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ADDITIONAL RELEASE INVESTIGATION

591 West 67th Avenue

ANCHORAGE, ALASKA

SHANNON & WILSON

February 2021

Shannon & Wilson No: 101882-003

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Submitted To: Warning Lites of Alaska
591 West 67th Avenue
Anchorage, Alaska 99518
Attn: Ms. Rochelle Hart

Subject: ADDITIONAL RELEASE INVESTIGATION, 591 WEST 67TH AVENUE, ANCHORAGE, ALASKA

Shannon & Wilson prepared this report and participated in this project as a subconsultant to Warning Lites of Alaska. Our scope of services was specified in our proposal for environmental services dated October 19, 2020, which was approved by Ms. Rochelle Hart of Warning Lite of Alaska in the form of signed proposal, dated November 2, 2020. This report presents the findings of our additional release investigation activities at 591 West 67th Avenue and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Jessa Tibbetts
Environmental Scientist

Dan P. McMahon, PMP
Senior Associate

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ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
AK	Alaska Method
Berkley	Berkley Environmental
bgs	Below ground surface
BTOC	Below top of casing
CC/IC	Conditional Closure with Institutional Controls
Discovery	Discovery Drilling, Inc.
DQO	Data quality objective
D.O.	Dissolved oxygen
DRO	Diesel range organics
EPA	Environmental Protection Agency
IDW	Investigation Derived Waste
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
LDRC	Laboratory Data Review Checklist
mg/kg	Milligrams per kilogram
MS/MSD	Matrix spike/matrix spike duplicate
MTBE	Methyl-t-Butyl Ether
mV	Millivolts
NRC	NRC Alaska, LLC
NTU	Nephelometric Turbidity Units
ORP	Oxidation Reduction Potential
PAHs	Polynuclear Aromatic Hydrocarbons
PID	Photoionization detector
PVC	Polyvinyl chloride
ppm	Parts per million
RPD	Relative percent difference
SGS	SGS North America Inc.
VOCs	Volatile Organic Compounds
µg/L	Micrograms per liter
UST	Underground Storage Tank
WELTS	Well Log Tracking System

1 INTRODUCTION

This report presents the results of Shannon & Wilson's September 2019 groundwater sampling and additional release investigation activities conducted at 591 West 67th Avenue, Anchorage, Alaska.

The groundwater sampling and additional release investigation projects were performed in accordance with both our June 8, 2017 and July 23, 2019 work plans, respectively. The work plans were approved by Mr. Robert Weimer of the Alaska Department of Environmental Conservation (ADEC) via email on July 14, 2017 and July 23, 2019, respectively.

2 BACKGROUND

In May 2013, benzene-impacted soil was encountered during the removal of a 4,000-gallon dual-compartment underground storage tank (UST) used to dispense gasoline and diesel fuel. The tank was located on the southwest portion of the property, as shown on Figure 1. A release investigation was conducted in January 2014 to evaluate the extent of soil contamination and determine if groundwater has been impacted, as documented in our June 2014 *Release Investigation, Warning Lites of Alaska, 591 West 67th Avenue, Anchorage, Alaska* report. Four borings (Boring B1 through B4) and three monitoring wells (B1MW through B3MW) were advanced/installed in the vicinity of the former tank. A concentration of diesel range organics (DRO) (839 milligrams per kilogram [mg/kg]) greater than the ADEC cleanup level of 250 mg/kg was identified in a soil sample collected from Boring B1, located north of the former tank. Benzene (0.0144 milligrams per liter [mg/L]) exceeding the ADEC cleanup level of 0.0046 mg/L was detected in a groundwater sample collected from B2MW, located south of the former tank.

In a letter dated December 15, 2014, Mr. Robert Weimer of the ADEC requested quarterly groundwater sampling of the site's three groundwater monitoring wells and further delineation of soil contamination north of the former tank location. Quarterly groundwater sampling events were conducted in 2015, 2016, and 2017. During each quarterly event, benzene was measured in the groundwater samples collected from Well B2MW at concentrations greater than the applicable ADEC Table C cleanup level. All other analytes were either not detected or measured at concentrations less than the applicable ADEC Table C cleanup levels. During the sampling events, groundwater flow direction was measured generally to the southwest with variations to the west-northwest.

In a letter dated December 6, 2015, the ADEC requested quarterly groundwater sampling of Well B2MW and semi-annual sampling of Wells B1MW and B3MW. The ADEC also requested the advancement/installation of additional soil borings and monitoring wells to define the nature and extent of the soil contamination north of the former tank and to further delineate the extent of groundwater contamination downgradient of Monitoring Well B2MW.

Borings B5 through B8MW were advanced and Monitoring Wells B5MW and B6MW were installed on January 4, 2018, in the approximate locations shown on Figure 2. Sample B7S4, collected from Boring B7, contained 534 mg/kg DRO which exceeds the appliable ADEC Method Two cleanup level of 250 mg/kg. However, according to the laboratory, the DRO detection was likely caused by biogenic material and not petroleum hydrocarbons. Target analytes were either not detected or were detected at concentrations less than the applicable ADEC Method Two cleanup levels in the remaining soil samples. Based on the results of groundwater samples collected in January and May 2018, it was concluded that although benzene-impacted groundwater is present downgradient of the former tank in Wells B2MW and B6MW, benzene-impacted groundwater does not appear to migrate into the West 67th Avenue right-of-way.

At the request of Berkley Environmental (Berkley), the ADEC was contacted regarding a path to site closure. In a phone conversation on March 18, 2019, Mr. Robert Weimer detailed three areas with data gaps needed to gain conditional closure with institutional controls (CC/IC):

- Groundwater contamination delineation downgradient, to the west and southwest of the former UST excavation.
- Four consecutive groundwater monitoring events showing a decreasing or steady-state trend of the target analytes.
- Show contamination is not migrating off-property.

The purpose of this project is to address the remaining data gaps and the objective is to obtain data that will lead to CC/IC.

3 FIELD ACTIVITES AND PROJECT DESCRIPTION

Field work for this project consisted of advancing and sampling two soil borings (Borings B9 and B10); installing and developing two groundwater monitoring wells (Monitoring Wells B9MW and B10MW), collecting analytical soil and groundwater samples, investigation derived waste (IDW) disposal, and conducting a level-loop survey. In addition, Monitoring Well B1MW, B2MW, B3MW, B5MW, and B6MW were sampled in accordance with our June

8, 2017 work plan, which was previously approved by the ADEC. Discovery Drilling, Inc. (Discovery) of Anchorage, Alaska provided the equipment and personnel to perform the well installation. SGS North America Inc. (SGS) provided analysis of soil and groundwater samples. Photographs taken during the field activities are included in Appendix A. Field notes are included in Appendix B. Boring logs and well construction logs are included in Appendix C. It should be noted that the field notes presented in Appendix B are provided for information purposes only. Tables 1 through 5, and the boring longs and well completion logs presented in Appendix C represent our interpretation of the field data and take precedent over the field notes.

3.1 Soil Borings

Prior to advancing the soil borings, the utility locate center was contacted to mark buried utilities within the project area and identify potential conflicts. Two soil borings, designated Borings B9 and B10, were advanced by Discovery on September 19, 2019 using a truck-mounted direct-push drill rig. The location of Boring B9 was selected to further evaluate the extent of benzene contamination previously identified in groundwater samples collected from Wells B2MW and B6MW. The location of Boring B10 (Photo 1) was selected to evaluate whether DRO and/or benzene contamination is migrating off-property to the west of the former tank.

3.2 Soil Screening and Sampling

The borings were advanced approximately 12 to 13 feet below ground surface (bgs) to facilitate the collection of soil samples. Soil samples were recovered on a continuous basis using 3-inch outside diameter MC7 macro-core® samplers. Each sampling sleeve was removed from the sampling device and split down the long axis. If the recovery length was greater than three feet, the soil section was divided in two equal intervals for field screening purposes. Once the appropriate sample sections/intervals were established for a given sampling sleeve, a stainless-steel spoon was used to collect soil samples. Analytical soil sample containers were filled immediately and prior to collecting field screening samples.

Soil from each sample interval was screened for volatile organic vapors using ADEC-approved headspace sampling techniques and a photoionization detector (PID). The PID was calibrated before screening activities with 100 parts per million (ppm) isobutylene standard gas. Screening samples were placed in a re-sealable plastic bag to approximately one-half of its capacity using a clean stainless-steel spoon. The field screening samples were collected in re-sealable plastic bags, warmed to a common temperature, and tested within 60 minutes of collection. To screen, the sample was agitated for about 15 seconds, the seal of

the bag was opened slightly, the instrument probe was inserted into the air space above the soil, and the bag held closed around the probe. The maximum ionization response as the PID draws vapor from the sample bag was recorded. Table 1 presents a description of the soil sample locations, depths, and headspace results.

One analytical soil sample was collected from each boring (Samples B9S3 and B10S2) at the soil/groundwater interface. A second sample (Sample B9S1) was collected from Boring B9 due to potential visual/olfactory observations of contamination. A duplicate sample was also collected from the sample interval (Sample B10S2) with the highest PID reading. Analytical soil samples were collected in laboratory-supplied jars in decreasing order of volatility. For each volatile sample, at least 25 grams of soil, but no more than what could be completely submerged with 25-milliliters of methanol, was placed into a pre-weighted, 4-ounce jar with a septa lid. A 25-milliliter aliquot of methanol containing laboratory-added surrogates was added to the sample jar to submerge the soil sample. For each non-volatile sample, the laboratory-supplied jar was completely filled with soil taking care to avoid pieces of gravel and debris. Sample jars were filled using decontaminated stainless-steel spoons, placed in coolers with ice packs, and transferred to the laboratory using chain of custody procedures.

3.3 Monitoring Well Installation

Following soil sampling, the borings were advanced to a maximum of about 13.5 feet bgs to install the groundwater monitoring wells. Borings B9 and B10 were completed as Monitoring Wells B9MW and B10MW, respectively (Photo 2). The wells were constructed of 2-inch nominal inside diameter schedule 40 polyvinyl chloride (PVC) pipe with threaded connections. The lower portion of the wells were constructed of an approximately 10-foot section of 0.010-inch slotted well screen. The screens were placed to encompass the anticipated range of groundwater fluctuation. A continuous sand pack was used to backfill around the well screens to about 0.5 to 1.5 feet above the screened sections. Hydrated bentonite chips were used to backfill the boreholes from the top of the sand packs to approximately 0.5 to 1 foot bgs to create seals. Pea gravel was placed above the bentonite to near ground surface. Flush mount protective casings were used around the monitoring wells and finished to match the existing grade. Monitoring well construction details are included in Appendix C.

3.4 Monitoring Well Development

Monitoring Wells B9MW and B10MW were developed on September 19, 2019. Prior to initiating the well development activities, water depth relative to the tope of well casings

was measured with an electronic level indicator. The wells were developed using a surge block and a submersible pump with dedicated disposable tubing. Three to five-minute periods of surging were alternated with periods of pumping. Water quality parameters, including pH, specific conductance, oxidation reduction potential (ORP), temperature, and turbidity were measured to evaluate the effectiveness of the development process.

Development of Monitoring Wells B9MW and B10MW was considered completed once stabilization criteria were met over three successive readings: pH is within 0.1 unit, temperature was within 3 percent (minimum 0.2 degree Celsius), conductivity was within 3 percent, ORP was within 10 millivolts (mV), and turbidity was within 10 percent or three consecutive readings of less than 10 NTUs. During development, approximately 10.5 and 10 gallons of water were removed from Monitoring Wells B9MW and B10MW, respectively. Development data are provided on Table 2.

3.5 Monitoring Well Sampling

Monitoring Wells B9MW and B10MW were sampled on September 19, 2019 following development. In accordance with the project work plan, the wells were sampled once they had recharged to at least 80 percent of their pre-purge volume.

Wells B2MW and B6MW were sampled on September 20, 2019 and Wells B1MW, B3MW, and B5MW sampled on September 23, 2019. Monitoring Wells B1MW, B2MW, B3MW, B5MW, and B6MW were purged and sampled using a low-flow technique, using a submersible pump and disposable vinyl tubing. Sampling was initiated by purging the wells to reduce the feet of stagnant well casing water on chemical concentrations and to obtain groundwater samples that are representative of the surrounding water-bearing formation. The submersible pump was placed within one foot 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 (typical pump rate of 0.1 to 0.5 liter per minute).

During the purging process, field personnel monitored water quality parameters (pH, temperature, turbidity, ORP, dissolved oxygen, and conductivity), purge volume, and drawdown which were recorded at approximately 3 to 5-minute intervals. Stabilization criteria consisted of three successive readings of: pH within 0.1 unit, temperature within 3 percent (minimum 0.2 degree Celsius), dissolved oxygen within 10 percent, conductivity within 3 percent, ORP within 10 mV, and turbidity within 10 percent or three consecutive readings of less than 10 NTUs. The final water quality parameters are listed on Table 2.

The wells were allowed to recharge to 80 percent of the original water volume before sample collection. 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.

3.6 Level-Loop Survey

Shannon & Wilson personnel conducted a level loop survey on September 26, 2019 to determine the top-of-casing elevations of the groundwater monitoring wells relative to a temporary benchmark with an elevation designated 100.00 feet. The elevations were surveyed to an accuracy of 0.01 foot.

Depths to water measurements from each on-site well were also recorded on September 26, 2019 to determine groundwater flow direction (see Section 5.2). The surveyed well elevations and groundwater elevations are listed in Table 2. In addition, the horizontal positions of the wells were recorded using swing tie measurements to permanent site features.

3.7 Investigation Derived Waste

IDW from this project consisted of soil cuttings and purge and development water. The IDW was containerized in labeled, 55-gallon drums and stored on the site pending analytical results. Analytical soil and water samples contained target analyte concentrations greater than ADEC cleanup levels. Prior to disposal, an ADEC *Transport, Treatment, & Disposal Approval Form for Contaminated Media* for soil and groundwater was filled out and approved by the ADEC. With approval from the ADEC, four 55-gallon drums of purge/development water and two 55-gallon drums of soil cuttings were collected by NRC Alaska, LLC (NRC) for treatment. IDW disposal receipts are included in Appendix D. The remaining drums of soil have been approved by the ADEC for land spreading in Spring 2021, once the on-site ground surface has thawed.

4 LABORATORY ANAYLSES

The soil and groundwater samples were submitted to SGS for analytical testing, using chain-of-custody procedures. Four soil samples, including one duplicate sample, were analyzed for DRO by Alaska Method (AK) 102, volatile organic compounds (VOC) by Environmental Protection Agency (EPA) Method 8260C, and for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8270D SIM.

Nine groundwater samples, including two duplicates, were analyzed for DRO by AK 102, VOCs by EPA Method 8260B, and PAHs by EPA Method 8270D. For quality control purposes, one methanol soil trip blank (Sample TBS) and two water trip blanks (WTB and WTB2) were submitted to the laboratory and analyzed for VOCs by EPA Method 8260B. The laboratory reports and completed ADEC Laboratory Data Review Checklists (LDRCs) are provided in Appendix E. The analytical soil and groundwater sample results are summarized in Tables 3 and 4, respectively.

5 SUBSURFACE CONTITIONS

Subsurface conditions observed during the drilling and monitoring well development and sampling are discussed below and provided in the boring logs included as Appendix C.

Soil encountered in Borings B9 and B10 consisted of coarse-grained material (sand with gravel or sand with silt and gravel) to approximately 6.5 feet bgs and 5 feet bgs, respectively. The coarse-grained material encountered in Boring B9 was underlain by silt while the same material in Boring B10 was underlain by peat.

During drilling, groundwater was encountered at approximately 10 feet bgs in Boring B9, and 7.5 feet bgs in Boring B10. On September 26, 2020 the static groundwater level measurements for each of the sampled wells ranged from 3.01 feet below top of casing (btoc) in Well B10MW to 4.62 feet btoc in Well B6MW. Surveyed groundwater elevations ranged from 92.72 feet in Monitoring Well B9MW to 95.70 feet in Well B10MW in September 2019.

Subsurface conditions in Borings B6 through B8 appeared similar to Borings B1 through B3. However, underlying peat layers were not observed in Borings B5 or B9, which are located within the West 67th Avenue right-of-way. This also leads to uncertainty with regard to localized groundwater flow direction. Based on our field observations it appears that groundwater is influenced by the amount of water seasonally present within the peat underlying the site, and therefore fluctuations in groundwater depth and flow direction occurs. Based on groundwater measurements from the on-site monitoring wells, the groundwater flow in September 2019 was generally to the south/southwest. Previous data shows that in May 2014, August 2015, and May 2016 groundwater flow was to the west/southwest, and in October 2015, February 2016, and January 2018 groundwater flow was to the southwest.

6 DISCUSSION OF ANALYTICAL RESULTS

The analytical soil and groundwater results were compared to ADEC cleanup levels presented in the November 2020, 18 Alaska Administrative Code (AAC) 75 regulations. The applicable soil criteria consist of the most stringent ADEC Method Two cleanup levels listed in Tables B1 and B2 of 18 AAC 75.341, for the "under 40-inch (precipitation) zone," and groundwater cleanup levels are established in Table C of 18 AAC 75.345.

6.1 Soil Sample Analytical Results

The duplicate sample set, Samples B10S2 and B10S3, contained concentrations of DRO (maximum of 1,690 mg/kg) and benzene (maximum of 1.17 mg/kg) greater than the ADEC cleanup levels of 250 mg/kg and 0.022 mg/kg, respectively. These samples were collected at the soil/water interface within a layer of peat. According to the laboratory, the high moisture content of the samples, and the absence of alkane peaks in the chromatogram associated with the sample, are both indicative of biogenic origins (naturally occurring organics) and not DRO. The remaining soil samples did not contain concentration of DRO or benzene above ADEC cleanup levels. The remaining target analytes were either not detected or detected at concentration less than the ADEC cleanup. The chromatograms for the duplicate sample set are included in Appendix E.

6.2 Groundwater Sample Analytical Results

The duplicate sample set collected from Monitoring Well B6MW and the sample collected from Monitoring Well B2MW contained concentrations of benzene (52.1 micrograms per liter [µg/L] to 153 µg/L) exceeding the ADEC cleanup level of 4.6 µg/L. The duplicate sample set collected from Monitoring Well B9MW contained concentrations of methyl-t-butyl ether (MTBE) (maximum of 150 µg/L) above the ADEC cleanup level of 140 µg/L. The remaining target analytes were either not detected or detected at concentration less than the respective ADEC cleanup level.

With the exception of the concentration of benzene measured in the duplicate sample collected from Well B6MW, the DRO and benzene concentrations measured in the groundwater samples collected in September 2019 are generally consistent with historical data. The concentration of benzene detected in the sample collected from Well B6MW is the highest concentration measured to date. Historical groundwater analytical results are presented in Table 5.

6.3 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 E).

External quality controls included duplicate samples and trip blanks. Two duplicate sets, one soil (B10S2/B10S23) and two groundwater (B6MW/B16MW and B9MW/B19MW), were collected to assess precision of the sampling and analysis processes using the calculated relative percent difference (RPD). The RPDs are within the ADEC recommended DQO of 50 percent for soil and 30 percent for groundwater, with the exception of benzene concentrations in the soil duplicate sample set (104.5%). Sample results for benzene in Sample B10S2/B10S3 are flagged "E" in Table 3 may be considered estimated. Although, in each case both of the results were greater than the ADEC cleanup levels.

One methanol soil trip blank (Sample TBS) and two water trip blanks (Samples WTB and WTB2) accompanied the sample jars and bottles, as appropriate, from the laboratory to the site during sampling activities and back again to SGS. Target analytes were not detected in the soil and water trip blanks; therefore, the usability of the groundwater data is considered unaffected.

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, which is included in Appendix E. No non-conformances that would adversely affect the quality or usability of the data were noted with the exceptions noted above.

7 CONCLUSIONS

The additional release investigation activities consisted of advancing two borings (Boring B9 and B10), installing two groundwater monitoring wells (B9MW and B10MW), collecting soil and groundwater samples, and conducted a level loop survey. Concentrations of DRO and benzene were detected in the duplicate soil samples collected from Boring B10, which was advanced west of the former tank location, along the property boundary. Consistent with

previous sample results, the groundwater samples collected from Wells B2MW and B6MW contained concentrations of benzene exceeding the applicable cleanup levels. In addition, the duplicate sample set collected from Well B9MW, which was installed within West 67th Avenue, contained concentrations of MTBE exceeding the ADEC cleanup level.

Based on the additional release investigation activities, the extent of benzene-impacted groundwater downgradient of the former tank location is bound to the south and southwest by Wells B5MW and B9MW, respectively. In addition, petroleum-impacted groundwater is bound to the west of the former tank location by Well B10MW. The extent of MTBE-impacted groundwater in the vicinity of Well B9MW is currently unknown. There is also a potential that impacted soil and/or groundwater associated with the former tank is located on the adjoining property to the west (6617 Arctic Boulevard).

8 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. As a result, the sampling, analyses, and data interpretations can provide 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 assessment. 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 Warning Lites of Alaska, or as required by law.

Shannon & Wilson has prepared the attachments, "Important Information About Your Environmental Site Assessment/Evaluation Report," to assist you and others in understanding the use and limitations of our report.

TABLE 1
SAMPLE LOCATIONS AND DESCRIPTIONS

Sample Number	Date	Sample Location (See Figure 2 and Appendix C)	Depth (feet bgs or BTOC)	Headspace (ppm) ^
Soil Samples				
Boring B9				
* B9S1	9/12/2019	Boring B9, Sample 1	0-5	1.6
B9S2	9/12/2019	Boring B9, Sample 2	5-10	1.4
* B9S3	9/12/2019	Boring B9, Sample 3	10-12	0.1
Boring B10				
B10S1	9/12/2019	Boring B10, Sample 1	0-5	0.0
* B10S2	9/12/2019	Boring B10, Sample 2	5-10	3.5
* B10S3	9/12/2019	Duplicate of Sample B10S2	5-10	3.5
B10S3b	9/12/2019	Boring B10, Sample 3b	10-12	-
Water Samples				
* B1MW	9/23/2019	Monitoring Well B1MW	6.42	-
* B2MW	9/20/2019	Monitoring Well B2MW	2.94	-
* B3MW	9/23/2019	Monitoring Well B3MW	2.89	-
* B5MW	9/23/2019	Monitoring Well B5MW	4.26	-
* B6MW	9/20/2019	Monitoring Well B6MW	3.06	-
* B16MW	9/20/2019	Duplicate of Sample B6MW	3.06	-
* B9MW	9/19/2019	Monitoring Well B9MW	4.96	-
* B19MW	9/19/2019	Duplicate of Sample B9MW	4.96	-
* B10MW	9/19/2019	Monitoring Well B10MW	3.13	-
Quality Control Samples				
* TBS	9/12/2019	Soil Trip Blank	-	-
* WTB	9/19/2019	Water Trip Blank	-	-
* WTB2	9/20/2019	Water Trip Blank	-	-

Notes:

* = Sample analyzed by the project laboratory (See Tables 3 and 4)

** = Sample description applies to the portion of the specified sample interval from which the sample

^ = Field screening instrument was a Thermo Environmental Instruments 580B photoionization detector (PID).

\- = Measurement not recorded or not applicable

bgs = below ground surface

BTOC = Below top of casing

ppm = parts per million

TABLE 2
MONITORING WELL DEVELOPMENT & SAMPLING LOG

	Monitoring Well Number						
	B1MW	**B2MW**	**B3MW**	**B5MW**	**B6MW**	**B9MW**	**B10MW**
Development Data							
Development Date	-	-	-	-	-	9/19/2019	9/19/2019
Measured Depth to Water (ft below MP)^	-	-	-	-	-	4.96	3.13
Total Depth of Well (ft below TOC)	-	-	-	-	-	13.44	10.46
Water Column in Well (ft)	-	-	-	-	-	8.48	7.33
Gallons per Foot	-	-	-	-	-	0.16	0.16
Water Column Volume (gallons)	-	-	-	-	-	1.36	1.17
Total Volume Pumped/Bailed (gallons)	-	-	-	-	-	10.5	10
Development Method	-	-	-	-	-	Surge block/ Submersible pump	Surge block/ Submersible pump
Water Level Measurement Data							
Date Water Level Measured	9/26/2019	9/26/2019	9/26/2019	9/26/2019	9/26/2019	9/26/2019	9/26/2019
Time Water Level Measured	11:47	11:25	11:40	11:36	11:30	11:33	11:44
Surveyed TOC Elevation (ft)	98.62	97.66	98.27	97.38	97.63	97.33	98.71
Measured Depth to Water (ft below TOC)^	3.43	3.38	3.58	4.62	3.26	4.61	3.01
Water Level Elevation (ft)	95.19	94.28	94.69	92.76	94.37	92.72	95.70
Sampling Data							
Date Sampled	9/23/2019	9/20/2019	9/23/2019	9/23/2019	9/20/2019	9/19/2019	9/19/2019
Time Sampled	11:36	13:40	13:30	15:05	11:55	18:10	17:26
Measured Depth to Water (ft below MP)	6.42	2.94	2.89	4.26	3.06	4.96	3.13
Total Depth of Well (ft below MP)	12.99	13.04	12.91	12.79	11.38	13.44	10.46
Water Column in Well (ft)	6.57	10.10	10.02	8.53	8.32	8.48	7.33
Gallons per Foot	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Water Column Volume (gallons)	6.42	1.62	1.6	1.36	1.33	1.36	1.17
Total Volume Pumped (gallons)	1.3	1.6	1.6	1.6	1.3	-	-
Sampling Method	SP	SP	SP	SP	SP	SP	SP
Diameter of Well Casing	2-inch	2-inch	2-inch	2-inch	2-inch	2-inch	2-inch
Water Quality Data							
Temperature (°C)	14.66	15.05	16.29	17.24	14.89	14.16	13.36
pH (Standard Units)	5.45	6.02	6.38	6.71	5.96	6.22	6.39
Specific Conductivity (µS/cm)	152	631	984	49	817	726	735
Oxidation Reduction Potential (m/V)	94.8	129.7	66.3	120.6	103.1	126.2	111.7
Dissolved Oxygen (mg/L)	35.42	34.74	33.61	34.41	34.51	-	-
Turbidity (NTU)	89.99	3.31	9.91	2.01	2.87	0	733.4
Remarks					Duplicate Sample B16MW	Duplicate Sample B19MW	

Notes:

Water quality parameters were measured with YSI 556 MPS and MicroTPW water quality instruments

- = Not applicable or not measured
^ = Depth to water measurement prior to development
TOC = Top of casing
ft = Feet
SP = Submersible Pump
°C = Degrees Celsius
µS/cm = Microsiemens per Centimeter
MP = Measuring Point
m/V = Millivolts
NTU = Nephelometric Turbidity Unit
mg/L = Milligrams per Liter

TABLE 3
SUMMARY OF SOIL ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (mg/kg)**	Sample ID Number^ and Soil Sample Depth in Feet bgs (See Table 1, Figure 2, and Appendix C)				
			Boring B9		Boring B10		Trip Blank
			B9S1 0-5	B9S3 10-12	B10S2 5-10	B10S3~ 5-10	TBS -
PID Headspace Reading - ppm	580B PID	-	1.6	0.1	3.5	3.5	-
Diesel Range Organics (DRO) - mg/kg	AK 102	250	**55.5**	**13.6 J**	**1,690**	**1,380**	-
Volatile Organic Compounds (VOCs)							
Benzene - mg/kg	EPA 8260C	0.022	<0.00348	<0.00565	**0.367 E**	**1.17 E**	<0.00645
Toluene - mg/kg	EPA 8260C	6.7	<0.00695	<0.0113	<0.0895	<0.0855	<0.0129
Ethylbenzene - mg/kg	EPA 8260C	0.13	<0.00695	<0.0113	<0.0895	<0.0855	<0.0129
Xylenes (total) - mg/kg	EPA 8260C	1.5	<0.0209	<0.0338	<0.269	<0.256	<0.0386
Acetone - mg/kg	EPA 8260C	38	<0.0695	<0.113	**1.54 J**	**1.39 J**	<0.129
cis-1,2-Dichloroethene - mg/kg	EPA 8260C	0.12	<0.00695	<0.0113	<0.0895	**0.0908 J**	<0.0129
Other VOCs - mg/kg	EPA 8260C	Various	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs)							
Benzo[g,h,i]perylene - mg/kg	EPA 8270D-SIM	2,300	**0.0106 J**	<0.0148	<0.0413	<0.0399	-
Chrysene - mg/kg	EPA 8270D-SIM	600	**0.0315**	<0.0148	<0.0413	<0.0399	-
Phenanthrene - mg/kg	EPA 8270D-SIM	39	**0.0104 J**	<0.0148	<0.0413	<0.0399	-
Other PAHs - mg/kg	EPA 8270D-SIM	Various	ND	ND	ND	ND	-

