering analytes.

Organics

The samples 1735-04 and 1735-03 were analyzed at dilutions for Method 8011 due to matrix interference. As a result, the reporting limits were elevated. In addition, the Method 8011 surrogate results of 1,2-Dibromopropane were below the laboratories quantitation levels due to the dilutions performed on the samples. As a result, the laboratory does not control on the reported recovery.

EXECUTIVE SUMMARY - Detections

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID Analyte	Client Sample ID	Result	Qualifier	Reporting Limit	Units	Method
280-59823-5	**1735-04**					
Percent Moisture		30		0.10	%	Moisture
280-59823-6	**1735-03**					
Percent Moisture		34		0.10	%	Moisture

METHOD SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Description	Lab Location	Method	Preparation Method
Matrix: Solid			
EDB, DBCP, and 1,2,3-TCP (GC)	TAL DEN	SW846 8011	
Microextraction	TAL DEN		SW846 8011
Percent Moisture	TAL DEN	EPA Moisture	
Matrix: Water			
EDB, DBCP and 1,2,3-TCP (GC)	TAL DEN	EPA-DW 504.1	
Microextraction	TAL DEN		EPA-DW 504.1

Lab References:

TAL DEN = TestAmerica Denver

Method References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Method	Analyst	Analyst ID
EPA-DW 504.1	Smith, Matthew P	MPS
SW846 8011	Smith, Matthew P	MPS
EPA Moisture	Schwemin, Andrew J	AJS

SAMPLE SUMMARY

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
280-59823-2	1735-01	Water	09/05/2014 1330	09/10/2014 0945
280-59823-3	1735-02	Water	09/05/2014 1340	09/10/2014 0945
280-59823-4TB	TRIP BLANK	Water	09/05/2014 1330	09/10/2014 0945
280-59823-5	1735-04	Solid	09/05/2014 1416	09/10/2014 0945
280-59823-6	1735-03	Solid	09/05/2014 1416	09/10/2014 0945

SAMPLE RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-01**

Lab Sample ID: 280-59823-2
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.6 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2059			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	109		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-02**

Lab Sample ID: 280-59823-3
Client Matrix: Water

Date Sampled: 09/05/2014 1340
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.4 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2118			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	101		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 280-59823-4TB
Client Matrix: Water

Date Sampled: 09/05/2014 1330
Date Received: 09/10/2014 0945

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Analysis Method:	504.1	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Prep Method:	504.1	Prep Batch:	280-243326	Initial Weight/Volume:	34.3 mL
Dilution:	1.0			Final Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2137			Injection Volume:	3 uL
Prep Date:	09/15/2014 1655			Result Type:	PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,2-Dibromoethane	ND		0.0038	0.020

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	117		70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5
Client Matrix: Solid

% Moisture: 29.8

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.91 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1020			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.22	1.4

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6
Client Matrix: Solid
% Moisture: 33.5

Date Sampled: 09/05/2014 1416
Date Received: 09/10/2014 0945

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Analysis Method:	8011	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Prep Method:	8011	Prep Batch:	280-243484	Initial Weight/Volume:	9.68 g
Dilution:	10			Final Weight/Volume:	35 mL
Analysis Date:	09/17/2014 1116			Injection Volume:	3 uL
Prep Date:	09/16/2014 1407			Result Type:	PRIMARY

Analyte	DryWt Corrected: Y	Result (ug/Kg)	Qualifier	MDL	RL
1,2-Dibromoethane		ND	F1	0.23	1.6

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dibromopropane	0	X D	55 - 130

General Chemistry

Client Sample ID: **1735-04**

Lab Sample ID: 280-59823-5 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	30		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

General Chemistry

Client Sample ID: **1735-03**

Lab Sample ID: 280-59823-6 Date Sampled: 09/05/2014 1416

Client Matrix: Solid Date Received: 09/10/2014 0945

Analyte	Result	Qual	Units	RL	RL	Dil	Method
Percent Moisture	34		%	0.10	0.10	1.0	Moisture

Analysis Batch: 280-243553 Analysis Date: 09/16/2014 1851 DryWt Corrected: N

DATA REPORTING QUALIFIERS

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Section	Qualifier	Description
GC Semi VOA		
	F1	MS and/or MSD Recovery exceeds the control limits
	J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
	D	Sample results are obtained from a dilution; the surrogate or matrix spike recoveries reported are calculated from diluted samples.
	X	Surrogate is outside control limits

QUALITY CONTROL RESULTS

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 280-243326					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	
MB 280-243326/5-A	Method Blank	T	Water	504.1	
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	
280-59823-2	1735-01	T	Water	504.1	
280-59823-3	1735-02	T	Water	504.1	
280-59823-4TB	TRIP BLANK	T	Water	504.1	
Analysis Batch:280-243330					
LCS 280-243326/2-A	Lab Control Sample	T	Water	504.1	280-243326
LCSD 280-243326/3-A	Lab Control Sample Duplicate	T	Water	504.1	280-243326
LLCS 280-243326/4-A	Low Level Control Sample	T	Water	504.1	280-243326
MB 280-243326/5-A	Method Blank	T	Water	504.1	280-243326
580-45361-P-3-A MS	Matrix Spike	T	Water	504.1	280-243326
580-45361-O-3-A MSD	Matrix Spike Duplicate	T	Water	504.1	280-243326
280-59823-2	1735-01	T	Water	504.1	280-243326
280-59823-3	1735-02	T	Water	504.1	280-243326
280-59823-4TB	TRIP BLANK	T	Water	504.1	280-243326
Prep Batch: 280-243484					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	
MB 280-243484/4-A	Method Blank	T	Solid	8011	
280-59823-5	1735-04	T	Solid	8011	
280-59823-6	1735-03	T	Solid	8011	
280-59823-6MS	Matrix Spike	T	Solid	8011	
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	
Analysis Batch:280-243513					
LCS 280-243484/2-A	Lab Control Sample	T	Solid	8011	280-243484
LCSD 280-243484/3-A	Lab Control Sample Duplicate	T	Solid	8011	280-243484
MB 280-243484/4-A	Method Blank	T	Solid	8011	280-243484
280-59823-5	1735-04	T	Solid	8011	280-243484
280-59823-6	1735-03	T	Solid	8011	280-243484
280-59823-6MS	Matrix Spike	T	Solid	8011	280-243484
280-59823-6MSD	Matrix Spike Duplicate	T	Solid	8011	280-243484

