ENVIRONMENTAL MANAGEMENT, INC.
Consulting, Engineering & Training

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December 17, 2018

ADEC
555 Cordova Street
Anchorage, Alaska 99501
Attn: Louis Howard

RE: JBER CHPP Demolition Project, Anchorage, Alaska

SUBJ: Screening and Sampling Soils During Utilidor Removal

This letter summarizes the findings and events associated with the screening and sampling of the soil in the area around the utilidor and pump house by Environmental Management, Inc. (EMI) at the CHPP Building, JBER, Alaska. As part of the CHPP demolition project, the Contractor removed the fuel pump house and the piping from the fuel pump house to the Boiler Building. The fuel piping was confined within a direct buried concrete utilidor which was also demolished. Andy Coulson, an ADEC Qualified Environmental Professional, and Hannah Deeney, E.I.T., an ADEC Qualified Sampler, conducted the field activities. This limited site investigation followed EMI's 10/25/17 letter describing the work planned to be completed under the ADEC April 2017, *Technical Memorandum, Managing Petroleum-Contaminated Soil, Water, or Free Product during Public Utility and Right-of-Way Construction and Maintenance Projects*.

On October 26, 2018 Andy Coulson observed the excavation of soil around AOC04. After excavation, Mr. Coulson screened the base and sidewalls according to the ADEC *Field Sampling Guidance*. The results from this screening ranged from 0.0 to 1.2 ppmv; sample CHPP_AOC04-02-B2 was collected from the location of the 1.2 ppmv headspace reading in the base of the excavation.

On October 29, Andy Coulson screened the soils excavated from the utilidor demolition. He observed the excavation of the south portion of the utilidor; the north half (north of the short east-west section) had been excavated and removed prior to Mr. Coulson arriving on site. All the soil from the excavations was stored in the same stockpile. Mr. Coulson used direct read methods to investigate the soils in the utilidor trench and the stockpile (>40 readings each), all readings were 0.0 ppmv. Mr. Coulson also screened five headspace samples from the stockpile, all were 0.0 ppmv; 10 headspace samples from the north half of the utilidor, one read 0.2 ppmv while the remainder were all 0.0; and 4 headspace samples from the north part of the utilidor, all read 0.0 ppmv. The north half of the utilidor was completely removed, the south half was only excavated with the lid and pipes removed. No staining or free product was observed inside the south half of the utilidor, and CEI reports that none was observed in the north half prior to removal. No odors or staining were detected during field activities; however snow obscured the presence or absence of stained soil in the north half.

No soils were excavated at the pump house, however when the concrete foundation was removed an obvious odor was present. Therefore, Hannah Deeney was directed to go onsite on October 31, 2018 to screen soil around the former pump house. Six headspace samples were collected and tested. The highest headspace was 230.7 ppmv. Direct reads of ambient soil vapors with the PID also reached up to 88.6 ppmv. One sample was collected on October 31 from the west sidewall of the excavation. See Field Notes for other headspace and direct read results.

The samples collected on October 26th (CHPP_AOC04-02-B2) and the sample collected on October 31st (Utilidor/PH-01) were submitted to SGS Anchorage and analyzed for gasoline range organics (GRO by AK101), diesel range organics (DRO by AK 102), residual range organics (RRO by AK 103), regular and low level volatile organic compounds (VOC by SW8260), polycyclic aromatic hydrocarbons (PAH by 8270 SIM), and metals by SW6020 (As, Ba, Cd, Cr, Pb, Hg, Se, Ag, Ni, V). CHPP_AOC04-02-B2 was also analyzed for polychlorinated biphenyls (PCBs by SW8082) Detected results are included in Table 1.

There was evidence of contamination remaining in the vicinity of the Pump House with four analytes above the project action levels (DRO, 1-Methylnaphthalene, 2-Methylnaphthalene, and Naphthalene) and 25 other analytes detected. AOC04 had Naphthalene above the action levels and 13 other analytes detected. When analyzed for low level VOC, 1,2,3-Trichloropropane, 1,2-Dibromoethane, and Vinyl chloride had detection levels above the action level for both samples.

The soils excavated for the demolition of the utilidor were determeind to be non-contaminated and placed back in the utilidor excavation trench where they came from. Soils at the fuel pump house which were determined to be contaminated were not excavated and remain on site. (see Figure 1) No free product was observed during any of the demolition and no evidence of any fuel contamination was found during removal of the utilidor itself.

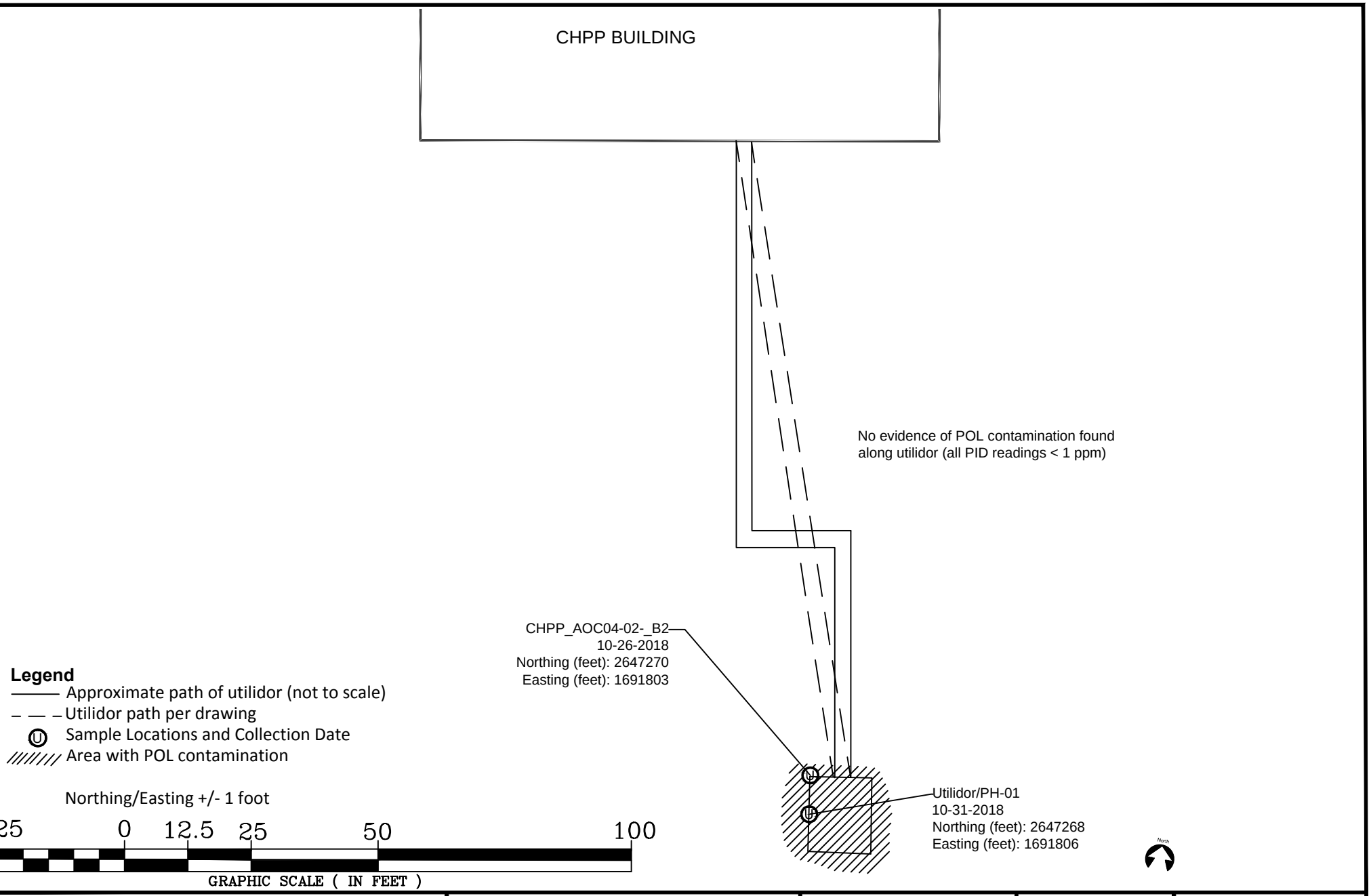
Sincerely,
ENVIRONMENTAL MANAGEMENT, INC.

Digitally signed by Larry Helgeson
Date: 2018.12.20 14:29:38 -09'00'

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

Larry A. Helgeson, P.E.
Principal

Attached: Figure 1, Table 1, Field Notes, SGS Laboratory Reports 1186159 and 1186208, Photo Log



UTILIDOR / PUMP HOUSE SAMPLE LOCATIONS	JBER CHPP DEMO ANCHORAGE, AK	EMI Consulting, Engineering & Training	PREPARED: HJD DRAWN: HJD REVIEWED: LAH 11/28/18	FIGURE 1

Table 1. Detected Results

	EMI ID	Utilidor/PH-01		CHPP_AOC04-02_B2	
	Lab ID	1186208001		1186159001	
	Date	10/31/2018		10/26/2018	
	Location	Near Pump House		AOC04	
Analyte	**PAL**				
Diesel Range Organics (DRO) - mg/kg	250	**469**		**75.8**	
Residual Range Organics (RRO) - mg/kg	10000	**154**		**158**	
Metals - mg/kg					
Arsenic	13	**8.47**		**10.2**	
Barium	2100	**104**		**143**	
Chromium		***35.3***		**36.0**	
Lead	800	**10.9**		**8.39**	
Mercury	0.36	**0.151**		**0.118**	
Nickel	340	**41.9**		**38.0**	
Vanadium	1100	**70.7**		**73.6**	
Polycyclic Aromatic Hydrocarbons (PAH) - ug/kg					
1-Methylnaphthalene	410	**1540**		**48.3**	
2-Methylnaphthalene	1300	**1930**		**66.5**	
Acenaphthene	37000	**40.7**		--	--
Acenaphthylene	18000	**69.2**		--	--
Anthracene	390000	**105**		--	--
Benzo(a)Anthracene	700	**146**		--	--
Benzo[a]pyrene	1900	**115**		--	--
Benzo[b]Fluoranthene	20000	**132**		--	--
Benzo[g,h,i]perylene	15000000	**40.2**		--	--
Benzo[k]fluoranthene	190000	**47.1**		--	--
Chrysene	600000	**137**		--	--
Fluoranthene	590000	**361**		--	--
Fluorene	36000	**114**		--	--
Indeno[1,2,3-c,d] pyrene	65000	**46.4**		--	--
Naphthalene	38	**612**		**25.5**	
Phenanthrene	39000	**489**		--	--
Pyrene	87000	**328**		--	--
Volatile Organic Compounds (VOC) - ug/kg					
1,1,2,2-Tetrachloroethane	*3*	*12.9*	*U*	*13.5*	*U*
1,1,2-Trichloroethane	*1.4*	*10.3*	*U*	*10.8*	*U*
1,2,3-Trichloropropane	0.031	*25.9*	*U*	*26.9*	*U*
1,2,4-Trimethylbenzene	610	**485**		**59.7**	
1,2-Dibromoethane	*0.24*	*10.3*	*U*	*10.8*	*U*
1,2-Dichloroethane	*5.5*	*10.3*	*U*	*10.8*	*U*
1,3,5-Trimethylbenzene	660	**155**		--	--
4-Isopropyltoluene		***187***		--	--
Bromodichloromethane	*4.3*	*25.9*	*U*	*26.9*	*U*
Bromomethane	*24*	*207*	*U*	*216*	*U*
Chloroform	*7.1*	*25.9*	*U*	*26.9*	*U*

Dibromochloromethane	*2.7*	*25.9*	*U*	*26.9*	*U*
Dibromomethane	*25*	*25.9*	*U*	*26.9*	*U*
Hexachlorobutadiene	*20*	*20.7*	*U*	*21.6*	*U*
Naphthalene	38	**700**		**79.0**	
P & M -Xylene		***110***		--	--
Vinyl chloride	*0.8*	*10.3*	*U*	*10.8*	*U*
Xylenes (total)	1500	**171**		--	--
n-Propylbenzene	9100	**88.8**		--	--
o-Xylene		***60.8***		***26.9***	
sec-Butylbenzene	42000	**86.3**		--	--
Volatile Organic Compounds (VOC) LL - ug/kg					
1,2,3-Trichloropropane	*0.031*	*1.03*	*U*	*1.08*	*U*
1,2-Dibromoethane	*0.24*	*1.03*	*U*	*1.08*	*U*
Vinyl chloride	*0.8*	*0.827*	*U*	*0.862*	*U*

Notes:

PAL	=Project Action Level
700	=Detected Result Above AL
88.8	=Detected Result
1.03 U	=Non Detect, Detection Level above AL
110	=Detected Result, No AL
--	=Not Detected

26 October 2016

On site 14:00
Andy Carlson EM1
Cody CEI excavator operator

excavating soil at AOC004-002,
4 ft by 4ft, 3 ft deep
on stake provided by project demo.

Align to west overlap with 1-2" of asphalt

Marked N and E limits with pin flags for operator

14:10 began excavating

14:30 finished excavating only to 32" because large chunk of concrete encountered

Sample	Start	End	Flow
S1	14:32	15:14	0.4
S2	14:33	15:15	0.3
W1	14:39	15:16	0.0
W2	14:41	15:17	0.1
W3	14:44	15:18	0.1
W4	14:46	15:18	0.1
W5	14:50	15:19	0.0
N1	14:53	15:31	0.1
N2	14:56	15:32	0.0
N3	14:58	15:33	0.0
N4	15:01	15:34	0.1
E1	15:03	15:37	0.1
E2	15:04	15:37	0.0
E3	15:06	15:38	0.1
E4	15:07	15:39	0.0
E5	15:09	15:40	0.0
B1	15:21	15:46	0.1
B2	15:23	15:46	1.2
B3	15:25	15:48	0.2
B4	15:27	15:49	0.3
B5	15:29	15:50	0.3

16:09 collected
CHBP_ADC04-02_B2 and its duplicate
CHBP_ADC04-02_B6, each
3 containers, soil, 1 w/ meOH

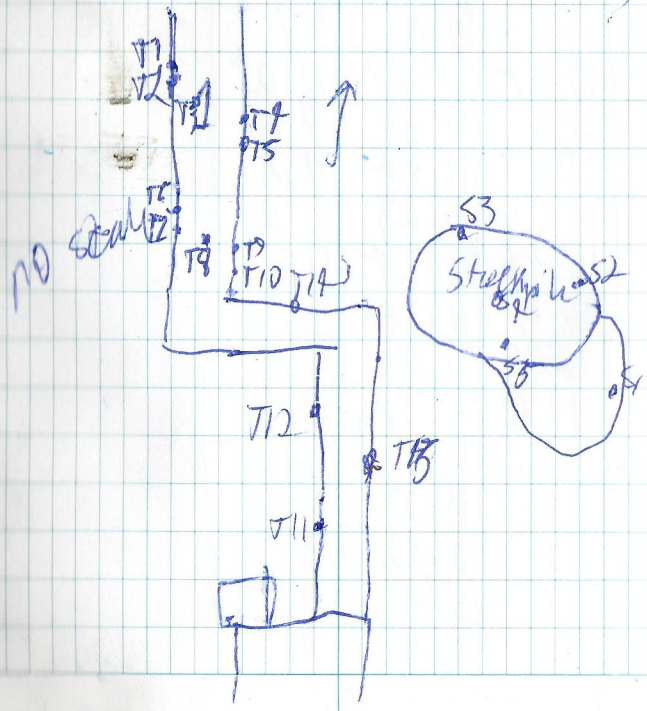
16:35 off site.