Notes:

*	= See Appendix E for compounds tested, methods, and laboratory reporting limits
**	= Soil cleanup level is the most stringent ADEC Method 2 standard listed in Table B1 or B2, 18 AAC 75 (November 2020), for the "under 40 inches (precipitation) zone"
^	= Sample ID number preceded by "101882-" on the chain of custody form
mg/kg	= Milligram per kilogram
<0.00348	= Analyte not detected; laboratory limit of detection of 0.00348
55.5	= Analyte detected
1,690	= Reported concentration exceeds the ADEC cleanup level
ND	= Not detected
-	= Not applicable or sample not tested for this analyte
~	= Field duplicate of preceding sample
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
E	= Result is an estimate due to a primary/field duplicate sample pair relative percent difference (RPD) failure. See ADEC LDRC in Appendix C for details.
ppm	= part per million
bgs	= below ground surface

TABLE 4
SUMMARY OF WATER ANALYTICAL RESULTS

Parameter Tested	Method*	Cleanup Level (µg/L)**	Sample ID Number^, Water Depth in Feet BTOC (See Tables 1 and 2, Figure 2, and Appendix C)										
			Monitoring Wells									Quality Control	
			B1MW 6.42	B2MW 2.94	B3MW 2.89	B5MW 4.26	B6MW 3.06	B16MW~ 3.06	B9MW 4.96	B19MW~ 4.96	B10MW 3.13	WTB -	WTB2 -
Diesel Range Organics (DRO) - µg/L	AK 102	1,500	**333 J**	**300 J**	**528 J**	**390 J**	**437 J**	**459 J**	**561 J**	**505 J**	**284 J**	-	-
Volatile Organic Compounds (VOCs)													
Benzene - µg/L	EPA 8260C	4.6	<0.200	**52.1**	**0.120 J**	**0.330 J**	**133**	**153**	<0.200	<0.200	**0.830**	<0.200	<0.200
Toluene - µg/L	EPA 8260C	1,100	<0.500	**0.320 J**	**0.320 J**	<0.500	**0.420 J**	**0.360 J**	<0.500	<0.500	<0.500	<0.500	<0.500
Ethylbenzene - µg/L	EPA 8260C	15	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Xylenes (total) - µg/L	EPA 8260C	190	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50
1,1-Dichloroethane - µg/L	EPA 8260C	28	<0.500	<0.500	<0.500	<0.500	**0.320 J**	**0.430 J**	<0.500	<0.500	<0.500	<0.500	<0.500
cis-1,2-Dichloroethene - µg/L	EPA 8260C	36	<0.500	**1.48**	<0.500	<0.500	**8.63**	**10.7**	<0.500	<0.500	<0.500	<0.500	<0.500
Dichlorodifluoromethane - µg/L	EPA 8260C	200	**0.960 J**	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Methyl-t-butyl ether (MTBE) - µg/L	EPA 8260C	140	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	**145**	**150**	<5.00	<5.00	<5.00
n-Butylbenzene - µg/L	EPA 8260C	1,000	<0.500	<0.500	<0.500	<0.500	<0.500	**0.860 J**	<0.500	<0.500	<0.500	<0.500	<0.500
trans-1,2-Dichloroethene - µg/L	EPA 8260C	360	<0.500	<0.500	<0.500	<0.500	**0.390 J**	**0.460 J**	<0.500	<0.500	<0.500	<0.500	<0.500
Other VOCs - µg/L	EPA 8260C	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polynuclear Aromatic Hydrocarbons (PAHs)													
Benzo[a]pyrene - µg/L	EPA 8270D-SIM	0.25	**0.0809**	<0.0104	**0.127**	<0.0100	<0.00925	<0.0100	<0.00960	<0.0100	<0.00945	-	-
Benzo[b]Fluoranthene - µg/L	EPA 8270D-SIM	2.5	**0.222**	<0.0261	**0.343**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Benzo[g,h,i]perylene - µg/L	EPA 8270D-SIM	0.26	**0.124**	<0.0261	**0.218**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Chrysene - µg/L	EPA 8270D-SIM	2.0	**0.187**	<0.0261	**0.207**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Fluoranthene - µg/L	EPA 8270D-SIM	260	**0.226**	<0.0261	**0.181**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Indeno[1,2,3-c,d] pyrene - µg/L	EPA 8270D-SIM	0.19	**0.103**	<0.0261	**0.176**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Naphthalene - µg/L	EPA 8270D-SIM	1.7	<0.0463	<0.0520	<0.0500	<0.0500	<0.0463	<0.0500	<0.0481	**0.0503 J**	**0.0316 J**	-	-
Phenanthrene - µg/L	EPA 8270D-SIM	170	**0.0730**	<0.0261	**0.0507**	<0.0250	<0.0232	<0.0250	<0.0240	**0.0518**	<0.0236	-	-
Pyrene - µg/L	EPA 8270D-SIM	120	**0.158**	<0.0261	**0.131**	<0.0250	<0.0232	<0.0250	<0.0240	<0.0250	<0.0236	-	-
Other PAHs - µg/L	EPA 8270D-SIM	Various	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-

Notes:

*	= See Appendix E for compounds tested, methods, and laboratory reporting limits
**	= Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (November 2020)
^	= Sample ID number preceded by "101882-" on the chain of custody form
µg/L	= micrograms per liter
<0.500	= Analyte not detected; laboratory limit of detection of 0.500
52.1	= Reported concentration exceeds the regulated cleanup level
-	= Not applicable or sample not tested for this analyte
~	= Field duplicate of preceding sample
J	= Estimated concentration less than the limit of quantitation. See the SGS laboratory report for more details.
B	= Compound detected in method blank at an estimated concentration and may potentially affect the sample result.
BTOC	= Below Top of Casing

TABLE 5
HISTORICAL WATER ANALYTICAL RESULTS

Monitoring Well	Date	Depth to Groundwater (feet bgs)	Parameter Tested and ADEC Cleanup Level in µg/L					
			DRO 1,500	GRO 2,200	Benzene 4.6	Toluene 1,100	Ethylbenzene 15	Xylenes 190
B1MW	5/8/2014	4.15	<659 B	<50.0	**0.390 J**	<0.500	<1.00 B	<2.00 B
	8/3/2015	4.72	<300	<50.0	**0.680**	<0.500	<0.500	<1.50
	10/27/2015	3.55	**325 J**	<50.0	**0.610**	<0.500	<0.500	<1.50
	2/10/2016	7.11	<300	<50.0	**2.08 B**	<1.00 B	<0.500	<3.00 B
	5/25/2016	4.76	**338 J**	<50.0 J-	**0.330 J-**	<0.500 J-	<0.500 J-	<1.50 J-
	5/22/2018	2.89	**528 J**	-	0.120 J	**0.320 J**	<0.500	<1.50
	9/23/2019	6.42	**333 J**	-	<0.200	<0.500	<0.500	<1.50
B2MW	5/8/2014	3.65	<682 B	**43.2 J**	**14.4**	<0.500	<0.500	<2.00 B
	8/3/2015~	4.05	<308	**124**	**56.4**	<0.500	<0.500	<1.50
	10/27/2015~	4.01	**379 J**	<109 B	**54.1**	**0.550 J**	<0.500	<1.50
	2/10/2016~	7.84	**320 J**	**124 E**	**37.4**	<0.500	<0.500	<2.00 B
	5/25/2016~	4.22	**284 J**	**122 J-**	**63.6 J-**	<0.500 J-	<0.500 J-	<1.50 J-
	1/11/2018~	7.00	**305 J**	-	**51.7**	<0.500	<0.500	<1.50
	5/22/2018~	3.45	**390 J**	-	**43.7**	<0.500	<0.500	<1.50
	12/17/2018~	5.15	-	-	**83.4**	0.440 J	<0.500	<1.50
	4/29/2019	3.06	-	-	**31.7**	<0.500	<0.500	<1.50
	9/20/2019	2.94	**300 J**	-	**52.1**	**0.320 J**	<0.500	<1.50
B3MW	5/8/2014~	3.00	<732 B	**45.1 J**	**0.220 J**	<0.500	<0.500	<2.00 B
	8/3/2015	3.83	**471 J**	<50.0	**0.330 J**	<0.500	<0.500	<1.50
	10/27/2015	3.33	**693**	<50.0	**0.230 J**	<0.500	<0.500	<1.50
	2/10/2016	7.37	**433 J**	<50.0	<0.500 B	<0.500	<0.500	<2.00 B
	5/25/2016	4.01	**746**	<50.0 J-	**0.160 J-**	<0.500 J-	<0.500 J-	<1.50 J-
	5/22/2018	3.06	**459 J**	-	**153**	0.360 J	0.360 J	<1.50
	9/23/2019	2.89	**528 J**	-	**0.120 J**	**0.320 J**	<0.500	<1.50
B5MW	5/22/2018	2.63	**266 B**	-	<0.200	<0.500	<0.500	<1.50
	12/17/2018	5.40	<283	-	**0.440**	<0.500	<0.500	<1.50
	4/29/2019	2.15	**526 J**	-	<0.200	<0.500	<0.500	<1.50
	9/23/2019	4.62	**390 J**	-	**0.330 J**	<0.500	<0.500	<1.50
B6MW	5/22/2018	3.44	**544 B**	-	**17.4**	<0.500	<0.500	<1.50
	12/17/2018	5.00	<294	-	**77.6**	**0.370 J**	<0.500	<1.50
	4/29/2019	2.62	<302	-	**19.1**	<0.500	<0.500	<1.50
	9/20/2019~	3.06	**459 J**	-	**153**	**0.420 J**	<0.500	<1.50
B9MW	9/19/2019	4.96	**561 J**	-	<0.200	<0.500	<0.500	<1.50
B10MW	9/19/2019	3.13	**284 J**	-	**0.830**	<0.500	<0.500	<1.50

See Notes on Page 2

TABLE 5
HISTORICAL WATER ANALYTICAL RESULTS

Notes:

*	= See Appendix E compounds tested, methods, and laboratory reporting limits
**	= Groundwater cleanup levels are listed in Table C, 18 AAC 75.345 (November 2020)
^	= Sample ID number preceded by "101882-" on the chain of custody form
bgs	= Below ground surface
~	= Listed value based on highest concentration in duplicate sample set
µg/L	= micrograms per liter
<0.500	= Analyte not detected; laboratory limit of detection of 0.500 µg/L
325	= Analyte detected at a concentration less than the applicable ADEC cleanup level
14.4	= Reported concentration exceeds the applicable ADEC cleanup level
-	= Not applicable or sample not tested for this analyte
J	= Estimated concentration less than the limit of quantitation.
J-	= Biased low due to hold time exceedance.
B	= Analyte concentration potentially affected by compound detected in trip blank or method blank
E	= Result is an estimate due to a field-duplicate pair relative-percent-difference failure.
BTOC	= Below Top of Casing

Map adapted from aerial imagery provided by Google Earth Pro, reproduced by permission granted by Google Earth Mapping Service. Imagery date April 14, 2011

0 150 300

APPROXIMATE SCALE IN FEET

N

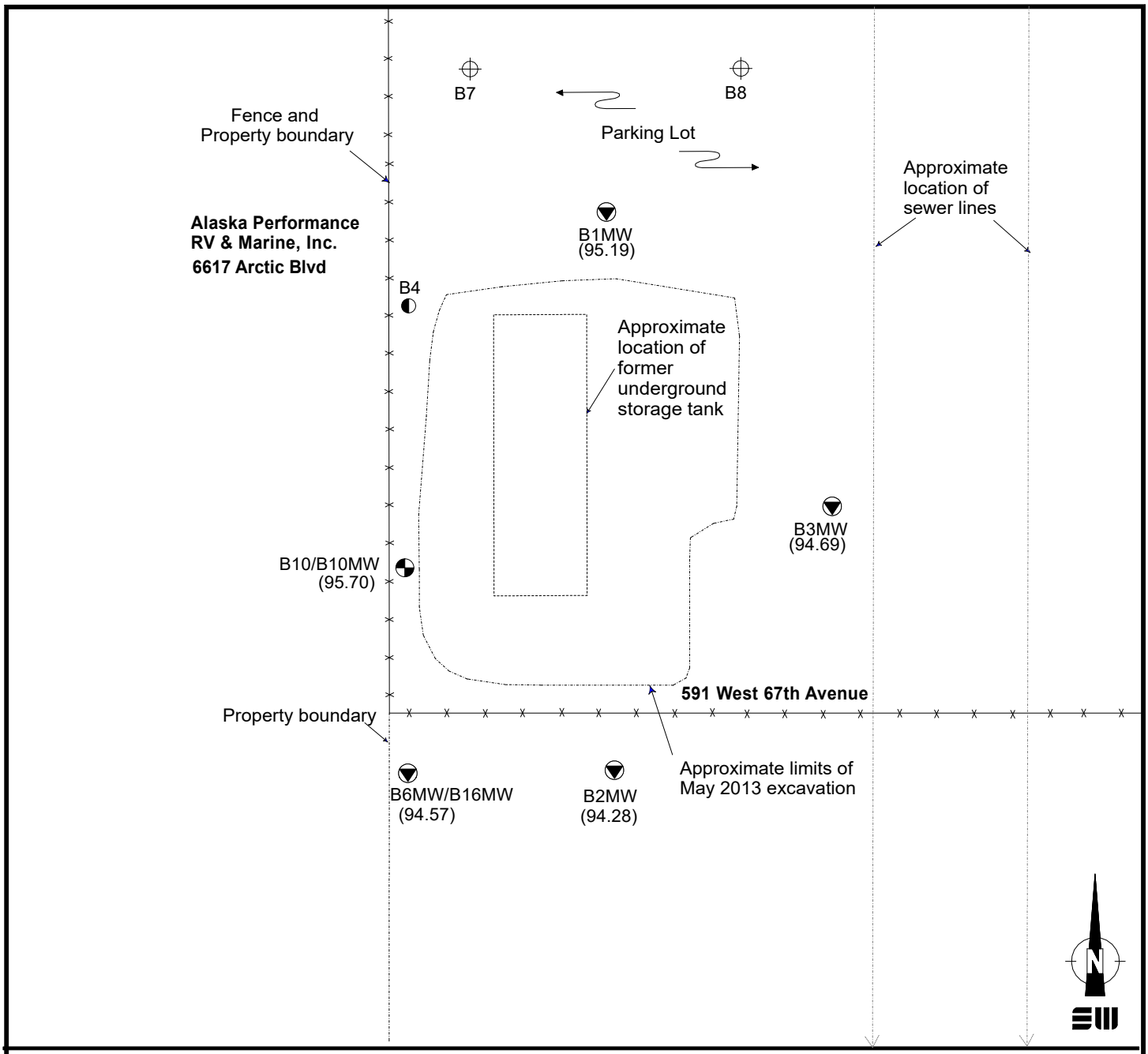
591 West 67th Avenue
Anchorage, Alaska

VICINITY MAP

February 2021 101882-003

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Fig. 1



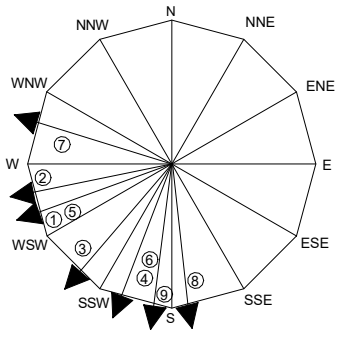
B9/B9MW/B19MW
(92.72)

West 67th Avenue

B5MW
(92.76)

Groundwater flow direction and dates	
①	May 7, 2014
②	August 3, 2015
③	October 27, 2015
④	February 2, 2016
⑤	May 25, 2016
⑥	January 11, 2018
⑦	May 21, 2018
⑧	December 17, 2018*
⑨	September 26, 2019*

* Depth to groundwater measurements potentially affected by the November 30, 2018 earthquake



Legend

B4	Approximate location of Boring B4 advanced by Shannon & Wilson, Inc. in January 2014.
B1MW	Approximate location of Monitoring Well B1MW installed by Shannon & Wilson, Inc. in January 2014 or 2018.
B7	Approximate location of Boring B7 advanced by Shannon & Wilson, Inc. in January 2018.
B10/B10MW	Approximate location of Boring/Monitoring Well B10/B10MW advanced/ installed by Shannon & Wilson, Inc, in September 2019.
(92.72)	Water level elevation measured according to a level-loop survey and water level measurements recorded on September 26, 2019.

591 W. 67th Avenue
Anchorage, Alaska

SITE PLAN

February 2021

101882-003

SHANNON & WILSON, INC.
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Fig. 2

Appendix A

Site Photographs

APPENDIX A: SITE PHOTOGRAPHS

Photo 1: Looking south during the advancement of Boring B10. (September 12, 2019)

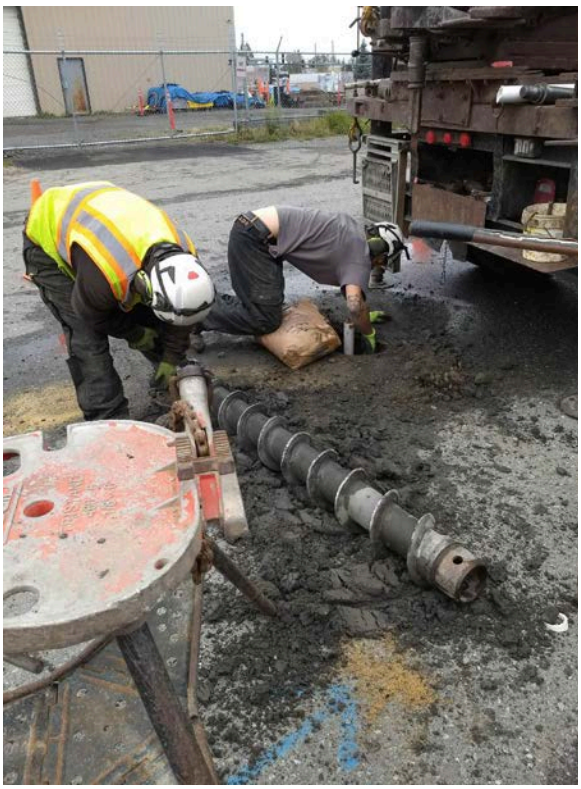


Photo 2: Looking southwest at the installation of Monitoring Well B9MW. (September 12, 2019)

591 West 67th Avenue
Anchorage, Alaska

PHOTOS 1 AND 2

February 2021 101882-003

SHANNON & WILSON, INC.
Geotechnical & Environmental Consultants

Appendix B

Field Notes

APPENDIX B: FIELD NOTES

LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 101882-001 Location: Hornby Lilly Weather: 50° Rainy

Well No.: B2MW

Date: 9/20/19 Time Started: 13:00 Time Completed:

Develop Date: Develop End Time: (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 13:13 Date of Depth Measurement: 9/20/19

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other:

Diameter of Casing: 2" Well Screen Interval:

Total Depth of Well Below MP: 13.04 Product Thickness, if noted:

Depth-to-Water (DTW) Below MP: 2.94

Water Column in Well: 10.1 (Total Depth of Well Below MP - DTW Below MP)

Gallons per foot: 0.16

Gallons in Well: 1.62 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 9/20/19 Time Started: 13:20 Time Completed: 13:53

Three Well Volumes: 4.86 (Gallons in Well x 3)

Gallons Purged: 1.62 Depth of Pump (generally 2 ft from bottom): 10'

Max. Drawdown (generally 0.3 ft): 1.63 Pump Rate: 0.1

Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
13:23	1.1	0.1	4.04	2.10	14.41	665	31.48	6.14	131.8	16.62
13:26	1.2	0.1	—	—	14.13	635	32.77	6.02	131.2	14.29
13:29	1.3	0.1	4.4	1.46	14.48	631	32.76	6.04	130.9	11.92
13:32	1.4	0.1	4.57	1.63	14.87	635	32.17	6.03	129.8	8.75
13:35	1.5	0.1	—	—	14.99	633	33.85	6.03	125.6	5.42
13:38	1.6	0.1			15.05	631	34.74	6.02	125.7	3.31

13:40 SAMPLE

SAMPLING DATA

Odor: None Color: Yellow

Sample Designation: 101882-B2MW Time / Date: 13:40 9/20

QC Sample Designation: Time / Date:

QA Sample Designation: Time / Date:

Evacuation Method: Submersible Pump / Other: Peristaltic Whale

Sampling Method: Submersible Pump / Other:

Water Quality Instruments Used/Manufacturer/Model Number

Calibration Info (Time, Ranges, etc) Water Quality Instrument calibrated @ 08:40 9/20/19

Remarks:

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 101882-001 Location: Wyoming Lake Weather: 50°F Raining
Well No.: B6MW
Date: 9/20/15 Time Started: 11:00 Time Completed: 12:38
Develop Date: _____ Develop End Time: _____ (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 11:24 Date of Depth Measurement: 9/20/15
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____
Diameter of Casing: 2" Well Screen Interval: _____
Total Depth of Well Below MP: 11:38 Product Thickness, if noted: _____
Depth-to-Water (DTW) Below MP: 3.06
Water Column in Well: 8.32 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.33 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 9/20/15 Time Started: 11:30 Time Completed: 12:48
Three Well Volumes: 3.99 (Gallons in Well x 3)
Gallons Purged: 1.33 Depth of Pump (generally 2 ft from bottom): 9'
Max. Drawdown (generally 0.3 ft): 1.16 Pump Rate: 0.1
Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
11:33	0.3	0.3	1.54	0.54	13.70	720	49	5.63	102.5	8.00
11:36	0.4	0.1	3.61	0.55	13.90	730	36.38	5.87	100.1	6.42
11:39	0.6	0.1	3.72	0.66	14.34	744	33.90	5.7	99.3	4.41
11:42	0.7	0.1	3.79	0.73	14.43	758	34.83	√5.71	√99.6	√3.37
11:45	1.0	0.1	3.95	0.79	14.70	795	34.26	√5.63	√101.2	√3.3
11:49	1.1	0.1	4.02	0.96	14.81	811	33.91	√5.95	√102.5	√3.23

SAMPLING DATA

Odor: Sulfur Color: yellow
Sample Designation: 101882-B6MW Time / Date: 9/20/15 11:55
QC Sample Designation: 101882-B6MW Time / Date: 9/20/15 12:35
QA Sample Designation: _____ Time / Date: _____
Evacuation Method: Submersible Pump / Other: Double Check
Sampling Method: Submersible Pump / Other: Low-flow
Water Quality Instruments Used/Manufacturer/Model Number YSI Hach turbidimeter
Calibration Info (Time, Ranges, etc) Water quality instruments calibrated @ 8:40 9/20/15
Remarks: _____

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: 101882-001 Location: Downing Lake Site: _____

Well No.: BLOWN

Date: 9/20/19

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
11:52	1.3	0.1	4.22	1.16	14.89	817	34.51	5.96	103.1	2.87
SAMPLE 11:55										

	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or <5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 101882-007 Location: Warming Lifes Weather: Sunny 60's

Well No.: BIMW

Date: 9/23/19 Time Started: 10:20 Time Completed: 12:20

Develop Date: _____ Develop End Time: _____ (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 10:40 Date of Depth Measurement: 9/23/19

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____

Diameter of Casing: 2" Well Screen Interval: _____

Total Depth of Well Below MP: 12.99 Product Thickness, if noted: _____

Depth-to-Water (DTW) Below MP: 6.42

Water Column in Well: 6.57 (Total Depth of Well Below MP - DTW Below MP)

Gallons per foot: 0.16

Gallons in Well: 1.05 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 9/23/19 Time Started: 10:55 Time Completed: 12:00

Three Well Volumes: 3.15 (Gallons in Well x 3)

Gallons Purged: 1.3 Depth of Pump (generally 2 ft from bottom): 10'

Max. Drawdown (generally 0.3 ft): 3.76 Pump Rate: 0.1

Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
10:57	0.1	0.1		~~12.76~~	12.76	172	38.80	4.15	135.4	98.07
11:03	0.3	0.1	7.84	3.46	12.95	138	39.92	4.05	213.1	69.4
11:07	0.4	0.1			13.26	128	30.08	4.87	109.1	68.28
11:10	0.5	0.1	—	—	—	—	—	—	—	—
11:15	0.6	0.1	7.18	0.76	12.19	150	35.20	5.26	116.1	115.7
11:18	0.8	0.1	8.47	2.08	12.41	157	35.55	5.24	106.16	105.1

SAMPLING DATA

Odor: None Color: Yellow-ish

Sample Designation: 101882-BIMW Time / Date: 9/23/19 11:36

QC Sample Designation: _____ Time / Date: _____

QA Sample Designation: _____ Time / Date: _____

Evacuation Method: Submersible Pump / Other: Double check

Sampling Method: Submersible Pump / Other: low-flow

Water Quality Instruments Used/Manufacturer/Model Number Horiba U-51

Calibration Info (Time, Ranges, etc) Water quality instruments properly calibrated @ 09:00 9/23/19

Remarks: Purged dry @ 11:07 Rebuilt @ 11:15

Sampling Personnel: _____

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: _____ Location: _____ Site: _____

Well No.: _____

Date: _____

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
11:22	1.0	0.1	8.83	2.41	13.00	154	36.74	5.36	99.5	105.1
11:25	1.1	0.1	-	-	13.49	154	36.48	5.36	99.8	71.11
11:28	1.2	0.1			14.20	152	36.04	5.43	95.5	50.51
11:31	1.3	0.1	10.18	3.76	14.06	152	35.42	5.45	94.5	89.75
11:36	SAMPLE									

	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or <5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Job No: 101882-001 Location: Deming Lakes Weather: Sunny 60°F
Well No.: B3MW
Date: 9/23/15 Time Started: 12:26 Time Completed: 14:05
Develop Date: _____ Develop End Time: _____ (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 12:28 Date of Depth Measurement: 9/23/15
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____
Diameter of Casing: 2" Well Screen Interval: _____
Total Depth of Well Below MP: 12.91 Product Thickness, if noted: _____
Depth-to-Water (DTW) Below MP: 2.89
Water Column in Well: 0.02 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.6 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 9/23/15 Time Started: 12:40 Time Completed: 13:45
Three Well Volumes: 4.8 (Gallons in Well x 3)
Gallons Purged: 1.6 Depth of Pump (generally 2 ft from bottom): 10'
Max. Drawdown (generally 0.3 ft): 1.84 Pump Rate: 0.1
Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
12:45	0.3	0.1	~	~	13.89	975	32.11	6.07	103.7	84.68
12:50	0.5	0.1	3.61	0.72	14.74	980	27.77	6.17	97.1	52.31
12:55	0.6	0.1	4.12	1.23	15.13	979	26.66	6.21	94.6	37.81
13:00	1.0	0.1	~	~	15.58	971	27.51	6.30	87.1	32.24
13:05	1.1	0.1	4.57	1.02	16.08	972	30.54	6.36	78.2	24.90
13:08	1.2	0.1	~	~	16.19	974	30.99	6.37	74.6	20.26

SAMPLING DATA

Odor: Sulfur Color: Clear
Sample Designation: 101882 - B3MW Time / Date: 9/23/15 13:30
QC Sample Designation: _____ Time / Date: _____
QA Sample Designation: _____ Time / Date: _____

Evacuation Method: Submersible Pump / Other: Double Valve
Sampling Method: Submersible Pump / Other: low-flow
Water Quality Instruments Used/Manufacturer/Model Number YSI - Hach Turbidimeter
Calibration Info (Time, Ranges, etc) Water quality instruments calibrated @ 09:00 9/23/15
Remarks: _____

Sampling Personnel: _____

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: 101882-001 Location: Downing Lakes Site: _____

Well No.: B3mw

Date: 9/23/15

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
13:11	1.3	0.1	4.66	1.77	16.23	975	31.51	6.38	71.9	16.35
13:15	1.4	0.1	—	—	√ 16.27	√ 977	32.32	√ 6.38	√ 69.4	14.167
13:18	1.5	0.1	4.73	1.84	√ 16.28	√ 981	33.95	√ 6.38	√ 67.8	11.46
13:21	1.6	0.1	—	—	√ 16.29	√ 984	33.61	√ 6.38	√ 66.3	9.91
SAMPLE	13:30									

	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or <5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.

ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

LOW-FLOW WATER SAMPLING LOG

Shannon & Wilson, Inc.

Job No: 101882-001 Location: Deming Lifts Weather: 100°F Sunny
Well No.: B5MW
Date: 9/23/19 Time Started: 14:10 Time Completed: 15:45
Develop Date: _____ Develop End Time: _____ (24 hour break)

INITIAL GROUNDWATER LEVEL DATA

Time of Depth Measurement: 14:13 Date of Depth Measurement: 9/23/19
Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: —
Diameter of Casing: 2" Well Screen Interval: _____
Total Depth of Well Below MP: 12.79 Product Thickness, if noted: —
Depth-to-Water (DTW) Below MP: 4.26
Water Column in Well: 8.53 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.4 (Water Column in Well x Gallons per foot)

PURGING DATA

Date Purged: 9/23/19 Time Started: 14:17 Time Completed: 15:25
Three Well Volumes: 4.2 (Gallons in Well x 3)
Gallons Purged: 1.6 Depth of Pump (generally 2 ft from bottom): 7"
Max. Drawdown (generally 0.3 ft): 0.85 Pump Rate: 0.1
Well Purged Dry: Yes ☐ No ☒ (If yes, use Well Purged Dry Log)

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO: (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
14:20	0.1	0.1	—	—	15.20	45	-0.5	6.72	121.8	96.15
14:23	0.2	0.1	4.63	0.37	15.26	45	-0.5	6.61	122.9	27.75
14:26	0.3	0.1	4.79	0.53	16.00	45	-0.2	6.62	122.7	19.98
14:29	0.4	0.1	—	—	16.22	50	40.50	6.66	120.8	15.85
14:32	0.5	0.1	4.91	0.65	16.35	50	35.59	6.67	120.6	10.52
14:38	0.7	0.1	4.99	0.73	16.68	50	33.78	6.70	119.3	10.75

SAMPLING DATA

Odor: None Color: Clear
Sample Designation: 101882-B5MW Time / Date: 9/23/19 15:05
QC Sample Designation: _____ Time / Date: _____
QA Sample Designation: _____ Time / Date: _____

Evacuation Method: Submersible Pump / Other: Double Wheeler
Sampling Method: Submersible Pump / Other: Low-flow
Water Quality Instruments Used/Manufacturer/Model Number _____
Calibration Info (Time, Ranges, etc) Water quality instruments calibrated @ 09:00 9/23/19
Remarks: _____

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16 4" = 0.65
ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

LOW-FLOW WATER SAMPLING LOG

Continued from previous page

Job No: BFMW 101882-001 Location: Wainwright Water Site: _____

Well No.: BFMW

Date: 7/25/19

Time:	Gallons:	Pump Rate (L/min):	DTW (ft BMP):	Drawdown (ft):	Temp: (°C)	Sp. Cond (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
14:41	0.8	0.1	5.00	0.74	16.98	50	33.13	6.73	118.4	6.77
14:44	0.9	0.1	—	—	17.02	50	32.82	6.73	118.3	5.05
14:47	1.0	0.1	5.06	0.80	17.05	50	33.00	6.73	119.0	4.82
14:50	1.2	0.1	—	—	17.20	49	33.33	6.73	119.6	3.05
14:53	1.3	0.1	—	—	17.21	49	33.46	6.72	119.6	4.35
14:56	1.4	0.1	5.02	0.76	17.23	49	33.9	6.72	120.1	2.36
14:59	1.5	0.1	—	—	17.26	49	34.10	6.72	120.2	3.76
15:02	1.6	0.1	5.11	0.85	17.24	49	34.41	6.71	120.6	2.01
SAMPLE 15:05										

	Interval (minutes)	Pump Rate (mL/min):	Drawdown (ft):	Temp: (°C)	Sp. Cond.: (uS/cm)	DO (mg/L)	pH: (S.U.)	ORP: (mV)	Turb: (NTU)
ADEC (May 2010)	3 to 5	100 to 150	<0.0328	±3% or ±0.2	±3%	±10%	±0.1	±10	±10%
EPA (Jan. 2010)	5	50	<0.3	±3%	±3%	±10%	±0.1	±10	±10% or <5 NTU

EPA guidance requires all parameters to stabilize for 3 consecutive readings before sampling. If not stable within 2 hours, collect sample.
ADEC guidance requires 3 parameters (4 if using temperature) to stabilize for 3 consecutive readings before sampling.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF GEOPROBE

PROBING COMPANY/DRILLER: Discovery
PROBE RIG EQUIPMENT: CME 75
PROBING METHOD: Direct Push
PROBE DIAM.: 2" TYP. RUN LENGTH: 5'
WEATHER DURING DRILLING: Raining 55'

JOB NO: 101882-002 PROBE NO: B5
JOB NAME: Warning Lites
LOGGED BY: SAH
LOCATION: 591 West 67th ELEV.:
START DATE: 9/12/19 END DATE: 9/12/19

PROBE RUN AND SAMPLE DATA

TIME / DATE	RUN NO.	RUN FROM / TO	LENGTH RECOVERED	FIELD CLASSIFICATION [Density/consistency, color, slightly, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology) USCS classification.]	PID READING	SAMPLE NO.	SAMPLE DEPTH FROM / TO	SAMPLE PURPOSE OR COMMENT
10:15 9/12	1	0 / 5	3.5'	0-5 Brown Poorly graded Sand w/ Gravel (SP), Moist Hydrocarbon Staining 3.5-3.5	1.6	B951	0 / 3.5	Hydrocarbon Staining
10:38 9/12	2	5 / 10	3.0'	5-6.5 Gravelly Silt w/Sand (MH) Moist Brown 6.5-12 Gray Silt moist Gray	1.4	B952	5 / 6.5	
10:57 9/12 11:02 9/12	3	10 / 12	2	Groundwater @ 10' (11:02)	0.1	B953	6.5 / 8	
					—	—	10 / 12	

SUMMARY FIELD LOG OF GEOPROBE

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
10:06 1.25 ~~Stone~~ Asphalt
11:02 : GW @ 10'
Duration 10:20 - 12:16

GROUNDWATER DATA

WATER DEPTH	TIME	DATE

SUMMARY OF TIME AND FOOTAGE

PROBE/SAMPLE _____ hrs. STANDBY: _____ hrs.
SETUP/CLEANUP: _____ hrs. DECON: _____ hrs.
OTHER: _____

BORING: B5 SHEET 1 OF 1

Shannon & Wilson, Inc.

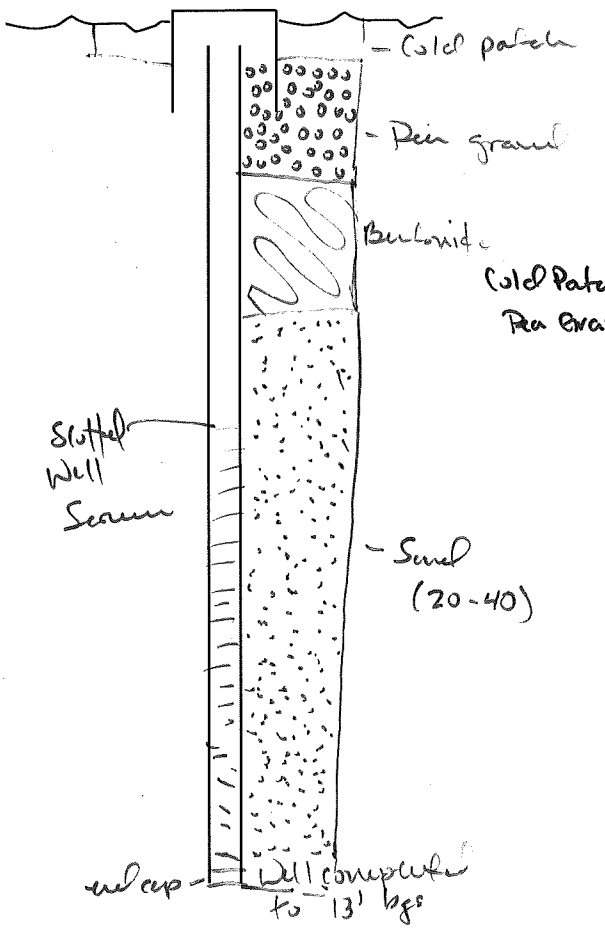
MONITORING WELL CONSTRUCTION DETAILS

Job No: 101882-002 Project: Warning Lites

Weather: 55° Raining

Well No.: BSMW

Date: 9/12/19 Time Started: ~~11:52~~ 11:05 Time Completed: 12:10



WELL DATA:

Pipe Type: PVC

Diameter: 2"

Total Depth (ft bgs): 13'

Well Screen Interval (feet): 10'

Top of Well Screen (ft bgs): 3'

Slot size: 0.010

Casing Connection: threaded

Depth below surface: 0.54 N/A ☐

Casing stickup: _____ N/A ☒

PACKING MATERIAL:

	Depth below ground surface: From	To
~~Soil Cuttings~~:	0	0.16
Sand (20-40):	0.16	1.0
Bentonite chips:	1.0	2
Sand (20-40):	2	13

MONUMENT:

Flush Mount ☒ Post ☐

Monument height: — N/A ☒

Monument Diameter: — N/A ☒

LOCK:

Type: 1

Combination: 1

Length cutoff last section: _____

Remarks: _____

Time between installation/development: _____

Engineer or Geologist: SAH

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIELD LOG OF GEOPROBE

PROBING COMPANY/DRILLER: Discovery
PROBE RIG EQUIPMENT: CME 75
PROBING METHOD: Direct Push
PROBE DIAM.: 2" TYP. RUN LENGTH: 5'
WEATHER DURING DRILLING: Raining 55°F

JOB NO: 101882-002 PROBE NO: B10
JOB NAME: Warning Lites
LOGGED BY: SAH
LOCATION: 591 West 67th ELEV.:
START DATE: 9/12/15 END DATE: 9/12/15

PROBE RUN AND SAMPLE DATA

TIME / DATE	RUN NO.	RUN FROM / TO	LENGTH RECOVERED	FIELD CLASSIFICATION [Density/consistency, color, slightly, minor, MAJOR, then trace constituents; moisture; structure; other; (Geology) USCS classification.]	PID READING	SAMPLE NO.	SAMPLE DEPTH FROM / TO	SAMPLE PURPOSE OR COMMENT
12:35 9/12	1	0 / 5	1'	0-5 Poorly graded Sand w/ gravel (SP) Brown, Moist	0.0	B1051	0 / 1	
12:47 9/12	2	5 / 10	2.5'	5-12 Brown Organic Soil w/ Sand (OL/OH), Moist	3.5	B1052	5 / 7.5	DUP = B1053
12:52 9/12	3	10 / 12	2	@ 7.5' bgs @ 12:47 Groundwater Encountered	—	—	10 / 12	

SUMMARY FIELD LOG OF GEOPROBE

DEPTH FROM	DEPTH TO	USCS CLASSIF.	GENERALIZED SOIL DESCRIPTION FOR DRAFTED GINT LOG

COMMENTS (i.e. materials used, visitors, problems, etc.):
1.5" of Ashpalt @ 12:28
GW @ 7.5' @ 12:47
Duration 12:30 - 13:30

GROUNDWATER DATA

WATER DEPTH	TIME	DATE

SUMMARY OF TIME AND FOOTAGE

PROBE/SAMPLE _____ hrs. STANDBY: _____ hrs.
SETUP/CLEANUP: _____ hrs. DECON: _____ hrs.
OTHER: _____

BORING: 10 SHEET 1 OF 1

Shannon & Wilson, Inc.

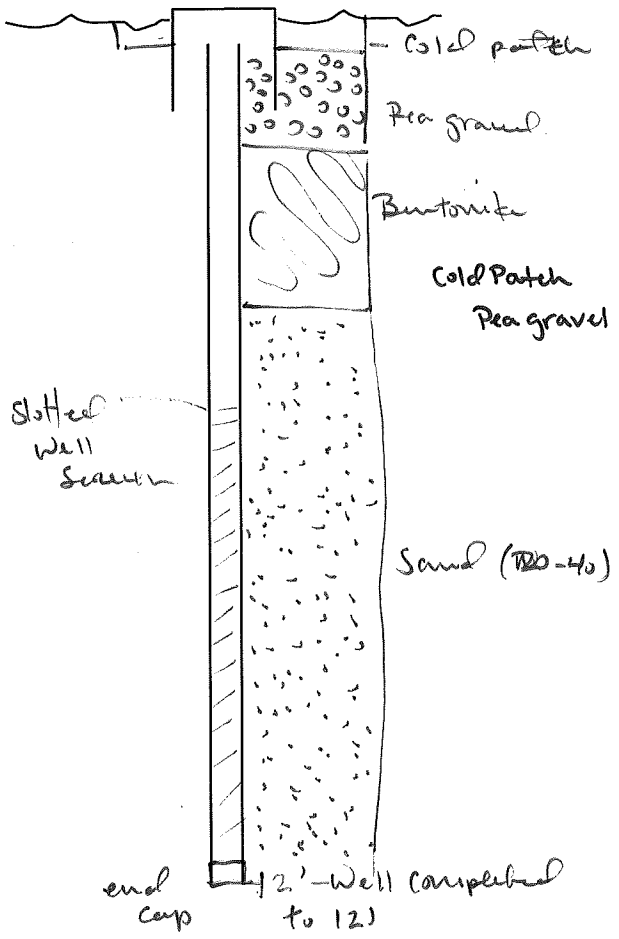
MONITORING WELL CONSTRUCTION DETAILS

Job No: 101852-002 Project: Warning Lites

Weather: 55° Raining

Well No.: B10MW

Date: 9/12/19 Time Started: 12:52 Time Completed: 13:20



WELL DATA:

Pipe Type: PVC

Diameter: 2"

Total Depth (ft bgs): 12'

Well Screen Interval (feet): 10'

Top of Well Screen (ft bgs): 2'

Slot size: 0.010

Casing Connection: threaded

Depth below surface: 0.54 N/A ☐

Casing stickup: _____ N/A ☐

PACKING MATERIAL:

	Depth below ground surface: From	To
~~Soil Cuttings:~~	0	0.16
~~Sand (20-40):~~	0.16	0.5
Bentonite chips:	0.5	1.5
Sand (20-40):	1.5	12

MONUMENT:

Flush Mount ☒ Post ☐

Monument height: - N/A ☒

Monument Diameter: - N/A ☒

LOCK:

Type: /

Combination: /

Length cutoff last section: _____

Remarks: _____

Time between installation/development: _____

Engineer or Geologist: SAH

Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 101882-002 Location: Lynnwood Life Weather: 60° Cloudy
Concern: _____ Well No.: BMW
Develop Date: 9/19/19 Time Started: 10:20 Time Completed: 13:30

PURGING DATA

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____
Time of Depth Measurement: 10:29
Diameter of Casing: 1" ☐ 2" ☒
Total Depth of Well Below MP: 13.44
Depth-to-Water (DTW) Below MP: 4.96 80% = 3.56
Water Column in Well: 8.48 (Total Depth of Well Below MP - DTW Below MP)
Gallons per foot: 0.16
Gallons in Well: 1.36 1.28 (Water Column in Well x Gallons per foot)
Three Well Volumes: 4.1 (Gallons in Well x 3)
Gallons Purged: 10.5

DEVELOPMENT DATA

Odor: None Color: Brown

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
10:57	2 1.8 SAH	15.61	731	6.05	145	747.2
11:10	3.0	16.03	713	6.40	141	238.1
11:24	4.0	15.62	797	6.26	145.8	81.03
11:36	4.5	15.71	825	6.22	144.4	100
11:51	6.0	14.53	864	6.49	15.1	79.08
12:15	6.5	14.12	845	6.25	142.1	219.8
12:33	7.0	14.22	808	6.37	135.6	—
12:44	7.5	14.25	822	6.30	133.5	0

5 min 0.5 3 min

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	3	2 1.8 SAH	5 min
2	3	1.2	5 min
3	3	1.0	5 min
4	3	0.5	5
5	3	1.5	5 min
6	3	0.5	3

Evacuation Method: Proactive Pump / Other: Double Whale Surge Block: ✓

Remarks: PVC pipe shavings in well Pump clogged @ 11:45
Turbidimeter is reading as 0.00 when water is cloudy Brown

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16
ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Billing extra 5-galls

Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 101862-002 Location: Waring Lifts Weather: 50°F Rainy

Concern: _____ Well No.: B9mw

Date: 9/19/20 Time Started: 10:20 Time Completed: 18:30

DEVELOPMENT DATA CONTINUED

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
12:56	8.0	14.38	764	6.22	12.4	0
13:08	8.5	14.46	775	6.20	126.4	0
13:23	9.0	14.04	753	6.25	121.1	29.62
13:34	9.5	14.09	716	6.19	123.1	0
13:43	10.0	14.25	696	6.21	123.2	0
13:57	10.5	14.16	726	6.22	126.2	0
Sample @ 18:10						
Duplicate B9mw @ 18:40						

Remarks: 14:02 DTW 11.46 waiting to recharge for sample

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 101882-002 Location: Dashing Life Weather: Raining 55-56

Concern: _____ Well No.: B10MW

Develop Date: 9/19/2019 Time Started: 15:08 Time Completed: 18:05

PURGING DATA

Measuring Point (MP): Top of PVC Casing / Top of Steel Protective Casing / Other: _____

Time of Depth Measurement: 15:17

Diameter of Casing: 1" ☐ 2" ☒

Total Depth of Well Below MP: 10.46

Depth-to-Water (DTW) Below MP: 3.13

Water Column in Well: 7.33 (Total Depth of Well Below MP - DTW Below MP)

Gallons per foot: 0.16

Gallons in Well: 1.17 50 l. 0.936 (Water Column in Well x Gallons per foot)

Three Well Volumes: 3.51 (Gallons in Well x 3)

Gallons Purged: 16.0

3 voa vials
2 250 w/ perf
0 250 w/o

DEVELOPMENT DATA

Odor: None Color: Brown

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
15:30	1.0	12.35	842	6.53	111.6	624.8
15:42	1.8	13.96	717	6.56	104.3	>1000
15:56	2.5	13.36	725	6.44	104.2	>1000
16:06	3.8	13.38	721	6.41	104.5	>1000
16:17	4.8	13.40	726	6.42	105.4	538.5
16:27	5.8	13.58	716	6.46	102.1	335.8
16:38	6.3	13.98	719	6.44	110.9	745.3
16:45	6.8	13.58	717	6.43	111.5	550.5

Surging	Surging Time (minutes)	Gallons Purged	Purging Time (minutes)
1	5 mins	1.0	4 mins
2	4 mins	0.8	4 mins
3	4	1.3	5 mins
4	4	1.3	5 mins
5	4	1.0	5 mins
6	4	0.5	3 mins

Evacuation Method: Proactive Pump / Other: Bailer with Surge Block: ✓

Remarks: Water quality instruments calibrated @ 09:00 9/19/19

Sampling Personnel: SAH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Shannon & Wilson, Inc.

WELL DEVELOPMENT LOG

Job No: 101882-002 Location: Wenning-Lites Weather: 50° Raining

Concern: _____ Well No.: B10MW

Date: 9/19/19 Time Started: 15:08 Time Completed: 16:30

DEVELOPMENT DATA CONTINUED

Time:	Gallons:	Temp: (°C)	Sp. Cond.: (mS/cm)	pH: (S.U.)	ORP: (mV)	Turb: (ntu)
15:07	2.3	13.34	746	~~15~~ 6.41	115.2	677.0
17:13	8.0	13.35	739	6.44	112.6	736.0
17:25	10.0	13.36	735	6.35	111.7	733.4
17:26	SAMPLE					

Remarks: _____

Sampling Personnel: SHH

WELL CASING VOLUMES (GAL/FT): 1" = 0.04 2" = 0.16

ANNULAR SPACE VOLUME (GAL/FT): 4" casing and 2" well = 0.23

Table 1
Differential Leveling Survey Field Log Sheet and Instructions

SW corner of Building

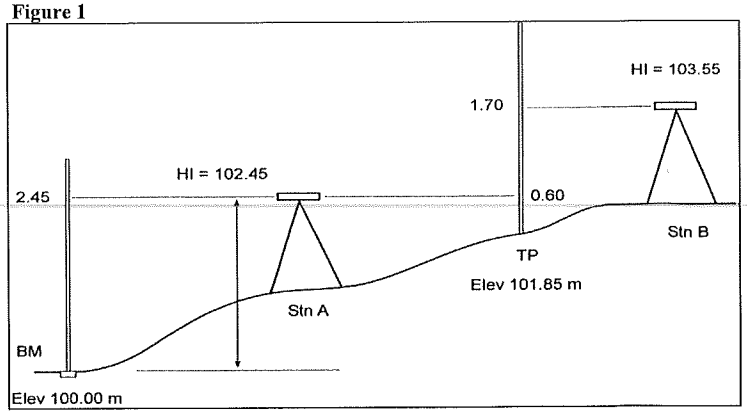
Station or Survey Point ID	Backsight (BS) (+)	Height of Instrument (HI)	Foresight (FS) (-)	Elevation	Comments
TBM	3.41	103.41		100.00	TBM SW corner of Building
B1MW			4.79	98.62	
B10MW	3.41	103.41	4.70	98.71	
B3MW			5.14	98.27	
B2MW			5.75	97.66	
B6MW			5.78	97.63	
TP1 B9MW			6.08	97.33	
B5MW			6.03	97.38	
TP2					
TBM			3.41		Final shot back on TBM to close the Loop.
Sum of TBM & TP FS and BS	3.41		3.41		

Example of Completed Survey

Station or Survey Point ID	Backsight BS (+)	Height of Instrument (HI)	Foresight (FS) (-)	Elevation	Comments
TBM	5.20	1422.04		1416.84	Temporary benchmark w elevation of 1416.84 feet
MW-5			1.40	1420.64	Monitoring well 5
MW-21			3.44	1418.60	
TP1	5.26	1421.46	5.84	1416.20	Instrument moved to new location
MW-23			2.72	1418.74	
MW-24			2.51	1418.95	
MW-22			4.48	1416.98	
MW-8			5.43	1416.03	
TP2	5.52	1421.81	5.17	1416.29	New instrument location to shoot back to TBM
TBM			4.98	1416.83	Final shot back on TBM to close the loop.
Sum of	15.98		15.99		**The Sum of the BS for the TBM and TPs should be within 0.01 of the Sum of the FS for the TBM and TP readings. The difference between these sums will also be equal to the difference between the original TBM and final TBM elevation.**

Figure 1 below shows an example of a traverse with one turning point. The traverse carries an elevation from a known benchmark (BM) to the top of a hill. From the first set-up (Stn A), a BS reading is taken to the BM (Elev. = 100.00). Suppose the rod reading is 2.45 meters: the HI @ Stn A is therefore 100.00 + 2.45= 102.45 m. Suppose you then take a FS to another point, and read 0.60 on the rod; the elevation of that point is HI-FS = 102.45-0.60 = 101.85 meters. If you move the instrument, you use that point to turn on, i.e. you move to the top of the hill and take a BS to the rod. The new HI is 101.85 + 1.70 = 103.55.

Figure 1



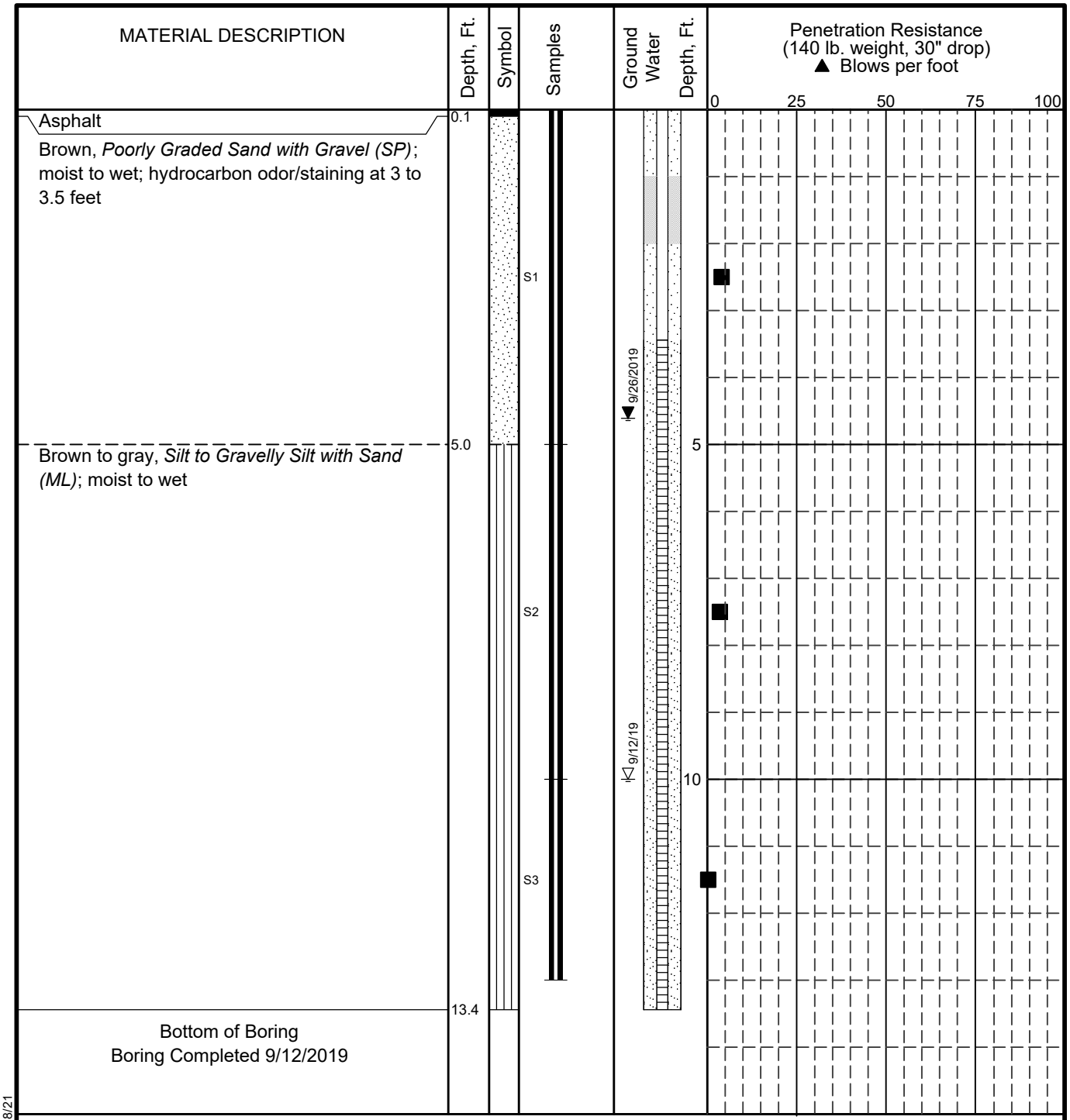
Instructions for Completing a Survey

* Make sure you have a site map
* An accurate survey must have two turning points.
* When tying in new wells to an existing survey, the TBM should not be a well and the survey must have at least one turning point.
* For small sites with few measuring points, the site should be resurveyed rather than tying in one or two additional wells (discuss with PM and cofirm time is available in budget).
* For large sites with many measuring points, covering a large area, additional wells should be tied in to existing survey.

