ENVIRONMENTAL MANAGEMENT, INC.
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December 5, 2019

Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501
Attn: Robert Weimer

via: robert.weimer@alaska.gov

RE: The Hub of Alaska, Milepost 189.5 Glenn Highway, Glennallen, Alaska; ADEC UST Facility ID 2945

Subj: 2018 and 2019 Landfarm Treatment and Sampling

This letter summarizes the findings and events associated with the 2018 and 2019 field activities associated with the landfarm sampling, construction, and treatment at The Hub of Alaska at Milepost 189.5 Glenn Highway, Glennallen, Alaska. Field activities were conducted in accordance with Environmental Management, Inc. (EMI) May 25, 2018 work plan which was approved by the Alaska Department of Environmental Conservation (ADEC) on June 14, 2018.

BACKGROUND

Between October 9 and 11, 2017 underground storage tank (UST) removal activities were conducted at the site and included the removal of two 12,000 gallon gasoline USTs, one 12,000 gallon diesel UST, vent piping, fuel piping, and dispensers associated with the USTs. High concentrations of diesel range organic (DRO), gasoline range organic (GRO), and petroleum volatile organic compounds (VOC) including benzene, naphthalene, ethylbenzene, toluene, and xylenes, among others, were encountered in the excavation. The highest levels were encountered nearest the middle fuel island, therefore an interim soil removal was conducted in that area on October 21 and 22, 2017. Between the two excavation efforts, approximately 500 cubic yards of soil was generated and placed in a 12-mil lined landfarm west of the facility.

FIELD ACTIVITIES

Field activities conducted in 2018 included collecting baseline samples from the footprint of the landfarm prior to landfarm construction, construction of the landfarm, and treatment by screening/tilling the soil. Field activities conducted in 2019 included treatment by screening/tilling the soil and collecting samples from the landfarm soil at the end of the 2019 field season.

Field notes and photo logs from the field activities are included in Attachments 1 and 2, respectively.

2018 Landfarm Baseline Sampling

On July 20, 2018 Hannah Deeney was onsite to collect headspace and analytical samples for the landfarm baseline. Field screening samples were collected using a photoionization detector at a frequency of 1 per 10 cubic yards. The samples were collected from soil above the oversized material and at a depth of 12 to 18 inches from the exposed surface of the landfarm. Four analytical samples were taken from the locations with the highest headspace samples. In addition, one duplicate and one trip blank were collected for quality control purposes. Samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), and

volatile organic compounds (VOC) by SGS Anchorage. The laboratory report and associated laboratory quality control checklist is included in Attachment 3.

Table 1 – 2018 Landfarm Baseline Soil Sample Results

Analyte	ADEC Cleanup Level*	Sample ID					
		A4	B1	B3	B6	D3	Trip Blank
Headspace - ppm	--	1.1	1.4	1.5		1.1	
GRO - mg/kg	300	8.92U	10.9U	4.73U	4.81U	17.3U	2.52U
DRO - mg/kg	250	**48.1**	**79.2**	26.8U	**28.1**	**267**	
VOC - ug/kg	Varies	ND	ND	ND	ND	ND	ND

Notes:

*	Table B1 or B2 Method Two for the Under 40 Inch Zone, Migration to Groundwater (MTG) (18 AAC 75) (October 27, 2018)
267	Detected above the cleanup level
28.1	Detectable concentration reported in the project sample
U	Analyte not detected above detection limit
mg/kg	Milligrams per Kilogram
ug/kg	Micrograms per Kilogram
ND	Not Detected

2018 Landfarm Construction and Treatment Activities

The landfarm was constructed by JC Enterprises between July 26 and 30, 2018. The landfarm is located onsite, in the vicinity of the stockpiled soil. JC Enterprises constructed the landfarm using a 20-mil bottom liner over up to six inches of clean fill material which was used to allow for grading to slope the landfarm to the sump and/or protect the liner. Lined berms were be placed around the landfarm to contain leachate that might be generated during rainfall events; no leachate was generated or removed from the landfarm in 2018. A 6-mil reinforced cover secured with tires was placed over the soil and extends beyond the berms to prevent impacts of weather on the soil (i.e. rain, wind, etc.) after the completion of each aeration/tiling event. The total treatment cell measured approximately 90 feet by 70 feet.

Treatment activities include periodically turning the soil within the footprint of the landfarm so that the soil is rotated from the bottom layer to the top layer allowing the exposure of the entire soil column. The landfarm was tilled by JC Enterprises four times in 2018: August 10, August 22, September 6, and September 18.

2019 Landfarm Treatment Activities

Treatment activities include periodically turning the soil within the footprint of the landfarm so that the soil is rotated from the bottom layer to the top layer allowing the exposure of the entire soil column. The landfarm was tilled by JC Enterprises five times in 2019.

2019 Soil Characterization Activities

On September 19, 2019, Glenn Hasburgh, EMI, characterized the contained soils following the approved work plan and field screening frequencies and sampling procedures outlined in the ADEC *Field Sampling Guidance*, August 2017. Mr. Hasburgh is a Qualified Environmental Professional (QEP) as defined by ADEC. Weather conditions at the time were mostly sunny with an ambient temperature of 52° Fahrenheit.

To characterize the stockpile a grid was roughly established over the cell with a total of 50 grid coordinates (five sample from each of 10 rows - A through J). A mini-excavator was used to excavate a test pit at each coordinate. Each test pit was extended to within 6 to 12 inches of the liner; hand shovels were then used to

access deepest soils to minimize damage to the liner. The work plan stated that headspace samples would be collected from 12 to 18 inches below the surface of the stockpile. However, the depth of the material in most locations was up to 2.5 feet, and in some locations up to three feet. To represent all materials in the stockpile field screening samples were taken at all depths, with additional samples being collected from the bottom to represent the material most likely to be missed during tilling.

A total of 63 headspace samples were collected from the 50 locations. Field screening results ranged from 0.6 to 390 ppm, with the majority of elevated results being in the eastern portions of the stockpile. The highest field screening result in the western most rows (rows A through E) was 78.1 ppm. Headspace results are presented in Table 2.

Table 2 – 2019 Landfarm Headspace Readings

Coordinate	Location	Depth (ft.)	Reading (ppm)	Coordinate	Location	Depth (ft.)	Reading (ppm)
A-1	Bottom	2.5	1.7	F-1	Bottom	2	0.6
A-2	Bottom	3	7.4	F-2	Bottom	2.5	5.4
A-3	Middle	1.5	8.3		Top	1	5.1
A-4	Top	1	1.6	F-3	Bottom	2.5	355.4
A-5	Bottom	3	4.3	F-4	Bottom	2.5	1.6
B-1	Bottom	2	3.8		Top	1	4.1
B-2	Bottom	3	18.8	F-5	Bottom	2.5	11
B-3*	Bottom	2.5	41.9	G-1	Bottom	3	2.1
B-4	Top	1	2.4		Middle	2.5	0.8
B-5	Middle	1.5	1.6	G-2	Bottom	2.5	2.7
C-1	Bottom	2.5	4.3	G-3*	Bottom	3	390.4
	Top	1	1.3	G-4	Bottom	2.5	21.8
C-2	Bottom	2	6.9		Top	1	1.7
C-3	Bottom	2.5	3	G-5	Bottom	2	6.7
C-4	Middle	1.5	1.7	H-1	Bottom	1	9
C-5	Bottom	2.5	15.9	H-2	Bottom	1.5	3.2
D-1	Bottom	2.5	0.6	H-3	Bottom	2	63.2
	Middle		13	H-4	Bottom	2.5	90.7
D-2	Bottom		0.8	H-5	Bottom	2	20.4
D-3*	Bottom	3	78.1	I-1	Bottom	2	93.3
	Top	1	2.5		Middle	1	8
D-4	Bottom	2	1	I-2	Bottom	1.5	197.2
D-5	Bottom	3	2.8	I-3	Bottom	2.5	163.5
	Top	1	15.2	I-4	Bottom	2	62.9
E-1*	Bottom	2.5	7.7	I-5	Bottom	2	0.7
E-2	Bottom	2	0.8	J-1	Bottom	1	0.6
	Top	1	2.1	J-2	Bottom	1.5	0.6
E-3	Bottom	2.5	4.9	J-3	Bottom	1	4
	Middle	1.5	11.6	J-4	Bottom	2.5	2.6
E-4	Bottom	2.5	2.5		Middle	1.5	1
E-5*	Bottom	3	56.2	J-5	Bottom	2.5	34.2
	Middle	1.5	1.2				

The stockpile was sampled as if it was two separate piles. From the western portion four analytical samples were collected, plus a duplicate, for characterizing up to 300 cubic yards of soil. From the eastern portion of the stockpile one analytical sample was collected from the highest to represent 200 cubic yards of soil.

Analysis detected DRO in two samples at concentrations in excess of the ADEC Method Two cleanup level for migration to groundwater (MTG). These samples also had exceedances for naphthalene and 1,4-dichlorobenzene. There were also other exceedances of other volatile analytes in the individual samples. Benzene exceeded MTG cleanup level in four out of the five locations sampled. Complete laboratory results are presented in Table 3. SGS laboratory report 1195629 is attached.

Table 3 – 2019 Landfarm Confirmation Soil Sample Results

Analyte	Unit	Analysis	ADEC Cleanup Level	Sample ID and Depth (ft bgs)						
				B3-2.5'	D3-2.5'	D13-2.5'~	E1-2.5'	E5-2.5'	G3-2.5'	Trip Blank
Headspace	ppmv	MiniRae3000	-	**41.9**	**78.1**	**78.1**	**7.7**	**56.2**	**390.4**	-
Gasoline Range Organics	mg/Kg	AK101	300	**8.86**	**4.57**	**6.21**	**4.33**	**3.68**	**17.1**	2.52 U
Diesel Range Organics	mg/Kg	AK102	250	**1370**	**166**	**193**	**173**	**160**	**440**	-
Polyaromatic Hydrocarbons (PAH)										
1-Methylnaphthalene	ug/Kg	8270D SIM	410	-	-	-	-	-	**68.3**	-
2-Methylnaphthalene	ug/Kg	8270D SIM	1300	-	-	-	-	-	**54.8**	-
Acenaphthene	ug/Kg	8270D SIM	37000	-	-	-	-	-	**65.4**	-
Fluoranthene	ug/Kg	8270D SIM	590000	-	-	-	-	-	**78.4**	-
Fluorene	ug/Kg	8270D SIM	36000	-	-	-	-	-	**72.2**	-
Naphthalene	ug/Kg	8270D SIM	38	-	-	-	-	-	**62.8**	-
Phenanthrene	ug/Kg	8270D SIM	39000	-	-	-	-	-	**117**	-
Pyrene	ug/Kg	8270D SIM	87000	-	-	-	-	-	**87.3**	-
Other PAHs	ug/Kg	8270D SIM	varies	-	-	-	-	-	ND	-
Volatile Organic Compounds (VOCs)										
1,2,4-Trimethylbenzene	ug/Kg	SW8260C	610	**180**	**145**	**155**	**107**	**76.6**	**1730**	50.3 U
1,2-Dichlorobenzene	ug/Kg	SW8260C	2400	30.9 U	25.0 U	27.2 U	26.7 U	29.2 U	**62.3**	25.2 U
1,2-Dichloroethane	ug/Kg	SW8260C	5.5	**5.57**	2.00 U	2.18 U	2.13 U	2.34 U	2.09 U	2.01 U
1,3,5-Trimethylbenzene	ug/Kg	SW8260C	660	**96.2**	**64.3**	**150**	**54.1**	**32.5**	**1630**	25.2 U
1,4-Dichlorobenzene	ug/Kg	SW8260C	37	**62.2**	25.0 U	27.2 U	26.7 U	29.2 U	**49.0**	25.2 U
2-Butanone (MEK)	ug/Kg	SW8260C	15000	309 U	**296**	**471**	**271**	292 U	**970**	252 U
4-Isopropyltoluene	ug/Kg	SW8260C	-	124 U	100 U	109 U	107 U	117 U	**345**	101 U
Benzene	ug/Kg	SW8260C	22	**61.0**	**22.0**	**33.5**	**26.7**	**31.9**	**20.4**	12.6 U
Ethylbenzene	ug/Kg	SW8260C	130	**31.6**	**54.8**	**32.4**	**33.8**	**36.6**	**83.5**	25.2 U
Isopropylbenzene	ug/Kg	SW8260C	5600	30.9 U	25.0 U	27.2 U	26.7 U	29.2 U	**36.1**	25.2 U
Naphthalene	ug/Kg	SW8260C	38	**52.6**	25.0 U	**32.9**	**31.2**	29.2 U	**592**	25.2 U
Toluene	ug/Kg	SW8260C	6700	**44.3**	**55.0**	**39.5**	**31.7**	**47.1**	26.2 U	25.2 U
Xylenes (total)	ug/Kg	SW8260C	1500	**150**	**267**	**168**	**159**	**156**	**1080**	75.5 U
n-Propylbenzene	ug/Kg	SW8260C	9100	30.9 U	**47.8**	27.2 U	**33.6**	29.2 U	**87.4**	25.2 U
sec-Butylbenzene	ug/Kg	SW8260C	42000	30.9 U	25.0 U	27.2 U	26.7 U	29.2 U	**43.5**	25.2 U
Other VOCs	ug/Kg	SW8260C	varies	ND	ND	ND	ND	ND	ND	ND

Notes:

*	Table B1 or B2 Method Two for the Under 40 Inch Zone, Migration to Groundwater (MTG) (18 AAC 75) (October 27, 2018)
8.86	Bold denotes detectable concentration reported in the project sample
1370	Shaded denotes concentration reported above ADEC MTG Cleanup Level
15.5 U	Analyte not detected above detection limit
0.990 U	Analyte not detected above detection limit but detection limit is greater than the ADEC cleanup level
ND	Not detected
mg/Kg	Milligrams per Kilogram
ug/Kg	Micrograms per Kilogram
-	Not sampled or not applicable
~	Duplicate of proceeding sample

CONCLUSIONS AND RECOMMENDATIONS

Based on the data, contaminant concentrations in excess of ADEC MTG cleanup levels still exists in both the eastern and western portions of the landfarm. The contamination appears to be in the deeper soils contained within the landfarm. Additional tilling of the soils is necessary to further treat the soils. During these tilling operations additional efforts need to be taken to ensure the deepest soils are agitated.

If you have any questions or wish to discuss this project further please do not hesitate to contact Shayla Marshall or the undersigned at (907) 272-9336.

Sincerely,
ENVIRONMENTAL MANAGEMENT, INC.

Hannah Deeney, E.I.T., QEP
Junior Environmental Engineer

Glenn Hasburgh, QEP
Environmental Scientist

Encl: Attachment 1 – Field Notes
Attachment 2 – Photo Log
Attachment 3 – SGS Laboratory Report 1183863 and Laboratory Quality Control Checklist
Attachment 4 – SGS Laboratory Report 1195629 and Laboratory Quality Control Checklist

ATTACHMENT 1

FIELD NOTES

7/20/18 (EMI) Hannah Oceney
17075 (JCE) Kevin

Onsite @1330
Staked out 20x20 grid for screening samples. PID bump test = 100.1 ppm

20x20 Grid

N

	1	2	3	4	5
A	0.2	0.5	1.0	1.1	0.3
B	1.4	0.3	1.5	0.3	1.0
C	0.1	0.8	0.7	STOCKPILE	
D	0.3	0.5	1.1		
E	0.0	0.2	0.2		

C4, C5, D4, D5, E4, E5 not sampled due to stock pile.

Scale: 1 square = _____

28 7/20/18 Hannah

17875 Headspaces

Sample loc/time	PID/time
A1 /1456	0.2ppm/1510 ~~0.3ppm/1506~~
A2 /1454	0.5ppm/1509 ~~1.1ppm/1507~~
A3 /1452	1.0ppm/1508
A4 /1450	1.1ppm/1507
A5 /1448	0.3ppm/1506
B1 /1457	1.4ppm/1522
B2 /1458	0.3ppm/1524
B3 /1501	1.5ppm/1525
B4 /1503	0.3ppm/1527
B5 /1505	1.0ppm/1532
C1 /1514	0.7ppm/1535
C2 /1515	0.8ppm/1534
C3 /1517	0.7ppm/1533
D1 /1521	0.3ppm/1540
D2 /1520	0.5ppm/1541
D3 /1518	1.1ppm/1542
E1 /1545	0.0ppm/1559
E2 /1546	0.2ppm/1601
E3 /1548	0.2ppm/1603

Analyticals

A4 @1611 +10 mins B6 (Dup of B3) @1625

B1 @1620

B3 @1615 D3 @1627

offsite @ 1640

Scale: 1 square = _____

17875 (GH)

HUB landform characterization

9/19/19 weather sunny 52°

- Glenn Hoberg

0800 - FMT Arrive on site to characterize the landform

- A grid A-V was established test pit will be excavated with a MMI

- Additional Headspace ran collected due to odor at greater depth

- Landform characterized as terrace plus to see if A-E can be cleared

- One sample for VH highest also collected to show "highest Rowing"

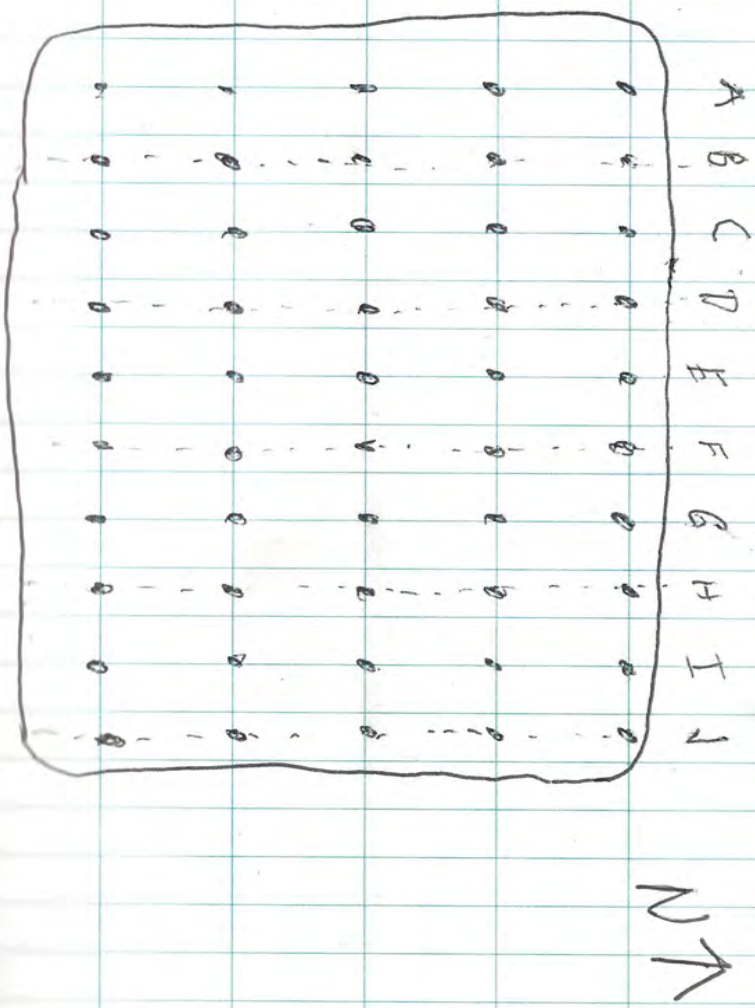
(GH) Headspace 1 17875 #2

ID	T/M/B	depth	Rowing	Odor	Rad
A 1	B	2.5	1.7		
2	B	3	7.4		
3	M	1.5	8.3		
4	T	1	1.6		
5	B	3	4.3		
B 1	B	2	3.8		
2	B	3	18.8		
3	B	2.5	41.9	Sample @ 11:27	
4	T	1	2.4		
5	M	1.5	1.6		
C 1	B	2.5	4.3	T 1'	1.3
2	B	2	6.9		
3	B	2.5	3.0		
4	M	1.5	1.7		
5	B	2.5	15.9	M	13.0
D 1	B	2.5	0.6	~~T 1~~	~~6.2~~
2	B	2.5	0.8	Sampled	11:31 - dup
3	B	2.5	78.1	T 1	2.5
4	B	2	1.0		
5	B	3	2.8	T 1	5.2
E 1	B	2.5	77.7	Sample @ 1145	
2	B	2	0.8	T 1	2.1
3	B	2.5	4.9	M 1.5	11.6
4	B	2.5	2.5	~~T 1~~ 1150	
5 odor	B	3	56.2	M 1.5	1.2