Report Basis

T = Total

Client: SGS North America, Inc

Job Number: 280-59823-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
General Chemistry					
Analysis Batch:280-243553					
280-59823-5	1735-04	T	Solid	Moisture	
280-59823-6	1735-03	T	Solid	Moisture	
280-59981-B-1 DU	Duplicate	T	Solid	Moisture	

Report Basis
T = Total

Client: SGS North America, Inc

Job Number: 280-59823-1

Surrogate Recovery Report

504.1 EDB, DBCP and 1,2,3-TCP (GC)

Client Matrix: Water

Lab Sample ID	Client Sample ID	12DBP1 %Rec	12DBP2 %Rec
280-59823-2	1735-01		109
280-59823-3	1735-02		101
280-59823-4	TRIP BLANK	117	
MB 280-243326/5-A		102	
LCS 280-243326/2-A		96	
LCSD 280-243326/3-A		98	
LLCS 280-243326/4-A		96	
580-45361-P-3-A MS		97	
580-45361-O-3-A MSD		96	

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	70-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Surrogate Recovery Report

8011 EDB, DBCP, and 1,2,3-TCP (GC)

Client Matrix: Solid

Lab Sample ID	Client Sample ID	12DBP1 %Rec
280-59823-5	1735-04	0X D
280-59823-6	1735-03	0X D
MB 280-243484/4-A		99
LCS 280-243484/2-A		97
LCSD 280-243484/3-A		98
280-59823-6 MS	1735-03 MS	0X D
280-59823-6 MSD	1735-03 MSD	0X D

Surrogate	Acceptance Limits
12DBP = 1,2-Dibromopropane	55-130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	MB 280-243326/5-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091507.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1944	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.0037	0.020

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	102	70 - 130

Low Level Control Sample - Batch: 280-243326

Method: 504.1
Preparation: 504.1

Lab Sample ID:	LLCS 280-243326/4-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091506.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1924	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
1,2-Dibromoethane	0.0200	0.0193	97	70 - 130	J

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

LCS Lab Sample ID:	LCS 280-243326/2-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091504.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1846	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243326/3-A	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091505.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 1905	Units:	ug/L	Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	93	94	70 - 130	1	30		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	96	98	70 - 130

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243326

Method: 504.1
Preparation: 504.1

MS Lab Sample ID:	580-45361-P-3-A MS	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091509.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	35 mL
Analysis Date:	09/15/2014 2022			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	580-45361-O-3-A MSD	Analysis Batch:	280-243330	Instrument ID:	SGC_E
Client Matrix:	Water	Prep Batch:	280-243326	Lab File ID:	14091510.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	34.8 mL
Analysis Date:	09/15/2014 2041			Final Weight/Volume:	35 mL
Prep Date:	09/15/2014 1655			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.					
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	93	94	70 - 130	2	30		

Surrogate	MS % Rec	MSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	96	70 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Method Blank - Batch: 280-243484

Method: 8011
Preparation: 8011

Lab Sample ID:	MB 280-243484/4-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091606.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1824	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

Analyte	Result	Qual	MDL	RL
1,2-Dibromoethane	ND		0.015	0.10

Surrogate	% Rec	Acceptance Limits
1,2-Dibromopropane	99	55 - 130

Lab Control Sample/
Lab Control Sample Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

LCS Lab Sample ID:	LCS 280-243484/2-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091604.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1746	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

LCSD Lab Sample ID:	LCSD 280-243484/3-A	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091605.D
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	10 g
Analysis Date:	09/16/2014 1805	Units:	ug/Kg	Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	LCS	LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
1,2-Dibromoethane	97	99	70 - 130	2	10		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
1,2-Dibromopropane	97	98	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Matrix Spike/
Matrix Spike Duplicate Recovery Report - Batch: 280-243484

Method: 8011
Preparation: 8011

MS Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091618.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	9.62 g
Analysis Date:	09/17/2014 1212			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

MSD Lab Sample ID:	280-59823-6	Analysis Batch:	280-243513	Instrument ID:	SGC_E
Client Matrix:	Solid	Prep Batch:	280-243484	Lab File ID:	14091619.D
Dilution:	10	Leach Batch:	N/A	Initial Weight/Volume:	10.37 g
Analysis Date:	09/17/2014 1308			Final Weight/Volume:	35 mL
Prep Date:	09/16/2014 1407			Injection Volume:	3 uL
Leach Date:	N/A			Column ID:	PRIMARY

	% Rec.						
Analyte	MS	MSD	Limit	RPD	RPD Limit	MS Qual	MSD Qual
1,2-Dibromoethane	67	69	70 - 130	4	10	J F1	J F1