Appendix C

Boring Logs & Monitoring Well Construction Details

APPENDIX C: BORING LOGS & MONITORING WELL CONSTRUCTION DETAILS



LEGEND

* Sample not recovered

Direct Push

Ground Water Level At Time Of Drilling

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.

591 West 67th Avenue
Anchorage, Alaska

LOG OF BORING B9

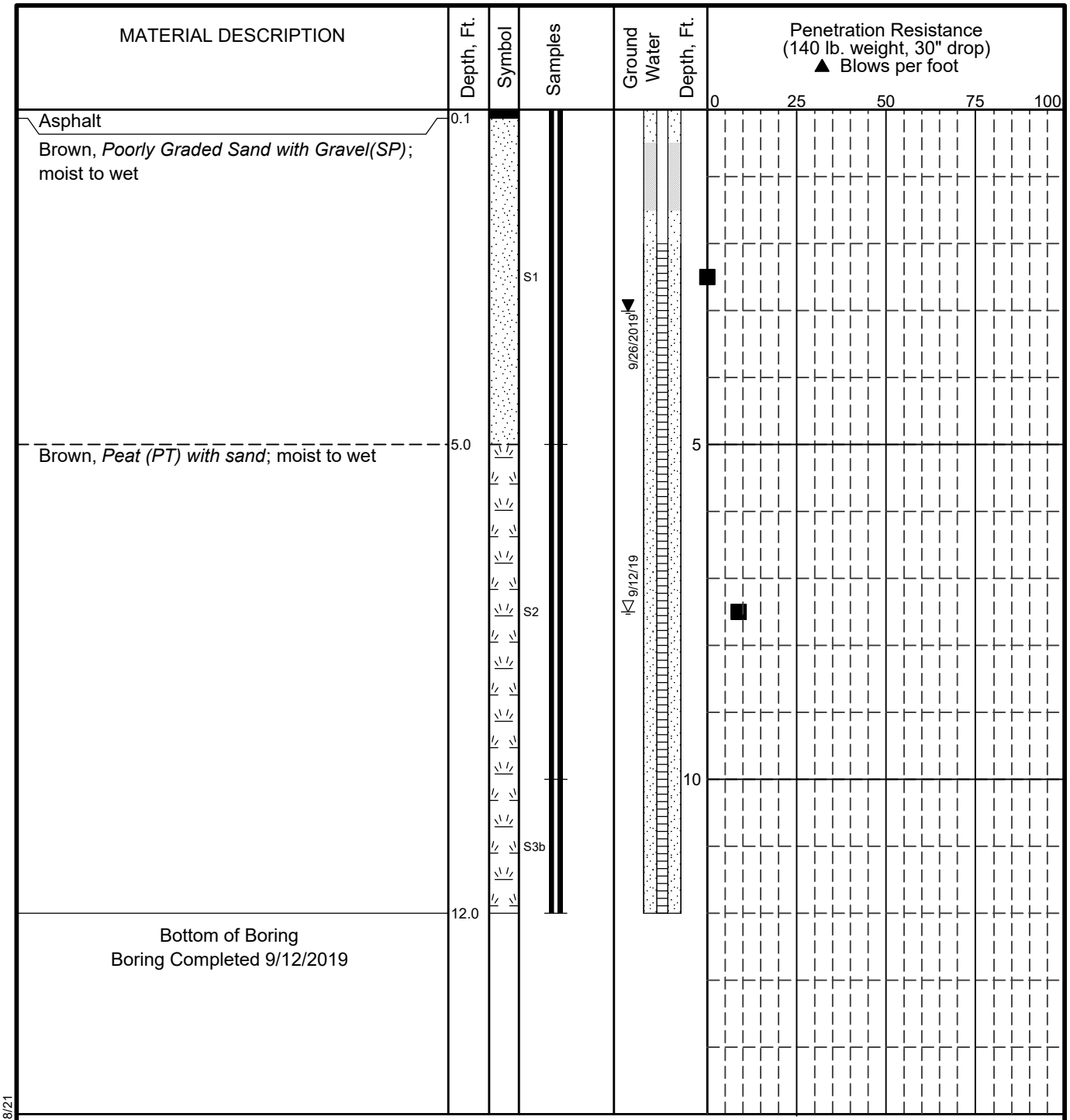
February 2021 101882-003

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-1

ENVIRONMENTAL LOG 101125 LOGS.GPJ S&W GEO1.GDT 2/18/21

REV 3 - Approved for Submittal



LEGEND

* Sample not recovered

Direct Push

Ground Water Level At Time Of Drilling

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.

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Anchorage, Alaska

LOG OF BORING B10

February 2021

101882-003

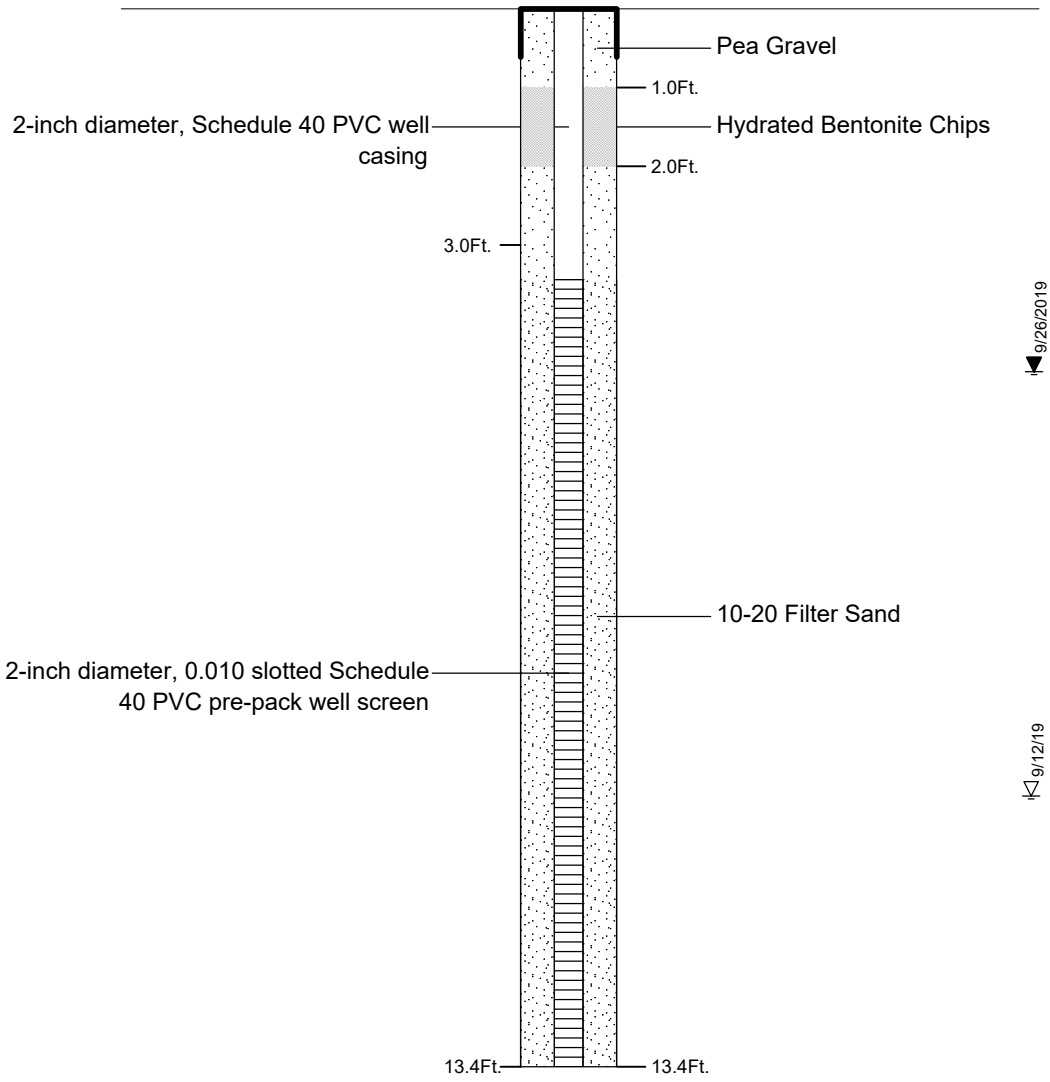
SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. C-2

ENVIRONMENTAL LOG 101125 LOGS.GPJ S&W GEO1.GDT 2/18/21

REV 3 - Approved for Submittal

Casing Description **Backfill Description**



LEGEND

- Groundwater Level ATD
- Static Groundwater Level

NOTE: All joints use threaded connections.

591 West 67th Avenue
Anchorage, Alaska

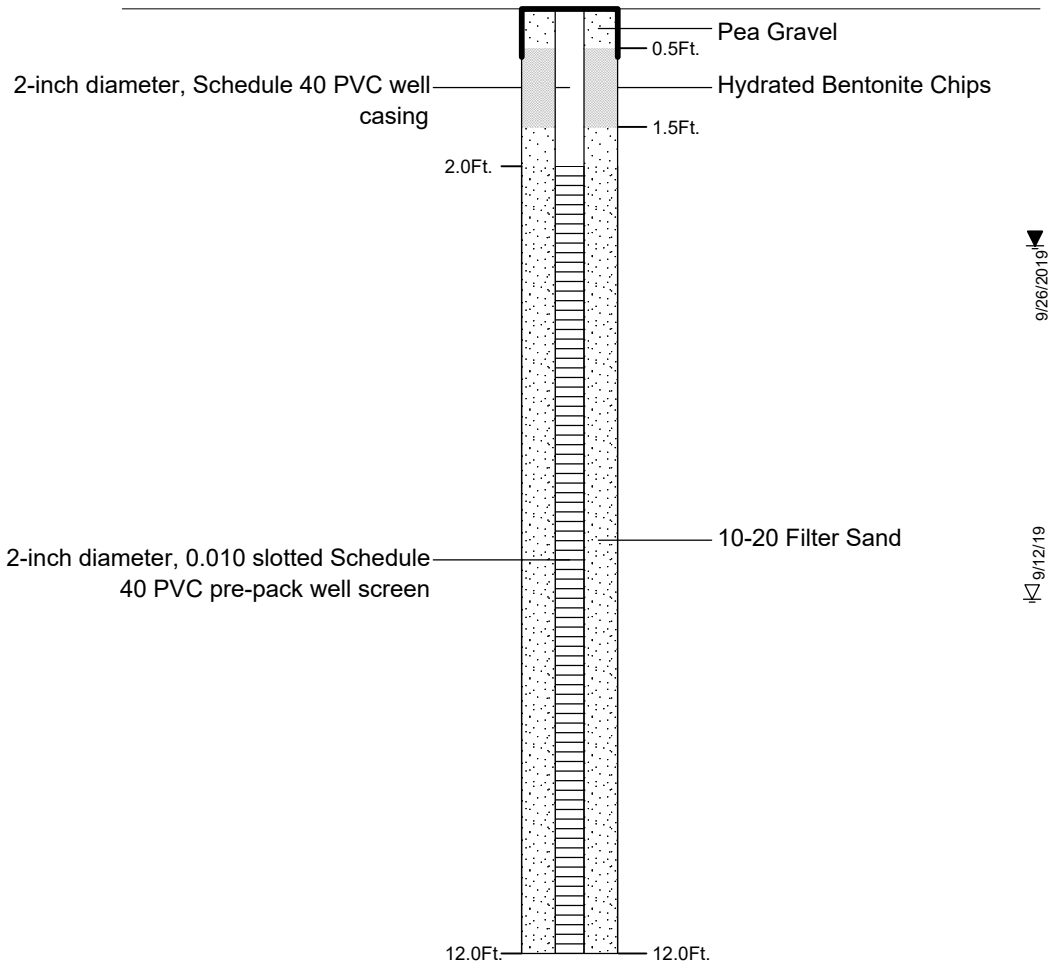
MONITORING WELL B9MW
CONSTRUCTION DETAIL

February 2021 101882-003

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. C-3

Casing Description **Backfill Description**



LEGEND

▽ Groundwater Level ATD

▼ Static Groundwater Level

NOTE: All joints use threaded connections.

591 West 67th Avenue
Anchorage, Alaska

MONITORING WELL B10MW
CONSTRUCTION DETAIL

February 2021 101882-003

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

Fig. C-4

Appendix D

Disposal Receipt

APPENDIX D: DISPOSAL RECEIPT

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

159490MK

NON-HAZARDOUS WASTE MANIFEST

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

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. VSQG

Manifest Document No. 159490A

2. Page 1 of 1

3. Generator's Name and Mailing Address
WARNING LITES OF ALASKA
591 WEST 67TH AVENUE
ANCHORAGE, AK 99518-1555

WARNING LITES OF ALASKA
591 WEST 67TH AVENUE
ANCHORAGE, AK 99518-1555

4. Generator's Phone (907) 562-2124

5. Transporter 1 Company Name: NRC ALASKA LLC

6. US EPA ID Number: AKR000004184

A. State Transporter's ID

B. Transporter 1 Phone: 907-258-1558

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
NRC ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number: AKR000004184

E. State Facility's ID

F. Facility's Phone: 907-258-1558

HM	11. WASTE DESCRIPTION	Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a.	Material Not Regulated by DOT	4	DM	1000	P
b.	Material Not Regulated by DOT	2	DM	750	P
c.					
d.					

G. Additional Descriptions for Materials Listed Above
1) EA0302 IDW DECON WATER/GROUNDWATER
2) EA0705 NON-RCRA AND/OR PETROLEUM CONTAMINATED SOIL/SAND/

H. Handling Codes for Wastes Listed Above
D83787

15. Special Handling Instructions and Additional Information
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

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.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Jessa Tibbetts		11 / 23 / 20

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Ian Combs		11 / 23 / 20

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (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	Signature	Date (Month / Day / Year)
Daryl Girard		11 / 24 / 20

NON-HAZARDOUS WASTE

GENERATOR

TRANSPORTER

FACILITY

CERTIFICATE OF DISPOSAL/RECYCLE

GENERATOR: WARNING LITES OF ALASKA
591 WEST 67TH AVENUE
ANCHORAGE, AK 99518-1555

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

EPA ID NUMBER: VSQG
MANIFEST/DOCUMENT #: 159490A
DATE OF DISPOSAL/RECYCLE: NOV-24-2020

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	UOM
1	IDW DECON WATER/GROUNDWATER	4	DM	1000	P
2	NON-RCRA AND/OR PETROLEUM CONTAMINATED SOIL/SAND/GRAVEL	2	DM	750	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: Daryl Girard

SIGNATURE: _____ **DATE:** 11-24-20

425 Outer Springer Loop Road - Palmer, AK 99645 - (907) 258-1558 - Fax (907) 746-3651 - Toll Free (877) 375-5040

Appendix E

Results of Analytical Testing by SGS North America Inc. of Anchorage, Alaska and ADEC Laboratory Data Review Checklists

APPENDIX E: RESULTS OF ANALYTICAL TESTING

Laboratory Report of Analysis

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

Report Number: **1195377**

Client Project: **101882-002 - Warning Lites**

Dear Jessa Tibbetts,

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 Date
Project Manager
Jillian.Janssen@sgs.com

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1195377**
Project Name/Site: **101882-002 - Warning Lites**
Project Contact: **Jessa Tibbetts**

Refer to sample receipt form for information on sample condition.

101822-B953 (1195377002) PS

8260C - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. Analytes associated with this surrogate were not detected above the LOQ in the sample.

101822-B1052 (1195377003) PS

8260C - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. Analytes associated with this surrogate were not detected above the LOQ in the sample.

101822-B1053 (1195377004) PS

8260C - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. Analytes associated with this surrogate were not detected above the LOQ in the sample.

LCS for HBN 1799581 [VXX/34901 (1532478) LCS

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

LCS for HBN 1799596 [VXX/34902 (1532573) LCS

8260C - LCS recoveries for trichlorofluoromethane and dibromochloromethane do not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.

MB for HBN 1799653 [XXX/42299] (1532860) MB

AK102/103 - Surrogate recovery for n-triacontane does not meet QC criteria, however associated samples are within criteria.

1195385001(1534201MS) (1532574) MS

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

1195385001(1534201MSD) (1532575) MSD

8260C - MSD recoveries for trichlorofluoromethane and 2,2-dichloropropane do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.
8260C - MSD RPD for trichlorofluoromethane, naphthalene, and 1,2,3-trichlorobenzene do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.

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

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

Laboratory Qualifiers

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

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

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

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

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

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
101822-B951	1195377001	09/12/2019	09/12/2019	Soil/Solid (dry weight)
101822-B953	1195377002	09/12/2019	09/12/2019	Soil/Solid (dry weight)
101822-B1052	1195377003	09/12/2019	09/12/2019	Soil/Solid (dry weight)
101822-B1053	1195377004	09/12/2019	09/12/2019	Soil/Solid (dry weight)
101822-TB5	1195377005	09/12/2019	09/12/2019	Soil/Solid (dry weight)

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

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Detectable Results Summary

Client Sample ID: **101822-B951**
Lab Sample ID: 1195377001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Benzo[g,h,i]perylene	10.6J	ug/Kg
	Chrysene	31.5	ug/Kg
	Phenanthrene	10.4J	ug/Kg
Semivolatile Organic Fuels	Diesel Range Organics	55.5	mg/Kg

Client Sample ID: **101822-B953**
Lab Sample ID: 1195377002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	13.6J	mg/Kg

Client Sample ID: **101822-B1052**
Lab Sample ID: 1195377003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1690	mg/Kg
Volatile GC/MS	Acetone	1540J	ug/Kg
	Benzene	367	ug/Kg

Client Sample ID: **101822-B1053**
Lab Sample ID: 1195377004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	1380	mg/Kg
Volatile GC/MS	Acetone	1390J	ug/Kg
	Benzene	1170	ug/Kg
	cis-1,2-Dichloroethene	90.8J	ug/Kg

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

Results of **101822-B951**

Client Sample ID: **101822-B951**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377001
Lab Project ID: 1195377

Collection Date: 09/12/19 10:15
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
2-Methylnaphthalene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Acenaphthene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Acenaphthylene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Anthracene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Benzo(a)Anthracene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Benzo[a]pyrene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Benzo[b]Fluoranthene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Benzo[g,h,i]perylene	10.6	J	25.7	6.42	ug/Kg	1		09/17/19 19:09
Benzo[k]fluoranthene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Chrysene	31.5		25.7	6.42	ug/Kg	1		09/17/19 19:09
Dibenzo[a,h]anthracene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Fluoranthene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Fluorene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Indeno[1,2,3-c,d] pyrene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Naphthalene	10.3	U	20.5	5.14	ug/Kg	1		09/17/19 19:09
Phenanthrene	10.4	J	25.7	6.42	ug/Kg	1		09/17/19 19:09
Pyrene	12.9	U	25.7	6.42	ug/Kg	1		09/17/19 19:09
Surrogates								
2-Methylnaphthalene-d10 (surr)	80		58-103		%	1		09/17/19 19:09
Fluoranthene-d10 (surr)	83.6		54-113		%	1		09/17/19 19:09

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 19:09
Container ID: 1195377001-A

Prep Batch: XXX42282
Prep Method: SW3550C
Prep Date/Time: 09/17/19 09:02
Prep Initial Wt./Vol.: 22.876 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B951**

Client Sample ID: **101822-B951**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377001
Lab Project ID: 1195377

Collection Date: 09/12/19 10:15
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	55.5		20.8	6.46	mg/Kg	1		09/24/19 13:00
Surrogates								
5a Androstane (surr)	95.3		50-150		%	1		09/24/19 13:00

Batch Information

Analytical Batch: XFC15342
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/24/19 13:00
Container ID: 1195377001-A

Prep Batch: XXX42299
Prep Method: SW3550C
Prep Date/Time: 09/19/19 08:54
Prep Initial Wt./Vol.: 30.077 g
Prep Extract Vol: 5 mL

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Results of **101822-B951**

Client Sample ID: **101822-B951**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377001
Lab Project ID: 1195377

Collection Date: 09/12/19 10:15
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	5.55	U	11.1	3.46	ug/Kg	1		09/16/19 19:36
1,1,1-Trichloroethane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,1,2,2-Tetrachloroethane	0.555	U	1.11	0.346	ug/Kg	1		09/16/19 19:36
1,1,2-Trichloroethane	0.223	U	0.446	0.139	ug/Kg	1		09/16/19 19:36
1,1-Dichloroethane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,1-Dichloroethene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,1-Dichloropropene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,2,3-Trichlorobenzene	13.9	U	27.9	8.36	ug/Kg	1		09/16/19 19:36
1,2,3-Trichloropropane	0.279	U	0.557	0.173	ug/Kg	1		09/16/19 19:36
1,2,4-Trichlorobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,2,4-Trimethylbenzene	13.9	U	27.9	8.36	ug/Kg	1		09/16/19 19:36
1,2-Dibromo-3-chloropropane	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
1,2-Dibromoethane	0.279	U	0.557	0.173	ug/Kg	1		09/16/19 19:36
1,2-Dichlorobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,2-Dichloroethane	0.555	U	1.11	0.346	ug/Kg	1		09/16/19 19:36
1,2-Dichloropropane	2.79	U	5.57	1.73	ug/Kg	1		09/16/19 19:36
1,3,5-Trimethylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,3-Dichlorobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
1,3-Dichloropropane	2.79	U	5.57	1.73	ug/Kg	1		09/16/19 19:36
1,4-Dichlorobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
2,2-Dichloropropane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
2-Butanone (MEK)	69.5	U	139	43.5	ug/Kg	1		09/16/19 19:36
2-Chlorotoluene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
2-Hexanone	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
4-Chlorotoluene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
4-Isopropyltoluene	27.9	U	55.7	13.9	ug/Kg	1		09/16/19 19:36
4-Methyl-2-pentanone (MIBK)	69.5	U	139	43.5	ug/Kg	1		09/16/19 19:36
Acetone	69.5	U	139	43.5	ug/Kg	1		09/16/19 19:36
Benzene	3.48	U	6.97	2.17	ug/Kg	1		09/16/19 19:36
Bromobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Bromochloromethane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Bromodichloromethane	0.555	U	1.11	0.346	ug/Kg	1		09/16/19 19:36
Bromoform	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Bromomethane	5.55	U	11.1	3.46	ug/Kg	1		09/16/19 19:36
Carbon disulfide	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
Carbon tetrachloride	3.48	U	6.97	2.17	ug/Kg	1		09/16/19 19:36
Chlorobenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36

Results of **101822-B951**

Client Sample ID: **101822-B951**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377001
Lab Project ID: 1195377

Collection Date: 09/12/19 10:15
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	55.5	U	111	34.6	ug/Kg	1		09/16/19 19:36
Chloroform	0.555	U	1.11	0.346	ug/Kg	1		09/16/19 19:36
Chloromethane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
cis-1,2-Dichloroethene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
cis-1,3-Dichloropropene	3.48	U	6.97	2.17	ug/Kg	1		09/16/19 19:36
Dibromochloromethane	0.555	U	1.11	0.346	ug/Kg	1		09/16/19 19:36
Dibromomethane	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Dichlorodifluoromethane	13.9	U	27.9	8.36	ug/Kg	1		09/16/19 19:36
Ethylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Freon-113	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
Hexachlorobutadiene	5.55	U	11.1	3.46	ug/Kg	1		09/16/19 19:36
Isopropylbenzene (Cumene)	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Methylene chloride	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
Methyl-t-butyl ether	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
Naphthalene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
n-Butylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
n-Propylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
o-Xylene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
P & M -Xylene	13.9	U	27.9	8.36	ug/Kg	1		09/16/19 19:36
sec-Butylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Styrene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
tert-Butylbenzene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
Tetrachloroethene	3.48	U	6.97	2.17	ug/Kg	1		09/16/19 19:36
Toluene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
trans-1,2-Dichloroethene	6.95	U	13.9	4.35	ug/Kg	1		09/16/19 19:36
trans-1,3-Dichloropropene	3.48	U	6.97	2.17	ug/Kg	1		09/16/19 19:36
Trichloroethene	1.40	U	2.79	0.836	ug/Kg	1		09/16/19 19:36
Trichlorofluoromethane	13.9	U	27.9	8.36	ug/Kg	1		09/16/19 19:36
Vinyl acetate	27.9	U	55.7	17.3	ug/Kg	1		09/16/19 19:36
Vinyl chloride	0.223	U	0.446	0.139	ug/Kg	1		09/16/19 19:36
Xylenes (total)	20.9	U	41.8	12.7	ug/Kg	1		09/16/19 19:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	112		71-136		%	1		09/16/19 19:36
4-Bromofluorobenzene (surr)	142		55-151		%	1		09/16/19 19:36
Toluene-d8 (surr)	99.9		85-116		%	1		09/16/19 19:36

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B951**

Client Sample ID: **101822-B951**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377001
Lab Project ID: 1195377

Collection Date: 09/12/19 10:15
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):95.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/16/19 19:36
Container ID: 1195377001-B

Prep Batch: VXX34901
Prep Method: SW5035A
Prep Date/Time: 09/12/19 10:15
Prep Initial Wt./Vol.: 111.571 g
Prep Extract Vol: 29.7626 mL

Results of **101822-B953**

Client Sample ID: **101822-B953**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377002
Lab Project ID: 1195377

Collection Date: 09/12/19 10:38
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
2-Methylnaphthalene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Acenaphthene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Acenaphthylene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Anthracene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Benzo(a)Anthracene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Benzo[a]pyrene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Benzo[b]Fluoranthene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Benzo[g,h,i]perylene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Benzo[k]fluoranthene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Chrysene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Dibenzo[a,h]anthracene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Fluoranthene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Fluorene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Indeno[1,2,3-c,d] pyrene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Naphthalene	11.9	U	23.7	5.93	ug/Kg	1		09/17/19 19:29
Phenanthrene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Pyrene	14.8	U	29.6	7.41	ug/Kg	1		09/17/19 19:29
Surrogates								
2-Methylnaphthalene-d10 (surr)	78		58-103		%	1		09/17/19 19:29
Fluoranthene-d10 (surr)	82.3		54-113		%	1		09/17/19 19:29

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 19:29
Container ID: 1195377002-A

Prep Batch: XXX42282
Prep Method: SW3550C
Prep Date/Time: 09/17/19 09:02
Prep Initial Wt./Vol.: 22.685 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B953**

Client Sample ID: **101822-B953**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377002
Lab Project ID: 1195377

Collection Date: 09/12/19 10:38
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	13.6	J	23.8	7.37	mg/Kg	1		09/24/19 13:11
Surrogates								
5a Androstane (surr)	88.7		50-150		%	1		09/24/19 13:11

Batch Information

Analytical Batch: XFC15342
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/24/19 13:11
Container ID: 1195377002-A

Prep Batch: XXX42299
Prep Method: SW3550C
Prep Date/Time: 09/19/19 08:54
Prep Initial Wt./Vol.: 30.176 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B953**

Client Sample ID: **101822-B953**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377002
Lab Project ID: 1195377