17875 HAND Landsfer (C4)

F 1	B	2	0.6		
2	B	2.5	5.4	T i	5.1
3	B	2.5	555.4		
4	B	2.5	1.6	T i	4.1
5	B	2.5	11.0		
G 1	B	2	2.1	m 2.5	0.8
2	B	2.5	2.7		
3	B	3	390.4		
4	B	2.5	21.8	T 1	1.7
5	B	2	6.7		
H 1	D	1	9.0		
2	B	1.5	3.2		
3	B	2	63.2		
4	B	2	90.7		
5	B	2	20.4		
I	B	2	93.3	m 1	8.0
2	B	1.5	197.2		
3	B	2.5	163.5		
4	B	2.0	62.9		
5	B	2.0	0.7	F 1	
J 1	B	1	4.6		
2	B	1.5	0.6		
3	B	1	4.0		
4	B	2.5	2.6	M 1.5	1.0
5	B	2.5	34.2		

(C4) 17875 HUB landsfer



ATTACHMENT 2

PHOTO LOG

Photo Log

Photo 1: Area of landfarm prior to baseline sampling, facing west. (July 20, 2018)

Photo 2: Stockpiled soil prior to landfarm construction, facing south. (July 20, 2018)

Photo Log

Photo 3: Area of landfarm prior to spreading of soil, facing east. (July 2018)

Photo 4: Area of landfarm with liners, facing west. (July 2018)

Photo Log

Photo 5: Soil placed within landfarm, facing west. (July 2018)

Photo 6: Covered landfarm, facing west. (July 2018)

Photo Log

Photo 1 (9/19/2019 - looking west): This photo shows the landfarm prior to characterization sampling. Soil depths throughout the stockpile varied from 1.5 to three feet.

Photo 2 (9/19/2019 – looking west): This photo shows the landfarm during the sampling event after all test pits have been excavated. The sampling event results in significant mixing of soils which may be considered as a mixing/till event.

ATTACHMENT 3

SGS LABORATORY REPORT 1183863 AND LABORATORY QUALITY CONTROL CHECKLIST

Laboratory Report of Analysis

To: Environmental Mgmt Inc (EMI)
206 E Fireweed Ln #201
Anchorage, AK 995032703
(907)272-9336

Report Number: **1183863**

Client Project: **17875 The Hub**

Dear Larry Helgeson,

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

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

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

Sincerely,
SGS North America Inc.

SGS North America Inc.
Environmental Services - Alaska Division
Project Manager

Jillian Vlahovich
2018.08.01
17:10:16 -08'00'

Jillian Vlahovich Date
Project Manager
Jillian.Vlahovich@sgs.com

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

Case Narrative

SGS Client: **Environmental Mgmt Inc (EMI)**
SGS Project: **1183863**
Project Name/Site: **17875 The Hub**
Project Contact: **Larry Helgeson**

Refer to sample receipt form for information on sample condition.

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

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

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 DW Chemistry (Provisionally Certified as of 06/11/2018 for Mercury by EPA245.1,Beryllium and Copper by EPA200.8) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
A4	1183863001	07/20/2018	07/23/2018	Soil/Solid (dry weight)
B1	1183863002	07/20/2018	07/23/2018	Soil/Solid (dry weight)
B3	1183863003	07/20/2018	07/23/2018	Soil/Solid (dry weight)
B6	1183863004	07/20/2018	07/23/2018	Soil/Solid (dry weight)
D3	1183863005	07/20/2018	07/23/2018	Soil/Solid (dry weight)
Trip Blank	1183863006	07/20/2018	07/23/2018	Soil/Solid (dry weight)

Method	Method Description
AK102	Diesel Range Organics (S)
AK101	Gasoline Range Organics (S)
SM21 2540G	Percent Solids SM2540G
SW8260C	VOC 8260 (S) Field Extracted

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Detectable Results Summary

Client Sample ID: **A4**
Lab Sample ID: 1183863001
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	48.1	mg/Kg

Client Sample ID: **B1**
Lab Sample ID: 1183863002
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	79.2	mg/Kg

Client Sample ID: **B6**
Lab Sample ID: 1183863004
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	28.1	mg/Kg

Client Sample ID: **D3**
Lab Sample ID: 1183863005
Semivolatile Organic Fuels

Parameter	Result	Units
Diesel Range Organics	267	mg/Kg

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Results of **A4**

Client Sample ID: **A4**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863001
Lab Project ID: 1183863

Collection Date: 07/20/18 16:11
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):55.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	48.1		35.8	11.1	mg/Kg	1		07/31/18 16:25
Surrogates								
5a Androstane (surr)	84.7		50-150		%	1		07/31/18 16:25

Batch Information

Analytical Batch: XFC14424
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 07/31/18 16:25
Container ID: 1183863001-A

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 07/24/18 10:03
Prep Initial Wt./Vol.: 30.238 g
Prep Extract Vol: 5 mL

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Results of **A4**

Client Sample ID: **A4**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863001
Lab Project ID: 1183863

Collection Date: 07/20/18 16:11
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):55.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	8.92	U	8.92	2.68	mg/Kg	1		07/24/18 13:32
Surrogates								
4-Bromofluorobenzene (surr)	62.6		50-150		%	1		07/24/18 13:32

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 13:32
Container ID: 1183863001-B

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:11
Prep Initial Wt./Vol.: 46.08 g
Prep Extract Vol: 45.5483 mL

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Results of **A4**

Client Sample ID: **A4**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863001
Lab Project ID: 1183863

Collection Date: 07/20/18 16:11
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):55.4
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	178 U		178	53.5	ug/Kg	1		07/24/18 14:48
1,2-Dibromoethane	35.7 U		35.7	11.1	ug/Kg	1		07/24/18 14:48
1,2-Dichloroethane	35.7 U		35.7	11.1	ug/Kg	1		07/24/18 14:48
1,3,5-Trimethylbenzene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
Benzene	44.6 U		44.6	13.9	ug/Kg	1		07/24/18 14:48
Ethylbenzene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
Isopropylbenzene (Cumene)	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
Methyl-t-butyl ether	357 U		357	111	ug/Kg	1		07/24/18 14:48
Naphthalene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
n-Butylbenzene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
o-Xylene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
P & M -Xylene	178 U		178	53.5	ug/Kg	1		07/24/18 14:48
sec-Butylbenzene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
tert-Butylbenzene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
Toluene	89.2 U		89.2	27.8	ug/Kg	1		07/24/18 14:48
Xylenes (total)	268 U		268	81.4	ug/Kg	1		07/24/18 14:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.4		71-136		%	1		07/24/18 14:48
4-Bromofluorobenzene (surr)	69.5		55-151		%	1		07/24/18 14:48
Toluene-d8 (surr)	101		85-116		%	1		07/24/18 14:48

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/24/18 14:48
Container ID: 1183863001-B

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:11
Prep Initial Wt./Vol.: 46.08 g
Prep Extract Vol: 45.5483 mL

Print Date: 08/01/2018 2:18:50PM

Results of **B1**

Client Sample ID: **B1**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863002
Lab Project ID: 1183863

Collection Date: 07/20/18 16:20
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):45.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	79.2		44.3	13.7	mg/Kg	1		07/31/18 16:35
Surrogates								
5a Androstane (surr)	74.6		50-150		%	1		07/31/18 16:35

Batch Information

Analytical Batch: XFC14424
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 07/31/18 16:35
Container ID: 1183863002-A

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 07/24/18 10:03
Prep Initial Wt./Vol.: 30.107 g
Prep Extract Vol: 5 mL

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Results of **B1**

Client Sample ID: **B1**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863002
Lab Project ID: 1183863

Collection Date: 07/20/18 16:20
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):45.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	10.9	U	10.9	3.26	mg/Kg	1		07/24/18 13:50
Surrogates								
4-Bromofluorobenzene (surr)	115		50-150		%	1		07/24/18 13:50

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 13:50
Container ID: 1183863002-B

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:20
Prep Initial Wt./Vol.: 58.224 g
Prep Extract Vol: 57.0044 mL

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Results of **B1**

Client Sample ID: **B1**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863002
Lab Project ID: 1183863

Collection Date: 07/20/18 16:20
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):45.0
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	217 U		217	65.2	ug/Kg	1		07/24/18 15:04
1,2-Dibromoethane	43.5 U		43.5	13.5	ug/Kg	1		07/24/18 15:04
1,2-Dichloroethane	43.5 U		43.5	13.5	ug/Kg	1		07/24/18 15:04
1,3,5-Trimethylbenzene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
Benzene	54.4 U		54.4	17.0	ug/Kg	1		07/24/18 15:04
Ethylbenzene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
Isopropylbenzene (Cumene)	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
Methyl-t-butyl ether	435 U		435	135	ug/Kg	1		07/24/18 15:04
Naphthalene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
n-Butylbenzene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
o-Xylene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
P & M -Xylene	217 U		217	65.2	ug/Kg	1		07/24/18 15:04
sec-Butylbenzene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
tert-Butylbenzene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
Toluene	109 U		109	33.9	ug/Kg	1		07/24/18 15:04
Xylenes (total)	326 U		326	99.1	ug/Kg	1		07/24/18 15:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	98		71-136		%	1		07/24/18 15:04
4-Bromofluorobenzene (surr)	128		55-151		%	1		07/24/18 15:04
Toluene-d8 (surr)	101		85-116		%	1		07/24/18 15:04

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/24/18 15:04
Container ID: 1183863002-B

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:20
Prep Initial Wt./Vol.: 58.224 g
Prep Extract Vol: 57.0044 mL

Print Date: 08/01/2018 2:18:50PM

Results of **B3**

Client Sample ID: **B3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863003
Lab Project ID: 1183863

Collection Date: 07/20/18 16:15
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.8	U	26.8	8.30	mg/Kg	1		07/31/18 16:44
Surrogates								
5a Androstane (surr)	88.4		50-150		%	1		07/31/18 16:44

Batch Information

Analytical Batch: XFC14424
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 07/31/18 16:44
Container ID: 1183863003-A

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 07/24/18 10:03
Prep Initial Wt./Vol.: 30.245 g
Prep Extract Vol: 5 mL

Results of **B3**

Client Sample ID: **B3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863003
Lab Project ID: 1183863

Collection Date: 07/20/18 16:15
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.73	U	4.73	1.42	mg/Kg	1		07/24/18 14:08
Surrogates								
4-Bromofluorobenzene (surr)	119		50-150		%	1		07/24/18 14:08

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 14:08
Container ID: 1183863003-B

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:15
Prep Initial Wt./Vol.: 56.552 g
Prep Extract Vol: 39.6448 mL

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Results of **B3**

Client Sample ID: **B3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863003
Lab Project ID: 1183863

Collection Date: 07/20/18 16:15
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	94.6	U	94.6	28.4	ug/Kg	1		07/24/18 15:19
1,2-Dibromoethane	18.9	U	18.9	5.87	ug/Kg	1		07/24/18 15:19
1,2-Dichloroethane	18.9	U	18.9	5.87	ug/Kg	1		07/24/18 15:19
1,3,5-Trimethylbenzene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
Benzene	23.7	U	23.7	7.38	ug/Kg	1		07/24/18 15:19
Ethylbenzene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
Isopropylbenzene (Cumene)	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
Methyl-t-butyl ether	189	U	189	58.7	ug/Kg	1		07/24/18 15:19
Naphthalene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
n-Butylbenzene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
o-Xylene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
P & M -Xylene	94.6	U	94.6	28.4	ug/Kg	1		07/24/18 15:19
sec-Butylbenzene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
tert-Butylbenzene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
Toluene	47.3	U	47.3	14.8	ug/Kg	1		07/24/18 15:19
Xylenes (total)	142	U	142	43.1	ug/Kg	1		07/24/18 15:19
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.1		71-136		%	1		07/24/18 15:19
4-Bromofluorobenzene (surr)	131		55-151		%	1		07/24/18 15:19
Toluene-d8 (surr)	100		85-116		%	1		07/24/18 15:19

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/24/18 15:19
Container ID: 1183863003-B

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:15
Prep Initial Wt./Vol.: 56.552 g
Prep Extract Vol: 39.6448 mL

Print Date: 08/01/2018 2:18:50PM

Results of **B6**

Client Sample ID: **B6**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863004
Lab Project ID: 1183863

Collection Date: 07/20/18 16:25
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	28.1		27.4	8.49	mg/Kg	1		07/31/18 16:54
Surrogates								
5a Androstane (surr)	90.4		50-150		%	1		07/31/18 16:54

Batch Information

Analytical Batch: XFC14424
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 07/31/18 16:54
Container ID: 1183863004-A

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 07/24/18 10:03
Prep Initial Wt./Vol.: 30.289 g
Prep Extract Vol: 5 mL

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Results of **B6**

Client Sample ID: **B6**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863004
Lab Project ID: 1183863

Collection Date: 07/20/18 16:25
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.81	U	4.81	1.44	mg/Kg	1		07/24/18 14:26
Surrogates								
4-Bromofluorobenzene (surr)	116		50-150		%	1		07/24/18 14:26

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 14:26
Container ID: 1183863004-B

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:25
Prep Initial Wt./Vol.: 59.7 g
Prep Extract Vol: 41.5347 mL

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Results of **B6**

Client Sample ID: **B6**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863004
Lab Project ID: 1183863

Collection Date: 07/20/18 16:25
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):72.3
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	96.2	U	96.2	28.9	ug/Kg	1		07/24/18 20:40
1,2-Dibromoethane	19.2	U	19.2	5.97	ug/Kg	1		07/24/18 20:40
1,2-Dichloroethane	19.2	U	19.2	5.97	ug/Kg	1		07/24/18 20:40
1,3,5-Trimethylbenzene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
Benzene	24.1	U	24.1	7.51	ug/Kg	1		07/24/18 20:40
Ethylbenzene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
Isopropylbenzene (Cumene)	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
Methyl-t-butyl ether	192	U	192	59.7	ug/Kg	1		07/24/18 20:40
Naphthalene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
n-Butylbenzene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
o-Xylene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
P & M -Xylene	96.2	U	96.2	28.9	ug/Kg	1		07/24/18 20:40
sec-Butylbenzene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
tert-Butylbenzene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
Toluene	48.1	U	48.1	15.0	ug/Kg	1		07/24/18 20:40
Xylenes (total)	144	U	144	43.9	ug/Kg	1		07/24/18 20:40
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		07/24/18 20:40
4-Bromofluorobenzene (surr)	138		55-151		%	1		07/24/18 20:40
Toluene-d8 (surr)	99.9		85-116		%	1		07/24/18 20:40

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/24/18 20:40
Container ID: 1183863004-B

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:25
Prep Initial Wt./Vol.: 59.7 g
Prep Extract Vol: 41.5347 mL

Print Date: 08/01/2018 2:18:50PM

Results of **D3**

Client Sample ID: **D3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863005
Lab Project ID: 1183863

Collection Date: 07/20/18 16:27
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):35.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	267		55.6	17.2	mg/Kg	1		07/31/18 17:04
Surrogates								
5a Androstane (surr)	78.4		50-150		%	1		07/31/18 17:04

Batch Information

Analytical Batch: XFC14424
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 07/31/18 17:04
Container ID: 1183863005-A

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 07/24/18 10:03
Prep Initial Wt./Vol.: 30.381 g
Prep Extract Vol: 5 mL

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Results of **D3**

Client Sample ID: **D3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863005
Lab Project ID: 1183863

Collection Date: 07/20/18 16:27
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):35.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	17.3	U	17.3	5.18	mg/Kg	1		07/24/18 14:43
Surrogates								
4-Bromofluorobenzene (surr)	111		50-150		%	1		07/24/18 14:43

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 14:43
Container ID: 1183863005-B

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:27
Prep Initial Wt./Vol.: 42.956 g
Prep Extract Vol: 52.6992 mL

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Results of **D3**

Client Sample ID: **D3**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863005
Lab Project ID: 1183863

Collection Date: 07/20/18 16:27
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):35.5
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	345	U	345	104	ug/Kg	1		07/25/18 16:01
1,2-Dibromoethane	69.1	U	69.1	21.4	ug/Kg	1		07/25/18 16:01
1,2-Dichloroethane	69.1	U	69.1	21.4	ug/Kg	1		07/25/18 16:01
1,3,5-Trimethylbenzene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
Benzene	86.4	U	86.4	26.9	ug/Kg	1		07/25/18 16:01
Ethylbenzene	173	U	173	53.9	ug/Kg	1		07/26/18 16:06
Isopropylbenzene (Cumene)	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
Methyl-t-butyl ether	691	U	691	214	ug/Kg	1		07/25/18 16:01
Naphthalene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
n-Butylbenzene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
o-Xylene	173	U	173	53.9	ug/Kg	1		07/26/18 16:06
P & M -Xylene	345	U	345	104	ug/Kg	1		07/26/18 16:06
sec-Butylbenzene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
tert-Butylbenzene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
Toluene	173	U	173	53.9	ug/Kg	1		07/25/18 16:01
Xylenes (total)	518	U	518	158	ug/Kg	1		07/26/18 16:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		07/25/18 16:01
4-Bromofluorobenzene (surr)	82.4		55-151		%	1		07/25/18 16:01
Toluene-d8 (surr)	100		85-116		%	1		07/25/18 16:01

Batch Information

Analytical Batch: VMS18060
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/25/18 16:01
Container ID: 1183863005-B

Prep Batch: VXX32704
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:27
Prep Initial Wt./Vol.: 42.956 g
Prep Extract Vol: 52.6992 mL

Analytical Batch: VMS18064
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/26/18 16:06
Container ID: 1183863005-B