29 October 2016

09:35 on site

09:40 PID reads 0.0 ppm on ambient air and 99.4 ppm on 100 ppm Isobutylene cal gas

Andy Carlson EMI REP



10:10 Direct reads at base and 2 depth of Schmidt on station 1 not above 0.0 ppmv.

Direct reads of stockpile none above 0.0 ppmv

Sample	Start	End	ppmv
T1	10:30	11:16	0.0
T2	10:32	11:19	0.0
T3	10:33	11:19	0.0
T4	10:37	11:20	0.0
T5	10:38	11:21	0.0
T6	10:39	11:22	0.0
T7	10:40	11:23	0.0
T8	10:41	11:24	0.2
T9	10:43	11:28	0.1
T10	10:46	11:25	0.0
T11	10:39	12:37	0.2
T12	11:42	12:36	0.0
T13	11:45	12:39	0.0
S1	12:08	12:40	0.0
S2	12:10	12:41	0.0
S3	12:12	12:41	0.0
S4	12:14	12:42	0.0

Sample	Start	End	ppmv
T17	13:59	14:15	0.0
S5	14:00	14:15	0.0

multiple direct reads taken from stockpile and trench all were less than 0.1 except at T11 where a handgun sample was collected because of a direct read of 0.4

Off site 14:20

10/31/18 Hannah Deeney (EMI)

17849 - Utilidor Screening

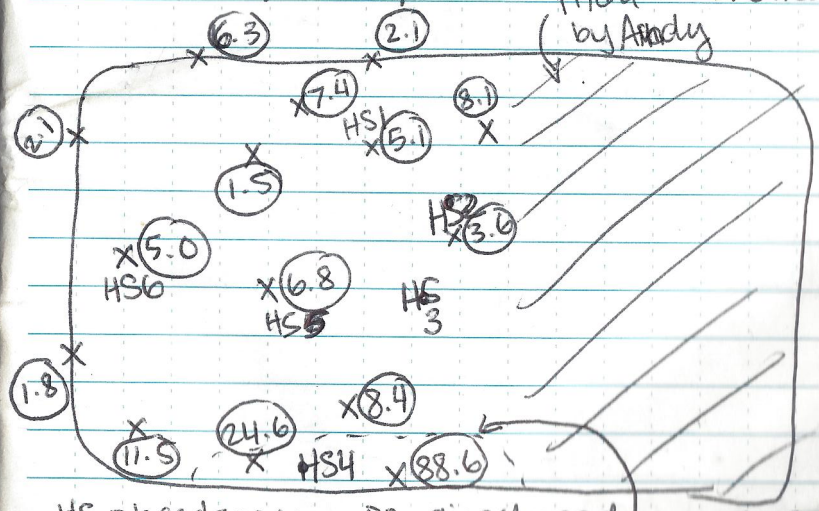
PID bump tested @ EMI.

0915 on site (10°F) (clear)

ID/Loc	time	PID ppm / time	notes
UtlHS01	0945	230.7 / 1021	west sidewall (odor)
UtlHS02	0948	136.9 / 1021	north sidewall
UtlHS03	0951	145.6 / 1023	
UtlHS04	0958	135.5 / 1035	odor east sidewall
UtlHS05	1048	89.6 / 1120	bottom
UtlHS06	1050	13.8 / 1121	South sidewall

Lab sample from UtlHS01 ⇒ Utilidor/PH-01
collected at 11:24

filled + screened by Andy



HS = headspace DR = direct read

Soil not native to utilidor

Scale: 1 square = _____

Laboratory Report of Analysis

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

Report Number: **1186159**

Client Project: **CHPP AOC04-002**

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
2018.11.08 08:21:13 -09'00'

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: **1186159**
Project Name/Site: **CHPP AOC04-002**
Project Contact: **Larry Helgeson**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1788661 [VXX/33496 (1486768) LCS

8260C - LCS recoveries for several analytes does not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.

MB for HBN 1788430 [MXX/32069] (1485810) MB

6020A - Metals analyte chromium is detected in the MB above the LOQ. The associated sample concentrations are 10 times greater than the concentration in the MB.

1186154013(1485812MS) (1485814) MS

6020A - Metals MS recoveries for barium and vanadium does not meet QC criteria. The post digestion spike was successful.

1186158002MS (1486452) MS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MS recovery for 1-Methylnaphthalene does not meet QC criteria. Refer to the LCS for accuracy requirements.

1189911001MS (1486769) MS

8260C - MS recoveries for several analytes does not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.

1186154013(1485812MSD) (1485815) MSD

6020A - Metals MSD recoveries for barium and vanadium does not meet QC criteria. The post digestion spike was successful.

1186158002MSD (1486453) MSD

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MS recovery for 1-Methylnaphthalene does not meet QC criteria. Refer to the LCS for accuracy requirements.

1189911001MSD (1486770) MSD

8260C - MSD recoveries for several analytes does not meet QC criteria. These analytes were 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
SW8082A				
1486354	CCV for HBN 1788570 (XGC/10307	XGC10307	Aroclor-1260	SP
SW8260C				
1186157002	LABREFQC	VMS18543	Naphthalene	RP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 11/07/2018 12:16:25PM

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 & 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
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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
CHPP_AOC04-02_B2	1186159001	10/26/2018	10/29/2018	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8082A	SW8082 PCB's
SW8260C	VOC 8260 (S) Field Extracted
SW8260C LL w/MeOH	VOC 8260 LL (S) w/MeOH

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

Detectable Results Summary

Client Sample ID: **CHPP_AOC04-02_B2**
Lab Sample ID: 1186159001

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	10.2	mg/Kg
	Barium	143	mg/Kg
	Chromium	36.0	mg/Kg
	Lead	8.39	mg/Kg
	Mercury	0.118	mg/Kg
	Nickel	38.0	mg/Kg
	Vanadium	73.6	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	48.3	ug/Kg
	2-Methylnaphthalene	66.5	ug/Kg
	Naphthalene	25.5	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	75.8	mg/Kg
	Residual Range Organics	158	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	59.7	ug/Kg
	Naphthalene	79.0	ug/Kg
	o-Xylene	26.9	ug/Kg

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
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Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	10.2		1.08	0.334	mg/Kg	10		10/31/18 23:15
Barium	143		0.323	0.101	mg/Kg	10		10/31/18 23:15
Cadmium	0.216	U	0.216	0.0668	mg/Kg	10		10/31/18 23:15
Chromium	36.0		0.431	0.140	mg/Kg	10		10/31/18 23:15
Lead	8.39		0.216	0.0668	mg/Kg	10		10/31/18 23:15
Mercury	0.118		0.0431	0.0129	mg/Kg	10		10/31/18 23:15
Nickel	38.0		0.216	0.0668	mg/Kg	10		10/31/18 23:15
Selenium	1.08	U	1.08	0.334	mg/Kg	10		10/31/18 23:15
Silver	0.216	U	0.216	0.0668	mg/Kg	10		10/31/18 23:15
Vanadium	73.6		3.23	1.01	mg/Kg	10		10/31/18 23:15

Batch Information

Analytical Batch: MMS10363
Analytical Method: SW6020A
Analyst: DSH
Analytical Date/Time: 10/31/18 23:15
Container ID: 1186159001-A

Prep Batch: MXX32069
Prep Method: SW3050B
Prep Date/Time: 10/30/18 07:40
Prep Initial Wt./Vol.: 1.053 g
Prep Extract Vol: 50 mL

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Polychlorinated Biphenyls**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Aroclor-1016	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Aroclor-1221	226	U	226	56.5	ug/Kg	1		10/31/18 05:59
Aroclor-1232	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Aroclor-1242	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Aroclor-1248	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Aroclor-1254	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Aroclor-1260	56.5	U	56.5	14.1	ug/Kg	1		10/31/18 05:59
Surrogates								
Decachlorobiphenyl (surr)	118		60-125		%	1		10/31/18 05:59

Batch Information

Analytical Batch: XGC10307
Analytical Method: SW8082A
Analyst: CMC
Analytical Date/Time: 10/31/18 05:59
Container ID: 1186159001-A

Prep Batch: XXX40819
Prep Method: SW3550C
Prep Date/Time: 10/29/18 12:50
Prep Initial Wt./Vol.: 22.605 g
Prep Extract Vol: 5 mL

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	48.3		28.3	7.08	ug/Kg	1		11/05/18 19:27
2-Methylnaphthalene	66.5		28.3	7.08	ug/Kg	1		11/05/18 19:27
Acenaphthene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Acenaphthylene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Anthracene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Benzo(a)Anthracene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Benzo[a]pyrene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Benzo[b]Fluoranthene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Benzo[g,h,i]perylene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Benzo[k]fluoranthene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Chrysene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Dibenzo[a,h]anthracene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Fluoranthene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Fluorene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Indeno[1,2,3-c,d] pyrene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Naphthalene	25.5		22.7	5.67	ug/Kg	1		11/05/18 19:27
Phenanthrene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Pyrene	28.3	U	28.3	7.08	ug/Kg	1		11/05/18 19:27
Surrogates								
2-Methylnaphthalene-d10 (surr)	89		58-103		%	1		11/05/18 19:27
Fluoranthene-d10 (surr)	87		54-113		%	1		11/05/18 19:27

Batch Information

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 11/05/18 19:27
Container ID: 1186159001-A

Prep Batch: XXX40843
Prep Method: SW3550C
Prep Date/Time: 11/02/18 11:03
Prep Initial Wt./Vol.: 22.542 g
Prep Extract Vol: 5 mL

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	75.8		22.7	7.03	mg/Kg	1		10/30/18 11:09
Surrogates								
5a Androstane (surr)	98.6		50-150		%	1		10/30/18 11:09

Batch Information

Analytical Batch: XFC14767
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 10/30/18 11:09
Container ID: 1186159001-A

Prep Batch: XXX40820
Prep Method: SW3550C
Prep Date/Time: 10/29/18 15:06
Prep Initial Wt./Vol.: 30.032 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	158		22.7	7.03	mg/Kg	1		10/30/18 11:09
Surrogates								
n-Triacontane-d62 (surr)	103		50-150		%	1		10/30/18 11:09

Batch Information

Analytical Batch: XFC14767
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 10/30/18 11:09
Container ID: 1186159001-A

Prep Batch: XXX40820
Prep Method: SW3550C
Prep Date/Time: 10/29/18 15:06
Prep Initial Wt./Vol.: 30.032 g
Prep Extract Vol: 5 mL

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.69	U	2.69	0.808	mg/Kg	1		10/31/18 15:49
Surrogates								
4-Bromofluorobenzene (surr)	75.6		50-150		%	1		10/31/18 15:49

Batch Information

Analytical Batch: VFC14550
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 10/31/18 15:49
Container ID: 1186159001-C

Prep Batch: VXX33472
Prep Method: SW5035A
Prep Date/Time: 10/26/18 16:09
Prep Initial Wt./Vol.: 70.352 g
Prep Extract Vol: 33.3879 mL

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	21.6	U	21.6	6.68	ug/Kg	1		11/03/18 01:47
1,1,1-Trichloroethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,1,2,2-Tetrachloroethane	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
1,1,2-Trichloroethane	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
1,1-Dichloroethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,1-Dichloroethene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,1-Dichloropropene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,2,3-Trichlorobenzene	53.9	U	53.9	16.2	ug/Kg	1		11/03/18 01:47
1,2,3-Trichloropropane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,2,4-Trichlorobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,2,4-Trimethylbenzene	59.7		53.9	16.2	ug/Kg	1		11/03/18 01:47
1,2-Dibromo-3-chloropropane	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
1,2-Dibromoethane	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
1,2-Dichlorobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,2-Dichloroethane	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
1,2-Dichloropropane	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
1,3,5-Trimethylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,3-Dichlorobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
1,3-Dichloropropane	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
1,4-Dichlorobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
2,2-Dichloropropane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
2-Butanone (MEK)	269	U	269	84.1	ug/Kg	1		11/03/18 01:47
2-Chlorotoluene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
2-Hexanone	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
4-Chlorotoluene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
4-Isopropyltoluene	108	U	108	26.9	ug/Kg	1		11/03/18 01:47
4-Methyl-2-pentanone (MIBK)	269	U	269	84.1	ug/Kg	1		11/03/18 01:47
Acetone	269	U	269	84.1	ug/Kg	1		11/03/18 01:47
Benzene	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
Bromobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Bromochloromethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Bromodichloromethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Bromoform	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Bromomethane	216	U	216	66.8	ug/Kg	1		11/03/18 01:47
Carbon disulfide	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
Carbon tetrachloride	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
Chlorobenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	216	U	216	66.8	ug/Kg	1		11/03/18 01:47
Chloroform	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Chloromethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
cis-1,2-Dichloroethene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
cis-1,3-Dichloropropene	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
Dibromochloromethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Dibromomethane	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Dichlorodifluoromethane	53.9	U	53.9	16.2	ug/Kg	1		11/03/18 01:47
Ethylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Freon-113	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
Hexachlorobutadiene	21.6	U	21.6	6.68	ug/Kg	1		11/03/18 01:47
Isopropylbenzene (Cumene)	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Methylene chloride	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
Methyl-t-butyl ether	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
Naphthalene	79.0		26.9	8.41	ug/Kg	1		11/04/18 15:04
n-Butylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
n-Propylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
o-Xylene	26.9		26.9	8.41	ug/Kg	1		11/03/18 01:47
P & M -Xylene	53.9	U	53.9	16.2	ug/Kg	1		11/03/18 01:47
sec-Butylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Styrene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
tert-Butylbenzene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
Tetrachloroethene	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
Toluene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
trans-1,2-Dichloroethene	26.9	U	26.9	8.41	ug/Kg	1		11/03/18 01:47
trans-1,3-Dichloropropene	13.5	U	13.5	4.20	ug/Kg	1		11/03/18 01:47
Trichloroethene	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
Trichlorofluoromethane	53.9	U	53.9	16.2	ug/Kg	1		11/03/18 01:47
Vinyl acetate	108	U	108	33.4	ug/Kg	1		11/03/18 01:47
Vinyl chloride	10.8	U	10.8	3.34	ug/Kg	1		11/03/18 01:47
Xylenes (total)	80.8	U	80.8	24.6	ug/Kg	1		11/03/18 01:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		11/03/18 01:47
4-Bromofluorobenzene (surr)	95.8		55-151		%	1		11/03/18 01:47
Toluene-d8 (surr)	99.5		85-116		%	1		11/03/18 01:47

Print Date: 11/07/2018 12:16:29PM

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18537
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 11/03/18 01:47
Container ID: 1186159001-C

Prep Batch: VXX33496
Prep Method: SW5035A
Prep Date/Time: 10/26/18 16:09
Prep Initial Wt./Vol.: 70.352 g
Prep Extract Vol: 33.3879 mL

