

**Additional Site Characterization Activities
4501 West 100th Avenue
Anchorage, Alaska
ADEC File No. 2100.26.044**

December 2019

Submitted To:
Anchorage Water & Wastewater Utility
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32-1-17857-002

TABLE OF CONTENTS

	Page
ACRONYMS AND ABBREVIATIONS	iii
1.0 INTRODUCTION.....	1
2.0 BACKGROUND.....	1
3.0 FIELD ACTIVITIES.....	2
3.1 Soil Borings and Sampling.....	2
3.2 Monitoring Well Installation and Development.....	3
3.3 Monitoring Well Sampling.....	4
4.0 INVESTIGATION-DERIVED WASTE MANAGEMENT	5
5.0 LABORATORY ANALYSES.....	5
6.0 SUBSURFACE CONDITIONS.....	6
7.0 DISCUSSION OF ANALYTICAL RESULTS	6
7.1 Soil Samples.....	6
7.2 Groundwater Samples	6
7.3 Quality Control Samples	7
8.0 CONCLUSIONS.....	8
9.0 CLOSURE/LIMITATIONS	8

TABLES

- 1 Sample Locations
- 2 Well Development and Sampling Log
- 3 Summary of Soil Analytical Results
- 4 Summary of Groundwater Analytical Results
- 5 Summary of Historical Groundwater Analytical Results

FIGURES

- 1 Vicinity Map
- 2 Site Plan

APPENDICES

- A Site Photographs
- B Boring and Well Completion Logs
- C Disposal Documentation
- D Results of Analytical Testing by SGS North America Inc. and ADEC Laboratory
- D Data Review Checklists
- E Important Information About Your Geotechnical/Environmental Report

ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
AWWU	Anchorage Water & Wastewater Utility
bgs	Below ground surface
Discovery	Discovery Drilling, Inc.
DQO	Data quality objective
DRO	Diesel range organics
EPA	Environmental Protection Agency
GRO	Gasoline range organics
IDW	Investigation-derived waste
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
LUST	Leaking underground storage tank
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
MS/MSD	Matrix spike/matrix spike duplicate
mV	Millivolt
NRC	NRC Alaska, Inc.
NTU	Nephelometric Turbidity Unit
ORP	Oxidation-Reduction Potential
PAH	Polynuclear aromatic hydrocarbon
PID	Photoionization detector
ppm	Parts per million
PVC	Polyvinyl chloride
RPD	Relative percent difference
SGS	SGS North America Inc.
SIM	Selective ion method
UST	Underground storage tank
VOC	Volatile organic compound

**ADDITIONAL SITE CHARACTERIZATION ACTIVITIES
4501 WEST 100TH AVENUE
ANCHORAGE, ALASKA
ADEC FILE NO. 2100.26.044**

1.0 INTRODUCTION

This report presents the results of Shannon & Wilson's additional site characterization activities conducted at the Anchorage Water & Wastewater Utility (AWWU) Pump Station 12 located at 4501 West 100th Avenue, Anchorage, Alaska. A sewage pump station and generator building are located at the site. The site is an active Alaska Department of Environmental Conservation (ADEC) leaking underground storage tank (LUST) site (ADEC File No. 2100.26.044). A vicinity map is included as Figure 1.

2.0 BACKGROUND

In 1990, two 5,500-gallon diesel underground storage tanks (USTs) were removed and petroleum-impacted soil was excavated southwest of Pump Station 12. To further evaluate the extent of contamination, Monitoring Wells MW-1 and MW-2 were installed at the site in 1992 and 1993. Monitoring Wells MW-3 and MW-4 were installed at the site in 1999 and 2010, respectively. Monitoring Wells MW-1 through MW-4 have been periodically monitored since 2010. The locations of the former USTs and existing monitoring wells are shown on Figure 2.

According to AWWU, on March 1, 2017, up to approximately 150 gallons of diesel fuel were spilled within the generator building due to a pipe rupture. AWWU personnel recovered approximately 10 gallons of diesel fuel using sorbent pads and other materials. On March 2, 2017, a Shannon & Wilson representative visited the site to observe the spill location.

Hydrocarbon odors remained within the building and the concrete floor was stained within the generator building. The fuel appeared to have entered the expansion joint in the concrete floor surrounding the generator.

Shannon & Wilson conducted release investigation activities at the site in 2017 that included advancing eight soil borings (Borings B5 through B12), installing seven groundwater monitoring wells (Wells MW-5, MW-6, and MW-8 through MW-12), and collecting analytical soil and groundwater samples. Monitoring Well MW-6 contained approximately 1 foot of free product in May 2017. A bail-down test was conducted on May 10, 2017 to determine product recovery rate. After about 4 hours of monitoring product thickness, it appeared that the product level stabilized at approximately 0.11 foot. Groundwater contamination appears delineated to the north of the generator building by Wells MW-5 and MW-11. Due to a steep hill adjacent east of

the generator building it is assumed that groundwater contamination does not extend in that direction. The limits of the impacted soil and groundwater remain undefined to the west and south of Well MW-12.

In a letter dated February 1, 2019, the ADEC requested that additional soil and groundwater characterization be conducted at the site to evaluate remaining contamination from the generator building diesel fuel release. The release investigation activities were conducted in material accordance with our April 2, 2019 work plan which was conditionally approved by Ms. Amy Rodman of the ADEC in a letter dated May 31, 2019. As part of the conditional approval, Ms. Rodman requested that Wells MW-1 and MW-3 also be sampled during this groundwater sampling event.

3.0 FIELD ACTIVITIES

The field activities consisted of advancing soil borings, installing pre-pack groundwater monitoring wells, and soil and groundwater sampling. A Shannon & Wilson field representative was present during the field activities to identify the boring locations, log the soil encountered in the borings, and screen and sample the subsurface soils. Discovery Drilling, Inc. (Discovery). Discovery provided the equipment and personnel to advance the soil borings and install the monitoring wells. SGS North America Inc. (SGS) of Anchorage, Alaska conducted the analytical testing of the soil and groundwater samples. Discovery and SGS were subcontracted to Shannon & Wilson. Photographs of the site activities are included in Appendix A.

3.1 Soil Borings and Sampling

Two soil borings, designated Borings B13 and B14, were advanced by Discovery on June 19, 2019 using a track-mounted Geoprobe® direct push drill rig equipped with 2.25-inch outside diameter direct push samplers (Photos 1 and 2). The utility locate center was contacted at least 3 days prior to advancing the borings. Boring logs are included as Appendix B. The approximate location of the borings are shown on Figure 2.

Borings B13 and B14 were advanced to the west and south of Well MW-12, respectively, to further delineate the extent of soil contamination. Borings B13 and B14 were advanced to approximately 14.7 and 17.7 feet below ground surface (bgs), respectively.

Soil samples were recovered on a continuous basis using 5-foot macrocore sampling sleeves. Each sampling sleeve was removed from the sampling device and split down the long axis. Based on the recovery length and soil type, the soil section was divided into two equal intervals for field screening purposes. Immediately following retrieval and opening of the samplers,

analytical samples and field screening samples were collected. The analytical sample jars for volatile analyses were collected first, followed by the non-volatile analytical sample jars, and finally the field screening sample. The soil samples were “screened” for volatile organic vapors using a Thermo Instruments OVM 580B photoionization detector (PID) and an ADEC-approved headspace screening technique. The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. The field screening samples were collected in re-sealable plastic bags by filling them with freshly exposed soil to one-half of their volumes, sealing the top, warmed to at least 40 degrees Fahrenheit, and screened within 10 minutes to one hour of collection. Screening was accomplished by inserting the PID sampling probe into the air space above the soil in the bag and recording the highest reading. Field screening results screening are included in Table 1.

The analytical samples were collected from the location with the highest PID reading and the soil/water interface in each boring. The analytical soil samples tested for volatile constituents were collected using methanol preservation. In accordance with the method, at least 25 grams of soil were quickly placed into a laboratory supplied 4-ounce jar that had been pre-weighed. Afterward, 25 milliliters of reagent grade methanol was added to submerge the soil. The methanol extracts the hydrocarbons from the soil at the time of sampling, thereby reducing the possible loss of volatile constituents prior to sample analysis. The samples were transferred to the appropriate laboratory-supplied jars using decontaminated stainless-steel spoons, and transferred to the laboratory in a cooler with ice packs using chain-of-custody procedures.

3.2 Monitoring Well Installation and Development

Borings B13 and B14 were completed as Monitoring Wells MW-13 and MW-14, respectively (Photo 3). Groundwater was encountered in Borings B13 and B14 at approximately 8.5 and 13.5 feet bgs, respectively, during advancement. Once groundwater was encountered, the borings were advanced an additional 5 to 6 feet to install the monitoring wells. The monitoring wells were constructed of 2-inch nominal inside diameter schedule 40 polyvinyl chloride (PVC) pipe with threaded connections. The lower portion of each well consists of a 10-foot pre-pack section of 0.010-inch slotted well screen. A continuous sand pack was used to backfill around the well screens to 2 to 2.5 feet above the screened sections. Approximately 2.5 to 3 feet of hydrated bentonite chips were used to backfill the boreholes on top of the sand packs to create a seal. Monitoring Wells MW-13 and MW-14 were completed with a stickup and a flush mount protective casing, respectively. Monitoring well construction details are included in Appendix B.

The groundwater monitoring wells were developed on June 20, 2019 at least 24-hours following well installation. Water quality parameters, including pH, temperature, turbidity, and conductivity were collected to evaluate the effectiveness of the development process. The water quality measurements were recorded in the field on well development/water sampling field logs. The groundwater monitoring wells were developed using alternating 3 to 5-minute cycles of surging and purging using a surge block and a submersible pump. Development was considered complete when 3 hours of effort per well was expended. Monitoring Wells MW-13 and MW-14 purged dry three times over 3 hours. Monitoring well construction details are included in Appendix B. Groundwater data, including final water quality parameter measurements during development, are summarized in Table 2.

3.3 Monitoring Well Sampling

The newly installed wells were allowed to recharge to 80 percent of the original water volume before collecting groundwater samples on June 21, 2019. Samples MW-13 and MW-14 were obtained from the screened portion of the wells using a submersible pump with dedicated disposable tubing. The samples were collected within 24-hours of development; therefore, the wells were not purged during sampling activities. The analytical samples were collected by transferring water directly from the pump tubing into the laboratory supplied containers. The sample jars were filled in decreasing order of volatility.

In addition to sampling the newly installed monitoring wells, groundwater samples were collected from existing Wells MW-1, MW-3, MW-5, MW-8, MW-9, MW-11, and MW-12 using a low-flow sampling method. Free product was encountered in Monitoring Wells MW-6 and MW-10, therefore, the wells were not sampled. The submersible pump was placed within 2 feet of the surface of the groundwater column. The pump rate was adjusted with a goal of limiting the sustained water drawdown to a maximum of 0.3 foot. During the purging process, field personnel monitored water quality parameters and purge volume. Purging was considered complete when at least one well volume was removed, and water quality parameters stabilized. Water quality parameters were considered stabilized when three consecutive measurements collected 3 to 5 minutes apart indicate that at least four of the five parameters were within the following tolerance ranges: pH was within 0.1 unit, temperature was within 3 percent, specific conductance was within 3 percent, oxidation-reduction potential (ORP) was within 10 millivolt (mV), and turbidity was within 10 percent or was less than 10 NTU. The wells were sampled after at least 1 well volume had been removed and the well recovered to at least 80 percent of the pre-purge volume. The pump was decontaminated in between each well. Analytical samples were collected by transferring water directly from the disposable tubing into the laboratory

supplied containers. The sample jars were filled in decreasing order of volatility. Final water quality parameters are listed on Table 2.

4.0 INVESTIGATION-DERIVED WASTE MANAGEMENT

Investigation-derived waste (IDW) consisted of drill cuttings and development/purge water. The drill cuttings and development/purge water were containerized in three 55-gallon drums and temporarily stored onsite pending disposal. On November 22, 2019, NRC Alaska, Inc. (NRC) picked up one 55-gallon drum of impacted development/purge water and two 55-gallon drums of impacted soil cuttings for disposal and/or treatment. Prior to transport and disposal, an ADEC *Transport, Treatment, & Disposal Approval Form for Contaminated Media* for soil and groundwater was completed and approved by the ADEC. IDW disposal receipts are included in Appendix C.

5.0 LABORATORY ANALYSES

One analytical soil sample was selected from each boring for laboratory analysis. A duplicate sample was collected from Boring B13 and submitted for laboratory analysis. Each sample was analyzed for gasoline range organics (GRO) by Alaska Method (AK) 101, diesel range organics (DRO) by AK 102, and volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260C. The sample with the highest PID reading (Sample B13S3) was also analyzed for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D selective ion method (SIM). For quality control purposes, one trip blank was submitted for analysis for GRO by AK 101 and VOCs by EPA Method 8260C.

The analytical groundwater samples collected from each well were analyzed for GRO by AK 101, DRO by AK 102, and VOCs by EPA 8260C. The sample collected from Well MW-9 was also analyzed for PAHs by EPA Method 8270D selective ion method (SIM). In addition, one duplicate sample was collected from Well MW-9 submitted for GRO and VOCs. Due to low water volume and slow recharge at Well MW-9, there was not enough water to collect DRO and PAHs samples for the duplicate sample (Sample MW-19). For quality control purposes, one trip blank was submitted for analysis for GRO by AK 101 and VOCs by EPA Method 8260C.

The samples were submitted to SGS for analytical testing, using chain-of-custody procedures. The laboratory reports and completed ADEC Laboratory Data Review Checklists are provided in Appendix D. The analytical soil sample results are summarized in Tables 3 and groundwater sample results are summarized in Tables 4.

6.0 SUBSURFACE CONDITIONS

The subsurface soil at the site generally consists of sand with varying amounts of silt and gravel. Gravel and sand content increased with depth in Boring B13. However, gravel and sand content decreased while silt content increased with depth in Boring B14. Groundwater was observed in Boring B13 and B14 at approximately 8.5 and 13.5 feet bgs, respectively, during drilling. While sampling Monitoring Wells MW-13 and MW-14, depth to water measured 9.28 feet bgs and 10.67 feet bgs, respectively. Depth to groundwater measured in the Monitoring Wells MW-1, MW-3, MW-5, and MW-8 through MW-14 on June 20, 2019, ranged from 8.08 feet bgs in Well MW-10 to 10.70 feet bgs in Well MW-8. Historical groundwater flow direction is generally to the west toward Cook Inlet.

7.0 DISCUSSION OF ANALYTICAL RESULTS

The soil and groundwater results were compared to applicable cleanup levels listed in the Oil and Other Hazardous Substances Pollution Control Regulations, 18 Alaska Administrative Code (AAC) 75 (October 2018). The soil criteria are based on the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 for the “under 40-inch (precipitation) zone,” 18 AAC 75.341. Groundwater criteria are based on Table C, 18 AAC 75.345.

The cleanup levels and analytical results for the soil and groundwater samples are listed in Tables 3 and 4, respectively. Copies of the laboratory reports for the soil and groundwater are in Appendix D.

7.1 Soil Samples

The soil duplicate sample set (Samples B13S3 and B13S13) contained concentrations of DRO (maximum of 2,840 milligrams per kilogram [mg/kg]) and naphthalene (maximum of 0.31 mg/kg) exceeding the ADEC cleanup levels of 250 mg/kg and 0.038 mg/kg, respectively. Additionally, Sample B13S3 contained a concentration of 1-methylnaphthalene (2.03 mg/kg) exceeding the ADEC cleanup level of 0.40 mg/kg. The remaining target analytes were either not detected or were detected at concentrations less than the ADEC Method Two cleanup levels.

7.2 Groundwater Samples

DRO exceeding the ADEC cleanup level of 1.5 milligrams per liter (mg/L) was detected in groundwater Samples MW3 (4.36 mg/L), MW9 (3.34 mg/L), MW12 (1.83 mg/L), and MW13 (1.66 mg/L). Naphthalene was detected above the ADEC cleanup level of 0.0017 mg/L in Samples MW3 (0.0279 mg/L), MW12 (0.0465 mg/L), and the duplicate sample set MW9/MW19 (maximum of 0.0169 mg/L). Sample MW3 also contained a concentration of benzene (0.00601

mg/L) exceeding the ADEC cleanup level of 0.0046 mg/L. In addition, Sample MW12 contained concentrations of 1,2,4-trimethylbenzene (0.0697 mg/L) and ethylbenzene (0.0265 mg/L) exceeding the ADEC cleanup level of 0.056 mg/L and 0.015 mg/L, respectively. The remaining target analytes were either not detected or were detected at concentrations less than the ADEC Method Two cleanup levels.

7.3 Quality Control Samples

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

Field quality control samples included trip blanks and field duplicate samples. Laboratory-prepared trip blank samples accompanied the project sample jars from the laboratory to the site during sampling activities and back again to SGS. An estimated concentration of chloroform was detected in the soil trip blank (Sample STB), and an estimated concentration of methylene chloride was detected in the water trip blank (Sample WTB) at levels less than the LOQs. A concentration of chloroform was detected in Sample B13S3 less than the LOQ; therefore, the chloroform detection in Sample B13S3 is reported as not detected at the LOQ and flagged “B” in Table 3. Methylene chloride was not detected in the groundwater field samples, therefore no flagging is required.

The soil method blank contained an estimated concentration of DRO (7.38 mg/kg) less than the LOQ of 20.0 mg/kg. The water method blank contained an estimated concentration of GRO (0.0745 mg/L) less than the LOQ of 0.100 mg/L. The concentration of DRO detected in Sample B14S4, and the GRO concentrations detected in Samples MW9, MW19, and MW12 are greater than five times the method blank concentration and less than 10 times the method blank concentration. Therefore, the DRO results for Sample B14S4 and the GRO results for Samples MW9, MW19, and MW12 are reported at the laboratory reported sample concentration and flagged “B” in Tables 3 and 4, respectively.

One duplicate soil sample set (Samples B13S3/B13S13) and one duplicate water sample set (Samples MW9/MW19) were collected to assess the precision of the sampling and analysis processes using the calculated relative percent difference (RPD). The soil duplicate sample set contained one VOC outside the ADEC recommended RPD of 50 percent for soil, and the

groundwater duplicate sample set contained four VOCs outside the ADEC recommended RPD of 30 percent for water. Within each RPD failure, the results are consistently detected either above or below the ADEC cleanup level between the pair of results in the respective duplicate sample set. Therefore, it is our opinion the data quality is unaffected by the RPD failures.

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

8.0 CONCLUSIONS

The site characterization activities conducted at 4501 West 100th Avenue consisted of advancing two soil borings completed as groundwater monitoring wells, and collecting soil and groundwater samples.

The soil sample collected from Boring B13 contained concentrations of target analytes greater than the ADEC Method Two cleanup levels. Petroleum-impacted soil appears to extend west of Boring B13. Petroleum-impacted soil also appears to extend south between Boring/Monitoring Well B12/MW-12 and Boring/Monitoring Well B14/MW-14.

Groundwater impacted with petroleum constituents above the ADEC cleanup level was documented in Monitoring Wells MW-3, MW-9, MW-12, and MW-13. Free product was observed in Monitoring Wells MW-6 and MW-10. Samples from Monitoring Wells MW-1, MW-5, MW-8, MW-11, and MW-14 contained concentrations of target analytes below the ADEC cleanup level or were not detected. Groundwater contamination appears to be bound to the north and south by Wells MW-5 and MW-8/MW-14, respectively. The western extent of groundwater contamination is undefined. It is our opinion that the groundwater contamination is bound to the east by the steep slope located east of the generator building.

9.0 CLOSURE/LIMITATIONS

This report is prepared for the exclusive use of our client and their representatives in the study of this site. The findings presented within this report are based on the limited research, sampling, and analyses that were conducted. They should not be construed as definite conclusions regarding the site's soil or groundwater quality. It is possible that our tests missed higher levels of contaminants, although our intention was to collect samples in accordance with the ADEC-approved work plans. As a result, the sampling, analyses, and data interpretations can provide

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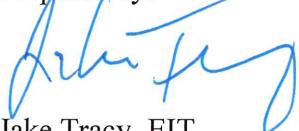
you with only our professional judgment as to the environmental characteristics of this site, and in no way guarantee that an agency or its staff will reach the same conclusions as Shannon & Wilson, Inc. The data presented in this report should be considered representative of the time of our site activities. Changes in site conditions can occur over time, due to natural forces or human activity. In addition, changes in government codes, regulations, or laws may occur. Because of such changes beyond our control, our observations and interpretations may need to be revised.

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

Shannon & Wilson has prepared the attachments in Appendix E, "Important Information About Your Geotechnical/Environmental Report," to assist you and others in understanding the use and limitations of our report. We appreciate this opportunity to be of service and your continued confidence in our firm. If you have questions or comments concerning this submittal, please contact the undersigned at (907) 561-2120.

SHANNON & WILSON, INC.

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TABLE 1
SAMPLE LOCATIONS

Sample Number	Date	Sample Location (See Figure 2 and Appendix B)	Depth (feet bgs or btoc)	Headspace (ppm) ^
Soil Boring Samples				
<u>Boring B13</u>				
B13S1	6/19/2019	Boring B13, Sample S1	0-2.5	0.6
B13S2	6/19/2019	Boring B13, Sample S2	2.5-5	0.3
* B13S3	6/19/2019	Boring B13, Sample S3	5-8.5	138
* B13S13	6/19/2019	Duplicate of Sample B13S3	5-8.5	138
<u>Boring B14</u>				
B14S1	6/19/2019	Boring B14, Sample S1	0-3.5	0.3
B14S2	6/19/2019	Boring B14, Sample S2	5-7.5	-
B14S3	6/19/2019	Boring B14, Sample S3	7.5-10	-
* B14S4	6/19/2019	Boring B14, Sample S4	10-13.5	18.4
Water Samples				
* MW1	6/20/2019	Monitoring Well MW1	12.55	-
* MW3	6/20/2019	Monitoring Well MW3	11.88	-
* MW5	6/20/2019	Monitoring Well MW5	11.82	-
* MW8	6/20/2019	Monitoring Well MW8	10.18	-
* MW9	6/21/2019	Monitoring Well MW9	8.89	-
* MW19	6/21/2019	Duplicate of Sample MW9	8.89	
* MW11	6/20/2019	Monitoring Well MW11	11.39	-
* MW12	6/20/2019	Monitoring Well MW12	13.48	-
* MW13	6/21/2019	Monitoring Well MW13	12.28	-
* MW14	6/21/2019	Monitoring Well MW14	10.29	-
Quality Control Samples				
* STB	6/19/2019	Soil Trip Blank	-	-
* WTB	6/20/2019	Water Trip Blank	-	-

Notes:

- * = Sample analyzed by the project laboratory (See Tables 3 and 4).
- ^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).
- = Not applicable
- ppm = parts per million
- bgs = below ground surface
- btoc = below top of casing

TABLE 2
WELL DEVELOPMENT AND SAMPLING LOG

	Monitoring Wells											
	MW1	MW3	MW5	MW6	MW8	MW9	MW10	MW11	MW12	MW13	MW14	
Development Data	-	-	-	-	-	-	-	-	-	6/20/2019	6/20/2019	
Development Date	-	-	-	-	-	-	-	-	-	12.28	10.29	
Measured Depth to Water (ft below TOC) [^]	-	-	-	-	-	-	-	-	-	17.67	17.16	
Total Depth of Well (ft below TOC)	-	-	-	-	-	-	-	-	-	5.39	6.87	
Water Column in Well (ft)	-	-	-	-	-	-	-	-	-	0.16	0.16	
Gallons per Foot	-	-	-	-	-	-	-	-	-	0.86	1.10	
Water Column Volume (gallons)	-	-	-	-	-	-	-	-	-	1.5	2.25	
Total Volume Pumped (gallons)	-	-	-	-	-	-	-	-	-	Surge block/SP	Surge block/SP	
Development Method	-	-	-	-	-	-	-	-	-			
Water Level Measurement Data												
Date Water Level Measured	6/20/2019	6/20/2019	6/20/2019	-	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	6/20/2019	
Time Water Level Measured	10:21	10:45	10:13	-	10:38	10:44	10:51	10:28	10:38	10:34	10:18	
Measured Depth to Water (ft below TOC)	12.55	11.88	11.82	-	10.18	8.89	11.29	11.39	13.48	12.28	10.29	
Height of TOC above ground surface (ft)	3.33	2.92	3.50	-	-0.52	-0.52	3.21	2.77	3.41	3.00	-0.38	
Measured Depth to Water (ft bgs)	9.22	8.96	8.32	-	10.70	9.41	8.08	8.62	10.07	9.28	10.67	
Depth to Product (ft below TOC)	-	-	-	NM	-	-	-	-	-	-	-	
Sampling Data												
Date Sampled	6/20/2019	6/20/2019	6/20/2019	-	6/20/2019	6/21/2019	-	6/20/2019	6/20/2019	6/21/2019	6/21/2019	
Time Sampled	12:55	15:20	12:00	-	15:15	11:30	-	14:05	16:35	12:20	11:05	
Measured Depth to Water (ft below TOC)	12.55	11.88	11.82	-	10.18	8.89	11.29	11.39	13.48	12.28	10.29	
Total Depth of Well (ft below TOC)	22.53	17.13	17.58	-	13.69	14.44	17.41	17.73	17.26	17.67	17.16	
Water Column in Well (ft)	9.98	5.25	5.76	-	3.51	5.55	6.12	6.34	3.78	5.39	6.87	
Gallons per Foot	0.16	0.16	0.16	0.16	0.16	0.16	1.16	0.16	0.16	0.16	0.16	
Water Column Volume (gallons)	1.60	0.84	0.92	-	0.56	0.89	7.10	1.01	0.60	0.86	1.10	
Total Volume Pumped (gallons)	1.6	1.5	1.2	-	1.1	1.1	-	1.2	1.0	0.2	1.1	
Sampling Method	Submersible pump 2-inch	Submersible pump 2-inch	Submersible pump 2-inch	-	Submersible pump 2-inch	Submersible pump 2-inch	-	Submersible pump 2-inch	Submersible pump 2-inch	Submersible pump 2-inch	Submersible pump 2-inch	
Diameter of Well Casing				2-inch			2-inch					
Water Quality Data												
Date Measured	6/20/2019	6/20/2019	6/20/2019	-	6/20/2019	6/21/2019	-	6/20/2019	6/20/2019	6/21/2019	6/21/2019	
Temperature (°C)	13.4	10.9	10.9	-	13.2	12.0	-	12.1	15.6	11.7	12.5	
pH (Standard Units)	7.02	7.12	7.25	-	7.43	7.12	-	7.03	7.08	7.04	6.95	
Specific Conductivity (µS/cm)	1,185	1,295	1,732	-	822	834	-	1,599	954	1,153	675	
ORP (mV)	-118	-87	-8	-	-42	-66	-	-118	-58	-55	-41	
Turbidity (NTU)	46.1	36.88	7.13	-	38.16	45.02	-	7.09	43.05	20.66	59.94	
Remarks					Sample Not Collected - Free Product Encountered - Stickup Monument	Flushmount	Flushmount Duplicate Sample MW19 - Sheen	Sample Not Collected - Free Product Encountered - Stickup Monument	Stickup monument.	Stickup monument.	Stickup monument.	Flushmount

Notes:

Water quality parameters were measured with a Hanna Water Quality Instrument and a Hach turbidimeter

- = Not applicable or not measured

^ = Depth to water measurement prior to development

TOC = Top of casing

ft = Feet

°C = Degrees Celsius

µS/cm = Microsiemens per Centimeter

NTU = Nephelometric Turbidity Unit

mV = Millivolts

ORP = Oxidation Reduction Potential

bgs = below ground surface

NM = Not measured

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet Below Ground Surface or Sample Date (See Table 1, Figure 2, and Appendix B)			
			Soil Boring Samples		Trip Blank	
			B13S3 5-8.5	B13S13~ 5-8.5	B14S4 10-13.5	STB 6/19/2019
PID Headspace Reading - ppm	OVM 580B	-	138	138	18.4	-
Gasoline Range Organics (GRO) - mg/kg	AK 101	300	11.0 J+	11.2 J+	1.46 J	<1.25
Diesel Range Organics (DRO) - mg/kg	AK 102	250	1,800	2,840	54.7 B	-
Volatile Organic Compounds (VOCs)						
Benzene - mg/kg	EPA 8260C	0.022	0.00503 J	0.00388 J	<0.00715	<0.00625
Toluene - mg/kg	EPA 8260C	6.7	0.0141 J	<0.00915	<0.0143	<0.0125
Ethylbenzene - mg/kg	EPA 8260C	0.13	0.0106 J	0.00791 J	0.0134 J	<0.0125
Xylenes (total) - mg/kg	EPA 8260C	1.5	0.0194 J	<0.0275	<0.0429	<0.0375
1,2,4-Trimethylbenzene - mg/kg	EPA 8260C	0.61	0.178	0.189	0.0198 J	<0.0251
1,3,5-Trimethylbenzene - mg/kg	EPA 8260C	0.66	<0.00975	<0.00915	0.0117 J	<0.0125
4-Isopropyltoluene - mg/kg	EPA 8260C	-	0.149 E	0.46 E	<0.0570	<0.0500
Chloroform - mg/kg	EPA 8260C	0.0071	<0.00156 B	<0.000735	<0.00115	0.000840 J
Isopropylbenzene (Cumene) - mg/kg	EPA 8260C	5.6	0.0432	0.0539	<0.0143	<0.0125
Naphthalene - mg/kg	EPA 8260C	0.038	0.298	0.31	0.0237 J	<0.0125
n-Propylbenzene - mg/kg	EPA 8260C	9.1	0.0868	0.0856	0.00987 J	<0.0125
sec-Butylbenzene - mg/kg	EPA 8260C	28	0.317	0.302	0.00918 J	<0.0125
tert-Butylbenzene - mg/kg	EPA 8260C	11	0.0235	0.0223	<0.0143	<0.0125
Trichloroethene - mg/kg	EPA 8260C	0.011	<0.00196	0.00232 J	<0.00286	<0.00250
Other VOC analytes - mg/kg	EPA 8260C	Various	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs)						
1-Methylnaphthalene - mg/kg	EPA 8270D SIM	0.41	2.03	-	-	-
2-Methylnaphthalene - mg/kg	EPA 8270D SIM	1.3	0.533	-	-	-
Acenaphthene - mg/kg	EPA 8270D SIM	37	0.167	-	-	-
Benzo(a)Anthracene - mg/kg	EPA 8270D SIM	0.70	0.0159 J	-	-	-
Benzo[a]pyrene - mg/kg	EPA 8270D SIM	1.5	0.00929 J	-	-	-
Benzo[b]fluoranthene - mg/kg	EPA 8270D SIM	1.5	0.0177 J	-	-	-
Chrysene - mg/kg	EPA 8270D SIM	600	0.0169 J	-	-	-
Fluoranthene - mg/kg	EPA 8270D SIM	590	0.0562	-	-	-
Fluorene - mg/kg	EPA 8270D SIM	36	0.851	-	-	-
Phenanthrene - mg/kg	EPA 8270D SIM	39	1	-	-	-
Pyrene - mg/kg	EPA 8270D SIM	87	0.0535	-	-	-
Other PAH analytes - mg/kg	EPA 8270D SIM	Various	ND	-	-	-

Notes:

* = See Appendix C for compounds tested, methods, and laboratory reporting limits

** = Soil cleanup level is the most stringent ADEC Method Two standard listed in Table B1 or B2, 18 AAC 75 (October 2018), for the "under 40 inches (precipitation) zone"

^ = Sample ID number preceded by "17857-" on the chain of custody form

PID = Photoionization detector

ppm = Parts per million

<0.00975 = Analyte not detected; laboratory limit of detection of 0.00975 mg/kg

0.178 = Analyte detected

1,800 = Analyte detected above ADEC cleanup level

mg/kg = Milligrams per kilogram

ppm = Parts per million

~ = Field duplicate of Sample B13S3

J = Estimated concentration less than the limit of quantitation. See the SGS laboratory report for details.

J+ = Concentration may be biased high due to failed surrogate recovery. See the SGS report for details.

B = Compound detected in trip blank or method blank at an estimated concentration. The associated sample is assigned non-detect value at limit of quantitation (LOQ).

E = results are considered estimated due to a relative percent difference (RPD) failure. See the LDRC in Appendix C.