Prep Batch: VXX32709
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:27
Prep Initial Wt./Vol.: 42.956 g
Prep Extract Vol: 52.6992 mL

Print Date: 08/01/2018 2:18:50PM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863006
Lab Project ID: 1183863

Collection Date: 07/20/18 16:11
Received Date: 07/23/18 15:48
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	2.52	U	2.52	0.757	mg/Kg	1		07/24/18 12:56
Surrogates								
4-Bromofluorobenzene (surr)	88.2		50-150		%	1		07/24/18 12:56

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 07/24/18 12:56
Container ID: 1183863006-A

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:11
Prep Initial Wt./Vol.: 49.542 g
Prep Extract Vol: 25 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17875 The Hub**
Lab Sample ID: 1183863006
Lab Project ID: 1183863

Collection Date: 07/20/18 16:11
Received Date: 07/23/18 15:48
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS- Petroleum VOC Group**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,2,4-Trimethylbenzene	50.5	U	50.5	15.1	ug/Kg	1		07/24/18 14:02
1,2-Dibromoethane	10.1	U	10.1	3.13	ug/Kg	1		07/24/18 14:02
1,2-Dichloroethane	10.1	U	10.1	3.13	ug/Kg	1		07/24/18 14:02
1,3,5-Trimethylbenzene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
Benzene	12.6	U	12.6	3.94	ug/Kg	1		07/24/18 14:02
Ethylbenzene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
Isopropylbenzene (Cumene)	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
Methyl-t-butyl ether	101	U	101	31.3	ug/Kg	1		07/24/18 14:02
Naphthalene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
n-Butylbenzene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
o-Xylene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
P & M -Xylene	50.5	U	50.5	15.1	ug/Kg	1		07/24/18 14:02
sec-Butylbenzene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
tert-Butylbenzene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
Toluene	25.2	U	25.2	7.87	ug/Kg	1		07/24/18 14:02
Xylenes (total)	75.7	U	75.7	23.0	ug/Kg	1		07/24/18 14:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.8		71-136		%	1		07/24/18 14:02
4-Bromofluorobenzene (surr)	99.7		55-151		%	1		07/24/18 14:02
Toluene-d8 (surr)	101		85-116		%	1		07/24/18 14:02

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/24/18 14:02
Container ID: 1183863006-A

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 07/20/18 16:11
Prep Initial Wt./Vol.: 49.542 g
Prep Extract Vol: 25 mL

Print Date: 08/01/2018 2:18:50PM

Method Blank

Blank ID: MB for HBN 1782958 [SPT/10555]
Blank Lab ID: 1461515

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863001, 1183863002, 1183863003, 1183863004, 1183863005

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10555
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP
Analytical Date/Time: 7/23/2018 8:16:00PM

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Duplicate Sample Summary

Original Sample ID: 1183863002
Duplicate Sample ID: 1461516
Analysis Date: 07/23/2018 20:16
Matrix: Soil/Solid (dry weight)

QC for Samples:

1183863001, 1183863002, 1183863003, 1183863004, 1183863005

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	45.0	45.7	%	1.50	(< 15)

Batch Information

Analytical Batch: SPT10555
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP

Print Date: 08/01/2018 2:18:53PM

Method Blank

Blank ID: MB for HBN 1783033 [VXX/32687]
Blank Lab ID: 1461846

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863001, 1183863002, 1183863003, 1183863004, 1183863006

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	71-136		%
4-Bromofluorobenzene (surr)	97.2	55-151		%
Toluene-d8 (surr)	101	85-116		%

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/24/2018 11:46:00AM

Prep Batch: VXX32687
Prep Method: SW5035A
Prep Date/Time: 7/24/2018 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1183863 [VXX32687]
Blank Spike Lab ID: 1461847
Date Analyzed: 07/24/2018 12:01

Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863001, 1183863002, 1183863003, 1183863004, 1183863006

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,2,4-Trimethylbenzene	750	795	106	(75-123)
1,2-Dibromoethane	750	729	97	(78-122)
1,2-Dichloroethane	750	707	94	(73-128)
1,3,5-Trimethylbenzene	750	805	107	(73-124)
Benzene	750	766	102	(77-121)
Ethylbenzene	750	782	104	(76-122)
Isopropylbenzene (Cumene)	750	800	107	(68-134)
Methyl-t-butyl ether	1130	1060	94	(73-125)
Naphthalene	750	762	102	(62-129)
n-Butylbenzene	750	834	111	(70-128)
o-Xylene	750	769	103	(77-123)
P & M -Xylene	1500	1550	103	(77-124)
sec-Butylbenzene	750	823	110	(73-126)
tert-Butylbenzene	750	809	108	(73-125)
Toluene	750	732	98	(77-121)
Xylenes (total)	2250	2320	103	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	94.8	95	(71-136)
4-Bromofluorobenzene (surr)	750	98.6	99	(55-151)
Toluene-d8 (surr)	750	103	103	(85-116)

Batch Information

Analytical Batch: **VMS18050**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX32687**
Prep Method: **SW5035A**
Prep Date/Time: **07/24/2018 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1461850
MS Sample ID: 1461848 MS
MSD Sample ID: 1461849 MSD

Analysis Date: 07/24/2018 14:17
Analysis Date: 07/24/2018 12:45
Analysis Date: 07/24/2018 13:00
Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863001, 1183863002, 1183863003, 1183863004, 1183863006

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	11.1U	333	320	96	333	329	99	75-123	2.90	(< 20)
1,2-Dibromoethane	2.22U	333	314	94	333	349	105	78-122	10.50	(< 20)
1,2-Dichloroethane	2.22U	333	310	93	333	338	101	73-128	8.50	(< 20)
1,3,5-Trimethylbenzene	5.55U	333	322	97	333	334	100	73-124	3.50	(< 20)
Benzene	2.77U	333	330	99	333	345	104	77-121	4.60	(< 20)
Ethylbenzene	5.55U	333	321	96	333	338	102	76-122	5.30	(< 20)
Isopropylbenzene (Cumene)	5.55U	333	309	93	333	336	101	68-134	8.30	(< 20)
Methyl-t-butyl ether	22.2U	500	512	103	500	547	110	73-125	6.60	(< 20)
Naphthalene	5.55U	333	281	84	333	351	105	62-129	22.30	* (< 20)
n-Butylbenzene	5.55U	333	339	102	333	334	100	70-128	1.40	(< 20)
o-Xylene	5.55U	333	314	94	333	331	99	77-123	5.30	(< 20)
P & M -Xylene	11.1U	666	629	94	666	667	100	77-124	5.90	(< 20)
sec-Butylbenzene	5.55U	333	317	95	333	326	98	73-126	2.50	(< 20)
tert-Butylbenzene	5.55U	333	317	95	333	328	98	73-125	3.40	(< 20)
Toluene	6.05J	333	313	92	333	332	98	77-121	5.80	(< 20)
Xylenes (total)	16.6U	1000	943	94	1000	998	100	78-124	5.70	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		333	320	96	333	333	100	71-136	4.20	
4-Bromofluorobenzene (surr)		555	462	83	555	465	84	55-151	0.61	
Toluene-d8 (surr)		333	340	102	333	340	102	85-116	0.02	

Batch Information

Analytical Batch: VMS18050
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/24/2018 12:45:00PM

Prep Batch: VXX32687
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/24/2018 6:00:00AM
Prep Initial Wt./Vol.: 112.54g
Prep Extract Vol: 25.00mL

Print Date: 08/01/2018 2:18:57PM

Method Blank

Blank ID: MB for HBN 1783053 [VXX/32691]
Blank Lab ID: 1461921

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863001, 1183863002, 1183863003, 1183863004, 1183863005, 1183863006

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.12J	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	92.4	50-150		%

Batch Information

Analytical Batch: VFC14298
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 7/25/2018 1:43:00AM

Prep Batch: VXX32691
Prep Method: SW5035A
Prep Date/Time: 7/24/2018 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 1183863 [VXX32691]
Blank Spike Lab ID: 1461922
Date Analyzed: 07/24/2018 11:45

Spike Duplicate ID: LCSD for HBN 1183863 [VXX32691]
Spike Duplicate Lab ID: 1461923
Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863001, 1183863002, 1183863003, 1183863004, 1183863005, 1183863006

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	12.5	13.9	111	12.5	14.5	116	(60-120)	4.40	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	102	102	1.25	100	100	(50-150)	2.00	

Batch Information

Analytical Batch: **VFC14298**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX32691**
Prep Method: **SW5035A**
Prep Date/Time: **07/24/2018 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1783125 [VXX/32704]
Blank Lab ID: 1462208

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863005

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromoethane	5.00U	10.0	3.10	ug/Kg
1,2-Dichloroethane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	71-136		%
4-Bromofluorobenzene (surr)	98.9	55-151		%
Toluene-d8 (surr)	100	85-116		%

Batch Information

Analytical Batch: VMS18060
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/25/2018 11:22:00AM

Prep Batch: VXX32704
Prep Method: SW5035A
Prep Date/Time: 7/25/2018 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183863 [VXX32704]
Blank Spike Lab ID: 1462209
Date Analyzed: 07/25/2018 11:37

Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863005

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,2,4-Trimethylbenzene	750	761	101	(75-123)
1,2-Dibromoethane	750	753	100	(78-122)
1,2-Dichloroethane	750	727	97	(73-128)
1,3,5-Trimethylbenzene	750	765	102	(73-124)
Benzene	750	726	97	(77-121)
Isopropylbenzene (Cumene)	750	750	100	(68-134)
Methyl-t-butyl ether	1130	1080	96	(73-125)
Naphthalene	750	801	107	(62-129)
n-Butylbenzene	750	788	105	(70-128)
sec-Butylbenzene	750	773	103	(73-126)
tert-Butylbenzene	750	761	101	(73-125)
Toluene	750	693	92	(77-121)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	101	101	(71-136)
4-Bromofluorobenzene (surr)	750	99.5	100	(55-151)
Toluene-d8 (surr)	750	101	101	(85-116)

Batch Information

Analytical Batch: **VMS18060**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX32704**
Prep Method: **SW5035A**
Prep Date/Time: **07/25/2018 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1183877001
MS Sample ID: 1462210 MS
MSD Sample ID: 1462211 MSD

Analysis Date: 07/25/2018 15:31
Analysis Date: 07/25/2018 12:57
Analysis Date: 07/25/2018 13:12
Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863005

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	24.4U	664	596	90	664	618	93	75-123	3.60	(< 20)
1,2-Dibromoethane	4.89U	664	615	93	664	658	99	78-122	6.70	(< 20)
1,2-Dichloroethane	4.89U	664	595	90	664	621	94	73-128	4.40	(< 20)
1,3,5-Trimethylbenzene	12.2U	664	614	92	664	636	96	73-124	3.50	(< 20)
Benzene	6.10U	664	597	90	664	622	94	77-121	4.10	(< 20)
Isopropylbenzene (Cumene)	12.2U	664	573	86	664	617	93	68-134	7.50	(< 20)
Methyl-t-butyl ether	48.9U	997	972	98	997	1021	102	73-125	5.00	(< 20)
Naphthalene	12.2U	664	512	77	664	622	94	62-129	19.50	(< 20)
n-Butylbenzene	12.2U	664	818	123	664	837	126	70-128	2.30	(< 20)
sec-Butylbenzene	12.2U	664	692	104	664	713	107	73-126	2.90	(< 20)
tert-Butylbenzene	12.2U	664	628	95	664	652	98	73-125	3.80	(< 20)
Toluene	12.2U	664	564	85	664	592	89	77-121	5.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		664	655	99	664	673	101	71-136	2.70	
4-Bromofluorobenzene (surr)		1109	961	87	1109	994	90	55-151	3.40	
Toluene-d8 (surr)		664	676	102	664	678	102	85-116	0.39	

Batch Information

Analytical Batch: VMS18060
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/25/2018 12:57:00PM

Prep Batch: VXX32704
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/25/2018 6:00:00AM
Prep Initial Wt./Vol.: 59.02g
Prep Extract Vol: 25.00mL

Print Date: 08/01/2018 2:19:03PM

Method Blank

Blank ID: MB for HBN 1783183 [VXX/32709]
Blank Lab ID: 1462491

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863005

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	103	71-136		%
4-Bromofluorobenzene (surr)	95.9	55-151		%
Toluene-d8 (surr)	102	85-116		%

Batch Information

Analytical Batch: VMS18064
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/26/2018 12:38:00PM

Prep Batch: VXX32709
Prep Method: SW5035A
Prep Date/Time: 7/26/2018 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1183863 [VXX32709]
Blank Spike Lab ID: 1462492
Date Analyzed: 07/26/2018 12:53

Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863005

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Ethylbenzene	750	746	100	(76-122)
o-Xylene	750	731	98	(77-123)
P & M -Xylene	1500	1480	99	(77-124)
Xylenes (total)	2250	2210	98	(78-124)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	99.6	100	(71-136)
4-Bromofluorobenzene (surr)	750	97.6	98	(55-151)
Toluene-d8 (surr)	750	102	102	(85-116)

Batch Information

Analytical Batch: **VMS18064**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX32709**
Prep Method: **SW5035A**
Prep Date/Time: **07/26/2018 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1183934001
MS Sample ID: 1462493 MS
MSD Sample ID: 1462494 MSD

QC for Samples: 1183863005

Analysis Date: 07/26/2018 16:21
Analysis Date: 07/26/2018 14:18
Analysis Date: 07/26/2018 14:33
Matrix: Soil/Solid (dry weight)

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Ethylbenzene	15.4U	926	844	91	926	856	92	76-122	1.50	(< 20)
o-Xylene	35.1	926	850	88	926	865	90	77-123	1.80	(< 20)
P & M -Xylene	38.9J	1855	1697	90	1855	1708	90	77-124	0.73	(< 20)
Xylenes (total)	74.0J	2783	2545	89	2783	2579	90	78-124	1.10	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		926	895	97	926	941	102	71-136	5.00	
4-Bromofluorobenzene (surr)		1210	1561	129	1210	1550	127	55-151	1.10	
Toluene-d8 (surr)		926	950	102	926	943	102	85-116	0.63	

Batch Information

Analytical Batch: VMS18064
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 7/26/2018 2:18:00PM

Prep Batch: VXX32709
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/26/2018 6:00:00AM
Prep Initial Wt./Vol.: 174.56g
Prep Extract Vol: 95.24mL

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

Method Blank

Blank ID: MB for HBN 1782957 [XXX/39980]
Blank Lab ID: 1461503

Matrix: Soil/Solid (dry weight)

QC for Samples:
1183863001, 1183863002, 1183863003, 1183863004, 1183863005

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	99	60-120		%

Batch Information

Analytical Batch: XFC14422
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 7/31/2018 2:18:00PM

Prep Batch: XXX39980
Prep Method: SW3550C
Prep Date/Time: 7/24/2018 10:03:18AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1183863 [XXX39980]
Blank Spike Lab ID: 1461504
Date Analyzed: 07/31/2018 14:28

Spike Duplicate ID: LCSD for HBN 1183863 [XXX39980]
Spike Duplicate Lab ID: 1461505
Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863001, 1183863002, 1183863003, 1183863004, 1183863005

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	833	893	107	833	900	108	(75-125)	0.72	(< 20)
Surrogates									
5a Androstane (surr)	16.7	111	111	16.7	111	111	(60-120)	0.26	

Batch Information

Analytical Batch: **XFC14422**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX39980**
Prep Method: **SW3550C**
Prep Date/Time: **07/24/2018 10:03**
Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

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Matrix Spike Summary

Original Sample ID: 1183769015
MS Sample ID: 1461506 MS
MSD Sample ID: 1461507 MSD

Analysis Date: 07/31/2018 14:48
Analysis Date: 07/31/2018 14:57
Analysis Date: 07/31/2018 15:07
Matrix: Soil/Solid (dry weight)

QC for Samples: 1183863001, 1183863002, 1183863003, 1183863004, 1183863005

Results by **AK102**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	10.3J	990	952	95	999	1013	100	60-140	6.30	(< 50)
Surrogates										
5a Androstane (surr)		19.8	19.6	99	19.9	20.8	104	50-150	5.80	

Batch Information

Analytical Batch: XFC14422
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 7/31/2018 2:57:00PM

Prep Batch: XXX39980
Prep Method: Sonication Extraction Soil AK102
Prep Date/Time: 7/24/2018 10:03:18AM
Prep Initial Wt./Vol.: 30.49g
Prep Extract Vol: 5.00mL

Print Date: 08/01/2018 2:19:09PM

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1183863

Locations Nationwide

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

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

Page 1 of 1

Section 1

CLIENT: EMI

CONTACT: Larry Helgeson PHONE NO: (907) 272-9336

PROJECT NAME: The Hub PROJECT/ PWSID/ PERMIT#: 17875

REPORTS TO: Larry Helgeson E-MAIL: lhelgeson@emi-alaska.com

INVOICE TO: EMI QUOTE #: P.O. #:

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	Section 3 # CONTAINERS	Type C = COMP G = GRAB MI = Multi Incremental Soils	Preservative: None	MeOH							REMARKS/ LOC ID
							DRO	Retro List GRO & VOC							
1	A-B A4	7/20/18	16:11	Soil	2	G	X	X							
2	A-B B1	7/20/18	16:20	Soil	2	G	X	X							
3	A-B B3	7/20/18	16:15	Soil	2	G	X	X							
4	A-B B6	7/20/18	16:25	Soil	2	G	X	X							
5	A-B D3	7/20/18	16:27	Soil	2	G	X	X							
6	A														

Section 5

	Date	Time	
Relinquished By: (1)	7/23/18	1548	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	7/23/18	15:48	Received For Laboratory By: KET

Section 4

DOD Project? Yes / No

Data Deliverable Requirements: Level II

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: 2.9 D23

or Ambient [ ]

(See attached Sample Receipt Form)

Chain of Custody Seal: (Circle)

INTACT BROKEN ABSENT

(See attached Sample Receipt Form)

[X] 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

e-Sample Receipt Form

SGS Workorder #: **1183863**

1 1 8 3 8 6 3

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	n/a	hand delivered
COC accompanied samples?	yes	
n/a **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	yes	Cooler ID: 1 @ 2.9 °C Therm. ID: D23
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	n/a	
If <0°C, were sample containers ice free?	n/a	
If samples received 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.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	yes	
**Note: If times differ <1hr, record details & login per COC.		
Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis)	yes	
		n/a ***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	yes	

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

Additional notes (if applicable):

Sample 2A was did not have a container label. Sample was matched by lid ID per JKV.

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1183863001-A	No Preservative Required	OK			
1183863001-B	Methanol field pres. 4 C	OK			
1183863002-A	No Preservative Required	OK			
1183863002-B	Methanol field pres. 4 C	OK			
1183863003-A	No Preservative Required	OK			
1183863003-B	Methanol field pres. 4 C	OK			
1183863004-A	No Preservative Required	OK			
1183863004-B	Methanol field pres. 4 C	OK			
1183863005-A	No Preservative Required	OK			
1183863005-B	Methanol field pres. 4 C	OK			
1183863006-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

Laboratory Data Review Checklist

Completed by:

Hannah Deeney

Title:

Junior Environmental Engineer

Date:

January 18, 2019

CS Report Name:

Report Date:

August 1, 2018

Consultant Firm:

Environmental Management, Inc.