Analytical Batch: VMS18543
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 11/04/18 15:04
Container ID: 1186159001-C

Prep Batch: VXX33501
Prep Method: SW5035A
Prep Date/Time: 10/26/18 16:09
Prep Initial Wt./Vol.: 70.352 g
Prep Extract Vol: 33.3879 mL

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

Results of **CHPP_AOC04-02_B2**

Client Sample ID: **CHPP_AOC04-02_B2**
Client Project ID: **CHPP AOC04-002**
Lab Sample ID: 1186159001
Lab Project ID: 1186159

Collection Date: 10/26/18 16:09
Received Date: 10/29/18 09:06
Matrix: Soil/Solid (dry weight)
Solids (%):88.1
Location:

Results by **Volatile GC/MS Low Level**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,2,2-Tetrachloroethane	2.16	U	2.16	0.668	ug/Kg	1		11/03/18 01:47
1,1,2-Trichloroethane	0.862	U	0.862	0.269	ug/Kg	1		11/03/18 01:47
1,2,3-Trichloropropane	1.08	U	1.08	0.334	ug/Kg	1		11/03/18 01:47
1,2-Dibromoethane	1.08	U	1.08	0.334	ug/Kg	1		11/03/18 01:47
1,2-Dichloroethane	2.16	U	2.16	0.668	ug/Kg	1		11/03/18 01:47
Bromodichloromethane	2.16	U	2.16	0.668	ug/Kg	1		11/03/18 01:47
Bromomethane	21.6	U	21.6	6.68	ug/Kg	1		11/03/18 01:47
Chloroform	2.16	U	2.16	0.668	ug/Kg	1		11/03/18 01:47
Dibromochloromethane	2.16	U	2.16	0.668	ug/Kg	1		11/03/18 01:47
Trichloroethene	5.39	U	5.39	1.62	ug/Kg	1		11/03/18 01:47
Vinyl chloride	0.862	U	0.862	0.269	ug/Kg	1		11/03/18 01:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		11/03/18 01:47
4-Bromofluorobenzene (surr)	95.8		55-151		%	1		11/03/18 01:47
Toluene-d8 (surr)	99.5		85-116		%	1		11/03/18 01:47

Batch Information

Analytical Batch: VMS18538
Analytical Method: SW8260C LL w/MeOH
Analyst: NRO
Analytical Date/Time: 11/03/18 01:47
Container ID: 1186159001-C

Prep Batch: VXX33498
Prep Method: SW5035A
Prep Date/Time: 10/26/18 16:09
Prep Initial Wt./Vol.: 70.352 g
Prep Extract Vol: 33.3879 mL

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Method Blank

Blank ID: MB for HBN 1788430 [MXX/32069]
Blank Lab ID: 1485810

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.138J	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.431*	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0200U	0.0400	0.0120	mg/Kg
Nickel	0.100U	0.200	0.0620	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg
Vanadium	1.50U	3.00	0.940	mg/Kg

Batch Information

Analytical Batch: MMS10363
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 10/31/2018 9:41:19PM

Prep Batch: MXX32069
Prep Method: SW3050B
Prep Date/Time: 10/30/2018 7:40:01AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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200 West Potter Drive Anchorage, AK 95518
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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [MXX32069]
Blank Spike Lab ID: 1485811
Date Analyzed: 10/31/2018 21:46

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	50	48.6	97	(82-118)
Barium	50	45.7	92	(86-116)
Cadmium	5	4.62	92	(84-116)
Chromium	20	19.3	96	(83-119)
Lead	50	49.2	99	(84-118)
Mercury	0.5	0.490	98	(74-126)
Nickel	50	50.6	101	(84-119)
Selenium	50	49.1	98	(80-119)
Silver	5	5.12	102	(83-118)
Vanadium	10	8.77	88	(82-116)

Batch Information

Analytical Batch: **MMS10363**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexlon P5**
Analyst: **DSH**

Prep Batch: **MXX32069**
Prep Method: **SW3050B**
Prep Date/Time: **10/30/2018 07:40**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 11/07/2018 12:16:32PM

Matrix Spike Summary

Original Sample ID: 1485812
MS Sample ID: 1485814 MS
MSD Sample ID: 1485815 MSD

QC for Samples: 1186159001

Analysis Date: 10/31/2018 21:50
Analysis Date: 10/31/2018 21:55
Analysis Date: 10/31/2018 22:00
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	13.9	47.4	60.7	99	45.9	59.3	99	82-118	2.26	(< 20)
Barium	136	47.4	227	193 *	45.9	209	160 *	86-116	8.32	(< 20)
Cadmium	0.341	4.74	5.02	99	4.59	4.72	96	84-116	6.15	(< 20)
Chromium	22.5	19.0	44	114	18.3	43.1	112	83-119	2.15	(< 20)
Lead	6.99	47.4	54.5	100	45.9	52.1	98	84-118	4.41	(< 20)
Mercury	0.0647	0.474	.527	98	0.459	0.475	90	74-126	10.20	(< 20)
Nickel	29.1	47.4	75.5	98	45.9	75.1	100	84-119	0.59	(< 20)
Selenium	0.431J	47.4	46.1	96	45.9	45.1	97	80-119	2.17	(< 20)
Silver	0.127J	4.74	4.92	101	4.59	4.68	99	83-118	5.03	(< 20)
Vanadium	31.3	9.48	52.1	220 *	9.17	50.5	209 *	82-116	3.14	(< 20)

Batch Information

Analytical Batch: MMS10363
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 10/31/2018 9:55:23PM

Prep Batch: MXX32069
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 10/30/2018 7:40:01AM
Prep Initial Wt./Vol.: 1.06g
Prep Extract Vol: 50.00mL

Print Date: 11/07/2018 12:16:32PM

Bench Spike Summary

Original Sample ID: 1485812
MS Sample ID: 1485813 BND
MSD Sample ID:

QC for Samples: 1186159001

Analysis Date: 10/31/2018 21:50
Analysis Date: 10/31/2018 22:04
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	136	237	363	96				80-120		
Vanadium	31.3	118	156	106				80-120		

Batch Information

Analytical Batch: MMS10363
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 10/31/2018 10:04:46PM

Prep Batch: MXX32069
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 10/30/2018 7:40:01AM
Prep Initial Wt./Vol.: 1.06g
Prep Extract Vol: 50.00mL

Print Date: 11/07/2018 12:16:32PM

Method Blank

Blank ID: MB for HBN 1788431 [SPT/10672]
Blank Lab ID: 1485817

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10672
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP
Analytical Date/Time: 10/29/2018 6:31:00PM

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Duplicate Sample Summary

Original Sample ID: 1186157002
Duplicate Sample ID: 1485818
QC for Samples:

Analysis Date: 10/29/2018 18:31
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	92.4	93.2	%	0.79	(< 15)

Batch Information

Analytical Batch: SPT10672
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP

Print Date: 11/07/2018 12:16:34PM

Duplicate Sample Summary

Original Sample ID: 1186158001
Duplicate Sample ID: 1485819
QC for Samples:
1186159001

Analysis Date: 10/29/2018 18:31
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	97.3	97.3	%	0.06	(< 15)

Batch Information

Analytical Batch: SPT10672
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP

Print Date: 11/07/2018 12:16:34PM

Duplicate Sample Summary

Original Sample ID: 1189892018
Duplicate Sample ID: 1485820
QC for Samples:
1186159001

Analysis Date: 10/29/2018 18:31
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	82.2	80.8	%	1.80	(< 15)

Batch Information

Analytical Batch: SPT10672
Analytical Method: SM21 2540G
Instrument:
Analyst: BRP

Print Date: 11/07/2018 12:16:34PM

Method Blank

Blank ID: MB for HBN 1788525 [VXX/33472]
Blank Lab ID: 1486195

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	81.1	50-150		%

Batch Information

Analytical Batch: VFC14550
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 10/31/2018 11:02:00AM

Prep Batch: VXX33472
Prep Method: SW5035A
Prep Date/Time: 10/31/2018 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [VXX33472]
Blank Spike Lab ID: 1486196
Date Analyzed: 10/31/2018 10:26

Spike Duplicate ID: LCSD for HBN 1186159 [VXX33472]
Spike Duplicate Lab ID: 1486197
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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	11.1	89	12.5	11.1	89	(60-120)	0.07	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	88.4	88	1.25	89.9	90	(50-150)	1.70	

Batch Information

Analytical Batch: **VFC14550**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX33472**
Prep Method: **SW5035A**
Prep Date/Time: **10/31/2018 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

Method Blank

Blank ID: MB for HBN 1788661 [VXX/33496]
Blank Lab ID: 1486767

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

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

Method Blank

Blank ID: MB for HBN 1788661 [VXX/33496]
Blank Lab ID: 1486767

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	12.5U	25.0	7.80	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	111	55-151		%
Toluene-d8 (surr)	98.7	85-116		%

Method Blank

Blank ID: MB for HBN 1788661 [VXX/33496]
Blank Lab ID: 1486767

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS18537
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/2/2018 11:19:00PM

Prep Batch: VXX33496
Prep Method: SW5035A
Prep Date/Time: 11/2/2018 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 1186159 [VXX33496]
Blank Spike Lab ID: 1486768
Date Analyzed: 11/02/2018 23:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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	767	102		(73-130)
1,1,2,2-Tetrachloroethane	750	763	102		(70-124)
1,1,2-Trichloroethane	750	774	103		(78-121)
1,1-Dichloroethane	750	705	94		(76-125)
1,1-Dichloroethene	750	722	96		(70-131)
1,1-Dichloropropene	750	807	108		(76-125)
1,2,3-Trichlorobenzene	750	1270	169	*	(66-130)
1,2,3-Trichloropropane	750	709	95		(73-125)
1,2,4-Trichlorobenzene	750	1140	153	*	(67-129)
1,2,4-Trimethylbenzene	750	797	106		(75-123)
1,2-Dibromo-3-chloropropane	750	876	117		(61-132)
1,2-Dibromoethane	750	841	112		(78-122)
1,2-Dichlorobenzene	750	777	104		(78-121)
1,2-Dichloroethane	750	736	98		(73-128)
1,2-Dichloropropane	750	759	101		(76-123)
1,3,5-Trimethylbenzene	750	817	109		(73-124)
1,3-Dichlorobenzene	750	784	105		(77-121)
1,3-Dichloropropane	750	834	111		(77-121)
1,4-Dichlorobenzene	750	764	102		(75-120)
2,2-Dichloropropane	750	701	94		(67-133)
2-Butanone (MEK)	2250	2140	95		(51-148)
2-Chlorotoluene	750	777	104		(75-122)
2-Hexanone	2250	2200	98		(53-145)
4-Chlorotoluene	750	758	101		(72-124)
4-Isopropyltoluene	750	881	117		(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2140	95		(65-135)
Acetone	2250	2100	93		(36-164)
Benzene	750	746	100		(77-121)
Bromobenzene	750	725	97		(78-121)
Bromochloromethane	750	670	89		(78-125)
Bromodichloromethane	750	744	99		(75-127)
Bromoform	750	779	104		(67-132)
Bromomethane	750	719	96		(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [VXX33496]
Blank Spike Lab ID: 1486768
Date Analyzed: 11/02/2018 23:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
Carbon disulfide	1130	1080	96		(63-132)
Carbon tetrachloride	750	778	104		(70-135)
Chlorobenzene	750	748	100		(79-120)
Chloroethane	750	729	97		(59-139)
Chloroform	750	771	103		(78-123)
Chloromethane	750	687	92		(50-136)
cis-1,2-Dichloroethene	750	684	91		(77-123)
cis-1,3-Dichloropropene	750	773	103		(74-126)
Dibromochloromethane	750	854	114		(74-126)
Dibromomethane	750	688	92		(78-125)
Dichlorodifluoromethane	750	661	88		(29-149)
Ethylbenzene	750	749	100		(76-122)
Freon-113	1130	1120	100		(66-136)
Hexachlorobutadiene	750	1120	150	*	(61-135)
Isopropylbenzene (Cumene)	750	801	107		(68-134)
Methylene chloride	750	705	94		(70-128)
Methyl-t-butyl ether	1130	1150	102		(73-125)
n-Butylbenzene	750	938	125		(70-128)
n-Propylbenzene	750	797	106		(73-125)
o-Xylene	750	746	99		(77-123)
P & M -Xylene	1500	1470	98		(77-124)
sec-Butylbenzene	750	863	115		(73-126)
Styrene	750	738	98		(76-124)
tert-Butylbenzene	750	824	110		(73-125)
Tetrachloroethene	750	800	107		(73-128)
Toluene	750	749	100		(77-121)
trans-1,2-Dichloroethene	750	722	96		(74-125)
trans-1,3-Dichloropropene	750	847	113		(71-130)
Trichloroethene	750	791	105		(77-123)
Trichlorofluoromethane	750	718	96		(62-140)
Vinyl acetate	750	778	104		(50-151)
Vinyl chloride	750	746	99		(56-135)
Xylenes (total)	2250	2220	99		(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [VXX33496]
Blank Spike Lab ID: 1486768
Date Analyzed: 11/02/2018 23:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW8260C**

Parameter	Blank Spike (%) Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	96.4	96	(71-136)
4-Bromofluorobenzene (surr)	750	104	104	(55-151)
Toluene-d8 (surr)	750	102	102	(85-116)

Batch Information

Analytical Batch: **VMS18537**
Analytical Method: **SW8260C**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **NRO**

Prep Batch: **VXX33496**
Prep Method: **SW5035A**
Prep Date/Time: **11/02/2018 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: 1189911001
MS Sample ID: 1486769 MS
MSD Sample ID: 1486770 MSD