- = Not applicable or sample not tested for this analyte

TABLE 4
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/L)**	Sample ID Number^ and Water Depth in Feet BTOC or Sample Date (See Table 1, Figure 2, and Appendix B)											Trip Blank	
			Monitoring Wells												
			MW-1	MW-3	MW-5	MW-8	MW-9	MW-19~	MW-11	MW-12	MW-13	MW-14	WTB		
Gasoline Range Organics (GRO) - mg/L	AK 101	2.2	<0.0500	<0.100 B	<0.0500	<0.0500 J-	0.394 B	0.418 B	<0.0500	0.434 B	<0.100 B	<0.0500	<0.0500	<0.0500	
Diesel Range Organics (DRO) - mg/L	AK 102	1.5	0.255 J	4.36	<0.300	<0.302	3.34	-	0.476 J	1.83	1.66	0.405 J	-	-	
Volatile Organic Carbons (VOCs)															
Benzene - mg/L	EPA 8260C	0.0046	<0.000200	0.00601	<0.000200	<0.000200	0.00192	0.00233	<0.000200	0.00399	0.000870	<0.000200	<0.000200	<0.000200	
Toluene - mg/L	EPA 8260C	1.1	0.000500 J	<0.000500	0.000440 J	0.000890 J	0.000870 J	0.00107	0.000600 J	0.00512	0.000370 J	<0.000500	<0.000500	<0.000500	
Ethylbenzene - mg/L	EPA 8260C	0.015	<0.000500	0.00228	<0.000500	<0.000500	0.00738	0.00965	<0.000500	0.0265	<0.000500	<0.000500	<0.000500	<0.000500	
Xylenes - mg/L	EPA 8260C	0.19	<0.00150	0.00623	<0.00150	<0.00150	0.0371 E	0.0505 E	<0.00150	0.134	<0.00150	<0.00150	<0.00150	<0.00150	
1,2,4-Trimethylbenzene - mg/L	EPA 8260C	0.056	<0.000500	0.00722	<0.000500	<0.000500	0.0298 E	0.0419 E	<0.000500	0.0697	0.00231	<0.000500	<0.000500	<0.000500	
1,3,5-Trimethylbenzene - mg/L	EPA 8260C	0.060	<0.000500	<0.000500	<0.000500	<0.000500	0.0160 E	0.0229 E	<0.000500	0.0107	<0.000500	<0.000500	<0.000500	<0.000500	
2-Butanone (MEK) - mg/L	EPA 8260C	5.6	<0.00500	<0.00500	<0.00500	<0.00500	0.0175	0.0211	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	
4-Isopropyltoluene - mg/L	EPA 8260C	-	<0.000500	0.00183	<0.000500	<0.000500	0.00171	0.00203	<0.000500	0.000920 J	0.000610 J	<0.000500	<0.000500	<0.000500	
cis-1,2-Dichloroethene - mg/L	EPA 8260C	0.0036	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00101	<0.000500	<0.000500	<0.000500	<0.000500	
Dichlorodifluoromethane - mg/L	EPA 8260C	0.20	<0.000500	0.000330 J	<0.000500	<0.000500	0.0235	0.0241	0.0778	0.00998	<0.000500	<0.000500	<0.000500	<0.000500	
Isopropylbenzene (Cumene) - mg/L	EPA 8260C	0.45	<0.000500	0.00213	<0.000500	<0.000500	0.00206	0.00254	<0.000500	0.00812	0.00122	<0.000500	<0.000500	<0.000500	
Methylene chloride - mg/L	EPA 8260C	0.11	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	0.00127 J	
Naphthalene - mg/L	EPA 8260C	0.0017	<0.000500	0.0279	<0.000500	<0.000500	0.0119 E	0.0169 E	<0.000500	0.0465	0.00122	<0.000500	<0.000500	<0.000500	
n-Butylbenzene - mg/L	EPA 8260C	1.0	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.00134	<0.000500	<0.000500	<0.000500	
n-Propylbenzene - mg/L	EPA 8260C	0.66	<0.000500	0.00227	<0.000500	<0.000500	0.00236	0.00313	<0.000500	0.0137	0.00141	<0.000500	<0.000500	<0.000500	
sec-Butylbenzene - mg/L	EPA 8260C	2.0	<0.000500	0.00134	<0.000500	<0.000500	0.00132	0.00153	<0.000500	0.00228	0.00261	<0.000500	<0.000500	<0.000500	
tert-Butylbenzene - mg/L	EPA 8260C	0.69	<0.000500	<0.000500	<0.000500	<0.000500	0.000350 J	0.000420 J	<0.000500	0.000360 J	0.000540 J	<0.000500	<0.000500	<0.000500	
Trichloroethene - mg/L	EPA 8260C	0.0028	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	<0.000500	0.000490 J	<0.000500	<0.000500	<0.000500	<0.000500	
Other VOC Analytes - mg/L	EPA 8260C	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Polynuclear Aromatic Hydrocarbons (PAHs)															
1-Methylnaphthalene - mg/L	EPA 8270D SIM	0.011	-	-	-	-	0.00349 J-	-	-	-	-	-	-	-	
2-Methylnaphthalene - mg/L	EPA 8270D SIM	0.036	-	-	-	-	0.00353 J-	-	-	-	-	-	-	-	
Anthracene - mg/L	EPA 8270D SIM	0.043	-	-	-	-	0.0000347 J-	-	-	-	-	-	-	-	
Benzo(a)Anthracene - mg/L	EPA 8270D SIM	0.0003	-	-	-	-	0.0000308 J	-	-	-	-	-	-	-	
Benzo[a]pyrene - mg/L	EPA 8270D SIM	0.00025	-	-	-	-	0.0000333	-	-	-	-	-	-	-	
Benzo[b]Fluoranthene-mg/L	EPA 8270D SIM	0.0025	-	-	-	-	0.0000336 J	-	-	-	-	-	-	-	
Benzo[g,h,i]perylene - mg/L	EPA 8270D SIM	0.00026	-	-	-	-	0.0000308 J	-	-	-	-	-	-	-	
Benzo[k]fluoranthene - mg/L	EPA 8270D SIM	0.0008	-	-	-	-	0.0000297 J	-	-	-	-	-	-	-	
Chrysene - mg/L	EPA 8270D SIM	0.002	-	-	-	-	0.0000445 J	-	-	-	-	-	-	-	
Dibenzo[a,h]anthracene - mg/L	EPA 8270D SIM	0.00025	-	-	-	-	0.0000257	-	-	-	-	-	-	-	
Fluoranthene - mg/L	EPA 8270D SIM	0.26	-	-	-	-	0.0000465 J	-	-	-	-	-	-	-	
Fluorene - mg/L	EPA 8270D SIM	0.29	-	-	-	-	0.000322 J-	-	-	-	-	-	-	-	
Indeno[1,2,3-c,d] pyrene - mg/L	EPA 8270D SIM	0.00019	-	-	-	-	0.0000283 J	-	-	-	-	-	-	-	
Naphthalene - mg/L	EPA 8270D SIM	0.0017	-	-	-	-	0.00233 J-	-	-	-	-	-	-	-	
Phenanthrene-mg/L	EPA 8270D SIM	0.17	-	-	-	-	0.000154 J-	-	-	-	-	-	-	-	
Pyrene - mg/L	EPA 8270D SIM	0.12	-	-	-	-	0.0000581	-	-	-	-	-	-	-	
Other PAH Analytes - mg/L	EPA 8270D SIM	Various	-	-	-	-	ND	-	-	-	-	-	-	-	

Notes:

- * = See Appendix C for compounds tested, methods, and laboratory reporting limits
- ** = Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (October 2018)
- ^ = Sample ID number preceded by "17857-" on the chain of custody form
- mg/L = Milligrams per liter
- <0.0500 = Analyte not detected; laboratory

TABLE 5
HISTORICAL GROUNDWATER DATA

Monitoring Well	Date	Parameter Tested and Cleanup Level (mg/L) [^]					
		GRO 2.2	DRO 1.5	Benzene 0.0046	Toluene 1.1	Ethylbenzene 0.015	Xylenes 0.19
MW-1	9/28/2010	<0.0500	0.397	<0.000500	<0.000500	<0.000500	<0.00150
	12/14/2010	<0.0500	0.526	<0.000500	<0.00100	<0.00100	<0.00300
	6/14/2011	<0.0500	0.733	<0.000500	<0.000500	<0.000500	<0.00150
	3/8/2012	<0.100	<0.612	<0.000500	<0.00100	<0.00100	<0.00200
	9/30/2013	Water level only		-	-	-	-
	9/5/2014	Water level only					
	12/4/2014	Water level only					
	2/11/2016	Water level only					
	5/23/2016	Water level only					
	8/17/2016	Water level only					
	11/17/2016	Water level only					
	5/10/2017	<0.0500	<0.0577 B	<0.000250	0.000340 J	<0.000500	<0.00150
	10/2/2017	<0.0500	0.651	<0.000250	<0.00100 B	<0.000500	0.000810 J
	6/20/2019	<0.0500	0.255 J	<0.000200	<0.000500	0.000500 J	<0.00150
MW-2	9/28/2010	<0.0500	1.68	0.00111	<0.000500	<0.000500	<0.00150
	12/14/2010	<0.0500	0.427	0.00122	<0.00100	<0.00100	<0.00300
	6/14/2011	<0.0500	0.551	0.000982	<0.000500	<0.000500	<0.00150
	3/8/2012	<0.100	<0.625	0.000750	<0.00100	<0.00100	<0.00200
	9/30/2013	-	0.363 J	0.000450 J	<0.000620	<0.000620	<0.00186
	9/5/2014	-	0.244 J	0.000450 J	<0.000500	<0.000500	<0.00150
	12/4/2014	-	<0.300	0.000250 J	<0.000500	<0.000500	0.000410 J
	2/11/2016	Water level only					
	5/23/2016	Water level only					
	8/17/2016	Water level only					
	11/17/2016	-	0.446J	0.000320J	<0.000500	<0.000500	<0.00150
MW-3	5/10/2017	0.124	3.43	0.00184	<0.000500	0.00623	0.00942 J
	10/2/2017	0.0777 J	4.05	0.00239	<0.00100 B	0.00414	0.00757
	6/20/2019	<0.100 B	4.36	0.00601	0.00228	<0.000500	0.00623
MW-4	12/14/2010	<0.0500	0.447	0.00117	<0.00100	<0.00100	<0.00300
	6/14/2011	<0.0500	0.717	0.000915	<0.000500	<0.000500	<0.00150
	3/8/2012	<0.100	<0.625	0.000820	<0.00100	<0.00100	<0.00200
	9/30/2013	-	1.23	0.00193	<0.000620	0.00295	<0.00186
	9/5/2014	-	0.386 J	0.000470 J	<0.000500	<0.000500	<0.00150
	12/4/2014	-	0.402 J	0.000680 J	<0.000500	<0.000500	<0.00150
	2/11/2016	Water level only					
	5/23/2016	Water level only					
	8/17/2016	Water level only					
	11/17/2016	-	0.540J	0.00033J	<0.000500	<0.000500	<0.00150
MW-5	4/26/2017	<0.0500	<0.577 B	<0.000250	<0.000500	<0.000500	<0.00150
	10/2/2017	<0.0500	<0.283	<0.000250	<0.00100 B	<0.000500	0.000900 J
	6/20/2019	<0.0500	<0.300	<0.000200	<0.000500	0.000400 J	<0.00150
MW-6	4/26/2017	Free Product Encountered					
	10/2/2017	Free Product Encountered					
	6/20/2019	Free Product Encountered					
MW-8	4/26/2017	0.314 B*	<0.640 B*	0.00184*	0.0159*	0.0117*	0.0760*
	10/2/2017	0.0369 J	0.191 J	0.000470 J	0.00259 B	0.000830 J	0.00320 J
	6/20/2019	<0.0500	<0.302	<0.000200	<0.000500	0.000890 J	<0.00150
MW-9	9/29/2017	4.20*	4.15*	0.205*	0.316*	0.326*	1.73*
	5/21/2019	0.418 B*	3.34*	0.00233*	0.00965*	0.00107*	0.0505 E*

See page 2 for notes.

TABLE 5
HISTORICAL GROUNDWATER DATA

Monitoring Well	Date	Parameter Tested and Cleanup Level (mg/L)[^]					
		GRO 2.2	DRO 1.5	Benzene 0.0046	Toluene 1.1	Ethylbenzene 0.015	Xylenes 0.19
MW-10	9/28/2017	0.594 J+	1.82	0.00950	0.00782	0.0714	0.113
	6/20/2019	Free Product Encountered					
MW-11	9/28/2017	0.0688 J- <0.0500	<0.288	0.00174 J- <0.000200	0.00968 J- <0.000500	0.00231 J- 0.000600 J	0.0140 J- <0.00150
	6/20/2019	0.533 J+ 0.434 B	1.84 1.83	0.0312 0.00399	0.0333 B 0.0265	0.0122 0.00512	0.0987 0.134
MW-13	6/21/2019	<0.100 B	1.66	0.00087	<0.000500	0.000370 J	<0.00150
MW-14	6/21/2019	<0.0500	0.405 J	<0.000200	<0.000500	<0.000500	<0.00150

Notes:

Data for sampling events conducted between 2010 and 2012 were obtained from reports produced by BGES, Inc.

[^] = groundwater cleanup levels based on 18 AAC 75.345 Table C, 18 AAC 75 (October 2018).

* = higher analytical result of the primary sample and duplicate

- = not applicable or sample not tested for this parameter

1.68 = reported concentration exceeds the regulated cleanup level

0.397 = analyte detected

<0.100 = analyte not detected; laboratory reporting limit of 0.100 mg/L

mg/L = milligrams per liter

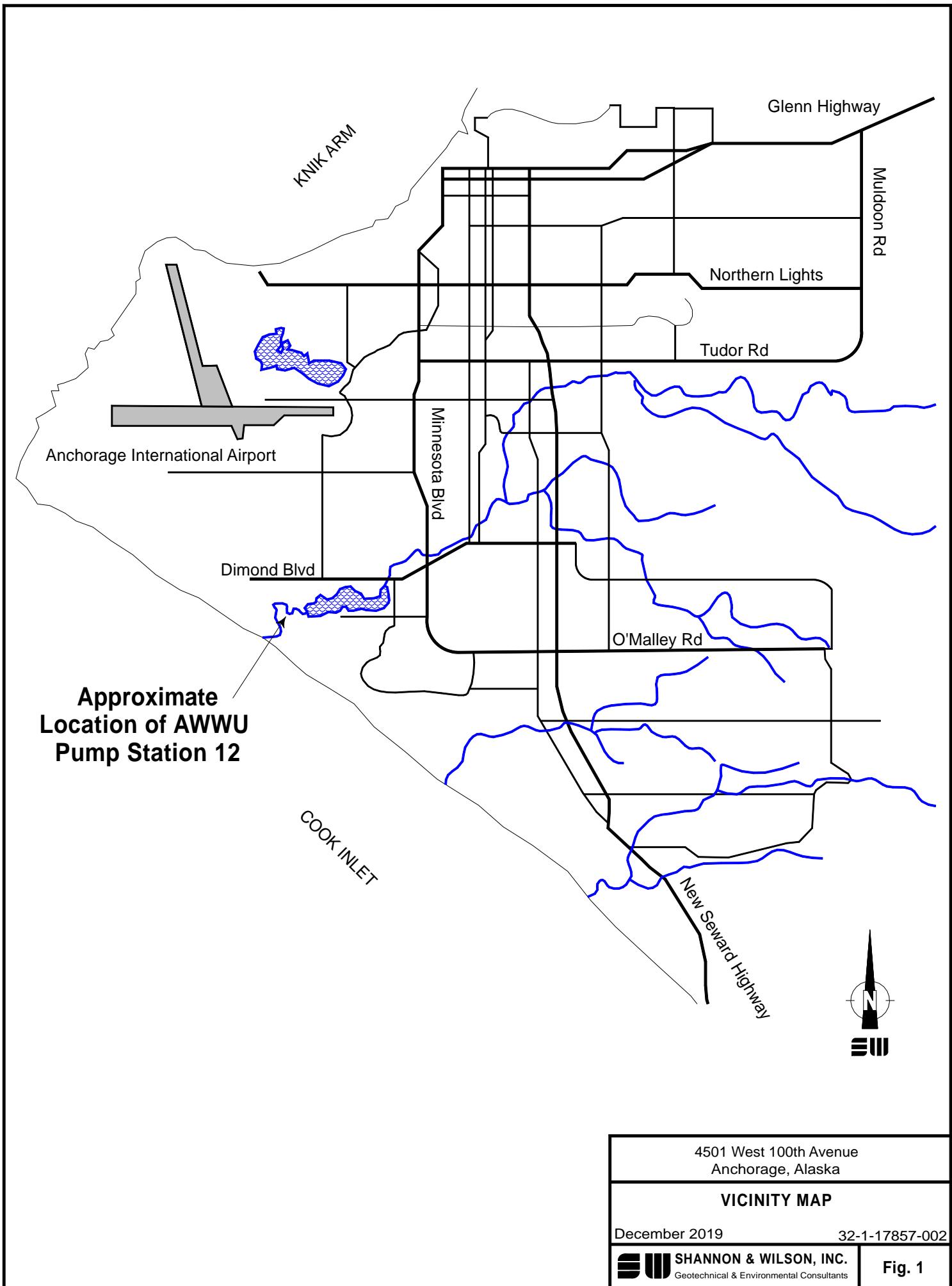
B = Analyte concentration is potentially biased low due to a surrogate recovery failure. See the LDRC for details.

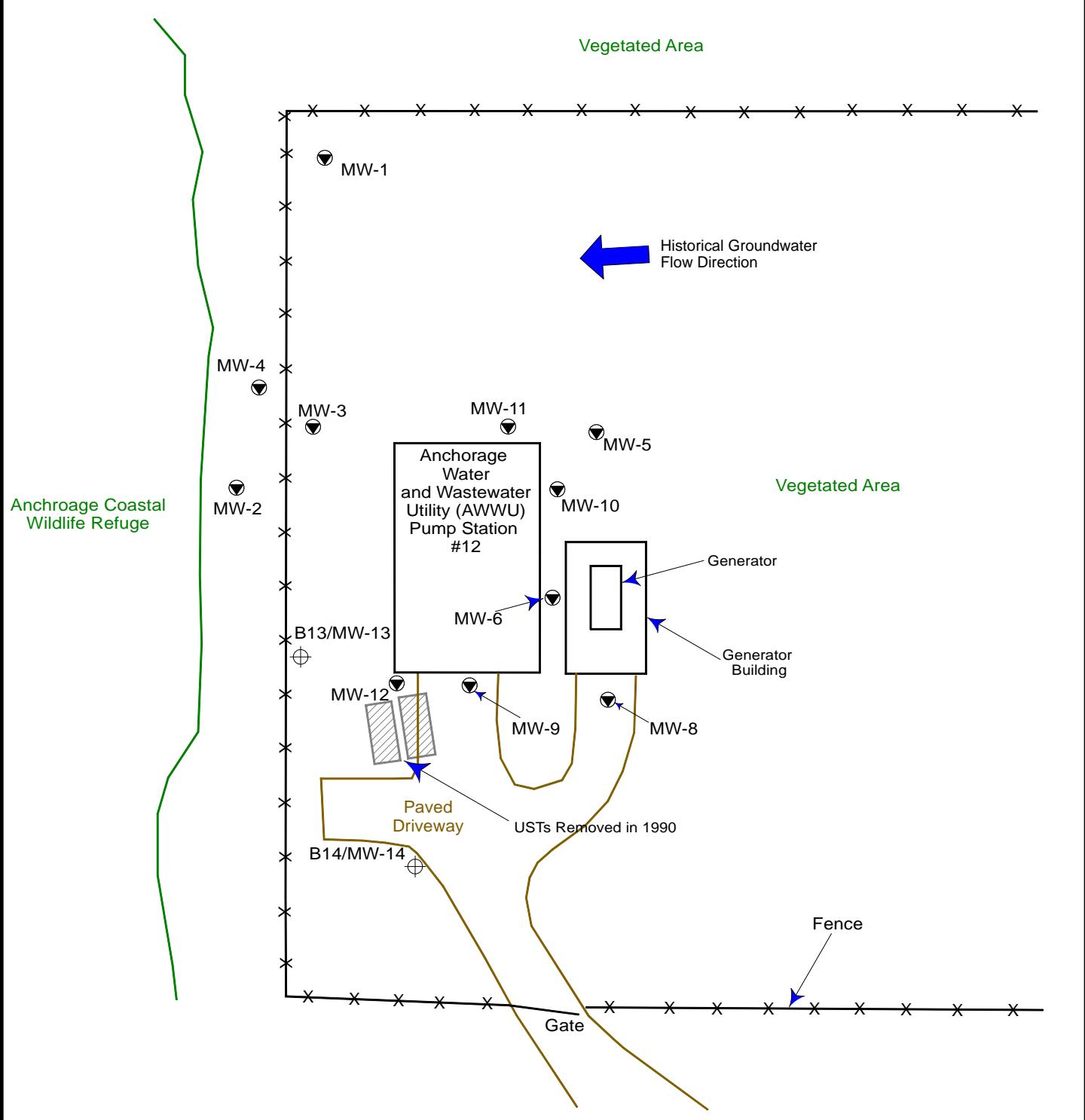
J- = Analyte concentration is potentially bias low due to a surrogate or pH failure. See the LDRC for details.

J+ = Analyte concentration is potentially bias high due to a surrogate or pH failure. See the LDRC for details.

E = results are considered estimated due to a relative percent difference (RPD) failure. See the LDRC in Appendix

J = concentration is an estimate less than the laboratory limit of quantitation (LOQ). See the SGS laboratory report for details.





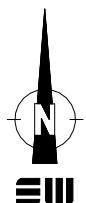
LEGEND

B13/MW-13 Approximate location of Boring B13 and Monitoring Well MW-13 advanced/installed by Shannon & Wilson in June 2019.

0 40 80
APPROXIMATE SCALE IN FEET

MW-1 Approximate location of Monitoring Well MW-1.

UST Underground Storage Tank



4501 West 100th Avenue
Anchorage, Alaska

SITE PLAN

December 2019

32-1-17857-002

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 2

SHANNON & WILSON, INC.

APPENDIX A
SITE PHOTOGRAPHS



Photo 1: Looking northwest during the advancement of Boring B13. (June 19, 2019)



Photo 2: Looking southwest while installing Monitoring Well MW-14. (June 19, 2019)

4501 West 100th Avenue,
Anchorage, Alaska

PHOTOS 1 AND 2

December 2019

32-1-17857-001



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A-1



Photo 3: Looking south at completed Monitoring Well MW-14. (June 19, 2019)

4501 West 100th Avenue,
Anchorage, Alaska

PHOTO 3

December 2019

32-1-17857-001

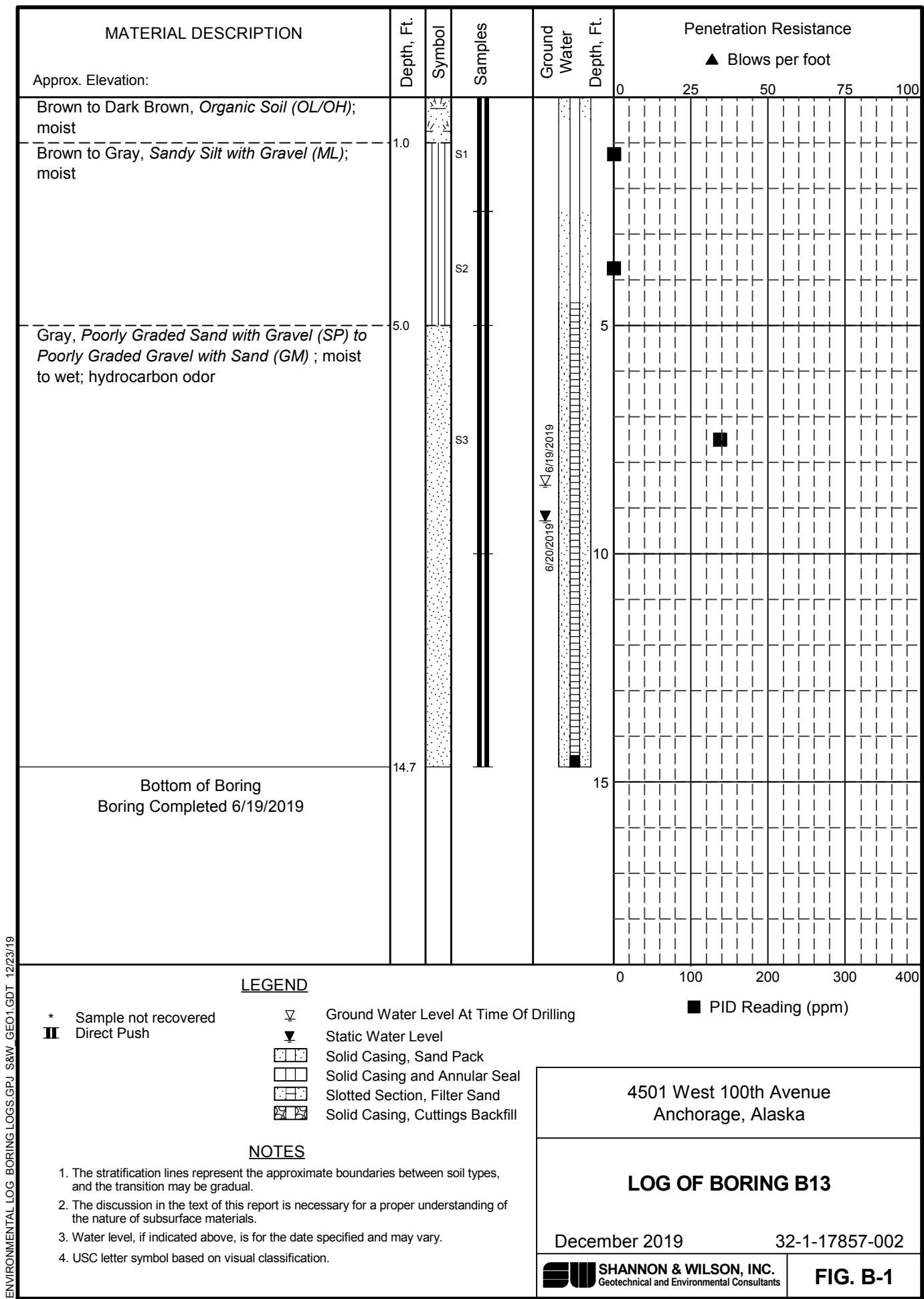


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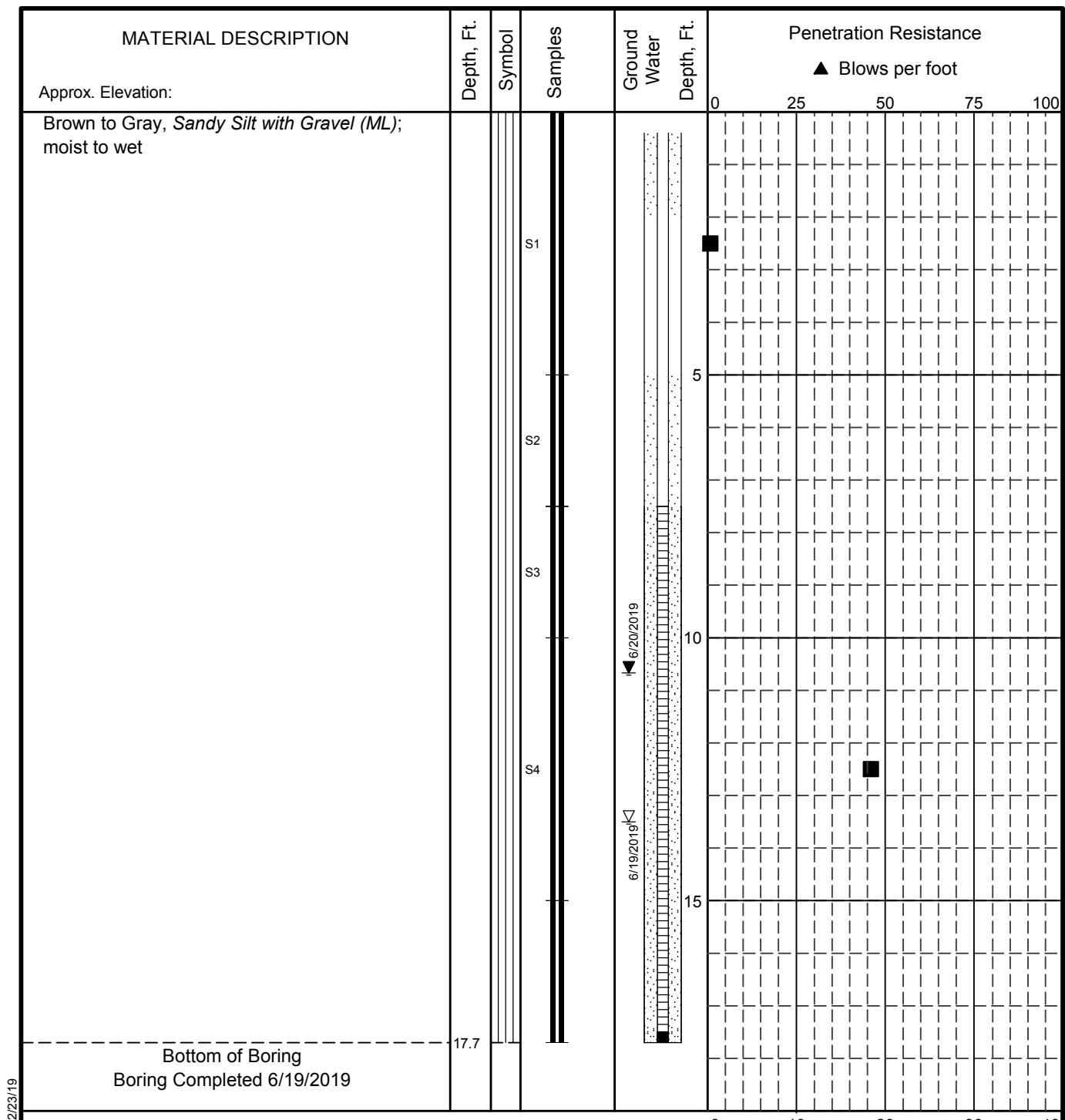
A-2

SHANNON & WILSON, INC.

APPENDIX B
BORING AND WELL COMPLETION LOGS



- NOTES**
- The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
 - The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
 - Water level, if indicated above, is for the date specified and may vary.
 - USC letter symbol based on visual classification.



ENVIRONMENTAL LOG BORING LOGS.GPJ S&W_GEO1.GDT 12/23/19

LEGEND

* Sample not recovered
II Direct Push

▽ Ground Water Level At Time Of Drilling

■ PID Reading (ppm)

-  Static Water Level
-  Solid Casing, Sand Pack
-  Solid Casing and Annular Seal
-  Slotted Section, Filter Sand
-  Solid Casing, Cuttings Backfill

NOTES

1. The stratification lines represent the approximate boundaries between soil types, and the transition may be gradual.
 2. The discussion in the text of this report is necessary for a proper understanding of the nature of subsurface materials.
 3. Water level, if indicated above, is for the date specified and may vary.
 4. USC letter symbol based on visual classification.

4501 West 100th Avenue
Anchorage, Alaska

LOG OF BORING B14

December 2019

32-1-17857-002

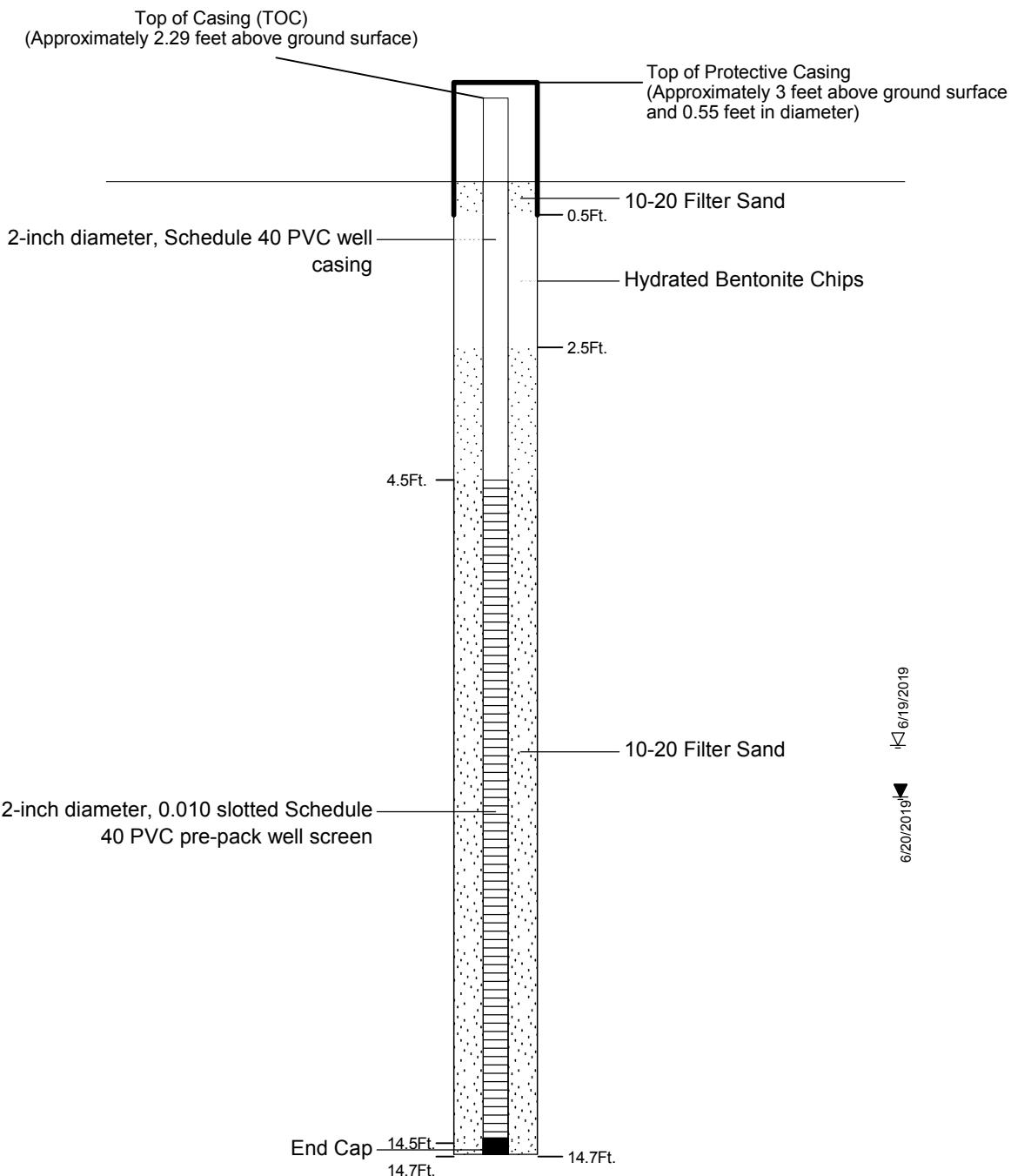


SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. B-2

Casing Description

Backfill Description



LEGEND

- ▽ Groundwater Level ATD
- ▼ Static Groundwater Level

NOTE: All joints use threaded connections.