Laboratory Name:

SGS -North America

Laboratory Report Number:

1183863

ADEC File Number:

Hazard Identification Number:

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

      (•) Yes ( ) No Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

      ( ) Yes ( ) No Comments:

      Samples were not transferred.

2. Chain of Custody (COC)

   a. COC information completed, signed, and dated (including released/received by)?

      (•) Yes ( ) No Comments:

   b. Correct analyses requested?

      (•) Yes ( ) No Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

      (•) Yes ( ) No Comments:

      Cooler temperature was 2.9°C

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

      (•) Yes ( ) No Comments:

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

      (•) Yes ( ) No Comments:

      None were broken or leaking.

   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 Comments:

e. Data quality or usability affected?

Comments:

Data quality/usability not affected.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

c. Were all corrective actions documented?

(•) Yes ( ) No Comments:

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

Comments:

Data quality/usability not affected.

5. Samples Results

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

(•) Yes ( ) No Comments:

b. All applicable holding times met?

(•) Yes ( ) No Comments:

c. All soils reported on a dry weight basis?

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

LOQ for 1,2-Dibromoethane, 1,2-Dichloroethane, Benzene, and Naphthalene were above the action level in all of the samples. The LOQs for Methyl-t-butyl ether and Ethylbenzene were elevated above the cleanup level.

e. Data quality or usability affected?

Comments:

No, these analytes should not be considered a primary contaminant of concern unless there have been detections independently at the site above the action level.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

(•) Yes ( ) No Comments:

iii. If above LOQ, what samples are affected?

Comments:

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

(•) Yes ( ) No Comments:

v. Data quality or usability affected?

Comments:

Data quality and usability not affected.

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 Comments:

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

(•) Yes ( ) No 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 Comments:

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

(•) Yes ( ) No Comments:

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

Comments:

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

( ) Yes (•) No Comments:

No affected samples.

vii. Data quality or usability affected?

Comments:

Therefore there is no impact on the site characterization.

c. Surrogates – Organics Only

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

(•) Yes ( ) No 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 Comments:

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

( ) Yes (•) No Comments:

iv. Data quality or usability affected?

Comments:

Data quality and usability not affected.

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

i. One trip blank reported per matrix, analysis and cooler?

(•) Yes ( ) No Comments:

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

( ) Yes ( ) No Comments:

Only one cooler was used

iii. All results less than LOQ?

(•) Yes ( ) No Comments:

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

e. Field Duplicate

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

(•) Yes ( ) No Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No 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 Comments:

RPD on samples B3 and B6 were calcualted from 1% to 5% which was acceptable.

iv. Data quality or usability affected?

Comments:

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below.)

○ Yes ○ No ◉ Not Applicable

i. All results less than LOQ?

○ Yes ◉ No Comments:

Only previously cleaned sample spoons or disposible tools were used to collect the samples. No decontaminaiton was done in the field.

ii. If above LOQ, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

○ Yes ◉ No Comments:

ATTACHMENT 4

SGS LABORATORY REPORT 1195629 AND LABORATORY QUALITY CONTROL CHECKLIST

Laboratory Report of Analysis

To: Environmental Mgmt Inc (EMI)
206 E. Fireweed Ln, Ste 201
Anchorage, AK 99503
(907)272-9336

Report Number: **1195629**

Client Project: **17873 HUB Landfarm Charact**

Dear Glenn Hasburgh,

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

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

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

Sincerely,
SGS North America Inc.

Jillian Janssen
2019.10.10
11:03:07 -08'00'

Jillian Janssen Date
Project Manager
Jillian.Janssen@sgs.com

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

Case Narrative

SGS Client: **Environmental Mgmt Inc (EMI)**
SGS Project: **1195629**
Project Name/Site: **17873 HUB Landfarm Charact**
Project Contact: **Glenn Hasburgh**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1799991 [XXX/42341 (1534382) LCS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene d10 and Fluoranthene-d10 do not meet QC criteria. The surrogate recovery of the associated samples are within QC criteria.

LCS for HBN 1800055 [VXX/34970 (1534617) LCS

8260C - LCS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

MB for HBN 1800055 [VXX/34970] (1534616) MB

8260C - Chloroform was detected in the MB greater than the LOQ. This analyte was not reported above the LOQ in the associated samples.

1195630006MS (1534383) MS

8270D SIM - PAH MS recovery for Phenanthrene does not meet QC criteria. Refer to the LCS for accuracy requirements.

1195593006MS (1534622) MS

8260C - MS recovery does not meet QC criteria for trichlorofluoromethane. This analyte was not detected in the parent sample.

1195630006MSD (1534384) MSD

8270D SIM - PAH MS/MSD RPD for Phenanthrene does not meet QC criteria. Results for this analyte are considered estimated in the parent sample.

1195593006MSD (1534623) MSD

8260C - MSD recovery does not meet QC criteria for trichlorofluoromethane. This analyte was not detected in the parent sample.
8260C - MS/MSD RPD for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the parent sample.

*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
8270D SIM (PAH)				
1195630006	LABREFQC	XMS11756	Benzo[k]fluoranthene	RP
SW8260C				
1195593006	LABREFQC	VMS19497	Naphthalene	RP
1195593006	LABREFQC	VMS19497	n-Butylbenzene	SP
1195629001	B3-2.5'	VMS19497	1,2,4-Trichlorobenzene	BLC
1195629001	B3-2.5'	VMS19497	Naphthalene	BLC

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 10/10/2019 10:56:41AM

Laboratory Qualifiers

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

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

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

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

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

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
B3-2.5'	1195629001	09/19/2019	09/23/2019	Soil/Solid (dry weight)
D3-2.5'	1195629002	09/19/2019	09/23/2019	Soil/Solid (dry weight)
D13-2.5'	1195629003	09/19/2019	09/23/2019	Soil/Solid (dry weight)
E1-2.5'	1195629004	09/19/2019	09/23/2019	Soil/Solid (dry weight)
E5-2.5'	1195629005	09/19/2019	09/23/2019	Soil/Solid (dry weight)
G3-2.5'	1195629006	09/19/2019	09/23/2019	Soil/Solid (dry weight)
Trip Blank	1195629007	09/19/2019	09/23/2019	Soil/Solid (dry weight)

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

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Detectable Results Summary

Client Sample ID: **B3-2.5'**
Lab Sample ID: 1195629001

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	1370	mg/Kg
Gasoline Range Organics	8.86	mg/Kg
1,2,4-Trimethylbenzene	180	ug/Kg
1,2-Dichloroethane	5.57	ug/Kg
1,3,5-Trimethylbenzene	96.2	ug/Kg
1,4-Dichlorobenzene	62.2	ug/Kg
Benzene	61.0	ug/Kg
Ethylbenzene	31.6	ug/Kg
Naphthalene	52.6	ug/Kg
o-Xylene	37.1	ug/Kg
P & M -Xylene	113	ug/Kg
Toluene	44.3	ug/Kg
Xylenes (total)	150	ug/Kg

Client Sample ID: **D3-2.5'**
Lab Sample ID: 1195629002

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	166	mg/Kg
Gasoline Range Organics	4.57	mg/Kg
1,2,4-Trimethylbenzene	145	ug/Kg
1,3,5-Trimethylbenzene	64.3	ug/Kg
2-Butanone (MEK)	296	ug/Kg
Benzene	22.0	ug/Kg
Ethylbenzene	54.8	ug/Kg
n-Propylbenzene	47.8	ug/Kg
o-Xylene	65.8	ug/Kg
P & M -Xylene	201	ug/Kg
Toluene	55.0	ug/Kg
Xylenes (total)	267	ug/Kg

Client Sample ID: **D13-2.5'**
Lab Sample ID: 1195629003

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	193	mg/Kg
Gasoline Range Organics	6.21	mg/Kg
1,2,4-Trimethylbenzene	155	ug/Kg
1,3,5-Trimethylbenzene	150	ug/Kg
2-Butanone (MEK)	471	ug/Kg
Benzene	33.5	ug/Kg
Ethylbenzene	32.4	ug/Kg
Naphthalene	32.9	ug/Kg
o-Xylene	45.5	ug/Kg
P & M -Xylene	123	ug/Kg
Toluene	39.5	ug/Kg
Xylenes (total)	168	ug/Kg

Detectable Results Summary

Client Sample ID: **E1-2.5'**
Lab Sample ID: 1195629004

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	173	mg/Kg
Gasoline Range Organics	4.33	mg/Kg
1,2,4-Trimethylbenzene	107	ug/Kg
1,3,5-Trimethylbenzene	54.1	ug/Kg
2-Butanone (MEK)	271	ug/Kg
Benzene	26.7	ug/Kg
Ethylbenzene	33.8	ug/Kg
Naphthalene	31.2	ug/Kg
n-Propylbenzene	33.6	ug/Kg
o-Xylene	40.5	ug/Kg
P & M -Xylene	118	ug/Kg
Toluene	31.7	ug/Kg
Xylenes (total)	159	ug/Kg

Client Sample ID: **E5-2.5'**
Lab Sample ID: 1195629005

Semivolatile Organic Fuels
Volatile Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	160	mg/Kg
Gasoline Range Organics	3.68	mg/Kg
1,2,4-Trimethylbenzene	76.6	ug/Kg
1,3,5-Trimethylbenzene	32.5	ug/Kg
Benzene	31.9	ug/Kg
Ethylbenzene	36.6	ug/Kg
o-Xylene	38.3	ug/Kg
P & M -Xylene	118	ug/Kg
Toluene	47.1	ug/Kg
Xylenes (total)	156	ug/Kg

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Detectable Results Summary

Client Sample ID: **G3-2.5'**
Lab Sample ID: 1195629006

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	68.3	ug/Kg
	2-Methylnaphthalene	54.8	ug/Kg
	Acenaphthene	65.4	ug/Kg
	Fluoranthene	78.4	ug/Kg
	Fluorene	72.2	ug/Kg
	Naphthalene	62.8	ug/Kg
	Phenanthrene	117	ug/Kg
	Pyrene	87.3	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	440	mg/Kg
Volatile Fuels	Gasoline Range Organics	17.1	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	1730	ug/Kg
	1,2-Dichlorobenzene	62.3	ug/Kg
	1,3,5-Trimethylbenzene	1630	ug/Kg
	1,4-Dichlorobenzene	49.0	ug/Kg
	2-Butanone (MEK)	970	ug/Kg
	4-Isopropyltoluene	345	ug/Kg
	Benzene	20.4	ug/Kg
	Ethylbenzene	83.5	ug/Kg
	Isopropylbenzene (Cumene)	36.1	ug/Kg
	Naphthalene	592	ug/Kg
	n-Propylbenzene	87.4	ug/Kg
	o-Xylene	64.7	ug/Kg
	P & M -Xylene	1020	ug/Kg
	sec-Butylbenzene	43.5	ug/Kg
	Xylenes (total)	1080	ug/Kg

Results of **B3-2.5'**

Client Sample ID: **B3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629001
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):87.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1370		22.7	7.05	mg/Kg	1		10/05/19 19:22
Surrogates								
5a Androstane (surr)	98		50-150		%	1		10/05/19 19:22

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 19:22
Container ID: 1195629001-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.209 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **B3-2.5'**

Client Sample ID: **B3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629001
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):87.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	8.86		3.09	0.928	mg/Kg	1		10/03/19 16:12
Surrogates								
4-Bromofluorobenzene (surr)	114		50-150		%	1		10/03/19 16:12

Batch Information

Analytical Batch: VFC14972
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/03/19 16:12
Container ID: 1195629001-B

Prep Batch: VXX35005
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:27
Prep Initial Wt./Vol.: 60.336 g
Prep Extract Vol: 32.6231 mL

Print Date: 10/10/2019 10:56:46AM

Results of **B3-2.5'**

Client Sample ID: **B3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629001
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):87.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	24.8	U	24.8	7.67	ug/Kg	1		09/25/19 21:02
1,1,1-Trichloroethane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,1,2,2-Tetrachloroethane	2.48	U	2.48	0.767	ug/Kg	1		09/25/19 21:02
1,1,2-Trichloroethane	0.990	U	0.990	0.309	ug/Kg	1		09/25/19 21:02
1,1-Dichloroethane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,1-Dichloroethene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,1-Dichloropropene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,2,3-Trichlorobenzene	61.9	U	61.9	18.6	ug/Kg	1		09/25/19 21:02
1,2,3-Trichloropropane	1.24	U	1.24	0.384	ug/Kg	1		09/25/19 21:02
1,2,4-Trichlorobenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,2,4-Trimethylbenzene	180		61.9	18.6	ug/Kg	1		09/25/19 21:02
1,2-Dibromo-3-chloropropane	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
1,2-Dibromoethane	1.24	U	1.24	0.384	ug/Kg	1		09/25/19 21:02
1,2-Dichlorobenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,2-Dichloroethane	5.57		2.48	0.767	ug/Kg	1		09/25/19 21:02
1,2-Dichloropropane	12.4	U	12.4	3.84	ug/Kg	1		09/25/19 21:02
1,3,5-Trimethylbenzene	96.2		30.9	9.65	ug/Kg	1		09/25/19 21:02
1,3-Dichlorobenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
1,3-Dichloropropane	12.4	U	12.4	3.84	ug/Kg	1		09/25/19 21:02
1,4-Dichlorobenzene	62.2		30.9	9.65	ug/Kg	1		09/25/19 21:02
2,2-Dichloropropane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
2-Butanone (MEK)	309	U	309	96.5	ug/Kg	1		09/25/19 21:02
2-Chlorotoluene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
2-Hexanone	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
4-Chlorotoluene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
4-Isopropyltoluene	124	U	124	30.9	ug/Kg	1		09/25/19 21:02
4-Methyl-2-pentanone (MIBK)	309	U	309	96.5	ug/Kg	1		09/25/19 21:02
Acetone	309	U	309	96.5	ug/Kg	1		09/25/19 21:02
Benzene	61.0		15.5	4.83	ug/Kg	1		09/25/19 21:02
Bromobenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Bromochloromethane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Bromodichloromethane	2.48	U	2.48	0.767	ug/Kg	1		09/25/19 21:02
Bromoform	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Bromomethane	24.8	U	24.8	7.67	ug/Kg	1		09/25/19 21:02
Carbon disulfide	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
Carbon tetrachloride	15.5	U	15.5	4.83	ug/Kg	1		09/25/19 21:02
Chlorobenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02

Results of **B3-2.5'**

Client Sample ID: **B3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629001
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):87.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	248	U	248	76.7	ug/Kg	1		09/25/19 21:02
Chloroform	2.48	U	2.48	0.767	ug/Kg	1		09/25/19 21:02
Chloromethane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
cis-1,2-Dichloroethene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
cis-1,3-Dichloropropene	15.5	U	15.5	4.83	ug/Kg	1		09/25/19 21:02
Dibromochloromethane	2.48	U	2.48	0.767	ug/Kg	1		09/25/19 21:02
Dibromomethane	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Dichlorodifluoromethane	61.9	U	61.9	18.6	ug/Kg	1		09/25/19 21:02
Ethylbenzene	31.6		30.9	9.65	ug/Kg	1		09/25/19 21:02
Freon-113	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
Hexachlorobutadiene	24.8	U	24.8	7.67	ug/Kg	1		09/25/19 21:02
Isopropylbenzene (Cumene)	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Methylene chloride	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
Methyl-t-butyl ether	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
Naphthalene	52.6		30.9	9.65	ug/Kg	1		09/25/19 21:02
n-Butylbenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
n-Propylbenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
o-Xylene	37.1		30.9	9.65	ug/Kg	1		09/25/19 21:02
P & M -Xylene	113		61.9	18.6	ug/Kg	1		09/25/19 21:02
sec-Butylbenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Styrene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
tert-Butylbenzene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
Tetrachloroethene	15.5	U	15.5	4.83	ug/Kg	1		09/25/19 21:02
Toluene	44.3		30.9	9.65	ug/Kg	1		09/25/19 21:02
trans-1,2-Dichloroethene	30.9	U	30.9	9.65	ug/Kg	1		09/25/19 21:02
trans-1,3-Dichloropropene	15.5	U	15.5	4.83	ug/Kg	1		09/25/19 21:02
Trichloroethene	6.19	U	6.19	1.86	ug/Kg	1		09/25/19 21:02
Trichlorofluoromethane	61.9	U	61.9	18.6	ug/Kg	1		09/25/19 21:02
Vinyl acetate	124	U	124	38.4	ug/Kg	1		09/25/19 21:02
Vinyl chloride	0.990	U	0.990	0.309	ug/Kg	1		09/25/19 21:02
Xylenes (total)	150		92.8	28.2	ug/Kg	1		09/25/19 21:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		71-136		%	1		09/25/19 21:02
4-Bromofluorobenzene (surr)	119		55-151		%	1		09/25/19 21:02
Toluene-d8 (surr)	96.4		85-116		%	1		09/25/19 21:02

Print Date: 10/10/2019 10:56:46AM

Results of **B3-2.5'**

Client Sample ID: **B3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629001
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):87.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19497
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/25/19 21:02
Container ID: 1195629001-B

Prep Batch: VXX34970
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:27
Prep Initial Wt./Vol.: 60.336 g
Prep Extract Vol: 32.6231 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D3-2.5'**

Client Sample ID: **D3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629002
Lab Project ID: 1195629

Collection Date: 09/19/19 11:31
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	166		21.8	6.75	mg/Kg	1		10/05/19 19:32
Surrogates								
5a Androstane (surr)	91.7		50-150		%	1		10/05/19 19:32

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 19:32
Container ID: 1195629002-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.2 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D3-2.5'**

Client Sample ID: **D3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629002
Lab Project ID: 1195629

Collection Date: 09/19/19 11:31
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.57		2.50	0.750	mg/Kg	1		10/02/19 21:20
Surrogates								
4-Bromofluorobenzene (surr)	108		50-150		%	1		10/02/19 21:20

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/19 21:20
Container ID: 1195629002-B

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:31
Prep Initial Wt./Vol.: 67.634 g
Prep Extract Vol: 30.89 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D3-2.5'**

Client Sample ID: **D3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629002
Lab Project ID: 1195629