Analysis Date: 11/03/2018 1:30
Analysis Date: 11/02/2018 23:52
Analysis Date: 11/03/2018 0:08
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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	12.3U	925	945	102		925	937	101		78-125	0.90	(< 20)
1,1,1-Trichloroethane	15.4U	925	912	99		925	902	98		73-130	1.10	(< 20)
1,1,2,2-Tetrachloroethane	7.70U	925	922	100		925	924	100		70-124	0.15	(< 20)
1,1,2-Trichloroethane	6.15U	925	944	102		925	943	102		78-121	0.13	(< 20)
1,1-Dichloroethane	15.4U	925	847	92		925	834	90		76-125	1.60	(< 20)
1,1-Dichloroethene	15.4U	925	870	94		925	861	93		70-131	1.00	(< 20)
1,1-Dichloropropene	15.4U	925	958	103		925	945	102		76-125	1.30	(< 20)
1,2,3-Trichlorobenzene	30.8U	925	1503	163	*	925	1516	164	*	66-130	0.63	(< 20)
1,2,3-Trichloropropane	15.4U	925	856	92		925	860	93		73-125	0.52	(< 20)
1,2,4-Trichlorobenzene	15.4U	925	1354	146	*	925	1354	147	*	67-129	0.57	(< 20)
1,2,4-Trimethylbenzene	30.8U	925	934	101		925	940	102		75-123	0.73	(< 20)
1,2-Dibromo-3-chloropropane	61.5U	925	1086	117		925	1096	118		61-132	0.99	(< 20)
1,2-Dibromoethane	6.15U	925	1016	110		925	1015	110		78-122	0.09	(< 20)
1,2-Dichlorobenzene	15.4U	925	930	101		925	925	100		78-121	0.49	(< 20)
1,2-Dichloroethane	6.15U	925	893	97		925	883	95		73-128	1.20	(< 20)
1,2-Dichloropropane	6.15U	925	918	99		925	904	98		76-123	1.50	(< 20)
1,3,5-Trimethylbenzene	15.4U	925	957	103		925	959	104		73-124	0.24	(< 20)
1,3-Dichlorobenzene	15.4U	925	920	100		925	925	100		77-121	0.44	(< 20)
1,3-Dichloropropane	6.15U	925	996	108		925	994	107		77-121	0.27	(< 20)
1,4-Dichlorobenzene	15.4U	925	913	99		925	913	99		75-120	0.01	(< 20)
2,2-Dichloropropane	15.4U	925	817	88		925	800	86		67-133	2.10	(< 20)
2-Butanone (MEK)	154U	2770	2658	96		2770	2696	97		51-148	1.70	(< 20)
2-Chlorotoluene	15.4U	925	907	98		925	918	99		75-122	1.20	(< 20)
2-Hexanone	61.5U	2770	2783	100		2770	2783	100		53-145	0.03	(< 20)
4-Chlorotoluene	15.4U	925	901	97		925	897	97		72-124	0.36	(< 20)
4-Isopropyltoluene	61.5U	925	1016	110		925	1029	111		73-127	1.30	(< 20)
4-Methyl-2-pentanone (MIBK)	154U	2770	2683	97		2770	2683	97		65-135	0.04	(< 20)
Acetone	154U	2770	2646	95		2770	2658	96		36-164	0.77	(< 20)
Benzene	7.70U	925	892	96		925	878	95		77-121	1.50	(< 20)
Bromobenzene	15.4U	925	871	94		925	872	94		78-121	0.15	(< 20)
Bromochloromethane	15.4U	925	807	87		925	796	86		78-125	1.30	(< 20)
Bromodichloromethane	15.4U	925	913	99		925	894	97		75-127	1.90	(< 20)
Bromoform	15.4U	925	953	103		925	960	104		67-132	0.86	(< 20)
Bromomethane	123U	925	865	93		925	877	95		53-143	1.40	(< 20)
Carbon disulfide	61.5U	1391	1280	93		1391	1280	92		63-132	0.79	(< 20)
Carbon tetrachloride	7.70U	925	929	100		925	912	99		70-135	1.90	(< 20)
Chlorobenzene	15.4U	925	902	97		925	902	98		79-120	0.07	(< 20)

Print Date: 11/07/2018 12:16:42PM

Matrix Spike Summary

Original Sample ID: 1189911001
MS Sample ID: 1486769 MS
MSD Sample ID: 1486770 MSD

QC for Samples: 1186159001

Analysis Date: 11/03/2018 1:30
Analysis Date: 11/02/2018 23:52
Analysis Date: 11/03/2018 0:08
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
Chloroethane	123U	925	851	92		925	847	92		59-139	0.49	(< 20)
Chloroform	15.4U	925	924	100		925	914	99		78-123	1.10	(< 20)
Chloromethane	15.4U	925	802	87		925	822	89		50-136	2.30	(< 20)
cis-1,2-Dichloroethene	15.4U	925	837	91		925	830	90		77-123	0.85	(< 20)
cis-1,3-Dichloropropene	7.70U	925	940	102		925	923	100		74-126	1.90	(< 20)
Dibromochloromethane	15.4U	925	1026	111		925	1034	112		74-126	0.82	(< 20)
Dibromomethane	15.4U	925	846	91		925	830	90		78-125	1.90	(< 20)
Dichlorodifluoromethane	30.8U	925	770	83		925	773	84		29-149	0.26	(< 20)
Ethylbenzene	15.4U	925	891	96		925	878	95		76-122	1.40	(< 20)
Freon-113	61.5U	1391	1329	96		1391	1317	95		66-136	1.20	(< 20)
Hexachlorobutadiene	12.3U	925	1292	139	*	925	1329	144	*	61-135	3.60	(< 20)
Isopropylbenzene (Cumene)	15.4U	925	949	102		925	952	103		68-134	0.37	(< 20)
Methylene chloride	61.5U	925	856	93		925	840	91		70-128	2.00	(< 20)
Methyl-t-butyl ether	61.5U	1391	1404	101		1391	1366	98		73-125	2.60	(< 20)
n-Butylbenzene	15.4U	925	1094	118		925	1096	118		70-128	0.12	(< 20)
n-Propylbenzene	15.4U	925	934	101		925	943	102		73-125	1.00	(< 20)
o-Xylene	15.4U	925	897	97		925	892	96		77-123	0.69	(< 20)
P & M -Xylene	30.8U	1851	1752	95		1851	1752	94		77-124	0.65	(< 20)
sec-Butylbenzene	15.4U	925	1004	108		925	1016	110		73-126	1.30	(< 20)
Styrene	15.4U	925	893	97		925	891	96		76-124	0.20	(< 20)
tert-Butylbenzene	15.4U	925	968	105		925	978	106		73-125	1.10	(< 20)
Tetrachloroethene	7.70U	925	944	102		925	940	102		73-128	0.38	(< 20)
Toluene	15.4U	925	886	96		925	884	96		77-121	0.17	(< 20)
trans-1,2-Dichloroethene	15.4U	925	858	93		925	847	92		74-125	1.30	(< 20)
trans-1,3-Dichloropropene	7.70U	925	1017	110		925	1015	110		71-130	0.15	(< 20)
Trichloroethene	6.15U	925	943	102		925	929	100		77-123	1.40	(< 20)
Trichlorofluoromethane	30.8U	925	870	94		925	908	98		62-140	4.40	(< 20)
Vinyl acetate	61.5U	925	929	100		925	906	98		50-151	2.50	(< 20)
Vinyl chloride	6.15U	925	866	94		925	877	95		56-135	1.30	(< 20)
Xylenes (total)	46.2U	2770	2658	96		2770	2634	95		78-124	0.66	(< 20)
Surrogates												
1,2-Dichloroethane-D4 (surr)		925	922	100		925	906	98		71-136	1.70	
4-Bromofluorobenzene (surr)		937	697	74		937	697	74		55-151	0.07	
Toluene-d8 (surr)		925	940	102		925	948	102		85-116	0.85	

Print Date: 11/07/2018 12:16:42PM

Matrix Spike Summary

Original Sample ID: 1189911001
MS Sample ID: 1486769 MS
MSD Sample ID: 1486770 MSD

QC for Samples: 1186159001

Analysis Date:
Analysis Date: 11/02/2018 23:52
Analysis Date: 11/03/2018 0:08
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: VMS18537
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/2/2018 11:52:00PM

Prep Batch: VXX33496
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/2/2018 6:00:00AM
Prep Initial Wt./Vol.: 165.78g
Prep Extract Vol: 82.25mL

Print Date: 11/07/2018 12:16:42PM

Method Blank

Blank ID: MB for HBN 1788664 [VXX/33498]
Blank Lab ID: 1486777

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW8260C LL w/MeOH**

Parameter	Results	LOQ/CL	DL	Units
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
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Chloroform	0.869J	2.00	0.620	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	111	55-151		%
Toluene-d8 (surr)	98.7	85-116		%

Batch Information

Analytical Batch: VMS18538
Analytical Method: SW8260C LL w/MeOH
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/2/2018 11:19:00PM

Prep Batch: VXX33498
Prep Method: SW5035A
Prep Date/Time: 11/2/2018 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 1186159 [VXX33498]
Blank Spike Lab ID: 1486778
Date Analyzed: 11/02/2018 23:35

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW8260C LL w/MeOH**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,2,2-Tetrachloroethane	750	763	102	(70-124)
1,1,2-Trichloroethane	750	774	103	(78-121)
1,2,3-Trichloropropane	750	709	95	(73-125)
1,2-Dibromoethane	750	841	112	(78-122)
1,2-Dichloroethane	750	736	98	(73-128)
Bromodichloromethane	750	744	99	(75-127)
Bromomethane	750	719	96	(53-143)
Chloroform	750	771	103	(78-123)
Dibromochloromethane	750	854	114	(74-126)
Trichloroethene	750	791	105	(77-123)
Vinyl chloride	750	746	99	(56-135)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	96.4	96	(71-136)
4-Bromofluorobenzene (surr)	750	104	104	(55-151)
Toluene-d8 (surr)	750	102	102	(85-116)

Batch Information

Analytical Batch: **VMS18538**
Analytical Method: **SW8260C LL w/MeOH**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **NRO**

Prep Batch: **VXX33498**
Prep Method: **SW5035A**
Prep Date/Time: **11/02/2018 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: 1189911001
MS Sample ID: 1486779 MS
MSD Sample ID: 1486780 MSD

QC for Samples: 1186159001

Analysis Date: 11/03/2018 1:30
Analysis Date: 11/02/2018 23:52
Analysis Date: 11/03/2018 0:08
Matrix: Soil/Solid (dry weight)

Results by **SW8260C LL w/MeOH**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,2,2-Tetrachloroethane	1.23U	925	922	100	925	924	100	70-124	0.15	(< 20)
1,1,2-Trichloroethane	0.493U	925	944	102	925	943	102	78-121	0.13	(< 20)
1,2,3-Trichloropropane	0.615U	925	856	92	925	860	93	73-125	0.52	(< 20)
1,2-Dibromoethane	0.615U	925	1016	110	925	1015	110	78-122	0.09	(< 20)
1,2-Dichloroethane	1.23U	925	893	97	925	883	95	73-128	1.20	(< 20)
Bromodichloromethane	1.23U	925	913	99	925	894	97	75-127	1.90	(< 20)
Bromomethane	12.3U	925	865	93	925	877	95	53-143	1.40	(< 20)
Chloroform	1.23U	925	924	100	925	914	99	78-123	1.10	(< 20)
Dibromochloromethane	1.23U	925	1026	111	925	1034	112	74-126	0.82	(< 20)
Trichloroethene	3.08U	925	943	102	925	929	100	77-123	1.40	(< 20)
Vinyl chloride	0.493U	925	866	94	925	877	95	56-135	1.30	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		925	922	100	925	906	98	71-136	1.70	
4-Bromofluorobenzene (surr)		937	697	74	937	697	74	55-151	0.07	
Toluene-d8 (surr)		925	940	102	925	948	102	85-116	0.85	

Batch Information

Analytical Batch: VMS18538
Analytical Method: SW8260C LL w/MeOH
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/2/2018 11:52:00PM

Prep Batch: VXX33498
Prep Method: Vol. Extraction SW8260 LL w/MeOH
Prep Date/Time: 11/2/2018 6:00:00AM
Prep Initial Wt./Vol.: 165.78g
Prep Extract Vol: 82.25mL

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Method Blank

Blank ID: MB for HBN 1788696 [VXX/33501]
Blank Lab ID: 1486935

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Naphthalene	12.5U	25.0	7.80	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	94.7	71-136		%
4-Bromofluorobenzene (surr)	107	55-151		%
Toluene-d8 (surr)	99.2	85-116		%

Batch Information

Analytical Batch: VMS18543
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/4/2018 9:42:00AM

Prep Batch: VXX33501
Prep Method: SW5035A
Prep Date/Time: 11/4/2018 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 1186159 [VXX33501]
Blank Spike Lab ID: 1486936
Date Analyzed: 11/04/2018 10:07

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Naphthalene	750	902	120	(62-129)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	97.2	97	(71-136)
4-Bromofluorobenzene (surr)	750	104	104	(55-151)
Toluene-d8 (surr)	750	99.5	100	(85-116)

Batch Information

Analytical Batch: **VMS18543**
Analytical Method: **SW8260C**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **NRO**

Prep Batch: **VXX33501**
Prep Method: **SW5035A**
Prep Date/Time: **11/04/2018 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: 1486937
MS Sample ID: 1486939 MS
MSD Sample ID: 1486940 MSD

QC for Samples: 1186159001

Analysis Date: 11/04/2018 13:58
Analysis Date: 11/04/2018 10:57
Analysis Date: 11/04/2018 11:13
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Naphthalene	5.90U	353	403	114	353	430	122	62-129	6.70	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		353	347	98	353	345	98	71-136	0.41	
4-Bromofluorobenzene (surr)		589	382	65	589	385	65	55-151	0.78	
Toluene-d8 (surr)		353	353	100	353	355	101	85-116	0.54	

Batch Information

Analytical Batch: VMS18543
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/4/2018 10:57:00AM

Prep Batch: VXX33501
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/4/2018 6:00:00AM
Prep Initial Wt./Vol.: 106.19g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1788400 [XXX/40819]
Blank Lab ID: 1485662

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **SW8082A**

Parameter	Results	LOQ/CL	DL	Units
Aroclor-1016	25.0U	50.0	12.5	ug/Kg
Aroclor-1221	100U	200	50.0	ug/Kg
Aroclor-1232	25.0U	50.0	12.5	ug/Kg
Aroclor-1242	25.0U	50.0	12.5	ug/Kg
Aroclor-1248	25.0U	50.0	12.5	ug/Kg
Aroclor-1254	25.0U	50.0	12.5	ug/Kg
Aroclor-1260	25.0U	50.0	12.5	ug/Kg
Surrogates				
Decachlorobiphenyl (surr)	118	60-125		%

Batch Information

Analytical Batch: XGC10307
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: CMC
Analytical Date/Time: 10/31/2018 3:04:00AM

Prep Batch: XXX40819
Prep Method: SW3550C
Prep Date/Time: 10/29/2018 12:50:11PM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [XXX40819]
Blank Spike Lab ID: 1485663
Date Analyzed: 10/31/2018 03:19

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **SW8082A**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Aroclor-1016	222	196	88	(47-134)
Aroclor-1260	222	179	81	(53-140)
Surrogates				
Decachlorobiphenyl (surr)	222	120	120	(60-125)

Batch Information

Analytical Batch: **XGC10307**
Analytical Method: **SW8082A**
Instrument: **HP 6890 Series II ECD SV H F**
Analyst: **CMC**

Prep Batch: **XXX40819**
Prep Method: **SW3550C**
Prep Date/Time: **10/29/2018 12:50**
Spike Init Wt./Vol.: 222 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1186158003
MS Sample ID: 1485664 MS
MSD Sample ID: 1485665 MSD

QC for Samples: 1186159001

Analysis Date: 10/31/2018 4:18
Analysis Date: 10/31/2018 4:33
Analysis Date: 10/31/2018 4:47
Matrix: Soil/Solid (dry weight)

Results by **SW8082A**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Aroclor-1016	52.5U	232	224	97	233	234	100	47-134	4.40	(< 30)
Aroclor-1260	52.5U	232	190	82	233	191	82	53-140	0.62	(< 30)
Surrogates										
Decachlorobiphenyl (surr)		232	279	120	233	276	118	60-125	1.11	

Batch Information

Analytical Batch: XGC10307
Analytical Method: SW8082A
Instrument: HP 6890 Series II ECD SV H F
Analyst: CMC
Analytical Date/Time: 10/31/2018 4:33:00AM

Prep Batch: XXX40819
Prep Method: Sonication Extraction Soil SW8080 PCB
Prep Date/Time: 10/29/2018 12:50:11PM
Prep Initial Wt./Vol.: 22.75g
Prep Extract Vol: 5.00mL