Collection Date: 09/12/19 10:38
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	9.00	U	18.0	5.58	ug/Kg	1		09/16/19 19:52
1,1,1-Trichloroethane	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,1,2,2-Tetrachloroethane	0.900	U	1.80	0.558	ug/Kg	1		09/16/19 19:52
1,1,2-Trichloroethane	0.360	U	0.720	0.225	ug/Kg	1		09/16/19 19:52
1,1-Dichloroethane	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,1-Dichloroethene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,1-Dichloropropene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,2,3-Trichlorobenzene	22.5	U	45.0	13.5	ug/Kg	1		09/16/19 19:52
1,2,3-Trichloropropane	0.450	U	0.900	0.279	ug/Kg	1		09/16/19 19:52
1,2,4-Trichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,2,4-Trimethylbenzene	22.5	U	45.0	13.5	ug/Kg	1		09/16/19 19:52
1,2-Dibromo-3-chloropropane	45.0	U	90.0	27.9	ug/Kg	1		09/16/19 19:52
1,2-Dibromoethane	0.450	U	0.900	0.279	ug/Kg	1		09/16/19 19:52
1,2-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,2-Dichloroethane	0.900	U	1.80	0.558	ug/Kg	1		09/16/19 19:52
1,2-Dichloropropane	4.50	U	9.00	2.79	ug/Kg	1		09/16/19 19:52
1,3,5-Trimethylbenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,3-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
1,3-Dichloropropane	4.50	U	9.00	2.79	ug/Kg	1		09/16/19 19:52
1,4-Dichlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
2,2-Dichloropropane	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
2-Butanone (MEK)	113	U	225	70.2	ug/Kg	1		09/16/19 19:52
2-Chlorotoluene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
2-Hexanone	45.0	U	90.0	27.9	ug/Kg	1		09/16/19 19:52
4-Chlorotoluene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
4-Isopropyltoluene	45.0	U	90.0	22.5	ug/Kg	1		09/16/19 19:52
4-Methyl-2-pentanone (MIBK)	113	U	225	70.2	ug/Kg	1		09/16/19 19:52
Acetone	113	U	225	70.2	ug/Kg	1		09/16/19 19:52
Benzene	5.65	U	11.3	3.51	ug/Kg	1		09/16/19 19:52
Bromobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
Bromochloromethane	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
Bromodichloromethane	0.900	U	1.80	0.558	ug/Kg	1		09/16/19 19:52
Bromoform	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52
Bromomethane	9.00	U	18.0	5.58	ug/Kg	1		09/16/19 19:52
Carbon disulfide	45.0	U	90.0	27.9	ug/Kg	1		09/16/19 19:52
Carbon tetrachloride	5.65	U	11.3	3.51	ug/Kg	1		09/16/19 19:52
Chlorobenzene	11.3	U	22.5	7.02	ug/Kg	1		09/16/19 19:52

Results of **101822-B953**

Client Sample ID: **101822-B953**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377002
Lab Project ID: 1195377

Collection Date: 09/12/19 10:38
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	90.0 U		180	55.8	ug/Kg	1		09/16/19 19:52
Chloroform	0.900 U		1.80	0.558	ug/Kg	1		09/16/19 19:52
Chloromethane	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
cis-1,2-Dichloroethene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
cis-1,3-Dichloropropene	5.65 U		11.3	3.51	ug/Kg	1		09/16/19 19:52
Dibromochloromethane	0.900 U		1.80	0.558	ug/Kg	1		09/16/19 19:52
Dibromomethane	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
Dichlorodifluoromethane	22.5 U		45.0	13.5	ug/Kg	1		09/16/19 19:52
Ethylbenzene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
Freon-113	45.0 U		90.0	27.9	ug/Kg	1		09/16/19 19:52
Hexachlorobutadiene	9.00 U		18.0	5.58	ug/Kg	1		09/16/19 19:52
Isopropylbenzene (Cumene)	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
Methylene chloride	45.0 U		90.0	27.9	ug/Kg	1		09/16/19 19:52
Methyl-t-butyl ether	45.0 U		90.0	27.9	ug/Kg	1		09/16/19 19:52
Naphthalene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
n-Butylbenzene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
n-Propylbenzene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
o-Xylene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
P & M -Xylene	22.5 U		45.0	13.5	ug/Kg	1		09/16/19 19:52
sec-Butylbenzene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
Styrene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
tert-Butylbenzene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
Tetrachloroethene	5.65 U		11.3	3.51	ug/Kg	1		09/16/19 19:52
Toluene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
trans-1,2-Dichloroethene	11.3 U		22.5	7.02	ug/Kg	1		09/16/19 19:52
trans-1,3-Dichloropropene	5.65 U		11.3	3.51	ug/Kg	1		09/16/19 19:52
Trichloroethene	2.25 U		4.50	1.35	ug/Kg	1		09/16/19 19:52
Trichlorofluoromethane	22.5 U		45.0	13.5	ug/Kg	1		09/16/19 19:52
Vinyl acetate	45.0 U		90.0	27.9	ug/Kg	1		09/16/19 19:52
Vinyl chloride	0.360 U		0.720	0.225	ug/Kg	1		09/16/19 19:52
Xylenes (total)	33.8 U		67.5	20.5	ug/Kg	1		09/16/19 19:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		09/16/19 19:52
4-Bromofluorobenzene (surr)	163	*	55-151		%	1		09/16/19 19:52
Toluene-d8 (surr)	99.4		85-116		%	1		09/16/19 19:52

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B953**

Client Sample ID: **101822-B953**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377002
Lab Project ID: 1195377

Collection Date: 09/12/19 10:38
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):83.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/16/19 19:52
Container ID: 1195377002-B

Prep Batch: VXX34901
Prep Method: SW5035A
Prep Date/Time: 09/12/19 10:38
Prep Initial Wt./Vol.: 117.396 g
Prep Extract Vol: 44.1937 mL

Results of **101822-B1052**

Client Sample ID: **101822-B1052**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377003
Lab Project ID: 1195377

Collection Date: 09/12/19 12:47
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):30.2
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
2-Methylnaphthalene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Acenaphthene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Acenaphthylene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Anthracene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Benzo(a)Anthracene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Benzo[a]pyrene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Benzo[b]Fluoranthene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Benzo[g,h,i]perylene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Benzo[k]fluoranthene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Chrysene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Dibenzo[a,h]anthracene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Fluoranthene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Fluorene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Indeno[1,2,3-c,d] pyrene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Naphthalene	33.0	U	66.1	16.5	ug/Kg	1		09/17/19 19:50
Phenanthrene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Pyrene	41.3	U	82.6	20.7	ug/Kg	1		09/17/19 19:50
Surrogates								
2-Methylnaphthalene-d10 (surr)	73.2		58-103		%	1		09/17/19 19:50
Fluoranthene-d10 (surr)	68.6		54-113		%	1		09/17/19 19:50

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 19:50
Container ID: 1195377003-A

Prep Batch: XXX42282
Prep Method: SW3550C
Prep Date/Time: 09/17/19 09:02
Prep Initial Wt./Vol.: 22.57 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B1052**

Client Sample ID: **101822-B1052**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377003
Lab Project ID: 1195377

Collection Date: 09/12/19 12:47
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):30.2
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1690		97.8	30.3	mg/Kg	1		09/24/19 13:20
Surrogates								
5a Androstane (surr)	77		50-150		%	1		09/24/19 13:20

Batch Information

Analytical Batch: XFC15342
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/24/19 13:20
Container ID: 1195377003-A

Prep Batch: XXX42299
Prep Method: SW3550C
Prep Date/Time: 09/19/19 08:54
Prep Initial Wt./Vol.: 20.326 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B1052**

Client Sample ID: **101822-B1052**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377003
Lab Project ID: 1195377

Collection Date: 09/12/19 12:47
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):30.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	71.5	U	143	44.4	ug/Kg	1		09/16/19 20:08
1,1,1-Trichloroethane	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,1,2,2-Tetrachloroethane	7.15	U	14.3	4.44	ug/Kg	1		09/16/19 20:08
1,1,2-Trichloroethane	2.87	U	5.73	1.79	ug/Kg	1		09/16/19 20:08
1,1-Dichloroethane	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,1-Dichloroethene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,1-Dichloropropene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,2,3-Trichlorobenzene	179	U	358	107	ug/Kg	1		09/16/19 20:08
1,2,3-Trichloropropane	3.58	U	7.16	2.22	ug/Kg	1		09/16/19 20:08
1,2,4-Trichlorobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,2,4-Trimethylbenzene	179	U	358	107	ug/Kg	1		09/16/19 20:08
1,2-Dibromo-3-chloropropane	358	U	716	222	ug/Kg	1		09/16/19 20:08
1,2-Dibromoethane	3.58	U	7.16	2.22	ug/Kg	1		09/16/19 20:08
1,2-Dichlorobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,2-Dichloroethane	7.15	U	14.3	4.44	ug/Kg	1		09/16/19 20:08
1,2-Dichloropropane	35.8	U	71.6	22.2	ug/Kg	1		09/16/19 20:08
1,3,5-Trimethylbenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,3-Dichlorobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
1,3-Dichloropropane	35.8	U	71.6	22.2	ug/Kg	1		09/16/19 20:08
1,4-Dichlorobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
2,2-Dichloropropane	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
2-Butanone (MEK)	895	U	1790	559	ug/Kg	1		09/16/19 20:08
2-Chlorotoluene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
2-Hexanone	358	U	716	222	ug/Kg	1		09/16/19 20:08
4-Chlorotoluene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
4-Isopropyltoluene	358	U	716	179	ug/Kg	1		09/16/19 20:08
4-Methyl-2-pentanone (MIBK)	895	U	1790	559	ug/Kg	1		09/16/19 20:08
Acetone	1540	J	1790	559	ug/Kg	1		09/16/19 20:08
Benzene	367		89.5	27.9	ug/Kg	1		09/16/19 20:08
Bromobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
Bromochloromethane	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
Bromodichloromethane	7.15	U	14.3	4.44	ug/Kg	1		09/16/19 20:08
Bromoform	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08
Bromomethane	71.5	U	143	44.4	ug/Kg	1		09/16/19 20:08
Carbon disulfide	358	U	716	222	ug/Kg	1		09/16/19 20:08
Carbon tetrachloride	44.8	U	89.5	27.9	ug/Kg	1		09/16/19 20:08
Chlorobenzene	89.5	U	179	55.9	ug/Kg	1		09/16/19 20:08

Results of **101822-B1052**

Client Sample ID: **101822-B1052**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377003
Lab Project ID: 1195377

Collection Date: 09/12/19 12:47
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):30.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	715 U		1430	444	ug/Kg	1		09/16/19 20:08
Chloroform	7.15 U		14.3	4.44	ug/Kg	1		09/16/19 20:08
Chloromethane	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
cis-1,2-Dichloroethene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
cis-1,3-Dichloropropene	44.8 U		89.5	27.9	ug/Kg	1		09/16/19 20:08
Dibromochloromethane	7.15 U		14.3	4.44	ug/Kg	1		09/16/19 20:08
Dibromomethane	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
Dichlorodifluoromethane	179 U		358	107	ug/Kg	1		09/16/19 20:08
Ethylbenzene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
Freon-113	358 U		716	222	ug/Kg	1		09/16/19 20:08
Hexachlorobutadiene	71.5 U		143	44.4	ug/Kg	1		09/16/19 20:08
Isopropylbenzene (Cumene)	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
Methylene chloride	358 U		716	222	ug/Kg	1		09/16/19 20:08
Methyl-t-butyl ether	358 U		716	222	ug/Kg	1		09/16/19 20:08
Naphthalene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
n-Butylbenzene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
n-Propylbenzene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
o-Xylene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
P & M -Xylene	179 U		358	107	ug/Kg	1		09/16/19 20:08
sec-Butylbenzene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
Styrene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
tert-Butylbenzene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
Tetrachloroethene	44.8 U		89.5	27.9	ug/Kg	1		09/16/19 20:08
Toluene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
trans-1,2-Dichloroethene	89.5 U		179	55.9	ug/Kg	1		09/16/19 20:08
trans-1,3-Dichloropropene	44.8 U		89.5	27.9	ug/Kg	1		09/16/19 20:08
Trichloroethene	17.9 U		35.8	10.7	ug/Kg	1		09/16/19 20:08
Trichlorofluoromethane	179 U		358	107	ug/Kg	1		09/16/19 20:08
Vinyl acetate	358 U		716	222	ug/Kg	1		09/16/19 20:08
Vinyl chloride	2.87 U		5.73	1.79	ug/Kg	1		09/16/19 20:08
Xylenes (total)	269 U		537	163	ug/Kg	1		09/16/19 20:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		71-136		%	1		09/16/19 20:08
4-Bromofluorobenzene (surr)	261	*	55-151		%	1		09/16/19 20:08
Toluene-d8 (surr)	99.4		85-116		%	1		09/16/19 20:08

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B1052**

Client Sample ID: **101822-B1052**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377003
Lab Project ID: 1195377

Collection Date: 09/12/19 12:47
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):30.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/16/19 20:08
Container ID: 1195377003-B

Prep Batch: VXX34901
Prep Method: SW5035A
Prep Date/Time: 09/12/19 12:47
Prep Initial Wt./Vol.: 65.48 g
Prep Extract Vol: 70.7262 mL

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

Results of **101822-B1053**

Client Sample ID: **101822-B1053**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377004
Lab Project ID: 1195377

Collection Date: 09/12/19 13:06
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):31.3
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
2-Methylnaphthalene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Acenaphthene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Acenaphthylene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Anthracene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Benzo(a)Anthracene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Benzo[a]pyrene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Benzo[b]Fluoranthene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Benzo[g,h,i]perylene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Benzo[k]fluoranthene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Chrysene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Dibenzo[a,h]anthracene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Fluoranthene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Fluorene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Indeno[1,2,3-c,d] pyrene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Naphthalene	31.9	U	63.7	15.9	ug/Kg	1		09/17/19 20:10
Phenanthrene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Pyrene	39.9	U	79.7	19.9	ug/Kg	1		09/17/19 20:10
Surrogates								
2-Methylnaphthalene-d10 (surr)	74.6		58-103		%	1		09/17/19 20:10
Fluoranthene-d10 (surr)	71.7		54-113		%	1		09/17/19 20:10

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Analyst: DSD
Analytical Date/Time: 09/17/19 20:10
Container ID: 1195377004-A

Prep Batch: XXX42282
Prep Method: SW3550C
Prep Date/Time: 09/17/19 09:02
Prep Initial Wt./Vol.: 22.573 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B1053**

Client Sample ID: **101822-B1053**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377004
Lab Project ID: 1195377

Collection Date: 09/12/19 13:06
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):31.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1380		94.8	29.4	mg/Kg	1		09/24/19 13:30
Surrogates								
5a Androstane (surr)	77.2		50-150		%	1		09/24/19 13:30

Batch Information

Analytical Batch: XFC15342
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 09/24/19 13:30
Container ID: 1195377004-A

Prep Batch: XXX42299
Prep Method: SW3550C
Prep Date/Time: 09/19/19 08:54
Prep Initial Wt./Vol.: 20.242 g
Prep Extract Vol: 5 mL

Results of **101822-B1053**

Client Sample ID: **101822-B1053**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377004
Lab Project ID: 1195377

Collection Date: 09/12/19 13:06
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):31.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	68.5	U	137	42.3	ug/Kg	1		09/16/19 20:24
1,1,1-Trichloroethane	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,1,2,2-Tetrachloroethane	6.85	U	13.7	4.23	ug/Kg	1		09/16/19 20:24
1,1,2-Trichloroethane	2.73	U	5.46	1.71	ug/Kg	1		09/16/19 20:24
1,1-Dichloroethane	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,1-Dichloroethene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,1-Dichloropropene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,2,3-Trichlorobenzene	171	U	341	102	ug/Kg	1		09/16/19 20:24
1,2,3-Trichloropropane	3.42	U	6.83	2.12	ug/Kg	1		09/16/19 20:24
1,2,4-Trichlorobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,2,4-Trimethylbenzene	171	U	341	102	ug/Kg	1		09/16/19 20:24
1,2-Dibromo-3-chloropropane	342	U	683	212	ug/Kg	1		09/16/19 20:24
1,2-Dibromoethane	3.42	U	6.83	2.12	ug/Kg	1		09/16/19 20:24
1,2-Dichlorobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,2-Dichloroethane	6.85	U	13.7	4.23	ug/Kg	1		09/16/19 20:24
1,2-Dichloropropane	34.1	U	68.3	21.2	ug/Kg	1		09/16/19 20:24
1,3,5-Trimethylbenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,3-Dichlorobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
1,3-Dichloropropane	34.1	U	68.3	21.2	ug/Kg	1		09/16/19 20:24
1,4-Dichlorobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
2,2-Dichloropropane	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
2-Butanone (MEK)	855	U	1710	532	ug/Kg	1		09/16/19 20:24
2-Chlorotoluene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
2-Hexanone	342	U	683	212	ug/Kg	1		09/16/19 20:24
4-Chlorotoluene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
4-Isopropyltoluene	342	U	683	171	ug/Kg	1		09/16/19 20:24
4-Methyl-2-pentanone (MIBK)	855	U	1710	532	ug/Kg	1		09/16/19 20:24
Acetone	1390	J	1710	532	ug/Kg	1		09/16/19 20:24
Benzene	1170		85.3	26.6	ug/Kg	1		09/16/19 20:24
Bromobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
Bromochloromethane	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
Bromodichloromethane	6.85	U	13.7	4.23	ug/Kg	1		09/16/19 20:24
Bromoform	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24
Bromomethane	68.5	U	137	42.3	ug/Kg	1		09/16/19 20:24
Carbon disulfide	342	U	683	212	ug/Kg	1		09/16/19 20:24
Carbon tetrachloride	42.6	U	85.3	26.6	ug/Kg	1		09/16/19 20:24
Chlorobenzene	85.5	U	171	53.2	ug/Kg	1		09/16/19 20:24

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-B1053**

Client Sample ID: **101822-B1053**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377004
Lab Project ID: 1195377

Collection Date: 09/12/19 13:06
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):31.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	685 U		1370	423	ug/Kg	1		09/16/19 20:24
Chloroform	6.85 U		13.7	4.23	ug/Kg	1		09/16/19 20:24
Chloromethane	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
cis-1,2-Dichloroethene	90.8 J		171	53.2	ug/Kg	1		09/16/19 20:24
cis-1,3-Dichloropropene	42.6 U		85.3	26.6	ug/Kg	1		09/16/19 20:24
Dibromochloromethane	6.85 U		13.7	4.23	ug/Kg	1		09/16/19 20:24
Dibromomethane	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
Dichlorodifluoromethane	171 U		341	102	ug/Kg	1		09/16/19 20:24
Ethylbenzene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
Freon-113	342 U		683	212	ug/Kg	1		09/16/19 20:24
Hexachlorobutadiene	68.5 U		137	42.3	ug/Kg	1		09/16/19 20:24
Isopropylbenzene (Cumene)	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
Methylene chloride	342 U		683	212	ug/Kg	1		09/16/19 20:24
Methyl-t-butyl ether	342 U		683	212	ug/Kg	1		09/16/19 20:24
Naphthalene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
n-Butylbenzene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
n-Propylbenzene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
o-Xylene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
P & M -Xylene	171 U		341	102	ug/Kg	1		09/16/19 20:24
sec-Butylbenzene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
Styrene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
tert-Butylbenzene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
Tetrachloroethene	42.6 U		85.3	26.6	ug/Kg	1		09/16/19 20:24
Toluene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
trans-1,2-Dichloroethene	85.5 U		171	53.2	ug/Kg	1		09/16/19 20:24
trans-1,3-Dichloropropene	42.6 U		85.3	26.6	ug/Kg	1		09/16/19 20:24
Trichloroethene	17.1 U		34.1	10.2	ug/Kg	1		09/16/19 20:24
Trichlorofluoromethane	171 U		341	102	ug/Kg	1		09/16/19 20:24
Vinyl acetate	342 U		683	212	ug/Kg	1		09/16/19 20:24
Vinyl chloride	2.73 U		5.46	1.71	ug/Kg	1		09/16/19 20:24
Xylenes (total)	256 U		512	156	ug/Kg	1		09/16/19 20:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		71-136		%	1		09/16/19 20:24
4-Bromofluorobenzene (surr)	288	*	55-151		%	1		09/16/19 20:24
Toluene-d8 (surr)	99.8		85-116		%	1		09/16/19 20:24

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J flagging is activated

Results of **101822-B1053**

Client Sample ID: **101822-B1053**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377004
Lab Project ID: 1195377

Collection Date: 09/12/19 13:06
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):31.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/16/19 20:24
Container ID: 1195377004-B

Prep Batch: VXX34901
Prep Method: SW5035A
Prep Date/Time: 09/12/19 13:06
Prep Initial Wt./Vol.: 65.793 g
Prep Extract Vol: 70.2175 mL

Results of **101822-TB5**

Client Sample ID: **101822-TB5**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377005
Lab Project ID: 1195377

Collection Date: 09/12/19 10:00
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	10.3	U	20.6	6.39	ug/Kg	1		09/16/19 16:11
1,1,1-Trichloroethane	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,1,2,2-Tetrachloroethane	1.03	U	2.06	0.639	ug/Kg	1		09/16/19 16:11
1,1,2-Trichloroethane	0.412	U	0.824	0.258	ug/Kg	1		09/16/19 16:11
1,1-Dichloroethane	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,1-Dichloroethene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,1-Dichloropropene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,2,3-Trichlorobenzene	25.8	U	51.5	15.5	ug/Kg	1		09/16/19 16:11
1,2,3-Trichloropropane	0.515	U	1.03	0.319	ug/Kg	1		09/16/19 16:11
1,2,4-Trichlorobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,2,4-Trimethylbenzene	25.8	U	51.5	15.5	ug/Kg	1		09/16/19 16:11
1,2-Dibromo-3-chloropropane	51.5	U	103	31.9	ug/Kg	1		09/16/19 16:11
1,2-Dibromoethane	0.515	U	1.03	0.319	ug/Kg	1		09/16/19 16:11
1,2-Dichlorobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,2-Dichloroethane	1.03	U	2.06	0.639	ug/Kg	1		09/16/19 16:11
1,2-Dichloropropane	5.15	U	10.3	3.19	ug/Kg	1		09/16/19 16:11
1,3,5-Trimethylbenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,3-Dichlorobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
1,3-Dichloropropane	5.15	U	10.3	3.19	ug/Kg	1		09/16/19 16:11
1,4-Dichlorobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
2,2-Dichloropropane	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
2-Butanone (MEK)	129	U	258	80.3	ug/Kg	1		09/16/19 16:11
2-Chlorotoluene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
2-Hexanone	51.5	U	103	31.9	ug/Kg	1		09/16/19 16:11
4-Chlorotoluene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
4-Isopropyltoluene	51.5	U	103	25.8	ug/Kg	1		09/16/19 16:11
4-Methyl-2-pentanone (MIBK)	129	U	258	80.3	ug/Kg	1		09/16/19 16:11
Acetone	129	U	258	80.3	ug/Kg	1		09/16/19 16:11
Benzene	6.45	U	12.9	4.02	ug/Kg	1		09/16/19 16:11
Bromobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
Bromochloromethane	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
Bromodichloromethane	1.03	U	2.06	0.639	ug/Kg	1		09/16/19 16:11
Bromoform	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11
Bromomethane	10.3	U	20.6	6.39	ug/Kg	1		09/16/19 16:11
Carbon disulfide	51.5	U	103	31.9	ug/Kg	1		09/16/19 16:11
Carbon tetrachloride	6.45	U	12.9	4.02	ug/Kg	1		09/16/19 16:11
Chlorobenzene	12.9	U	25.8	8.03	ug/Kg	1		09/16/19 16:11

Results of **101822-TB5**

Client Sample ID: **101822-TB5**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377005
Lab Project ID: 1195377

Collection Date: 09/12/19 10:00
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	103 U		206	63.9	ug/Kg	1		09/16/19 16:11
Chloroform	1.03 U		2.06	0.639	ug/Kg	1		09/16/19 16:11
Chloromethane	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
cis-1,2-Dichloroethene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
cis-1,3-Dichloropropene	6.45 U		12.9	4.02	ug/Kg	1		09/16/19 16:11
Dibromochloromethane	1.03 U		2.06	0.639	ug/Kg	1		09/16/19 16:11
Dibromomethane	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
Dichlorodifluoromethane	25.8 U		51.5	15.5	ug/Kg	1		09/16/19 16:11
Ethylbenzene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
Freon-113	51.5 U		103	31.9	ug/Kg	1		09/16/19 16:11
Hexachlorobutadiene	10.3 U		20.6	6.39	ug/Kg	1		09/16/19 16:11
Isopropylbenzene (Cumene)	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
Methylene chloride	51.5 U		103	31.9	ug/Kg	1		09/16/19 16:11
Methyl-t-butyl ether	51.5 U		103	31.9	ug/Kg	1		09/16/19 16:11
Naphthalene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
n-Butylbenzene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
n-Propylbenzene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
o-Xylene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
P & M -Xylene	25.8 U		51.5	15.5	ug/Kg	1		09/16/19 16:11
sec-Butylbenzene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
Styrene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
tert-Butylbenzene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
Tetrachloroethene	6.45 U		12.9	4.02	ug/Kg	1		09/16/19 16:11
Toluene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
trans-1,2-Dichloroethene	12.9 U		25.8	8.03	ug/Kg	1		09/16/19 16:11
trans-1,3-Dichloropropene	6.45 U		12.9	4.02	ug/Kg	1		09/16/19 16:11
Trichloroethene	2.58 U		5.15	1.55	ug/Kg	1		09/16/19 16:11
Trichlorofluoromethane	25.8 U		51.5	15.5	ug/Kg	1		09/16/19 16:11
Vinyl acetate	51.5 U		103	31.9	ug/Kg	1		09/16/19 16:11
Vinyl chloride	0.412 U		0.824	0.258	ug/Kg	1		09/16/19 16:11
Xylenes (total)	38.6 U		77.3	23.5	ug/Kg	1		09/16/19 16:11
Surrogates								
1,2-Dichloroethane-D4 (surr)	112		71-136		%	1		09/16/19 16:11
4-Bromofluorobenzene (surr)	107		55-151		%	1		09/16/19 16:11
Toluene-d8 (surr)	97.3		85-116		%	1		09/16/19 16:11

Print Date: 09/30/2019 8:19:17AM

J flagging is activated

Results of **101822-TB5**

Client Sample ID: **101822-TB5**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195377005
Lab Project ID: 1195377

Collection Date: 09/12/19 10:00
Received Date: 09/12/19 15:08
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19470
Analytical Method: SW8260C
Analyst: NRO
Analytical Date/Time: 09/16/19 16:11
Container ID: 1195377005-A

Prep Batch: VXX34902
Prep Method: SW5035A
Prep Date/Time: 09/12/19 10:00
Prep Initial Wt./Vol.: 48.543 g
Prep Extract Vol: 25 mL

Method Blank

Blank ID: MB for HBN 1799525 [SPT/10884]
Blank Lab ID: 1532210

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10884
Analytical Method: SM21 2540G
Instrument:
Analyst: MER
Analytical Date/Time: 9/16/2019 11:09:00PM

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

Duplicate Sample Summary

Original Sample ID: 1195375006
Duplicate Sample ID: 1532211
QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Analysis Date: 09/16/2019 23:09
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	84.0	84.4	%	0.50	(< 15)

Batch Information

Analytical Batch: SPT10884
Analytical Method: SM21 2540G
Instrument:
Analyst: MER

Print Date: 09/30/2019 8:19:21AM

Duplicate Sample Summary

Original Sample ID: 1195521001
Duplicate Sample ID: 1532212
QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Analysis Date: 09/16/2019 23:09
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	86.5	86.3	%	0.18	(< 15)

Batch Information

Analytical Batch: SPT10884
Analytical Method: SM21 2540G
Instrument:
Analyst: MER

Print Date: 09/30/2019 8:19:21AM

Method Blank

Blank ID: MB for HBN 1799581 [VXX/34901]
Blank Lab ID: 1532477

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

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

Method Blank

Blank ID: MB for HBN 1799581 [VXX/34901]
Blank Lab ID: 1532477

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	1.00U	2.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	105	71-136		%
4-Bromofluorobenzene (surr)	92.9	55-151		%
Toluene-d8 (surr)	100	85-116		%

Method Blank

Blank ID: MB for HBN 1799581 [VXX/34901]
Blank Lab ID: 1532477

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 9/16/2019 11:39:00AM

Prep Batch: VXX34901
Prep Method: SW5035A
Prep Date/Time: 9/16/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

Print Date: 09/30/2019 8:19:23AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34901]
Blank Spike Lab ID: 1532478
Date Analyzed: 09/16/2019 11:55