Collection Date: 09/19/19 11:31
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	20.0	U	20.0	6.20	ug/Kg	1		09/26/19 23:20
1,1,1-Trichloroethane	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,1,2,2-Tetrachloroethane	2.00	U	2.00	0.620	ug/Kg	1		09/26/19 23:20
1,1,2-Trichloroethane	0.800	U	0.800	0.250	ug/Kg	1		09/26/19 23:20
1,1-Dichloroethane	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,1-Dichloroethene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,1-Dichloropropene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,2,3-Trichlorobenzene	50.0	U	50.0	15.0	ug/Kg	1		09/26/19 23:20
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/Kg	1		09/26/19 23:20
1,2,4-Trichlorobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,2,4-Trimethylbenzene	145		50.0	15.0	ug/Kg	1		09/26/19 23:20
1,2-Dibromo-3-chloropropane	100	U	100	31.0	ug/Kg	1		09/26/19 23:20
1,2-Dibromoethane	1.00	U	1.00	0.310	ug/Kg	1		09/26/19 23:20
1,2-Dichlorobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,2-Dichloroethane	2.00	U	2.00	0.620	ug/Kg	1		09/26/19 23:20
1,2-Dichloropropane	10.0	U	10.0	3.10	ug/Kg	1		09/26/19 23:20
1,3,5-Trimethylbenzene	64.3		25.0	7.80	ug/Kg	1		09/26/19 23:20
1,3-Dichlorobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
1,3-Dichloropropane	10.0	U	10.0	3.10	ug/Kg	1		09/26/19 23:20
1,4-Dichlorobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
2,2-Dichloropropane	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
2-Butanone (MEK)	296		250	78.0	ug/Kg	1		09/26/19 23:20
2-Chlorotoluene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
2-Hexanone	100	U	100	31.0	ug/Kg	1		09/26/19 23:20
4-Chlorotoluene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
4-Isopropyltoluene	100	U	100	25.0	ug/Kg	1		09/26/19 23:20
4-Methyl-2-pentanone (MIBK)	250	U	250	78.0	ug/Kg	1		09/26/19 23:20
Acetone	250	U	250	78.0	ug/Kg	1		09/26/19 23:20
Benzene	22.0		12.5	3.90	ug/Kg	1		09/26/19 23:20
Bromobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
Bromochloromethane	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
Bromodichloromethane	2.00	U	2.00	0.620	ug/Kg	1		09/26/19 23:20
Bromoform	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20
Bromomethane	20.0	U	20.0	6.20	ug/Kg	1		09/26/19 23:20
Carbon disulfide	100	U	100	31.0	ug/Kg	1		09/26/19 23:20
Carbon tetrachloride	12.5	U	12.5	3.90	ug/Kg	1		09/26/19 23:20
Chlorobenzene	25.0	U	25.0	7.80	ug/Kg	1		09/26/19 23:20

Results of **D3-2.5'**

Client Sample ID: **D3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629002
Lab Project ID: 1195629

Collection Date: 09/19/19 11:31
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	200 U		200	62.0	ug/Kg	1		09/26/19 23:20
Chloroform	2.00 U		2.00	0.620	ug/Kg	1		09/26/19 23:20
Chloromethane	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
cis-1,2-Dichloroethene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
cis-1,3-Dichloropropene	12.5 U		12.5	3.90	ug/Kg	1		09/26/19 23:20
Dibromochloromethane	2.00 U		2.00	0.620	ug/Kg	1		09/26/19 23:20
Dibromomethane	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
Dichlorodifluoromethane	50.0 U		50.0	15.0	ug/Kg	1		09/26/19 23:20
Ethylbenzene	54.8		25.0	7.80	ug/Kg	1		09/26/19 23:20
Freon-113	100 U		100	31.0	ug/Kg	1		09/26/19 23:20
Hexachlorobutadiene	20.0 U		20.0	6.20	ug/Kg	1		09/26/19 23:20
Isopropylbenzene (Cumene)	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
Methylene chloride	100 U		100	31.0	ug/Kg	1		09/26/19 23:20
Methyl-t-butyl ether	100 U		100	31.0	ug/Kg	1		09/26/19 23:20
Naphthalene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
n-Butylbenzene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
n-Propylbenzene	47.8		25.0	7.80	ug/Kg	1		09/26/19 23:20
o-Xylene	65.8		25.0	7.80	ug/Kg	1		09/26/19 23:20
P & M -Xylene	201		50.0	15.0	ug/Kg	1		09/26/19 23:20
sec-Butylbenzene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
Styrene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
tert-Butylbenzene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
Tetrachloroethene	12.5 U		12.5	3.90	ug/Kg	1		09/26/19 23:20
Toluene	55.0		25.0	7.80	ug/Kg	1		09/26/19 23:20
trans-1,2-Dichloroethene	25.0 U		25.0	7.80	ug/Kg	1		09/26/19 23:20
trans-1,3-Dichloropropene	12.5 U		12.5	3.90	ug/Kg	1		09/26/19 23:20
Trichloroethene	5.00 U		5.00	1.50	ug/Kg	1		09/26/19 23:20
Trichlorofluoromethane	50.0 U		50.0	15.0	ug/Kg	1		09/26/19 23:20
Vinyl acetate	100 U		100	31.0	ug/Kg	1		09/26/19 23:20
Vinyl chloride	0.800 U		0.800	0.250	ug/Kg	1		09/26/19 23:20
Xylenes (total)	267		75.0	22.8	ug/Kg	1		09/26/19 23:20
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		71-136		%	1		09/26/19 23:20
4-Bromofluorobenzene (surr)	130		55-151		%	1		09/26/19 23:20
Toluene-d8 (surr)	102		85-116		%	1		09/26/19 23:20

Print Date: 10/10/2019 10:56:46AM

Results of **D3-2.5'**

Client Sample ID: **D3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629002
Lab Project ID: 1195629

Collection Date: 09/19/19 11:31
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/26/19 23:20
Container ID: 1195629002-B

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:31
Prep Initial Wt./Vol.: 67.634 g
Prep Extract Vol: 30.89 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D13-2.5'**

Client Sample ID: **D13-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629003
Lab Project ID: 1195629

Collection Date: 09/19/19 11:41
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	193		21.6	6.70	mg/Kg	1		10/05/19 19:42
Surrogates								
5a Androstane (surr)	98.8		50-150		%	1		10/05/19 19:42

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 19:42
Container ID: 1195629003-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.454 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D13-2.5'**

Client Sample ID: **D13-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629003
Lab Project ID: 1195629

Collection Date: 09/19/19 11:41
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	6.21		2.72	0.817	mg/Kg	1		10/02/19 21:38
Surrogates								
4-Bromofluorobenzene (surr)	109		50-150		%	1		10/02/19 21:38

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/19 21:38
Container ID: 1195629003-B

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:41
Prep Initial Wt./Vol.: 61.149 g
Prep Extract Vol: 30.3656 mL

Print Date: 10/10/2019 10:56:46AM

Results of **D13-2.5'**

Client Sample ID: **D13-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629003
Lab Project ID: 1195629

Collection Date: 09/19/19 11:41
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	21.8	U	21.8	6.75	ug/Kg	1		09/26/19 23:36
1,1,1-Trichloroethane	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,1,2,2-Tetrachloroethane	2.18	U	2.18	0.675	ug/Kg	1		09/26/19 23:36
1,1,2-Trichloroethane	0.871	U	0.871	0.272	ug/Kg	1		09/26/19 23:36
1,1-Dichloroethane	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,1-Dichloroethene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,1-Dichloropropene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,2,3-Trichlorobenzene	54.4	U	54.4	16.3	ug/Kg	1		09/26/19 23:36
1,2,3-Trichloropropane	1.09	U	1.09	0.337	ug/Kg	1		09/26/19 23:36
1,2,4-Trichlorobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,2,4-Trimethylbenzene	155		54.4	16.3	ug/Kg	1		09/26/19 23:36
1,2-Dibromo-3-chloropropane	109	U	109	33.7	ug/Kg	1		09/26/19 23:36
1,2-Dibromoethane	1.09	U	1.09	0.337	ug/Kg	1		09/26/19 23:36
1,2-Dichlorobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,2-Dichloroethane	2.18	U	2.18	0.675	ug/Kg	1		09/26/19 23:36
1,2-Dichloropropane	10.9	U	10.9	3.37	ug/Kg	1		09/26/19 23:36
1,3,5-Trimethylbenzene	150		27.2	8.49	ug/Kg	1		09/26/19 23:36
1,3-Dichlorobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
1,3-Dichloropropane	10.9	U	10.9	3.37	ug/Kg	1		09/26/19 23:36
1,4-Dichlorobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
2,2-Dichloropropane	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
2-Butanone (MEK)	471		272	84.9	ug/Kg	1		09/26/19 23:36
2-Chlorotoluene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
2-Hexanone	109	U	109	33.7	ug/Kg	1		09/26/19 23:36
4-Chlorotoluene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
4-Isopropyltoluene	109	U	109	27.2	ug/Kg	1		09/26/19 23:36
4-Methyl-2-pentanone (MIBK)	272	U	272	84.9	ug/Kg	1		09/26/19 23:36
Acetone	272	U	272	84.9	ug/Kg	1		09/26/19 23:36
Benzene	33.5		13.6	4.25	ug/Kg	1		09/26/19 23:36
Bromobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
Bromochloromethane	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
Bromodichloromethane	2.18	U	2.18	0.675	ug/Kg	1		09/26/19 23:36
Bromoform	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36
Bromomethane	21.8	U	21.8	6.75	ug/Kg	1		09/26/19 23:36
Carbon disulfide	109	U	109	33.7	ug/Kg	1		09/26/19 23:36
Carbon tetrachloride	13.6	U	13.6	4.25	ug/Kg	1		09/26/19 23:36
Chlorobenzene	27.2	U	27.2	8.49	ug/Kg	1		09/26/19 23:36

Results of **D13-2.5'**

Client Sample ID: **D13-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629003
Lab Project ID: 1195629

Collection Date: 09/19/19 11:41
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	218 U		218	67.5	ug/Kg	1		09/26/19 23:36
Chloroform	2.18 U		2.18	0.675	ug/Kg	1		09/26/19 23:36
Chloromethane	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
cis-1,2-Dichloroethene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
cis-1,3-Dichloropropene	13.6 U		13.6	4.25	ug/Kg	1		09/26/19 23:36
Dibromochloromethane	2.18 U		2.18	0.675	ug/Kg	1		09/26/19 23:36
Dibromomethane	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
Dichlorodifluoromethane	54.4 U		54.4	16.3	ug/Kg	1		09/26/19 23:36
Ethylbenzene	32.4		27.2	8.49	ug/Kg	1		09/26/19 23:36
Freon-113	109 U		109	33.7	ug/Kg	1		09/26/19 23:36
Hexachlorobutadiene	21.8 U		21.8	6.75	ug/Kg	1		09/26/19 23:36
Isopropylbenzene (Cumene)	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
Methylene chloride	109 U		109	33.7	ug/Kg	1		09/26/19 23:36
Methyl-t-butyl ether	109 U		109	33.7	ug/Kg	1		09/26/19 23:36
Naphthalene	32.9		27.2	8.49	ug/Kg	1		09/26/19 23:36
n-Butylbenzene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
n-Propylbenzene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
o-Xylene	45.5		27.2	8.49	ug/Kg	1		09/26/19 23:36
P & M -Xylene	123		54.4	16.3	ug/Kg	1		09/26/19 23:36
sec-Butylbenzene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
Styrene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
tert-Butylbenzene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
Tetrachloroethene	13.6 U		13.6	4.25	ug/Kg	1		09/26/19 23:36
Toluene	39.5		27.2	8.49	ug/Kg	1		09/26/19 23:36
trans-1,2-Dichloroethene	27.2 U		27.2	8.49	ug/Kg	1		09/26/19 23:36
trans-1,3-Dichloropropene	13.6 U		13.6	4.25	ug/Kg	1		09/26/19 23:36
Trichloroethene	5.44 U		5.44	1.63	ug/Kg	1		09/26/19 23:36
Trichlorofluoromethane	54.4 U		54.4	16.3	ug/Kg	1		09/26/19 23:36
Vinyl acetate	109 U		109	33.7	ug/Kg	1		09/26/19 23:36
Vinyl chloride	0.871 U		0.871	0.272	ug/Kg	1		09/26/19 23:36
Xylenes (total)	168		81.7	24.8	ug/Kg	1		09/26/19 23:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		09/26/19 23:36
4-Bromofluorobenzene (surr)	126		55-151		%	1		09/26/19 23:36
Toluene-d8 (surr)	102		85-116		%	1		09/26/19 23:36

Results of **D13-2.5'**

Client Sample ID: **D13-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629003
Lab Project ID: 1195629

Collection Date: 09/19/19 11:41
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):91.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/26/19 23:36
Container ID: 1195629003-B

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:41
Prep Initial Wt./Vol.: 61.149 g
Prep Extract Vol: 30.3656 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E1-2.5'**

Client Sample ID: **E1-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629004
Lab Project ID: 1195629

Collection Date: 09/19/19 11:45
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	173		21.0	6.51	mg/Kg	1		10/05/19 19:52
Surrogates								
5a Androstane (surr)	101		50-150		%	1		10/05/19 19:52

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 19:52
Container ID: 1195629004-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.364 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E1-2.5'**

Client Sample ID: **E1-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629004
Lab Project ID: 1195629

Collection Date: 09/19/19 11:45
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.33		2.67	0.800	mg/Kg	1		10/02/19 21:56
Surrogates								
4-Bromofluorobenzene (surr)	99.3		50-150		%	1		10/02/19 21:56

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/19 21:56
Container ID: 1195629004-B

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:45
Prep Initial Wt./Vol.: 56.626 g
Prep Extract Vol: 28.3816 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E1-2.5'**

Client Sample ID: **E1-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629004
Lab Project ID: 1195629

Collection Date: 09/19/19 11:45
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	21.3	U	21.3	6.61	ug/Kg	1		09/26/19 23:52
1,1,1-Trichloroethane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,1,2,2-Tetrachloroethane	2.13	U	2.13	0.661	ug/Kg	1		09/26/19 23:52
1,1,2-Trichloroethane	0.853	U	0.853	0.267	ug/Kg	1		09/26/19 23:52
1,1-Dichloroethane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,1-Dichloroethene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,1-Dichloropropene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,2,3-Trichlorobenzene	53.3	U	53.3	16.0	ug/Kg	1		09/26/19 23:52
1,2,3-Trichloropropane	1.07	U	1.07	0.330	ug/Kg	1		09/26/19 23:52
1,2,4-Trichlorobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,2,4-Trimethylbenzene	107		53.3	16.0	ug/Kg	1		09/26/19 23:52
1,2-Dibromo-3-chloropropane	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
1,2-Dibromoethane	1.07	U	1.07	0.330	ug/Kg	1		09/26/19 23:52
1,2-Dichlorobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,2-Dichloroethane	2.13	U	2.13	0.661	ug/Kg	1		09/26/19 23:52
1,2-Dichloropropane	10.7	U	10.7	3.30	ug/Kg	1		09/26/19 23:52
1,3,5-Trimethylbenzene	54.1		26.7	8.32	ug/Kg	1		09/26/19 23:52
1,3-Dichlorobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
1,3-Dichloropropane	10.7	U	10.7	3.30	ug/Kg	1		09/26/19 23:52
1,4-Dichlorobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
2,2-Dichloropropane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
2-Butanone (MEK)	271		267	83.2	ug/Kg	1		09/26/19 23:52
2-Chlorotoluene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
2-Hexanone	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
4-Chlorotoluene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
4-Isopropyltoluene	107	U	107	26.7	ug/Kg	1		09/26/19 23:52
4-Methyl-2-pentanone (MIBK)	267	U	267	83.2	ug/Kg	1		09/26/19 23:52
Acetone	267	U	267	83.2	ug/Kg	1		09/26/19 23:52
Benzene	26.7		13.3	4.16	ug/Kg	1		09/26/19 23:52
Bromobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Bromochloromethane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Bromodichloromethane	2.13	U	2.13	0.661	ug/Kg	1		09/26/19 23:52
Bromoform	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Bromomethane	21.3	U	21.3	6.61	ug/Kg	1		09/26/19 23:52
Carbon disulfide	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
Carbon tetrachloride	13.3	U	13.3	4.16	ug/Kg	1		09/26/19 23:52
Chlorobenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52

Results of **E1-2.5'**

Client Sample ID: **E1-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629004
Lab Project ID: 1195629

Collection Date: 09/19/19 11:45
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	213	U	213	66.1	ug/Kg	1		09/26/19 23:52
Chloroform	2.13	U	2.13	0.661	ug/Kg	1		09/26/19 23:52
Chloromethane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
cis-1,2-Dichloroethene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
cis-1,3-Dichloropropene	13.3	U	13.3	4.16	ug/Kg	1		09/26/19 23:52
Dibromochloromethane	2.13	U	2.13	0.661	ug/Kg	1		09/26/19 23:52
Dibromomethane	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Dichlorodifluoromethane	53.3	U	53.3	16.0	ug/Kg	1		09/26/19 23:52
Ethylbenzene	33.8		26.7	8.32	ug/Kg	1		09/26/19 23:52
Freon-113	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
Hexachlorobutadiene	21.3	U	21.3	6.61	ug/Kg	1		09/26/19 23:52
Isopropylbenzene (Cumene)	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Methylene chloride	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
Methyl-t-butyl ether	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
Naphthalene	31.2		26.7	8.32	ug/Kg	1		09/26/19 23:52
n-Butylbenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
n-Propylbenzene	33.6		26.7	8.32	ug/Kg	1		09/26/19 23:52
o-Xylene	40.5		26.7	8.32	ug/Kg	1		09/26/19 23:52
P & M -Xylene	118		53.3	16.0	ug/Kg	1		09/26/19 23:52
sec-Butylbenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Styrene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
tert-Butylbenzene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
Tetrachloroethene	13.3	U	13.3	4.16	ug/Kg	1		09/26/19 23:52
Toluene	31.7		26.7	8.32	ug/Kg	1		09/26/19 23:52
trans-1,2-Dichloroethene	26.7	U	26.7	8.32	ug/Kg	1		09/26/19 23:52
trans-1,3-Dichloropropene	13.3	U	13.3	4.16	ug/Kg	1		09/26/19 23:52
Trichloroethene	5.33	U	5.33	1.60	ug/Kg	1		09/26/19 23:52
Trichlorofluoromethane	53.3	U	53.3	16.0	ug/Kg	1		09/26/19 23:52
Vinyl acetate	107	U	107	33.0	ug/Kg	1		09/26/19 23:52
Vinyl chloride	0.853	U	0.853	0.267	ug/Kg	1		09/26/19 23:52
Xylenes (total)	159		80.0	24.3	ug/Kg	1		09/26/19 23:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		09/26/19 23:52
4-Bromofluorobenzene (surr)	119		55-151		%	1		09/26/19 23:52
Toluene-d8 (surr)	99.8		85-116		%	1		09/26/19 23:52

Print Date: 10/10/2019 10:56:46AM

Results of **E1-2.5'**

Client Sample ID: **E1-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629004
Lab Project ID: 1195629

Collection Date: 09/19/19 11:45
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):94.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/26/19 23:52
Container ID: 1195629004-B

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:45
Prep Initial Wt./Vol.: 56.626 g
Prep Extract Vol: 28.3816 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E5-2.5'**

Client Sample ID: **E5-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629005
Lab Project ID: 1195629

Collection Date: 09/19/19 11:50
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):90.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	160		22.0	6.83	mg/Kg	1		10/05/19 20:02
Surrogates								
5a Androstane (surr)	85.6		50-150		%	1		10/05/19 20:02

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 20:02
Container ID: 1195629005-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.119 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E5-2.5'**

Client Sample ID: **E5-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629005
Lab Project ID: 1195629

Collection Date: 09/19/19 11:50
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):90.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.68		2.92	0.877	mg/Kg	1		10/02/19 22:13
Surrogates								
4-Bromofluorobenzene (surr)	102		50-150		%	1		10/02/19 22:13