Surrogate	MS % Rec		MSD % Rec		Acceptance Limits
1,2-Dibromopropane	0	X D	0	X D	55 - 130

Client: SGS North America, Inc

Job Number: 280-59823-1

Duplicate - Batch: 280-243553

Method: Moisture
Preparation: N/A

Lab Sample ID:	280-59981-B-1 DU	Analysis Batch:	280-243553	Instrument ID:	No Equipment Assigned
Client Matrix:	Solid	Prep Batch:	N/A	Lab File ID:	N/A
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	
Analysis Date:	09/16/2014 1851	Units:	%	Final Weight/Volume:	
Prep Date:	N/A				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Percent Moisture	4.5	4.5	1	20	

3.0+0 IR-6
9/10/14 20

280-59823 Chain of Custody

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska	Maryland
New Jersey	New York
North Carolina	Indiana
West Virgina	Kentucky

www.us.sgs.com

1 CLIENT: SGS - AK

SGS Reference: TA CO

Additional Comments: All soils report out in dry weight unless otherwise requested.

Page ____ of ____

CONTACT: Julie Shumway PHONE NO: (907) 562-2343

PROJECT NAME: 1148467 PWSID/ PERMIT#:

REPORTS TO: Julie Shumway E-MAIL: Julie.Shumway@sgs.com

INVOICE TO: SGS QUOTE #: P.O. #: 1148467

3 Preservative Used: None / None

2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX	# CONTAINERS	C = COMP G = GRAB Incremental Soils	EBD by 8011	EBD by 504.1			MS	MSD	SGS lab #	Loc ID	REMARKS
	1735-01	09/05/14	13:30	Water	3			x					1148467001		
	1735-02	09/05/14	13:40	Water	3			x					1148467002		
	Trip Blank	09/05/14	13:30	Water	3			x					1148467003		
	1735-04	09/05/14	14:16	Soil	1		x						1148467004		
	1735-03	09/05/14	14:16	Soil	1		x						1148467005		

5

Relinquished By: (1)	Date 9/9/14	Time 1030	Received By: 9/10/14 945
Relinquished By: (2)	Date / /	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received For Laboratory By:

4 DOD Project? YES NO

Cooler ID: _____

Data Deliverable Requirements: Level 2 + Excel EDD

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: _____ or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

Login Sample Receipt Checklist

Client: SGS North America, Inc

Job Number: 280-59823-1

Login Number: 59823

List Source: TestAmerica Denver

List Number: 1

Creator: Orfield, Tayler C

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Not requested on COC.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ALS Environmental
ALS Group USA, Corp.
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F: +1 360 636 1068
www.alsglobal.com

October 1, 2014 Analytical Report for Service Request No: K1409682

Julie Shumway
SGS Environmental Services, Inc.
200 West Potter Drive
Anchorage, AK 99518

RE: 1148467

Dear Julie:

Enclosed are the results of the samples submitted to our laboratory on September 10, 2014. For your reference, these analyses have been assigned our service request number K1409682.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3364. You may also contact me via Email at Howard.Holmes@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Howard Holmes
Project Manager

HH/aj

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
ISO 17025	http://www.pjlabs.com/	L14-50
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	03016
Maine DHS	Not available	WA01276
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

ALS ENVIRONMENTAL

Client:	SGS Environmental Services, Inc.	**Service Request No.:**	K1409682
Project:	1148467	**Date Received:**	09/10/14
Sample Matrix:	Water		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt

Two water samples were received for analysis at ALS Environmental on 09/10/14. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC/frozen at –20ºC upon receipt at the laboratory.

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Matrix Spike Recovery Exceptions:
The control criteria for matrix spike recovery of Perfluorooctane Sulfonate for sample 1735-2 were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Elevated Detection Limits:
Samples required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

No other anomalies associated with the analysis of these samples were observed.

Approved by___ Howard B. Holmes _____

K1409182

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Locations Nationwide

Alaska Maryland
New Jersey New York
North Carolina Indiana
West Virgina Kentucky

www.us.sgs.com

1 CLIENT: SGS - AK

SGS Reference: ALS Kelso

Additional Comments: All soils report out in dry weight unless otherwise requested.

Page ____ of ____

CONTACT: Julie Shumway PHONE NO: (907) 562-2343

PROJECT NAME: 1148467 PWSID/ PERMIT#:

REPORTS TO: Julie Shumway E-MAIL: Julie.Shumway@sgs.com

INVOICE TO: SGS QUOTE #: P.O. #: 1148467

2 RESERVED for lab use | SAMPLE IDENTIFICATION | DATE mm/dd/yy | TIME HH:MM | MATRIX/ MATRIX | # CONTAINERS | 3 Preservative Used: None | TYPE C = COMP G = GRAB Incremental Soils | PFOS/PFOA | | | | MS | MSD | SGS lab # | Loc ID | REMARKS

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX	# CONTAINERS	Preservative Used: None	TYPE C = COMP G = GRAB Incremental Soils	PFOS/PFOA				MS	MSD	SGS lab #	Loc ID	REMARKS
	1735-01	09/05/14	13:30	Water	1			x						1148467001		
	1735-02	09/05/14	13:40	Water	1			x						1148467002		

5 Relinquished By: (1) [signature] Date 9/9/14 Time 1030 Received By: [signature] 9/10/14 0900

Relinquished By: (2) [signature] Date Time Received By:

Relinquished By: (3) Date Time Received By:

Relinquished By: (4) Date Time Received For Laboratory By:

4 DOD Project? YES NO

Cooler ID: _____

Data Deliverable Requirements: Level 2 + Excel EDD

Requested Turnaround Time and-or Special Instructions:

Temp Blank °C: 2.9

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[ ] 200 W. Potter Drive Anchorage, AK 99518 Tel: (907) 562-2343 Fax: (907) 561-5301

[ ] 5500 Business Drive Wilmington, NC 28405 Tel: (910) 350-1903 Fax: (910) 350-1557

http://www.sgs.com/terms_and_conditions.htm

PC HA

Cooler Receipt and Preservation Form

Client / Project: SGS - AK Service Request K14 Q9682

Received: 9/10/14 Opened: 9/10/14 By: BK Unloaded: 9/10/14 By: BK

1. Samples were received via? *Mail* *Fed Ex* (*UPS*) *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 1 top front left
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	Filed
1.9	1.9	2.9	2.9	0	342		1ZA8619W0160241222	

4. Packing material: *Inserts* *Baggies* (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* cardboard
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA (Y) N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

*Notes, Discrepancies, & Resolutions:*_____

*Page*____ *of*____

Analytical Report

Client:	SGS Environmental Services, Inc.	**Service Request:**	K1409682
Project:	1148467	**Date Collected:**	09/05/14 13:30
Sample Matrix:	Water	**Date Received:**	09/10/14 09:10
Sample Name:	1735-01	**Units:**	ng/L
Lab Code:	K1409682-001	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFOA
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic Acid	**130**	5.0	1	09/16/14 14:24	9/15/14	
Perfluorooctane Sulfonate	**710**	25	5	09/16/14 18:31	9/15/14	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2,3,4-13C4] octanoic acid	88	18 - 151	09/16/14 14:24	
Sodium perfluoro-1-[1,2,3,4-13C4] octanesulfonate	99	16 - 130	09/16/14 18:31	

Analytical Report

Client:	SGS Environmental Services, Inc.	**Service Request:**	K1409682
Project:	1148467	**Date Collected:**	09/05/14 13:40
Sample Matrix:	Water	**Date Received:**	09/10/14 09:10
Sample Name:	1735-02	**Units:**	ng/L
Lab Code:	K1409682-002	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFOA
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic Acid	**120**	5.0	1	09/16/14 14:35	9/15/14	
Perfluorooctane Sulfonate	**710**	25	5	09/16/14 18:41	9/15/14	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2,3,4-13C4] octanoic acid	91	18 - 151	09/16/14 14:35	
Sodium perfluoro-1-[1,2,3,4-13C4] octanesulfonate	104	16 - 130	09/16/14 18:41	

Analytical Report

Client:	SGS Environmental Services, Inc.	**Service Request:**	K1409682
Project:	1148467	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ1411293-04	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFOA
Prep Method: EPA 3535A

Analyte Name	Result	MRL	Dil.	Date Analyzed	Date Extracted	Q
Perfluorooctanoic Acid	ND U	5.0	1	09/16/14 13:44	9/15/14	
Perfluorooctane Sulfonate	ND U	5.0	1	09/16/14 13:44	9/15/14	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
Perfluoro-n-[1,2,3,4-13C4] octanoic acid	92	18 - 151	09/16/14 13:44	
Sodium perfluoro-1-[1,2,3,4-13C4] octanesulfonate	92	16 - 130	09/16/14 13:44	

Client: SGS Environmental Services, Inc. **Service Request:** K1409682

Project: 1148467

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFOA

Extraction Method: EPA 3535A

Sample Name	Lab Code	Perfluoro-n-[1,2,3,4-13C4] octanoic acid 18 - 151	Sodium perfluoro-1-[1,2,3,4-13C4] octanesulfonate 16 - 130
1735-01	K1409682-001	88	99
1735-02	K1409682-002	91	104
1735-02	KQ1411293-01	88	105
1735-02	KQ1411293-02	90	106
Lab Control Sample	KQ1411293-03	85	87
Method Blank	KQ1411293-04	92	92

Client:	SGS Environmental Services, Inc.	**Service Request:**	K1409682
Project:	1148467	**Date Collected:**	09/05/14
Sample Matrix:	Water	**Date Received:**	09/10/14
		Date Analyzed:	09/16/14
		Date Extracted:	09/15/14

Duplicate Matrix Spike Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Sample Name:	1735-02	**Units:**	ng/L
Lab Code:	K1409682-002	**Basis:**	NA
Analysis Method:	PFOA		
Prep Method:	EPA 3535A		

		Matrix Spike KQ1411293-01			Duplicate Matrix Spike KQ1411293-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perfluorooctane Sulfonate	710	777	80.0	83 #	760	80.0	62 #	70-130	2	30
Perfluorooctanoic Acid	120	208	80.0	106	205	80.0	102	68-138	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client:	SGS Environmental Services, Inc.	**Service Request:**	K1409682
Project:	1148467	**Date Analyzed:**	09/16/14
Sample Matrix:	Water	**Date Extracted:**	09/15/14

Lab Control Sample Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method:	PFOA	**Units:**	ng/L
Prep Method:	EPA 3535A	**Basis:**	NA
		Analysis Lot:	411531

Lab Control Sample
KQ1411293-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perfluorooctane Sulfonate	99.1	80.0	124	70-130
Perfluorooctanoic Acid	103	80.0	129	68-138

QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples, and also conducted our own QA assessment for this project. We reviewed the chain-of-custody (COC) records and laboratory-receipt forms to check that custody was not breached, sample holding-times were met, and the samples were kept properly chilled (between 0 ºC and 6 ºC) during shipping. Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

The laboratories apply the letter 'J' to a detection less than the limit of quantitation (LOQ) but greater than the detection limit (DL); this "flagged" datum is considered an estimated concentration. We reviewed the data using the current ADEC Laboratory Data Review Checklist and applied a standardized set of flags to any data brought into question during the review.