Print Date: 11/07/2018 12:16:53PM

Method Blank

Blank ID: MB for HBN 1788408 [XXX/40820]
Blank Lab ID: 1485713

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	88.5	60-120		%

Batch Information

Analytical Batch: XFC14767
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: VDL
Analytical Date/Time: 10/30/2018 9:45:00AM

Prep Batch: XXX40820
Prep Method: SW3550C
Prep Date/Time: 10/29/2018 3:06:06PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 11/07/2018 12:16:54PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [XXX40820]
Blank Spike Lab ID: 1485714
Date Analyzed: 10/30/2018 09:55

Spike Duplicate ID: LCSD for HBN 1186159 [XXX40820]
Spike Duplicate Lab ID: 1485715
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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	846	102	833	842	101	(75-125)	0.47	(< 20)
Surrogates									
5a Androstane (surr)	16.7	104	104	16.7	103	103	(60-120)	1.40	

Batch Information

Analytical Batch: **XFC14767**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **VDL**

Prep Batch: **XXX40820**
Prep Method: **SW3550C**
Prep Date/Time: **10/29/2018 15:06**
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 1788408 [XXX/40820]
Blank Lab ID: 1485713

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	91.4	60-120		%

Batch Information

Analytical Batch: XFC14767
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: VDL
Analytical Date/Time: 10/30/2018 9:45:00AM

Prep Batch: XXX40820
Prep Method: SW3550C
Prep Date/Time: 10/29/2018 3:06:06PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [XXX40820]
Blank Spike Lab ID: 1485714
Date Analyzed: 10/30/2018 09:55

Spike Duplicate ID: LCSD for HBN 1186159 [XXX40820]
Spike Duplicate Lab ID: 1485715
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	833	793	95	833	778	93	(60-120)	2.00	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7	96.4	96	16.7	102	102	(60-120)	5.50	

Batch Information

Analytical Batch: **XFC14767**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **VDL**

Prep Batch: **XXX40820**
Prep Method: **SW3550C**
Prep Date/Time: **10/29/2018 15:06**
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 1788592 [XXX/40843]
Blank Lab ID: 1486450

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186159001

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)	86.4	58-103		%
Fluoranthene-d10 (surr)	87.3	54-113		%

Batch Information

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 11/5/2018 3:22:00PM

Prep Batch: XXX40843
Prep Method: SW3550C
Prep Date/Time: 11/2/2018 11:03:12AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 11/07/2018 12:16:58PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186159 [XXX40843]
Blank Spike Lab ID: 1486451
Date Analyzed: 11/05/2018 15:43

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	104	93	(43-111)
2-Methylnaphthalene	111	110	99	(39-114)
Acenaphthene	111	97.1	87	(44-111)
Acenaphthylene	111	101	91	(39-116)
Anthracene	111	103	93	(50-114)
Benzo(a)Anthracene	111	99.3	89	(54-122)
Benzo[a]pyrene	111	98.7	89	(50-125)
Benzo[b]Fluoranthene	111	104	94	(53-128)
Benzo[g,h,i]perylene	111	105	94	(49-127)
Benzo[k]fluoranthene	111	104	94	(56-123)
Chrysene	111	103	93	(57-118)
Dibenzo[a,h]anthracene	111	109	98	(50-129)
Fluoranthene	111	105	95	(55-119)
Fluorene	111	103	92	(47-114)
Indeno[1,2,3-c,d] pyrene	111	114	102	(49-130)
Naphthalene	111	105	94	(38-111)
Phenanthrene	111	99.0	89	(49-113)
Pyrene	111	107	96	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	86.2	86	(58-103)
Fluoranthene-d10 (surr)	111	87.9	88	(54-113)

Batch Information

Analytical Batch: **XMS11202**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX40843**
Prep Method: **SW3550C**
Prep Date/Time: **11/02/2018 11:03**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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

Matrix Spike Summary

Original Sample ID: 1186158002
MS Sample ID: 1486452 MS
MSD Sample ID: 1486453 MSD

Analysis Date: 11/05/2018 16:23
Analysis Date: 11/05/2018 16:44
Analysis Date: 11/05/2018 17:04
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186159001

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	26.3U	116	131	112 *	116	133	114 *	43-111	1.80	(< 20)
2-Methylnaphthalene	26.3U	116	98.9	85	116	103	89	39-114	4.30	(< 20)
Acenaphthene	26.3U	116	110	94	116	109	93	44-111	0.78	(< 20)
Acenaphthylene	26.3U	116	96.4	83	116	99.7	85	39-116	3.40	(< 20)
Anthracene	26.3U	116	76.8	66	116	78.9	68	50-114	2.70	(< 20)
Benzo(a)Anthracene	26.3U	116	109	93	116	109	93	54-122	0.08	(< 20)
Benzo[a]pyrene	26.3U	116	109	94	116	108	92	50-125	1.50	(< 20)
Benzo[b]Fluoranthene	26.3U	116	113	97	116	113	97	53-128	0.21	(< 20)
Benzo[g,h,i]perylene	26.3U	116	102	88	116	101	86	49-127	1.80	(< 20)
Benzo[k]fluoranthene	26.3U	116	102	87	116	99.8	86	56-123	1.90	(< 20)
Chrysene	26.3U	116	97.4	84	116	100	86	57-118	2.70	(< 20)
Dibenzo[a,h]anthracene	26.3U	116	106	91	116	104	89	50-129	1.50	(< 20)
Fluoranthene	26.3U	116	106	91	116	104	89	55-119	1.50	(< 20)
Fluorene	26.3U	116	110	95	116	112	96	47-114	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	26.3U	116	110	95	116	109	93	49-130	1.30	(< 20)
Naphthalene	21.0U	116	97.6	84	116	91.5	78	38-111	6.40	(< 20)
Phenanthrene	26.3U	116	85.8	74	116	91.0	78	49-113	5.80	(< 20)
Pyrene	26.3U	116	123	105	116	121	103	55-117	1.90	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		116	124	106 *	116	123	105 *	58-103	0.96	
Fluoranthene-d10 (surr)		116	103	88	116	103	88	54-113	0.36	

Batch Information

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 11/5/2018 4:44:00PM

Prep Batch: XXX40843
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 11/2/2018 11:03:12AM
Prep Initial Wt./Vol.: 22.70g
Prep Extract Vol: 5.00mL

Print Date: 11/07/2018 12:17:01PM

SGS NORTH AMERICA INC. CHAIN OF CUSTODY RECORD

1186159

INSTRUCTIONS: SECTIONS 1-5 MUST BE FILLED OUT. OMISSIONS MAY DELAY THE ONSET OF ANALYSIS.

SECTION 1

CLIENT: EMI

CONTACT: Larry Helgeson — PHONE #: (907) 272-9336

PROJECT NAME: CHPP AOC04-002 — PROJECT/ PWSID/ PERMIT #:

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	# CONTAINERS	SAMPLE TYPE: Comp Grab MI (Multi-incremental)	PRESERVATIVE: MeOH	MeOH	none	none	none	none					REMARKS/ LOC ID
							VOC (8260)*	GRO (AK 101)	DRO/RRO (AK102/103)	PAH (8270 SIM)	RCRA Metals + Ni, V (6020)	PCB (8082)					
01A-C	CHPP_AOC04-02_B2	10/26/18	16:09	S	3	G	✓	✓	✓	✓	✓	✓					

SECTION 3

SECTION 4

DOD Project? NO

COC ID:

Cooler ID:

DATA DELIVERABLE REQUIREMENTS: Level 2

REQUESTED TURNAROUND TIME AND/OR SPECIAL INSTRUCTIONS

*VOC and VOC LL please

SECTION 5

	DATE	TIME	
RELINQUISHED BY: (1)	10/29/18	0855	RECEIVED BY:
RELINQUISHED BY:(2)	10/29/18	0906	RECEIVED BY:
RELINQUISHED BY:(3)			RECEIVED BY:
RELINQUISHED BY:(4)	10/29/18	0906	RECEIVED FOR LABORATORY BY:

TEMP BLANK °C: 3.1 DZS

OR AMBIENT [ ]

(See attached Sample Receipt Form)

CHAIN OF CUSTODY SEAL: (CIRCLE) INTACT BROKEN (ABSENT)

(See attached Sample Receipt Form)

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

e-Sample Receipt Form

SGS Workorder #: 1186159

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	ABSENT
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 @ 3.1 °C Therm. ID: D25
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
If samples received 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?	NO	No trip blank arrived with samples.
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	YES	
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
1186159001-A	No Preservative Required	OK			
1186159001-B	No Preservative Required	OK			
1186159001-C	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:

Glenn Hasburgh

Title:

Environmental Scientist

Date:

12/14/2018

CS Report Name:

Report Date:

11/8/2018

Consultant Firm:

Environmental Management, Inc.

Laboratory Name:

SGS

Laboratory Report Number:

1186159

ADEC File Number:

Hazard Identification Number:

1186159

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:

A trip blank was not submitted so it cannot be determined if cross contamination occurred.

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:

Although there were various failures with recoveries and a detection in a method blank, the Case Narrative indicates these have no real effect on the data.

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 several VOC analytes that have reporting limits above the action level.

e. Data quality or usability affected?

( ) Yes (•) No Comments:

The elevated LOQs should not impact data because these are not contaminants of concern at the site.

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:

Chromium was detected in the MB.

iii. If above LOQ, what samples are affected?

Comments:

Only one sample was submitted in this set.

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:

The chromium detection will not affect usability because its influence in minor considering the detection in the primary sample are 10 times greater than the MB detection.

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:

Recoveries for 1,2,3-trichlorobenzne, 1,2,4-trichlorobenzene and hexachlorobutadiene were high.

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:

The one sample submitted.

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:

The poor recoveries in the LCS does not have an effect since those analytes were not detected in the parent sample.

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:

PAH surrogate 2-methylnapthalene-d10 was slightly high.

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:

No. The poor surrogate recovery was due to matrix interference and does not impact data.

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, a trip blank was not submitted.

iii. All results less than LOQ?

( ) Yes ( ) No Comments:

NA

iv. If above LOQ, what samples are affected?

Comments:

NA

v. Data quality or usability affected?

Comments:

No, because cross contamination is not suspected.

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:

NA, a field duplicate was not submitted.

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:

NA

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

Comments:

NA

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

○ Yes ◉ No ○ Not Applicable

Only disposable sampling equipment was used.

1186159

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:

Laboratory Report of Analysis

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

Report Number: **1186208**

Client Project: **17849 JBER-CHPP DCVR16**

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
2018.11.13
08:25:58
-09'00'

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: **1186208**
Project Name/Site: **17849 JBER-CHPP DCVR16**
Project Contact: **Larry Helgeson**

Refer to sample receipt form for information on sample condition.

1186158002MS (1486452) MS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MS recovery for 1-Methylnaphthalene does not meet QC criteria. Refer to the LCS for accuracy requirements.

1189918001(1486571MS) (1486574) MS

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

1186214001(1486678MS) (1486680) MS

6020A - Metals MS recoveries for barium and vanadium does not meet QC criteria. The post digestion spike was successful.

1186158002MSD (1486453) MSD

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria due to matrix interference.
8270D SIM - PAH MSD recovery for 1-Methylnaphthalene does not meet QC criteria. Refer to the LCS for accuracy requirements.

1186214001(1486678MSD) (1486681) MSD

6020A - Metals MSD recoveries for barium and vanadium does not meet QC criteria. The post digestion spike was successful.

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

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
8270D SIM (PAH)				
1186208001	Utilidor/PH-01	XMS11202	Benzo[k]fluoranthene	RP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Print Date: 11/12/2018 4:14:52PM

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 & 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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
Utilidor/PH-01	1186208001	10/31/2018	10/31/2018	Soil/Solid (dry weight)

Method	Method Description
8270D SIM (PAH)	8270 PAH SIM Semi-Volatiles GC/MS
AK102	Diesel/Residual Range Organics
AK103	Diesel/Residual Range Organics
AK101	Gasoline Range Organics (S)
SW6020A	Metals by ICP-MS (S)
SM21 2540G	Percent Solids SM2540G
SW8260C	VOC 8260 (S) Field Extracted
SW8260C LL w/MeOH	VOC 8260 LL (S) w/MeOH

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Detectable Results Summary

Client Sample ID: **Utilidor/PH-01**
Lab Sample ID: 1186208001

	Parameter	Result	Units
Metals by ICP/MS	Arsenic	8.47	mg/Kg
	Barium	104	mg/Kg
	Chromium	35.3	mg/Kg
	Lead	10.9	mg/Kg
	Mercury	0.151	mg/Kg
	Nickel	41.9	mg/Kg
	Vanadium	70.7	mg/Kg
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1540	ug/Kg
	2-Methylnaphthalene	1930	ug/Kg
	Acenaphthene	40.7	ug/Kg
	Acenaphthylene	69.2	ug/Kg
	Anthracene	105	ug/Kg
	Benzo(a)Anthracene	146	ug/Kg
	Benzo[a]pyrene	115	ug/Kg
	Benzo[b]Fluoranthene	132	ug/Kg
	Benzo[g,h,i]perylene	40.2	ug/Kg
	Benzo[k]fluoranthene	47.1	ug/Kg
	Chrysene	137	ug/Kg
	Fluoranthene	361	ug/Kg
	Fluorene	114	ug/Kg
	Indeno[1,2,3-c,d] pyrene	46.4	ug/Kg
	Naphthalene	612	ug/Kg
	Phenanthrene	489	ug/Kg
	Pyrene	328	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	469	mg/Kg
	Residual Range Organics	154	mg/Kg
Volatile GC/MS	1,2,4-Trimethylbenzene	485	ug/Kg
	1,3,5-Trimethylbenzene	155	ug/Kg
	4-Isopropyltoluene	187	ug/Kg
	Naphthalene	700	ug/Kg
	n-Propylbenzene	88.8	ug/Kg
	o-Xylene	60.8	ug/Kg
	P & M -Xylene	110	ug/Kg
	sec-Butylbenzene	86.3	ug/Kg
	Xylenes (total)	171	ug/Kg

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Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Metals by ICP/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Arsenic	8.47		1.04	0.322	mg/Kg	10		11/06/18 17:44
Barium	104		0.312	0.0978	mg/Kg	10		11/06/18 17:44
Cadmium	0.208	U	0.208	0.0645	mg/Kg	10		11/06/18 17:44
Chromium	35.3		0.416	0.135	mg/Kg	10		11/06/18 17:44
Lead	10.9		0.208	0.0645	mg/Kg	10		11/06/18 17:44
Mercury	0.151		0.0416	0.0125	mg/Kg	10		11/06/18 17:44
Nickel	41.9		0.208	0.0645	mg/Kg	10		11/06/18 17:44
Selenium	1.04	U	1.04	0.322	mg/Kg	10		11/06/18 17:44
Silver	0.208	U	0.208	0.0645	mg/Kg	10		11/06/18 17:44
Vanadium	70.7		3.12	0.978	mg/Kg	10		11/06/18 17:44

Batch Information

Analytical Batch: MMS10367
Analytical Method: SW6020A
Analyst: DSH
Analytical Date/Time: 11/06/18 17:44
Container ID: 1186208001-A