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/19 22:13
Container ID: 1195629005-B

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:50
Prep Initial Wt./Vol.: 57.723 g
Prep Extract Vol: 30.5286 mL

Print Date: 10/10/2019 10:56:46AM

Results of **E5-2.5'**

Client Sample ID: **E5-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629005
Lab Project ID: 1195629

Collection Date: 09/19/19 11:50
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):90.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	23.4	U	23.4	7.25	ug/Kg	1		09/27/19 00:08
1,1,1-Trichloroethane	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,1,2,2-Tetrachloroethane	2.34	U	2.34	0.725	ug/Kg	1		09/27/19 00:08
1,1,2-Trichloroethane	0.936	U	0.936	0.292	ug/Kg	1		09/27/19 00:08
1,1-Dichloroethane	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,1-Dichloroethene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,1-Dichloropropene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,2,3-Trichlorobenzene	58.5	U	58.5	17.5	ug/Kg	1		09/27/19 00:08
1,2,3-Trichloropropane	1.17	U	1.17	0.363	ug/Kg	1		09/27/19 00:08
1,2,4-Trichlorobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,2,4-Trimethylbenzene	76.6		58.5	17.5	ug/Kg	1		09/27/19 00:08
1,2-Dibromo-3-chloropropane	117	U	117	36.3	ug/Kg	1		09/27/19 00:08
1,2-Dibromoethane	1.17	U	1.17	0.363	ug/Kg	1		09/27/19 00:08
1,2-Dichlorobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,2-Dichloroethane	2.34	U	2.34	0.725	ug/Kg	1		09/27/19 00:08
1,2-Dichloropropane	11.7	U	11.7	3.63	ug/Kg	1		09/27/19 00:08
1,3,5-Trimethylbenzene	32.5		29.2	9.12	ug/Kg	1		09/27/19 00:08
1,3-Dichlorobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
1,3-Dichloropropane	11.7	U	11.7	3.63	ug/Kg	1		09/27/19 00:08
1,4-Dichlorobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
2,2-Dichloropropane	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
2-Butanone (MEK)	292	U	292	91.2	ug/Kg	1		09/27/19 00:08
2-Chlorotoluene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
2-Hexanone	117	U	117	36.3	ug/Kg	1		09/27/19 00:08
4-Chlorotoluene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
4-Isopropyltoluene	117	U	117	29.2	ug/Kg	1		09/27/19 00:08
4-Methyl-2-pentanone (MIBK)	292	U	292	91.2	ug/Kg	1		09/27/19 00:08
Acetone	292	U	292	91.2	ug/Kg	1		09/27/19 00:08
Benzene	31.9		14.6	4.56	ug/Kg	1		09/27/19 00:08
Bromobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
Bromochloromethane	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
Bromodichloromethane	2.34	U	2.34	0.725	ug/Kg	1		09/27/19 00:08
Bromoform	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08
Bromomethane	23.4	U	23.4	7.25	ug/Kg	1		09/27/19 00:08
Carbon disulfide	117	U	117	36.3	ug/Kg	1		09/27/19 00:08
Carbon tetrachloride	14.6	U	14.6	4.56	ug/Kg	1		09/27/19 00:08
Chlorobenzene	29.2	U	29.2	9.12	ug/Kg	1		09/27/19 00:08

Results of **E5-2.5'**

Client Sample ID: **E5-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629005
Lab Project ID: 1195629

Collection Date: 09/19/19 11:50
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):90.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	234 U		234	72.5	ug/Kg	1		09/27/19 00:08
Chloroform	2.34 U		2.34	0.725	ug/Kg	1		09/27/19 00:08
Chloromethane	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
cis-1,2-Dichloroethene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
cis-1,3-Dichloropropene	14.6 U		14.6	4.56	ug/Kg	1		09/27/19 00:08
Dibromochloromethane	2.34 U		2.34	0.725	ug/Kg	1		09/27/19 00:08
Dibromomethane	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
Dichlorodifluoromethane	58.5 U		58.5	17.5	ug/Kg	1		09/27/19 00:08
Ethylbenzene	36.6		29.2	9.12	ug/Kg	1		09/27/19 00:08
Freon-113	117 U		117	36.3	ug/Kg	1		09/27/19 00:08
Hexachlorobutadiene	23.4 U		23.4	7.25	ug/Kg	1		09/27/19 00:08
Isopropylbenzene (Cumene)	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
Methylene chloride	117 U		117	36.3	ug/Kg	1		09/27/19 00:08
Methyl-t-butyl ether	117 U		117	36.3	ug/Kg	1		09/27/19 00:08
Naphthalene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
n-Butylbenzene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
n-Propylbenzene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
o-Xylene	38.3		29.2	9.12	ug/Kg	1		09/27/19 00:08
P & M -Xylene	118		58.5	17.5	ug/Kg	1		09/27/19 00:08
sec-Butylbenzene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
Styrene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
tert-Butylbenzene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
Tetrachloroethene	14.6 U		14.6	4.56	ug/Kg	1		09/27/19 00:08
Toluene	47.1		29.2	9.12	ug/Kg	1		09/27/19 00:08
trans-1,2-Dichloroethene	29.2 U		29.2	9.12	ug/Kg	1		09/27/19 00:08
trans-1,3-Dichloropropene	14.6 U		14.6	4.56	ug/Kg	1		09/27/19 00:08
Trichloroethene	5.85 U		5.85	1.75	ug/Kg	1		09/27/19 00:08
Trichlorofluoromethane	58.5 U		58.5	17.5	ug/Kg	1		09/27/19 00:08
Vinyl acetate	117 U		117	36.3	ug/Kg	1		09/27/19 00:08
Vinyl chloride	0.936 U		0.936	0.292	ug/Kg	1		09/27/19 00:08
Xylenes (total)	156		87.7	26.7	ug/Kg	1		09/27/19 00:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		71-136		%	1		09/27/19 00:08
4-Bromofluorobenzene (surr)	129		55-151		%	1		09/27/19 00:08
Toluene-d8 (surr)	100		85-116		%	1		09/27/19 00:08

Results of **E5-2.5'**

Client Sample ID: **E5-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629005
Lab Project ID: 1195629

Collection Date: 09/19/19 11:50
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):90.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/27/19 00:08
Container ID: 1195629005-B

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:50
Prep Initial Wt./Vol.: 57.723 g
Prep Extract Vol: 30.5286 mL

Print Date: 10/10/2019 10:56:46AM

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	68.3		27.5	6.89	ug/Kg	1		09/30/19 01:24
2-Methylnaphthalene	54.8		27.5	6.89	ug/Kg	1		09/30/19 01:24
Acenaphthene	65.4		27.5	6.89	ug/Kg	1		09/30/19 01:24
Acenaphthylene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Anthracene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Benzo(a)Anthracene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Benzo[a]pyrene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Benzo[b]Fluoranthene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Benzo[g,h,i]perylene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Benzo[k]fluoranthene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Chrysene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Dibenzo[a,h]anthracene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Fluoranthene	78.4		27.5	6.89	ug/Kg	1		09/30/19 01:24
Fluorene	72.2		27.5	6.89	ug/Kg	1		09/30/19 01:24
Indeno[1,2,3-c,d] pyrene	27.5	U	27.5	6.89	ug/Kg	1		09/30/19 01:24
Naphthalene	62.8		22.0	5.51	ug/Kg	1		09/30/19 01:24
Phenanthrene	117		27.5	6.89	ug/Kg	1		09/30/19 01:24
Pyrene	87.3		27.5	6.89	ug/Kg	1		09/30/19 01:24
Surrogates								
2-Methylnaphthalene-d10 (surr)	73.8		58-103		%	1		09/30/19 01:24
Fluoranthene-d10 (surr)	73.3		54-113		%	1		09/30/19 01:24

Batch Information

Analytical Batch: XMS11756
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/30/19 01:24
Container ID: 1195629006-A

Prep Batch: XXX42341
Prep Method: SW3550C
Prep Date/Time: 09/25/19 20:53
Prep Initial Wt./Vol.: 22.827 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	440		22.3	6.92	mg/Kg	1		10/05/19 20:12
Surrogates								
5a Androstane (surr)	106		50-150		%	1		10/05/19 20:12

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/05/19 20:12
Container ID: 1195629006-A

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 09/25/19 15:32
Prep Initial Wt./Vol.: 30.048 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:56:46AM

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	17.1		2.62	0.785	mg/Kg	1		10/02/19 22:31
Surrogates								
4-Bromofluorobenzene (surr)	134		50-150		%	1		10/02/19 22:31

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/02/19 22:31
Container ID: 1195629006-B

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:55
Prep Initial Wt./Vol.: 68.843 g
Prep Extract Vol: 32.2484 mL

Print Date: 10/10/2019 10:56:46AM

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	20.9	U	20.9	6.49	ug/Kg	1		09/27/19 00:24
1,1,1-Trichloroethane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,1,2,2-Tetrachloroethane	2.09	U	2.09	0.649	ug/Kg	1		09/27/19 00:24
1,1,2-Trichloroethane	0.838	U	0.838	0.262	ug/Kg	1		09/27/19 00:24
1,1-Dichloroethane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,1-Dichloroethene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,1-Dichloropropene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,2,3-Trichlorobenzene	52.4	U	52.4	15.7	ug/Kg	1		09/27/19 00:24
1,2,3-Trichloropropane	1.05	U	1.05	0.325	ug/Kg	1		09/27/19 00:24
1,2,4-Trichlorobenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,2,4-Trimethylbenzene	1730		52.4	15.7	ug/Kg	1		09/27/19 00:24
1,2-Dibromo-3-chloropropane	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
1,2-Dibromoethane	1.05	U	1.05	0.325	ug/Kg	1		09/27/19 00:24
1,2-Dichlorobenzene	62.3		26.2	8.17	ug/Kg	1		09/27/19 00:24
1,2-Dichloroethane	2.09	U	2.09	0.649	ug/Kg	1		09/27/19 00:24
1,2-Dichloropropane	10.5	U	10.5	3.25	ug/Kg	1		09/27/19 00:24
1,3,5-Trimethylbenzene	1630		26.2	8.17	ug/Kg	1		09/27/19 00:24
1,3-Dichlorobenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
1,3-Dichloropropane	10.5	U	10.5	3.25	ug/Kg	1		09/27/19 00:24
1,4-Dichlorobenzene	49.0		26.2	8.17	ug/Kg	1		09/27/19 00:24
2,2-Dichloropropane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
2-Butanone (MEK)	970		262	81.7	ug/Kg	1		09/27/19 00:24
2-Chlorotoluene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
2-Hexanone	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
4-Chlorotoluene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
4-Isopropyltoluene	345		105	26.2	ug/Kg	1		09/27/19 00:24
4-Methyl-2-pentanone (MIBK)	262	U	262	81.7	ug/Kg	1		09/27/19 00:24
Acetone	262	U	262	81.7	ug/Kg	1		09/27/19 00:24
Benzene	20.4		13.1	4.08	ug/Kg	1		09/27/19 00:24
Bromobenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
Bromochloromethane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
Bromodichloromethane	2.09	U	2.09	0.649	ug/Kg	1		09/27/19 00:24
Bromoform	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
Bromomethane	20.9	U	20.9	6.49	ug/Kg	1		09/27/19 00:24
Carbon disulfide	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
Carbon tetrachloride	13.1	U	13.1	4.08	ug/Kg	1		09/27/19 00:24
Chlorobenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	209	U	209	64.9	ug/Kg	1		09/27/19 00:24
Chloroform	2.09	U	2.09	0.649	ug/Kg	1		09/27/19 00:24
Chloromethane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
cis-1,2-Dichloroethene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
cis-1,3-Dichloropropene	13.1	U	13.1	4.08	ug/Kg	1		09/27/19 00:24
Dibromochloromethane	2.09	U	2.09	0.649	ug/Kg	1		09/27/19 00:24
Dibromomethane	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
Dichlorodifluoromethane	52.4	U	52.4	15.7	ug/Kg	1		09/27/19 00:24
Ethylbenzene	83.5		26.2	8.17	ug/Kg	1		09/27/19 00:24
Freon-113	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
Hexachlorobutadiene	20.9	U	20.9	6.49	ug/Kg	1		09/27/19 00:24
Isopropylbenzene (Cumene)	36.1		26.2	8.17	ug/Kg	1		09/27/19 00:24
Methylene chloride	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
Methyl-t-butyl ether	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
Naphthalene	592		26.2	8.17	ug/Kg	1		09/27/19 00:24
n-Butylbenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
n-Propylbenzene	87.4		26.2	8.17	ug/Kg	1		09/27/19 00:24
o-Xylene	64.7		26.2	8.17	ug/Kg	1		09/27/19 00:24
P & M -Xylene	1020		52.4	15.7	ug/Kg	1		09/27/19 00:24
sec-Butylbenzene	43.5		26.2	8.17	ug/Kg	1		09/27/19 00:24
Styrene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
tert-Butylbenzene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
Tetrachloroethene	13.1	U	13.1	4.08	ug/Kg	1		09/27/19 00:24
Toluene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
trans-1,2-Dichloroethene	26.2	U	26.2	8.17	ug/Kg	1		09/27/19 00:24
trans-1,3-Dichloropropene	13.1	U	13.1	4.08	ug/Kg	1		09/27/19 00:24
Trichloroethene	5.24	U	5.24	1.57	ug/Kg	1		09/27/19 00:24
Trichlorofluoromethane	52.4	U	52.4	15.7	ug/Kg	1		09/27/19 00:24
Vinyl acetate	105	U	105	32.5	ug/Kg	1		09/27/19 00:24
Vinyl chloride	0.838	U	0.838	0.262	ug/Kg	1		09/27/19 00:24
Xylenes (total)	1080		78.5	23.9	ug/Kg	1		09/27/19 00:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.8		71-136		%	1		09/27/19 00:24
4-Bromofluorobenzene (surr)	129		55-151		%	1		09/27/19 00:24
Toluene-d8 (surr)	101		85-116		%	1		09/27/19 00:24

Results of **G3-2.5'**

Client Sample ID: **G3-2.5'**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629006
Lab Project ID: 1195629

Collection Date: 09/19/19 11:55
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):89.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/27/19 00:24
Container ID: 1195629006-B

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:55
Prep Initial Wt./Vol.: 68.843 g
Prep Extract Vol: 32.2484 mL

Print Date: 10/10/2019 10:56:46AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629007
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
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	2.52	U	2.52	0.755	mg/Kg	1		10/03/19 02:20
Surrogates								
4-Bromofluorobenzene (surr)	93.1		50-150		%	1		10/03/19 02:20

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/03/19 02:20
Container ID: 1195629007-A

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:27
Prep Initial Wt./Vol.: 49.662 g
Prep Extract Vol: 25 mL

Print Date: 10/10/2019 10:56:46AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629007
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	20.1	U	20.1	6.24	ug/Kg	1		09/26/19 20:06
1,1,1-Trichloroethane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,1,2,2-Tetrachloroethane	2.01	U	2.01	0.624	ug/Kg	1		09/26/19 20:06
1,1,2-Trichloroethane	0.805	U	0.805	0.252	ug/Kg	1		09/26/19 20:06
1,1-Dichloroethane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,1-Dichloroethene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,1-Dichloropropene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,2,3-Trichlorobenzene	50.3	U	50.3	15.1	ug/Kg	1		09/26/19 20:06
1,2,3-Trichloropropane	1.01	U	1.01	0.312	ug/Kg	1		09/26/19 20:06
1,2,4-Trichlorobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,2,4-Trimethylbenzene	50.3	U	50.3	15.1	ug/Kg	1		09/26/19 20:06
1,2-Dibromo-3-chloropropane	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
1,2-Dibromoethane	1.01	U	1.01	0.312	ug/Kg	1		09/26/19 20:06
1,2-Dichlorobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,2-Dichloroethane	2.01	U	2.01	0.624	ug/Kg	1		09/26/19 20:06
1,2-Dichloropropane	10.1	U	10.1	3.12	ug/Kg	1		09/26/19 20:06
1,3,5-Trimethylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,3-Dichlorobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
1,3-Dichloropropane	10.1	U	10.1	3.12	ug/Kg	1		09/26/19 20:06
1,4-Dichlorobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
2,2-Dichloropropane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
2-Butanone (MEK)	252	U	252	78.5	ug/Kg	1		09/26/19 20:06
2-Chlorotoluene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
2-Hexanone	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
4-Chlorotoluene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
4-Isopropyltoluene	101	U	101	25.2	ug/Kg	1		09/26/19 20:06
4-Methyl-2-pentanone (MIBK)	252	U	252	78.5	ug/Kg	1		09/26/19 20:06
Acetone	252	U	252	78.5	ug/Kg	1		09/26/19 20:06
Benzene	12.6	U	12.6	3.93	ug/Kg	1		09/26/19 20:06
Bromobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Bromochloromethane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Bromodichloromethane	2.01	U	2.01	0.624	ug/Kg	1		09/26/19 20:06
Bromoform	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Bromomethane	20.1	U	20.1	6.24	ug/Kg	1		09/26/19 20:06
Carbon disulfide	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
Carbon tetrachloride	12.6	U	12.6	3.93	ug/Kg	1		09/26/19 20:06
Chlorobenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629007
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	201	U	201	62.4	ug/Kg	1		09/26/19 20:06
Chloroform	2.01	U	2.01	0.624	ug/Kg	1		09/26/19 20:06
Chloromethane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
cis-1,2-Dichloroethene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
cis-1,3-Dichloropropene	12.6	U	12.6	3.93	ug/Kg	1		09/26/19 20:06
Dibromochloromethane	2.01	U	2.01	0.624	ug/Kg	1		09/26/19 20:06
Dibromomethane	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Dichlorodifluoromethane	50.3	U	50.3	15.1	ug/Kg	1		09/26/19 20:06
Ethylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Freon-113	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
Hexachlorobutadiene	20.1	U	20.1	6.24	ug/Kg	1		09/26/19 20:06
Isopropylbenzene (Cumene)	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Methylene chloride	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
Methyl-t-butyl ether	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
Naphthalene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
n-Butylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
n-Propylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
o-Xylene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
P & M -Xylene	50.3	U	50.3	15.1	ug/Kg	1		09/26/19 20:06
sec-Butylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Styrene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
tert-Butylbenzene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
Tetrachloroethene	12.6	U	12.6	3.93	ug/Kg	1		09/26/19 20:06
Toluene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
trans-1,2-Dichloroethene	25.2	U	25.2	7.85	ug/Kg	1		09/26/19 20:06
trans-1,3-Dichloropropene	12.6	U	12.6	3.93	ug/Kg	1		09/26/19 20:06
Trichloroethene	5.03	U	5.03	1.51	ug/Kg	1		09/26/19 20:06
Trichlorofluoromethane	50.3	U	50.3	15.1	ug/Kg	1		09/26/19 20:06
Vinyl acetate	101	U	101	31.2	ug/Kg	1		09/26/19 20:06
Vinyl chloride	0.805	U	0.805	0.252	ug/Kg	1		09/26/19 20:06
Xylenes (total)	75.5	U	75.5	23.0	ug/Kg	1		09/26/19 20:06
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		09/26/19 20:06
4-Bromofluorobenzene (surr)	109		55-151		%	1		09/26/19 20:06
Toluene-d8 (surr)	101		85-116		%	1		09/26/19 20:06