Laboratory QC procedures included evaluating surrogate recovery, performing continuing calibration checks, analyzing method blanks, checking laboratory control samples (LCS), and adding matrix spikes (MS) to assess accuracy and precision. Precision of laboratory analytical procedures is assessed by comparing results of an LCS pair (LCS and LCS duplicate [LCSD]). The laboratory also checks precision by comparing the results of an MS and matrix spike duplicate (MSD).

We reviewed water and sediment analytical results reported by SGS in work order 1148467. The laboratory report and associated ADEC data-review checklist are attached to this report. The following is a summary of our QA/QC review.

Sample Handling

The temperature blank and cooler temperatures were within the recommended range of 0 °C to 6 °C upon receipt of samples in Anchorage. Water samples were shipped by SGS to reference laboratories Test America for analysis of ethylene dibromide (EDB) and ALS for analysis of PFOS/PFOA, which also had temperature blanks and cooler temperatures that were within the recommended range.

It was noted in the sample receipt document that the water samples *1735-01* and *1735-02* submitted for VOC analysis by EPA Method SW8260B were not properly preserved with

hydrochloric acid. However, in the event that VOC samples are received by the laboratory without proper preservation, the hold time is reduced to seven days to extraction. Since the seven day hold time was met, the sample results are not considered affected by the sample handling anomaly.

Also, the water samples *1735-01* and *1735-02* submitted for EDB analysis by EPA Method 504.1 did not require preservation with hydrochloric acid. The samples were checked in by SGS with a pH less than 2.0. However, after discussion with the SGS laboratory chemist, it was determined that the acidification for the analysis did not adversely affect the analysis and the sample results are not considered affected by the sample handling anomaly.

There were no other sample-handling anomalies.

Analytical Sensitivity

The water-sample limits of detection (LODs) for GRO, DRO, BTEX, and PAHs were less than the ADEC groundwater-cleanup levels. The LODs for 1,2-dibromo-3-chloropropane (DBCP) and 1,2,3-trichloropropane (1,2,3-TCP) were greater than the ADEC groundwater-cleanup levels. It is not possible to determine if the analytes DBCP and 1,2,3-TCP were present in the water samples *1735-01* and *1735-02* less than the LOD but greater than the ADEC groundwater-cleanup levels.

The sediment-sample LODs for GRO, DRO, BTEX, and PAH were less than the ADEC soil-cleanup levels. The LODs for polychlorinated biphenyls (PCBs); 1,2-dichloroethane; dibromochloromethane; bromomethane; chloromethane; vinyl chloride; methylene chloride; 1,1-dichloroethylene; 1,2-dichloropropane; 1,1,2-trichloroethane; trichloroethylene; 1,1,2,2-tetrachloroethane; and 1,2,3-TCP were greater than the ADEC soil-cleanup levels. It is not possible to determine if these analytes were present in the soil samples *1735-03* and *1735-04* at concentrations less than the LOD but greater than the ADEC soil-cleanup levels.

Laboratory method blanks (MBs) were analyzed in association with samples collected for this project to check for contributions to the analytical results possibly attributable to laboratory-based contamination. The MBs associated with samples *1735-03* and *1735-04* contained arsenic, barium, and methylene chloride at estimated concentrations of 0.639 J mg/kg, 0.246 J mg/kg, and 0.040 J mg/kg, respectively. The arsenic concentrations in each of the associated project samples were within five times the method blank detection and are considered not detected. The sample results are flagged ‘B*’ at the LOQ or at the detected result, whichever value is greater. The barium concentrations in the associated samples were greater than ten times the method blank detection and the methylene chloride results in the associated samples were not detected.

The project samples are therefore not considered affected by the method blank detections for barium and methylene chloride.

Another MB associated with samples *1735-03* and *1735-04* contained selenium above the LOQ. This analyte is not a part of the project analyte list and the MB detection does not affect the analytical results.

One trip blank per analysis per matrix accompanied the samples to determine if cross-contamination or contamination from an outside source may have occurred during shipment or storage. The trip blanks submitted to the laboratories were analyzed for GRO by Alaska Method AK101 (water and sediment), VOCs by EPA Method SW8260B (water and sediment), and EDB by EPA DW Method 504.1 (water). However, a soil trip blank was not submitted to the laboratory for EDB analysis. EDB was not detected in the project samples and the omission of this trip blank is not considered to affect the soil results.

No analytes were detected in the trip blank with the exception of 1,4-dichlorobenzene by EPA Method SW8260B associated with the water samples *1735-01* and *1735-02*. The associated samples did have detections for 1,4-dichlorobenzene and are not considered affected by the trip blank detection.

Overall, analytical sensitivity was sufficient for the purposes of this investigation.

Accuracy

The laboratory assessed the accuracy of their analytical procedures through a variety of QA procedures. Analysis of matrix spike (MS) and MS duplicate (MSD) samples allowed the laboratory to assess the accuracy of their procedures by checking their ability to recover analytes added to field samples with matrices similar to our project samples. They also analyzed laboratory control samples (LCSs) and LCS duplicates (LCSDs); they are similar to MS/MSD samples, but evaluate the laboratory's ability to recover analytes added to clean matrices, as opposed to field samples. The laboratory accuracy was also evaluated for each sample by assessing recovery of analyte surrogates added to individual project samples.