Prep Batch: MXX32078
Prep Method: SW3050B
Prep Date/Time: 11/05/18 07:48
Prep Initial Wt./Vol.: 1.043 g
Prep Extract Vol: 50 mL

Print Date: 11/12/2018 4:14:57PM

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	1540		135	33.8	ug/Kg	5		11/06/18 15:43
2-Methylnaphthalene	1930		135	33.8	ug/Kg	5		11/06/18 15:43
Acenaphthene	40.7		27.1	6.77	ug/Kg	1		11/05/18 22:10
Acenaphthylene	69.2		27.1	6.77	ug/Kg	1		11/05/18 22:10
Anthracene	105		27.1	6.77	ug/Kg	1		11/05/18 22:10
Benzo(a)Anthracene	146		27.1	6.77	ug/Kg	1		11/05/18 22:10
Benzo[a]pyrene	115		27.1	6.77	ug/Kg	1		11/05/18 22:10
Benzo[b]Fluoranthene	132		27.1	6.77	ug/Kg	1		11/05/18 22:10
Benzo[g,h,i]perylene	40.2		27.1	6.77	ug/Kg	1		11/05/18 22:10
Benzo[k]fluoranthene	47.1		27.1	6.77	ug/Kg	1		11/05/18 22:10
Chrysene	137		27.1	6.77	ug/Kg	1		11/05/18 22:10
Dibenzo[a,h]anthracene	27.1	U	27.1	6.77	ug/Kg	1		11/05/18 22:10
Fluoranthene	361		27.1	6.77	ug/Kg	1		11/05/18 22:10
Fluorene	114		27.1	6.77	ug/Kg	1		11/05/18 22:10
Indeno[1,2,3-c,d] pyrene	46.4		27.1	6.77	ug/Kg	1		11/05/18 22:10
Naphthalene	612		108	27.1	ug/Kg	5		11/06/18 15:43
Phenanthrene	489		27.1	6.77	ug/Kg	1		11/05/18 22:10
Pyrene	328		27.1	6.77	ug/Kg	1		11/05/18 22:10
Surrogates								
2-Methylnaphthalene-d10 (surr)	102		58-103		%	1		11/05/18 22:10
Fluoranthene-d10 (surr)	87.1		54-113		%	1		11/05/18 22:10

Batch Information

Analytical Batch: XMS11203
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 11/06/18 15:43
Container ID: 1186208001-A

Prep Batch: XXX40843
Prep Method: SW3550C
Prep Date/Time: 11/02/18 11:03
Prep Initial Wt./Vol.: 22.552 g
Prep Extract Vol: 5 mL

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Analyst: BMZ
Analytical Date/Time: 11/05/18 22:10
Container ID: 1186208001-A

Prep Batch: XXX40843
Prep Method: SW3550C
Prep Date/Time: 11/02/18 11:03
Prep Initial Wt./Vol.: 22.552 g
Prep Extract Vol: 5 mL

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	469		21.4	6.64	mg/Kg	1		11/06/18 09:45
Surrogates								
5a Androstane (surr)	98.4		50-150		%	1		11/06/18 09:45

Batch Information

Analytical Batch: XFC14784
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 11/06/18 09:45
Container ID: 1186208001-A

Prep Batch: XXX40857
Prep Method: SW3550C
Prep Date/Time: 11/05/18 13:12
Prep Initial Wt./Vol.: 30.396 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	154		21.4	6.64	mg/Kg	1		11/06/18 09:45
Surrogates								
n-Triacontane-d62 (surr)	99.2		50-150		%	1		11/06/18 09:45

Batch Information

Analytical Batch: XFC14784
Analytical Method: AK103
Analyst: VDL
Analytical Date/Time: 11/06/18 09:45
Container ID: 1186208001-A

Prep Batch: XXX40857
Prep Method: SW3550C
Prep Date/Time: 11/05/18 13:12
Prep Initial Wt./Vol.: 30.396 g
Prep Extract Vol: 5 mL

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	2.59	U	2.59	0.776	mg/Kg	1		11/02/18 12:22
Surrogates								
4-Bromofluorobenzene (surr)	104		50-150		%	1		11/02/18 12:22

Batch Information

Analytical Batch: VFC14555
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 11/02/18 12:22
Container ID: 1186208001-B

Prep Batch: VXX33491
Prep Method: SW5035A
Prep Date/Time: 10/31/18 11:24
Prep Initial Wt./Vol.: 62.772 g
Prep Extract Vol: 29.9146 mL

Print Date: 11/12/2018 4:14:57PM

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	20.7	U	20.7	6.41	ug/Kg	1		11/01/18 17:31
1,1,1-Trichloroethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,1,2,2-Tetrachloroethane	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
1,1,2-Trichloroethane	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
1,1-Dichloroethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,1-Dichloroethene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,1-Dichloropropene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,2,3-Trichlorobenzene	51.7	U	51.7	15.5	ug/Kg	1		11/01/18 17:31
1,2,3-Trichloropropane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,2,4-Trichlorobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,2,4-Trimethylbenzene	485		51.7	15.5	ug/Kg	1		11/01/18 17:31
1,2-Dibromo-3-chloropropane	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
1,2-Dibromoethane	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
1,2-Dichlorobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,2-Dichloroethane	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
1,2-Dichloropropane	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
1,3,5-Trimethylbenzene	155		25.9	8.07	ug/Kg	1		11/01/18 17:31
1,3-Dichlorobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
1,3-Dichloropropane	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
1,4-Dichlorobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
2,2-Dichloropropane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
2-Butanone (MEK)	259	U	259	80.7	ug/Kg	1		11/01/18 17:31
2-Chlorotoluene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
2-Hexanone	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
4-Chlorotoluene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
4-Isopropyltoluene	187		103	25.9	ug/Kg	1		11/01/18 17:31
4-Methyl-2-pentanone (MIBK)	259	U	259	80.7	ug/Kg	1		11/01/18 17:31
Acetone	259	U	259	80.7	ug/Kg	1		11/01/18 17:31
Benzene	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
Bromobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Bromochloromethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Bromodichloromethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Bromoform	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Bromomethane	207	U	207	64.1	ug/Kg	1		11/01/18 17:31
Carbon disulfide	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
Carbon tetrachloride	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
Chlorobenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	207	U	207	64.1	ug/Kg	1		11/01/18 17:31
Chloroform	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Chloromethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
cis-1,2-Dichloroethene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
cis-1,3-Dichloropropene	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
Dibromochloromethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Dibromomethane	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Dichlorodifluoromethane	51.7	U	51.7	15.5	ug/Kg	1		11/01/18 17:31
Ethylbenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Freon-113	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
Hexachlorobutadiene	20.7	U	20.7	6.41	ug/Kg	1		11/01/18 17:31
Isopropylbenzene (Cumene)	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Methylene chloride	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
Methyl-t-butyl ether	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
Naphthalene	700		25.9	8.07	ug/Kg	1		11/01/18 17:31
n-Butylbenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
n-Propylbenzene	88.8		25.9	8.07	ug/Kg	1		11/01/18 17:31
o-Xylene	60.8		25.9	8.07	ug/Kg	1		11/01/18 17:31
P & M -Xylene	110		51.7	15.5	ug/Kg	1		11/01/18 17:31
sec-Butylbenzene	86.3		25.9	8.07	ug/Kg	1		11/01/18 17:31
Styrene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
tert-Butylbenzene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
Tetrachloroethene	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
Toluene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
trans-1,2-Dichloroethene	25.9	U	25.9	8.07	ug/Kg	1		11/01/18 17:31
trans-1,3-Dichloropropene	12.9	U	12.9	4.03	ug/Kg	1		11/01/18 17:31
Trichloroethene	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
Trichlorofluoromethane	51.7	U	51.7	15.5	ug/Kg	1		11/01/18 17:31
Vinyl acetate	103	U	103	32.1	ug/Kg	1		11/01/18 17:31
Vinyl chloride	10.3	U	10.3	3.21	ug/Kg	1		11/01/18 17:31
Xylenes (total)	171		77.6	23.6	ug/Kg	1		11/01/18 17:31
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		71-136		%	1		11/01/18 17:31
4-Bromofluorobenzene (surr)	106		55-151		%	1		11/01/18 17:31
Toluene-d8 (surr)	98.6		85-116		%	1		11/01/18 17:31

Print Date: 11/12/2018 4:14:57PM

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS18530
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 11/01/18 17:31
Container ID: 1186208001-B

Prep Batch: VXX33483
Prep Method: SW5035A
Prep Date/Time: 10/31/18 11:24
Prep Initial Wt./Vol.: 62.772 g
Prep Extract Vol: 29.9146 mL

Print Date: 11/12/2018 4:14:57PM

Results of **Utilidor/PH-01**

Client Sample ID: **Utilidor/PH-01**
Client Project ID: **17849 JBER-CHPP DCVR16**
Lab Sample ID: 1186208001
Lab Project ID: 1186208

Collection Date: 10/31/18 11:24
Received Date: 10/31/18 12:25
Matrix: Soil/Solid (dry weight)
Solids (%):92.2
Location:

Results by **Volatile GC/MS Low Level**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,2,2-Tetrachloroethane	2.07	U	2.07	0.641	ug/Kg	1		11/04/18 13:25
1,1,2-Trichloroethane	0.827	U	0.827	0.259	ug/Kg	1		11/04/18 13:25
1,2,3-Trichloropropane	1.03	U	1.03	0.321	ug/Kg	1		11/04/18 13:25
1,2-Dibromoethane	1.03	U	1.03	0.321	ug/Kg	1		11/04/18 13:25
1,2-Dichloroethane	2.07	U	2.07	0.641	ug/Kg	1		11/04/18 13:25
Bromodichloromethane	2.07	U	2.07	0.641	ug/Kg	1		11/04/18 13:25
Bromomethane	20.7	U	20.7	6.41	ug/Kg	1		11/04/18 13:25
Chloroform	2.07	U	2.07	0.641	ug/Kg	1		11/04/18 13:25
Dibromochloromethane	2.07	U	2.07	0.641	ug/Kg	1		11/04/18 13:25
Trichloroethene	5.17	U	5.17	1.55	ug/Kg	1		11/04/18 13:25
Vinyl chloride	0.827	U	0.827	0.259	ug/Kg	1		11/04/18 13:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	118		71-136		%	1		11/04/18 13:25
4-Bromofluorobenzene (surr)	99		55-151		%	1		11/04/18 13:25
Toluene-d8 (surr)	97.9		85-116		%	1		11/04/18 13:25

Batch Information

Analytical Batch: VMS18545
Analytical Method: SW8260C LL w/MeOH
Analyst: NRO
Analytical Date/Time: 11/04/18 13:25
Container ID: 1186208001-B

Prep Batch: VXX33502
Prep Method: SW5035A
Prep Date/Time: 10/31/18 11:24
Prep Initial Wt./Vol.: 62.772 g
Prep Extract Vol: 29.9146 mL

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Method Blank

Blank ID: MB for HBN 1788642 [MXX/32078]
Blank Lab ID: 1486676

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **SW6020A**

Parameter	Results	LOQ/CL	DL	Units
Arsenic	0.500U	1.00	0.310	mg/Kg
Barium	0.150U	0.300	0.0940	mg/Kg
Cadmium	0.100U	0.200	0.0620	mg/Kg
Chromium	0.200U	0.400	0.130	mg/Kg
Lead	0.100U	0.200	0.0620	mg/Kg
Mercury	0.0200U	0.0400	0.0120	mg/Kg
Nickel	0.100U	0.200	0.0620	mg/Kg
Selenium	0.500U	1.00	0.310	mg/Kg
Silver	0.100U	0.200	0.0620	mg/Kg
Vanadium	1.50U	3.00	0.940	mg/Kg

Batch Information

Analytical Batch: MMS10367
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 11/6/2018 5:30:06PM

Prep Batch: MXX32078
Prep Method: SW3050B
Prep Date/Time: 11/5/2018 7:48:40AM
Prep Initial Wt./Vol.: 1 g
Prep Extract Vol: 50 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [MXX32078]
Blank Spike Lab ID: 1486677
Date Analyzed: 11/06/2018 17:34

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **SW6020A**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Arsenic	50	56.0	112	(82-118)
Barium	50	52.7	105	(86-116)
Cadmium	5	5.33	107	(84-116)
Chromium	20	21.0	105	(83-119)
Lead	50	55.5	111	(84-118)
Mercury	0.5	0.555	111	(74-126)
Nickel	50	55.2	110	(84-119)
Selenium	50	56.8	114	(80-119)
Silver	5	5.79	116	(83-118)
Vanadium	10	10.0	100	(82-116)

Batch Information

Analytical Batch: **MMS10367**
Analytical Method: **SW6020A**
Instrument: **Perkin Elmer Nexlon P5**
Analyst: **DSH**

Prep Batch: **MXX32078**
Prep Method: **SW3050B**
Prep Date/Time: **11/05/2018 07:48**
Spike Init Wt./Vol.: 50 mg/Kg Extract Vol: 50 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1486678
MS Sample ID: 1486680 MS
MSD Sample ID: 1486681 MSD

QC for Samples: 1186208001

Analysis Date: 11/06/2018 16:50
Analysis Date: 11/06/2018 16:55
Analysis Date: 11/06/2018 17:00
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Arsenic	3.07J	48.8	51.8	100	49.2	53.1	102	82-118	2.55	(< 20)
Barium	91.1	48.8	170	162 *	49.2	173	167 *	86-116	1.96	(< 20)
Cadmium	0.496U	4.88	4.97	102	4.92	5.00	102	84-116	0.59	(< 20)
Chromium	19.7	19.5	38.6	97	19.7	42.2	115	83-119	8.88	(< 20)
Lead	31.5	48.8	78.8	97	49.2	79.7	98	84-118	1.08	(< 20)
Mercury	0.0990U	0.488	.508	104	0.492	0.526	107	74-126	3.59	(< 20)
Nickel	18.1	48.8	65.2	97	49.2	68.3	102	84-119	4.61	(< 20)
Selenium	2.48U	48.8	49.5	101	49.2	51.2	104	80-119	3.43	(< 20)
Silver	0.496U	4.88	5.29	108	4.92	5.25	107	83-118	0.73	(< 20)
Vanadium	27.5	9.77	39.7	124 *	9.83	43.9	167 *	82-116	10.30	(< 20)

Batch Information

Analytical Batch: MMS10367
Analytical Method: SW6020A
Instrument: Perkin Elmer Nexlon P5
Analyst: DSH
Analytical Date/Time: 11/6/2018 4:55:34PM

Prep Batch: MXX32078
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 11/5/2018 7:48:40AM
Prep Initial Wt./Vol.: 1.02g
Prep Extract Vol: 50.00mL

Print Date: 11/12/2018 4:15:00PM

Bench Spike Summary

Original Sample ID: 1486678
MS Sample ID: 1486679 BND
MSD Sample ID:

QC for Samples: 1186208001

Analysis Date: 11/06/2018 16:50
Analysis Date: 11/06/2018 17:04
Analysis Date:
Matrix: Solid/Soil (Wet Weight)

Results by **SW6020A**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Barium	91.1	1240	1280	96				80-120		
Vanadium	27.5	620	645	100				80-120		