Print Date: 10/10/2019 10:56:46AM

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **17873 HUB Landfarm Charact**
Lab Sample ID: 1195629007
Lab Project ID: 1195629

Collection Date: 09/19/19 11:27
Received Date: 09/23/19 10:49
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 09/26/19 20:06
Container ID: 1195629007-A

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 09/19/19 11:27
Prep Initial Wt./Vol.: 49.662 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

Method Blank

Blank ID: MB for HBN 1799952 [SPT/10891]
Blank Lab ID: 1534148

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001, 1195629002, 1195629003, 1195629004, 1195629005, 1195629006

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10891
Analytical Method: SM21 2540G
Instrument:
Analyst: M.M
Analytical Date/Time: 9/24/2019 11:29:00PM

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

Duplicate Sample Summary

Original Sample ID: 1195629006
Duplicate Sample ID: 1534149
Analysis Date: 09/24/2019 23:29
Matrix: Soil/Solid (dry weight)

QC for Samples:

1195629001, 1195629002, 1195629003, 1195629004, 1195629005, 1195629006

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	89.5	89.4	%	0.12	(< 15)

Batch Information

Analytical Batch: SPT10891
Analytical Method: SM21 2540G
Instrument:
Analyst: M.M

Print Date: 10/10/2019 10:56:49AM

Method Blank

Blank ID: MB for HBN 1800055 [VXX/34970]
Blank Lab ID: 1534616

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	1.00U	2.00	0.620	ug/Kg
1,1,2-Trichloroethane	0.400U	0.800	0.250	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	50.0U	100	25.0	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Acetone	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg

Method Blank

Blank ID: MB for HBN 1800055 [VXX/34970]
Blank Lab ID: 1534616

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	3.83*	2.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	118	71-136		%
4-Bromofluorobenzene (surr)	108	55-151		%
Toluene-d8 (surr)	95.6	85-116		%

Method Blank

Blank ID: MB for HBN 1800055 [VXX/34970]
Blank Lab ID: 1534616

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19497
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 9/25/2019 3:01:00PM

Prep Batch: VXX34970
Prep Method: SW5035A
Prep Date/Time: 9/25/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

SGS North America Inc.
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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34970]
Blank Spike Lab ID: 1534617
Date Analyzed: 09/25/2019 15:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	825	110	(78-125)
1,1,1-Trichloroethane	750	885	118	(73-130)
1,1,2,2-Tetrachloroethane	750	755	101	(70-124)
1,1,2-Trichloroethane	750	807	108	(78-121)
1,1-Dichloroethane	750	773	103	(76-125)
1,1-Dichloroethene	750	797	106	(70-131)
1,1-Dichloropropene	750	814	109	(76-125)
1,2,3-Trichlorobenzene	750	763	102	(66-130)
1,2,3-Trichloropropane	750	796	106	(73-125)
1,2,4-Trichlorobenzene	750	756	101	(67-129)
1,2,4-Trimethylbenzene	750	745	99	(75-123)
1,2-Dibromo-3-chloropropane	750	913	122	(61-132)
1,2-Dibromoethane	750	791	105	(78-122)
1,2-Dichlorobenzene	750	745	99	(78-121)
1,2-Dichloroethane	750	839	112	(73-128)
1,2-Dichloropropane	750	758	101	(76-123)
1,3,5-Trimethylbenzene	750	771	103	(73-124)
1,3-Dichlorobenzene	750	710	95	(77-121)
1,3-Dichloropropane	750	792	106	(77-121)
1,4-Dichlorobenzene	750	733	98	(75-120)
2,2-Dichloropropane	750	916	122	(67-133)
2-Butanone (MEK)	2250	2160	96	(51-148)
2-Chlorotoluene	750	749	100	(75-122)
2-Hexanone	2250	2470	110	(53-145)
4-Chlorotoluene	750	760	101	(72-124)
4-Isopropyltoluene	750	740	99	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2500	111	(65-135)
Acetone	2250	2080	93	(36-164)
Benzene	750	719	96	(77-121)
Bromobenzene	750	742	99	(78-121)
Bromochloromethane	750	761	101	(78-125)
Bromodichloromethane	750	821	109	(75-127)
Bromoform	750	859	115	(67-132)
Bromomethane	750	672	90	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34970]
Blank Spike Lab ID: 1534617
Date Analyzed: 09/25/2019 15:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
Carbon disulfide	1130	1240	111		(63-132)
Carbon tetrachloride	750	839	112		(70-135)
Chlorobenzene	750	739	99		(79-120)
Chloroethane	750	697	93		(59-139)
Chloroform	750	782	104		(78-123)
Chloromethane	750	693	92		(50-136)
cis-1,2-Dichloroethene	750	750	100		(77-123)
cis-1,3-Dichloropropene	750	857	114		(74-126)
Dibromochloromethane	750	830	111		(74-126)
Dibromomethane	750	829	110		(78-125)
Dichlorodifluoromethane	750	723	96		(29-149)
Ethylbenzene	750	726	97		(76-122)
Freon-113	1130	1290	114		(66-136)
Hexachlorobutadiene	750	708	94		(61-135)
Isopropylbenzene (Cumene)	750	755	101		(68-134)
Methylene chloride	750	742	99		(70-128)
Methyl-t-butyl ether	1130	1140	101		(73-125)
Naphthalene	750	808	108		(62-129)
n-Butylbenzene	750	742	99		(70-128)
n-Propylbenzene	750	766	102		(73-125)
o-Xylene	750	707	94		(77-123)
P & M -Xylene	1500	1410	94		(77-124)
sec-Butylbenzene	750	728	97		(73-126)
Styrene	750	754	101		(76-124)
tert-Butylbenzene	750	744	99		(73-125)
Tetrachloroethene	750	793	106		(73-128)
Toluene	750	683	91		(77-121)
trans-1,2-Dichloroethene	750	731	98		(74-125)
trans-1,3-Dichloropropene	750	913	122		(71-130)
Trichloroethene	750	818	109		(77-123)
Trichlorofluoromethane	750	1270	170	*	(62-140)
Vinyl acetate	750	842	112		(50-151)
Vinyl chloride	750	675	90		(56-135)
Xylenes (total)	2250	2120	94		(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34970]
Blank Spike Lab ID: 1534617
Date Analyzed: 09/25/2019 15:17

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	112	112	(71-136)
4-Bromofluorobenzene (surr)	750	107	107	(55-151)
Toluene-d8 (surr)	750	97.1	97	(85-116)

Batch Information

Analytical Batch: **VMS19497**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **KAJ**

Prep Batch: **VXX34970**
Prep Method: **SW5035A**
Prep Date/Time: **09/25/2019 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
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Matrix Spike Summary

Original Sample ID: 1195593006
MS Sample ID: 1534622 MS
MSD Sample ID: 1534623 MSD

Analysis Date: 09/25/2019 20:00
Analysis Date: 09/25/2019 17:26
Analysis Date: 09/25/2019 17:42
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	11.3U	790	858	109	790	844	107	78-125	1.50	(< 20)
1,1,1-Trichloroethane	14.2U	790	962	122	790	944	119	73-130	1.90	(< 20)
1,1,2,2-Tetrachloroethane	1.13U	790	821	104	790	799	101	70-124	2.70	(< 20)
1,1,2-Trichloroethane	0.453U	790	860	109	790	877	111	78-121	2.10	(< 20)
1,1-Dichloroethane	14.2U	790	824	104	790	930	118	76-125	12.00	(< 20)
1,1-Dichloroethene	14.2U	790	893	113	790	800	101	70-131	10.90	(< 20)
1,1-Dichloropropene	14.2U	790	893	113	790	871	110	76-125	2.50	(< 20)
1,2,3-Trichlorobenzene	28.3U	790	636	81	790	769	97	66-130	18.90	(< 20)
1,2,3-Trichloropropane	0.565U	790	865	110	790	824	104	73-125	4.80	(< 20)
1,2,4-Trichlorobenzene	14.2U	790	714	90	790	765	97	67-129	6.80	(< 20)
1,2,4-Trimethylbenzene	28.3U	790	813	103	790	764	97	75-123	6.30	(< 20)
1,2-Dibromo-3-chloropropane	56.5U	790	932	118	790	967	122	61-132	3.60	(< 20)
1,2-Dibromoethane	0.565U	790	806	102	790	827	105	78-122	2.60	(< 20)
1,2-Dichlorobenzene	14.2U	790	787	100	790	759	96	78-121	3.60	(< 20)
1,2-Dichloroethane	1.13U	790	890	113	790	893	113	73-128	0.44	(< 20)
1,2-Dichloropropane	5.65U	790	804	102	790	805	102	76-123	0.20	(< 20)
1,3,5-Trimethylbenzene	14.2U	790	825	104	790	756	96	73-124	8.80	(< 20)
1,3-Dichlorobenzene	14.2U	790	780	99	790	732	93	77-121	6.40	(< 20)
1,3-Dichloropropane	5.65U	790	798	101	790	812	103	77-121	1.70	(< 20)
1,4-Dichlorobenzene	14.2U	790	785	99	790	739	94	75-120	6.00	(< 20)
2,2-Dichloropropane	14.2U	790	1019	129	790	984	125	67-133	3.40	(< 20)
2-Butanone (MEK)	142U	2370	2183	92	2370	2370	100	51-148	8.40	(< 20)
2-Chlorotoluene	14.2U	790	811	103	790	769	97	75-122	5.30	(< 20)
2-Hexanone	56.5U	2370	2474	104	2370	2651	112	53-145	6.80	(< 20)
4-Chlorotoluene	14.2U	790	809	102	790	767	97	72-124	5.20	(< 20)
4-Isopropyltoluene	56.5U	790	802	102	790	765	97	73-127	4.90	(< 20)
4-Methyl-2-pentanone (MIBK)	142U	2370	2568	109	2370	2734	115	65-135	6.00	(< 20)
Acetone	142U	2370	2318	98	2370	2578	109	36-164	10.70	(< 20)
Benzene	7.05U	790	760	96	790	760	96	77-121	0.00	(< 20)
Bromobenzene	14.2U	790	805	102	790	757	96	78-121	6.10	(< 20)
Bromochloromethane	14.2U	790	824	104	790	810	103	78-125	1.80	(< 20)
Bromodichloromethane	1.13U	790	873	111	790	866	110	75-127	0.88	(< 20)
Bromoform	14.2U	790	867	110	790	892	113	67-132	2.90	(< 20)
Bromomethane	11.3U	790	794	101	790	737	93	53-143	7.40	(< 20)
Carbon disulfide	56.5U	1185	1455	123	1185	1279	108	63-132	13.20	(< 20)
Carbon tetrachloride	7.05U	790	928	118	790	901	114	70-135	3.00	(< 20)
Chlorobenzene	14.2U	790	758	96	790	744	94	79-120	1.80	(< 20)

Matrix Spike Summary

Original Sample ID: 1195593006
MS Sample ID: 1534622 MS
MSD Sample ID: 1534623 MSD

Analysis Date: 09/25/2019 20:00
Analysis Date: 09/25/2019 17:26
Analysis Date: 09/25/2019 17:42
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	113U	790	886	112	790	800	101	59-139	10.20	(< 20)
Chloroform	1.13U	790	825	105	790	824	104	78-123	0.16	(< 20)
Chloromethane	14.2U	790	840	106	790	788	100	50-136	6.40	(< 20)
cis-1,2-Dichloroethene	14.2U	790	802	102	790	893	113	77-123	10.70	(< 20)
cis-1,3-Dichloropropene	7.05U	790	920	117	790	912	115	74-126	0.92	(< 20)
Dibromochloromethane	1.13U	790	851	108	790	854	108	74-126	0.46	(< 20)
Dibromomethane	14.2U	790	879	111	790	884	112	78-125	0.48	(< 20)
Dichlorodifluoromethane	28.3U	790	1022	129	790	945	120	29-149	7.90	(< 20)
Ethylbenzene	14.2U	790	742	94	790	739	94	76-122	0.46	(< 20)
Freon-113	56.5U	1185	1424	120	1185	1331	112	66-136	7.20	(< 20)
Hexachlorobutadiene	11.3U	790	1033	131	790	1010	128	61-135	2.30	(< 20)
Isopropylbenzene (Cumene)	14.2U	790	760	96	790	773	98	68-134	1.80	(< 20)
Methylene chloride	56.5U	790	837	106	790	859	109	70-128	2.60	(< 20)
Methyl-t-butyl ether	56.5U	1185	1258	106	1185	1455	122	73-125	14.10	(< 20)
Naphthalene	12.4J	790	761	96	790	850	108	62-129	11.10	(< 20)
n-Butylbenzene	11.9J	790	862	109	790	813	103	70-128	5.90	(< 20)
n-Propylbenzene	14.2U	790	828	105	790	773	98	73-125	6.80	(< 20)
o-Xylene	14.2U	790	716	91	790	720	91	77-123	0.55	(< 20)
P & M -Xylene	28.3U	1580	1445	91	1580	1445	92	77-124	0.33	(< 20)
sec-Butylbenzene	14.2U	790	788	100	790	749	95	73-126	5.00	(< 20)
Styrene	14.2U	790	749	95	790	759	96	76-124	1.20	(< 20)
tert-Butylbenzene	14.2U	790	787	100	790	758	96	73-125	3.80	(< 20)
Tetrachloroethene	7.05U	790	844	107	790	838	106	73-128	0.75	(< 20)
Toluene	14.2U	790	704	89	790	701	89	77-121	0.45	(< 20)
trans-1,2-Dichloroethene	14.2U	790	856	108	790	883	112	74-125	3.10	(< 20)
trans-1,3-Dichloropropene	7.05U	790	944	119	790	935	118	71-130	0.93	(< 20)
Trichloroethene	2.83U	790	885	112	790	869	110	77-123	1.80	(< 20)
Trichlorofluoromethane	28.3U	790	1746	221 *	790	1372	174 *	62-140	24.10 *	(< 20)
Vinyl acetate	56.5U	790	884	112	790	1037	131	50-151	16.10	(< 20)
Vinyl chloride	0.453U	790	741	94	790	715	91	56-135	3.60	(< 20)
Xylenes (total)	42.4U	2370	2162	91	2370	2173	92	78-124	0.40	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		790	889	113	790	902	114	71-136	1.40	
4-Bromofluorobenzene (surr)		1320	1362	103	1320	1289	98	55-151	5.70	
Toluene-d8 (surr)		790	754	95	790	755	96	85-116	0.21	

Print Date: 10/10/2019 10:56:56AM

Matrix Spike Summary

Original Sample ID: 1195593006
MS Sample ID: 1534622 MS
MSD Sample ID: 1534623 MSD

QC for Samples: 1195629001

Analysis Date:
Analysis Date: 09/25/2019 17:26
Analysis Date: 09/25/2019 17:42
Matrix: Soil/Solid (dry weight)

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS19497
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 9/25/2019 5:26:01PM

Prep Batch: VXX34970
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/25/2019 6:00:00AM
Prep Initial Wt./Vol.: 49.35g
Prep Extract Vol: 25.00mL

Print Date: 10/10/2019 10:56:56AM

Method Blank

Blank ID: MB for HBN 1800073 [VXX/34971]
Blank Lab ID: 1534690

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	10.0U	20.0	6.20	ug/Kg
1,1,1-Trichloroethane	12.5U	25.0	7.80	ug/Kg
1,1,2,2-Tetrachloroethane	1.00U	2.00	0.620	ug/Kg
1,1,2-Trichloroethane	0.400U	0.800	0.250	ug/Kg
1,1-Dichloroethane	12.5U	25.0	7.80	ug/Kg
1,1-Dichloroethene	12.5U	25.0	7.80	ug/Kg
1,1-Dichloropropene	12.5U	25.0	7.80	ug/Kg
1,2,3-Trichlorobenzene	25.0U	50.0	15.0	ug/Kg
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/Kg
1,2,4-Trichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2,4-Trimethylbenzene	25.0U	50.0	15.0	ug/Kg
1,2-Dibromo-3-chloropropane	50.0U	100	31.0	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
1,2-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,3,5-Trimethylbenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
1,3-Dichloropropane	5.00U	10.0	3.10	ug/Kg
1,4-Dichlorobenzene	12.5U	25.0	7.80	ug/Kg
2,2-Dichloropropane	12.5U	25.0	7.80	ug/Kg
2-Butanone (MEK)	125U	250	78.0	ug/Kg
2-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
2-Hexanone	50.0U	100	31.0	ug/Kg
4-Chlorotoluene	12.5U	25.0	7.80	ug/Kg
4-Isopropyltoluene	50.0U	100	25.0	ug/Kg
4-Methyl-2-pentanone (MIBK)	125U	250	78.0	ug/Kg
Acetone	125U	250	78.0	ug/Kg
Benzene	6.25U	12.5	3.90	ug/Kg
Bromobenzene	12.5U	25.0	7.80	ug/Kg
Bromochloromethane	12.5U	25.0	7.80	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromoform	12.5U	25.0	7.80	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Carbon disulfide	50.0U	100	31.0	ug/Kg
Carbon tetrachloride	6.25U	12.5	3.90	ug/Kg
Chlorobenzene	12.5U	25.0	7.80	ug/Kg
Chloroethane	100U	200	62.0	ug/Kg

Method Blank

Blank ID: MB for HBN 1800073 [VXX/34971]
Blank Lab ID: 1534690

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	1.00U	2.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	44.0J	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	97.6	55-151		%
Toluene-d8 (surr)	101	85-116		%

Method Blank

Blank ID: MB for HBN 1800073 [VXX/34971]
Blank Lab ID: 1534690

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: KAJ
Analytical Date/Time: 9/26/2019 4:40:00PM