4501 West 100th Avenue
Anchorage, Alaska

MONITORING WELL MW-13 CONSTRUCTION DETAIL

December 2019

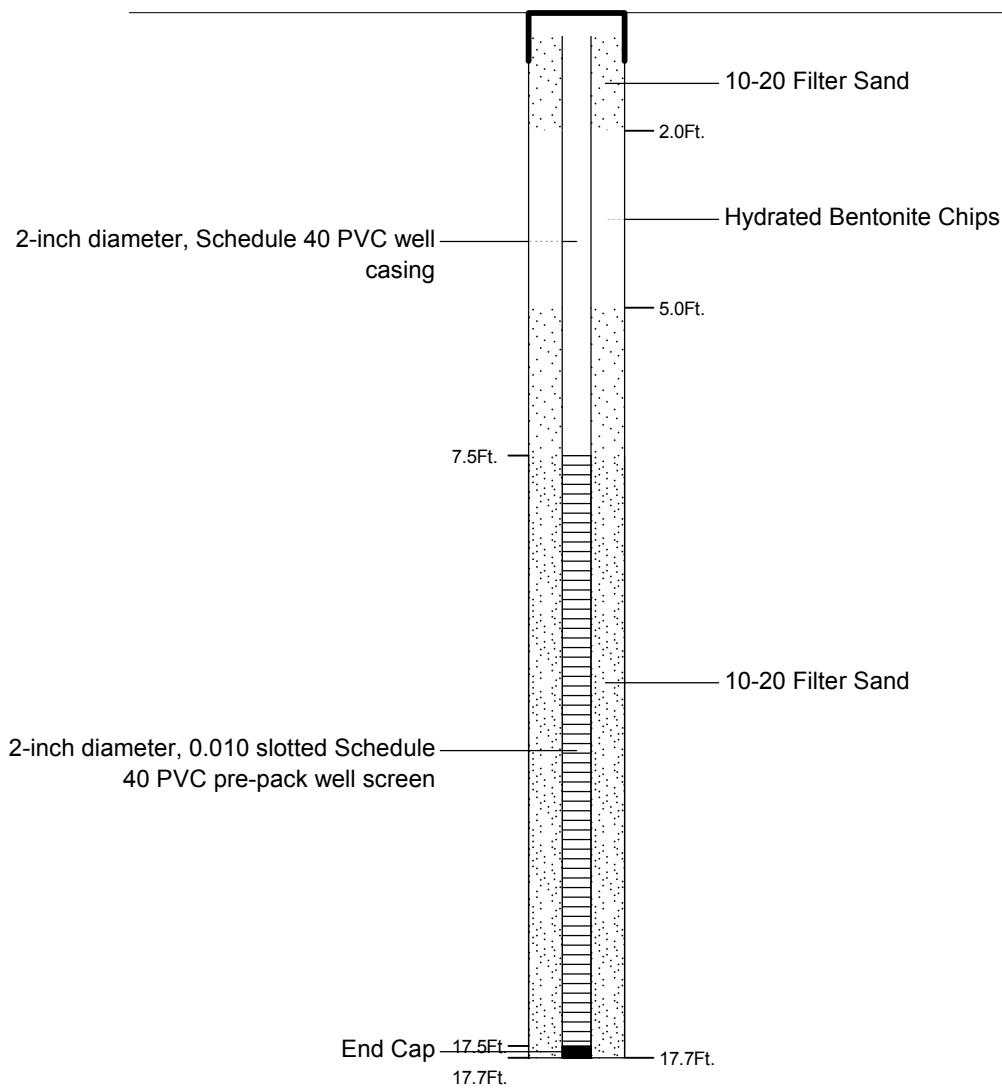
32-1-17857-002

 SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. B-3

Casing Description

Backfill Description



LEGEND

- ▽ Groundwater Level ATD
- ▼ Static Groundwater Level

NOTE: All joints use threaded connections.

4501 West 100th Avenue
Anchorage, Alaska

**MONITORING WELL MW-14
CONSTRUCTION DETAIL**

December 2019

32-1-17857-002

 SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. B-4

SHANNON & WILSON, INC.

APPENDIX C
DISPOSAL DOCUMENTATION



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

Transport, Treatment, & Disposal Approval Form for Contaminated Media

DEC HAZARD/SPILL ID #	NAME OF SPILL OR CONTAMINATED SITE	
23877	MOA-AWWU Pump Station #12	
SITE OR SPILL LOCATION		
4501 West 100th Avenue, Anchorage, Alaska		
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA		SOURCE OF THE CONTAMINATION
4501 West 100th Avenue, Anchorage, Alaska / Groundwater		Diesel AST
COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED
DRO, VOCs, PAHs	Four 55-gallon drums	April & September 2018, June 2019
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)		
NA		
COMMENTS		
Recovered water will be processed in a wastewater treatment unit at the NRC Alaska facility (2020 Viking Drive, Anchorage, AK 99501).		

Facility Accepting the Contaminated Media

NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
NRC Alaska	2020 Viking Drive, Anchorage, AK / 907.646.5073

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
AWWU	3000 Arctic Blvd. Anchorage, AK
Will O'Malley	907.564.2700

Jake Tracy

Name of the Person Requesting Approval (printed)

Jake Tracy, E.I.T.

Digitally signed by Jake Tracy, E.I.T.
DN: cn=Jake Tracy, E.I.T., o=Shannon & Wilson, Inc.,
ou=email=jct@shanwil.com, c=US
Date: 2019.10.30 15:13:43 -08'00'

Signature

Engineering Staff

Title/Association

10/30/19

907.433.3221

Date

Phone Number

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

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

Amy Rodman

DEC Project Manager Name (printed)



Signature

EPS III

Project Manager Title

10-30-19

907-465-5368

Date

Phone Number



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

Transport, Treatment, & Disposal Approval Form for Contaminated Media

DEC HAZARD/SPILL ID #	NAME OF SPILL OR CONTAMINATED SITE	
23877	MOA-AWWU Pump Station #12	
SITE OR SPILL LOCATION		
4501 West 100th Avenue, Anchorage, Alaska		
CURRENT LOCATION AND TYPE OF CONTAMINATED MEDIA		SOURCE OF THE CONTAMINATION
4501 West 100th Avenue, Anchorage, Alaska / Soil		Diesel AST
COMPOUNDS OF CONCERN	ESTIMATED VOLUME	DATE(S) GENERATED
DRO, VOCs, PAHs	Two 55-gallon drums	April & September 2018, June 2019
POST TREATMENT ANALYSIS REQUIRED (such as GRO, DRO, RRO, BTEX, and/or Chlorinated Solvents)		
NA		
COMMENTS		
Contaminated soil will be consolidated at NRC Alaska Anchorage facility, then manifested to Columbia Ridge Landfill, an EPA approved subtitle D landfill located in Arlington, OR. for final disposal.		

Facility Accepting the Contaminated Media

NAME OF THE FACILITY	PHYSICAL ADDRESS/PHONE NUMBER
Columbia Ridge Landfill	18177 Cedar Springs Ln, Arlington, OR 97812 / 541.454.2030

Responsible Party and Contractor Information

BUSINESS/NAME	ADDRESS/PHONE NUMBER
AWWU	3000 Arctic Blvd. Anchorage, AK
Will O'Malley	907.564.2700

Jake Tracy

Name of the Person Requesting Approval (printed)

Jake Tracy, E.I.T.

Digitally signed by Jake Tracy, E.I.T.
DN: cn=Jake Tracy, E.I.T., o=Shannon & Wilson, Inc.,
ou, email=jct@shawnwil.com, c=US
Date: 2019.10.30 15:51:51 -08'00'

Signature

Engineering Staff

Title/Association

10/30/19

907.433.3221

Date

Phone Number

DEC USE ONLY

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

Amy Rodman

DEC Project Manager Name (printed)

Signature

EPS III

Project Manager Title

10-30-2019

907-465-5368

Date

Phone Number

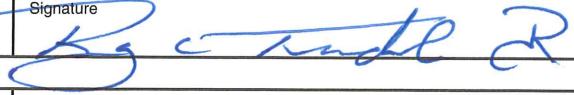
*** IN CASE OF EMERGENCY CALL 800-899-4672 ***

PO# 144988-6-3408 REM

NON-HAZARDOUS WASTE MANIFEST

AWWU

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. EXEMPT	Manifest Document No. 144988-A	2. Page 1 of 1	
3. Generator's Name and Mailing Address SHANNON & WILSON, INC. 5430 FAIRBANKS ST. #3 ANCHORAGE, AK 99518		Anchorage Water and Wastewater Utility 4501 W. 100th Ave Anchorage, AK 99515			
4. Generator's Phone (907) 261-2120		<i>32</i>			
5. Transporter 1 Company Name NRC ALASKA LLC		6. US EPA ID Number AKR000004184	A. State Transporter's ID 907-258-1558		
7. Transporter 2 Company Name		8. US EPA ID Number	C. State Transporter's ID		
9. Designated Facility Name and Site Address NRC ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501		10. US EPA ID Number AKR000004184	D. Transporter 2 Phone		
			E. State Facility's ID		
			F. Facility's Phone 907-258-1558		
11. WASTE DESCRIPTION			Containers No. Type	13. Total Quantity	
GENERATOR	a. MATERIAL NOT REGULATED BY D.O.T. (WATER)	1 DM	250	P	
	b. MATERIAL NOT REGULATED BY D.O.T.	2 DM	700	P	
	c.				
	d.				
G. Additional Descriptions for Materials Listed Above			H. Handling Codes for Wastes Listed Above		
1) EA0302 (N12726) IDW DECON WATER / GROUNDWATER 2) EA0707 IDW BORE CUTTINGS			D27275		
15. Special Handling Instructions and Additional Information					
<p>Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation</p> <hr/>					
<p>16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.</p>					
Date					
Printed/Typed Name K Lori Jones		Signature 	Month 11	Day 22	Year 19
TRANSPORTER					Date
Printed/Typed Name ROY C TRISDALE JR		Signature 	Month 11	Day 22	Year 19
FACILITY					Date
Printed/Typed Name		Signature	Month	Day	Year
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.					
Printed/Typed Name Daryl Gjurred		Signature 	Month 11	Day 26	Year 19



CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR: SHANNON & WILSON, INC.
5430 FAIRBANKS ST., #3
ANCHORAGE, AK 99518

DISPOSAL FACILITY: NRC ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE, AK 99501

EPA ID NUMBER: EXEMPT
MANIFEST/DOCUMENT #: 144988-A
DATE OF DISPOSAL/RECYCLE: NOV-26-2019

<u>LINE</u>	<u>WASTE DESCRIPTION</u>	<u>CONTAINERS</u>	<u>TYPE</u>	<u>QUANTITY</u>	<u>UOM</u>
1	IDW DECON WATER / GROUNDWATER	1	DM	250	P
2	IDW BORE CUTTINGS	2	DM	700	P

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY: Darryl Birnizer
SIGNATURE: Darryl Birnizer

DATE: NOV 26 2019

APPENDIX D

RESULTS OF ANALYTICAL TESTING BY SGS NORTH AMERICA INC.

AND

ADEC LABORATORY DATA REVIEW CHECKLISTS

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St. Suite 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1193204**

Client Project: **17857-002 Pump Station 12**

Dear Jacob Tracy,

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

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

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

Sincerely,
SGS North America Inc.

Jillian Janssen
Project Manager
Jillian.Janssen@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**

SGS Project: **1193204**

Project Name/Site: **17857-002 Pump Station 12**

Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

17857-B13S3 (1193204001) PS

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

17857-B13S13 (1193204002) PS

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

1193204001MS (1516270) MS

8260C - MS recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy requirements.

1193204001MSD (1516271) MSD

8260C - MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy requirements.

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

Print Date: 07/11/2019 11:15:18AM

SGS North America Inc.

200 West Potter Drive, Anchorage, AK 99518

t 907.562.2343 f 907.561.5301 www.us.sgs.com

Member of SGS Group

Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
SW8260C				
1193204001	17857-B13S3	VMS19118	4-Isopropyltoluene	SP
1193204001	17857-B13S3	VMS19118	Naphthalene	SP
1193204002	17857-B13S13	VMS19118	Naphthalene	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry (DW Chemistry (Provisionally Certified as of 6/20/19 for Turbidity by SM 2130B, and Copper by EPA 200.8) & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
17857-B13S3	1193204001	06/19/2019	06/19/2019	Soil/Solid (dry weight)
17857-B13S13	1193204002	06/19/2019	06/19/2019	Soil/Solid (dry weight)
17857-B14S4	1193204003	06/19/2019	06/19/2019	Soil/Solid (dry weight)
17857-STB	1193204004	06/19/2019	06/19/2019	Soil/Solid (dry weight)

Method

8270D SIM (PAH)
AK102
AK101
SM21 2540G
SW8260C

Method Description

8270 PAH SIM Semi-Volatiles GC/MS
Diesel Range Organics (S)
Gasoline Range Organics (S)
Percent Solids SM2540G
VOC 8260 (S) Field Extracted

Print Date: 07/11/2019 11:15:21AM

SGS North America Inc.

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

Member of SGS Group

Detectable Results Summary

Client Sample ID: **17857-B13S3**

Lab Sample ID: 1193204001

Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
1-Methylnaphthalene	2030	ug/Kg
2-Methylnaphthalene	533	ug/Kg
Acenaphthene	167	ug/Kg
Benzo(a)Anthracene	15.9J	ug/Kg
Benzo[a]pyrene	9.29J	ug/Kg
Benzo[b]Fluoranthene	17.7J	ug/Kg
Chrysene	16.9J	ug/Kg
Fluoranthene	56.2	ug/Kg
Fluorene	851	ug/Kg
Phenanthrene	1000	ug/Kg
Pyrene	53.5	ug/Kg
Diesel Range Organics	1800	mg/Kg
Gasoline Range Organics	11.0	mg/Kg
1,2,4-Trimethylbenzene	178	ug/Kg
4-Isopropyltoluene	149	ug/Kg
Benzene	5.03J	ug/Kg
Chloroform	0.519J	ug/Kg
Ethylbenzene	10.6J	ug/Kg
Isopropylbenzene (Cumene)	43.2	ug/Kg
Naphthalene	298	ug/Kg
n-Propylbenzene	86.8	ug/Kg
P & M -Xylene	19.4J	ug/Kg
sec-Butylbenzene	317	ug/Kg
tert-Butylbenzene	23.5	ug/Kg
Toluene	14.1J	ug/Kg
Xylenes (total)	19.4J	ug/Kg

Client Sample ID: **17857-B13S13**

Lab Sample ID: 1193204002

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	2840	mg/Kg
Gasoline Range Organics	11.2	mg/Kg
1,2,4-Trimethylbenzene	189	ug/Kg
4-Isopropyltoluene	460	ug/Kg
Benzene	3.88J	ug/Kg
Ethylbenzene	7.91J	ug/Kg
Isopropylbenzene (Cumene)	53.9	ug/Kg
Naphthalene	310	ug/Kg
n-Propylbenzene	85.6	ug/Kg
P & M -Xylene	14.9J	ug/Kg
sec-Butylbenzene	302	ug/Kg
tert-Butylbenzene	22.3	ug/Kg
Trichloroethene	2.32J	ug/Kg

Print Date: 07/11/2019 11:15:22AM

SGS North America Inc.

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

Member of SGS Group

Detectable Results Summary

Client Sample ID: **17857-B14S4**

Lab Sample ID: 1193204003

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	54.7	mg/Kg
Gasoline Range Organics	1.46J	mg/Kg
1,2,4-Trimethylbenzene	19.8J	ug/Kg
1,3,5-Trimethylbenzene	11.7J	ug/Kg
Ethylbenzene	13.4J	ug/Kg
Naphthalene	23.7J	ug/Kg
n-Propylbenzene	9.87J	ug/Kg
o-Xylene	11.1J	ug/Kg
sec-Butylbenzene	9.18J	ug/Kg

Client Sample ID: **17857-STB**

Lab Sample ID: 1193204004

Volatile GC/MS

Parameter	Result	Units
Chloroform	0.840J	ug/Kg

Print Date: 07/11/2019 11:15:22AM

SGS North America Inc.

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

Member of SGS Group

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204001
 Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 91.9
 Location:

Results by Polynuclear Aromatics GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1-Methylnaphthalene	2030	109	27.2	6.80	ug/Kg	4		07/02/19 12:21
2-Methylnaphthalene	533		27.2	6.80	ug/Kg	1		06/27/19 13:34
Acenaphthene	167		27.2	6.80	ug/Kg	1		06/27/19 13:34
Acenaphthylene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Anthracene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Benzo(a)Anthracene	15.9 J		27.2	6.80	ug/Kg	1		06/27/19 13:34
Benzo[a]pyrene	9.29 J		27.2	6.80	ug/Kg	1		06/27/19 13:34
Benzo[b]Fluoranthene	17.7 J		27.2	6.80	ug/Kg	1		06/27/19 13:34
Benzo[g,h,i]perylene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Benzo[k]fluoranthene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Chrysene	16.9 J		27.2	6.80	ug/Kg	1		06/27/19 13:34
Dibenz[a,h]anthracene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Fluoranthene	56.2		27.2	6.80	ug/Kg	1		06/27/19 13:34
Fluorene	851		109	27.2	ug/Kg	4		07/02/19 12:21
Indeno[1,2,3-c,d] pyrene	13.6 U		27.2	6.80	ug/Kg	1		06/27/19 13:34
Naphthalene	10.9 U		21.8	5.44	ug/Kg	1		06/27/19 13:34
Phenanthrene	1000		109	27.2	ug/Kg	4		07/02/19 12:21
Pyrene	53.5		27.2	6.80	ug/Kg	1		06/27/19 13:34

Surrogates

2-Methylnaphthalene-d10 (surr)	61	58-103	%	1	06/27/19 13:34
Fluoranthene-d10 (surr)	72.4	54-113	%	1	06/27/19 13:34

Batch Information

Analytical Batch: XMS11486
 Analytical Method: 8270D SIM (PAH)
 Analyst: DSD
 Analytical Date/Time: 07/02/19 12:21
 Container ID: 1193204001-A

Prep Batch: XXX41638
 Prep Method: SW3550C
 Prep Date/Time: 06/24/19 07:17
 Prep Initial Wt./Vol.: 22.514 g
 Prep Extract Vol: 5 mL

Analytical Batch: XMS11477
 Analytical Method: 8270D SIM (PAH)
 Analyst: BMZ
 Analytical Date/Time: 06/27/19 13:34
 Container ID: 1193204001-A

Prep Batch: XXX41638
 Prep Method: SW3550C
 Prep Date/Time: 06/24/19 07:17
 Prep Initial Wt./Vol.: 22.514 g
 Prep Extract Vol: 5 mL

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204001
Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 91.9
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1800	21.6	6.69	mg/Kg	1		06/27/19 10:26

Surrogates

5a Androstane (surr)	105	50-150	%	1	06/27/19 10:26
----------------------	-----	--------	---	---	----------------

Batch Information

Analytical Batch: XFC15084
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 10:26
Container ID: 1193204001-A

Prep Batch: XXX41654
Prep Method: SW3550C
Prep Date/Time: 06/25/19 12:59
Prep Initial Wt./Vol.: 30.274 g
Prep Extract Vol: 5 mL

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204001
Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 91.9
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	11.0		1.95	0.586	mg/Kg	1		06/20/19 15:51

Surrogates

4-Bromofluorobenzene (surr)	429	*	50-150	%	1	06/20/19 15:51
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Batch Information

Analytical Batch: VFC14794

Prep Batch: VXX34307

Analytical Method: AK101

Prep Method: SW5035A

Analyst: ST

Prep Date/Time: 06/19/19 11:16

Analytical Date/Time: 06/20/19 15:51

Prep Initial Wt./Vol.: 89.98 g

Container ID: 1193204001-B

Prep Extract Vol: 32.3154 mL

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204001
 Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 91.9
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	7.80	U	15.6	4.85	ug/Kg	1		07/01/19 13:09
1,1,1-Trichloroethane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,1,2,2-Tetrachloroethane	0.780	U	1.56	0.485	ug/Kg	1		07/01/19 13:09
1,1,2-Trichloroethane	0.313	U	0.625	0.195	ug/Kg	1		07/01/19 13:09
1,1-Dichloroethane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,1-Dichloroethene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,1-Dichloropropene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,2,3-Trichlorobenzene	19.6	U	39.1	11.7	ug/Kg	1		07/01/19 13:09
1,2,3-Trichloropropane	0.391	U	0.782	0.242	ug/Kg	1		07/01/19 13:09
1,2,4-Trichlorobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,2,4-Trimethylbenzene	178		39.1	11.7	ug/Kg	1		07/01/19 13:09
1,2-Dibromo-3-chloropropane	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
1,2-Dibromoethane	0.391	U	0.782	0.242	ug/Kg	1		07/01/19 13:09
1,2-Dichlorobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,2-Dichloroethane	0.780	U	1.56	0.485	ug/Kg	1		07/01/19 13:09
1,2-Dichloropropane	3.91	U	7.82	2.42	ug/Kg	1		07/01/19 13:09
1,3,5-Trimethylbenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,3-Dichlorobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
1,3-Dichloropropane	3.91	U	7.82	2.42	ug/Kg	1		07/01/19 13:09
1,4-Dichlorobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
2,2-Dichloropropane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
2-Butanone (MEK)	97.5	U	195	61.0	ug/Kg	1		07/01/19 13:09
2-Chlorotoluene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
2-Hexanone	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
4-Chlorotoluene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
4-Isopropyltoluene	149		78.2	19.5	ug/Kg	1		07/01/19 13:09
4-Methyl-2-pentanone (MIBK)	97.5	U	195	61.0	ug/Kg	1		07/01/19 13:09
Acetone	97.5	U	195	61.0	ug/Kg	1		07/01/19 13:09
Benzene	5.03	J	9.77	3.05	ug/Kg	1		07/01/19 13:09
Bromobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
Bromochloromethane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
Bromodichloromethane	0.780	U	1.56	0.485	ug/Kg	1		07/01/19 13:09
Bromoform	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
Bromomethane	7.80	U	15.6	4.85	ug/Kg	1		07/01/19 13:09
Carbon disulfide	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
Carbon tetrachloride	4.88	U	9.77	3.05	ug/Kg	1		07/01/19 13:09
Chlorobenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09

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J flagging is activated

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204001
 Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 91.9
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	78.0	U	156	48.5	ug/Kg	1		07/01/19 13:09
Chloroform	0.519	J	1.56	0.485	ug/Kg	1		07/01/19 13:09
Chloromethane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
cis-1,2-Dichloroethene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
cis-1,3-Dichloropropene	4.88	U	9.77	3.05	ug/Kg	1		07/01/19 13:09
Dibromochloromethane	0.780	U	1.56	0.485	ug/Kg	1		07/01/19 13:09
Dibromomethane	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
Dichlorodifluoromethane	19.6	U	39.1	11.7	ug/Kg	1		07/01/19 13:09
Ethylbenzene	10.6	J	19.5	6.10	ug/Kg	1		07/01/19 13:09
Freon-113	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
Hexachlorobutadiene	7.80	U	15.6	4.85	ug/Kg	1		07/01/19 13:09
Isopropylbenzene (Cumene)	43.2		19.5	6.10	ug/Kg	1		07/01/19 13:09
Methylene chloride	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
Methyl-t-butyl ether	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
Naphthalene	298		19.5	6.10	ug/Kg	1		07/01/19 13:09
n-Butylbenzene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
n-Propylbenzene	86.8		19.5	6.10	ug/Kg	1		07/01/19 13:09
o-Xylene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
P & M -Xylene	19.4	J	39.1	11.7	ug/Kg	1		07/01/19 13:09
sec-Butylbenzene	317		19.5	6.10	ug/Kg	1		07/01/19 13:09
Styrene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
tert-Butylbenzene	23.5		19.5	6.10	ug/Kg	1		07/01/19 13:09
Tetrachloroethene	4.88	U	9.77	3.05	ug/Kg	1		07/01/19 13:09
Toluene	14.1	J	19.5	6.10	ug/Kg	1		07/01/19 13:09
trans-1,2-Dichloroethene	9.75	U	19.5	6.10	ug/Kg	1		07/01/19 13:09
trans-1,3-Dichloropropene	4.88	U	9.77	3.05	ug/Kg	1		07/01/19 13:09
Trichloroethene	1.96	U	3.91	1.17	ug/Kg	1		07/01/19 13:09
Trichlorofluoromethane	19.6	U	39.1	11.7	ug/Kg	1		07/01/19 13:09
Vinyl acetate	39.1	U	78.2	24.2	ug/Kg	1		07/01/19 13:09
Vinyl chloride	0.313	U	0.625	0.195	ug/Kg	1		07/01/19 13:09
Xylenes (total)	19.4	J	58.6	17.8	ug/Kg	1		07/01/19 13:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	114		71-136		%	1		07/01/19 13:09
4-Bromofluorobenzene (surr)	110		55-151		%	1		07/01/19 13:09
Toluene-d8 (surr)	99.8		85-116		%	1		07/01/19 13:09

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J flagging is activated

Results of 17857-B13S3

Client Sample ID: 17857-B13S3
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204001
Lab Project ID: 1193204

Collection Date: 06/19/19 11:16
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 91.9
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 13:09
Container ID: 1193204001-B

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 11:16
Prep Initial Wt./Vol.: 89.98 g
Prep Extract Vol: 32.3154 mL

Results of 17857-B13S13

Client Sample ID: **17857-B13S13**
Client Project ID: **17857-002 Pump Station 12**
Lab Sample ID: 1193204002
Lab Project ID: 1193204

Collection Date: 06/19/19 11:45
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 94.1
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2840		21.1	6.55	mg/Kg	1		06/27/19 10:35

Surrogates

5a Androstane (surr)	107	50-150	%	1	06/27/19 10:35
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Batch Information

Analytical Batch: XFC15084
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 10:35
Container ID: 1193204002-A

Prep Batch: XXX41654
Prep Method: SW3550C
Prep Date/Time: 06/25/19 12:59
Prep Initial Wt./Vol.: 30.177 g
Prep Extract Vol: 5 mL

Results of 17857-B13S13

Client Sample ID: **17857-B13S13**
Client Project ID: **17857-002 Pump Station 12**
Lab Sample ID: 1193204002
Lab Project ID: 1193204

Collection Date: 06/19/19 11:45
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 94.1
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	11.2		1.83	0.550	mg/Kg	1		06/20/19 16:08

Surrogates

4-Bromofluorobenzene (surr)	390	*	50-150	%	1	06/20/19 16:08
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Batch Information

Analytical Batch: VFC14794
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/20/19 16:08
Container ID: 1193204002-B

Prep Batch: VXX34307
Prep Method: SW5035A
Prep Date/Time: 06/19/19 11:45
Prep Initial Wt./Vol.: 87.61 g
Prep Extract Vol: 30.1951 mL

Results of 17857-B13S13

Client Sample ID: **17857-B13S13**
 Client Project ID: **17857-002 Pump Station 12**
 Lab Sample ID: 1193204002
 Lab Project ID: 1193204

Collection Date: 06/19/19 11:45
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 94.1
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	7.35 U	14.7	4.54	ug/Kg	1			07/01/19 13:25
1,1,1-Trichloroethane	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,1,2,2-Tetrachloroethane	0.735 U	1.47	0.454	ug/Kg	1			07/01/19 13:25
1,1,2-Trichloroethane	0.293 U	0.586	0.183	ug/Kg	1			07/01/19 13:25
1,1-Dichloroethane	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,1-Dichloroethene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,1-Dichloropropene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,2,3-Trichlorobenzene	18.3 U	36.6	11.0	ug/Kg	1			07/01/19 13:25
1,2,3-Trichloropropane	0.366 U	0.733	0.227	ug/Kg	1			07/01/19 13:25
1,2,4-Trichlorobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,2,4-Trimethylbenzene	189	36.6	11.0	ug/Kg	1			07/01/19 13:25
1,2-Dibromo-3-chloropropane	36.6 U	73.3	22.7	ug/Kg	1			07/01/19 13:25
1,2-Dibromoethane	0.366 U	0.733	0.227	ug/Kg	1			07/01/19 13:25
1,2-Dichlorobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,2-Dichloroethane	0.735 U	1.47	0.454	ug/Kg	1			07/01/19 13:25
1,2-Dichloropropane	3.67 U	7.33	2.27	ug/Kg	1			07/01/19 13:25
1,3,5-Trimethylbenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,3-Dichlorobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
1,3-Dichloropropane	3.67 U	7.33	2.27	ug/Kg	1			07/01/19 13:25
1,4-Dichlorobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
2,2-Dichloropropane	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
2-Butanone (MEK)	91.5 U	183	57.2	ug/Kg	1			07/01/19 13:25
2-Chlorotoluene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
2-Hexanone	36.6 U	73.3	22.7	ug/Kg	1			07/01/19 13:25
4-Chlorotoluene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
4-Isopropyltoluene	460	73.3	18.3	ug/Kg	1			07/01/19 13:25
4-Methyl-2-pentanone (MIBK)	91.5 U	183	57.2	ug/Kg	1			07/01/19 13:25
Acetone	91.5 U	183	57.2	ug/Kg	1			07/01/19 13:25
Benzene	3.88 J	9.16	2.86	ug/Kg	1			07/01/19 13:25
Bromobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
Bromochloromethane	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
Bromodichloromethane	0.735 U	1.47	0.454	ug/Kg	1			07/01/19 13:25
Bromoform	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25
Bromomethane	7.35 U	14.7	4.54	ug/Kg	1			07/01/19 13:25
Carbon disulfide	36.6 U	73.3	22.7	ug/Kg	1			07/01/19 13:25
Carbon tetrachloride	4.58 U	9.16	2.86	ug/Kg	1			07/01/19 13:25
Chlorobenzene	9.15 U	18.3	5.72	ug/Kg	1			07/01/19 13:25

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J flagging is activated

Results of 17857-B13S13

Client Sample ID: 17857-B13S13
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204002
 Lab Project ID: 1193204

Collection Date: 06/19/19 11:45
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 94.1
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	73.5 U		147	45.4	ug/Kg	1		07/01/19 13:25
Chloroform	0.735 U		1.47	0.454	ug/Kg	1		07/01/19 13:25
Chloromethane	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
cis-1,2-Dichloroethene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
cis-1,3-Dichloropropene	4.58 U		9.16	2.86	ug/Kg	1		07/01/19 13:25
Dibromochloromethane	0.735 U		1.47	0.454	ug/Kg	1		07/01/19 13:25
Dibromomethane	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
Dichlorodifluoromethane	18.3 U		36.6	11.0	ug/Kg	1		07/01/19 13:25
Ethylbenzene	7.91 J		18.3	5.72	ug/Kg	1		07/01/19 13:25
Freon-113	36.6 U		73.3	22.7	ug/Kg	1		07/01/19 13:25
Hexachlorobutadiene	7.35 U		14.7	4.54	ug/Kg	1		07/01/19 13:25
Isopropylbenzene (Cumene)	53.9		18.3	5.72	ug/Kg	1		07/01/19 13:25
Methylene chloride	36.6 U		73.3	22.7	ug/Kg	1		07/01/19 13:25
Methyl-t-butyl ether	36.6 U		73.3	22.7	ug/Kg	1		07/01/19 13:25
Naphthalene	310		18.3	5.72	ug/Kg	1		07/01/19 13:25
n-Butylbenzene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
n-Propylbenzene	85.6		18.3	5.72	ug/Kg	1		07/01/19 13:25
o-Xylene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
P & M -Xylene	14.9 J		36.6	11.0	ug/Kg	1		07/01/19 13:25
sec-Butylbenzene	302		18.3	5.72	ug/Kg	1		07/01/19 13:25
Styrene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
tert-Butylbenzene	22.3		18.3	5.72	ug/Kg	1		07/01/19 13:25
Tetrachloroethene	4.58 U		9.16	2.86	ug/Kg	1		07/01/19 13:25
Toluene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
trans-1,2-Dichloroethene	9.15 U		18.3	5.72	ug/Kg	1		07/01/19 13:25
trans-1,3-Dichloropropene	4.58 U		9.16	2.86	ug/Kg	1		07/01/19 13:25
Trichloroethene	2.32 J		3.66	1.10	ug/Kg	1		07/01/19 13:25
Trichlorofluoromethane	18.3 U		36.6	11.0	ug/Kg	1		07/01/19 13:25
Vinyl acetate	36.6 U		73.3	22.7	ug/Kg	1		07/01/19 13:25
Vinyl chloride	0.293 U		0.586	0.183	ug/Kg	1		07/01/19 13:25
Xylenes (total)	27.5 U		55.0	16.7	ug/Kg	1		07/01/19 13:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		71-136		%	1		07/01/19 13:25
4-Bromofluorobenzene (surr)	95.2		55-151		%	1		07/01/19 13:25
Toluene-d8 (surr)	102		85-116		%	1		07/01/19 13:25