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	761	101	(78-125)
1,1,1-Trichloroethane	750	778	104	(73-130)
1,1,2,2-Tetrachloroethane	750	747	100	(70-124)
1,1,2-Trichloroethane	750	791	105	(78-121)
1,1-Dichloroethane	750	711	95	(76-125)
1,1-Dichloroethene	750	733	98	(70-131)
1,1-Dichloropropene	750	858	114	(76-125)
1,2,3-Trichlorobenzene	750	754	100	(66-130)
1,2,3-Trichloropropane	750	745	99	(73-125)
1,2,4-Trichlorobenzene	750	809	108	(67-129)
1,2,4-Trimethylbenzene	750	760	101	(75-123)
1,2-Dibromo-3-chloropropane	750	736	98	(61-132)
1,2-Dibromoethane	750	808	108	(78-122)
1,2-Dichlorobenzene	750	735	98	(78-121)
1,2-Dichloroethane	750	754	101	(73-128)
1,2-Dichloropropane	750	798	106	(76-123)
1,3,5-Trimethylbenzene	750	742	99	(73-124)
1,3-Dichlorobenzene	750	757	101	(77-121)
1,3-Dichloropropane	750	812	108	(77-121)
1,4-Dichlorobenzene	750	742	99	(75-120)
2,2-Dichloropropane	750	813	108	(67-133)
2-Butanone (MEK)	2250	2280	101	(51-148)
2-Chlorotoluene	750	730	97	(75-122)
2-Hexanone	2250	2290	102	(53-145)
4-Chlorotoluene	750	723	97	(72-124)
4-Isopropyltoluene	750	819	109	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2180	97	(65-135)
Acetone	2250	2150	95	(36-164)
Benzene	750	773	103	(77-121)
Bromobenzene	750	759	101	(78-121)
Bromochloromethane	750	702	94	(78-125)
Bromodichloromethane	750	771	103	(75-127)
Bromoform	750	793	106	(67-132)
Bromomethane	750	744	99	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34901]
Blank Spike Lab ID: 1532478
Date Analyzed: 09/16/2019 11:55

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
Carbon disulfide	1130	1090	97		(63-132)
Carbon tetrachloride	750	809	108		(70-135)
Chlorobenzene	750	741	99		(79-120)
Chloroethane	750	741	99		(59-139)
Chloroform	750	740	99		(78-123)
Chloromethane	750	759	101		(50-136)
cis-1,2-Dichloroethene	750	715	95		(77-123)
cis-1,3-Dichloropropene	750	832	111		(74-126)
Dibromochloromethane	750	823	110		(74-126)
Dibromomethane	750	729	97		(78-125)
Dichlorodifluoromethane	750	683	91		(29-149)
Ethylbenzene	750	714	95		(76-122)
Freon-113	1130	1160	103		(66-136)
Hexachlorobutadiene	750	1030	138	*	(61-135)
Isopropylbenzene (Cumene)	750	778	104		(68-134)
Methylene chloride	750	727	97		(70-128)
Methyl-t-butyl ether	1130	1210	108		(73-125)
Naphthalene	750	718	96		(62-129)
n-Butylbenzene	750	899	120		(70-128)
n-Propylbenzene	750	785	105		(73-125)
o-Xylene	750	743	99		(77-123)
P & M -Xylene	1500	1510	100		(77-124)
sec-Butylbenzene	750	816	109		(73-126)
Styrene	750	731	98		(76-124)
tert-Butylbenzene	750	784	104		(73-125)
Tetrachloroethene	750	813	108		(73-128)
Toluene	750	751	100		(77-121)
trans-1,2-Dichloroethene	750	727	97		(74-125)
trans-1,3-Dichloropropene	750	854	114		(71-130)
Trichloroethene	750	829	110		(77-123)
Trichlorofluoromethane	750	714	95		(62-140)
Vinyl acetate	750	871	116		(50-151)
Vinyl chloride	750	769	103		(56-135)
Xylenes (total)	2250	2250	100		(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34901]
Blank Spike Lab ID: 1532478
Date Analyzed: 09/16/2019 11:55

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

	Blank Spike (ug/Kg)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	95	95	(71-136)
4-Bromofluorobenzene (surr)	750	92.8	93	(55-151)
Toluene-d8 (surr)	750	99.9	100	(85-116)

Batch Information

Analytical Batch: **VMS19464**
Analytical Method: **SW8260C**
Instrument: **VQA 7890/5975 GC/MS**
Analyst: **NRO**

Prep Batch: **VXX34901**
Prep Method: **SW5035A**
Prep Date/Time: **09/16/2019 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1199763005
MS Sample ID: 1532479 MS
MSD Sample ID: 1532480 MSD

Analysis Date: 09/16/2019 16:22
Analysis Date: 09/16/2019 14:29
Analysis Date: 09/16/2019 14:45
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2,4-Trimethylbenzene	51.0U	1013	1019	100	1013	1086	107	75-123	6.40	(< 20)
1,3,5-Trimethylbenzene	25.4U	1013	1008	100	1013	1063	105	73-124	5.30	(< 20)
Benzene	12.7U	1013	1040	103	1013	1133	112	77-121	8.50	(< 20)
Ethylbenzene	25.4U	1013	962	95	1013	1068	105	76-122	10.50	(< 20)
Toluene	25.4U	1013	988	98	1013	1107	109	77-121	11.40	(< 20)
Xylenes (total)	76.0U	3043	3016	99	3043	3338	110	78-124	10.10	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		1013	987	97	1013	956	94	71-136	3.10	
4-Bromofluorobenzene (surr)		1689	1295	77	1689	1340	80	55-151	3.70	
Toluene-d8 (surr)		1013	1008	100	1013	1015	100	85-116	0.62	

Batch Information

Analytical Batch: VMS19464
Analytical Method: SW8260C
Instrument: VQA 7890/5975 GC/MS
Analyst: NRO
Analytical Date/Time: 9/16/2019 2:29:00PM

Prep Batch: VXX34901
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/16/2019 6:00:00AM
Prep Initial Wt./Vol.: 49.60g
Prep Extract Vol: 25.00mL

Print Date: 09/30/2019 8:19:27AM

Method Blank

Blank ID: MB for HBN 1799596 [VXX/34902]
Blank Lab ID: 1532572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377005

Results by **SW8260C**

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

Method Blank

Blank ID: MB for HBN 1799596 [VXX/34902]
Blank Lab ID: 1532572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377005

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	1.00U	2.00	0.620	ug/Kg
Chloromethane	12.5U	25.0	7.80	ug/Kg
cis-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
cis-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Dibromochloromethane	1.00U	2.00	0.620	ug/Kg
Dibromomethane	12.5U	25.0	7.80	ug/Kg
Dichlorodifluoromethane	25.0U	50.0	15.0	ug/Kg
Ethylbenzene	12.5U	25.0	7.80	ug/Kg
Freon-113	50.0U	100	31.0	ug/Kg
Hexachlorobutadiene	10.0U	20.0	6.20	ug/Kg
Isopropylbenzene (Cumene)	12.5U	25.0	7.80	ug/Kg
Methylene chloride	50.0U	100	31.0	ug/Kg
Methyl-t-butyl ether	50.0U	100	31.0	ug/Kg
Naphthalene	12.5U	25.0	7.80	ug/Kg
n-Butylbenzene	12.5U	25.0	7.80	ug/Kg
n-Propylbenzene	12.5U	25.0	7.80	ug/Kg
o-Xylene	12.5U	25.0	7.80	ug/Kg
P & M -Xylene	25.0U	50.0	15.0	ug/Kg
sec-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Styrene	12.5U	25.0	7.80	ug/Kg
tert-Butylbenzene	12.5U	25.0	7.80	ug/Kg
Tetrachloroethene	6.25U	12.5	3.90	ug/Kg
Toluene	12.5U	25.0	7.80	ug/Kg
trans-1,2-Dichloroethene	12.5U	25.0	7.80	ug/Kg
trans-1,3-Dichloropropene	6.25U	12.5	3.90	ug/Kg
Trichloroethene	2.50U	5.00	1.50	ug/Kg
Trichlorofluoromethane	25.0U	50.0	15.0	ug/Kg
Vinyl acetate	50.0U	100	31.0	ug/Kg
Vinyl chloride	0.400U	0.800	0.250	ug/Kg
Xylenes (total)	37.5U	75.0	22.8	ug/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	113	71-136		%
4-Bromofluorobenzene (surr)	106	55-151		%
Toluene-d8 (surr)	97.6	85-116		%

Method Blank

Blank ID: MB for HBN 1799596 [VXX/34902]
Blank Lab ID: 1532572

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377005

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19470
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 9/16/2019 11:22:00AM

Prep Batch: VXX34902
Prep Method: SW5035A
Prep Date/Time: 9/16/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34902]
Blank Spike Lab ID: 1532573
Date Analyzed: 09/16/2019 11:37

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377005

Results by **SW8260C**

	Blank Spike (ug/Kg)			
Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	750	872	116	(78-125)
1,1,1-Trichloroethane	750	906	121	(73-130)
1,1,2,2-Tetrachloroethane	750	709	95	(70-124)
1,1,2-Trichloroethane	750	704	94	(78-121)
1,1-Dichloroethane	750	773	103	(76-125)
1,1-Dichloroethene	750	814	108	(70-131)
1,1-Dichloropropene	750	806	107	(76-125)
1,2,3-Trichlorobenzene	750	687	92	(66-130)
1,2,3-Trichloropropane	750	799	107	(73-125)
1,2,4-Trichlorobenzene	750	739	99	(67-129)
1,2,4-Trimethylbenzene	750	767	102	(75-123)
1,2-Dibromo-3-chloropropane	750	838	112	(61-132)
1,2-Dibromoethane	750	765	102	(78-122)
1,2-Dichlorobenzene	750	757	101	(78-121)
1,2-Dichloroethane	750	805	107	(73-128)
1,2-Dichloropropane	750	749	100	(76-123)
1,3,5-Trimethylbenzene	750	780	104	(73-124)
1,3-Dichlorobenzene	750	762	102	(77-121)
1,3-Dichloropropane	750	755	101	(77-121)
1,4-Dichlorobenzene	750	768	102	(75-120)
2,2-Dichloropropane	750	989	132	(67-133)
2-Butanone (MEK)	2250	2140	95	(51-148)
2-Chlorotoluene	750	782	104	(75-122)
2-Hexanone	2250	2250	100	(53-145)
4-Chlorotoluene	750	771	103	(72-124)
4-Isopropyltoluene	750	772	103	(73-127)
4-Methyl-2-pentanone (MIBK)	2250	2370	105	(65-135)
Acetone	2250	2180	97	(36-164)
Benzene	750	703	94	(77-121)
Bromobenzene	750	774	103	(78-121)
Bromochloromethane	750	791	106	(78-125)
Bromodichloromethane	750	915	122	(75-127)
Bromoform	750	902	120	(67-132)
Bromomethane	750	801	107	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34902]
Blank Spike Lab ID: 1532573
Date Analyzed: 09/16/2019 11:37

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377005

Results by **SW8260C**

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)		CL
Carbon disulfide	1130	1350	120		(63-132)
Carbon tetrachloride	750	959	128		(70-135)
Chlorobenzene	750	743	99		(79-120)
Chloroethane	750	914	122		(59-139)
Chloroform	750	824	110		(78-123)
Chloromethane	750	710	95		(50-136)
cis-1,2-Dichloroethene	750	748	100		(77-123)
cis-1,3-Dichloropropene	750	891	119		(74-126)
Dibromochloromethane	750	950	127	*	(74-126)
Dibromomethane	750	807	108		(78-125)
Dichlorodifluoromethane	750	876	117		(29-149)
Ethylbenzene	750	735	98		(76-122)
Freon-113	1130	1320	117		(66-136)
Hexachlorobutadiene	750	600	80		(61-135)
Isopropylbenzene (Cumene)	750	777	104		(68-134)
Methylene chloride	750	778	104		(70-128)
Methyl-t-butyl ether	1130	1200	107		(73-125)
Naphthalene	750	727	97		(62-129)
n-Butylbenzene	750	721	96		(70-128)
n-Propylbenzene	750	760	101		(73-125)
o-Xylene	750	716	96		(77-123)
P & M -Xylene	1500	1440	96		(77-124)
sec-Butylbenzene	750	737	98		(73-126)
Styrene	750	762	102		(76-124)
tert-Butylbenzene	750	775	103		(73-125)
Tetrachloroethene	750	845	113		(73-128)
Toluene	750	694	93		(77-121)
trans-1,2-Dichloroethene	750	857	114		(74-125)
trans-1,3-Dichloropropene	750	938	125		(71-130)
Trichloroethene	750	786	105		(77-123)
Trichlorofluoromethane	750	1610	214	*	(62-140)
Vinyl acetate	750	859	114		(50-151)
Vinyl chloride	750	708	94		(56-135)
Xylenes (total)	2250	2160	96		(78-124)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [VXX34902]
Blank Spike Lab ID: 1532573
Date Analyzed: 09/16/2019 11:37

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377005

Results by **SW8260C**

	Blank Spike (ug/Kg)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	750	112	112	(71-136)
4-Bromofluorobenzene (surr)	750	100	100	(55-151)
Toluene-d8 (surr)	750	98.1	98	(85-116)

Batch Information

Analytical Batch: **VMS19470**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **NRO**

Prep Batch: **VXX34902**
Prep Method: **SW5035A**
Prep Date/Time: **09/16/2019 06:00**
Spike Init Wt./Vol.: 750 ug/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1534201
MS Sample ID: 1532574 MS
MSD Sample ID: 1532575 MSD

Analysis Date: 09/16/2019 16:27
Analysis Date: 09/16/2019 14:38
Analysis Date: 09/16/2019 14:54
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377005

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	14.1U	1050	1180	112	1050	1200	113	78-125	1.40	(< 20)
1,1,1-Trichloroethane	17.6U	1050	1250	119	1050	1290	122	73-130	2.70	(< 20)
1,1,2,2-Tetrachloroethane	1.41U	1050	944	90	1050	989	94	70-124	4.70	(< 20)
1,1,2-Trichloroethane	0.565U	1050	943	89	1050	973	92	78-121	3.20	(< 20)
1,1-Dichloroethane	17.6U	1050	1060	100	1050	1100	104	76-125	3.70	(< 20)
1,1-Dichloroethene	17.6U	1050	1170	111	1050	1150	109	70-131	1.90	(< 20)
1,1-Dichloropropene	17.6U	1050	1120	107	1050	1140	109	76-125	1.80	(< 20)
1,2,3-Trichlorobenzene	35.1U	1050	719	68	1050	1000	95	66-130	33.00 *	(< 20)
1,2,3-Trichloropropane	0.705U	1050	1080	103	1050	1120	106	73-125	3.10	(< 20)
1,2,4-Trichlorobenzene	17.6U	1050	860	82	1050	1040	99	67-129	18.90	(< 20)
1,2,4-Trimethylbenzene	35.1U	1050	1040	99	1050	1060	101	75-123	1.80	(< 20)
1,2-Dibromo-3-chloropropane	70.5U	1050	1040	99	1050	1190	113	61-132	13.70	(< 20)
1,2-Dibromoethane	0.705U	1050	1030	97	1050	1060	100	78-122	2.70	(< 20)
1,2-Dichlorobenzene	17.6U	1050	1000	95	1050	1030	97	78-121	2.50	(< 20)
1,2-Dichloroethane	1.41U	1050	1090	103	1050	1130	108	73-128	4.40	(< 20)
1,2-Dichloropropane	7.05U	1050	1010	95	1050	1050	100	76-123	4.70	(< 20)
1,3,5-Trimethylbenzene	17.6U	1050	1060	100	1050	1090	103	73-124	2.80	(< 20)
1,3-Dichlorobenzene	17.6U	1050	1050	99	1050	1060	101	77-121	1.40	(< 20)
1,3-Dichloropropane	7.05U	1050	1010	96	1050	1040	99	77-121	2.60	(< 20)
1,4-Dichlorobenzene	17.6U	1050	1050	100	1050	1050	100	75-120	0.10	(< 20)
2,2-Dichloropropane	17.6U	1050	1390	132	1050	1420	135 *	67-133	2.20	(< 20)
2-Butanone (MEK)	176U	3160	2720	86	3160	3030	96	51-148	11.10	(< 20)
2-Chlorotoluene	17.6U	1050	1060	100	1050	1070	102	75-122	1.60	(< 20)
2-Hexanone	70.5U	3160	2880	91	3160	3080	97	53-145	6.70	(< 20)
4-Chlorotoluene	17.6U	1050	1070	101	1050	1100	104	72-124	3.00	(< 20)
4-Isopropyltoluene	70.5U	1050	1020	97	1050	1060	100	73-127	3.70	(< 20)
4-Methyl-2-pentanone (MIBK)	176U	3160	3060	97	3160	3330	105	65-135	8.50	(< 20)
Acetone	176U	3160	2780	88	3160	3130	99	36-164	12.10	(< 20)
Benzene	8.80U	1050	942	89	1050	985	93	77-121	4.50	(< 20)
Bromobenzene	17.6U	1050	1050	100	1050	1080	102	78-121	2.30	(< 20)
Bromochloromethane	17.6U	1050	1070	102	1050	1110	106	78-125	3.80	(< 20)
Bromodichloromethane	1.41U	1050	1250	119	1050	1290	122	75-127	2.80	(< 20)
Bromoform	17.6U	1050	1210	115	1050	1250	118	67-132	2.70	(< 20)
Bromomethane	14.1U	1050	1130	108	1050	1130	108	53-143	0.00	(< 20)
Carbon disulfide	70.5U	1580	2040	129	1580	1920	121	63-132	6.20	(< 20)
Carbon tetrachloride	8.80U	1050	1340	127	1050	1360	129	70-135	1.60	(< 20)
Chlorobenzene	17.6U	1050	1000	95	1050	1030	97	79-120	2.40	(< 20)

Print Date: 09/30/2019 8:19:32AM

Matrix Spike Summary

Original Sample ID: 1534201
MS Sample ID: 1532574 MS
MSD Sample ID: 1532575 MSD

Analysis Date: 09/16/2019 16:27
Analysis Date: 09/16/2019 14:38
Analysis Date: 09/16/2019 14:54
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377005

Results by **SW8260C**

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	141U	1050	1330	126	1050	1270	121	59-139	4.40	(< 20)
Chloroform	1.41U	1050	1120	106	1050	1170	111	78-123	4.40	(< 20)
Chloromethane	17.6U	1050	1020	96	1050	1030	98	50-136	1.50	(< 20)
cis-1,2-Dichloroethene	17.6U	1050	1020	97	1050	1060	100	77-123	3.10	(< 20)
cis-1,3-Dichloropropene	8.80U	1050	1220	115	1050	1260	120	74-126	3.60	(< 20)
Dibromochloromethane	1.41U	1050	1290	123	1050	1320	125	74-126	2.00	(< 20)
Dibromomethane	17.6U	1050	1080	103	1050	1130	108	78-125	4.40	(< 20)
Dichlorodifluoromethane	35.1U	1050	1280	122	1050	1250	118	29-149	2.80	(< 20)
Ethylbenzene	17.6U	1050	992	94	1050	1020	96	76-122	2.30	(< 20)
Freon-113	70.5U	1580	1870	118	1580	1850	117	66-136	0.59	(< 20)
Hexachlorobutadiene	14.1U	1050	943	89	1050	971	92	61-135	2.90	(< 20)
Isopropylbenzene (Cumene)	17.6U	1050	1040	98	1050	1080	102	68-134	4.10	(< 20)
Methylene chloride	70.5U	1050	1060	101	1050	1090	103	70-128	2.40	(< 20)
Methyl-t-butyl ether	70.5U	1580	1610	102	1580	1690	107	73-125	4.60	(< 20)
Naphthalene	17.6U	1050	816	77	1050	1060	100	62-129	25.90 *	(< 20)
n-Butylbenzene	17.6U	1050	943	89	1050	1000	95	70-128	6.10	(< 20)
n-Propylbenzene	17.6U	1050	1050	100	1050	1070	102	73-125	2.00	(< 20)
o-Xylene	17.6U	1050	974	92	1050	994	94	77-123	2.10	(< 20)
P & M -Xylene	35.1U	2110	1950	93	2110	2000	95	77-124	2.40	(< 20)
sec-Butylbenzene	17.6U	1050	981	93	1050	1020	97	73-126	4.10	(< 20)
Styrene	17.6U	1050	1030	97	1050	1050	100	76-124	2.60	(< 20)
tert-Butylbenzene	17.6U	1050	1030	98	1050	1070	102	73-125	3.90	(< 20)
Tetrachloroethene	8.80U	1050	1120	106	1050	1180	112	73-128	4.80	(< 20)
Toluene	17.6U	1050	943	89	1050	959	91	77-121	1.70	(< 20)
trans-1,2-Dichloroethene	17.6U	1050	1210	114	1050	1210	115	74-125	0.35	(< 20)
trans-1,3-Dichloropropene	8.80U	1050	1280	121	1050	1300	123	71-130	1.60	(< 20)
Trichloroethene	3.52U	1050	1080	102	1050	1110	106	77-123	3.40	(< 20)
Trichlorofluoromethane	35.1U	1050	2630	249 *	1050	2120	201 *	62-140	21.50 *	(< 20)
Vinyl acetate	70.5U	1050	1160	110	1050	1210	115	50-151	4.50	(< 20)
Vinyl chloride	0.565U	1050	1030	98	1050	1000	95	56-135	3.10	(< 20)
Xylenes (total)	52.5U	3160	2930	93	3160	3000	95	78-124	2.30	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		1050	1150	109	1050	1180	112	71-136	2.90	
4-Bromofluorobenzene (surr)		1760	1630	93	1760	1640	93	55-151	0.92	
Toluene-d8 (surr)		1050	1040	98	1050	1020	97	85-116	1.20	

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Matrix Spike Summary

Original Sample ID: 1534201
MS Sample ID: 1532574 MS
MSD Sample ID: 1532575 MSD

QC for Samples: 1195377005

Analysis Date:
Analysis Date: 09/16/2019 14:38
Analysis Date: 09/16/2019 14:54
Matrix: Soil/Solid (dry weight)

Results by **SW8260C**

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

Batch Information

Analytical Batch: VMS19470
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: NRO
Analytical Date/Time: 9/16/2019 2:38:00PM

Prep Batch: VXX34902
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 9/16/2019 6:00:00AM
Prep Initial Wt./Vol.: 35.55g
Prep Extract Vol: 25.00mL

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Method Blank

Blank ID: MB for HBN 1799529 [XXX/42282]
Blank Lab ID: 1532223

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

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

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
2-Methylnaphthalene	12.5U	25.0	6.25	ug/Kg
Acenaphthene	12.5U	25.0	6.25	ug/Kg
Acenaphthylene	12.5U	25.0	6.25	ug/Kg
Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo(a)Anthracene	12.5U	25.0	6.25	ug/Kg
Benzo[a]pyrene	12.5U	25.0	6.25	ug/Kg
Benzo[b]Fluoranthene	12.5U	25.0	6.25	ug/Kg
Benzo[g,h,i]perylene	12.5U	25.0	6.25	ug/Kg
Benzo[k]fluoranthene	12.5U	25.0	6.25	ug/Kg
Chrysene	12.5U	25.0	6.25	ug/Kg
Dibenzo[a,h]anthracene	12.5U	25.0	6.25	ug/Kg
Fluoranthene	12.5U	25.0	6.25	ug/Kg
Fluorene	12.5U	25.0	6.25	ug/Kg
Indeno[1,2,3-c,d] pyrene	12.5U	25.0	6.25	ug/Kg
Naphthalene	10.0U	20.0	5.00	ug/Kg
Phenanthrene	12.5U	25.0	6.25	ug/Kg
Pyrene	12.5U	25.0	6.25	ug/Kg
Surrogates				
2-Methylnaphthalene-d10 (surr)	81.8	58-103		%
Fluoranthene-d10 (surr)	84.5	54-113		%

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/17/2019 3:43:00PM

Prep Batch: XXX42282
Prep Method: SW3550C
Prep Date/Time: 9/17/2019 9:02:37AM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [XXX42282]
Blank Spike Lab ID: 1532224
Date Analyzed: 09/17/2019 16:04

Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

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

Blank Spike (ug/Kg)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	111	94.9	85	(43-111)
2-Methylnaphthalene	111	92.1	83	(39-114)
Acenaphthene	111	93.2	84	(44-111)
Acenaphthylene	111	96.6	87	(39-116)
Anthracene	111	92.1	83	(50-114)
Benzo(a)Anthracene	111	92.9	84	(54-122)
Benzo[a]pyrene	111	86.5	78	(50-125)
Benzo[b]Fluoranthene	111	91.2	82	(53-128)
Benzo[g,h,i]perylene	111	82.1	74	(49-127)
Benzo[k]fluoranthene	111	93.0	84	(56-123)
Chrysene	111	94.8	85	(57-118)
Dibenzo[a,h]anthracene	111	83.5	75	(50-129)
Fluoranthene	111	98.4	89	(55-119)
Fluorene	111	97.0	87	(47-114)
Indeno[1,2,3-c,d] pyrene	111	87.5	79	(49-130)
Naphthalene	111	94.2	85	(38-111)
Phenanthrene	111	91.0	82	(49-113)
Pyrene	111	102	92	(55-117)
Surrogates				
2-Methylnaphthalene-d10 (surr)	111	79.6	80	(58-103)
Fluoranthene-d10 (surr)	111	81.1	81	(54-113)

Batch Information

Analytical Batch: **XMS11717**
Analytical Method: **8270D SIM (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **DSD**

Prep Batch: **XXX42282**
Prep Method: **SW3550C**
Prep Date/Time: **09/17/2019 09:02**
Spike Init Wt./Vol.: 111 ug/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1199763005
MS Sample ID: 1532225 MS
MSD Sample ID: 1532226 MSD

Analysis Date: 09/17/2019 17:05
Analysis Date: 09/17/2019 17:26
Analysis Date: 09/17/2019 17:46
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

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

		Matrix Spike (ug/Kg)			Spike Duplicate (ug/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	16.6U	147	120	81	146	121	83	43-111	1.20	(< 20)
2-Methylnaphthalene	16.6U	147	117	79	146	118	81	39-114	1.50	(< 20)
Acenaphthene	16.6U	147	121	82	146	122	84	44-111	0.52	(< 20)
Acenaphthylene	16.6U	147	127	86	146	127	87	39-116	0.23	(< 20)
Anthracene	16.6U	147	123	83	146	123	84	50-114	0.10	(< 20)
Benzo(a)Anthracene	16.6U	147	123	83	146	122	84	54-122	0.71	(< 20)
Benzo[a]pyrene	16.6U	147	120	81	146	119	82	50-125	0.73	(< 20)
Benzo[b]Fluoranthene	16.6U	147	123	83	146	122	84	53-128	0.86	(< 20)
Benzo[g,h,i]perylene	16.6U	147	117	79	146	115	79	49-127	1.60	(< 20)
Benzo[k]fluoranthene	16.6U	147	122	83	146	122	84	56-123	0.46	(< 20)
Chrysene	16.6U	147	125	85	146	123	85	57-118	1.50	(< 20)
Dibenzo[a,h]anthracene	16.6U	147	118	80	146	117	80	50-129	1.40	(< 20)
Fluoranthene	16.6U	147	130	88	146	128	88	55-119	1.80	(< 20)
Fluorene	16.6U	147	127	86	146	125	86	47-114	1.50	(< 20)
Indeno[1,2,3-c,d] pyrene	16.6U	147	123	83	146	122	84	49-130	0.64	(< 20)
Naphthalene	13.3U	147	119	81	146	120	83	38-111	0.80	(< 20)
Phenanthrene	16.6U	147	119	81	146	119	82	49-113	0.07	(< 20)
Pyrene	16.6U	147	135	92	146	134	92	55-117	1.40	(< 20)
Surrogates										
2-Methylnaphthalene-d10 (surr)		147	114	78	146	116	80	58-103	1.30	
Fluoranthene-d10 (surr)		147	120	82	146	119	82	54-113	0.83	