Prep Batch: VXX34971
Prep Method: SW5035A
Prep Date/Time: 9/26/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 10/10/2019 10:56:57AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34971]
Blank Spike Lab ID: 1534691
Date Analyzed: 09/26/2019 16:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	782	104	(78-125)
1,1,1-Trichloroethane	750	789	105	(73-130)
1,1,2,2-Tetrachloroethane	750	763	102	(70-124)
1,1,2-Trichloroethane	750	798	106	(78-121)
1,1-Dichloroethane	750	714	95	(76-125)
1,1-Dichloroethene	750	733	98	(70-131)
1,1-Dichloropropene	750	869	116	(76-125)
1,2,3-Trichlorobenzene	750	683	91	(66-130)
1,2,3-Trichloropropane	750	776	104	(73-125)
1,2,4-Trichlorobenzene	750	747	100	(67-129)
1,2,4-Trimethylbenzene	750	782	104	(75-123)
1,2-Dibromo-3-chloropropane	750	722	96	(61-132)
1,2-Dibromoethane	750	810	108	(78-122)
1,2-Dichlorobenzene	750	758	101	(78-121)
1,2-Dichloroethane	750	758	101	(73-128)
1,2-Dichloropropane	750	791	105	(76-123)
1,3,5-Trimethylbenzene	750	772	103	(73-124)
1,3-Dichlorobenzene	750	793	106	(77-121)
1,3-Dichloropropane	750	818	109	(77-121)
1,4-Dichlorobenzene	750	782	104	(75-120)
2,2-Dichloropropane	750	805	107	(67-133)
2-Butanone (MEK)	2250	2210	98	(51-148)
2-Chlorotoluene	750	774	103	(75-122)
2-Hexanone	2250	2210	98	(53-145)
4-Chlorotoluene	750	758	101	(72-124)
4-Isopropyltoluene	750	797	106	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2110	94	(65-135)
Acetone	2250	2100	94	(36-164)
Benzene	750	785	105	(77-121)
Bromobenzene	750	810	108	(78-121)
Bromochloromethane	750	719	96	(78-125)
Bromodichloromethane	750	765	102	(75-127)
Bromoform	750	787	105	(67-132)
Bromomethane	750	735	98	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34971]
Blank Spike Lab ID: 1534691
Date Analyzed: 09/26/2019 16:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1130	1090	97	(63-132)
Carbon tetrachloride	750	821	109	(70-135)
Chlorobenzene	750	756	101	(79-120)
Chloroethane	750	766	102	(59-139)
Chloroform	750	749	100	(78-123)
Chloromethane	750	711	95	(50-136)
cis-1,2-Dichloroethene	750	733	98	(77-123)
cis-1,3-Dichloropropene	750	818	109	(74-126)
Dibromochloromethane	750	828	110	(74-126)
Dibromomethane	750	724	97	(78-125)
Dichlorodifluoromethane	750	739	99	(29-149)
Ethylbenzene	750	731	97	(76-122)
Freon-113	1130	1180	105	(66-136)
Hexachlorobutadiene	750	869	116	(61-135)
Isopropylbenzene (Cumene)	750	786	105	(68-134)
Methylene chloride	750	767	102	(70-128)
Methyl-t-butyl ether	1130	1200	107	(73-125)
Naphthalene	750	677	90	(62-129)
n-Butylbenzene	750	823	110	(70-128)
n-Propylbenzene	750	806	107	(73-125)
o-Xylene	750	758	101	(77-123)
P & M -Xylene	1500	1530	102	(77-124)
sec-Butylbenzene	750	803	107	(73-126)
Styrene	750	751	100	(76-124)
tert-Butylbenzene	750	793	106	(73-125)
Tetrachloroethene	750	876	117	(73-128)
Toluene	750	777	104	(77-121)
trans-1,2-Dichloroethene	750	736	98	(74-125)
trans-1,3-Dichloropropene	750	828	110	(71-130)
Trichloroethene	750	844	113	(77-123)
Trichlorofluoromethane	750	820	109	(62-140)
Vinyl acetate	750	802	107	(50-151)
Vinyl chloride	750	669	89	(56-135)
Xylenes (total)	2250	2290	102	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX34971]
Blank Spike Lab ID: 1534691
Date Analyzed: 09/26/2019 16:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	94.9	95	(71-136)
4-Bromofluorobenzene (surr)	750	101	101	(55-151)
Toluene-d8 (surr)	750	102	102	(85-116)

Batch Information

Analytical Batch: **VMS19498**
Analytical Method: **SW8260C**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **KAJ**

Prep Batch: **VXX34971**
Prep Method: **SW5035A**
Prep Date/Time: **09/26/2019 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1195598020
MS Sample ID: 1534692 MS
MSD Sample ID: 1534693 MSD

Analysis Date: 09/26/2019 20:22
Analysis Date: 09/26/2019 18:46
Analysis Date: 09/26/2019 19:02
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1-Dichloroethene	14.9U	789	823	104	789	781	99	70-131	5.20	(< 20)
Carbon tetrachloride	7.40U	789	893	113	789	871	110	70-135	2.50	(< 20)
cis-1,2-Dichloroethene	14.9U	789	808	102	789	761	96	77-123	6.00	(< 20)
Tetrachloroethene	7.40U	789	860	109	789	920	117	73-128	6.60	(< 20)
trans-1,2-Dichloroethene	14.9U	789	803	102	789	777	98	74-125	3.30	(< 20)
Trichloroethene	2.96U	789	877	111	789	880	112	77-123	0.36	(< 20)
Vinyl chloride	0.474U	789	791	100	789	692	88	56-135	13.30	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		789	781	99	789	762	97	71-136	2.60	
4-Bromofluorobenzene (surr)		1313	1366	104	1313	1441	110	55-151	5.40	
Toluene-d8 (surr)		789	796	101	789	806	102	85-116	1.20	

Batch Information

Analytical Batch: VMS19498
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: KAJ
Analytical Date/Time: 9/26/2019 6:46:00PM

Prep Batch: VXX34971
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/26/2019 6:00:00AM
Prep Initial Wt./Vol.: 50.73g
Prep Extract Vol: 25.00mL

Print Date: 10/10/2019 10:57:00AM

Method Blank

Blank ID: MB for HBN 1800350 [VXX/35000]
Blank Lab ID: 1536033

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	92.7	50-150		%

Batch Information

Analytical Batch: VFC14970
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 10/2/2019 6:59:00PM

Prep Batch: VXX35000
Prep Method: SW5035A
Prep Date/Time: 10/2/2019 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 1195629 [VXX35000]
Blank Spike Lab ID: 1536034
Date Analyzed: 10/02/2019 18:23

Spike Duplicate ID: LCSD for HBN 1195629 [VXX35000]
Spike Duplicate Lab ID: 1536035
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629002, 1195629003, 1195629004, 1195629005, 1195629006, 1195629007

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	12.5	13.4	107	12.5	13.8	110	(60-120)	3.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	98.7	99	1.25	104	104	(50-150)	5.10	

Batch Information

Analytical Batch: **VFC14970**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX35000**
Prep Method: **SW5035A**
Prep Date/Time: **10/02/2019 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1800402 [VXX/35005]
Blank Lab ID: 1536247

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	92.6	50-150		%

Batch Information

Analytical Batch: VFC14972
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 10/3/2019 12:06:00PM

Prep Batch: VXX35005
Prep Method: SW5035A
Prep Date/Time: 10/3/2019 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [VXX35005]
Blank Spike Lab ID: 1536248
Date Analyzed: 10/03/2019 11:30

Spike Duplicate ID: LCSD for HBN 1195629 [VXX35005]
Spike Duplicate Lab ID: 1536249
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001

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	12.5	13.7	109	12.5	13.8	110	(60-120)	0.85	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	100	100	1.25	105	105	(50-150)	4.40	

Batch Information

Analytical Batch: **VFC14972**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **ST**

Prep Batch: **VXX35005**
Prep Method: **SW5035A**
Prep Date/Time: **10/03/2019 08:00**
Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

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Method Blank

Blank ID: MB for HBN 1799971 [XXX/42338]
Blank Lab ID: 1534251

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629001, 1195629002, 1195629003, 1195629004, 1195629005, 1195629006

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	86	60-120		%

Batch Information

Analytical Batch: XFC15375
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 10/5/2019 12:32:00PM

Prep Batch: XXX42338
Prep Method: SW3550C
Prep Date/Time: 9/25/2019 3:32:44PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [XXX42338]
Blank Spike Lab ID: 1534252
Date Analyzed: 10/05/2019 13:02

Spike Duplicate ID: LCSD for HBN 1195629 [XXX42338]
Spike Duplicate Lab ID: 1534253
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629001, 1195629002, 1195629003, 1195629004, 1195629005, 1195629006

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	833	838	101	833	818	98	(75-125)	2.50	(< 20)
Surrogates									
5a Androstane (surr)	16.7	105	105	16.7	102	102	(60-120)	3.10	

Batch Information

Analytical Batch: **XFC15375**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX42338**
Prep Method: **SW3550C**
Prep Date/Time: **09/25/2019 15:32**
Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1799991 [XXX/42341]
Blank Lab ID: 1534381

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195629006

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	6.25	ug/Kg
Fluoranthene	12.5U	25.0	6.25	ug/Kg
Fluorene	12.5U	25.0	6.25	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	6.25	ug/Kg
Naphthalene	10.0U	20.0	5.00	ug/Kg
Phenanthrene	12.5U	25.0	6.25	ug/Kg
Pyrene	12.5U	25.0	6.25	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	76.5	58-103		%
Fluoranthene-d10 (surr)	75	54-113		%

Batch Information

Analytical Batch: XMS11756
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/29/2019 5:52:00PM

Prep Batch: XXX42341
Prep Method: SW3550C
Prep Date/Time: 9/25/2019 8:53:21PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 10/10/2019 10:57:14AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195629 [XXX42341]
Blank Spike Lab ID: 1534382
Date Analyzed: 09/29/2019 18:13

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195629006

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
1-Methylnaphthalene	111	93.4	84		(43-111)
2-Methylnaphthalene	111	92.2	83		(39-114)
Acenaphthene	111	96.0	86		(44-111)
Acenaphthylene	111	99.6	90		(39-116)
Anthracene	111	101	91		(50-114)
Benzo(a)Anthracene	111	99.9	90		(54-122)
Benzo[a]pyrene	111	100	90		(50-125)
Benzo[b]Fluoranthene	111	105	95		(53-128)
Benzo[g,h,i]perylene	111	112	101		(49-127)
Benzo[k]fluoranthene	111	104	94		(56-123)
Chrysene	111	101	91		(57-118)
Dibenzo[a,h]anthracene	111	110	99		(50-129)
Fluoranthene	111	101	91		(55-119)
Fluorene	111	101	91		(47-114)
Indeno[1,2,3-c,d] pyrene	111	116	104		(49-130)
Naphthalene	111	91.3	82		(38-111)
Phenanthrene	111	99.0	89		(49-113)
Pyrene	111	106	96		(55-117)
Surrogates					
2-Methylnaphthalene-d10 (surr)	111	47.2	47	*	(58-103)
Fluoranthene-d10 (surr)	111	49.3	49	*	(54-113)

Batch Information

Analytical Batch: **XMS11756**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX42341**
Prep Method: **SW3550C**
Prep Date/Time: **09/25/2019 20:53**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/10/2019 10:57:16AM

Matrix Spike Summary

Original Sample ID: 1195630006
MS Sample ID: 1534383 MS
MSD Sample ID: 1534384 MSD

QC for Samples: 1195629006

Analysis Date: 09/30/2019 0:02
Analysis Date: 09/30/2019 0:22
Analysis Date: 09/30/2019 0:43
Matrix: Soil/Solid (dry weight)

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

		Matrix Spike (ug/Kg)				Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	25.8U	117	104	89		115	98.5	86	43-111	5.50	(< 20)
2-Methylnaphthalene	25.8U	117	102	87		115	94.0	82	39-114	7.80	(< 20)
Acenaphthene	25.8U	117	111	95		115	100	87	44-111	10.00	(< 20)
Acenaphthylene	25.8U	117	106	91		115	101	88	39-116	5.50	(< 20)
Anthracene	25.8U	117	123	105		115	111	96	50-114	10.40	(< 20)
Benzo(a)Anthracene	30.3	117	139	94		115	133	89	54-122	5.30	(< 20)
Benzo[a]pyrene	39.0	117	149	94		115	144	92	50-125	2.70	(< 20)
Benzo[b]Fluoranthene	47.2	117	152	90		115	149	88	53-128	2.20	(< 20)
Benzo[g,h,i]perylene	37.4	117	148	95		115	154	101	49-127	3.80	(< 20)
Benzo[k]fluoranthene	25.8U	117	131	112		115	129	112	56-123	1.90	(< 20)
Chrysene	37.0	117	146	94		115	140	90	57-118	4.60	(< 20)
Dibenzo[a,h]anthracene	25.8U	117	119	102		115	117	102	50-129	1.40	(< 20)
Fluoranthene	64.8	117	191	108		115	165	87	55-119	14.30	(< 20)
Fluorene	25.8U	117	118	101		115	105	92	47-114	11.20	(< 20)
Indeno[1,2,3-c,d] pyrene	31.8	117	150	101		115	152	104	49-130	1.50	(< 20)
Naphthalene	20.6U	117	103	88		115	94.5	82	38-111	8.10	(< 20)
Phenanthrene	55.3	117	189	115	*	115	142	76	49-113	28.10	* (< 20)
Pyrene	63.1	117	190	109		115	169	92	55-117	12.20	(< 20)
Surrogates											
2-Methylnaphthalene-d10 (surr)		117	89.8	77		115	84.6	74	58-103	5.90	
Fluoranthene-d10 (surr)		117	86.0	74		115	83.8	73	54-113	2.60	

Batch Information

Analytical Batch: XMS11756
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/30/2019 12:22:00AM

Prep Batch: XXX42341
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/25/2019 8:53:21PM
Prep Initial Wt./Vol.: 22.56g
Prep Extract Vol: 5.00mL

Print Date: 10/10/2019 10:57:17AM

SGS 1195629

SGS North America Inc.
CHAIN OF CUSTODY RECORD

www.us.sgs.com

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

Page 1 of 1

Section 1

CLIENT: EMI Alaska

CONTACT: Glenn Hasburgh

PHONE #: 907-272-9336

PROJECT NAME: HUB Landfarm Characterization

PROJECT/ PWSID/ PERMIT#: ~~17875~~ 17873

REPORTS TO: Glenn Hasburgh

E-MAIL: ghasburgh@emi-alaska.com

Profile #:

INVOICE TO: EMI Alaska

QUOTE #:

P.O. #:

Section 3

Preservative

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Comp Grab MI (Multi-incremental)	Analysis*: GRO by AK101	VOC by 8260	DRO by AK102	PAH by 8270D SIM	REMARKS/LOC ID
1 AB	B3-2.5'	9/19/19	1127	S	2	G	X	X	X		
2 AB	D3-2.5'	"	1131	"	"	"	X	X	X		
3 AB	D13-2.5'	"	1141	"	"	"	X	X	X		
4 AB	E2-2.5'	"	1145	"	"	"	X	X	X		
5 AB	E5-2.5'	"	1150	"	"	"	X	X	X		
6 AB	G3-2.5'	"	1155	"	"	"	X	X	X		
7 A	Trip Blank	—	—	—			X	X			

MeOH+B FB Matrix

NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

Section 5

	Date	Time	
Relinquished By: (1)	9/23/19	10:49	Received By:
Relinquished By: (2)			Received By:
Relinquished By: (3)			Received By:
Relinquished By: (4)	9-23-19	10:49	Received For Laboratory By:

Section 4

DOD Project? Yes No

Data Deliverable Requirements:

Cooler ID:

Requested Turnaround Time and/or Special Instructions:

Standard Profile: 339932 JKJ

Temp Blank °C: 4.6 D57

or Ambient [ ]

Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT

Delivery Method: Hand Delivery [ ] Commerical Delivery [ ]

http://www.sgs.com/terms-and-conditions

F083-Blank_COC_20181228

e-Sample Receipt Form

SGS Workorder #: **1195629**

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 4.6 °C Therm. ID: D57
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC informatic		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1195629001-A	No Preservative Required	OK			
1195629001-B	Methanol field pres. 4 C	OK			
1195629002-A	No Preservative Required	OK			
1195629002-B	Methanol field pres. 4 C	OK			
1195629003-A	No Preservative Required	OK			
1195629003-B	Methanol field pres. 4 C	OK			
1195629004-A	No Preservative Required	OK			
1195629004-B	Methanol field pres. 4 C	OK			
1195629005-A	No Preservative Required	OK			
1195629005-B	Methanol field pres. 4 C	OK			
1195629006-A	No Preservative Required	OK			
1195629006-B	Methanol field pres. 4 C	OK			
1195629007-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Glenn Hasburgh

Title:

Environmental Scientist

Date:

11/13/2019

CS Report Name:

The Hub of Alaska, Milepost 189.5 Glenn Highway, Glennallen, Alaska; ADEC UST Facility ID 2945

Report Date:

November 2019

Consultant Firm:

Environmental Management, Inc.

Laboratory Name:

SGS North America

Laboratory Report Number:

1195629

ADEC File Number:

240.26.008

Hazard Identification Number:

23554

1195629

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   (•) Yes ( ) No Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   (•) Yes ( ) No Comments:

   NA, samples were not transferred.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   (•) Yes ( ) No Comments:

   b. Correct Analyses requested?

   (•) Yes ( ) No Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

   None, were broken or leaking.

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 Comments:

e. Data quality or usability affected?

Comments:

No, there is nothing to indicate data quality or usability has been affected.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

c. Were all corrective actions documented?

(•) Yes ( ) No Comments:

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

Comments:

Phenanthrene data is considered an estimate based on QC failures. Other QC issues do not appear to have an impact on quality or usability.

5. Samples Results

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

(•) Yes ( ) No Comments:

b. All applicable holding times met?

(•) Yes ( ) No Comments:

c. All soils reported on a dry weight basis?

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

There are multiple VOC analytes with LOQs above the

e. Data quality or usability affected?

( ) Yes ( ) No Comments:

The LOQs above cleanup levels does affect quality, but the data is still usable.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

( ) Yes (•) No Comments:

Chloroform was detected in the method blank.

iii. If above LOQ, what samples are affected?

Comments:

None, since chloroform was not detected in the parent sample.

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

(•) Yes ( ) No Comments:

v. Data quality or usability affected?

Comments:

There is nothing to indicate data quality or usability has been affected.

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 Comments:

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

(●) Yes ( ) No 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 Comments:

LCS recovery for trichlorofluoromethane was outside of limits.

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 Comments:

No, RPD for trichlorofluoromethane was high.

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

Comments:

None. The analyte with failed recovery and RPD was not detected in the parent sample.

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

(●) Yes ( ) No Comments:

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

Comments:

No, these QC failures do not impact data quality or usability.

c. Surrogates – Organics Only

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

(•) Yes ( ) No 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 Comments:

One LCS had a failed recovery for 2-methylnaphthalene.

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

(•) Yes ( ) No Comments:

iv. Data quality or usability affected?

Comments:

Data quality is not affected because the surrogate recovered within range for the field samples.

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

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

(•) Yes ( ) No Comments:

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

( ) Yes ( ) No Comments:

NA, only one cooler was used.

iii. All results less than LOQ?

(•) Yes ( ) No Comments:

iv. If above LOQ, what samples are affected?

Comments:

NA, all were below PQL.

v. Data quality or usability affected?

Comments:

There is nothing to indicate data quality or usability has been affected.

e. Field Duplicate

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

(•) Yes ( ) No Comments:

ii. Submitted blind to lab?

(•) Yes ( ) No 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 Comments:

RPD for 1,3,5-trimethylbenzene was 80%. All other analytes were less than 50%.

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

Comments:

No. the poor RPD does not have any real effect since it was detected below the cleanup level.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

( ) Yes ( ) No (•) Not Applicable

Only disposable equipment was used.

i. All results less than LOQ?

○ Yes ○ No Comments:

NA

ii. If above LOQ, what samples are affected?

Comments:

NA

iii. Data quality or usability affected?

Comments:

NA

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

a. Defined and appropriate?

○ Yes ○ No Comments:

NA