MS/MSD and LCS/LCSD recoveries were within laboratory-control limits for the project samples with the following exceptions:

- The MS (1232625) and MSD (1232626) had percent recoveries for a number of analytes that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.

- The MS (1232713) and MSD (1232714) had percent recoveries for 1,1,2-trichloroethane and hexachlorobutadiene that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
- The MS (1232715) and MSD (1232716) had percent recoveries for hexachlorobutadiene that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
- The MSD (KQ1411293-02) had a percent recovery for PFOS that was outside QC acceptance criteria. The parent sample had an initial concentration that was greater than the spiking amount, and the results are not considered to be affected by this QC failure.

The surrogate recoveries were within acceptance criteria with the following exceptions:

- A number of surrogate recovery failures were observed for samples *1735-03* and *1735-04* due to sample dilution. The sample results are not considered affected by the surrogate recovery failures due to sample dilution.
- Samples *1735-03* and *1735-04* had surrogate recoveries for BFB that did not meet QC criteria (biased low) for analysis by AK101. Sample was analyzed twice and results confirmed. The sample results are considered estimated due to the surrogate recovery failure and are flagged 'J*' for GRO not detected and 'JL*' for GRO detected in the sample.
- Sample *1735-03* had a surrogate recovery for BFB that did not meet QC criteria (biased low) for analysis by EPA Method SW8260B. The analytes associated with the surrogate are considered estimated, biased low due to the surrogate recovery failure and are flagged 'J*' for not-detected analytes and 'JL*' for analytes detected in the sample. The detected analyte was naphthalene, and the analytes not detected were 1,2,3-trichlorobenzene; 1,2,3-trichloropropane; 1,2,4-trimethylbenzene; 1,3,5-trimethylbenzene; 1,3-dichlorobenzene; 1,4-dichlorobenzene; bromobenzene; 1,1,2,2-tetrachloroethane; 1,2-dibromo-3-chloropropane; 1,2-dichlorobenzene; 2-chlorotoluene; 4-chlorotoluene; 4-isopropyltoluene; hexachlorobutadiene; n-butylbenzene; n-propylbenzene; sec-butylbenzene; and tert-butylbenzene.

Aside from those instances noted above, the surrogate recoveries for the water and soil samples were within laboratory- or method-established limits, indicating the analyses were accurate.Overall, the water and sediment sample data for this project are considered to be accurate, and are usable as qualified.

Precision

We collected two sets of duplicate samples to evaluate the precision of analytical measurements and the reproducibility of our sampling technique. The duplicate-sample sets were *1735-01*/*1735-02* and *1735-03*/*1735-04*.

To evaluate precision of the water and sediment data, we calculated the relative percent

difference (RPD; the difference between the sample and its field duplicate divided by the mean of the two); RPD can be evaluated only if the results of the analysis for both the sample and its duplicate exceed the method-detection limits.

The RPDs for DRO and RRO were greater than the DQO of 30 percent for samples *1735-01/1735-02*; and the RPDs for benzene, toluene, p&m-xylenes, lead, and nickel were greater than the data-quality objective (DQO) of 50 percent for samples *1735-03/1735-04*. The affected analyte concentrations in these samples are considered to be estimates, and are flagged "J*" to indicate data imprecision. The elevated RPDs are believed to be due to incorporation of petroleum sheen in the water sample(s), and matrix variations between the two sediment samples.

Laboratory analytical precision can also be evaluated by RPD calculations. The laboratory MS/MSD RPDs and LCS/LCSD RPDs provide information regarding the reproducibility of their procedures and are therefore a measure of analytical precision. The MS/MSD RPDs and LCS/LCSD RPDs for the analyses fell within the laboratory- or method-established limits with the following exceptions:

- The MS (1232625)/MSD (1232626) RPD for arsenic was outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the project sample results.

- The MS (1233017)/MSD (1233018) RPD for trichlorofluoromethane was outside QC acceptance criteria. The parent sample *1735-03* is considered affected by the RPD failure and the trichlorofluoromethane result is flagged 'J*' to indicate the analytical imprecision.

Except for the imprecision of the data noted above, the data are considered usable for the purposes of this project.

Data Quality Summary

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

The laboratory report for the project's samples, including the case narrative describing the

laboratory QA results in detail, are included with the ADEC laboratory-review checklist as attachments to this report.

Laboratory Data Review Checklist

Completed by: Julie Keener, P.E.

Title: Senior Engineer Date: October 09, 2014

CS Report Name: Burn Pit Site Investigation Report Date: October 08, 2014

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1148467

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:

      SGS is ADEC CS-approved for all analyses with the following exceptions:
      Ethylene dibromide by Test America of Arvada, CO and PFOS/PFOA by ALS of Kelso, WA.
      ADEC does not approve laboratories for these two analyses. The results were not affected.

   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:

      See response to question 1a.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

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

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☒ Yes ☐ No ☐ NA (Please explain.) Comments:

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

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

Water samples submitted for VOC analysis were not preserved. Water samples submitted for EDB analysis were preserved with HCl. According to the laboratory chemist, the results were not affected.

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

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

Samples were received in good condition.

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

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

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

Comments:

The VOC and EDB analyses are not affected by no preservative and preservative, respectively.