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J flagging is activated

Results of 17857-B13S13

Client Sample ID: 17857-B13S13
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204002
Lab Project ID: 1193204

Collection Date: 06/19/19 11:45
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 94.1
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 13:25
Container ID: 1193204002-B

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 11:45
Prep Initial Wt./Vol.: 87.61 g
Prep Extract Vol: 30.1951 mL

Results of 17857-B14S4

Client Sample ID: 17857-B14S4
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204003
Lab Project ID: 1193204

Collection Date: 06/19/19 13:00
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 84.2
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	54.7	23.6	7.31	mg/Kg	1		06/27/19 10:46

Surrogates

5a Androstane (surr)	96.4	50-150	%	1	06/27/19 10:46
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Batch Information

Analytical Batch: XFC15084
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 10:46
Container ID: 1193204003-A

Prep Batch: XXX41654
Prep Method: SW3550C
Prep Date/Time: 06/25/19 12:59
Prep Initial Wt./Vol.: 30.197 g
Prep Extract Vol: 5 mL

Results of 17857-B14S4

Client Sample ID: 17857-B14S4
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204003
Lab Project ID: 1193204

Collection Date: 06/19/19 13:00
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 84.2
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.46 J	2.86	0.857	mg/Kg	1		06/20/19 16:43

Surrogates

4-Bromofluorobenzene (surr)	133	50-150	%	1	06/20/19 16:43
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Batch Information

Analytical Batch: VFC14794

Prep Batch: VXX34307

Analytical Method: AK101

Prep Method: SW5035A

Analyst: ST

Prep Date/Time: 06/19/19 13:00

Analytical Date/Time: 06/20/19 16:43

Prep Initial Wt./Vol.: 77.329 g

Container ID: 1193204003-B

Prep Extract Vol: 37.2127 mL

Results of 17857-B14S4

Client Sample ID: 17857-B14S4
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204003
 Lab Project ID: 1193204

Collection Date: 06/19/19 13:00
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 84.2
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	11.4 U	22.9	7.09	ug/Kg	1			07/01/19 13:41
1,1,1-Trichloroethane	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,1,2,2-Tetrachloroethane	1.15 U	2.29	0.709	ug/Kg	1			07/01/19 13:41
1,1,2-Trichloroethane	0.457 U	0.914	0.286	ug/Kg	1			07/01/19 13:41
1,1-Dichloroethane	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,1-Dichloroethene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,1-Dichloropropene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,2,3-Trichlorobenzene	28.6 U	57.1	17.1	ug/Kg	1			07/01/19 13:41
1,2,3-Trichloropropane	0.570 U	1.14	0.354	ug/Kg	1			07/01/19 13:41
1,2,4-Trichlorobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,2,4-Trimethylbenzene	19.8 J	57.1	17.1	ug/Kg	1			07/01/19 20:08
1,2-Dibromo-3-chloropropane	57.0 U	114	35.4	ug/Kg	1			07/01/19 13:41
1,2-Dibromoethane	0.570 U	1.14	0.354	ug/Kg	1			07/01/19 13:41
1,2-Dichlorobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,2-Dichloroethane	1.15 U	2.29	0.709	ug/Kg	1			07/01/19 13:41
1,2-Dichloropropane	5.70 U	11.4	3.54	ug/Kg	1			07/01/19 13:41
1,3,5-Trimethylbenzene	11.7 J	28.6	8.92	ug/Kg	1			07/01/19 20:08
1,3-Dichlorobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
1,3-Dichloropropane	5.70 U	11.4	3.54	ug/Kg	1			07/01/19 13:41
1,4-Dichlorobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
2,2-Dichloropropane	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
2-Butanone (MEK)	143 U	286	89.2	ug/Kg	1			07/01/19 13:41
2-Chlorotoluene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
2-Hexanone	57.0 U	114	35.4	ug/Kg	1			07/01/19 13:41
4-Chlorotoluene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
4-Isopropyltoluene	57.0 U	114	28.6	ug/Kg	1			07/01/19 13:41
4-Methyl-2-pentanone (MIBK)	143 U	286	89.2	ug/Kg	1			07/01/19 13:41
Acetone	143 U	286	89.2	ug/Kg	1			07/01/19 13:41
Benzene	7.15 U	14.3	4.46	ug/Kg	1			07/01/19 13:41
Bromobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
Bromochloromethane	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
Bromodichloromethane	1.15 U	2.29	0.709	ug/Kg	1			07/01/19 13:41
Bromoform	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41
Bromomethane	11.4 U	22.9	7.09	ug/Kg	1			07/01/19 13:41
Carbon disulfide	57.0 U	114	35.4	ug/Kg	1			07/01/19 13:41
Carbon tetrachloride	7.15 U	14.3	4.46	ug/Kg	1			07/01/19 13:41
Chlorobenzene	14.3 U	28.6	8.92	ug/Kg	1			07/01/19 13:41

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J flagging is activated

Results of 17857-B14S4

Client Sample ID: 17857-B14S4
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204003
 Lab Project ID: 1193204

Collection Date: 06/19/19 13:00
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%): 84.2
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	115	U	229	70.9	ug/Kg	1		07/01/19 13:41
Chloroform	1.15	U	2.29	0.709	ug/Kg	1		07/01/19 13:41
Chloromethane	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
cis-1,2-Dichloroethene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
cis-1,3-Dichloropropene	7.15	U	14.3	4.46	ug/Kg	1		07/01/19 13:41
Dibromochloromethane	1.15	U	2.29	0.709	ug/Kg	1		07/01/19 13:41
Dibromomethane	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
Dichlorodifluoromethane	28.6	U	57.1	17.1	ug/Kg	1		07/01/19 13:41
Ethylbenzene	13.4	J	28.6	8.92	ug/Kg	1		07/01/19 20:08
Freon-113	57.0	U	114	35.4	ug/Kg	1		07/01/19 13:41
Hexachlorobutadiene	11.4	U	22.9	7.09	ug/Kg	1		07/01/19 13:41
Isopropylbenzene (Cumene)	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
Methylene chloride	57.0	U	114	35.4	ug/Kg	1		07/01/19 13:41
Methyl-t-butyl ether	57.0	U	114	35.4	ug/Kg	1		07/01/19 13:41
Naphthalene	23.7	J	28.6	8.92	ug/Kg	1		07/01/19 20:08
n-Butylbenzene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
n-Propylbenzene	9.87	J	28.6	8.92	ug/Kg	1		07/01/19 20:08
o-Xylene	11.1	J	28.6	8.92	ug/Kg	1		07/01/19 20:08
P & M -Xylene	28.6	U	57.1	17.1	ug/Kg	1		07/01/19 20:08
sec-Butylbenzene	9.18	J	28.6	8.92	ug/Kg	1		07/01/19 20:08
Styrene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
tert-Butylbenzene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
Tetrachloroethene	7.15	U	14.3	4.46	ug/Kg	1		07/01/19 13:41
Toluene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
trans-1,2-Dichloroethene	14.3	U	28.6	8.92	ug/Kg	1		07/01/19 13:41
trans-1,3-Dichloropropene	7.15	U	14.3	4.46	ug/Kg	1		07/01/19 13:41
Trichloroethene	2.86	U	5.71	1.71	ug/Kg	1		07/01/19 13:41
Trichlorofluoromethane	28.6	U	57.1	17.1	ug/Kg	1		07/01/19 13:41
Vinyl acetate	57.0	U	114	35.4	ug/Kg	1		07/01/19 13:41
Vinyl chloride	0.457	U	0.914	0.286	ug/Kg	1		07/01/19 13:41
Xylenes (total)	42.9	U	85.7	26.1	ug/Kg	1		07/01/19 20:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		07/01/19 13:41
4-Bromofluorobenzene (surr)	98		55-151		%	1		07/01/19 13:41
Toluene-d8 (surr)	99.2		85-116		%	1		07/01/19 13:41

Print Date: 07/11/2019 11:15:23AM

J flagging is activated

Results of 17857-B14S4

Client Sample ID: 17857-B14S4
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204003
Lab Project ID: 1193204

Collection Date: 06/19/19 13:00
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%): 84.2
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 13:41
Container ID: 1193204003-B

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 13:00
Prep Initial Wt./Vol.: 77.329 g
Prep Extract Vol: 37.2127 mL

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 20:08
Container ID: 1193204003-B

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 13:00
Prep Initial Wt./Vol.: 77.329 g
Prep Extract Vol: 37.2127 mL

Results of 17857-STB

Client Sample ID: **17857-STB**
Client Project ID: **17857-002 Pump Station 12**
Lab Sample ID: 1193204004
Lab Project ID: 1193204

Collection Date: 06/19/19 09:00
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.25 U	2.50	0.751	mg/Kg	1		06/20/19 11:45

Surrogates

4-Bromofluorobenzene (surr)	88	50-150	%	1	06/20/19 11:45
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Batch Information

Analytical Batch: VFC14794
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/20/19 11:45
Container ID: 1193204004-A

Prep Batch: VXX34307
Prep Method: SW5035A
Prep Date/Time: 06/19/19 09:00
Prep Initial Wt./Vol.: 49.912 g
Prep Extract Vol: 25 mL

Results of 17857-STB

Client Sample ID: 17857-STB
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204004
 Lab Project ID: 1193204

Collection Date: 06/19/19 09:00
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	10.0	U	20.0	6.21	ug/Kg	1		07/01/19 12:05
1,1,1-Trichloroethane	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,1,2,2-Tetrachloroethane	1.00	U	2.00	0.621	ug/Kg	1		07/01/19 12:05
1,1,2-Trichloroethane	0.401	U	0.801	0.250	ug/Kg	1		07/01/19 12:05
1,1-Dichloroethane	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,1-Dichloroethene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,1-Dichloropropene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,2,3-Trichlorobenzene	25.1	U	50.1	15.0	ug/Kg	1		07/01/19 12:05
1,2,3-Trichloropropane	0.500	U	1.00	0.311	ug/Kg	1		07/01/19 12:05
1,2,4-Trichlorobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,2,4-Trimethylbenzene	25.1	U	50.1	15.0	ug/Kg	1		07/01/19 12:05
1,2-Dibromo-3-chloropropane	50.0	U	100	31.1	ug/Kg	1		07/01/19 12:05
1,2-Dibromoethane	0.500	U	1.00	0.311	ug/Kg	1		07/01/19 12:05
1,2-Dichlorobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,2-Dichloroethane	1.00	U	2.00	0.621	ug/Kg	1		07/01/19 12:05
1,2-Dichloropropane	5.00	U	10.0	3.11	ug/Kg	1		07/01/19 12:05
1,3,5-Trimethylbenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,3-Dichlorobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
1,3-Dichloropropane	5.00	U	10.0	3.11	ug/Kg	1		07/01/19 12:05
1,4-Dichlorobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
2,2-Dichloropropane	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
2-Butanone (MEK)	125	U	250	78.1	ug/Kg	1		07/01/19 12:05
2-Chlorotoluene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
2-Hexanone	50.0	U	100	31.1	ug/Kg	1		07/01/19 12:05
4-Chlorotoluene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
4-Isopropyltoluene	50.0	U	100	25.0	ug/Kg	1		07/01/19 12:05
4-Methyl-2-pentanone (MIBK)	125	U	250	78.1	ug/Kg	1		07/01/19 12:05
Acetone	125	U	250	78.1	ug/Kg	1		07/01/19 12:05
Benzene	6.25	U	12.5	3.91	ug/Kg	1		07/01/19 12:05
Bromobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
Bromochloromethane	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
Bromodichloromethane	1.00	U	2.00	0.621	ug/Kg	1		07/01/19 12:05
Bromoform	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05
Bromomethane	10.0	U	20.0	6.21	ug/Kg	1		07/01/19 12:05
Carbon disulfide	50.0	U	100	31.1	ug/Kg	1		07/01/19 12:05
Carbon tetrachloride	6.25	U	12.5	3.91	ug/Kg	1		07/01/19 12:05
Chlorobenzene	12.5	U	25.0	7.81	ug/Kg	1		07/01/19 12:05

Print Date: 07/11/2019 11:15:23AM

J flagging is activated

Results of 17857-STB

Client Sample ID: 17857-STB
 Client Project ID: 17857-002 Pump Station 12
 Lab Sample ID: 1193204004
 Lab Project ID: 1193204

Collection Date: 06/19/19 09:00
 Received Date: 06/19/19 14:37
 Matrix: Soil/Solid (dry weight)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroethane	100 U	200	62.1	ug/Kg	1			07/01/19 12:05
Chloroform	0.840 J	2.00	0.621	ug/Kg	1			07/01/19 19:20
Chloromethane	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
cis-1,2-Dichloroethene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
cis-1,3-Dichloropropene	6.25 U	12.5	3.91	ug/Kg	1			07/01/19 12:05
Dibromochloromethane	1.00 U	2.00	0.621	ug/Kg	1			07/01/19 12:05
Dibromomethane	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
Dichlorodifluoromethane	25.1 U	50.1	15.0	ug/Kg	1			07/01/19 12:05
Ethylbenzene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
Freon-113	50.0 U	100	31.1	ug/Kg	1			07/01/19 12:05
Hexachlorobutadiene	10.0 U	20.0	6.21	ug/Kg	1			07/01/19 12:05
Isopropylbenzene (Cumene)	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
Methylene chloride	50.0 U	100	31.1	ug/Kg	1			07/01/19 12:05
Methyl-t-butyl ether	50.0 U	100	31.1	ug/Kg	1			07/01/19 12:05
Naphthalene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
n-Butylbenzene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
n-Propylbenzene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
o-Xylene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
P & M -Xylene	25.1 U	50.1	15.0	ug/Kg	1			07/01/19 12:05
sec-Butylbenzene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
Styrene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
tert-Butylbenzene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
Tetrachloroethene	6.25 U	12.5	3.91	ug/Kg	1			07/01/19 12:05
Toluene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
trans-1,2-Dichloroethene	12.5 U	25.0	7.81	ug/Kg	1			07/01/19 12:05
trans-1,3-Dichloropropene	6.25 U	12.5	3.91	ug/Kg	1			07/01/19 12:05
Trichloroethene	2.50 U	5.01	1.50	ug/Kg	1			07/01/19 12:05
Trichlorofluoromethane	25.1 U	50.1	15.0	ug/Kg	1			07/01/19 12:05
Vinyl acetate	50.0 U	100	31.1	ug/Kg	1			07/01/19 12:05
Vinyl chloride	0.401 U	0.801	0.250	ug/Kg	1			07/01/19 12:05
Xylenes (total)	37.5 U	75.1	22.8	ug/Kg	1			07/01/19 12:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	115	71-136		%	1			07/01/19 12:05
4-Bromofluorobenzene (surr)	98.8	55-151		%	1			07/01/19 12:05
Toluene-d8 (surr)	101	85-116		%	1			07/01/19 12:05

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J flagging is activated

Results of 17857-STB

Client Sample ID: 17857-STB
Client Project ID: 17857-002 Pump Station 12
Lab Sample ID: 1193204004
Lab Project ID: 1193204

Collection Date: 06/19/19 09:00
Received Date: 06/19/19 14:37
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 12:05
Container ID: 1193204004-A

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 09:00
Prep Initial Wt./Vol.: 49.912 g
Prep Extract Vol: 25 mL

Analytical Batch: VMS19118
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 07/01/19 19:20
Container ID: 1193204004-A

Prep Batch: VXX34356
Prep Method: SW5035A
Prep Date/Time: 06/19/19 09:00
Prep Initial Wt./Vol.: 49.912 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1795325 [SPT/10800]
Blank Lab ID: 1514328

Matrix: Soil/Solid (dry weight)

QC for Samples:
1193204001, 1193204002, 1193204003

Results by SM21 2540G

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Total Solids	100			%

Batch Information

Analytical Batch: SPT10800
Analytical Method: SM21 2540G
Instrument:
Analyst: MER
Analytical Date/Time: 6/20/2019 6:04:00PM

Print Date: 07/11/2019 11:15:25AM

Duplicate Sample Summary

Original Sample ID: 1193202018

Duplicate Sample ID: 1514331

QC for Samples:

Analysis Date: 06/20/2019 18:04

Matrix: Soil/Solid (dry weight)

Results by SM21 2540G

<u>NAME</u>	<u>Original</u>	<u>Duplicate</u>	<u>Units</u>	<u>RPD (%)</u>	<u>RPD CL</u>
Total Solids	96.7	96.4	%	0.27	(< 15)

Batch Information

Analytical Batch: SPT10800

Analytical Method: SM21 2540G

Instrument:

Analyst: MER

Print Date: 07/11/2019 11:15:26AM

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Duplicate Sample Summary

Original Sample ID: 1193202021

Analysis Date: 06/20/2019 18:04

Duplicate Sample ID: 1514332

Matrix: Soil/Solid (dry weight)

QC for Samples:

1193204001, 1193204002, 1193204003

Results by SM21 2540G

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	89.4	88.4	%	1.20	(< 15)

Batch Information

Analytical Batch: SPT10800

Analytical Method: SM21 2540G

Instrument:

Analyst: MER

Print Date: 07/11/2019 11:15:26AM

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Method Blank

Blank ID: MB for HBN 1795353 [VXX/34307]

Blank Lab ID: 1514438

QC for Samples:

1193204001, 1193204002, 1193204003, 1193204004

Matrix: Soil/Solid (dry weight)

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	1.25U	2.50	0.750	mg/Kg

Surrogates

4-Bromofluorobenzene (surr)	77.2	50-150	%
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Batch Information

Analytical Batch: VFC14794

Analytical Method: AK101

Instrument: Agilent 7890A PID/FID

Analyst: ST

Analytical Date/Time: 6/20/2019 11:10:00AM

Prep Batch: VXX34307

Prep Method: SW5035A

Prep Date/Time: 6/20/2019 8:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 07/11/2019 11:15:28AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [VXX34307]

Blank Spike Lab ID: 1514439

Date Analyzed: 06/20/2019 10:35

Spike Duplicate ID: LCSD for HBN 1193204

[VXX34307]

Spike Duplicate Lab ID: 1514440

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by AK101

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)				CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL			
Gasoline Range Organics	12.5	12.0	96	12.5	11.3	90	(60-120)	6.30		(< 20)
4-Bromofluorobenzene (surr)	1.25	84.8	85	1.25	79.2	79	(50-150)	6.80		

Batch Information

Analytical Batch: VFC14794

Analytical Method: AK101

Instrument: Agilent 7890A PID/FID

Analyst: ST

Prep Batch: VXX34307

Prep Method: SW5035A

Prep Date/Time: 06/20/2019 08:00

Spike Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: 12.5 mg/Kg Extract Vol: 25 mL

Print Date: 07/11/2019 11:15:29AM

Method Blank

Blank ID: MB for HBN 1795770 [VXX/34356]

Blank Lab ID: 1516268

QC for Samples:

1193204001, 1193204002, 1193204003, 1193204004

Matrix: Soil/Solid (dry weight)

Results by SW8260C

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

Print Date: 07/11/2019 11:15:30AM

Method Blank

Blank ID: MB for HBN 1795770 [VXX/34356]

Blank Lab ID: 1516268

Matrix: Soil/Solid (dry weight)

QC for Samples:

1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloroform	1.00U	2.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	9.23J	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg

Surrogates

1,2-Dichloroethane-D4 (surr)	112	71-136	%
4-Bromofluorobenzene (surr)	92.2	55-151	%
Toluene-d8 (surr)	98.9	85-116	%

Print Date: 07/11/2019 11:15:30AM

Method Blank

Blank ID: MB for HBN 1795770 [VXX/34356]

Blank Lab ID: 1516268

QC for Samples:

1193204001, 1193204002, 1193204003, 1193204004

Matrix: Soil/Solid (dry weight)

Results by SW8260C

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

Analytical Batch: VMS19118

Analytical Method: SW8260C

Instrument: VQA 7890/5975 GC/MS

Analyst: NRO

Analytical Date/Time: 7/1/2019 9:00:00AM

Prep Batch: VXX34356

Prep Method: SW5035A

Prep Date/Time: 7/1/2019 6:00:00AM

Prep Initial Wt./Vol.: 50 g

Prep Extract Vol: 25 mL

Print Date: 07/11/2019 11:15:30AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [VXX34356]

Blank Spike Lab ID: 1516269

Date Analyzed: 07/01/2019 09:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

<u>Parameter</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>CL</u>
1,1,1,2-Tetrachloroethane	750	798	106	(78-125)
1,1,1-Trichloroethane	750	802	107	(73-130)
1,1,2,2-Tetrachloroethane	750	811	108	(70-124)
1,1,2-Trichloroethane	750	805	107	(78-121)
1,1-Dichloroethane	750	769	103	(76-125)
1,1-Dichloroethene	750	729	97	(70-131)
1,1-Dichloropropene	750	818	109	(76-125)
1,2,3-Trichlorobenzene	750	802	107	(66-130)
1,2,3-Trichloropropane	750	825	110	(73-125)
1,2,4-Trichlorobenzene	750	778	104	(67-129)
1,2,4-Trimethylbenzene	750	698	93	(75-123)
1,2-Dibromo-3-chloropropane	750	876	117	(61-132)
1,2-Dibromoethane	750	815	109	(78-122)
1,2-Dichlorobenzene	750	760	101	(78-121)
1,2-Dichloroethane	750	751	100	(73-128)
1,2-Dichloropropane	750	811	108	(76-123)
1,3,5-Trimethylbenzene	750	711	95	(73-124)
1,3-Dichlorobenzene	750	734	98	(77-121)
1,3-Dichloropropane	750	865	115	(77-121)
1,4-Dichlorobenzene	750	729	97	(75-120)
2,2-Dichloropropane	750	778	104	(67-133)
2-Butanone (MEK)	2250	2520	112	(51-148)
2-Chlorotoluene	750	723	96	(75-122)
2-Hexanone	2250	2600	116	(53-145)
4-Chlorotoluene	750	732	98	(72-124)
4-Isopropyltoluene	750	732	98	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2380	106	(65-135)
Acetone	2250	2420	108	(36-164)
Benzene	750	742	99	(77-121)
Bromobenzene	750	760	101	(78-121)
Bromochloromethane	750	811	108	(78-125)
Bromodichloromethane	750	811	108	(75-127)
Bromoform	750	877	117	(67-132)
Bromomethane	750	801	107	(53-143)

Print Date: 07/11/2019 11:15:31AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [VXX34356]

Blank Spike Lab ID: 1516269

Date Analyzed: 07/01/2019 09:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C**Blank Spike (ug/Kg)**

<u>Parameter</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>CL</u>
Carbon disulfide	1130	1120	99	(63-132)
Carbon tetrachloride	750	850	113	(70-135)
Chlorobenzene	750	752	100	(79-120)
Chloroethane	750	739	99	(59-139)
Chloroform	750	769	102	(78-123)
Chloromethane	750	722	96	(50-136)
cis-1,2-Dichloroethene	750	770	103	(77-123)
cis-1,3-Dichloropropene	750	868	116	(74-126)
Dibromochloromethane	750	831	111	(74-126)
Dibromomethane	750	817	109	(78-125)
Dichlorodifluoromethane	750	764	102	(29-149)
Ethylbenzene	750	683	91	(76-122)
Freon-113	1130	1120	100	(66-136)
Hexachlorobutadiene	750	804	107	(61-135)
Isopropylbenzene (Cumene)	750	748	100	(68-134)
Methylene chloride	750	804	107	(70-128)
Methyl-t-butyl ether	1130	1280	114	(73-125)
Naphthalene	750	832	111	(62-129)
n-Butylbenzene	750	722	96	(70-128)
n-Propylbenzene	750	713	95	(73-125)
o-Xylene	750	722	96	(77-123)
P & M -Xylene	1500	1360	90	(77-124)
sec-Butylbenzene	750	721	96	(73-126)
Styrene	750	773	103	(76-124)
tert-Butylbenzene	750	742	99	(73-125)
Tetrachloroethene	750	748	100	(73-128)
Toluene	750	741	99	(77-121)
trans-1,2-Dichloroethene	750	720	96	(74-125)
trans-1,3-Dichloropropene	750	820	109	(71-130)
Trichloroethene	750	750	100	(77-123)
Trichlorofluoromethane	750	780	104	(62-140)
Vinyl acetate	750	792	106	(50-151)
Vinyl chloride	750	738	98	(56-135)
Xylenes (total)	2250	2080	92	(78-124)

Print Date: 07/11/2019 11:15:31AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [VXX34356]

Blank Spike Lab ID: 1516269

Date Analyzed: 07/01/2019 09:16

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

Blank Spike (ug/Kg)

<u>Parameter</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>CL</u>
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	102	102	(71-136)
4-Bromofluorobenzene (surr)	750	95.2	95	(55-151)
Toluene-d8 (surr)	750	101	101	(85-116)

Batch Information

Analytical Batch: VMS19118

Analytical Method: SW8260C

Instrument: VQA 7890/5975 GC/MS

Analyst: NRO

Prep Batch: VXX34356

Prep Method: SW5035A

Prep Date/Time: 07/01/2019 06:00

Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL

Dupe Init Wt./Vol.: Extract Vol:

Print Date: 07/11/2019 11:15:31AM

Matrix Spike Summary

Original Sample ID: 1193204001
 MS Sample ID: 1516270 MS
 MSD Sample ID: 1516271 MSD

Analysis Date: 07/01/2019 13:09
 Analysis Date: 07/01/2019 10:44
 Analysis Date: 07/01/2019 11:00
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	7.80U	587	625	106	587	666	114	78-125	6.50	(< 20)
1,1,1-Trichloroethane	9.75U	587	668	114	587	671	115	73-130	0.57	(< 20)
1,1,2,2-Tetrachloroethane	0.780U	587	760	129 *	587	803	137 *	70-124	5.60	(< 20)
1,1,2-Trichloroethane	0.313U	587	1110	190 *	587	1197	203 *	78-121	6.80	(< 20)
1,1-Dichloroethane	9.75U	587	630	107	587	633	108	76-125	0.43	(< 20)
1,1-Dichloroethene	9.75U	587	617	105	587	607	104	70-131	1.50	(< 20)
1,1-Dichloropropene	9.75U	587	683	116	587	700	119	76-125	2.40	(< 20)
1,2,3-Trichlorobenzene	19.6U	587	533	91	587	571	97	66-130	6.90	(< 20)
1,2,3-Trichloropropane	0.391U	587	518	88	587	558	95	73-125	7.40	(< 20)
1,2,4-Trichlorobenzene	9.75U	587	541	92	587	570	97	67-129	5.30	(< 20)
1,2,4-Trimethylbenzene	178	587	639	79	587	650	80	75-123	1.60	(< 20)
1,2-Dibromo-3-chloropropane	39.1U	587	575	98	587	583	99	61-132	1.50	(< 20)
1,2-Dibromoethane	0.391U	587	627	107	587	678	116	78-122	7.90	(< 20)
1,2-Dichlorobenzene	9.75U	587	470	80	587	494	84	78-121	5.00	(< 20)
1,2-Dichloroethane	0.780U	587	612	104	587	621	106	73-128	1.70	(< 20)
1,2-Dichloropropane	3.91U	587	658	112	587	683	117	76-123	3.90	(< 20)
1,3,5-Trimethylbenzene	9.75U	587	524	89	587	541	92	73-124	3.00	(< 20)
1,3-Dichlorobenzene	9.75U	587	483	82	587	492	84	77-121	1.60	(< 20)
1,3-Dichloropropane	3.91U	587	656	112	587	713	121	77-121	8.30	(< 20)
1,4-Dichlorobenzene	9.75U	587	478	81	587	498	85	75-120	4.30	(< 20)
2,2-Dichloropropane	9.75U	587	688	117	587	687	117	67-133	0.17	(< 20)
2-Butanone (MEK)	97.5U	1763	2100	120	1763	2307	131	51-148	9.00	(< 20)
2-Chlorotoluene	9.75U	587	486	83	587	494	84	75-122	1.50	(< 20)
2-Hexanone	39.1U	1763	2165	123	1763	2383	135	53-145	9.20	(< 20)
4-Chlorotoluene	9.75U	587	473	81	587	486	83	72-124	2.80	(< 20)
4-Isopropyltoluene	149	587	1175	175 *	587	1197	178 *	73-127	1.30	(< 20)
4-Methyl-2-pentanone (MIBK)	97.5U	1763	1948	111	1763	2133	121	65-135	8.70	(< 20)
Acetone	97.5U	1763	2122	121	1763	2209	126	36-164	4.00	(< 20)
Benzene	5.03J	587	597	101	587	621	105	77-121	4.00	(< 20)
Bromobenzene	9.75U	587	459	78	587	472	81	78-121	2.90	(< 20)
Bromochloromethane	9.75U	587	666	114	587	668	114	78-125	0.36	(< 20)
Bromodichloromethane	0.780U	587	667	114	587	676	115	75-127	1.30	(< 20)
Bromoform	9.75U	587	700	119	587	720	123	67-132	2.90	(< 20)
Bromomethane	7.80U	587	699	119	587	676	115	53-143	3.30	(< 20)
Carbon disulfide	39.1U	880	999	114	880	939	107	63-132	6.10	(< 20)
Carbon tetrachloride	4.88U	587	717	122	587	711	121	70-135	0.93	(< 20)
Chlorobenzene	9.75U	587	560	96	587	589	100	79-120	4.90	(< 20)

Print Date: 07/11/2019 11:15:32AM

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Matrix Spike Summary

Original Sample ID: 1193204001
 MS Sample ID: 1516270 MS
 MSD Sample ID: 1516271 MSD

Analysis Date: 07/01/2019 13:09
 Analysis Date: 07/01/2019 10:44
 Analysis Date: 07/01/2019 11:00
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL		
		Spike	Result	Rec (%)	Spike	Result	Rec (%)					
Chloroethane	78.0U	587	649	111	587	595	101	59-139	8.70	(< 20)		
Chloroform	0.519J	587	630	107	587	632	108	78-123	0.41	(< 20)		
Chloromethane	9.75U	587	654	112	587	617	105	50-136	5.90	(< 20)		
cis-1,2-Dichloroethene	9.75U	587	650	111	587	633	108	77-123	2.70	(< 20)		
cis-1,3-Dichloropropene	4.88U	587	725	124	587	757	129	* 74-126	4.40	(< 20)		
Dibromochloromethane	0.780U	587	640	109	587	676	115	74-126	5.50	(< 20)		
Dibromomethane	9.75U	587	675	115	587	679	116	78-125	0.79	(< 20)		
Dichlorodifluoromethane	19.6U	587	686	117	587	634	108	29-149	7.80	(< 20)		
Ethylbenzene	10.6J	587	534	89	587	556	93	76-122	4.10	(< 20)		
Freon-113	39.1U	880	963	109	880	966	110	66-136	0.40	(< 20)		
Hexachlorobutadiene	7.80U	587	1033	176	*	587	1049	179	* 61-135	1.60	(< 20)	
Isopropylbenzene (Cumene)	43.2	587	639	102	587	674	107	68-134	5.30	(< 20)		
Methylene chloride	39.1U	587	689	117	587	688	117	70-128	0.22	(< 20)		
Methyl-t-butyl ether	39.1U	880	1011	115	880	1110	126	* 73-125	9.60	(< 20)		
Naphthalene	298	587	800	86	587	851	94	62-129	6.10	(< 20)		
n-Butylbenzene	9.75U	587	1143	195	*	587	1143	196	*	70-128	0.36	(< 20)
n-Propylbenzene	86.8	587	567	82	587	588	85	73-125	3.60	(< 20)		
o-Xylene	9.75U	587	577	98	587	587	100	77-123	1.70	(< 20)		
P & M -Xylene	19.4J	1175	1110	93	1175	1132	95	77-124	2.60	(< 20)		
sec-Butylbenzene	317	587	881	96	587	892	98	73-126	1.30	(< 20)		
Styrene	9.75U	587	606	103	587	621	106	76-124	2.40	(< 20)		
tert-Butylbenzene	23.5	587	555	91	587	565	92	73-125	1.80	(< 20)		
Tetrachloroethene	4.88U	587	591	101	587	634	108	73-128	7.00	(< 20)		
Toluene	14.1J	587	570	95	587	602	100	77-121	5.40	(< 20)		
trans-1,2-Dichloroethene	9.75U	587	605	103	587	616	105	74-125	1.70	(< 20)		
trans-1,3-Dichloropropene	4.88U	587	631	108	587	675	115	71-130	6.70	(< 20)		
Trichloroethene	1.96U	587	621	106	587	642	110	77-123	3.30	(< 20)		
Trichlorofluoromethane	19.6U	587	675	115	587	613	104	62-140	9.60	(< 20)		
Vinyl acetate	39.1U	587	641	109	587	692	118	50-151	7.70	(< 20)		
Vinyl chloride	0.313U	587	655	112	587	653	111	56-135	0.37	(< 20)		
Xylenes (total)	19.4J	1763	1687	95	1763	1719	97	78-124	2.30	(< 20)		
Surrogates												
1,2-Dichloroethane-D4 (surr)		587	624	106	587	609	104	71-136	2.40			
4-Bromofluorobenzene (surr)		756	768	102	756	795	105	55-151	3.40			
Toluene-d8 (surr)		587	570	97	587	581	99	85-116	1.90			