Batch Information

Analytical Batch: MMS10367
Analytical Method: SW6020A
Instrument: Perkin Elmer NexIon P5
Analyst: DSH
Analytical Date/Time: 11/6/2018 5:04:56PM

Prep Batch: MXX32078
Prep Method: Soils/Solids Digest for Metals by ICP-MS
Prep Date/Time: 11/5/2018 7:48:40AM
Prep Initial Wt./Vol.: 1.01g
Prep Extract Vol: 50.00mL

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Method Blank

Blank ID: MB for HBN 1788528 [SPT/10674]
Blank Lab ID: 1486204

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	99.7			%

Batch Information

Analytical Batch: SPT10674
Analytical Method: SM21 2540G
Instrument:
Analyst: E.M
Analytical Date/Time: 10/31/2018 6:00:00PM

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Duplicate Sample Summary

Original Sample ID: 1186208001
Duplicate Sample ID: 1486205
QC for Samples:
1186208001

Analysis Date: 10/31/2018 18:00
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	92.2	92.9	%	0.82	(< 15)

Batch Information

Analytical Batch: SPT10674
Analytical Method: SM21 2540G
Instrument:
Analyst: E.M

Print Date: 11/12/2018 4:15:03PM

Method Blank

Blank ID: MB for HBN 1788617 [VXX/33483]
Blank Lab ID: 1486572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

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

Method Blank

Blank ID: MB for HBN 1788617 [VXX/33483]
Blank Lab ID: 1486572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	12.5U	25.0	7.80	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	12.5U	25.0	7.80	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	32.2J	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	5.00U	10.0	3.10	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	5.00U	10.0	3.10	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	101	71-136		%
4-Bromofluorobenzene (surr)	92.5	55-151		%
Toluene-d8 (surr)	99.1	85-116		%

Method Blank

Blank ID: MB for HBN 1788617 [VXX/33483]
Blank Lab ID: 1486572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS18530
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 11/1/2018 10:41:00AM

Prep Batch: VXX33483
Prep Method: SW5035A
Prep Date/Time: 11/1/2018 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 1186208 [VXX33483]
Blank Spike Lab ID: 1486573
Date Analyzed: 11/01/2018 10:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	756	101	(78-125)
1,1,1-Trichloroethane	750	791	105	(73-130)
1,1,2,2-Tetrachloroethane	750	743	99	(70-124)
1,1,2-Trichloroethane	750	741	99	(78-121)
1,1-Dichloroethane	750	776	104	(76-125)
1,1-Dichloroethene	750	847	113	(70-131)
1,1-Dichloropropene	750	795	106	(76-125)
1,2,3-Trichlorobenzene	750	741	99	(66-130)
1,2,3-Trichloropropane	750	718	96	(73-125)
1,2,4-Trichlorobenzene	750	774	103	(67-129)
1,2,4-Trimethylbenzene	750	728	97	(75-123)
1,2-Dibromo-3-chloropropane	750	744	99	(61-132)
1,2-Dibromoethane	750	753	100	(78-122)
1,2-Dichlorobenzene	750	737	98	(78-121)
1,2-Dichloroethane	750	769	103	(73-128)
1,2-Dichloropropane	750	780	104	(76-123)
1,3,5-Trimethylbenzene	750	740	99	(73-124)
1,3-Dichlorobenzene	750	734	98	(77-121)
1,3-Dichloropropane	750	759	101	(77-121)
1,4-Dichlorobenzene	750	740	99	(75-120)
2,2-Dichloropropane	750	800	107	(67-133)
2-Butanone (MEK)	2250	2210	98	(51-148)
2-Chlorotoluene	750	757	101	(75-122)
2-Hexanone	2250	2300	102	(53-145)
4-Chlorotoluene	750	735	98	(72-124)
4-Isopropyltoluene	750	747	100	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2290	102	(65-135)
Acetone	2250	2100	94	(36-164)
Benzene	750	765	102	(77-121)
Bromobenzene	750	761	101	(78-121)
Bromochloromethane	750	757	101	(78-125)
Bromodichloromethane	750	781	104	(75-127)
Bromoform	750	763	102	(67-132)
Bromomethane	750	770	103	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [VXX33483]
Blank Spike Lab ID: 1486573
Date Analyzed: 11/01/2018 10:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1130	1270	113	(63-132)
Carbon tetrachloride	750	801	107	(70-135)
Chlorobenzene	750	749	100	(79-120)
Chloroethane	750	748	100	(59-139)
Chloroform	750	764	102	(78-123)
Chloromethane	750	733	98	(50-136)
cis-1,2-Dichloroethene	750	776	103	(77-123)
cis-1,3-Dichloropropene	750	790	105	(74-126)
Dibromochloromethane	750	786	105	(74-126)
Dibromomethane	750	775	103	(78-125)
Dichlorodifluoromethane	750	695	93	(29-149)
Ethylbenzene	750	721	96	(76-122)
Freon-113	1130	1270	113	(66-136)
Hexachlorobutadiene	750	763	102	(61-135)
Isopropylbenzene (Cumene)	750	730	97	(68-134)
Methylene chloride	750	763	102	(70-128)
Methyl-t-butyl ether	1130	1150	102	(73-125)
Naphthalene	750	763	102	(62-129)
n-Butylbenzene	750	778	104	(70-128)
n-Propylbenzene	750	753	100	(73-125)
o-Xylene	750	713	95	(77-123)
P & M -Xylene	1500	1410	94	(77-124)
sec-Butylbenzene	750	730	97	(73-126)
Styrene	750	750	100	(76-124)
tert-Butylbenzene	750	708	94	(73-125)
Tetrachloroethene	750	782	104	(73-128)
Toluene	750	709	95	(77-121)
trans-1,2-Dichloroethene	750	796	106	(74-125)
trans-1,3-Dichloropropene	750	791	106	(71-130)
Trichloroethene	750	773	103	(77-123)
Trichlorofluoromethane	750	782	104	(62-140)
Vinyl acetate	750	807	108	(50-151)
Vinyl chloride	750	740	99	(56-135)
Xylenes (total)	2250	2120	94	(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [VXX33483]
Blank Spike Lab ID: 1486573
Date Analyzed: 11/01/2018 10:56

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	99.8	100	(71-136)
4-Bromofluorobenzene (surr)	750	95.7	96	(55-151)
Toluene-d8 (surr)	750	98.7	99	(85-116)

Batch Information

Analytical Batch: **VMS18530**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX33483**
Prep Method: **SW5035A**
Prep Date/Time: **11/01/2018 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: 1486571
MS Sample ID: 1486574 MS
MSD Sample ID: 1486575 MSD

QC for Samples: 1186208001

Analysis Date: 11/01/2018 14:12
Analysis Date: 11/01/2018 12:09
Analysis Date: 11/01/2018 12:24
Matrix: Solid/Soil (Wet Weight)

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	10.0U	751	718	96	751	743	99	78-125	3.50	(< 20)
1,1,1-Trichloroethane	12.5U	751	770	102	751	787	105	73-130	2.10	(< 20)
1,1,2,2-Tetrachloroethane	6.25U	751	703	94	751	714	95	70-124	1.60	(< 20)
1,1,2-Trichloroethane	5.00U	751	693	92	751	740	99	78-121	6.70	(< 20)
1,1-Dichloroethane	12.5U	751	752	100	751	776	103	76-125	3.20	(< 20)
1,1-Dichloroethene	12.5U	751	850	113	751	823	110	70-131	3.20	(< 20)
1,1-Dichloropropene	12.5U	751	776	103	751	787	105	76-125	1.40	(< 20)
1,2,3-Trichlorobenzene	25.1U	751	702	93	751	748	100	66-130	6.40	(< 20)
1,2,3-Trichloropropane	12.5U	751	689	92	751	703	94	73-125	2.00	(< 20)
1,2,4-Trichlorobenzene	12.5U	751	732	97	751	757	101	67-129	3.40	(< 20)
1,2,4-Trimethylbenzene	25.1U	751	709	94	751	709	94	75-123	0.05	(< 20)
1,2-Dibromo-3-chloropropane	50.0U	751	688	92	751	729	97	61-132	5.90	(< 20)
1,2-Dibromoethane	5.00U	751	695	93	751	745	99	78-122	6.90	(< 20)
1,2-Dichlorobenzene	12.5U	751	694	92	751	707	94	78-121	1.90	(< 20)
1,2-Dichloroethane	5.00U	751	718	96	751	758	101	73-128	5.40	(< 20)
1,2-Dichloropropane	5.00U	751	740	98	751	763	102	76-123	3.20	(< 20)
1,3,5-Trimethylbenzene	12.5U	751	718	96	751	718	96	73-124	0.04	(< 20)
1,3-Dichlorobenzene	12.5U	751	709	94	751	718	96	77-121	1.30	(< 20)
1,3-Dichloropropane	5.00U	751	705	94	751	757	101	77-121	7.10	(< 20)
1,4-Dichlorobenzene	12.5U	751	696	93	751	709	94	75-120	1.90	(< 20)
2,2-Dichloropropane	12.5U	751	787	105	751	797	106	67-133	1.30	(< 20)
2-Butanone (MEK)	125U	2250	1980	88	2250	2190	97	51-148	9.80	(< 20)
2-Chlorotoluene	12.5U	751	727	97	751	729	97	75-122	0.20	(< 20)
2-Hexanone	50.0U	2250	2070	92	2250	2260	100	53-145	8.70	(< 20)
4-Chlorotoluene	12.5U	751	726	97	751	719	96	72-124	0.97	(< 20)
4-Isopropyltoluene	50.0U	751	757	101	751	723	96	73-127	4.60	(< 20)
4-Methyl-2-pentanone (MIBK)	125U	2250	2070	92	2250	2270	101	65-135	9.20	(< 20)
Acetone	125U	2250	1920	85	2250	2060	91	36-164	7.20	(< 20)
Benzene	6.25U	751	738	98	751	754	100	77-121	2.20	(< 20)
Bromobenzene	12.5U	751	740	99	751	737	98	78-121	0.42	(< 20)
Bromochloromethane	12.5U	751	720	96	751	749	100	78-125	3.90	(< 20)
Bromodichloromethane	12.5U	751	740	99	751	768	102	75-127	3.70	(< 20)
Bromoform	12.5U	751	700	93	751	760	101	67-132	8.10	(< 20)
Bromomethane	100U	751	729	97	751	758	101	53-143	3.80	(< 20)
Carbon disulfide	50.0U	1130	1330	118	1130	1230	109	63-132	7.80	(< 20)
Carbon tetrachloride	6.25U	751	782	104	751	797	106	70-135	1.80	(< 20)
Chlorobenzene	12.5U	751	710	95	751	742	99	79-120	4.30	(< 20)

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Matrix Spike Summary

Original Sample ID: 1486571
MS Sample ID: 1486574 MS
MSD Sample ID: 1486575 MSD

QC for Samples: 1186208001

Analysis Date: 11/01/2018 14:12
Analysis Date: 11/01/2018 12:09
Analysis Date: 11/01/2018 12:24
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	100U	751	826	110	751	759	101	59-139	8.40	(< 20)
Chloroform	12.5U	751	733	98	751	757	101	78-123	3.20	(< 20)
Chloromethane	12.5U	751	739	98	751	747	99	50-136	1.10	(< 20)
cis-1,2-Dichloroethene	12.5U	751	748	100	751	770	102	77-123	2.90	(< 20)
cis-1,3-Dichloropropene	6.25U	751	757	101	751	787	105	74-126	3.80	(< 20)
Dibromochloromethane	12.5U	751	735	98	751	784	104	74-126	6.40	(< 20)
Dibromomethane	12.5U	751	723	96	751	761	101	78-125	5.10	(< 20)
Dichlorodifluoromethane	25.1U	751	768	102	751	729	97	29-149	5.30	(< 20)
Ethylbenzene	12.5U	751	679	90	751	719	96	76-122	5.80	(< 20)
Freon-113	50.0U	1130	1240	110	1130	1220	108	66-136	1.40	(< 20)
Hexachlorobutadiene	10.0U	751	1190	158 *	751	972	129	61-135	20.00	(< 20)
Isopropylbenzene (Cumene)	12.5U	751	675	90	751	726	97	68-134	7.20	(< 20)
Methylene chloride	50.0U	751	706	94	751	728	97	70-128	2.90	(< 20)
Methyl-t-butyl ether	50.0U	1130	1060	94	1130	1150	102	73-125	7.70	(< 20)
Naphthalene	12.5U	751	665	89	751	747	99	62-129	11.60	(< 20)
n-Butylbenzene	12.5U	751	813	108	751	765	102	70-128	6.00	(< 20)
n-Propylbenzene	12.5U	751	722	96	751	743	99	73-125	2.90	(< 20)
o-Xylene	12.5U	751	668	89	751	711	95	77-123	6.10	(< 20)
P & M -Xylene	25.1U	1500	1330	89	1500	1410	94	77-124	6.00	(< 20)
sec-Butylbenzene	12.5U	751	733	98	751	726	97	73-126	1.00	(< 20)
Styrene	12.5U	751	701	93	751	748	100	76-124	6.60	(< 20)
tert-Butylbenzene	12.5U	751	676	90	751	685	91	73-125	1.20	(< 20)
Tetrachloroethene	6.25U	751	704	94	751	780	104	73-128	10.20	(< 20)
Toluene	12.5U	751	672	90	751	711	95	77-121	5.50	(< 20)
trans-1,2-Dichloroethene	12.5U	751	931	124	751	885	118	74-125	5.10	(< 20)
trans-1,3-Dichloropropene	6.25U	751	743	99	751	784	104	71-130	5.40	(< 20)
Trichloroethene	5.00U	751	743	99	751	769	102	77-123	3.40	(< 20)
Trichlorofluoromethane	25.1U	751	831	111	751	774	103	62-140	7.20	(< 20)
Vinyl acetate	50.0U	751	736	98	751	804	107	50-151	8.90	(< 20)
Vinyl chloride	5.00U	751	703	94	751	699	93	56-135	0.61	(< 20)
Xylenes (total)	37.5U	2250	2000	89	2250	2130	94	78-124	6.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		751	729	97	751	739	98	71-136	1.30	
4-Bromofluorobenzene (surr)		1250	1030	82	1250	1010	81	55-151	1.50	
Toluene-d8 (surr)		751	746	99	751	753	100	85-116	0.93	

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Matrix Spike Summary

Original Sample ID: 1486571
MS Sample ID: 1486574 MS
MSD Sample ID: 1486575 MSD

QC for Samples: 1186208001

Analysis Date:
Analysis Date: 11/01/2018 12:09
Analysis Date: 11/01/2018 12:24
Matrix: Solid/Soil (Wet Weight)

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS18530
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 11/1/2018 12:09:00PM

Prep Batch: VXX33483
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 11/1/2018 6:00:00AM
Prep Initial Wt./Vol.: 49.90g
Prep Extract Vol: 25.00mL

Print Date: 11/12/2018 4:15:08PM

Method Blank

Blank ID: MB for HBN 1788656 [VXX/33491]
Blank Lab ID: 1486739

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg
Surrogates				
4-Bromofluorobenzene (surr)	66.7	50-150		%

Batch Information

Analytical Batch: VFC14555
Analytical Method: AK101
Instrument: Agilent 7890A PID/FID
Analyst: ST
Analytical Date/Time: 11/2/2018 11:10:00AM