Batch Information

Analytical Batch: XMS11717
Analytical Method: 8270D SIM (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: DSD
Analytical Date/Time: 9/17/2019 5:26:00PM

Prep Batch: XXX42282
Prep Method: Sonication Extr Soil 8270 PAH SIM 5ml
Prep Date/Time: 9/17/2019 9:02:37AM
Prep Initial Wt./Vol.: 22.70g
Prep Extract Vol: 5.00mL

Method Blank

Blank ID: MB for HBN 1799653 [XXX/42299]
Blank Lab ID: 1532860

Matrix: Soil/Solid (dry weight)

QC for Samples:
1195377001, 1195377002, 1195377003, 1195377004

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	10.0U	20.0	6.20	mg/Kg
Surrogates				
5a Androstane (surr)	103	60-120		%

Batch Information

Analytical Batch: XFC15341
Analytical Method: AK102
Instrument: Agilent 7890B F
Analyst: CMS
Analytical Date/Time: 9/23/2019 7:30:00PM

Prep Batch: XXX42299
Prep Method: SW3550C
Prep Date/Time: 9/19/2019 8:54:12AM
Prep Initial Wt./Vol.: 30 g
Prep Extract Vol: 5 mL

Print Date: 09/30/2019 8:19:36AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195377 [XXX42299]
Blank Spike Lab ID: 1532861
Date Analyzed: 09/23/2019 20:40

Spike Duplicate ID: LCSD for HBN 1195377 [XXX42299]
Spike Duplicate Lab ID: 1532862
Matrix: Soil/Solid (dry weight)

QC for Samples: 1195377001, 1195377002, 1195377003, 1195377004

Results by **AK102**

	Blank Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	833	820	98	833	876	105	(75-125)	6.60	(< 20)
Surrogates									
5a Androstane (surr)	16.7	102	102	16.7	110	110	(60-120)	7.30	

Batch Information

Analytical Batch: **XFC15341**
Analytical Method: **AK102**
Instrument: **Agilent 7890B F**
Analyst: **CMS**

Prep Batch: **XXX42299**
Prep Method: **SW3550C**
Prep Date/Time: **09/19/2019 08:54**
Spike Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 833 mg/Kg Extract Vol: 5 mL

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1195377

CHAIN-OF-CUSTODY RECORD

SHANNON & WILSON, INC.
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2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

Laboratory SGS
Attn: Jillian Jonsson

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	VOCs 8260C	DRO AK102	PAH 8270D SIM				Total Number of Containers	Remarks/Matrix
101882-B9S1	(1) A-B	10:15	9/12/15		X	X	X	X				2	Soil
-B9S3	(2) A-B	10:38	9/12/15		X	X	X	X				2	
-B10S2	(3) A-B	12:47	9/12/15		X	X	X	X				2	
-B10S3	(4) A-B	13:06	9/12/15		X	X	X	X				2	
-TB5	(5) A	10:00	9/12/15			X						1	Trip Blank

Project Information	Sample Receipt	
Project Number: 101882-002	Total Number of Containers	
Project Name: Warning Lites	COC Seals/Intact? Y/N/NA	Absent
Contact: Jessa Tibbetts	Received Good Cond./Cold	NA
Ongoing Project? Yes ☒ No ☐	Delivery Method:	
Sampler: SAH	(attach shipping bill, if any)	

Instructions
Requested Turnaround Time: Normal
Special Instructions: Quote #360185 Profile: 33486 JKJ

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 15:08	Signature: Time:	Signature: Time:
Printed Name: Date: 9/12/15	Printed Name: Date:	Printed Name: Date:
Company: S+W	Company:	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time:	Signature: Time:	Signature: Time: 1508
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 9.12.15 MORENO
Company:	Company:	Company: SGS T:2,5c D5 1

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

F-19-91/UR

No. 30996

e-Sample Receipt Form

SGS Workorder #: **1195377**

1 1 9 5 3 7 7

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
	N/A	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 2.5 °C Therm. ID: D51
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*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	
	N/A	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

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

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1195377001-A	No Preservative Required	OK			
1195377001-B	Methanol field pres. 4 C	OK			
1195377002-A	No Preservative Required	OK			
1195377002-B	Methanol field pres. 4 C	OK			
1195377003-A	No Preservative Required	OK			
1195377003-B	Methanol field pres. 4 C	OK			
1195377004-A	No Preservative Required	OK			
1195377004-B	Methanol field pres. 4 C	OK			
1195377005-A	Methanol field pres. 4 C	OK			

Container Condition Glossary

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

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

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts
Title: Environmental Scientist
Date: February 2021

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1195377
Laboratory Report Date: September 30, 2019

Contaminated Site Name: Warning Lites of Alaska Gas/Diesel UST #2
ADEC File Number: 2100.26.580
Hazard Identification Number: 26177

(**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**
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
Comments**:** *The Client Sample ID's listed in the laboratory report and COC are improperly labeled. The third character should be labeled with the letter "S" in place of the number "5." For example, Client Sample ID B951 should be labeled as B9S1. The soil sample nomenclatures are designated as Samples B9S1, B9S3, B10S2, B10S3, and TBS throughout the remaining report related material.*

The year of the sample date is incorrectly listed on the COC as 2015. Samples were collected on 9/12/2019.

b. Correct analyses requested? **Yes / No / NA**
Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes / No / NA
Comments: *The cooler temperature blank was 2.5° Celsius.*

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes / No / NA**
Comments:

c. Sample condition documented - broken, leaking (MeOH), zero headspace (VOC vials)?
Yes / No / NA
Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.? **Yes / No / NA**
Comments: *No discrepancies were noted.*

e. Data quality or usability affected?
Comments: *See above.*

4. Case Narrative

a. Present and understandable? **Yes / No / NA**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA**
Comments: *The following was noted by the laboratory:*

- *Samples B9S3, B10S2, and B10S3: (8260C) Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria. Analytes associated with this surrogate were not detected above the LOQ in the sample.*
- *LCS: (8260C) LCS recoveries for hexachlorobutadiene, trichlorofluoromethane, and dibromochloromethane do not meet QC criteria. These analytes were not detected above the LOQ in the associated samples.*
- *Method Blank: (AK 102/103) Surrogate recovery for n-triacontane does not meet QC criteria, however associated samples are within criteria.*
- *Matrix Spike: (8260C) MS recovery for trichlorofluoromethane do not meet QC criteria. This analyte was not detected above the LOQ in the parent sample.*
- *Matrix Spike Duplicate: (8260C) MSD recoveries for trichlorofluoromethane and 2,2-dichloropropane do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.*
- *Matrix Spike Duplicate: (8260C) MSD RPD for trichlorofluoromethane, naphthalene, and 1,2,3-trichlorobenzene do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.*

c. Were all corrective actions documented? **Yes / No / NA**
Comments: *See above.*

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**
Comments:

b. All applicable holding times met? **Yes / No / NA**
Comments:

c. All soils reported on a dry weight basis? **Yes / No / NA**
Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA**
Comments*: The LOQs for 1,2,3-trichloropropane, 1,2-dirbromethane samples are greater than their respective ADEC Method Two cleanup levels for all project samples. Several VOCs are greater than their respective ADEC Method Two cleanup levels in Samples B10S2 and B10S3 due to sample dilution.*

e. Data quality or usability affected?
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. However, estimated (J-flagged) concentrations were not detected in the project samples for these analytes.*

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
Yes / No / NA
Comments:

iii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments:

v. Data quality or usability affected?
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**
Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments: *LCS recoveries for hexachlorobutadiene, trichlorofluoromethane, and dibromochloromethane do not meet QC criteria.*

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from LCS/LCSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *With the exception of STB, all project samples are potentially affected by the LCS recovery failure of hexachlorobutadiene. Sample STB is potentially affected by the LCS recovery failure of trichlorofluoromethane, and dibromochloromethane.*

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments: *Trichlorofluoromethane, hexachlorobutadiene, and dibromochloromethane were not detected above the LOQ in the associated project samples; therefore, flagging is not required.*

vii. Data quality or usability affected?
Comments*: No, see above.*

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Note: Leave blank if not required for project

i. Organics - One MS/MSD reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. Metals/Inorganics - One MS and one MSD reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. **Yes / No / NA**
Comments: *MSD recoveries for trichlorofluoromethane and 2,2-dichloropropane and MS recovery for trichlorofluoromethane do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.*

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. **Yes / No / NA**
Comments: *MS/MSD RPD for trichlorofluoromethane, naphthalene, and 1,2,3-trichlorobenzene do not meet QC criteria. These analytes were not detected above the LOQ in the parent sample.*

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *All project samples are potentially affected.*

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments: *Trichlorofluoromethane, naphthalene, and 1,2,3-trichlorobenzene were not detected above the LOQ in the associated project samples; therefore, flagging is not required.*

vii. Data quality or usability affected?
Comments*: No, see above.*

d. Surrogates - Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses - field, QC, and laboratory samples? **Yes / No / NA**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA**
Comments: *Surrogate recovery failures for 4-bromofluorobenzene occurred in Samples B9S3, B10S2, and B10S3.*

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? **Yes / No / NA**
Comments: *Target analytes associated with this surrogate were not detected in the project samples, therefore flagging is not required.*

iv. Data quality or usability affected?
Comments: *See above.*

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.) **Yes / No / NA**
Comments: *One soil trip blank (TBS) 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? (If not, a comment explaining why must be entered below.) **Yes / No / NA**
Comments: *Only one cooler was used to transport the samples.*

iii. All results less than LOQ and project specified objectives? **Yes / No / NA**
Comments*:*

iv. If above LOQ or project specified DQOs, what samples are affected?
Comments: *NA*

v. Data quality or usability affected?
Comments: *See above.*

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples? **Yes / No / NA**
Comments: *Sample B10S3 is the field duplicate of Sample B10S2.*

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA**
Comments*:*

iii. Precision – All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) **Yes / No / NA**
Comments: *The RPD for benzene is outside the QC criteria of 50% in the duplicate sample set.*

iv. Data quality or usability affected?
Comments: *Sample results flagged "E" in Table 3 may be considered estimated.*

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

Yes / No / NA
Comments: *A decontamination or equipment blank was not included in our ADEC-approved work plan.*

i. All results less than LOQ and project specified objectives?
Yes / No / NA
Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iii. Data quality or usability affected?
Comments: *See above.*

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

a. Defined and appropriate? **Yes / No / NA**
Comments: *A key is provided on Page 3 of the SGS Laboratory Report.*

Laboratory Report of Analysis

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

Report Number: **1195576**

Client Project: **101882-002 - Warning Lites**

Dear Jessa Tibbetts,

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 Date
Project Manager
Jillian.Janssen@sgs.com

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1195576**
Project Name/Site: **101882-002 - Warning Lites**
Project Contact: **Jessa Tibbetts**

Refer to sample receipt form for information on sample condition.

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

Print Date: 10/16/2019 10:23:46AM

Laboratory Qualifiers

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

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

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

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

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

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
101882-B9MW	1195576001	09/19/2019	09/20/2019	Water (Surface, Eff., Ground)
101882-B10MW	1195576002	09/19/2019	09/20/2019	Water (Surface, Eff., Ground)
101882-B19MW	1195576003	09/19/2019	09/20/2019	Water (Surface, Eff., Ground)
101882-WTB	1195576004	09/19/2019	09/20/2019	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK102	DRO Low Volume (W)
SW8260C	Volatile Organic Compounds (W) FULL

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

Detectable Results Summary

Client Sample ID: **101882-B9MW**
Lab Sample ID: 1195576001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.561J	mg/L
Volatile GC/MS	Methyl-t-butyl ether	145	ug/L

Client Sample ID: **101882-B10MW**
Lab Sample ID: 1195576002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Naphthalene	0.0316J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.284J	mg/L
Volatile GC/MS	Benzene	0.830	ug/L

Client Sample ID: **101882-B19MW**
Lab Sample ID: 1195576003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Naphthalene	0.0503J	ug/L
	Phenanthrene	0.0518	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.505J	mg/L
Volatile GC/MS	Methyl-t-butyl ether	150	ug/L

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

Results of **101882-B9MW**

Client Sample ID: **101882-B9MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576001
Lab Project ID: 1195576

Collection Date: 09/19/19 18:10
Received Date: 09/20/19 10:05
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	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
2-Methylnaphthalene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Acenaphthene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Acenaphthylene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Benzo(a)Anthracene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Benzo[a]pyrene	0.00960	U	0.0192	0.00596	ug/L	1		10/08/19 14:52
Benzo[b]Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Benzo[g,h,i]perylene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Benzo[k]fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Chrysene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Dibenzo[a,h]anthracene	0.00960	U	0.0192	0.00596	ug/L	1		10/08/19 14:52
Fluoranthene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Fluorene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Indeno[1,2,3-c,d] pyrene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Naphthalene	0.0481	U	0.0962	0.0298	ug/L	1		10/08/19 14:52
Phenanthrene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Pyrene	0.0240	U	0.0481	0.0144	ug/L	1		10/08/19 14:52
Surrogates								
2-Methylnaphthalene-d10 (surr)	56.6		47-106		%	1		10/08/19 14:52
Fluoranthene-d10 (surr)	51.4		24-116		%	1		10/08/19 14:52

Batch Information

Analytical Batch: XMS11781
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/08/19 14:52
Container ID: 1195576001-C

Prep Batch: XXX42317
Prep Method: SW3520C
Prep Date/Time: 09/23/19 10:18
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B9MW**

Client Sample ID: **101882-B9MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576001
Lab Project ID: 1195576

Collection Date: 09/19/19 18:10
Received Date: 09/20/19 10:05
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	0.561	J	0.682	0.205	mg/L	1		10/13/19 23:26
Surrogates								
5a Androstane (surr)	92.3		50-150		%	1		10/13/19 23:26

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/13/19 23:26
Container ID: 1195576001-A

Prep Batch: XXX42379
Prep Method: SW3520C
Prep Date/Time: 10/01/19 13:57
Prep Initial Wt./Vol.: 220 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B9MW**

Client Sample ID: **101882-B9MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576001
Lab Project ID: 1195576

Collection Date: 09/19/19 18:10
Received Date: 09/20/19 10:05
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		09/30/19 14:54
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/30/19 14:54
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/30/19 14:54
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/30/19 14:54
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 14:54
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/30/19 14:54
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 14:54
Benzene	0.200	U	0.400	0.120	ug/L	1		09/30/19 14:54
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/30/19 14:54
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/30/19 14:54
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 14:54
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 14:54

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B9MW**

Client Sample ID: **101882-B9MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576001
Lab Project ID: 1195576

Collection Date: 09/19/19 18:10
Received Date: 09/20/19 10:05
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		09/30/19 14:54
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/30/19 14:54
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/30/19 14:54
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/30/19 14:54
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/30/19 14:54
Methyl-t-butyl ether	145		10.0	3.10	ug/L	1		09/30/19 14:54
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/30/19 14:54
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Styrene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Toluene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 14:54
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/30/19 14:54
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/30/19 14:54
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/30/19 14:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/30/19 14:54
4-Bromofluorobenzene (surr)	99.1		85-114		%	1		09/30/19 14:54
Toluene-d8 (surr)	94.5		89-112		%	1		09/30/19 14:54

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J flagging is activated

Results of **101882-B9MW**

Client Sample ID: **101882-B9MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576001
Lab Project ID: 1195576

Collection Date: 09/19/19 18:10
Received Date: 09/20/19 10:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19510
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/30/19 14:54
Container ID: 1195576001-E

Prep Batch: VXX34988
Prep Method: SW5030B
Prep Date/Time: 09/30/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **101882-B10MW**

Client Sample ID: **101882-B10MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576002
Lab Project ID: 1195576

Collection Date: 09/19/19 17:26
Received Date: 09/20/19 10:05
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	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
2-Methylnaphthalene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Acenaphthene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Acenaphthylene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Benzo(a)Anthracene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Benzo[a]pyrene	0.00945	U	0.0189	0.00585	ug/L	1		10/08/19 15:12
Benzo[b]Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Benzo[g,h,i]perylene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Benzo[k]fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Chrysene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Dibenzo[a,h]anthracene	0.00945	U	0.0189	0.00585	ug/L	1		10/08/19 15:12
Fluoranthene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Fluorene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Indeno[1,2,3-c,d] pyrene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Naphthalene	0.0316	J	0.0943	0.0292	ug/L	1		10/08/19 15:12
Phenanthrene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Pyrene	0.0236	U	0.0472	0.0142	ug/L	1		10/08/19 15:12
Surrogates								
2-Methylnaphthalene-d10 (surr)	63.9		47-106		%	1		10/08/19 15:12
Fluoranthene-d10 (surr)	51.8		24-116		%	1		10/08/19 15:12

Batch Information

Analytical Batch: XMS11781
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/08/19 15:12
Container ID: 1195576002-C

Prep Batch: XXX42317
Prep Method: SW3520C
Prep Date/Time: 09/23/19 10:18
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B10MW**

Client Sample ID: **101882-B10MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576002
Lab Project ID: 1195576

Collection Date: 09/19/19 17:26
Received Date: 09/20/19 10:05
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	0.284	J	0.600	0.180	mg/L	1		10/13/19 23:36
Surrogates								
5a Androstane (surr)	83.9		50-150		%	1		10/13/19 23:36

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/13/19 23:36
Container ID: 1195576002-A

Prep Batch: XXX42379
Prep Method: SW3520C
Prep Date/Time: 10/01/19 13:57
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B10MW**

Client Sample ID: **101882-B10MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576002
Lab Project ID: 1195576

Collection Date: 09/19/19 17:26
Received Date: 09/20/19 10:05
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		09/30/19 15:09
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/30/19 15:09
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/30/19 15:09
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
Benzene	0.830		0.400	0.120	ug/L	1		09/30/19 15:09
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/30/19 15:09
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09

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J flagging is activated

Results of **101882-B10MW**

Client Sample ID: **101882-B10MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576002
Lab Project ID: 1195576

Collection Date: 09/19/19 17:26
Received Date: 09/20/19 10:05
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		09/30/19 15:09
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:09
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/30/19 15:09
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
Naphthalene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/30/19 15:09
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Styrene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Toluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:09
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:09
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/30/19 15:09
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/30/19 15:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/30/19 15:09
4-Bromofluorobenzene (surr)	97.6		85-114		%	1		09/30/19 15:09
Toluene-d8 (surr)	99.2		89-112		%	1		09/30/19 15:09

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J flagging is activated

Results of **101882-B10MW**

Client Sample ID: **101882-B10MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576002
Lab Project ID: 1195576

Collection Date: 09/19/19 17:26
Received Date: 09/20/19 10:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19510
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/30/19 15:09
Container ID: 1195576002-E

Prep Batch: VXX34988
Prep Method: SW5030B
Prep Date/Time: 09/30/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-B19MW**

Client Sample ID: **101882-B19MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576003
Lab Project ID: 1195576

Collection Date: 09/19/19 19:40
Received Date: 09/20/19 10:05
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	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		10/08/19 15:33
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		10/08/19 15:33
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Naphthalene	0.0503	J	0.100	0.0310	ug/L	1		10/08/19 15:33
Phenanthrene	0.0518		0.0500	0.0150	ug/L	1		10/08/19 15:33
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/08/19 15:33
Surrogates								
2-Methylnaphthalene-d10 (surr)	67.1		47-106		%	1		10/08/19 15:33
Fluoranthene-d10 (surr)	58.1		24-116		%	1		10/08/19 15:33

Batch Information

Analytical Batch: XMS11781
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/08/19 15:33
Container ID: 1195576003-C

Prep Batch: XXX42317
Prep Method: SW3520C
Prep Date/Time: 09/23/19 10:18
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B19MW**

Client Sample ID: **101882-B19MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576003
Lab Project ID: 1195576

Collection Date: 09/19/19 19:40
Received Date: 09/20/19 10:05
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	0.505	J	0.577	0.173	mg/L	1		10/13/19 23:47
Surrogates								
5a Androstane (surr)	89.7		50-150		%	1		10/13/19 23:47

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/13/19 23:47
Container ID: 1195576003-A

Prep Batch: XXX42379
Prep Method: SW3520C
Prep Date/Time: 10/01/19 13:57
Prep Initial Wt./Vol.: 260 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B19MW**

Client Sample ID: **101882-B19MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576003
Lab Project ID: 1195576

Collection Date: 09/19/19 19:40
Received Date: 09/20/19 10:05
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		09/30/19 15:25
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/30/19 15:25
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/30/19 15:25
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
Benzene	0.200	U	0.400	0.120	ug/L	1		09/30/19 15:25
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/30/19 15:25
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B19MW**

Client Sample ID: **101882-B19MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576003
Lab Project ID: 1195576

Collection Date: 09/19/19 19:40
Received Date: 09/20/19 10:05
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		09/30/19 15:25
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 15:25
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		09/30/19 15:25
Methyl-t-butyl ether	150		10.0	3.10	ug/L	1		09/30/19 15:25
Naphthalene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/30/19 15:25
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Styrene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Toluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 15:25
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/30/19 15:25
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/30/19 15:25
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/30/19 15:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/30/19 15:25
4-Bromofluorobenzene (surr)	98		85-114		%	1		09/30/19 15:25
Toluene-d8 (surr)	99.3		89-112		%	1		09/30/19 15:25

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-B19MW**

Client Sample ID: **101882-B19MW**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576003
Lab Project ID: 1195576

Collection Date: 09/19/19 19:40
Received Date: 09/20/19 10:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19510
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/30/19 15:25
Container ID: 1195576003-E

Prep Batch: VXX34988
Prep Method: SW5030B
Prep Date/Time: 09/30/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-WTB**

Client Sample ID: **101882-WTB**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576004
Lab Project ID: 1195576

Collection Date: 09/19/19 10:00
Received Date: 09/20/19 10:05
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		09/22/19 15:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/22/19 15:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/22/19 15:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/22/19 15:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/22/19 15:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/22/19 15:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/22/19 15:52
Benzene	0.200	U	0.400	0.120	ug/L	1		09/22/19 15:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/22/19 15:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/22/19 15:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/22/19 15:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/22/19 15:52

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-WTB**

Client Sample ID: **101882-WTB**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576004
Lab Project ID: 1195576

Collection Date: 09/19/19 10:00
Received Date: 09/20/19 10:05
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		09/22/19 15:52
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/22/19 15:52
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/22/19 15:52
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/22/19 15:52
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/22/19 15:52
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/22/19 15:52
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/25/19 20:14
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/22/19 15:52
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Styrene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Toluene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/22/19 15:52
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/22/19 15:52
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/22/19 15:52
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/22/19 15:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/22/19 15:52
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/22/19 15:52
Toluene-d8 (surr)	97.8		89-112		%	1		09/22/19 15:52

Print Date: 10/16/2019 10:23:51AM

J flagging is activated

Results of **101882-WTB**

Client Sample ID: **101882-WTB**
Client Project ID: **101882-002 - Warning Lites**
Lab Sample ID: 1195576004
Lab Project ID: 1195576

Collection Date: 09/19/19 10:00
Received Date: 09/20/19 10:05
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19479
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/22/19 15:52
Container ID: 1195576004-A

Prep Batch: VXX34946
Prep Method: SW5030B
Prep Date/Time: 09/22/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19490
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/25/19 20:14
Container ID: 1195576004-C

Prep Batch: VXX34964
Prep Method: SW5030B
Prep Date/Time: 09/25/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1799882 [VXX/34946]
Blank Lab ID: 1533868

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	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

Method Blank

Blank ID: MB for HBN 1799882 [VXX/34946]
Blank Lab ID: 1533868

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
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
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)	100	85-114		%
Toluene-d8 (surr)	99.3	89-112		%

Method Blank

Blank ID: MB for HBN 1799882 [VXX/34946]
Blank Lab ID: 1533868

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19479
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 9/22/2019 1:28:00PM

Prep Batch: VXX34946
Prep Method: SW5030B
Prep Date/Time: 9/22/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34946]
Blank Spike Lab ID: 1533869
Date Analyzed: 09/22/2019 13:43

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34946]
Spike Duplicate Lab ID: 1533870
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576004

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	32.1	107	30	31.7	106	(78-124)	1.30	(< 20)
1,1,1-Trichloroethane	30	30.5	102	30	29.6	99	(74-131)	2.90	(< 20)
1,1,2,2-Tetrachloroethane	30	30.1	100	30	30.1	100	(71-121)	0.00	(< 20)
1,1,2-Trichloroethane	30	31.1	104	30	30.4	101	(80-119)	2.40	(< 20)
1,1-Dichloroethane	30	29.1	97	30	28.5	95	(77-125)	2.20	(< 20)
1,1-Dichloroethene	30	30.3	101	30	29.3	98	(71-131)	3.20	(< 20)
1,1-Dichloropropene	30	29.8	99	30	29.5	98	(79-125)	1.10	(< 20)
1,2,3-Trichlorobenzene	30	26.5	88	30	28.1	94	(69-129)	5.70	(< 20)
1,2,3-Trichloropropane	30	31.0	103	30	31.0	103	(73-122)	0.03	(< 20)
1,2,4-Trichlorobenzene	30	27.8	93	30	27.9	93	(69-130)	0.40	(< 20)
1,2,4-Trimethylbenzene	30	31.6	105	30	31.0	103	(79-124)	2.00	(< 20)
1,2-Dibromo-3-chloropropane	30	29.1	97	30	30.0	100	(62-128)	2.80	(< 20)
1,2-Dibromoethane	30	28.4	95	30	28.0	93	(77-121)	1.40	(< 20)
1,2-Dichlorobenzene	30	30.5	102	30	29.9	100	(80-119)	1.90	(< 20)
1,2-Dichloroethane	30	28.3	94	30	27.8	93	(73-128)	1.70	(< 20)
1,2-Dichloropropane	30	29.1	97	30	29.3	98	(78-122)	0.72	(< 20)
1,3,5-Trimethylbenzene	30	31.1	104	30	30.1	100	(75-124)	3.20	(< 20)
1,3-Dichlorobenzene	30	31.1	104	30	30.3	101	(80-119)	2.60	(< 20)
1,3-Dichloropropane	30	28.2	94	30	27.7	92	(80-119)	1.80	(< 20)
1,4-Dichlorobenzene	30	30.8	103	30	30.1	100	(79-118)	2.20	(< 20)
2,2-Dichloropropane	30	29.9	100	30	29.2	97	(60-139)	2.50	(< 20)
2-Butanone (MEK)	90	89.6	100	90	90.7	101	(56-143)	1.30	(< 20)
2-Chlorotoluene	30	30.2	101	30	29.5	98	(79-122)	2.30	(< 20)
2-Hexanone	90	92.8	103	90	92.8	103	(57-139)	0.02	(< 20)
4-Chlorotoluene	30	30.6	102	30	29.7	99	(78-122)	3.10	(< 20)
4-Isopropyltoluene	30	31.5	105	30	30.4	101	(77-127)	3.50	(< 20)
4-Methyl-2-pentanone (MIBK)	90	89.3	99	90	88.4	98	(67-130)	0.98	(< 20)
Benzene	30	29.7	99	30	29.1	97	(79-120)	1.80	(< 20)
Bromobenzene	30	30.8	103	30	29.8	99	(80-120)	3.40	(< 20)
Bromochloromethane	30	29.0	97	30	28.5	95	(78-123)	1.70	(< 20)
Bromodichloromethane	30	31.7	106	30	31.1	104	(79-125)	1.90	(< 20)
Bromoform	30	33.0	110	30	32.7	109	(66-130)	1.00	(< 20)
Bromomethane	30	37.0	123	30	36.8	123	(53-141)	0.65	(< 20)
Carbon disulfide	45	45.6	101	45	44.1	98	(64-133)	3.50	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34946]
Blank Spike Lab ID: 1533869
Date Analyzed: 09/22/2019 13:43

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34946]
Spike Duplicate Lab ID: 1533870
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576004