Print Date: 07/11/2019 11:15:32AM

Matrix Spike Summary

Original Sample ID: 1193204001
MS Sample ID: 1516270 MS
MSD Sample ID: 1516271 MSD

Analysis Date:
Analysis Date: 07/01/2019 10:44
Analysis Date: 07/01/2019 11:00
Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003, 1193204004

Results by SW8260C

Parameter	<u>Sample</u>	Matrix Spike (%)	Spike Duplicate (%)	CL	RPD (%)	RPD CL
	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>

Batch Information

Analytical Batch: VMS19118
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 7/1/2019 10:44:00AM

Prep Batch: VXX34356
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/1/2019 6:00:00AM
Prep Initial Wt./Vol.: 89.98g
Prep Extract Vol: 32.32mL

Print Date: 07/11/2019 11:15:32AM

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Method Blank

Blank ID: MB for HBN 1795378 [XXX/41638]
Blank Lab ID: 1514547

Matrix: Soil/Solid (dry weight)

QC for Samples:
1193204001

Results by 8270D SIM (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenz[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)	73.7	58-103	%
Fluoranthene-d10 (surr)	82	54-113	%

Batch Information

Analytical Batch: XMS11477
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 6/27/2019 12:53:00PM

Prep Batch: XXX41638
Prep Method: SW3550C
Prep Date/Time: 6/24/2019 7:17:12AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Print Date: 07/11/2019 11:15:33AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [XXX41638]

Blank Spike Lab ID: 1514548

Date Analyzed: 06/27/2019 13:14

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001

Results by 8270D SIM (PAH)**Blank Spike (ug/Kg)**

<u>Parameter</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>CL</u>
1-Methylnaphthalene	111	78.6	71	(43-111)
2-Methylnaphthalene	111	82.6	74	(39-114)
Acenaphthene	111	87.7	79	(44-111)
Acenaphthylene	111	90.5	82	(39-116)
Anthracene	111	98.8	89	(50-114)
Benzo(a)Anthracene	111	86.5	78	(54-122)
Benzo[a]pyrene	111	93.0	84	(50-125)
Benzo[b]Fluoranthene	111	94.2	85	(53-128)
Benzo[g,h,i]perylene	111	91.6	82	(49-127)
Benzo[k]fluoranthene	111	95.9	86	(56-123)
Chrysene	111	94.5	85	(57-118)
Dibenz[a,h]anthracene	111	94.5	85	(50-129)
Fluoranthene	111	90.3	81	(55-119)
Fluorene	111	93.7	84	(47-114)
Indeno[1,2,3-c,d] pyrene	111	96.5	87	(49-130)
Naphthalene	111	78.2	70	(38-111)
Phenanthrene	111	87.0	78	(49-113)
Pyrene	111	94.4	85	(55-117)

Surrogates

2-Methylnaphthalene-d10 (surr)	111	74.1	74	(58-103)
Fluoranthene-d10 (surr)	111	75.9	76	(54-113)

Batch Information

Analytical Batch: XMS11477

Analytical Method: 8270D SIM (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: BMZ

Prep Batch: XXX41638

Prep Method: SW3550C

Prep Date/Time: 06/24/2019 07:17

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

Dupe Init Wt./Vol.: Extract Vol:

Print Date: 07/11/2019 11:15:34AM

Matrix Spike Summary

Original Sample ID: 1193214004
 MS Sample ID: 1514549 MS
 MSD Sample ID: 1514550 MSD

Analysis Date: 06/27/2019 16:40
 Analysis Date: 06/27/2019 17:00
 Analysis Date: 06/27/2019 17:21
 Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001

Results by 8270D SIM (PAH)

Parameter	Sample	Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	14.8U	132	101	76	131	96.3	73	43-111	4.40	(< 20)
2-Methylnaphthalene	14.8U	132	106	80	131	100	76	39-114	5.90	(< 20)
Acenaphthene	14.8U	132	110	83	131	105	80	44-111	4.60	(< 20)
Acenaphthylene	14.8U	132	113	86	131	107	82	39-116	5.20	(< 20)
Anthracene	14.8U	132	105	79	131	111	84	50-114	5.60	(< 20)
Benzo(a)Anthracene	14.8U	132	107	81	131	107	81	54-122	0.06	(< 20)
Benzo[a]pyrene	14.8U	132	114	87	131	112	85	50-125	2.30	(< 20)
Benzo[b]Fluoranthene	14.8U	132	115	87	131	113	86	53-128	1.30	(< 20)
Benzo[g,h,i]perylene	14.8U	132	110	83	131	106	80	49-127	3.60	(< 20)
Benzo[k]fluoranthene	14.8U	132	116	88	131	114	87	56-123	1.40	(< 20)
Chrysene	14.8U	132	110	84	131	111	84	57-118	0.42	(< 20)
Dibenzo[a,h]anthracene	14.8U	132	115	87	131	110	84	50-129	3.70	(< 20)
Fluoranthene	14.8U	132	109	82	131	119	91	55-119	9.20	(< 20)
Fluorene	14.8U	132	116	88	131	114	87	47-114	1.90	(< 20)
Indeno[1,2,3-c,d] pyrene	14.8U	132	116	88	131	113	86	49-130	3.30	(< 20)
Naphthalene	11.9U	132	92.8	70	131	89.9	68	38-111	3.20	(< 20)
Phenanthrene	14.8U	132	116	88	131	109	83	49-113	6.10	(< 20)
Pyrene	14.8U	132	114	87	131	124	94	55-117	7.80	(< 20)

Surrogates

2-Methylnaphthalene-d10 (surr)	132	99.9	76	131	96.9	74	58-103	3.00
Fluoranthene-d10 (surr)	132	99.6	76	131	110	84	54-113	10.00

Batch Information

Analytical Batch: XMS11477
 Analytical Method: 8270D SIM (PAH)
 Instrument: SVA Agilent 780/5975 GC/MS
 Analyst: BMZ
 Analytical Date/Time: 6/27/2019 5:00:00PM

Prep Batch: XXX41638
 Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
 Prep Date/Time: 6/24/2019 7:17:12AM
 Prep Initial Wt./Vol.: 22.79g
 Prep Extract Vol: 5.00mL

Print Date: 07/11/2019 11:15:35AM

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Method Blank

Blank ID: MB for HBN 1795453 [XXX/41654]
Blank Lab ID: 1514861

Matrix: Soil/Solid (dry weight)

QC for Samples:
1193204001, 1193204002, 1193204003

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	7.38J	20.0	6.20	mg/Kg

Surrogates

5a Androstane (surr)	103	60-120	%
----------------------	-----	--------	---

Batch Information

Analytical Batch: XFC15084
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: VDL
Analytical Date/Time: 6/27/2019 9:57:00AM

Prep Batch: XXX41654
Prep Method: SW3550C
Prep Date/Time: 6/25/2019 12:59:43PM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 07/11/2019 11:15:37AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193204 [XXX41654]

Blank Spike Lab ID: 1514862

Date Analyzed: 06/27/2019 10:06

Spike Duplicate ID: LCSD for HBN 1193204

[XXX41654]

Spike Duplicate Lab ID: 1514863

Matrix: Soil/Solid (dry weight)

QC for Samples: 1193204001, 1193204002, 1193204003

Results by AK102

Parameter	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)				CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	833	948	114	833	931	112	(75-125)	1.80	(< 20)	
Surrogates										
5a Androstanane (surr)	16.7	107	107	16.7	106	106	(60-120)	1.20		

Batch Information

Analytical Batch: XFC15084

Analytical Method: AK102

Instrument: Agilent 7890B F

Analyst: VDL

Prep Batch: XXX41654

Prep Method: SW3550C

Prep Date/Time: 06/25/2019 12:59

Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

Print Date: 07/11/2019 11:15:38AM



SHANNON & WILSON, INC.
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1321 Bannock Street, Suite 200
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CHAIN

1193204



ECORD

Laboratory SJS
Attn: JUAN

Page 1 of 1

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

Project Information	Sample Receipt
Project Number: <u>17857-002</u>	Total Number of Containers
Project Name: <u>Pump Station 12</u>	COC Seals/Intact? Y/N <u>NA</u>
Contact: <u>JCT</u>	Received Good Cond./Cold <u>12.4</u>
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method: <u>023</u>
Sampler: <u>JCT</u>	(attach shipping bill, if any)

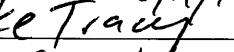
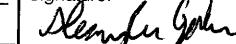
Instructions

Requested Turnaround Time: Standard

Special Instructions:

Profile: 334864 JKJ

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature:  Time: 14:37	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name:  Date: 07/07/15	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: 	Company: _____	Company: _____
Received By: 1.		Received By: 2.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: _____ Time: 14:37
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name:  Date: 06/08/10
Company: _____	Company: _____	Company: 



SGS North America Inc.

**200 W. Potter Dr., 3180 Peger Rd. Ste
Anchorage, AK 99518 (ph) 190, Fairbanks, AK
907-562-2343, (fax) 907-561-99709 (ph) 907-474-
5301 8656**

Sample Kit Request

Does a Profile exist in LIMS? If not, please send a request for new profile build.

Client Name: Shannon&Wilson
Ordered By: Schylar Healy **Phone #:** _____
Email: SAH@shanwil.com
Project Name: Soil **Project/Permit#:** _____
Quote #: _____ **Profile #:** _____
Delivery Address: _____

Filename: SKIT_Shannon&Wilson_Soil_2019-06-14

*Required Items

- | | |
|--|--|
| <input type="checkbox"/> Pack for Shipping via <i>ground</i> (DOT)
<input type="checkbox"/> Pack for Shipping via <i>air carrier</i> (IATA)
<input checked="" type="checkbox"/> Temperature Blank (<i>circle one:</i> 120-ml OR 500-ml)
<input checked="" type="checkbox"/> Soil VOA Trip Blank - Lot#: _____
<input type="checkbox"/> Water VOA Trip Blank - Lot#: _____
<input type="checkbox"/> 524 VOA Trip Blank - Lot#: _____
<input type="checkbox"/> Low Level Mercury Trip Blank- Lot#: _____
<input checked="" type="checkbox"/> Coolers
<input checked="" type="checkbox"/> Gel Ice
<input checked="" type="checkbox"/> Bubble Wrap
<input checked="" type="checkbox"/> Labels
<input type="checkbox"/> Custody Seals
<input type="checkbox"/> SGS COCs - <i>Circle req'd form</i> <input type="checkbox"/> Blank COC <input type="checkbox"/> DW COC <input type="checkbox"/> COC initiated by PM () | <input type="checkbox"/> Total # includes bottles for % Solids
<input type="checkbox"/> Track all Lot#? (Required for DOD)
<input type="checkbox"/> Foreign Soil |
| Other Notes/Reminders for L <div style="border: 1px solid black; height: 40px; width: 100%;"></div> | |

Other Notes/Reminders for Kit Prep:

ANSWER

Attention Client/Sampler:

1. Do **not** rinse container; be aware of any acid preservative in container.
 2. Fill container, but do not overfill (except volatile waters).
 3. Label the container with your sample ID as well as the date/time of collection.
 4. Fill out the Chain of Custody.
 5. Add frozen gel packs or ice to your cooler & pack to prevent breakage.

Charges may be invoiced for bottles which are unused or improperly used.

**If you have any questions concerning this sample kit,
please contact your Project Manager for assistance. Thank you.**

***This will email a copy of this form for confirmation to the client email and save the form to the network. This should not be used outside of SGS.**



e-Sample Receipt Form

SGS Workorder #:

1193204



1 1 9 3 2 0 4

1193049		Condition (Yes, No, N/A)	Exceptions Noted below						
Chain of Custody / Temperature Requirements			Yes	Exemption permitted if sampler hand carries/delivers.					
Were Custody Seals intact? Note # & location			N/A						
COC accompanied samples?			Yes						
DOD: Were samples received in COC corresponding coolers?			N/A						
Temperature blank compliant* (i.e., 0-6 °C after CF)?			Yes	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required					
			No	Cooler ID:	1	@	12.4	°C	Therm. ID: D23
				Cooler ID:		@		°C	Therm. ID:
				Cooler ID:		@		°C	Therm. ID:
				Cooler ID:		@		°C	Therm. ID:
<i>*If >6°C, were samples collected <8 hours ago?</i>			Yes						
If <0°C, were sample containers ice free?			N/A						
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.									
Holding Time / Documentation / Sample Condition Requirements				Note: Refer to form F-083 "Sample Guide" for specific holding times.					
Were samples received within holding time?			Yes						
Do samples match COC** (i.e., sample IDs, dates/times collected)?			Yes						
**Note: If times differ <1hr, record details & login per COC.									
***Note: If sample information on containers differs from COC, SGS will default to COC information									
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)			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?			N/A						
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?			N/A						
Were all soil VOAs field extracted with MeOH+BFB?			N/A						
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

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1193204001-A	No Preservative Required	OK			
1193204001-B	Methanol field pres. 4 C	OK			
1193204002-A	No Preservative Required	OK			
1193204002-B	Methanol field pres. 4 C	OK			
1193204003-A	No Preservative Required	OK			
1193204003-B	Methanol field pres. 4 C	OK			
1193204004-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

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

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

DM - The container was received damaged.

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

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

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

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

LABORATORY DATA REVIEW CHECKLIST

CS Report Name: Additional Site Characterization Activities, 4501 West 100th Avenue, Anchorage, Alaska

Date: December 2019

Laboratory Report Date: July 11, 2019

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Schylar Healy

Title: Environmental Scientist

Laboratory Name: SGS North America Inc.

Work Order Number: 1193204

ADEC File Number: 2100.26.044

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

1. Laboratory

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

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved?
Yes / No / NA
Comments: *The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.*

2. Chain of Custody (COC)

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

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

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt ($0^{\circ} \pm 6^{\circ}$ C)?
Yes / No / NA (Please explain.)
Comments: *The temperature blank was documented as 12.4° C.*

- b. Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes** / No / NA (Please explain.)
Comments:
- c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? **Yes** / No / NA (Please explain.)
Comments:
- d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? **Yes** / No / NA (Please explain.)
Comments: *The temperature blank was recorded as 12.4 ° C.*
- e. Data quality or usability affected? **Yes** / **No** (Please Explain.)
Comments: *It is our opinion that the elevated temperature blank did not affect the sample results because the samples were submitted within 4 hours of the sampling time.*

4. Case Narrative

- a. Present and understandable? **Yes** / No / NA (Please explain.)
Comments:
- b. Discrepancies, errors or QC failures noted by the lab? **Yes** / No / NA (Please explain.)
Comments: *The laboratory noted the following:*
 - *Samples B13S3 and B13S13: (AK101) Surrogate recovery for 4 - bromofluorobenzene does not meet QC criteria due to matrix interference.*
 - *Matrix Spike and Matric Spike Duplicate: (8260C) MS/MSD recoveries for several analytes do not meet QC criteria. Refer to LCS for accuracy requirements.*
- c. Were corrective actions documented? **Yes** / **No** / NA (Please explain.)
Comments:
- d. What is the effect on data quality/usability, according to the case narrative?
Comments: *See above.*

5. Sample Results

- a. Correct analyses performed/reported as requested on COC? **Yes** / No / NA (Please explain.)
Comments:
- b. All applicable holding times met? **Yes** / No / NA (Please explain.)
Comments:

- c. All soils reported on a dry-weight basis? **Yes / No / NA (Please explain.)**
Comments:

- d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA (Please explain.)**
Comments: *The LOQs for several VOCs are greater than their respective ADEC Method Two cleanup levels.*

- e. Data quality or usability affected? **(Please explain.)**
Comments: *The data cannot be used to determine whether or not concentrations of these VOCs are present at concentrations greater than their respective ADEC cleanup levels.*

6. QC Samples

a. Method Blank

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

Yes / No / NA (Please explain.)

Comments:

- ii. All method blank results less than LOQ? **Yes / No / NA (Please explain.)**

Comments: *The method blank contained a concentration of DRO less than the LOQ (7.38 mg/kg) of 20.0 mg/kg.*

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

Comments: *The concentration of DRO detected in Sample B14S4 is greater than 5 times but less than 10 times the method blank concentration; therefore, the DRO results for Sample B14S4 are flagged "B" on Table 3. DRO results in the remaining project samples were detected at concentration greater than 10 time the method blank concentration; therefore, no flagging is required.*

- iv. Do the affected sample(s) have data flags? **Yes / No / NA**

Comments: *See above.*

If so, are the data flags clearly defined? **Yes / No / NA**

Comments: *See above.*

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

Comments: *See above.*

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

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?
(LCS/LCSD required per AK methods, LCS required per SW846) **Yes / No / NA (Please explain.)**

Comments:

- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? Yes / No / **NA** (Please explain.)
Comments:
- iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes** / No / NA (Please explain.)
Comments:
- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes** / No / NA (Please explain.)
Comments:
- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: **NA**
- vi. Do the affected samples(s) have data flags? Yes / No / **NA**
Comments:
If so, are the data flags clearly defined? Yes / No / **NA**
Comments:
- vii. Data quality or usability affected? Explain. Yes / **No** / NA
Comments:

c. Surrogates - Organics Only

- i. Are surrogate recoveries reported for organic analyses, field, QC, and laboratory samples? **Yes** / No / NA (Please explain.)
Comments:
- ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) Yes / **No** / NA (Please explain.)
Comments: *Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria in Samples B13S3 and B13S13 due to matrix interference.*

- iii. Do the sample results with failed surrogate recoveries have data flags? **Yes / No / NA (Please explain.)**

Comments: *The GRO results for Samples B13S3 and B13S13 are flagged “J+” in Table 3 and are considered potentially biased high.*

- iv. If so, are the data flags clearly defined? **Yes / No / NA**

Comments: *See above.*

- v. Data quality or usability affected? Please explain. **Yes / No / NA**

Comments: *See above.*

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

- i. One trip blank reported per matrix, analysis and cooler? **Yes / No / NA (Please explain.)**

Comments: *One soil trip blank (STB) was submitted to the laboratory with the project samples.*

- ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes / No / NA (Please explain if NA or no.)**

Comments: *Only one cooler was used to transport the samples.*

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

Comments: *Although less than the LOQ, a concentration of chloroform (0.840 J mg/kg) was detected in the soil trip blank.*

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

Comments: *All samples.*

- v. Data quality or usability affected? Explain.

Comments: *Both the sample and method blank concentrations are reported at levels less than the LOQ; therefore, the chloroform concentration in Sample B13S3 is reported as non-detect at the LOQ and flagged “B”. Chloroform was not detected in the remaining project samples; therefore, flagging was not required.*

e. **Field Duplicate**

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

Yes / No / NA (Please explain.)

Comments: *Sample B13S13 is the field duplicate of Sample B13S3.*

- ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA (Please explain.)**

Comments:

iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) Yes / **No** / NA (Please explain.)
Comments: *The 4-Isopropyltoluene concentration detected in the duplicate sample set are outside the QC criteria of 50% (102%) and flagged "E" in Table 3.*

iv. Data quality or usability affected? Explain. **NA**
Comments: *The 4-Isopropyltoluene concentration detected in the duplicate sample set are considered estimated. The laboratory reported results are less than the ADEC cleanup level, therefore, the data is considered usable for the purposes of this project.*

f. **Decontamination or Equipment Blank** (if not applicable, a comment stating why must be entered below)
Yes / No / NA (Please explain.)
Comments: *A decontamination/equipment blank was not included in our ADEC-approved work plan.*

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

Comments:

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

Comments:

iii. Data quality or usability affected? Explain. **NA**

Comments:

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

a. Are they defined and appropriate? **Yes** / No / NA

Comments: *Laboratory-specific flags are defined on page 4 of the SGS report.*

Laboratory Report of Analysis

To: Shannon & Wilson, Inc.
5430 Fairbanks St. Suite 3
Anchorage, AK 99518
(907)561-2120

Report Number: **1193260**

Client Project: **17857-002 AWWU PS12**

Dear Jacob Tracy,

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

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

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

Sincerely,
SGS North America Inc.

Jillian Janssen
Project Manager
Jillian.Janssen@sgs.com

Date

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**

SGS Project: **1193260**

Project Name/Site: **17857-002 AWWU PS12**

Project Contact: **Jacob Tracy**

Refer to sample receipt form for information on sample condition.

17857-MW8 (1193260004) PS

AK101 - Sample has a pH greater than two and the result might be biased low.

17857-MW9 (1193260005) PS

8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria.
8270D SIM - PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria.

17857-MW13 (1193260009) PS

AK101 - Sample has a pH greater than two; however, the sample was analyzed within 7 days from collection.

17857-MW14 (1193260010) PS

8260C - Sample has a pH greater than two; however, the sample was analyzed within 7 days from collection.

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

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Report of Manual Integrations

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Analytical Batch</u>	<u>Analyte</u>	<u>Reason</u>
SW8260C				
1193260005	17857-MW9	VMS19094	4-Isopropyltoluene	SP
1193260006	17857-MW19	VMS19094	4-Isopropyltoluene	SP
1193260008	17857-MW12	VMS19094	4-Isopropyltoluene	SP
1193260009	17857-MW13	VMS19094	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry (DW Chemistry (Provisionally Certified as of 6/20/19 for Turbidity by SM 2130B, and Copper by EPA 200.8) & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

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

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

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

Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
17857-MW1	1193260001	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW3	1193260002	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW5	1193260003	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW8	1193260004	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW9	1193260005	06/21/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW19	1193260006	06/21/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW11	1193260007	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW12	1193260008	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW13	1193260009	06/21/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-MW14	1193260010	06/21/2019	06/21/2019	Water (Surface, Eff., Ground)
17857-WTB	1193260011	06/20/2019	06/21/2019	Water (Surface, Eff., Ground)

Method

8270D SIM LV (PAH)
AK102
AK101
SW8260C

Method Description

8270 PAH SIM GC/MS Liq/Liq ext. LV
DRO Low Volume (W)
Gasoline Range Organics (W)
Volatile Organic Compounds (W) FULL

Print Date: 07/09/2019 12:20:29PM

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Detectable Results SummaryClient Sample ID: **17857-MW1**

Lab Sample ID: 1193260001

Semivolatile Organic Fuels**Volatile GC/MS**Client Sample ID: **17857-MW3**

Lab Sample ID: 1193260002

Semivolatile Organic Fuels**Volatile Fuels****Volatile GC/MS**

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.255J	mg/L
Toluene	0.500J	ug/L

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	4.36	mg/L
Gasoline Range Organics	0.0833J	mg/L
1,2,4-Trimethylbenzene	7.22	ug/L
4-Isopropyltoluene	1.83	ug/L
Benzene	6.01	ug/L
Dichlorodifluoromethane	0.330J	ug/L
Ethylbenzene	2.28	ug/L
Isopropylbenzene (Cumene)	2.13	ug/L
Naphthalene	27.9	ug/L
n-Propylbenzene	2.27	ug/L
P & M -Xylene	6.23	ug/L
sec-Butylbenzene	1.34	ug/L
Xylenes (total)	6.23	ug/L

Client Sample ID: **17857-MW5**

Lab Sample ID: 1193260003

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Toluene	0.440J	ug/L

Client Sample ID: **17857-MW8**

Lab Sample ID: 1193260004

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Toluene	0.890J	ug/L

Detectable Results SummaryClient Sample ID: **17857-MW9**

Lab Sample ID: 1193260005

Polynuclear Aromatics GC/MS

Parameter	Result	Units
1-Methylnaphthalene	3.49	ug/L
2-Methylnaphthalene	3.53	ug/L
Anthracene	0.0347J	ug/L
Benzo(a)Anthracene	0.0308J	ug/L
Benzo[a]pyrene	0.0333	ug/L
Benzo[b]Fluoranthene	0.0336J	ug/L
Benzo[g,h,i]perylene	0.0308J	ug/L
Benzo[k]fluoranthene	0.0297J	ug/L
Chrysene	0.0445J	ug/L
Dibenzo[a,h]anthracene	0.0257	ug/L
Fluoranthene	0.0465J	ug/L
Fluorene	0.322	ug/L
Indeno[1,2,3-c,d] pyrene	0.0283J	ug/L
Naphthalene	2.33	ug/L
Phenanthrene	0.154	ug/L
Pyrene	0.0581	ug/L
Diesel Range Organics	3.34	mg/L
Gasoline Range Organics	0.394	mg/L
1,2,4-Trimethylbenzene	29.8	ug/L
1,3,5-Trimethylbenzene	16.0	ug/L
2-Butanone (MEK)	17.5	ug/L
4-Isopropyltoluene	1.71	ug/L
Benzene	1.92	ug/L
Dichlorodifluoromethane	23.5	ug/L
Ethylbenzene	7.38	ug/L
Isopropylbenzene (Cumene)	2.06	ug/L
Naphthalene	11.9	ug/L
n-Propylbenzene	2.36	ug/L
o-Xylene	11.8	ug/L
P & M -Xylene	25.4	ug/L
sec-Butylbenzene	1.32	ug/L
tert-Butylbenzene	0.350J	ug/L
Toluene	0.870J	ug/L
Xylenes (total)	37.1	ug/L

Semivolatile Organic Fuels**Volatile Fuels****Volatile GC/MS**

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Detectable Results Summary

Client Sample ID: **17857-MW19**

Lab Sample ID: 1193260006

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Gasoline Range Organics	0.418	mg/L
1,2,4-Trimethylbenzene	41.9	ug/L
1,3,5-Trimethylbenzene	22.9	ug/L
2-Butanone (MEK)	21.1	ug/L
4-Isopropyltoluene	2.03	ug/L
Benzene	2.33	ug/L
Dichlorodifluoromethane	24.1	ug/L
Ethylbenzene	9.65	ug/L
Isopropylbenzene (Cumene)	2.54	ug/L
Naphthalene	16.9	ug/L
n-Propylbenzene	3.13	ug/L
o-Xylene	16.1	ug/L
P & M -Xylene	34.4	ug/L
sec-Butylbenzene	1.53	ug/L
tert-Butylbenzene	0.420J	ug/L
Toluene	1.07	ug/L
Xylenes (total)	50.5	ug/L

Client Sample ID: **17857-MW11**

Lab Sample ID: 1193260007

Semivolatile Organic Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	0.476J	mg/L
Dichlorodifluoromethane	77.8	ug/L
Toluene	0.600J	ug/L

Client Sample ID: **17857-MW12**

Lab Sample ID: 1193260008

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Units</u>
Diesel Range Organics	1.83	mg/L
Gasoline Range Organics	0.434	mg/L
1,2,4-Trimethylbenzene	69.7	ug/L
1,3,5-Trimethylbenzene	10.7	ug/L
4-Isopropyltoluene	0.920J	ug/L
Benzene	3.99	ug/L
cis-1,2-Dichloroethene	1.01	ug/L
Dichlorodifluoromethane	9.98	ug/L
Ethylbenzene	26.5	ug/L
Isopropylbenzene (Cumene)	8.12	ug/L
Naphthalene	46.5	ug/L
n-Propylbenzene	13.7	ug/L
o-Xylene	52.3	ug/L
P & M -Xylene	81.8	ug/L
sec-Butylbenzene	2.28	ug/L
tert-Butylbenzene	0.360J	ug/L
Toluene	5.12	ug/L
Trichloroethene	0.490J	ug/L
Xylenes (total)	134	ug/L

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Detectable Results Summary

Client Sample ID: **17857-MW13**

Lab Sample ID: 1193260009

Semivolatile Organic Fuels

Volatile Fuels

Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	1.66	mg/L
Gasoline Range Organics	0.0417J	mg/L
1,2,4-Trimethylbenzene	2.31	ug/L
4-Isopropyltoluene	0.610J	ug/L
Benzene	0.870	ug/L
Isopropylbenzene (Cumene)	1.22	ug/L
Naphthalene	1.22	ug/L
n-Butylbenzene	1.34	ug/L
n-Propylbenzene	1.41	ug/L
sec-Butylbenzene	2.61	ug/L
tert-Butylbenzene	0.540J	ug/L
Toluene	0.370J	ug/L

Client Sample ID: **17857-MW14**

Lab Sample ID: 1193260010

Semivolatile Organic Fuels

Client Sample ID: **17857-WTB**

Lab Sample ID: 1193260011

Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	0.405J	mg/L

Parameter	Result	Units
Methylene chloride	1.27J	ug/L

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Results of 17857-MW1

Client Sample ID: **17857-MW1**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260001
Lab Project ID: 1193260

Collection Date: 06/20/19 12:55
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.255 J		0.577	0.173	mg/L	1		06/27/19 09:31

Surrogates

5a Androstane (surr)	76.4	50-150	%	1	06/27/19 09:31
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 09:31
Container ID: 1193260001-A

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 06/25/19 08:49
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of 17857-MW1

Client Sample ID: 17857-MW1
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260001
Lab Project ID: 1193260

Collection Date: 06/20/19 12:55
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 04:26

Surrogates

4-Bromofluorobenzene (surr)	87.5	50-150	%	1	06/28/19 04:26
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 04:26
Container ID: 1193260001-C

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW1

Client Sample ID: **17857-MW1**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260001
 Lab Project ID: 1193260

Collection Date: 06/20/19 12:55
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/25/19 17:06
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/25/19 17:06
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
Benzene	0.200	U	0.400	0.120	ug/L	1		06/25/19 17:06
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/25/19 17:06
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW1

Client Sample ID: **17857-MW1**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260001
 Lab Project ID: 1193260

Collection Date: 06/20/19 12:55
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:06
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/25/19 17:06
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/25/19 17:06
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Styrene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Toluene	0.500	J	1.00	0.310	ug/L	1		06/25/19 17:06
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:06
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:06
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/25/19 17:06
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/25/19 17:06

Surrogates

1,2-Dichloroethane-D4 (surr)	109	81-118	%	1	06/25/19 17:06
4-Bromofluorobenzene (surr)	104	85-114	%	1	06/25/19 17:06
Toluene-d8 (surr)	98	89-112	%	1	06/25/19 17:06

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW1

Client Sample ID: 17857-MW1
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260001
Lab Project ID: 1193260

Collection Date: 06/20/19 12:55
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19090
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/25/19 17:06
Container ID: 1193260001-F

Prep Batch: VXX34322
Prep Method: SW5030B
Prep Date/Time: 06/25/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW3

Client Sample ID: **17857-MW3**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260002
Lab Project ID: 1193260

Collection Date: 06/20/19 15:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	4.36	0.566	0.170	mg/L	1		06/27/19 09:41

Surrogates

5a Androstane (surr)	79	50-150	%	1	06/27/19 09:41
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 09:41
Container ID: 1193260002-A

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 06/25/19 08:49
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Results of 17857-MW3

Client Sample ID: **17857-MW3**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260002
Lab Project ID: 1193260

Collection Date: 06/20/19 15:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0833	J	0.100	0.0310	mg/L	1		06/28/19 04:44

Surrogates

4-Bromofluorobenzene (surr)	104	50-150	%	1	06/28/19 04:44
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Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Analyst: ST

Prep Date/Time: 06/27/19 08:00

Analytical Date/Time: 06/28/19 04:44

Prep Initial Wt./Vol.: 5 mL

Container ID: 1193260002-C

Prep Extract Vol: 5 mL

Results of 17857-MW3

Client Sample ID: **17857-MW3**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260002
 Lab Project ID: 1193260