Prep Batch: VXX33491
Prep Method: SW5035A
Prep Date/Time: 11/2/2018 8:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [VXX33491]
Blank Spike Lab ID: 1486740
Date Analyzed: 11/02/2018 10:00

Spike Duplicate ID: LCSD for HBN 1186208 [VXX33491]
Spike Duplicate Lab ID: 1486741
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

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	11.2	89	12.5	11.5	92	(60-120)	3.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25	88.2	88	1.25	88.9	89	(50-150)	0.77	

Batch Information

Analytical Batch: **VFC14555**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **ST**

Prep Batch: **VXX33491**
Prep Method: **SW5035A**
Prep Date/Time: **11/02/2018 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 1788697 [VXX/33502]
Blank Lab ID: 1486941

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **SW8260C LL w/MeOH**

Parameter	Results	LOQ/CL	DL	Units
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
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/Kg
1,2-Dibromoethane	0.500U	1.00	0.310	ug/Kg
1,2-Dichloroethane	1.00U	2.00	0.620	ug/Kg
Bromodichloromethane	1.00U	2.00	0.620	ug/Kg
Bromomethane	10.0U	20.0	6.20	ug/Kg
Chloroform	1.00U	2.00	0.620	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	94.7	71-136		%
4-Bromofluorobenzene (surr)	107	55-151		%
Toluene-d8 (surr)	99.2	85-116		%

Batch Information

Analytical Batch: VMS18545
Analytical Method: SW8260C LL w/MeOH
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/4/2018 9:42:00AM

Prep Batch: VXX33502
Prep Method: SW5035A
Prep Date/Time: 11/4/2018 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 1186208 [VXX33502]
Blank Spike Lab ID: 1486942
Date Analyzed: 11/04/2018 10:07

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **SW8260C LL w/MeOH**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,2,2-Tetrachloroethane	750	708	94	(70-124)
1,1,2-Trichloroethane	750	698	93	(78-121)
1,2,3-Trichloropropane	750	648	86	(73-125)
1,2-Dibromoethane	750	760	101	(78-122)
1,2-Dichloroethane	750	713	95	(73-128)
Bromodichloromethane	750	718	96	(75-127)
Bromomethane	750	775	103	(53-143)
Chloroform	750	762	102	(78-123)
Dibromochloromethane	750	783	104	(74-126)
Trichloroethene	750	776	104	(77-123)
Vinyl chloride	750	773	103	(56-135)
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	97.2	97	(71-136)
4-Bromofluorobenzene (surr)	750	104	104	(55-151)
Toluene-d8 (surr)	750	99.5	100	(85-116)

Batch Information

Analytical Batch: **VMS18545**
Analytical Method: **SW8260C LL w/MeOH**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **NRO**

Prep Batch: **VXX33502**
Prep Method: **SW5035A**
Prep Date/Time: **11/04/2018 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: 1486938
MS Sample ID: 1486943 MS
MSD Sample ID: 1486944 MSD

Analysis Date: 11/04/2018 13:58
Analysis Date: 11/04/2018 10:57
Analysis Date: 11/04/2018 11:13
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1186208001

Results by **SW8260C LL w/MeOH**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,2,2-Tetrachloroethane	0.471U	353	324	92	353	331	94	70-124	2.00	(< 20)
1,1,2-Trichloroethane	0.189U	353	327	93	353	348	99	78-121	6.20	(< 20)
1,2,3-Trichloropropane	0.235U	353	302	86	353	309	88	73-125	2.20	(< 20)
1,2-Dibromoethane	0.235U	353	355	101	353	377	107	78-122	5.90	(< 20)
1,2-Dichloroethane	0.471U	353	334	95	353	347	98	73-128	3.80	(< 20)
Bromodichloromethane	0.471U	353	334	95	353	351	100	75-127	4.90	(< 20)
Bromomethane	4.71U	353	377	107	353	380	108	53-143	0.74	(< 20)
Chloroform	0.366J	353	358	101	353	369	104	78-123	3.20	(< 20)
Dibromochloromethane	0.471U	353	364	103	353	388	110	74-126	6.40	(< 20)
Trichloroethene	1.18U	353	364	103	353	380	108	77-123	4.20	(< 20)
Vinyl chloride	0.189U	353	377	107	353	369	105	56-135	1.90	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		353	347	98	353	345	98	71-136	0.41	
4-Bromofluorobenzene (surr)		589	382	65	589	385	65	55-151	0.78	
Toluene-d8 (surr)		353	353	100	353	355	101	85-116	0.54	

Batch Information

Analytical Batch: VMS18545
Analytical Method: SW8260C LL w/MeOH
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 11/4/2018 10:57:00AM

Prep Batch: VXX33502
Prep Method: Vol. Extraction SW8260 LL w/MeOH
Prep Date/Time: 11/4/2018 6:00:00AM
Prep Initial Wt./Vol.: 106.19g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1788592 [XXX/40843]
Blank Lab ID: 1486450

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

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)	86.4	58-103		%
Fluoranthene-d10 (surr)	87.3	54-113		%

Batch Information

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 11/5/2018 3:22:00PM

Prep Batch: XXX40843
Prep Method: SW3550C
Prep Date/Time: 11/2/2018 11:03:12AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 11/12/2018 4:15:16PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [XXX40843]
Blank Spike Lab ID: 1486451
Date Analyzed: 11/05/2018 15:43

Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	104	93	(43-111)
2-Methylnaphthalene	111	110	99	(39-114)
Acenaphthene	111	97.1	87	(44-111)
Acenaphthylene	111	101	91	(39-116)
Anthracene	111	103	93	(50-114)
Benzo(a)Anthracene	111	99.3	89	(54-122)
Benzo[a]pyrene	111	98.7	89	(50-125)
Benzo[b]Fluoranthene	111	104	94	(53-128)
Benzo[g,h,i]perylene	111	105	94	(49-127)
Benzo[k]fluoranthene	111	104	94	(56-123)
Chrysene	111	103	93	(57-118)
Dibenzo[a,h]anthracene	111	109	98	(50-129)
Fluoranthene	111	105	95	(55-119)
Fluorene	111	103	92	(47-114)
Indeno[1,2,3-c,d] pyrene	111	114	102	(49-130)
Naphthalene	111	105	94	(38-111)
Phenanthrene	111	99.0	89	(49-113)
Pyrene	111	107	96	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	86.2	86	(58-103)
Fluoranthene-d10 (surr)	111	87.9	88	(54-113)

Batch Information

Analytical Batch: **XMS11202**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **BMZ**

Prep Batch: **XXX40843**
Prep Method: **SW3550C**
Prep Date/Time: **11/02/2018 11:03**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1186158002
MS Sample ID: 1486452 MS
MSD Sample ID: 1486453 MSD

Analysis Date: 11/05/2018 16:23
Analysis Date: 11/05/2018 16:44
Analysis Date: 11/05/2018 17:04
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

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	26.3U	116	131	112 *	116	133	114 *	43-111	1.80	(< 20)
2-Methylnaphthalene	26.3U	116	98.9	85	116	103	89	39-114	4.30	(< 20)
Acenaphthene	26.3U	116	110	94	116	109	93	44-111	0.78	(< 20)
Acenaphthylene	26.3U	116	96.4	83	116	99.7	85	39-116	3.40	(< 20)
Anthracene	26.3U	116	76.8	66	116	78.9	68	50-114	2.70	(< 20)
Benzo(a)Anthracene	26.3U	116	109	93	116	109	93	54-122	0.08	(< 20)
Benzo[a]pyrene	26.3U	116	109	94	116	108	92	50-125	1.50	(< 20)
Benzo[b]Fluoranthene	26.3U	116	113	97	116	113	97	53-128	0.21	(< 20)
Benzo[g,h,i]perylene	26.3U	116	102	88	116	101	86	49-127	1.80	(< 20)
Benzo[k]fluoranthene	26.3U	116	102	87	116	99.8	86	56-123	1.90	(< 20)
Chrysene	26.3U	116	97.4	84	116	100	86	57-118	2.70	(< 20)
Dibenzo[a,h]anthracene	26.3U	116	106	91	116	104	89	50-129	1.50	(< 20)
Fluoranthene	26.3U	116	106	91	116	104	89	55-119	1.50	(< 20)
Fluorene	26.3U	116	110	95	116	112	96	47-114	1.70	(< 20)
Indeno[1,2,3-c,d] pyrene	26.3U	116	110	95	116	109	93	49-130	1.30	(< 20)
Naphthalene	21.0U	116	97.6	84	116	91.5	78	38-111	6.40	(< 20)
Phenanthrene	26.3U	116	85.8	74	116	91.0	78	49-113	5.80	(< 20)
Pyrene	26.3U	116	123	105	116	121	103	55-117	1.90	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		116	124	106 *	116	123	105 *	58-103	0.96	
Fluoranthene-d10 (surr)		116	103	88	116	103	88	54-113	0.36	

Batch Information

Analytical Batch: XMS11202
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 11/5/2018 4:44:00PM

Prep Batch: XXX40843
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 11/2/2018 11:03:12AM
Prep Initial Wt./Vol.: 22.70g
Prep Extract Vol: 5.00mL

Print Date: 11/12/2018 4:15:19PM

Method Blank

Blank ID: MB for HBN 1788688 [XXX/40857]
Blank Lab ID: 1486895

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	94.1	60-120		%

Batch Information

Analytical Batch: XFC14784
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: VDL
Analytical Date/Time: 11/6/2018 9:14:00AM

Prep Batch: XXX40857
Prep Method: SW3550C
Prep Date/Time: 11/5/2018 1:12:43PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 11/12/2018 4:15:21PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [XXX40857]
Blank Spike Lab ID: 1486896
Date Analyzed: 11/06/2018 09:25

Spike Duplicate ID: LCSD for HBN 1186208 [XXX40857]
Spike Duplicate Lab ID: 1486897
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

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	801	96	833	948	114	(75-125)	16.80	(< 20)
Surrogates									
5a Androstane (surr)	16.7	94.4	94	16.7	112	112	(60-120)	16.60	

Batch Information

Analytical Batch: **XFC14784**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **VDL**

Prep Batch: **XXX40857**
Prep Method: **SW3550C**
Prep Date/Time: **11/05/2018 13:12**
Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1788688 [XXX/40857]
Blank Lab ID: 1486895

Matrix: Soil/Solid (dry weight)

QC for Samples:
1186208001

Results by **AK103**

Parameter	Results	LOQ/CL	DL	Units
Residual Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
n-Triacontane-d62 (surr)	95	60-120		%

Batch Information

Analytical Batch: XFC14784
Analytical Method: AK103
Instrument: Agilent 7890B R
Analyst: VDL
Analytical Date/Time: 11/6/2018 9:14:00AM

Prep Batch: XXX40857
Prep Method: SW3550C
Prep Date/Time: 11/5/2018 1:12:43PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 11/12/2018 4:15:24PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1186208 [XXX40857]
Blank Spike Lab ID: 1486896
Date Analyzed: 11/06/2018 09:25

Spike Duplicate ID: LCSD for HBN 1186208 [XXX40857]
Spike Duplicate Lab ID: 1486897
Matrix: Soil/Solid (dry weight)

QC for Samples: 1186208001

Results by **AK103**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	833	719	86	833	854	102	(60-120)	17.20	(< 20)
Surrogates									
n-Triacontane-d62 (surr)	16.7	85.5	86	16.7	110	110	(60-120)	25.40	

Batch Information

Analytical Batch: **XFC14784**
Analytical Method: **AK103**
Instrument: **Agilent 7890B R**
Analyst: **VDL**

Prep Batch: **XXX40857**
Prep Method: **SW3550C**
Prep Date/Time: **11/05/2018 13:12**
Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

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

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

1186208

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

Section 1

CLIENT:	EMI
CONTACT:	Larry Helgeson
PHONE NO:	(907) 272-9336
PROJECT NAME:	JBER-CHPP RFP ACVR16
PROJECT/ PWSID/ PERMIT#:	17849
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	# CONTAINERS	Type C = COMP G = GRAB MI = Multi Incre-mental Soils	Section 3 Preservative									REMARKS/ LOC ID
							MeOH	none	MeOH	none	none					
							GRO	DRO/RRO	VOC/VOC Low level	PAH	RCRA Metals + N, + V					
DA-B	Utilidor/PH-01	10/31/18	1124	S	2	G	X	X	X	X	X					

Section 5

	Date	Time	Received By:
Relinquished By: (1)	10/31/18	1225	
Relinquished By: (2)			
Relinquished By: (3)			
Relinquished By: (4)	10/31/18	1225	Received For Laboratory By:

Section 4

DOD Project? Yes / No (No)

Data Deliverable Requirements: Level II

Cooler ID: _____

Requested Turnaround Time and/or Special Instructions:

Temp Blank °C: _____

or Ambient ~~N~~

(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 #: **1186208**

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	
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)?	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
	n/a	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	n/a	
If <0°C, were sample containers ice free?	n/a	
If samples received 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".		**Temperature: Ambient - earliest collection time 10/31/18 11:24**
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	
	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?	no	**No Trip Blank provided with samples.**
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	n/a	
Were all soil VOAs field extracted with MeOH+BFB?	yes	

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
1186208001-A	No Preservative Required	OK			
1186208001-B	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

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

Laboratory Data Review Checklist

Completed By:

Glenn Hasburgh

Title:

Environmental Scientist

Date:

12/14/2018

CS Report Name:

Report Date:

11/13/2018

Consultant Firm:

Environmental Management, Inc.

Laboratory Name:

SGS

Laboratory Report Number:

1186208

ADEC File Number:

Hazard Identification Number:

1186208

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:

   A temperature blank was not submitted but they were delivered to the lab 1 hour after collection.

   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:

According to the Case Narrative it appears there is no impact on the data.

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 that have LOQs above the project action level.

e. Data quality or usability affected?

( ) Yes (•) No Comments:

The analytes with elevated LOQs are not contaminants of concern at the site.

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:

NA, all were below the LOQ.

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

( ) Yes ( ) No Comments:

NA, there were no affected samples.

v. Data quality or usability affected?

Comments:

No. 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:

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:

NA, all were within range.

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

( ) Yes ( ) No Comments:

NA, there were no affected samples.

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

Comments:

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

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:

There were failed surrogated recoveries for PAH analysis.

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 will not be impacted since the failed recoveries are listed as being due to matrix interference.

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

iii. All results less than LOQ?

( ) Yes ( ) No Comments:

NA

iv. If above LOQ, what samples are affected?

Comments:

NA

v. Data quality or usability affected?

Comments:

NA

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:

NA

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:

NA

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

Comments:

NA

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.

1186208

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:

Photo Log

Photo 1: This photo shows the excavation under the former utilidor pump house, facing south. (October 31, 2018)

Photo 2: This photo shows the west sidewall of the excavation, the approximate location of the sample (Utilidor/PH-01) is shown with the arrow. (October 31, 2018)

Photo Log

Photo 3: This photo shows the east sidewalls where non-native soil has started to be used as backfill. The non-native soil is shown in the circle. (October 31, 2018)

Photo 4: This photo shows the excavation, facing north, the utilidor excavation had been previously screened and backfilled. The arrow shows the soil that was backfilled on October 31, 2018. (October 31, 2018)