4. Case Narrative

a. Present and understandable?

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

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

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

SGS:

Samples 1735-01, 1735-02, 1735-03, 1735-04, and the trip blank were sent to TestAmerica of Arvada, CO for the analysis of ethylene dibromide. Samples 1735-01 and 1735-02 were sent to ALS of Kelso, WA for the analysis of PFOS/PFOA.

Sample 1735-01 had a pH greater than two for analysis by AK101; however, analysis was completed within the 7-day hold time for unpreserved volatiles, so the result is unaffected.

Sample 1735-02 had a pH greater than two for analysis by 8260; however, analysis was completed within the 7-day hold time for unpreserved volatiles, so the results are unaffected.

Samples 1735-03 and 1735-04 had surrogate recoveries for BFB that did not meet QC criteria (biased low) for analysis by AK101. Samples were analyzed twice and results confirmed.

Samples 1735-03 and 1735-04 had surrogate recoveries for 5a-androstane and n-triacontane that were outside QC criteria due to dilution for analysis by AK102/103. Analytical results were unaffected.

Sample 1735-03 had a surrogate recovery for BFB that did not meet QC criteria (biased low) for analysis by 8260B. The sample was re-analyzed for confirmation and result was confirmed.

Sample 1735-04 had a surrogate recovery for decachlorobiphenyl that did not meet QC criteria due to sample dilution. Analytical results were unaffected.

Samples 1735-03 and 1735-04 had surrogate recoveries for 2-fluorobiphenyl and terphenyl-14 that were outside of QC criteria due to sample dilution and had elevated LOQs due to sample dilution. Samples were diluted due to dark extract.

Method blank (1635481) had a detection for selenium that was greater than the LOQ. This analyte was not a requested analyte.

Several analytes had MS (1232625) and MSD (1232626) recoveries that were outside of QC criteria. The post-digestion spike was successful.

Arsenic had a MS (1232625)/MSD (1232626) RPD for arsenic outside of QC criteria. Sample/duplicate RPD is within QC criteria.

MS (1232713), MSD (1232714), MS (1233017), and MSD (1233018) had surrogate recoveries for BFB that did not meet QC criteria (biased low) for analysis by 8260B. Samples were analyzed twice for confirmation.

ALS:

The control criteria for matrix spike recovery of perfluorooctane sulfonate for sample 1735-02 were not applicable. The analyte concentration in the sample was significantly higher than the added spike concentration, preventing accurate evaluation of the spike recovery.

Samples required dilution due to the presence of elevated levels of target analyte. The reporting limits were adjusted to reflect the dilution.

TestAmerica:

The samples 1735-01 and 1735-02 were improperly preserved in the field. Although the client label indicated unpreserved, the bottles had a hydrochloric acid preservation sticker and the pH indicated 1.

The sample TRIP BLANK was unpreserved.

The percent recoveries of the MS/MSD and surrogate recoveries of sample 1735-03 were not calculated for 1,2-dibromoethane (Method 8011) due to dilution or the presence of interfering analytes.

The samples 1735-04 and 1735-03 were analyzed at dilutions for Method 8011 due to matrix interference. As a result, the reporting limits were elevated. In addition, the Method 8011 surrogate results of 1,2-dibromopropane were less than the laboratory's quantitation levels due to the dilutions performed on the samples. As a result, the laboratory cannot calculate surrogate recoveries. Surrogate-recovery failures due to sample dilution do not affect sample results.

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

Samples were re-analyzed to confirm results when required.

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

The case narrative does not specify any effects on the data quality/ usability. Refer to section 6 for assessment.

5. Samples Results

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

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

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

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
☐Yes ☒ No ☐NA (Please explain.) Comments:

Samples 1735-01 and 1735-02 had LODs for 1,2-dibromo-3-chloropropane and 1,2,3-trichloro-propane that were greater than the ADEC groundwater-cleanup levels.
Samples 1735-03 and 1735-04 had LODs for PCBs; 1,2-dichloroethane; dibromochloromethane; bromomethane; chloromethane; vinyl chloride; methylene chloride; 1,1-dichloroethylene; 1,2-dichloropropane; 1,1,2-trhchloroethane; trichlorethylene; 1,1,2,2-tetrachlroethane; and 1,2,3-trichloropropane that were greater than the ADEC soil-cleanup level.

e. Data quality or usability affected?

Yes. It is not possible to determine if the analytes outlined in 5.d. were present exceeding the ADEC-established cleanup levels.

Comments:

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

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

Selenium was detected in the method blank at a concentration greater than the LOQ. This analyte was not a requested analyte. Project samples results are not considered affected by this method blank detection.
Arsenic, barium, and methylene chloride were detected at estimated concentrations of 0.639 J mg/kg, 0.246 J mg/kg, and 0.040 J mg/kg, respectively.

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

Samples 1735-03 and 1735-04 are associated with the method blank detections for arsenic, barium, and methylene chloride. The sample results are not considered affected if the analyte was not detected in the project sample or if the project sample concentration was greater than ten times the method blank detection. If the samples are within ten times the method blank detection, the results are considered estimated, biased high. If the samples are within five times the method blank detection, the results are considered not detected.

The arsenic results for the project samples were within five times the method blank detection and are considered not detected.
The barium results for the project samples were greater than ten times the method blank detection and are not considered affected.
The methylene chloride results for the project samples were not detected and are not considered affected.