Collection Date: 06/20/19 15:20
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
1,1,2-Trichloroethane	0.200 U	0.400	0.120	ug/L	1		06/25/19 17:21
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,2,4-Trimethylbenzene	7.22	1.00	0.310	ug/L	1		06/25/19 17:21
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:21
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		06/25/19 17:21
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:21
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:21
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
4-Isopropyltoluene	1.83	1.00	0.310	ug/L	1		06/25/19 17:21
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:21
Benzene	6.01	0.400	0.120	ug/L	1		06/25/19 17:21
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
Bromoform	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
Bromomethane	2.50 U	5.00	1.50	ug/L	1		06/25/19 17:21
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:21
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:21
Chloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:21

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW3

Client Sample ID: **17857-MW3**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260002
 Lab Project ID: 1193260

Collection Date: 06/20/19 15:20
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:21
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:21
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Dichlorodifluoromethane	0.330	J	1.00	0.310	ug/L	1		06/25/19 17:21
Ethylbenzene	2.28		1.00	0.310	ug/L	1		06/25/19 17:21
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:21
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Isopropylbenzene (Cumene)	2.13		1.00	0.310	ug/L	1		06/25/19 17:21
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/25/19 17:21
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:21
Naphthalene	27.9		1.00	0.310	ug/L	1		06/25/19 17:21
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
n-Propylbenzene	2.27		1.00	0.310	ug/L	1		06/25/19 17:21
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
P & M -Xylene	6.23		2.00	0.620	ug/L	1		06/25/19 17:21
sec-Butylbenzene	1.34		1.00	0.310	ug/L	1		06/25/19 17:21
Styrene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Toluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:21
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:21
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/25/19 17:21
Xylenes (total)	6.23		3.00	1.00	ug/L	1		06/25/19 17:21

Surrogates

1,2-Dichloroethane-D4 (surr)	106	81-118	%	1	06/25/19 17:21
4-Bromofluorobenzene (surr)	104	85-114	%	1	06/25/19 17:21
Toluene-d8 (surr)	96.2	89-112	%	1	06/25/19 17:21

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW3

Client Sample ID: 17857-MW3
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260002
Lab Project ID: 1193260

Collection Date: 06/20/19 15:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19090
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/25/19 17:21
Container ID: 1193260002-F

Prep Batch: VXX34322
Prep Method: SW5030B
Prep Date/Time: 06/25/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW5

Client Sample ID: **17857-MW5**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260003
Lab Project ID: 1193260

Collection Date: 06/20/19 12:00
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.300 U	0.600	0.180	mg/L	1		06/27/19 09:50

Surrogates

5a Androstane (surr)	77.9	50-150	%	1	06/27/19 09:50
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 09:50
Container ID: 1193260003-A

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 06/25/19 08:49
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of 17857-MW5

Client Sample ID: **17857-MW5**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260003
Lab Project ID: 1193260

Collection Date: 06/20/19 12:00
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 05:02

Surrogates

4-Bromofluorobenzene (surr)	91.4	50-150	%	1	06/28/19 05:02
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Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Analyst: ST

Prep Date/Time: 06/27/19 08:00

Analytical Date/Time: 06/28/19 05:02

Prep Initial Wt./Vol.: 5 mL

Container ID: 1193260003-C

Prep Extract Vol: 5 mL

Results of 17857-MW5

Client Sample ID: **17857-MW5**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260003
 Lab Project ID: 1193260

Collection Date: 06/20/19 12:00
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
1,1,2-Trichloroethane	0.200 U	0.400	0.120	ug/L	1		06/25/19 17:36
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:36
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		06/25/19 17:36
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:36
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:36
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:36
Benzene	0.200 U	0.400	0.120	ug/L	1		06/25/19 17:36
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
Bromoform	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
Bromomethane	2.50 U	5.00	1.50	ug/L	1		06/25/19 17:36
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		06/25/19 17:36
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/25/19 17:36
Chloroethane	0.500 U	1.00	0.310	ug/L	1		06/25/19 17:36

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW5

Client Sample ID: **17857-MW5**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260003
 Lab Project ID: 1193260

Collection Date: 06/20/19 12:00
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:36
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:36
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:36
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/25/19 17:36
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:36
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:27
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/25/19 17:36
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Styrene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Toluene	0.440	J	1.00	0.310	ug/L	1		06/25/19 17:36
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:36
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:36
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/25/19 17:36
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/25/19 17:36

Surrogates

1,2-Dichloroethane-D4 (surr)	109	81-118	%	1	06/25/19 17:36
4-Bromofluorobenzene (surr)	104	85-114	%	1	06/25/19 17:36
Toluene-d8 (surr)	97.6	89-112	%	1	06/25/19 17:36

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J flagging is activated

Results of 17857-MW5

Client Sample ID: 17857-MW5
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260003
Lab Project ID: 1193260

Collection Date: 06/20/19 12:00
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 16:27
Container ID: 1193260003-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19090
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/25/19 17:36
Container ID: 1193260003-F

Prep Batch: VXX34322
Prep Method: SW5030B
Prep Date/Time: 06/25/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW8

Client Sample ID: **17857-MW8**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260004
Lab Project ID: 1193260

Collection Date: 06/20/19 15:15
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.302	U	0.605	0.181	mg/L	1		06/27/19 10:00

Surrogates

5a Androstane (surr)	67.1	50-150	%	1	06/27/19 10:00
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 10:00
Container ID: 1193260004-A

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 06/25/19 08:49
Prep Initial Wt./Vol.: 248 mL
Prep Extract Vol: 1 mL

Results of 17857-MW8

Client Sample ID: **17857-MW8**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260004
Lab Project ID: 1193260

Collection Date: 06/20/19 15:15
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 05:20

Surrogates

4-Bromofluorobenzene (surr)	92.1	50-150	%	1	06/28/19 05:20
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 05:20
Container ID: 1193260004-C

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW8

Client Sample ID: **17857-MW8**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260004
 Lab Project ID: 1193260

Collection Date: 06/20/19 15:15
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/25/19 17:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/25/19 17:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
Benzene	0.200	U	0.400	0.120	ug/L	1		06/25/19 17:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/25/19 17:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52

Print Date: 07/09/2019 12:20:31PM

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Results of 17857-MW8

Client Sample ID: **17857-MW8**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260004
 Lab Project ID: 1193260

Collection Date: 06/20/19 15:15
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/25/19 17:52
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/25/19 17:52
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/25/19 17:52
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Styrene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Toluene	0.890	J	1.00	0.310	ug/L	1		06/25/19 17:52
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/25/19 17:52
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/25/19 17:52
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/25/19 17:52
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/25/19 17:52

Surrogates

1,2-Dichloroethane-D4 (surr)	108	81-118	%	1	06/25/19 17:52
4-Bromofluorobenzene (surr)	103	85-114	%	1	06/25/19 17:52
Toluene-d8 (surr)	98.9	89-112	%	1	06/25/19 17:52

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J flagging is activated

Results of 17857-MW8

Client Sample ID: 17857-MW8
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260004
Lab Project ID: 1193260

Collection Date: 06/20/19 15:15
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19090
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/25/19 17:52
Container ID: 1193260004-F

Prep Batch: VXX34322
Prep Method: SW5030B
Prep Date/Time: 06/25/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW9

Client Sample ID: **17857-MW9**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260005
 Lab Project ID: 1193260

Collection Date: 06/21/19 11:30
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Polynuclear Aromatics GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	3.49	0.0481	0.0144	ug/L	1		07/06/19 01:55
2-Methylnaphthalene	3.53	0.0481	0.0144	ug/L	1		07/06/19 01:55
Acenaphthene	0.0240 U	0.0481	0.0144	ug/L	1		07/06/19 01:55
Acenaphthylene	0.0240 U	0.0481	0.0144	ug/L	1		07/06/19 01:55
Anthracene	0.0347 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Benzo(a)Anthracene	0.0308 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Benzo[a]pyrene	0.0333	0.0192	0.00596	ug/L	1		07/06/19 01:55
Benzo[b]Fluoranthene	0.0336 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Benzo[g,h,i]perylene	0.0308 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Benzo[k]fluoranthene	0.0297 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Chrysene	0.0445 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Dibenz[a,h]anthracene	0.0257	0.0192	0.00596	ug/L	1		07/06/19 01:55
Fluoranthene	0.0465 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Fluorene	0.322	0.0481	0.0144	ug/L	1		07/06/19 01:55
Indeno[1,2,3-c,d] pyrene	0.0283 J	0.0481	0.0144	ug/L	1		07/06/19 01:55
Naphthalene	2.33	0.0962	0.0298	ug/L	1		07/06/19 01:55
Phenanthrene	0.154	0.0481	0.0144	ug/L	1		07/06/19 01:55
Pyrene	0.0581	0.0481	0.0144	ug/L	1		07/06/19 01:55

Surrogates

2-Methylnaphthalene-d10 (surr)	35.3	*	47-106	%	1	07/06/19 01:55
Fluoranthene-d10 (surr)	30.2		24-116	%	1	07/06/19 01:55

Batch Information

Analytical Batch: XMS11493
 Analytical Method: 8270D SIM LV (PAH)
 Analyst: BMZ
 Analytical Date/Time: 07/06/19 01:55
 Container ID: 1193260005-B

Prep Batch: XXX41650
 Prep Method: SW3520C
 Prep Date/Time: 06/25/19 08:49
 Prep Initial Wt./Vol.: 260 mL
 Prep Extract Vol: 1 mL

Results of 17857-MW9

Client Sample ID: **17857-MW9**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260005
Lab Project ID: 1193260

Collection Date: 06/21/19 11:30
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	3.34	0.588	0.176	mg/L	1		06/27/19 10:10

Surrogates

5a Androstane (surr)	72.4	50-150	%	1	06/27/19 10:10
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 06/27/19 10:10
Container ID: 1193260005-A

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 06/25/19 08:49
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of 17857-MW9

Client Sample ID: **17857-MW9**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260005
Lab Project ID: 1193260

Collection Date: 06/21/19 11:30
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.394		0.100	0.0310	mg/L	1		06/28/19 05:38

Surrogates

4-Bromofluorobenzene (surr)	119	50-150	%	1	06/28/19 05:38
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Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Analyst: ST

Prep Date/Time: 06/27/19 08:00

Analytical Date/Time: 06/28/19 05:38

Prep Initial Wt./Vol.: 5 mL

Container ID: 1193260005-C

Prep Extract Vol: 5 mL

Results of 17857-MW9

 Client Sample ID: **17857-MW9**

 Client Project ID: **17857-002 AWWU PS12**

Lab Sample ID: 1193260005

Lab Project ID: 1193260

Collection Date: 06/21/19 11:30

Received Date: 06/21/19 15:56

Matrix: Water (Surface, Eff., Ground)

Solids (%):

Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 16:43
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,2,4-Trimethylbenzene	29.8		1.00	0.310	ug/L	1		06/26/19 16:43
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 16:43
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,3,5-Trimethylbenzene	16.0		1.00	0.310	ug/L	1		06/26/19 16:43
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
2-Butanone (MEK)	17.5		10.0	3.10	ug/L	1		06/26/19 16:43
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
4-Isopropyltoluene	1.71		1.00	0.310	ug/L	1		06/26/19 16:43
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
Benzene	1.92		0.400	0.120	ug/L	1		06/26/19 16:43
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 16:43
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW9

Client Sample ID: **17857-MW9**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260005
 Lab Project ID: 1193260

Collection Date: 06/21/19 11:30
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:43
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Dichlorodifluoromethane	23.5		1.00	0.310	ug/L	1		06/26/19 16:43
Ethylbenzene	7.38		1.00	0.310	ug/L	1		06/26/19 16:43
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Isopropylbenzene (Cumene)	2.06		1.00	0.310	ug/L	1		06/26/19 16:43
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/26/19 16:43
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
Naphthalene	11.9		1.00	0.310	ug/L	1		06/26/19 16:43
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
n-Propylbenzene	2.36		1.00	0.310	ug/L	1		06/26/19 16:43
o-Xylene	11.8		1.00	0.310	ug/L	1		06/26/19 16:43
P & M -Xylene	25.4		2.00	0.620	ug/L	1		06/26/19 16:43
sec-Butylbenzene	1.32		1.00	0.310	ug/L	1		06/26/19 16:43
Styrene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
tert-Butylbenzene	0.350	J	1.00	0.310	ug/L	1		06/26/19 16:43
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Toluene	0.870	J	1.00	0.310	ug/L	1		06/26/19 16:43
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:43
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:43
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/26/19 16:43
Xylenes (total)	37.1		3.00	1.00	ug/L	1		06/26/19 16:43

Surrogates

1,2-Dichloroethane-D4 (surr)	109	81-118	%	1	06/26/19 16:43
4-Bromofluorobenzene (surr)	111	85-114	%	1	06/26/19 16:43
Toluene-d8 (surr)	99.1	89-112	%	1	06/26/19 16:43

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW9

Client Sample ID: 17857-MW9
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260005
Lab Project ID: 1193260

Collection Date: 06/21/19 11:30
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 16:43
Container ID: 1193260005-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW19

Client Sample ID: **17857-MW19**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260006
Lab Project ID: 1193260

Collection Date: 06/21/19 12:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.418		0.100	0.0310	mg/L	1		06/28/19 05:55

Surrogates

4-Bromofluorobenzene (surr)	128	50-150	%	1	06/28/19 05:55
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 05:55
Container ID: 1193260006-A

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW19

Client Sample ID: **17857-MW19**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260006
 Lab Project ID: 1193260

Collection Date: 06/21/19 12:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 16:58
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,2,4-Trimethylbenzene	41.9		1.00	0.310	ug/L	1		06/26/19 16:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 16:58
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,3,5-Trimethylbenzene	22.9		1.00	0.310	ug/L	1		06/26/19 16:58
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
2-Butanone (MEK)	21.1		10.0	3.10	ug/L	1		06/26/19 16:58
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
4-Isopropyltoluene	2.03		1.00	0.310	ug/L	1		06/26/19 16:58
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
Benzene	2.33		0.400	0.120	ug/L	1		06/26/19 16:58
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 16:58
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW19

Client Sample ID: **17857-MW19**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260006
 Lab Project ID: 1193260

Collection Date: 06/21/19 12:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 16:58
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Dichlorodifluoromethane	24.1		1.00	0.310	ug/L	1		06/26/19 16:58
Ethylbenzene	9.65		1.00	0.310	ug/L	1		06/26/19 16:58
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Isopropylbenzene (Cumene)	2.54		1.00	0.310	ug/L	1		06/26/19 16:58
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/26/19 16:58
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
Naphthalene	16.9		1.00	0.310	ug/L	1		06/26/19 16:58
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
n-Propylbenzene	3.13		1.00	0.310	ug/L	1		06/26/19 16:58
o-Xylene	16.1		1.00	0.310	ug/L	1		06/26/19 16:58
P & M -Xylene	34.4		2.00	0.620	ug/L	1		06/26/19 16:58
sec-Butylbenzene	1.53		1.00	0.310	ug/L	1		06/26/19 16:58
Styrene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
tert-Butylbenzene	0.420	J	1.00	0.310	ug/L	1		06/26/19 16:58
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Toluene	1.07		1.00	0.310	ug/L	1		06/26/19 16:58
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 16:58
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/26/19 16:58
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/26/19 16:58
Xylenes (total)	50.5		3.00	1.00	ug/L	1		06/26/19 16:58

Surrogates

1,2-Dichloroethane-D4 (surr)	106	81-118	%	1	06/26/19 16:58
4-Bromofluorobenzene (surr)	112	85-114	%	1	06/26/19 16:58
Toluene-d8 (surr)	99.7	89-112	%	1	06/26/19 16:58

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J flagging is activated

Results of 17857-MW19

Client Sample ID: 17857-MW19
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260006
Lab Project ID: 1193260

Collection Date: 06/21/19 12:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 16:58
Container ID: 1193260006-D

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW11

Client Sample ID: **17857-MW11**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260007
Lab Project ID: 1193260

Collection Date: 06/20/19 14:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.476	J	0.588	0.176	mg/L	1		07/04/19 14:21

Surrogates

5a Androstane (surr)	84.2	50-150	%	1	07/04/19 14:21
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Batch Information

Analytical Batch: XFC15102
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/04/19 14:21
Container ID: 1193260007-A

Prep Batch: XXX41658
Prep Method: SW3520C
Prep Date/Time: 06/26/19 09:22
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Results of 17857-MW11

Client Sample ID: **17857-MW11**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260007
Lab Project ID: 1193260

Collection Date: 06/20/19 14:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 06:13

Surrogates

4-Bromofluorobenzene (surr)	90.9	50-150	%	1	06/28/19 06:13
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 06:13
Container ID: 1193260007-C

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW11

Client Sample ID: **17857-MW11**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260007
 Lab Project ID: 1193260

Collection Date: 06/20/19 14:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
1,1,1-Trichloroethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,1,2,2-Tetrachloroethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
1,1,2-Trichloroethane	0.200 U	0.400	0.120	ug/L	1		06/26/19 17:13
1,1-Dichloroethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,1-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,1-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2,3-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2,3-Trichloropropane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2,4-Trichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2,4-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2-Dibromo-3-chloropropane	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
1,2-Dibromoethane	0.0375 U	0.0750	0.0180	ug/L	1		06/26/19 17:13
1,2-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,2-Dichloroethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
1,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,3,5-Trimethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,3-Dichlorobenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
1,3-Dichloropropane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
1,4-Dichlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
2,2-Dichloropropane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
2-Butanone (MEK)	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
2-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
2-Hexanone	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
4-Chlorotoluene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
4-Isopropyltoluene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
4-Methyl-2-pentanone (MIBK)	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
Benzene	0.200 U	0.400	0.120	ug/L	1		06/26/19 17:13
Bromobenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Bromochloromethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Bromodichloromethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
Bromoform	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Bromomethane	2.50 U	5.00	1.50	ug/L	1		06/26/19 17:13
Carbon disulfide	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
Carbon tetrachloride	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Chlorobenzene	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
Chloroethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW11

Client Sample ID: **17857-MW11**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260007
 Lab Project ID: 1193260

Collection Date: 06/20/19 14:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Chloromethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
cis-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:13
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Dichlorodifluoromethane	77.8	1.00	0.310	ug/L	1		06/26/19 17:13
Ethylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Freon-113	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Isopropylbenzene (Cumene)	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Methylene chloride	2.50 U	5.00	1.00	ug/L	1		06/26/19 17:13
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
Naphthalene	0.500 U	1.00	0.310	ug/L	1		06/27/19 15:24
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
n-Propylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
o-Xylene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
P & M -Xylene	1.00 U	2.00	0.620	ug/L	1		06/26/19 17:13
sec-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Styrene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
tert-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Toluene	0.600 J	1.00	0.310	ug/L	1		06/26/19 17:13
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Trichloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:13
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:13
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		06/26/19 17:13
Xylenes (total)	1.50 U	3.00	1.00	ug/L	1		06/26/19 17:13

Surrogates

1,2-Dichloroethane-D4 (surr)	108	81-118	%	1	06/26/19 17:13
4-Bromofluorobenzene (surr)	106	85-114	%	1	06/26/19 17:13
Toluene-d8 (surr)	99	89-112	%	1	06/26/19 17:13

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J flagging is activated

Results of 17857-MW11

Client Sample ID: 17857-MW11
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260007
Lab Project ID: 1193260

Collection Date: 06/20/19 14:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19101
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/27/19 15:24
Container ID: 1193260007-F

Prep Batch: VXX34333
Prep Method: SW5030B
Prep Date/Time: 06/27/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 17:13
Container ID: 1193260007-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW12

Client Sample ID: **17857-MW12**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260008
Lab Project ID: 1193260

Collection Date: 06/20/19 16:35
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.83	0.556	0.167	mg/L	1		07/04/19 14:32

Surrogates

5a Androstane (surr)	81.7	50-150	%	1	07/04/19 14:32
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Batch Information

Analytical Batch: XFC15102
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/04/19 14:32
Container ID: 1193260008-A

Prep Batch: XXX41658
Prep Method: SW3520C
Prep Date/Time: 06/26/19 09:22
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Results of 17857-MW12

Client Sample ID: **17857-MW12**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260008
Lab Project ID: 1193260

Collection Date: 06/20/19 16:35
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.434		0.100	0.0310	mg/L	1		06/28/19 06:31

Surrogates

4-Bromofluorobenzene (surr)	132	50-150	%	1	06/28/19 06:31
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 06:31
Container ID: 1193260008-C

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW12

Client Sample ID: **17857-MW12**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260008
 Lab Project ID: 1193260

Collection Date: 06/20/19 16:35
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 17:28
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,2,4-Trimethylbenzene	69.7		1.00	0.310	ug/L	1		06/26/19 17:28
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:28
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 17:28
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,3,5-Trimethylbenzene	10.7		1.00	0.310	ug/L	1		06/26/19 17:28
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:28
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:28
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
4-Isopropyltoluene	0.920	J	1.00	0.310	ug/L	1		06/26/19 17:28
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:28
Benzene	3.99		0.400	0.120	ug/L	1		06/26/19 17:28
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 17:28
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:28
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:28
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:28

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW12

Client Sample ID: **17857-MW12**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260008
 Lab Project ID: 1193260

Collection Date: 06/20/19 16:35
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Chloromethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
cis-1,2-Dichloroethene	1.01	1.00	0.310	ug/L	1		06/26/19 17:28
cis-1,3-Dichloropropene	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:28
Dibromochloromethane	0.250 U	0.500	0.150	ug/L	1		06/26/19 17:28
Dibromomethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Dichlorodifluoromethane	9.98	1.00	0.310	ug/L	1		06/26/19 17:28
Ethylbenzene	26.5	1.00	0.310	ug/L	1		06/26/19 17:28
Freon-113	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:28
Hexachlorobutadiene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Isopropylbenzene (Cumene)	8.12	1.00	0.310	ug/L	1		06/26/19 17:28
Methylene chloride	2.50 U	5.00	1.00	ug/L	1		06/26/19 17:28
Methyl-t-butyl ether	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:28
Naphthalene	46.5	1.00	0.310	ug/L	1		06/26/19 17:28
n-Butylbenzene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
n-Propylbenzene	13.7	1.00	0.310	ug/L	1		06/26/19 17:28
o-Xylene	52.3	1.00	0.310	ug/L	1		06/26/19 17:28
P & M -Xylene	81.8	2.00	0.620	ug/L	1		06/26/19 17:28
sec-Butylbenzene	2.28	1.00	0.310	ug/L	1		06/26/19 17:28
Styrene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
tert-Butylbenzene	0.360 J	1.00	0.310	ug/L	1		06/26/19 17:28
Tetrachloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Toluene	5.12	1.00	0.310	ug/L	1		06/26/19 17:28
trans-1,2-Dichloroethene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
trans-1,3-Dichloropropene	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Trichloroethene	0.490 J	1.00	0.310	ug/L	1		06/26/19 17:28
Trichlorofluoromethane	0.500 U	1.00	0.310	ug/L	1		06/26/19 17:28
Vinyl acetate	5.00 U	10.0	3.10	ug/L	1		06/26/19 17:28
Vinyl chloride	0.0750 U	0.150	0.0500	ug/L	1		06/26/19 17:28
Xylenes (total)	134	3.00	1.00	ug/L	1		06/26/19 17:28

Surrogates

1,2-Dichloroethane-D4 (surr)	107	81-118	%	1	06/26/19 17:28
4-Bromofluorobenzene (surr)	104	85-114	%	1	06/26/19 17:28
Toluene-d8 (surr)	100	89-112	%	1	06/26/19 17:28

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW12

Client Sample ID: 17857-MW12
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260008
Lab Project ID: 1193260

Collection Date: 06/20/19 16:35
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 17:28
Container ID: 1193260008-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW13

Client Sample ID: **17857-MW13**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260009
Lab Project ID: 1193260

Collection Date: 06/21/19 12:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.66		0.577	0.173	mg/L	1		07/04/19 14:42

Surrogates

5a Androstane (surr)	84.8	50-150	%	1	07/04/19 14:42
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Batch Information

Analytical Batch: XFC15102
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/04/19 14:42
Container ID: 1193260009-A

Prep Batch: XXX41658
Prep Method: SW3520C
Prep Date/Time: 06/26/19 09:22
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Results of 17857-MW13

Client Sample ID: **17857-MW13**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260009
Lab Project ID: 1193260

Collection Date: 06/21/19 12:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0417 J	0.100	0.0310	mg/L	1		06/28/19 06:49

Surrogates

4-Bromofluorobenzene (surr)	97.2	50-150	%	1	06/28/19 06:49
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Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Analyst: ST

Prep Date/Time: 06/27/19 08:00

Analytical Date/Time: 06/28/19 06:49

Prep Initial Wt./Vol.: 5 mL

Container ID: 1193260009-C

Prep Extract Vol: 5 mL

Results of 17857-MW13

Client Sample ID: **17857-MW13**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260009
 Lab Project ID: 1193260

Collection Date: 06/21/19 12:20
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 17:44
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,2,4-Trimethylbenzene	2.31		1.00	0.310	ug/L	1		06/27/19 15:39
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 17:44
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
4-Isopropyltoluene	0.610	J	1.00	0.310	ug/L	1		06/26/19 17:44
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
Benzene	0.870		0.400	0.120	ug/L	1		06/26/19 17:44
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 17:44
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW13

Client Sample ID: **17857-MW13**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260009
 Lab Project ID: 1193260

Collection Date: 06/21/19 12:20
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:44
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Isopropylbenzene (Cumene)	1.22		1.00	0.310	ug/L	1		06/26/19 17:44
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/26/19 17:44
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
Naphthalene	1.22		1.00	0.310	ug/L	1		06/27/19 15:39
n-Butylbenzene	1.34		1.00	0.310	ug/L	1		06/26/19 17:44
n-Propylbenzene	1.41		1.00	0.310	ug/L	1		06/26/19 17:44
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/26/19 17:44
sec-Butylbenzene	2.61		1.00	0.310	ug/L	1		06/26/19 17:44
Styrene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
tert-Butylbenzene	0.540	J	1.00	0.310	ug/L	1		06/26/19 17:44
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Toluene	0.370	J	1.00	0.310	ug/L	1		06/26/19 17:44
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:44
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:44
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/26/19 17:44
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/26/19 17:44

Surrogates

1,2-Dichloroethane-D4 (surr)	108	81-118	%	1	06/26/19 17:44
4-Bromofluorobenzene (surr)	103	85-114	%	1	06/26/19 17:44
Toluene-d8 (surr)	99.3	89-112	%	1	06/26/19 17:44

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW13

Client Sample ID: 17857-MW13
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260009
Lab Project ID: 1193260

Collection Date: 06/21/19 12:20
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19101
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/27/19 15:39
Container ID: 1193260009-F

Prep Batch: VXX34333
Prep Method: SW5030B
Prep Date/Time: 06/27/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 17:44
Container ID: 1193260009-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW14

Client Sample ID: **17857-MW14**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260010
Lab Project ID: 1193260

Collection Date: 06/21/19 11:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Semivolatile Organic Fuels

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.405	J	0.600	0.180	mg/L	1		07/04/19 14:51

Surrogates

5a Androstane (surr)	84	50-150	%	1	07/04/19 14:51
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Batch Information

Analytical Batch: XFC15102
Analytical Method: AK102
Analyst: VDL
Analytical Date/Time: 07/04/19 14:51
Container ID: 1193260010-A

Prep Batch: XXX41658
Prep Method: SW3520C
Prep Date/Time: 06/26/19 09:22
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Results of 17857-MW14

Client Sample ID: **17857-MW14**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260010
Lab Project ID: 1193260

Collection Date: 06/21/19 11:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 08:18

Surrogates

4-Bromofluorobenzene (surr)	90.5	50-150	%	1	06/28/19 08:18
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 08:18
Container ID: 1193260010-C

Prep Batch: VXX34343
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-MW14

Client Sample ID: **17857-MW14**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260010
 Lab Project ID: 1193260

Collection Date: 06/21/19 11:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 17:59
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 17:59
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
Benzene	0.200	U	0.400	0.120	ug/L	1		06/26/19 17:59
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 17:59
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW14

Client Sample ID: **17857-MW14**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260010
 Lab Project ID: 1193260

Collection Date: 06/21/19 11:05
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 17:59
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		06/26/19 17:59
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/27/19 15:54
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/26/19 17:59
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Styrene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Toluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 17:59
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/26/19 17:59
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/26/19 17:59
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/26/19 17:59

Surrogates

1,2-Dichloroethane-D4 (surr)	110	81-118	%	1	06/26/19 17:59
4-Bromofluorobenzene (surr)	104	85-114	%	1	06/26/19 17:59
Toluene-d8 (surr)	100	89-112	%	1	06/26/19 17:59

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-MW14

Client Sample ID: 17857-MW14
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260010
Lab Project ID: 1193260

Collection Date: 06/21/19 11:05
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19101
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/27/19 15:54
Container ID: 1193260010-F

Prep Batch: VXX34333
Prep Method: SW5030B
Prep Date/Time: 06/27/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 17:59
Container ID: 1193260010-F

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-WTB

Client Sample ID: **17857-WTB**
Client Project ID: **17857-002 AWWU PS12**
Lab Sample ID: 1193260011
Lab Project ID: 1193260

Collection Date: 06/20/19 10:00
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile Fuels

Parameter	Result Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500 U	0.100	0.0310	mg/L	1		06/28/19 01:47

Surrogates

4-Bromofluorobenzene (surr)	94.3	50-150	%	1	06/28/19 01:47
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Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Analyst: ST
Analytical Date/Time: 06/28/19 01:47
Container ID: 1193260011-A

Prep Batch: VXX34342
Prep Method: SW5030B
Prep Date/Time: 06/27/19 08:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of 17857-WTB

Client Sample ID: **17857-WTB**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260011
 Lab Project ID: 1193260

Collection Date: 06/20/19 10:00
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		06/26/19 13:40
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		06/26/19 13:40
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
Benzene	0.200	U	0.400	0.120	ug/L	1		06/26/19 13:40
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
Bromoform	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Bromomethane	2.50	U	5.00	1.50	ug/L	1		06/26/19 13:40
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
Chloroethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-WTB

Client Sample ID: **17857-WTB**
 Client Project ID: **17857-002 AWWU PS12**
 Lab Sample ID: 1193260011
 Lab Project ID: 1193260

Collection Date: 06/20/19 10:00
 Received Date: 06/21/19 15:56
 Matrix: Water (Surface, Eff., Ground)
 Solids (%):
 Location:

Results by Volatile GC/MS

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>	<u>DF</u>	<u>Allowable Limits</u>	<u>Date Analyzed</u>
Chloroform	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Chloromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		06/26/19 13:40
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Freon-113	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Methylene chloride	1.27	J	5.00	1.00	ug/L	1		06/26/19 13:40
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
Naphthalene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
o-Xylene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		06/26/19 13:40
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Styrene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Toluene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		06/26/19 13:40
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		06/26/19 13:40
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		06/26/19 13:40
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		06/26/19 13:40

Surrogates

1,2-Dichloroethane-D4 (surr)	109	81-118	%	1	06/26/19 13:40
4-Bromofluorobenzene (surr)	103	85-114	%	1	06/26/19 13:40
Toluene-d8 (surr)	99.8	89-112	%	1	06/26/19 13:40

Print Date: 07/09/2019 12:20:31PM

J flagging is activated

Results of 17857-WTB

Client Sample ID: 17857-WTB
Client Project ID: 17857-002 AWWU PS12
Lab Sample ID: 1193260011
Lab Project ID: 1193260

Collection Date: 06/20/19 10:00
Received Date: 06/21/19 15:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by Volatile GC/MS

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Analyst: FDR
Analytical Date/Time: 06/26/19 13:40
Container ID: 1193260011-D

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 06/26/19 00:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1795481 [VXX/34322]

Blank Lab ID: 1514984

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 07/09/2019 12:20:34PM

Method Blank

Blank ID: MB for HBN 1795481 [VXX/34322]

Blank Lab ID: 1514984

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L

Surrogates

1,2-Dichloroethane-D4 (surr)	110	81-118	%
4-Bromofluorobenzene (surr)	102	85-114	%
Toluene-d8 (surr)	101	89-112	%

Print Date: 07/09/2019 12:20:34PM

Method Blank

Blank ID: MB for HBN 1795481 [VXX/34322]

Blank Lab ID: 1514984

QC for Samples:

1193260001, 1193260002, 1193260003, 1193260004

Matrix: Water (Surface, Eff., Ground)

Results by SW8260C**Parameter****Results****LOQ/CL****DL****Units****Batch Information**

Analytical Batch: VMS19090

Analytical Method: SW8260C

Instrument: Agilent 7890-75MS

Analyst: FDR

Analytical Date/Time: 6/25/2019 11:38:00AM

Prep Batch: VXX34322

Prep Method: SW5030B

Prep Date/Time: 6/25/2019 12:00:00AM

Prep Initial Wt./Vol.: 5 mL

Prep Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:34PM

SGS North America Inc.

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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34322]

Blank Spike Lab ID: 1514985

Date Analyzed: 06/25/2019 11:53

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34322]

Spike Duplicate Lab ID: 1514986

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	30.6	102	30	29.9	100	(78-124)	2.30	(< 20)
1,1,1-Trichloroethane	30	31.2	104	30	31.4	105	(74-131)	0.38	(< 20)
1,1,2,2-Tetrachloroethane	30	29.5	98	30	29.3	98	(71-121)	0.65	(< 20)
1,1,2-Trichloroethane	30	30.3	101	30	29.1	97	(80-119)	3.90	(< 20)
1,1-Dichloroethane	30	30.7	102	30	30.8	103	(77-125)	0.29	(< 20)
1,1-Dichloroethene	30	27.1	90	30	27.3	91	(71-131)	0.66	(< 20)
1,1-Dichloropropene	30	31.3	104	30	31.1	104	(79-125)	0.51	(< 20)
1,2,3-Trichlorobenzene	30	24.8	83	30	24.7	82	(69-129)	0.44	(< 20)
1,2,3-Trichloropropane	30	29.4	98	30	29.4	98	(73-122)	0.07	(< 20)
1,2,4-Trichlorobenzene	30	27.6	92	30	27.9	93	(69-130)	0.94	(< 20)
1,2,4-Trimethylbenzene	30	30.8	103	30	30.8	103	(79-124)	0.10	(< 20)
1,2-Dibromo-3-chloropropane	30	30.9	103	30	30.2	101	(62-128)	2.50	(< 20)
1,2-Dibromoethane	30	30.3	101	30	29.3	98	(77-121)	3.50	(< 20)
1,2-Dichlorobenzene	30	29.0	97	30	29.0	97	(80-119)	0.24	(< 20)
1,2-Dichloroethane	30	31.1	104	30	31.4	105	(73-128)	0.83	(< 20)
1,2-Dichloropropane	30	31.3	104	30	31.1	104	(78-122)	0.64	(< 20)
1,3,5-Trimethylbenzene	30	30.9	103	30	31.1	104	(75-124)	0.45	(< 20)
1,3-Dichlorobenzene	30	29.9	100	30	30.1	100	(80-119)	0.67	(< 20)
1,3-Dichloropropane	30	29.9	100	30	28.9	96	(80-119)	3.30	(< 20)
1,4-Dichlorobenzene	30	29.8	99	30	30.1	100	(79-118)	1.20	(< 20)
2,2-Dichloropropane	30	36.8	123	30	37.2	124	(60-139)	1.10	(< 20)
2-Butanone (MEK)	90	97.7	109	90	97.7	109	(56-143)	0.02	(< 20)
2-Chlorotoluene	30	29.3	98	30	31.4	105	(79-122)	6.90	(< 20)
2-Hexanone	90	99.7	111	90	96.5	107	(57-139)	3.20	(< 20)
4-Chlorotoluene	30	30.7	102	30	30.9	103	(78-122)	0.68	(< 20)
4-Isopropyltoluene	30	31.2	104	30	31.4	105	(77-127)	0.51	(< 20)
4-Methyl-2-pentanone (MIBK)	90	96.3	107	90	96.4	107	(67-130)	0.13	(< 20)
Benzene	30	30.5	102	30	29.8	99	(79-120)	2.20	(< 20)
Bromobenzene	30	28.8	96	30	29.5	98	(80-120)	2.50	(< 20)
Bromochloromethane	30	29.6	99	30	30.2	101	(78-123)	2.10	(< 20)
Bromodichloromethane	30	30.9	103	30	31.2	104	(79-125)	0.77	(< 20)
Bromoform	30	31.6	105	30	30.8	103	(66-130)	2.60	(< 20)
Bromomethane	30	29.0	97	30	29.9	100	(53-141)	3.20	(< 20)
Carbon disulfide	45	40.8	91	45	40.8	91	(64-133)	0.20	(< 20)

Print Date: 07/09/2019 12:20:36PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34322]

Blank Spike Lab ID: 1514985

Date Analyzed: 06/25/2019 11:53

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34322]

Spike Duplicate Lab ID: 1514986

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	31.2	104	30	31.3	104	(72-136)	0.35	(< 20)
Chlorobenzene	30	28.5	95	30	27.9	93	(82-118)	2.20	(< 20)
Chloroethane	30	25.8	86	30	27.1	90	(60-138)	4.80	(< 20)
Chloroform	30	29.3	98	30	29.7	99	(79-124)	1.40	(< 20)
Chloromethane	30	31.3	104	30	31.4	105	(50-139)	0.38	(< 20)
cis-1,2-Dichloroethene	30	29.7	99	30	30.0	100	(78-123)	0.84	(< 20)
cis-1,3-Dichloropropene	30	33.1	110	30	33.0	110	(75-124)	0.42	(< 20)
Dibromochloromethane	30	31.0	103	30	30.1	100	(74-126)	3.00	(< 20)
Dibromomethane	30	30.1	100	30	30.4	101	(79-123)	0.93	(< 20)
Dichlorodifluoromethane	30	31.1	104	30	31.1	104	(32-152)	0.16	(< 20)
Ethylbenzene	30	30.6	102	30	29.6	99	(79-121)	3.40	(< 20)
Freon-113	45	40.8	91	45	40.7	90	(70-136)	0.34	(< 20)
Hexachlorobutadiene	30	28.3	94	30	28.4	95	(66-134)	0.67	(< 20)
Isopropylbenzene (Cumene)	30	31.4	105	30	30.8	103	(72-131)	2.00	(< 20)
Methylene chloride	30	30.2	101	30	30.4	101	(74-124)	0.69	(< 20)
Methyl-t-butyl ether	45	46.2	103	45	45.6	101	(71-124)	1.40	(< 20)
Naphthalene	30	27.2	91	30	27.1	91	(61-128)	0.33	(< 20)
n-Butylbenzene	30	31.5	105	30	31.6	105	(75-128)	0.16	(< 20)
n-Propylbenzene	30	31.6	105	30	31.4	105	(76-126)	0.64	(< 20)
o-Xylene	30	30.4	101	30	29.5	98	(78-122)	2.90	(< 20)
P & M -Xylene	60	60.1	100	60	57.9	96	(80-121)	3.80	(< 20)
sec-Butylbenzene	30	31.4	105	30	31.4	105	(77-126)	0.03	(< 20)
Styrene	30	30.0	100	30	30.3	101	(78-123)	0.86	(< 20)
tert-Butylbenzene	30	31.2	104	30	31.7	106	(78-124)	1.50	(< 20)
Tetrachloroethene	30	29.6	99	30	28.4	95	(74-129)	4.10	(< 20)
Toluene	30	27.7	92	30	26.9	90	(80-121)	3.00	(< 20)
trans-1,2-Dichloroethene	30	30.1	100	30	30.3	101	(75-124)	0.36	(< 20)
trans-1,3-Dichloropropene	30	31.6	105	30	30.5	102	(73-127)	3.50	(< 20)
Trichloroethene	30	30.4	101	30	30.2	101	(79-123)	0.89	(< 20)
Trichlorofluoromethane	30	27.3	91	30	27.6	92	(65-141)	1.20	(< 20)
Vinyl acetate	30	37.4	125	30	37.2	124	(54-146)	0.48	(< 20)
Vinyl chloride	30	28.1	94	30	27.9	93	(58-137)	0.72	(< 20)
Xylenes (total)	90	90.5	101	90	87.3	97	(79-121)	3.50	(< 20)

Print Date: 07/09/2019 12:20:36PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34322]
Blank Spike Lab ID: 1514985
Date Analyzed: 06/25/2019 11:53

Spike Duplicate ID: LCSD for HBN 1193260
[VXX34322]
Spike Duplicate Lab ID: 1514986
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	99.4	99	30	102	102	(81-118)	2.20	
4-Bromofluorobenzene (surr)	30	103	103	30	104	104	(85-114)	0.87	
Toluene-d8 (surr)	30	98.6	99	30	98.7	99	(89-112)	0.07	

Batch Information

Analytical Batch: VMS19090

Prep Batch: VXX34322

Analytical Method: SW8260C

Prep Method: SW5030B

Instrument: Agilent 7890-75MS

Prep Date/Time: 06/25/2019 00:00

Analyst: FDR

Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:36PM

Matrix Spike Summary

Original Sample ID: 1514987
 MS Sample ID: 1514988 MS
 MSD Sample ID: 1514989 MSD

Analysis Date: 06/25/2019 15:04
 Analysis Date: 06/25/2019 19:53
 Analysis Date: 06/25/2019 20:09
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	0.250U	30.0	32.1	107	30.0	31.5	105	78-124	1.70	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	33.3	111	30.0	33.5	112	74-131	0.66	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	31.7	106	30.0	31.9	106	71-121	0.50	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	31.3	104	30.0	30.9	103	80-119	1.20	(< 20)
1,1-Dichloroethane	0.500U	30.0	32.5	108	30.0	32.8	109	77-125	0.86	(< 20)
1,1-Dichloroethene	0.500U	30.0	28.5	95	30.0	28.9	96	71-131	1.20	(< 20)
1,1-Dichloropropene	0.500U	30.0	33.3	111	30.0	33.6	112	79-125	0.99	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	28.9	96	30.0	28.9	96	69-129	0.21	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	31.9	106	30.0	31.9	106	73-122	0.06	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	31.1	104	30.0	31.7	106	69-130	1.80	(< 20)
1,2,4-Trimethylbenzene	0.500U	30.0	34.1	114	30.0	33.7	112	79-124	1.20	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	34.4	115	30.0	34.2	114	62-128	0.44	(< 20)
1,2-Dibromoethane	0.0375U	30.0	32.1	107	30.0	32.1	107	77-121	0.09	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	31.6	105	30.0	31.6	105	80-119	0.16	(< 20)
1,2-Dichloroethane	0.250U	30.0	33.4	111	30.0	33.8	113	73-128	1.00	(< 20)
1,2-Dichloropropane	0.500U	30.0	33.5	112	30.0	33.8	113	78-122	0.95	(< 20)
1,3,5-Trimethylbenzene	0.500U	30.0	33.8	113	30.0	33.3	111	75-124	1.60	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	33	110	30.0	32.7	109	80-119	0.94	(< 20)
1,3-Dichloropropane	0.250U	30.0	32	107	30.0	31.7	106	80-119	0.91	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	32.7	109	30.0	32.3	108	79-118	1.20	(< 20)
2,2-Dichloropropane	0.500U	30.0	35.1	117	30.0	35.1	117	60-139	0.00	(< 20)
2-Butanone (MEK)	5.00U	90.0	119	133	90.0	115	128	56-143	3.60	(< 20)
2-Chlorotoluene	0.500U	30.0	34.5	115	30.0	32.3	108	79-122	6.70	(< 20)
2-Hexanone	5.00U	90.0	110	122	90.0	109	121	57-139	1.00	(< 20)
4-Chlorotoluene	0.500U	30.0	33.1	110	30.0	33.1	110	78-122	0.06	(< 20)
4-Isopropyltoluene	0.500U	30.0	34.1	114	30.0	33.3	111	77-127	2.30	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	106	118	90.0	105	117	67-130	0.63	(< 20)
Benzene	0.470	30.0	32.4	106	30.0	32.2	106	79-120	0.56	(< 20)
Bromobenzene	0.500U	30.0	31.9	106	30.0	32.0	107	80-120	0.41	(< 20)
Bromochloromethane	0.500U	30.0	32.2	107	30.0	32.6	109	78-123	1.20	(< 20)
Bromodichloromethane	0.250U	30.0	32.8	109	30.0	33.3	111	79-125	1.40	(< 20)
Bromoform	0.500U	30.0	31.9	106	30.0	32.2	107	66-130	1.10	(< 20)
Bromomethane	2.50U	30.0	31.6	105	30.0	32.1	107	53-141	1.80	(< 20)
Carbon disulfide	5.00U	45.0	42.3	94	45.0	42.5	94	64-133	0.47	(< 20)
Carbon tetrachloride	0.500U	30.0	33.4	111	30.0	33.3	111	72-136	0.06	(< 20)
Chlorobenzene	0.250U	30.0	30.3	101	30.0	29.7	99	82-118	2.10	(< 20)
Chloroethane	0.500U	30.0	27.4	92	30.0	27.0	90	60-138	1.80	(< 20)

Print Date: 07/09/2019 12:20:37PM

Matrix Spike Summary

Original Sample ID: 1514987
 MS Sample ID: 1514988 MS
 MSD Sample ID: 1514989 MSD

Analysis Date: 06/25/2019 15:04
 Analysis Date: 06/25/2019 19:53
 Analysis Date: 06/25/2019 20:09
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	0.500U	30.0	31.5	105	30.0	31.7	106	79-124	0.66	(< 20)
Chloromethane	0.500U	30.0	33.7	112	30.0	33.8	113	50-139	0.24	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	32.1	107	30.0	32.4	108	78-123	1.10	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	34.3	114	30.0	34.7	116	75-124	1.10	(< 20)
Dibromochloromethane	0.250U	30.0	32.6	109	30.0	32.3	108	74-126	1.00	(< 20)
Dibromomethane	0.500U	30.0	32.5	108	30.0	32.6	109	79-123	0.31	(< 20)
Dichlorodifluoromethane	0.500U	30.0	32.5	108	30.0	32.6	109	32-152	0.34	(< 20)
Ethylbenzene	0.500U	30.0	32.3	108	30.0	31.6	105	79-121	2.30	(< 20)
Freon-113	5.00U	45.0	42.3	94	45.0	42.4	94	70-136	0.38	(< 20)
Hexachlorobutadiene	0.500U	30.0	31.4	105	30.0	31.1	104	66-134	0.96	(< 20)
Isopropylbenzene (Cumene)	3.71	30.0	36.9	111	30.0	37.1	111	72-131	0.59	(< 20)
Methylene chloride	2.50U	30.0	32.4	108	30.0	32.4	108	74-124	0.15	(< 20)
Methyl-t-butyl ether	5.00U	45.0	49.1	109	45.0	49.3	110	71-124	0.51	(< 20)
Naphthalene	0.500U	30.0	32.6	109	30.0	32.5	108	61-128	0.40	(< 20)
n-Butylbenzene	0.500U	30.0	33.7	112	30.0	33.4	111	75-128	0.77	(< 20)
n-Propylbenzene	0.500U	30.0	34	113	30.0	34.3	114	76-126	1.00	(< 20)
o-Xylene	0.500U	30.0	31.6	105	30.0	32.1	107	78-122	1.70	(< 20)
P & M -Xylene	1.00U	60.0	63.8	106	60.0	63.2	105	80-121	1.00	(< 20)
sec-Butylbenzene	0.780J	30.0	35.1	114	30.0	34.6	113	77-126	1.30	(< 20)
Styrene	0.500U	30.0	32.2	107	30.0	31.5	105	78-123	2.20	(< 20)
tert-Butylbenzene	0.500U	30.0	34.5	115	30.0	33.5	112	78-124	3.10	(< 20)
Tetrachloroethene	0.500U	30.0	31.5	105	30.0	30.6	102	74-129	3.00	(< 20)
Toluene	0.500U	30.0	29.7	99	30.0	28.8	96	80-121	3.00	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	32.3	108	30.0	32.6	109	75-124	0.71	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	31.9	106	30.0	31.8	106	73-127	0.41	(< 20)
Trichloroethene	0.500U	30.0	32.7	109	30.0	32.9	110	79-123	0.46	(< 20)
Trichlorofluoromethane	0.500U	30.0	28.7	96	30.0	28.7	96	65-141	0.10	(< 20)
Vinyl acetate	5.00U	30.0	34.6	115	30.0	34.8	116	54-146	0.60	(< 20)
Vinyl chloride	0.0750U	30.0	29.3	98	30.0	29.3	98	58-137	0.03	(< 20)
Xylenes (total)	1.50U	90.0	95.4	106	90.0	95.3	106	79-121	0.14	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	29.8	99	30.0	29.9	100	81-118	0.37	
4-Bromofluorobenzene (surr)		30.0	31.1	104	30.0	30.8	103	85-114	0.81	
Toluene-d8 (surr)		30.0	29.4	98	30.0	29.0	97	89-112	1.60	

Print Date: 07/09/2019 12:20:37PM

Matrix Spike Summary

Original Sample ID: 1514987
MS Sample ID: 1514988 MS
MSD Sample ID: 1514989 MSD

Analysis Date:
Analysis Date: 06/25/2019 19:53
Analysis Date: 06/25/2019 20:09
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004

Results by SW8260C

Parameter	<u>Sample</u>	Matrix Spike (%)	Spike Duplicate (%)
	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>
	<u>Sample</u>	<u>Result</u>	<u>Rec (%)</u>

Batch Information

Analytical Batch: VMS19090
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/25/2019 7:53:00PM

Prep Batch: VXX34322
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/25/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/09/2019 12:20:37PM

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Method Blank

Blank ID: MB for HBN 1795555 [VXX/34327]
Blank Lab ID: 1515329

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010, 1193260011

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.150	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	2.50U	5.00	1.50	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Print Date: 07/09/2019 12:20:38PM

Method Blank

Blank ID: MB for HBN 1795555 [VXX/34327]

Blank Lab ID: 1515329

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010, 1193260011

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	2.50U	5.00	1.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L

Surrogates

1,2-Dichloroethane-D4 (surr)	107	81-118	%
4-Bromofluorobenzene (surr)	103	85-114	%
Toluene-d8 (surr)	97.9	89-112	%

Print Date: 07/09/2019 12:20:38PM

Method Blank

Blank ID: MB for HBN 1795555 [VXX/34327]
Blank Lab ID: 1515329

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010, 1193260011

Results by SW8260C

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

Analytical Batch: VMS19094
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/26/2019 10:34:00AM

Prep Batch: VXX34327
Prep Method: SW5030B
Prep Date/Time: 6/26/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:38PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34327]

Blank Spike Lab ID: 1515330

Date Analyzed: 06/26/2019 10:49

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34327]

Spike Duplicate Lab ID: 1515331

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
1193260011

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	30	30.7	102	30	30.8	103	(78-124)	0.33	(< 20)
1,1,1-Trichloroethane	30	32.1	107	30	32.8	109	(74-131)	2.00	(< 20)
1,1,2,2-Tetrachloroethane	30	30.0	100	30	30.3	101	(71-121)	1.00	(< 20)
1,1,2-Trichloroethane	30	30.9	103	30	30.8	103	(80-119)	0.26	(< 20)
1,1-Dichloroethane	30	31.5	105	30	32.2	107	(77-125)	2.00	(< 20)
1,1-Dichloroethene	30	27.6	92	30	27.7	92	(71-131)	0.29	(< 20)
1,1-Dichloropropene	30	32.3	108	30	32.6	109	(79-125)	0.95	(< 20)
1,2,3-Trichlorobenzene	30	25.1	84	30	26.1	87	(69-129)	3.70	(< 20)
1,2,3-Trichloropropane	30	30.1	100	30	30.4	101	(73-122)	0.79	(< 20)
1,2,4-Trichlorobenzene	30	28.7	96	30	28.5	95	(69-130)	0.59	(< 20)
1,2,4-Trimethylbenzene	30	32.2	107	30	31.9	106	(79-124)	0.87	(< 20)
1,2-Dibromo-3-chloropropane	30	31.0	103	30	31.9	106	(62-128)	3.10	(< 20)
1,2-Dibromoethane	30	30.6	102	30	31.2	104	(77-121)	2.00	(< 20)
1,2-Dichlorobenzene	30	29.8	99	30	29.9	100	(80-119)	0.37	(< 20)
1,2-Dichloroethane	30	32.3	108	30	32.7	109	(73-128)	1.20	(< 20)
1,2-Dichloropropane	30	32.0	107	30	32.5	108	(78-122)	1.60	(< 20)
1,3,5-Trimethylbenzene	30	32.5	108	30	32.1	107	(75-124)	1.30	(< 20)
1,3-Dichlorobenzene	30	31.2	104	30	30.9	103	(80-119)	0.96	(< 20)
1,3-Dichloropropane	30	30.2	101	30	30.8	103	(80-119)	2.10	(< 20)
1,4-Dichlorobenzene	30	31.5	105	30	30.9	103	(79-118)	2.00	(< 20)
2,2-Dichloropropane	30	37.3	124	30	38.1	127	(60-139)	2.30	(< 20)
2-Butanone (MEK)	90	99.4	110	90	105	117	(56-143)	5.40	(< 20)
2-Chlorotoluene	30	31.1	104	30	30.9	103	(79-122)	0.52	(< 20)
2-Hexanone	90	98.6	110	90	102	113	(57-139)	3.00	(< 20)
4-Chlorotoluene	30	32.1	107	30	31.5	105	(78-122)	1.90	(< 20)
4-Isopropyltoluene	30	32.7	109	30	32.2	107	(77-127)	1.80	(< 20)
4-Methyl-2-pentanone (MIBK)	90	95.2	106	90	99.0	110	(67-130)	3.90	(< 20)
Benzene	30	30.6	102	30	30.9	103	(79-120)	0.94	(< 20)
Bromobenzene	30	30.5	102	30	30.1	100	(80-120)	1.30	(< 20)
Bromochloromethane	30	30.8	103	30	31.2	104	(78-123)	1.40	(< 20)
Bromodichloromethane	30	31.9	106	30	32.4	108	(79-125)	1.50	(< 20)
Bromoform	30	31.3	104	30	32.2	107	(66-130)	2.80	(< 20)
Bromomethane	30	30.7	102	30	30.5	102	(53-141)	0.78	(< 20)
Carbon disulfide	45	41.4	92	45	41.0	91	(64-133)	0.75	(< 20)

Print Date: 07/09/2019 12:20:39PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34327]

Blank Spike Lab ID: 1515330

Date Analyzed: 06/26/2019 10:49

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34327]

Spike Duplicate Lab ID: 1515331

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
1193260011

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Carbon tetrachloride	30	32.1	107	30	32.7	109	(72-136)	2.10	(< 20)
Chlorobenzene	30	28.8	96	30	29.0	97	(82-118)	0.73	(< 20)
Chloroethane	30	25.6	85	30	27.1	90	(60-138)	5.50	(< 20)
Chloroform	30	30.3	101	30	30.7	102	(79-124)	1.20	(< 20)
Chloromethane	30	32.2	107	30	32.4	108	(50-139)	0.80	(< 20)
cis-1,2-Dichloroethene	30	30.6	102	30	31.1	104	(78-123)	1.50	(< 20)
cis-1,3-Dichloropropene	30	33.8	113	30	34.4	115	(75-124)	1.70	(< 20)
Dibromochloromethane	30	31.3	104	30	32.0	107	(74-126)	2.10	(< 20)
Dibromomethane	30	31.0	103	30	31.8	106	(79-123)	2.60	(< 20)
Dichlorodifluoromethane	30	32.0	107	30	31.8	106	(32-152)	0.41	(< 20)
Ethylbenzene	30	31.1	104	30	31.0	103	(79-121)	0.23	(< 20)
Freon-113	45	41.4	92	45	41.4	92	(70-136)	0.07	(< 20)
Hexachlorobutadiene	30	29.6	99	30	29.3	98	(66-134)	0.92	(< 20)
Isopropylbenzene (Cumene)	30	32.0	107	30	32.2	107	(72-131)	0.78	(< 20)
Methylene chloride	30	31.5	105	30	31.9	106	(74-124)	1.20	(< 20)
Methyl-t-butyl ether	45	46.9	104	45	47.9	106	(71-124)	2.10	(< 20)
Naphthalene	30	27.5	92	30	28.5	95	(61-128)	3.50	(< 20)
n-Butylbenzene	30	32.4	108	30	32.6	109	(75-128)	0.55	(< 20)
n-Propylbenzene	30	32.8	109	30	32.1	107	(76-126)	2.20	(< 20)
o-Xylene	30	31.1	104	30	30.8	103	(78-122)	1.00	(< 20)
P & M -Xylene	60	61.9	103	60	61.6	103	(80-121)	0.52	(< 20)
sec-Butylbenzene	30	33.1	110	30	32.5	108	(77-126)	1.80	(< 20)
Styrene	30	30.5	102	30	30.7	102	(78-123)	0.69	(< 20)
tert-Butylbenzene	30	32.5	108	30	32.4	108	(78-124)	0.31	(< 20)
Tetrachloroethene	30	29.9	100	30	29.8	99	(74-129)	0.44	(< 20)
Toluene	30	28.1	94	30	28.4	95	(80-121)	0.89	(< 20)
trans-1,2-Dichloroethene	30	31.2	104	30	31.2	104	(75-124)	0.00	(< 20)
trans-1,3-Dichloropropene	30	32.1	107	30	32.2	107	(73-127)	0.40	(< 20)
Trichloroethene	30	31.3	104	30	31.7	106	(79-123)	1.20	(< 20)
Trichlorofluoromethane	30	27.3	91	30	28.0	94	(65-141)	2.90	(< 20)
Vinyl acetate	30	37.6	125	30	38.9	130	(54-146)	3.40	(< 20)
Vinyl chloride	30	28.4	95	30	28.0	93	(58-137)	1.30	(< 20)
Xylenes (total)	90	93.0	103	90	92.3	103	(79-121)	0.68	(< 20)

Print Date: 07/09/2019 12:20:39PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34327]
Blank Spike Lab ID: 1515330
Date Analyzed: 06/26/2019 10:49

Spike Duplicate ID: LCSD for HBN 1193260
[VXX34327]
Spike Duplicate Lab ID: 1515331
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
1193260011

Results by SW8260C

Parameter	Blank Spike (%)			Spike Duplicate (%)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	100	100	30	101	101	(81-118)	1.20	
4-Bromofluorobenzene (surr)	30	103	103	30	103	103	(85-114)	0.78	
Toluene-d8 (surr)	30	98.6	99	30	98	98	(89-112)	0.64	

Batch Information

Analytical Batch: VMS19094

Prep Batch: VXX34327

Analytical Method: SW8260C

Prep Method: SW5030B

Instrument: Agilent 7890-75MS

Prep Date/Time: 06/26/2019 00:00

Analyst: FDR

Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:39PM

Matrix Spike Summary

Original Sample ID: 1515332
 MS Sample ID: 1515333 MS
 MSD Sample ID: 1515334 MSD

Analysis Date: 06/26/2019 14:41
 Analysis Date: 06/26/2019 11:39
 Analysis Date: 06/26/2019 11:54
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
 1193260011

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,1,1,2-Tetrachloroethane	0.250U	30.0	29.7	99	30.0	30.5	102	78-124	2.60	(< 20)
1,1,1-Trichloroethane	0.500U	30.0	32.8	109	30.0	33.1	110	74-131	1.00	(< 20)
1,1,2,2-Tetrachloroethane	0.250U	30.0	29.3	98	30.0	30.9	103	71-121	5.40	(< 20)
1,1,2-Trichloroethane	0.200U	30.0	30	100	30.0	30.2	101	80-119	0.80	(< 20)
1,1-Dichloroethane	0.500U	30.0	32	107	30.0	32.3	108	77-125	0.81	(< 20)
1,1-Dichloroethene	0.500U	30.0	27.7	92	30.0	27.7	92	71-131	0.14	(< 20)
1,1-Dichloropropene	0.500U	30.0	32.4	108	30.0	32.8	109	79-125	1.10	(< 20)
1,2,3-Trichlorobenzene	0.500U	30.0	23.6	79	30.0	26.6	89	69-129	11.90	(< 20)
1,2,3-Trichloropropane	0.500U	30.0	29.2	97	30.0	30.8	103	73-122	5.20	(< 20)
1,2,4-Trichlorobenzene	0.500U	30.0	28	93	30.0	29.4	98	69-130	4.80	(< 20)
1,2,4-Trimethylbenzene	0.500U	30.0	31.5	105	30.0	32.0	107	79-124	1.60	(< 20)
1,2-Dibromo-3-chloropropane	5.00U	30.0	30	100	30.0	32.9	110	62-128	9.00	(< 20)
1,2-Dibromoethane	0.0375U	30.0	30.3	101	30.0	30.8	103	77-121	1.60	(< 20)
1,2-Dichlorobenzene	0.500U	30.0	29.3	98	30.0	30.1	100	80-119	2.90	(< 20)
1,2-Dichloroethane	0.250U	30.0	32.3	108	30.0	32.9	110	73-128	1.70	(< 20)
1,2-Dichloropropane	0.500U	30.0	32.2	107	30.0	32.5	108	78-122	0.87	(< 20)
1,3,5-Trimethylbenzene	0.500U	30.0	31.3	104	30.0	31.8	106	75-124	1.70	(< 20)
1,3-Dichlorobenzene	0.500U	30.0	30.3	101	30.0	31.0	103	80-119	2.40	(< 20)
1,3-Dichloropropane	0.250U	30.0	30	100	30.0	30.3	101	80-119	0.93	(< 20)
1,4-Dichlorobenzene	0.250U	30.0	30.5	102	30.0	31.5	105	79-118	3.40	(< 20)
2,2-Dichloropropane	0.500U	30.0	38.9	130	30.0	38.9	130	60-139	0.21	(< 20)
2-Butanone (MEK)	5.00U	90.0	93.7	104	90.0	106	118	56-143	12.70	(< 20)
2-Chlorotoluene	0.500U	30.0	31.6	105	30.0	30.5	102	79-122	3.30	(< 20)
2-Hexanone	5.00U	90.0	97.2	108	90.0	105	117	57-139	8.10	(< 20)
4-Chlorotoluene	0.500U	30.0	30.5	102	30.0	31.5	105	78-122	3.10	(< 20)
4-Isopropyltoluene	0.500U	30.0	31.6	105	30.0	31.9	106	77-127	0.98	(< 20)
4-Methyl-2-pentanone (MIBK)	5.00U	90.0	94.2	105	90.0	103	114	67-130	8.90	(< 20)
Benzene	0.200U	30.0	31.2	104	30.0	30.8	103	79-120	1.40	(< 20)
Bromobenzene	0.500U	30.0	29.3	98	30.0	30.4	101	80-120	3.70	(< 20)
Bromochloromethane	0.500U	30.0	31.2	104	30.0	31.6	105	78-123	1.20	(< 20)
Bromodichloromethane	0.250U	30.0	32.3	108	30.0	32.6	109	79-125	1.10	(< 20)
Bromoform	0.500U	30.0	30.9	103	30.0	31.7	106	66-130	2.50	(< 20)
Bromomethane	2.50U	30.0	33	110	30.0	31.8	106	53-141	3.90	(< 20)
Carbon disulfide	5.00U	45.0	41.3	92	45.0	41.0	91	64-133	0.85	(< 20)
Carbon tetrachloride	0.500U	30.0	32.6	109	30.0	33.1	110	72-136	1.60	(< 20)
Chlorobenzene	0.250U	30.0	28.1	94	30.0	28.8	96	82-118	2.40	(< 20)
Chloroethane	0.500U	30.0	25.5	85	30.0	26.6	89	60-138	4.10	(< 20)

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Matrix Spike Summary

Original Sample ID: 1515332
 MS Sample ID: 1515333 MS
 MSD Sample ID: 1515334 MSD

Analysis Date: 06/26/2019 14:41
 Analysis Date: 06/26/2019 11:39
 Analysis Date: 06/26/2019 11:54
 Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
 1193260011

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Chloroform	0.500U	30.0	30.5	102	30.0	31.0	103	79-124	1.70	(< 20)
Chloromethane	0.500U	30.0	34.2	114	30.0	33.6	112	50-139	1.80	(< 20)
cis-1,2-Dichloroethene	0.500U	30.0	31.1	104	30.0	31.4	105	78-123	0.96	(< 20)
cis-1,3-Dichloropropene	0.250U	30.0	34.2	114	30.0	34.5	115	75-124	0.93	(< 20)
Dibromochloromethane	0.250U	30.0	31.3	104	30.0	31.6	105	74-126	1.10	(< 20)
Dibromomethane	0.500U	30.0	31.3	104	30.0	32.0	107	79-123	2.10	(< 20)
Dichlorodifluoromethane	0.500U	30.0	33.3	111	30.0	32.0	107	32-152	4.00	(< 20)
Ethylbenzene	0.500U	30.0	30.3	101	30.0	30.8	103	79-121	1.80	(< 20)
Freon-113	5.00U	45.0	41	91	45.0	41.4	92	70-136	0.92	(< 20)
Hexachlorobutadiene	0.500U	30.0	30.1	100	30.0	29.8	99	66-134	1.10	(< 20)
Isopropylbenzene (Cumene)	0.500U	30.0	30.8	103	30.0	31.6	105	72-131	2.50	(< 20)
Methylene chloride	2.50U	30.0	31.7	106	30.0	32.1	107	74-124	1.50	(< 20)
Methyl-t-butyl ether	5.00U	45.0	46.4	103	45.0	47.9	106	71-124	3.00	(< 20)
Naphthalene	0.500U	30.0	26	87	30.0	29.4	98	61-128	12.40	(< 20)
n-Butylbenzene	0.500U	30.0	32.2	107	30.0	32.4	108	75-128	0.56	(< 20)
n-Propylbenzene	0.500U	30.0	31.4	105	30.0	32.2	107	76-126	2.60	(< 20)
o-Xylene	0.500U	30.0	29.9	100	30.0	30.6	102	78-122	2.10	(< 20)
P & M -Xylene	1.00U	60.0	60	100	60.0	60.5	101	80-121	0.85	(< 20)
sec-Butylbenzene	0.500U	30.0	32.2	107	30.0	32.0	107	77-126	0.75	(< 20)
Styrene	0.500U	30.0	29.9	100	30.0	30.2	101	78-123	1.10	(< 20)
tert-Butylbenzene	0.500U	30.0	31.2	104	30.0	32.1	107	78-124	2.90	(< 20)
Tetrachloroethene	0.500U	30.0	28.5	95	30.0	29.3	98	74-129	3.00	(< 20)
Toluene	0.500U	30.0	27.4	91	30.0	27.6	92	80-121	1.00	(< 20)
trans-1,2-Dichloroethene	0.500U	30.0	31.9	106	30.0	31.9	106	75-124	0.03	(< 20)
trans-1,3-Dichloropropene	0.500U	30.0	31.5	105	30.0	31.5	105	73-127	0.00	(< 20)
Trichloroethene	0.500U	30.0	31.4	105	30.0	31.7	106	79-123	0.73	(< 20)
Trichlorofluoromethane	0.500U	30.0	27.4	91	30.0	27.6	92	65-141	0.84	(< 20)
Vinyl acetate	5.00U	30.0	38	127	30.0	38.8	129	54-146	2.00	(< 20)
Vinyl chloride	0.0750U	30.0	29.2	97	30.0	28.3	94	58-137	3.10	(< 20)
Xylenes (total)	1.50U	90.0	89.9	100	90.0	91.1	101	79-121	1.30	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		30.0	30.4	101	30.0	30.8	103	81-118	1.20	
4-Bromofluorobenzene (surr)		30.0	30.9	103	30.0	30.8	103	85-114	0.16	
Toluene-d8 (surr)		30.0	28.8	96	30.0	29.1	97	89-112	0.79	