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

The arsenic sample results for 1735-03 and 1735-04 were 1.80 mg/kg and 1.38 J mg/kg, respectively. The results were within five times the method blank detection for arsenic. The sample results are considered not detected at the LOQ or at the detected concentration, whichever value is higher. The result is flagged 'B*.'

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

Yes; see above.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
☒Yes ☐ No ☐NA (Please explain.) Comments:

Only LCS and MS/MSD samples were analyzed for 8270 SIMS (PAH). These samples are sufficient to assess laboratory accuracy and percision.
Only LCS samples were analyzed for 8082A (PCBs) and PFOS/PFOA. We have no measure of laboratory precision for this analysis. Refer to field duplicate analysis for assessment of percision.

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

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

The MS (1232625) and MSD (1232626) had percent recoveries for a number of analytes that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
The MS (1232713) and MSD (1232714) had percent recoveries for 1,1,2-trichloroethane and hexachlorobutadiene that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
The MS (1232715) and MSD (1232716) had percent recoveries for hexachlorobutadiene that were outside QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
The MSD (KQ1411293-02) a percent recoveries for PFOS that were outside QC acceptance criteria. The parent sample had an initial concentration that were greater than the spiking amount. The results are not considered to be affected by this QC failure.

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

The MS (1232625)/ MSD (1232626) RPD for arsenic was oustide QC acceptance criteria. The parent sample is not a part of this project sample set. The QC failure does not affect the sample results.
The MS (1233017)/ MSD (1233018) RPD for trichlorofluoromethane was outside QC acceptance criteria. The parent sample 1735-03 is considered affected by the RPD failure.

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

Sample 1735-03 is considered affected by the MS (1233017)/ MSD (1233018) RPD failure for trichlorofluoromethane.

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

The analyte trichlorofluoromethane was not detected in the project sample 1735-03. The result is considered estimated and is flagged 'J*.'

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

Yes; see above.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
☒Yes ☐ No ☐NA (Please explain.) Comments:

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

Samples 1735-03 and 1735-04 had surrogate recoveries for BFB that did not meet QC criteria (biased low) for analysis by AK101. Samples were analyzed twice and results confirmed.
Samples 1735-03 and 1735-04 had surrogate recoveries for 5a-androstane and n-triacontane that were outside QC criteria due to dilution for analysis by AK102/103.
Sample 1735-03 had a surrogate recovery for BFB that did not meet QC criteria (biased low) for analysis by 8260B. The sample was re-analyzed for confirmation and result was confirmed.
Sample 1735-04 had a surrogate recovery for decachlorobiphenyl that did not meet QC criteria due to sample dilution.
Samples 1735-03 and 1735-04 had surrogate recvoeries for 2-fluorobiphenyl and terphenyl-14 that were outside of QC criteria due to sample dilution and had elevated LOQs due to sample dilution. Sample diluted due to dark extract.
Samples MS (1233017) and MSD (1233018) had surrogate recoveries for BFB that did not meet QC criteria (biased low) for analysis by 8260B.
Samples 1735-03 and 1735-04 had surrogate recoveries for 1,2-dibromopropane that did not meet QC criteria due to sample dilution for analysis by 8011.

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:

Sample results are not considered to be affected by surrogate recovery failures if the sample was diluted. Samples 1735-03 and 1735-04 were affected by the surrogate recovery failures for analysis by AK101 and 8260B. Analytes associated with the surrogate BFB are considered estimated and are flagged 'JL*.'

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

Comments:

Yes; see above.

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

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

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

A trip blank for the analysis of EDB for soils was not submitted with the project samples. However, EDB was not detected in the project samples and the omission is not considered to affect the analytical results.

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

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

The COC did not clearly specify that the trip blank and VOA samples were transported in the same cooler. However, only one cooler was submitted to the laboratory and the sample receipt document notes that the trip blanks were in the same cooler as the VOA samples. The sample results are not considered affected by this omission.

iii. All results less than PQL?

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

The trip blank for the analysis by 8260B had a detection for 1,4-dichlorobenzene at a concentration of 0.66 J µg/L.

iv. If above PQL, what samples are affected?

The analyte was not detected in the associated samples 1735-01 and 1735-02. The sample results are not considered affected by the trip blank detection.

Comments:

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

Comments:

No; see above.

e. Field Duplicate

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

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

Sample 1735-02 is a field duplicate of sample 1735-01, and 1735-04 is a field duplicate of 1735-03.

ii. Submitted blind to lab?

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

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

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

All RPDs, where calculable, were within data quality objectives, with the following exceptions; Benzene, toluene, p&m-xylenes, total xylenes, lead, and nickel in the sediment samples; and DRO and RRO in the water samples

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

Comments:

Yes. Those analytes noted in 6.e.iii were flagged 'J*', indicating result is an estimate due to field-duplicate sample RPD failure.

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

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

No equipment blank was submitted because disposable sampling tools were used.

i. All results less than PQL?

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

No equipment blank was submitted because disposable sampling tools were used.

ii. If above PQL, what samples are affected?

Comments:

N/A; see above.

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

Comments:

The results were not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ☐ Yes ☐ No ☒ NA (Please explain.) Comments:

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Attachment to and part of Report: 31-1-11735-001

Date:	November 12, 2014
To:	Mr. Jackson Fox, City of Fairbanks
Re:	Report on Phase I Burn Pit Sampling, Regional Fire Training Center, Fairbanks, Alaska

IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

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

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

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

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

SUBSURFACE CONDITIONS CAN CHANGE.

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

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

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

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

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

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

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

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

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

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

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

READ RESPONSIBILITY CLAUSES CLOSELY.

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

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