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Matrix Spike Summary

Original Sample ID: 1515332
MS Sample ID: 1515333 MS
MSD Sample ID: 1515334 MSD

Analysis Date:
Analysis Date: 06/26/2019 11:39
Analysis Date: 06/26/2019 11:54
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260003, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009, 1193260010,
1193260011

Results by SW8260C

Parameter	<u>Sample</u>	Matrix Spike (%)	Spike Duplicate (%)
	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>
	<u>Sample</u>	<u>Result</u>	<u>Rec (%)</u>

Batch Information

Analytical Batch: VMS19094
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/26/2019 11:39:00AM

Prep Batch: VXX34327
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/26/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/09/2019 12:20:40PM

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Method Blank

Blank ID: MB for HBN 1795614 [VXX/34333]
Blank Lab ID: 1515594

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260007, 1193260009, 1193260010

Results by SW8260C

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L

Surrogates

1,2-Dichloroethane-D4 (surr)	108	81-118	%
4-Bromofluorobenzene (surr)	105	85-114	%
Toluene-d8 (surr)	99.8	89-112	%

Batch Information

Analytical Batch: VMS19101
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/27/2019 11:55:00AM

Prep Batch: VXX34333
Prep Method: SW5030B
Prep Date/Time: 6/27/2019 12:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34333]

Blank Spike Lab ID: 1515595

Date Analyzed: 06/27/2019 12:53

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34333]

Spike Duplicate Lab ID: 1515596

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260007, 1193260009, 1193260010

Results by SW8260C

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,2,4-Trimethylbenzene	30	32.5	108	30	31.9	106	(79-124)	1.80	(< 20)
Naphthalene	30	28.8	96	30	29.4	98	(61-128)	2.00	(< 20)

Surrogates

1,2-Dichloroethane-D4 (surr)	30	100	100	30	100	100	(81-118)	0.10
4-Bromofluorobenzene (surr)	30	103	103	30	104	104	(85-114)	0.71
Toluene-d8 (surr)	30	99.8	100	30	100	100	(89-112)	0.27

Batch Information

Analytical Batch: VMS19101

Analytical Method: SW8260C

Instrument: Agilent 7890-75MS

Analyst: FDR

Prep Batch: VXX34333

Prep Method: SW5030B

Prep Date/Time: 06/27/2019 00:00

Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:42PM

Matrix Spike Summary

Original Sample ID: 1515597
MS Sample ID: 1515598 MS
MSD Sample ID: 1515599 MSD

Analysis Date: 06/27/2019 16:10
Analysis Date: 06/27/2019 13:51
Analysis Date: 06/27/2019 14:07
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260007, 1193260009, 1193260010

Results by SW8260C

Parameter	Sample	Matrix Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
		Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1,2,4-Trimethylbenzene	1.50	30.0	33.2	106	30.0	33.4	106	79-124	0.57	(< 20)
Naphthalene	0.930J	30.0	28.3	91	30.0	31.8	103	61-128	11.60	(< 20)

Surrogates

1,2-Dichloroethane-D4 (surr)	30.0	30.4	101	30.0	30.6	102	81-118	0.62
4-Bromofluorobenzene (surr)	30.0	31.2	104	30.0	31.5	105	85-114	0.77
Toluene-d8 (surr)	30.0	30.2	101	30.0	30.1	100	89-112	0.56

Batch Information

Analytical Batch: VMS19101
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: FDR
Analytical Date/Time: 6/27/2019 1:51:00PM

Prep Batch: VXX34333
Prep Method: Volatiles Extraction 8240/8260 FULL
Prep Date/Time: 6/27/2019 12:00:00AM
Prep Initial Wt./Vol.: 5.00mL
Prep Extract Vol: 5.00mL

Print Date: 07/09/2019 12:20:44PM

SGS North America Inc.

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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1795657 [VXX/34342]

Matrix: Water (Surface, Eff., Ground)

Blank Lab ID: 1515795

QC for Samples:

1193260001, 1193260002, 1193260003, 1193260004, 1193260005, 1193260006, 1193260007, 1193260008, 1193260009,
1193260011**Results by AK101**

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0745J	0.100	0.0310	mg/L

Surrogates

4-Bromofluorobenzene (surr)	97.9	50-150	%
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Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Instrument: Agilent 7890 PID/FID

Prep Date/Time: 6/27/2019 8:00:00AM

Analyst: ST

Prep Initial Wt./Vol.: 5 mL

Analytical Date/Time: 6/27/2019 6:00:00PM

Prep Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:45PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34342]

Spike Duplicate ID: LCSD for HBN 1193260

Blank Spike Lab ID: 1515796

[VXX34342]

Date Analyzed: 06/28/2019 00:54

Spike Duplicate Lab ID: 1515797

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004, 1193260005, 1193260006, 1193260007,
1193260008, 1193260009, 1193260011

Matrix: Water (Surface, Eff., Ground)

Results by AK101

<u>Parameter</u>	Blank Spike (mg/L)			Spike Duplicate (mg/L)			<u>CL</u>	<u>RPD (%)</u>	<u>RPD CL</u>
	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>	<u>Spike</u>	<u>Result</u>	<u>Rec (%)</u>			
Gasoline Range Organics	1.00	1.02	102	1.00	1.03	103	(60-120)	0.81	(< 20)
4-Bromofluorobenzene (surr)	0.0500	98.2	98	0.0500	95.1	95	(50-150)	3.20	

Batch Information

Analytical Batch: VFC14798

Prep Batch: VXX34342

Analytical Method: AK101

Prep Method: SW5030B

Instrument: Agilent 7890 PID/FID

Prep Date/Time: 06/27/2019 08:00

Analyst: ST

Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:46PM

Method Blank

Blank ID: MB for HBN 1795659 [VXX/34343]
Blank Lab ID: 1515801

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260010

Results by AK101

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Gasoline Range Organics	0.0500U	0.100	0.0310	mg/L

Surrogates

4-Bromofluorobenzene (surr)	89.6	50-150	%
-----------------------------	------	--------	---

Batch Information

Analytical Batch: VFC14798
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: ST
Analytical Date/Time: 6/28/2019 8:00:00AM

Prep Batch: VXX34343
Prep Method: SW5030B
Prep Date/Time: 6/27/2019 8:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:48PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [VXX34343]

Blank Spike Lab ID: 1515802

Date Analyzed: 06/28/2019 13:05

QC for Samples: 1193260010

Spike Duplicate ID: LCSD for HBN 1193260

[VXX34343]

Spike Duplicate Lab ID: 1515803

Matrix: Water (Surface, Eff., Ground)

Results by AK101

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Gasoline Range Organics	1.00	0.963	96	1.00	0.976	98	(60-120)	1.30	(< 20)
4-Bromofluorobenzene (surr)	0.0500	100	100	0.0500	98.2	98	(50-150)	1.80	

Batch Information

Analytical Batch: VFC14798

Analytical Method: AK101

Instrument: Agilent 7890 PID/FID

Analyst: ST

Prep Batch: VXX34343

Prep Method: SW5030B

Prep Date/Time: 06/27/2019 08:00

Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

Print Date: 07/09/2019 12:20:49PM

Method Blank

Blank ID: MB for HBN 1795430 [XXX/41649]
Blank Lab ID: 1514773

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260001, 1193260002, 1193260003, 1193260004, 1193260005

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.300U	0.600	0.180	mg/L

Surrogates

5a Androstane (surr)	85.7	60-120	%
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Batch Information

Analytical Batch: XFC15078
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: VDL
Analytical Date/Time: 6/27/2019 7:56:00AM

Prep Batch: XXX41649
Prep Method: SW3520C
Prep Date/Time: 6/25/2019 8:49:01AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:50PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [XXX41649]

Blank Spike Lab ID: 1514774

Date Analyzed: 06/27/2019 08:06

Spike Duplicate ID: LCSD for HBN 1193260

[XXX41649]

Spike Duplicate Lab ID: 1514775

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260001, 1193260002, 1193260003, 1193260004, 1193260005

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)				CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)				
Diesel Range Organics	20	22.3	111	20	22.1	110	(75-125)	0.88		(< 20)
5a Androstanane (surr)	0.4	96.2	96	0.4	97.9	98	(60-120)	1.80		

Batch Information

Analytical Batch: XFC15078

Analytical Method: AK102

Instrument: Agilent 7890B R

Analyst: VDL

Prep Batch: XXX41649

Prep Method: SW3520C

Prep Date/Time: 06/25/2019 08:49

Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:51PM

Method Blank

Blank ID: MB for HBN 1795431 [XXX/41650]
Blank Lab ID: 1514776

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1193260005

Results by 8270D SIM LV (PAH)

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenz[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0250U	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L

Surrogates

2-Methylnaphthalene-d10 (surr)	64	47-106	%
Fluoranthene-d10 (surr)	62.7	24-116	%

Batch Information

Analytical Batch: XMS11493
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: BMZ
Analytical Date/Time: 7/6/2019 12:53:00AM

Prep Batch: XXX41650
Prep Method: SW3520C
Prep Date/Time: 6/25/2019 8:49:17AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:54PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [XXX41650]

Blank Spike Lab ID: 1514777

Date Analyzed: 07/06/2019 01:13

QC for Samples: 1193260005

Spike Duplicate ID: LCSD for HBN 1193260

[XXX41650]

Spike Duplicate Lab ID: 1514778

Matrix: Water (Surface, Eff., Ground)

Results by 8270D SIM LV (PAH)

Parameter	Blank Spike (ug/L)			Spike Duplicate (ug/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
1-Methylnaphthalene	2	1.28	64	2	1.31	66	(41-115)	2.80	(< 20)
2-Methylnaphthalene	2	1.31	66	2	1.35	67	(39-114)	2.40	(< 20)
Acenaphthene	2	1.29	65	2	1.33	67	(48-114)	3.00	(< 20)
Acenaphthylene	2	1.39	70	2	1.44	72	(35-121)	3.30	(< 20)
Anthracene	2	1.36	68	2	1.42	71	(53-119)	3.90	(< 20)
Benzo(a)Anthracene	2	1.41	71	2	1.41	70	(59-120)	0.58	(< 20)
Benzo[a]pyrene	2	1.27	63	2	1.34	67	(53-120)	5.30	(< 20)
Benzo[b]Fluoranthene	2	1.44	72	2	1.43	71	(53-126)	1.30	(< 20)
Benzo[g,h,i]perylene	2	1.17	59	2	1.18	59	(44-128)	0.28	(< 20)
Benzo[k]fluoranthene	2	1.39	70	2	1.41	70	(54-125)	1.00	(< 20)
Chrysene	2	1.42	71	2	1.42	71	(57-120)	0.05	(< 20)
Dibeno[a,h]anthracene	2	1.13	56	2	1.17	58	(44-131)	3.60	(< 20)
Fluoranthene	2	1.43	72	2	1.43	72	(58-120)	0.07	(< 20)
Fluorene	2	1.38	69	2	1.42	71	(50-118)	3.00	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.31	66	2	1.31	65	(48-130)	0.40	(< 20)
Naphthalene	2	1.31	66	2	1.35	68	(43-114)	3.10	(< 20)
Phenanthrene	2	1.33	66	2	1.38	69	(53-115)	3.70	(< 20)
Pyrene	2	1.49	74	2	1.49	75	(53-121)	0.21	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2	63.9	64	2	65.7	66	(47-106)	2.80	
Fluoranthene-d10 (surr)	2	66.5	67	2	67.1	67	(24-116)	0.93	

Batch Information

Analytical Batch: XMS11493

Analytical Method: 8270D SIM LV (PAH)

Instrument: SVA Agilent 780/5975 GC/MS

Analyst: BMZ

Prep Batch: XXX41650

Prep Method: SW3520C

Prep Date/Time: 06/25/2019 08:49

Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:55PM

Method Blank

Blank ID: MB for HBN 1795480 [XXX/41658]

Blank Lab ID: 1514981

Matrix: Water (Surface, Eff., Ground)

QC for Samples:

1193260007, 1193260008, 1193260009, 1193260010

Results by AK102

<u>Parameter</u>	<u>Results</u>	<u>LOQ/CL</u>	<u>DL</u>	<u>Units</u>
Diesel Range Organics	0.300U	0.600	0.180	mg/L

Surrogates

5a Androstane (surr)	91.6	60-120	%
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Batch Information

Analytical Batch: XFC15102

Analytical Method: AK102

Instrument: Agilent 7890B F

Analyst: VDL

Analytical Date/Time: 7/4/2019 11:43:00AM

Prep Batch: XXX41658

Prep Method: SW3520C

Prep Date/Time: 6/26/2019 9:22:44AM

Prep Initial Wt./Vol.: 250 mL

Prep Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:56PM

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1193260 [XXX41658]

Blank Spike Lab ID: 1514982

Date Analyzed: 07/04/2019 11:53

Spike Duplicate ID: LCSD for HBN 1193260

[XXX41658]

Spike Duplicate Lab ID: 1514983

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1193260007, 1193260008, 1193260009, 1193260010

Results by AK102

Parameter	Blank Spike (mg/L)			Spike Duplicate (mg/L)			CL	RPD (%)	RPD CL
	Spike	Result	Rec (%)	Spike	Result	Rec (%)			
Diesel Range Organics	20	22.4	112	20	21.9	109	(75-125)	2.30	(< 20)
Surrogates									
5a Androstanane (surr)	0.4	105	105	0.4	104	104	(60-120)	1.20	

Batch Information

Analytical Batch: XFC15102

Analytical Method: AK102

Instrument: Agilent 7890B F

Analyst: VDL

Prep Batch: XXX41658

Prep Method: SW3520C

Prep Date/Time: 06/26/2019 09:22

Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Print Date: 07/09/2019 12:20:57PM

1193260


SHANNON & WILSON, INC.
 Geotechnical and Environmental Consultants

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 1321 Bannock Street, Suite 200
 Denver, CO 80204
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CHAIN-OF-CUSTODY RECORD

 Laboratory SGS
 Attn: JILLIAN

 Page 1 of 1
Analysis Parameters/Sample Container Description
 (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	SP2	YOC's AK 101-161A 9260C	DFO	AK 102	PAHs	EPA 8270B SIM	Total Number of Containers	Remarks/Matrix
17857 - MW1	1 A-H	1255	6/20/19	X	X	X						8	Groundwater
MW3	2 A-H	1520		X	X	X						8	
MW5	3 A-H	1200		X	X	X						8	
MW8	4 A-H	1515		X	X	X						8	
MW9	5 A-H	1130	6/21/19	X	X	X	X					8	
MW19	6 A-F	1205	6/21/19	X	X							6	Only 1 jar for DFO and PAH
MW11	7 A-H	1405	6/20/19	X	X	X						8	
MW12	8 A-H	1635	6/20/19	X	X	X						8	
MW13	9 A-H	1220	6/21/19	X	X	X						8	
MW14	10 A-H	1105	6/21/19	X	X	X						8	
WTB	11 A-F	1000	6/20/19	X									2 box Trip blank

Project Information	Sample Receipt
Project Number: <u>17857-002</u>	Total Number of Containers
Project Name: <u>AWWU PS 12</u>	COC Seals/Intact? Y/N/NA
Contact: <u>JCT</u>	Received Good Cond./Cold <u>17857030</u>
Ongoing Project? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Delivery Method: <u>HD</u>
Sampler: <u>JCT, SAH, Lcw</u>	(attach shipping bill, if any)

Instructions
Requested Turnaround Time: <u>Standard</u>
Special Instructions: <u>Profile 334864 JMT</u>

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

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: <u>Lori Jones</u> Time: <u>1556</u>	Signature: _____ Time: _____	Signature: _____ Time: _____
Printed Name: <u>Lori Jones</u> Date: <u>6/21/19</u>	Printed Name: _____ Date: _____	Printed Name: _____ Date: _____
Company: <u>S&W</u>	Company: _____	Company: _____
Received By: 1.	Received By: 2.	Received By: 3.
Signature: _____ Time: _____	Signature: _____ Time: _____	Signature: _____ Time: <u>1556</u>
Printed Name: _____ Date: _____	Printed Name: _____ Date: _____	Printed Name: <u>Justin H. Nelson</u> Date: <u>6/21/19</u>
Company: _____	Company: _____	Company: <u>SWS</u>



e-Sample Receipt Form

SGS Workorder #:

1193260



1 1 9 3 2 6 0

1193049		Condition (Yes, No, N/A)	Exceptions Noted below						
Chain of Custody / Temperature Requirements			<input checked="" type="checkbox"/> Yes	Exemption permitted if sampler hand carries/delivers.					
Were Custody Seals intact? Note # & location			N/A	Absent					
COC accompanied samples?			Yes						
DOD: Were samples received in COC corresponding coolers?			N/A						
Temperature blank compliant* (i.e., 0-6 °C after CF)?			N/A	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required					
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.			Yes	Cooler ID:	1	@	3.7 °C	Therm. ID:	D30
				Cooler ID:		@	°C	Therm. ID:	
				Cooler ID:		@	°C	Therm. ID:	
				Cooler ID:		@	°C	Therm. ID:	
*If >6°C, were samples collected <8 hours ago?			N/A						
If <0°C, were sample containers ice free?			N/A						
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.									
Holding Time / Documentation / Sample Condition Requirements			Note: Refer to form F-083 "Sample Guide" for specific holding times.						
Were samples received within holding time?			Yes						
Do samples match COC** (i.e.,sample IDs,dates/times collected)?			Yes						
**Note: If times differ <1hr, record details & login per COC.									
***Note: If sample information on containers differs from COC, SGS will default to COC information									
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)			Yes						
Were proper containers (type/mass/volume/preservative***)used?			No	***Exemption permitted for metals (e.g,200.8/6020A). Samples MW5B, MW9A, and MW11A and B had insufficient preservative. Proceeding with analysis per PM.					
Volatile / LL-Hg Requirements									
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?			Yes	Many samples were affected by large bubbles. Even more had bubbles that were near but below 6mm. Those affected by large bubbles are listed below.					
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?			No						
Were all soil VOAs field extracted with MeOH+BFB?			N/A						
Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.									
Additional notes (if applicable):									
Samples MW1 (D, E, G, H), MW5 (D, E, H), MW8 (E), MW9 (E), MW11 (D, E, G, H), and MW14 (G, H) were affected. Proceeding with limited volume analysis per PM.									

Sample Containers and Preservatives

<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>	<u>Container Id</u>	<u>Preservative</u>	<u>Container Condition</u>
1193260001-A	HCL to pH < 2	OK	1193260007-E	HCL to pH < 2	BU
1193260001-B	HCL to pH < 2	OK	1193260007-F	HCL to pH < 2	OK
1193260001-C	HCL to pH < 2	OK	1193260007-G	HCL to pH < 2	BU
1193260001-D	HCL to pH < 2	BU	1193260007-H	HCL to pH < 2	BU
1193260001-E	HCL to pH < 2	BU	1193260008-A	HCL to pH < 2	OK
1193260001-F	HCL to pH < 2	OK	1193260008-B	HCL to pH < 2	OK
1193260001-G	HCL to pH < 2	BU	1193260008-C	HCL to pH < 2	OK
1193260001-H	HCL to pH < 2	BU	1193260008-D	HCL to pH < 2	OK
1193260002-A	HCL to pH < 2	OK	1193260008-E	HCL to pH < 2	OK
1193260002-B	HCL to pH < 2	OK	1193260008-F	HCL to pH < 2	OK
1193260002-C	HCL to pH < 2	OK	1193260008-G	HCL to pH < 2	OK
1193260002-D	HCL to pH < 2	OK	1193260008-H	HCL to pH < 2	OK
1193260002-E	HCL to pH < 2	OK	1193260009-A	HCL to pH < 2	OK
1193260002-F	HCL to pH < 2	OK	1193260009-B	HCL to pH < 2	OK
1193260002-G	HCL to pH < 2	OK	1193260009-C	HCL to pH < 2	OK
1193260002-H	HCL to pH < 2	OK	1193260009-D	HCL to pH < 2	OK
1193260003-A	HCL to pH < 2	OK	1193260009-E	HCL to pH < 2	OK
1193260003-B	HCL to pH < 2	OK	1193260009-F	HCL to pH < 2	OK
1193260003-C	HCL to pH < 2	OK	1193260009-G	HCL to pH < 2	OK
1193260003-D	HCL to pH < 2	BU	1193260009-H	HCL to pH < 2	OK
1193260003-E	HCL to pH < 2	BU	1193260010-A	HCL to pH < 2	OK
1193260003-F	HCL to pH < 2	OK	1193260010-B	HCL to pH < 2	OK
1193260003-G	HCL to pH < 2	OK	1193260010-C	HCL to pH < 2	OK
1193260003-H	HCL to pH < 2	BU	1193260010-D	HCL to pH < 2	OK
1193260004-A	HCL to pH < 2	OK	1193260010-E	HCL to pH < 2	OK
1193260004-B	HCL to pH < 2	OK	1193260010-F	HCL to pH < 2	OK
1193260004-C	HCL to pH < 2	OK	1193260010-G	HCL to pH < 2	BU
1193260004-D	HCL to pH < 2	OK	1193260010-H	HCL to pH < 2	BU
1193260004-E	HCL to pH < 2	BU	1193260011-A	HCL to pH < 2	OK
1193260004-F	HCL to pH < 2	OK	1193260011-B	HCL to pH < 2	OK
1193260004-G	HCL to pH < 2	OK	1193260011-C	HCL to pH < 2	OK
1193260004-H	HCL to pH < 2	OK	1193260011-D	HCL to pH < 2	OK
1193260005-A	HCL to pH < 2	OK	1193260011-E	HCL to pH < 2	OK
1193260005-B	HCL to pH < 2	OK	1193260011-F	HCL to pH < 2	OK
1193260005-C	HCL to pH < 2	OK			
1193260005-D	HCL to pH < 2	OK			
1193260005-E	HCL to pH < 2	BU			
1193260005-F	HCL to pH < 2	OK			
1193260005-G	HCL to pH < 2	OK			
1193260005-H	HCL to pH < 2	OK			
1193260006-A	HCL to pH < 2	OK			
1193260006-B	HCL to pH < 2	OK			
1193260006-C	HCL to pH < 2	OK			
1193260006-D	HCL to pH < 2	OK			
1193260006-E	HCL to pH < 2	OK			
1193260006-F	HCL to pH < 2	OK			
1193260007-A	HCL to pH < 2	OK			
1193260007-B	HCL to pH < 2	OK			
1193260007-C	HCL to pH < 2	OK			
1193260007-D	HCL to pH < 2	BU			

Container IdPreservativeContainer ConditionContainer IdPreservativeContainer Condition

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

CS Report Name: Additional Site Characterization Activities, 4501 West 100th Avenue, Anchorage, Alaska

Date: December 2019

Laboratory Report Date: July 9, 2019

Consultant Firm: Shannon & Wilson, Inc.

Completed by: Schylar Healy

Title: Environmental Scientist

Laboratory Name: SGS North America Inc.

Work Order Number: 1193260

ADEC File Number: 2100.26.044

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

1. Laboratory

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

- b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS-approved?
Yes / No / NA
Comments: *The samples were not transferred to another "network" laboratory or sub-contracted to an alternate laboratory.*

2. Chain of Custody (COC)

- a. COC information completed, signed, and dated (including released/received by)?
Yes / No / NA (Please explain.)
Comments:
- b. Correct analyses requested? **Yes / No / NA (Please explain.)**
Comments: *Sample MW19 could not be analyzed for DRO and PAHs per the ADEC approved work plan due to low water volume in the well.*

3. Laboratory Sample Receipt Documentation

- a. Sample/cooler temperature documented and within range at receipt ($6^{\circ} \pm 0^{\circ}$ C)?
Yes / No / NA (Please explain.)
Comments: *The temperature blank was documented as 3.7° C.*

- b. Sample preservation acceptable - acidified waters, Methanol-preserved VOC soil (GRO, BTEX, VOCs, etc.)? Yes / No / NA (Please explain.)
Comments: *Individual sample bottles associated with Samples MW5, MW9, and MW11 had insufficient preservative. The lab preceded with analysis per Shannon & Wilson's request.*
- c. Sample condition documented - broken, leaking (soil MeOH), zero headspace (VOC vials)? Yes / No / NA (Please explain.)
Comments: *Individual sample bottles associated with Samples MW1, MW5, MW8, MW9, MW11, and MW14 had bubbles greater than 6 mm.*
- d. If there were any discrepancies, were they documented (e.g., incorrect sample containers/preservation, sample temperatures outside range, insufficient sample size, missing samples)? Yes / No / NA (Please explain.)
Comments: *See above.*
- e. Data quality or usability affected? Yes / No (Please Explain.)
Comments: *The GRO results for sample MW8 has a pH greater than 2 and the results may be biased low. All other samples were unaffected by the high pH because sample bottles with sufficient preservative were used or the sample was analyzed within seven days of collection, as allowed by the method. All samples with individual sample bottles affected by large headspace did not have impacted data quality or usability because the laboratory performed analytical testing on sample bottles with bubbles less than 6 mm.*

4. Case Narrative

- a. Present and understandable? Yes / No / NA (Please explain.)
Comments:
- b. Discrepancies, errors or QC failures noted by the lab? Yes / No / NA (Please explain.)
Comments: The laboratory noted the following:
- *Sample MW8: (AK101) Sample has a pH greater than two and the result might be biased low.*
 - *Sample MW9: (8270D SIM) PAH surrogate recovery for 2-Methylnaphthalene-d10 does not meet QC criteria. PAH samples could not be re-extracted due to limited volume.*
 - *Sample MW13: (AK101) Sample has a pH greater than two; however, the sample was analyzed within 7 days from collection.*
 - *Sample MW14: (8260C) Sample has a pH greater than two; however, the sample was analyzed within 7 days from collection*
- c. Were corrective actions documented? Yes / No / NA (Please explain.)
Comments:

- d. What is the effect on data quality/usability, according to the case narrative?
Comments: *See above.*

5. Sample Results

- a. Correct analyses performed/reported as requested on COC? **Yes** / No / NA (**Please explain.**)
Comments:
- b. All applicable holding times met? **Yes** / No / NA (**Please explain.**)
Comments:
- c. All soils reported on a dry-weight basis? Yes / No / **NA** (**Please explain.**)
Comments: *The laboratory report does not include soil samples.*
- d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? Yes / **No** / NA (**Please explain.**)
Comments: *The LOQs for several VOCs are greater than their respective ADEC Method Two cleanup levels.*
- e. Data quality or usability affected? (**Please explain.**)
Comments: *The data cannot be used to determine whether or not concentrations of these VOCs are present at concentrations greater than their respective ADEC cleanup levels and less than the LOQs.*

6. QC Samples

- a. Method Blank
- i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA (**Please explain.**)
Comments:
- ii. All method blank results less than LOQ? **Yes** / No / NA (**Please explain.**)
Comments: *The method blank contained an estimated concentration of GRO (0.0745 mg/L) less than the LOQ.*
- iii. If above LOQ, what samples are affected? NA
Comments: *All samples are potentially affected.*
- iv. Do the affected sample(s) have data flags? **Yes** / No / NA
Comments: *Although less than the LOQ, GRO concentrations detected in Samples MW3 and MW13 are recorded as non-detect at the LOQ and flagged "B" in Table 4. The GRO concentrations detected in the duplicate sample set and Sample MW12 are greater than five times the method blank concentration and less than or equal to 10 times the method blank concentration; therefore, the field sample concentrations are*

reported at the detected sample concentration and flagged "B" in Table 4.

If so, are the data flags clearly defined? **Yes** / No / NA
Comments: *See above.*

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

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

- i. Organics - One LCS/LCSD reported per matrix, analysis, and 20 samples?
(LCS/LCSD required per AK methods, LCS required per SW846) **Yes** / No / NA
(Please explain.)
Comments:
- ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes** / No / **NA** (**Please explain.**)
Comments:
- iii. Accuracy – All percent recoveries (%R) reported *and* within method or laboratory limits? And project specified DQOs, if applicable. (AK petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages) **Yes** / No / NA (**Please explain.**)
Comments:
- iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes** / No / NA (**Please explain.**)
Comments:
- v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: **NA**
- vi. Do the affected samples(s) have data flags? **Yes** / No / **NA**
Comments:

If so, are the data flags clearly defined? **Yes** / No / **NA**
Comments:
- vii. Data quality or usability affected? Explain. **Yes** / No / **NA**
Comments:

c. Surrogates - Organics Only

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

Comments:

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

Comments: *PAH surrogate recovery for 2-Methylnaphthalene-d10 in Sample MW9 does not meet QC criteria.*

- iii. Do the sample results with failed surrogate recoveries have data flags? **Yes** / No / NA (Please explain.)

Comments: *Shannon & Wilson-applied data flags ("J-") are presented on Table 4 which indicate the analytical results that are potentially biased low due to surrogate failure.*

- iv. If so, are the data flags clearly defined? **Yes** / No / NA

Comments: *See above.*

- v. Data quality or usability affected? Please explain. **Yes** / No / NA

Comments: *See above.*

d. Trip Blank - Volatile analyses only (GRO, BTEX, VOCs, etc.)

- i. One trip blank reported per matrix, analysis and cooler? **Yes** / No / NA (Please explain.)

Comments: *One water trip blank (WTB) was submitted to the laboratory with the project samples.*

- ii. Is the cooler used to transport the trip blank and volatile samples clearly indicated on the COC? **Yes** / No / NA (Please explain if NA or no.)

Comments: *Only one cooler was used to transport the project samples.*

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

Comments: *The water trip blank contained an estimated concentration of methylene chloride (0.00127 J mg/L) less than the LOQ.*

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

Comments: *All samples.*

- v. Data quality or usability affected? Explain. **NA**

Comments: *The project samples did not contain detectable concentration of methylene chloride; therefore, data quality is considered unaffected.*

e. Field Duplicate

- i. One field duplicate submitted per matrix, analysis and 10 project samples? **Yes / No / NA (Please explain.)**
Comments: *Sample MW19 is the field duplicate of Sample MW9.*
- ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA (Please explain.)**
Comments: *Sample MW19 is the field duplicate of Sample MW9.*
- iii. Precision – All relative percent differences (RPDs) less than specified DQOs?
(Recommended: 30% for water, 50% for soil) **Yes / No / NA (Please explain.)**
Comments: *The RPD results for four VOCs detected in duplicate sample set MW9/MW19 are outside the QC criteria and flagged “E” in Table 4.*
- iv. Data quality or usability affected? Explain. **NA**
Comments: *Each affected VOC result in Sample MW9 and MW19 are consistently either above or below the ADEC cleanup level between the set; therefore, the data usability is considered unaffected for the purposes of this project.*

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

- Yes / No / NA (Please explain.)**
Comments: *A decontamination/equipment blank was not included in our ADEC-approved work plan.*

- i. All results less than LOQ? **Yes / No / NA (Please explain.)**
Comments:
- ii. If results are above LOQ, what samples are affected? **NA**
Comments:
- iii. Data quality or usability affected? Explain. **NA**
Comments:

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

- a. Are they defined and appropriate? **Yes / No / NA**
Comments: *Laboratory-specific flags are defined on page 4 of the SGS report.*

APPENDIX E
IMPORTANT INFORMATION ABOUT YOUR
GEOTECHNICAL/ENVIRONMENTAL REPORT



IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

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

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

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

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

SUBSURFACE CONDITIONS CAN CHANGE.

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

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

MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

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

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

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

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

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

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

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

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

READ RESPONSIBILITY CLAUSES CLOSELY.

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

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