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	31.2	104	30	30.6	102	(72-136)	2.00	(< 20)
Chlorobenzene	30	28.9	96	30	28.4	95	(82-118)	1.90	(< 20)
Chloroethane	30	30.9	103	30	28.8	96	(60-138)	7.10	(< 20)
Chloroform	30	29.5	98	30	28.8	96	(79-124)	2.40	(< 20)
Chloromethane	30	29.4	98	30	28.7	96	(50-139)	2.50	(< 20)
cis-1,2-Dichloroethene	30	29.3	98	30	28.9	96	(78-123)	1.30	(< 20)
cis-1,3-Dichloropropene	30	28.9	96	30	29.2	97	(75-124)	1.00	(< 20)
Dibromochloromethane	30	32.0	107	30	31.6	105	(74-126)	1.40	(< 20)
Dibromomethane	30	29.4	98	30	28.9	97	(79-123)	1.40	(< 20)
Dichlorodifluoromethane	30	30.3	101	30	29.1	97	(32-152)	4.10	(< 20)
Ethylbenzene	30	29.9	100	30	29.3	98	(79-121)	1.80	(< 20)
Freon-113	45	46.7	104	45	45.3	101	(70-136)	3.00	(< 20)
Hexachlorobutadiene	30	30.7	102	30	30.5	102	(66-134)	0.82	(< 20)
Isopropylbenzene (Cumene)	30	30.1	100	30	29.4	98	(72-131)	2.30	(< 20)
Methylene chloride	30	28.6	95	30	28.1	94	(74-124)	1.80	(< 20)
Methyl-t-butyl ether	45	45.1	100	45	44.7	99	(71-124)	1.00	(< 20)
n-Butylbenzene	30	29.6	99	30	28.9	96	(75-128)	2.60	(< 20)
n-Propylbenzene	30	30.5	102	30	30.0	100	(76-126)	1.50	(< 20)
o-Xylene	30	29.3	98	30	29.0	97	(78-122)	1.30	(< 20)
P & M -Xylene	60	58.4	97	60	58.3	97	(80-121)	0.10	(< 20)
sec-Butylbenzene	30	30.4	101	30	30.0	100	(77-126)	1.40	(< 20)
Styrene	30	30.3	101	30	29.7	99	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	30.1	100	30	29.5	98	(78-124)	1.80	(< 20)
Tetrachloroethene	30	31.3	104	30	30.3	101	(74-129)	3.10	(< 20)
Toluene	30	29.2	97	30	28.4	95	(80-121)	2.60	(< 20)
trans-1,2-Dichloroethene	30	29.1	97	30	28.2	94	(75-124)	3.10	(< 20)
trans-1,3-Dichloropropene	30	28.7	96	30	28.9	96	(73-127)	0.73	(< 20)
Trichloroethene	30	30.1	100	30	29.3	98	(79-123)	2.50	(< 20)
Trichlorofluoromethane	30	33.0	110	30	30.8	103	(65-141)	6.80	(< 20)
Vinyl acetate	30	31.3	104	30	31.2	104	(54-146)	0.48	(< 20)
Vinyl chloride	30	29.5	98	30	28.5	95	(58-137)	3.50	(< 20)
Xylenes (total)	90	87.7	98	90	87.3	97	(79-121)	0.50	(< 20)

Surrogates

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34946]
Blank Spike Lab ID: 1533869
Date Analyzed: 09/22/2019 13:43

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34946]
Spike Duplicate Lab ID: 1533870
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576004

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane-D4 (surr)	30	97.4	97	30	97.9	98	(81-118)	0.48	
4-Bromofluorobenzene (surr)	30	98.8	99	30	98.7	99	(85-114)	0.10	
Toluene-d8 (surr)	30	101	101	30	101	101	(89-112)	0.40	

Batch Information

Analytical Batch: **VMS19479**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX34946**
Prep Method: **SW5030B**
Prep Date/Time: **09/22/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1800006 [VXX/34964]
Blank Lab ID: 1534429

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576004

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Naphthalene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	98.6	85-114		%
Toluene-d8 (surr)	97.1	89-112		%

Batch Information

Analytical Batch: VMS19490
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: CMC
Analytical Date/Time: 9/25/2019 4:40:00PM

Prep Batch: VXX34964
Prep Method: SW5030B
Prep Date/Time: 9/25/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34964]
Blank Spike Lab ID: 1534430
Date Analyzed: 09/25/2019 16:55

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34964]
Spike Duplicate Lab ID: 1534431
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576004

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Naphthalene	30	32.8	109	30	36.1	120	(61-128)	9.70	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	104	104	30	102	102	(81-118)	2.00	
4-Bromofluorobenzene (surr)	30	98.1	98	30	97.4	97	(85-114)	0.72	
Toluene-d8 (surr)	30	97.9	98	30	97.9	98	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS19490**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **CMC**

Prep Batch: **VXX34964**
Prep Method: **SW5030B**
Prep Date/Time: **09/25/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Print Date: 10/16/2019 10:23:57AM

Method Blank

Blank ID: MB for HBN 1800244 [VXX/34988]
Blank Lab ID: 1535610

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576001, 1195576002, 1195576003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	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

Method Blank

Blank ID: MB for HBN 1800244 [VXX/34988]
Blank Lab ID: 1535610

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576001, 1195576002, 1195576003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
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)	104	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.7	89-112		%

Method Blank

Blank ID: MB for HBN 1800244 [VXX/34988]
Blank Lab ID: 1535610

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576001, 1195576002, 1195576003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19510
Analytical Method: SW8260C
Instrument: Agilent 7890-75MS
Analyst: CMC
Analytical Date/Time: 9/30/2019 11:05:00AM

Prep Batch: VXX34988
Prep Method: SW5030B
Prep Date/Time: 9/30/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34988]
Blank Spike Lab ID: 1535611
Date Analyzed: 09/30/2019 11:21

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34988]
Spike Duplicate Lab ID: 1535612
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576001, 1195576002, 1195576003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.2	104	30	32.4	108	(78-124)	3.60	(< 20)
1,1,1-Trichloroethane	30	31.3	104	30	30.1	100	(74-131)	3.80	(< 20)
1,1,2,2-Tetrachloroethane	30	31.4	105	30	32.4	108	(71-121)	3.20	(< 20)
1,1,2-Trichloroethane	30	31.8	106	30	32.6	109	(80-119)	2.70	(< 20)
1,1-Dichloroethane	30	32.4	108	30	30.6	102	(77-125)	5.90	(< 20)
1,1-Dichloroethene	30	28.3	94	30	29.7	99	(71-131)	4.80	(< 20)
1,1-Dichloropropene	30	31.7	106	30	31.0	103	(79-125)	2.30	(< 20)
1,2,3-Trichlorobenzene	30	29.5	98	30	31.4	105	(69-129)	6.20	(< 20)
1,2,3-Trichloropropane	30	30.0	100	30	31.0	103	(73-122)	3.40	(< 20)
1,2,4-Trichlorobenzene	30	29.3	98	30	28.8	96	(69-130)	1.80	(< 20)
1,2,4-Trimethylbenzene	30	31.4	105	30	31.8	106	(79-124)	1.40	(< 20)
1,2-Dibromo-3-chloropropane	30	30.2	101	30	31.3	104	(62-128)	3.60	(< 20)
1,2-Dibromoethane	30	32.4	108	30	33.8	113	(77-121)	4.40	(< 20)
1,2-Dichlorobenzene	30	31.1	104	30	31.2	104	(80-119)	0.26	(< 20)
1,2-Dichloroethane	30	31.7	106	30	31.2	104	(73-128)	1.60	(< 20)
1,2-Dichloropropane	30	32.4	108	30	31.3	104	(78-122)	3.40	(< 20)
1,3,5-Trimethylbenzene	30	31.3	104	30	31.9	106	(75-124)	1.60	(< 20)
1,3-Dichlorobenzene	30	31.7	106	30	31.6	105	(80-119)	0.32	(< 20)
1,3-Dichloropropane	30	32.1	107	30	33.9	113	(80-119)	5.40	(< 20)
1,4-Dichlorobenzene	30	31.7	106	30	32.0	107	(79-118)	0.85	(< 20)
2,2-Dichloropropane	30	32.1	107	30	31.2	104	(60-139)	2.90	(< 20)
2-Butanone (MEK)	90	99.7	111	90	98.7	110	(56-143)	1.00	(< 20)
2-Chlorotoluene	30	30.5	102	30	31.0	103	(79-122)	1.40	(< 20)
2-Hexanone	90	96.8	108	90	101	113	(57-139)	4.50	(< 20)
4-Chlorotoluene	30	31.1	104	30	31.5	105	(78-122)	1.00	(< 20)
4-Isopropyltoluene	30	32.0	107	30	32.5	108	(77-127)	1.60	(< 20)
4-Methyl-2-pentanone (MIBK)	90	100	111	90	98.8	110	(67-130)	1.30	(< 20)
Benzene	30	32.3	108	30	32.0	107	(79-120)	0.93	(< 20)
Bromobenzene	30	31.1	104	30	30.9	103	(80-120)	0.68	(< 20)
Bromochloromethane	30	31.5	105	30	30.3	101	(78-123)	3.80	(< 20)
Bromodichloromethane	30	32.1	107	30	31.7	106	(79-125)	1.40	(< 20)
Bromoform	30	32.2	107	30	33.3	111	(66-130)	3.40	(< 20)
Bromomethane	30	27.3	91	30	29.3	98	(53-141)	6.90	(< 20)
Carbon disulfide	45	43.4	97	45	45.1	100	(64-133)	3.80	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34988]
Blank Spike Lab ID: 1535611
Date Analyzed: 09/30/2019 11:21

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34988]
Spike Duplicate Lab ID: 1535612
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576001, 1195576002, 1195576003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	31.5	105	30	30.1	100	(72-136)	4.60	(< 20)
Chlorobenzene	30	30.3	101	30	31.1	104	(82-118)	2.60	(< 20)
Chloroethane	30	34.1	114	30	32.8	109	(60-138)	4.10	(< 20)
Chloroform	30	30.4	101	30	29.9	100	(79-124)	1.60	(< 20)
Chloromethane	30	25.4	85	30	30.0	100	(50-139)	16.50	(< 20)
cis-1,2-Dichloroethene	30	31.3	104	30	30.6	102	(78-123)	2.10	(< 20)
cis-1,3-Dichloropropene	30	32.8	109	30	32.1	107	(75-124)	2.40	(< 20)
Dibromochloromethane	30	32.3	108	30	33.4	111	(74-126)	3.30	(< 20)
Dibromomethane	30	31.9	106	30	31.1	104	(79-123)	2.50	(< 20)
Dichlorodifluoromethane	30	28.3	94	30	29.7	99	(32-152)	4.80	(< 20)
Ethylbenzene	30	31.5	105	30	32.9	110	(79-121)	4.10	(< 20)
Freon-113	45	43.1	96	45	44.6	99	(70-136)	3.60	(< 20)
Hexachlorobutadiene	30	30.0	100	30	30.7	102	(66-134)	2.30	(< 20)
Isopropylbenzene (Cumene)	30	31.6	105	30	32.7	109	(72-131)	3.50	(< 20)
Methylene chloride	30	33.0	110	30	31.2	104	(74-124)	5.70	(< 20)
Methyl-t-butyl ether	45	47.9	106	45	47.1	105	(71-124)	1.70	(< 20)
Naphthalene	30	28.1	94	30	30.7	102	(61-128)	8.80	(< 20)
n-Butylbenzene	30	30.6	102	30	30.0	100	(75-128)	1.90	(< 20)
n-Propylbenzene	30	32.0	107	30	32.4	108	(76-126)	1.10	(< 20)
o-Xylene	30	31.3	104	30	32.6	109	(78-122)	4.10	(< 20)
P & M -Xylene	60	64.3	107	60	66.6	111	(80-121)	3.60	(< 20)
sec-Butylbenzene	30	30.9	103	30	31.1	104	(77-126)	0.77	(< 20)
Styrene	30	31.5	105	30	33.0	110	(78-123)	4.80	(< 20)
tert-Butylbenzene	30	30.5	102	30	31.6	105	(78-124)	3.50	(< 20)
Tetrachloroethene	30	32.0	107	30	31.7	106	(74-129)	0.97	(< 20)
Toluene	30	29.5	98	30	30.8	103	(80-121)	4.60	(< 20)
trans-1,2-Dichloroethene	30	32.6	109	30	30.6	102	(75-124)	6.40	(< 20)
trans-1,3-Dichloropropene	30	32.7	109	30	34.5	115	(73-127)	5.30	(< 20)
Trichloroethene	30	31.5	105	30	30.4	101	(79-123)	3.50	(< 20)
Trichlorofluoromethane	30	30.8	103	30	30.7	102	(65-141)	0.39	(< 20)
Vinyl acetate	30	31.9	106	30	31.8	106	(54-146)	0.41	(< 20)
Vinyl chloride	30	27.9	93	30	30.1	100	(58-137)	7.90	(< 20)
Xylenes (total)	90	95.6	106	90	99.3	110	(79-121)	3.80	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [VXX34988]
Blank Spike Lab ID: 1535611
Date Analyzed: 09/30/2019 11:21

Spike Duplicate ID: LCSD for HBN 1195576 [VXX34988]
Spike Duplicate Lab ID: 1535612
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576001, 1195576002, 1195576003

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97	97	30	95.9	96	(81-118)	1.20	
4-Bromofluorobenzene (surr)	30	98.3	98	30	102	102	(85-114)	3.60	
Toluene-d8 (surr)	30	99.4	99	30	104	104	(89-112)	4.50	

Batch Information

Analytical Batch: **VMS19510**
Analytical Method: **SW8260C**
Instrument: **Agilent 7890-75MS**
Analyst: **CMC**

Prep Batch: **VXX34988**
Prep Method: **SW5030B**
Prep Date/Time: **09/30/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1799833 [XXX/42317]
Blank Lab ID: 1533649

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576001, 1195576002, 1195576003

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

Parameter	Results	LOQ/CL	DL	Units
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
Dibenzo[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)	60.2	47-106		%
Fluoranthene-d10 (surr)	67.2	24-116		%

Batch Information

Analytical Batch: XMS11781
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 10/8/2019 12:49:00PM

Prep Batch: XXX42317
Prep Method: SW3520C
Prep Date/Time: 9/23/2019 10:18:12AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [XXX42317]
Blank Spike Lab ID: 1533650
Date Analyzed: 10/08/2019 13:09

Spike Duplicate ID: LCSD for HBN 1195576 [XXX42317]
Spike Duplicate Lab ID: 1533651
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576001, 1195576002, 1195576003

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

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.40	70	2	1.40	70	(41-115)	0.22	(< 20)
2-Methylnaphthalene	2	1.39	70	2	1.34	67	(39-114)	3.60	(< 20)
Acenaphthene	2	1.41	71	2	1.42	71	(48-114)	0.80	(< 20)
Acenaphthylene	2	1.53	76	2	1.50	75	(35-121)	1.40	(< 20)
Anthracene	2	1.52	76	2	1.48	74	(53-119)	2.90	(< 20)
Benzo(a)Anthracene	2	1.47	74	2	1.45	73	(59-120)	1.70	(< 20)
Benzo[a]pyrene	2	1.39	69	2	1.35	68	(53-120)	2.50	(< 20)
Benzo[b]Fluoranthene	2	1.57	78	2	1.52	76	(53-126)	2.90	(< 20)
Benzo[g,h,i]perylene	2	1.34	67	2	1.34	67	(44-128)	0.22	(< 20)
Benzo[k]fluoranthene	2	1.49	74	2	1.47	73	(54-125)	1.20	(< 20)
Chrysene	2	1.54	77	2	1.50	75	(57-120)	3.20	(< 20)
Dibenzo[a,h]anthracene	2	1.25	63	2	1.25	62	(44-131)	0.77	(< 20)
Fluoranthene	2	1.52	76	2	1.48	74	(58-120)	2.50	(< 20)
Fluorene	2	1.51	76	2	1.49	74	(50-118)	2.00	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.45	73	2	1.45	73	(48-130)	0.13	(< 20)
Naphthalene	2	1.38	69	2	1.35	67	(43-114)	2.70	(< 20)
Phenanthrene	2	1.49	75	2	1.47	73	(53-115)	1.50	(< 20)
Pyrene	2	1.57	79	2	1.55	77	(53-121)	1.70	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2	67.9	68	2	67.6	68	(47-106)	0.51	
Fluoranthene-d10 (surr)	2	75.6	76	2	73.2	73	(24-116)	3.30	

Batch Information

Analytical Batch: **XMS11781**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX42317**
Prep Method: **SW3520C**
Prep Date/Time: **09/23/2019 10:18**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 10/16/2019 10:24:04AM

Method Blank

Blank ID: MB for HBN 1800238 [XXX/42379]
Blank Lab ID: 1535595

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195576001, 1195576002, 1195576003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	103	60-120		%

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 10/13/2019 9:56:00PM

Prep Batch: XXX42379
Prep Method: SW3520C
Prep Date/Time: 10/1/2019 1:57:11PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195576 [XXX42379]
Blank Spike Lab ID: 1535596
Date Analyzed: 10/13/2019 22:26

Spike Duplicate ID: LCSD for HBN 1195576 [XXX42379]
Spike Duplicate Lab ID: 1535597
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195576001, 1195576002, 1195576003

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	20.7	104	20	20.8	104	(75-125)	0.33	(< 20)
Surrogates									
5a Androstane (surr)	0.4	104	104	0.4	107	107	(60-120)	2.20	

Batch Information

Analytical Batch: **XFC15398**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX42379**
Prep Method: **SW3520C**
Prep Date/Time: **10/01/2019 13:57**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

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1195370

SHANNON & WILSON, INC.
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CHAIN-OF-CUSTODY RECORD

Laboratory: SGS
Attn: Jillian Juarez

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	VOCs (HCl Preservative)	DRO/HCl Preservative	PAH				Total Number of Containers	Remarks/Matrix
101882-B9MW	(1) A-G	18:10	9/19		X	X	X	X					Groundwater
101882-B10MW	(2) A-G	17:26	9/19		X	X	X	X					
101882-B19MW	(3) A-G	19:40	9/19		X	X	X	X					
101882-WTB	(4) A-C	10:00	9/19		X	X							Trip Blank

Project Information		Sample Receipt	
Project Number: 101882-002		Total Number of Containers	
Project Name: Lamina Lites		COC Seals/Intact? Y/N/NA	
Contact: Jesse Tibbetts		Received Good Cond./Cold	
Ongoing Project? Yes ☒ No ☐		Delivery Method:	
Sampler: SAH		(attach shipping bill, if any)	

Instructions
Requested Turnaround Time:
Special Instructions:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 10:04	Signature: Time:	Signature: Time:
Printed Name: Date: 9/20/19 Schuyler Healy	Printed Name: Date:	Printed Name: Date:
Company: SHW	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 10:05
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 9.20.19 R. MORENO
Company:	Company:	Company: SGS T: 5.2 C D44

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

F-19-91/UR

Profile: 334866 NSW 9/20/19

No. 34991

e-Sample Receipt Form

SGS Workorder #: 1195576

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	HD
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 5.2 °C Therm. ID: D44
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC informatic		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
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):

F102b_SRFpm_20190325

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1195576001-A	HCL to pH < 2	OK			
1195576001-B	HCL to pH < 2	OK			
1195576001-C	No Preservative Required	OK			
1195576001-D	No Preservative Required	OK			
1195576001-E	HCL to pH < 2	OK			
1195576001-F	HCL to pH < 2	OK			
1195576001-G	HCL to pH < 2	OK			
1195576002-A	HCL to pH < 2	OK			
1195576002-B	HCL to pH < 2	OK			
1195576002-C	No Preservative Required	OK			
1195576002-D	No Preservative Required	OK			
1195576002-E	HCL to pH < 2	OK			
1195576002-F	HCL to pH < 2	OK			
1195576002-G	HCL to pH < 2	OK			
1195576003-A	HCL to pH < 2	OK			
1195576003-B	HCL to pH < 2	OK			
1195576003-C	No Preservative Required	OK			
1195576003-D	No Preservative Required	OK			
1195576003-E	HCL to pH < 2	OK			
1195576003-F	HCL to pH < 2	OK			
1195576003-G	HCL to pH < 2	OK			
1195576004-A	HCL to pH < 2	OK			
1195576004-B	HCL to pH < 2	OK			
1195576004-C	HCL to pH < 2	OK			

Container Condition Glossary

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

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

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts
Title: Environmental Scientist
Date: February 2021

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1195576
Laboratory Report Date: October 16, 2019

Contaminated Site Name: Warning Lites of Alaska Gas/Diesel UST #2
ADEC File Number: 2100.26.580
Hazard Identification Number: 26177

(**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**
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
Comments: *The year is missing in "Date Sampled" field. The samples were collected in 2019.*

b. Correct analyses requested? **Yes / No / NA**
Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes / No / NA
Comments: *The cooler temperature blank was 5.2° Celsius.*

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes / No / NA**
Comments:

c. Sample condition documented - broken, leaking (MeOH), zero headspace (VOC vials)? **Yes / No / NA**
Comments:

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.? **Yes / No / NA**
Comments: *No discrepancies were noted.*

e. Data quality or usability affected?
Comments: *See above.*

4. Case Narrative

a. Present and understandable? **Yes / No / NA**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA**
Comments: *No discrepancies, errors or QC failures were noted in the case narrative.*

c. Were all corrective actions documented? **Yes / No / NA**
Comments:

d. What is the effect on data quality/usability, according to the case narrative?
Comments: *The case narrative does not discuss quality/usability.*

5. Sample Results

a. Correct analyses performed/reported as requested on COC? **Yes / No / NA**
Comments:

b. All applicable holding times met? **Yes / No / NA**
Comments:

c. All soils reported on a dry weight basis? **Yes / No / NA**
Comments: *Soil samples were not included in this work order.*

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA**
Comments*: For each sample, the LOQ for 1,2,3-trichloropropane is greater than the ADEC Table C groundwater cleanup level.*

e. Data quality or usability affected?
Comments: *The data cannot be used to determine whether or not concentrations of 1,2,3-trichloropropane are present at concentrations greater than the ADEC Table C groundwater cleanup level. However, 1,2,3-trichloropropane was not detected in the project samples.*

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
Yes / No / NA
Comments:

iii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments:

v. Data quality or usability affected?
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**
Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments:

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from LCS/LCSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments:

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

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments:

vii. Data quality or usability affected?
Comments*: Data quality/usability is considered unaffected for the purposes of this project.*

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Note: Leave blank if not required for project

i. Organics - One MS/MSD reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. Metals/Inorganics - One MS and one MSD reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. **Yes / No / NA**
Comments:

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. **Yes / No / NA**
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? If so, are the data flags clearly defined?
Yes / No / NA
Comments:

vii. Data quality or usability affected?
Comments*: No, see above.*

d. Surrogates - Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses - field, QC, and laboratory samples? **Yes / No / NA**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA**
Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? **Yes / No / NA**
Comments:

iv. Data quality or usability affected?
Comments: *See above.*

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.) **Yes / No / NA**
Comments: *One soil 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? (If not, a comment explaining why must be entered below.) **Yes / No / NA**
Comments: *Only one cooler was used to transport the samples.*

iii. All results less than LOQ and project specified objectives? **Yes / No / NA**
Comments*:*

iv. If above LOQ or project specified DQOs, what samples are affected?
Comments: *NA*

v. Data quality or usability affected?
Comments: *See above.*

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA
Comments: *Sample B19MW is the field duplicate of Sample B9MW.*

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA**
Comments*:*

iii. Precision – All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) **Yes / No / NA**
Comments:

iv. Data quality or usability affected?
Comments: *See above.*

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

Yes / No / NA
Comments: *A decontamination or equipment blank was not included in our ADEC-approved work plan.*

i. All results less than LOQ and project specified objectives?
Yes / No / NA
Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iii. Data quality or usability affected?
Comments: *See above.*

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

a. Defined and appropriate? **Yes / No / NA**
Comments: *A key is provided on Page 3 of the SGS Laboratory Report.*

Laboratory Report of Analysis

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

Report Number: **1195651**

Client Project: **101882-001 Warning Lites**

Dear Jessa Tibbetts,

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 Date
Project Manager
Jillian.Janssen@sgs.com

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

Case Narrative

SGS Client: **Shannon & Wilson, Inc.**
SGS Project: **1195651**
Project Name/Site: **101882-001 Warning Lites**
Project Contact: **Jessa Tibbetts**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1800230 [VXX/34986 (1535558) LCS

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

1195661003MS (1534387) MS

8270D SIM - PAH MS recovery for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

1195661003MSD (1534388) MSD

8270D SIM - PAH MSD recovery for several analytes do not meet QC criteria. Refer to the 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.

SGS North America Inc.
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Laboratory Qualifiers

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

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

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

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

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
101882-B1MW	1195651001	09/23/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-B2MW	1195651002	09/20/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-B3MW	1195651003	09/23/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-B5MW	1195651004	09/23/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-B6MW	1195651005	09/20/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-B16MW	1195651006	09/20/2019	09/23/2019	Water (Surface, Eff., Ground)
101882-WTB2	1195651007	09/20/2019	09/23/2019	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS Liq/Liq ext. LV
AK102	DRO Low Volume (W)
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **101882-B1MW**
Lab Sample ID: 1195651001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Benzo[a]pyrene	0.0809	ug/L
	Benzo[b]Fluoranthene	0.222	ug/L
	Benzo[g,h,i]perylene	0.124	ug/L
	Chrysene	0.187	ug/L
	Fluoranthene	0.226	ug/L
	Indeno[1,2,3-c,d] pyrene	0.103	ug/L
	Phenanthrene	0.0730	ug/L
	Pyrene	0.158	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.333J	mg/L
Volatile GC/MS	Dichlorodifluoromethane	0.960J	ug/L

Client Sample ID: **101882-B2MW**
Lab Sample ID: 1195651002

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.300J	mg/L
Volatile GC/MS	Benzene	52.1	ug/L
	cis-1,2-Dichloroethene	1.48	ug/L
	Toluene	0.320J	ug/L

Client Sample ID: **101882-B3MW**
Lab Sample ID: 1195651003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	Benzo[a]pyrene	0.127	ug/L
	Benzo[b]Fluoranthene	0.343	ug/L
	Benzo[g,h,i]perylene	0.218	ug/L
	Chrysene	0.207	ug/L
	Fluoranthene	0.181	ug/L
	Indeno[1,2,3-c,d] pyrene	0.176	ug/L
	Phenanthrene	0.0507	ug/L
	Pyrene	0.131	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.528J	mg/L
Volatile GC/MS	Benzene	0.120J	ug/L
	Toluene	0.320J	ug/L

Client Sample ID: **101882-B5MW**
Lab Sample ID: 1195651004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.390J	mg/L
Volatile GC/MS	Benzene	0.330J	ug/L

Client Sample ID: **101882-B6MW**
Lab Sample ID: 1195651005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.437J	mg/L
Volatile GC/MS	1,1-Dichloroethane	0.320J	ug/L
	Benzene	133	ug/L
	cis-1,2-Dichloroethene	8.63	ug/L
	Toluene	0.420J	ug/L
	trans-1,2-Dichloroethene	0.390J	ug/L

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Detectable Results Summary

Client Sample ID: **101882-B16MW**
Lab Sample ID: 1195651006

Semivolatile Organic Fuels
Volatile GC/MS

Parameter	Result	Units
Diesel Range Organics	0.459J	mg/L
1,1-Dichloroethane	0.430J	ug/L
Benzene	153	ug/L
cis-1,2-Dichloroethene	10.7	ug/L
n-Butylbenzene	0.860J	ug/L
Toluene	0.360J	ug/L
trans-1,2-Dichloroethene	0.460J	ug/L

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Results of **101882-B1MW**

Client Sample ID: **101882-B1MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651001
Lab Project ID: 1195651

Collection Date: 09/23/19 11:36
Received Date: 09/23/19 16:56
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	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
2-Methylnaphthalene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Acenaphthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Acenaphthylene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Benzo(a)Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Benzo[a]pyrene	0.0809		0.0185	0.00574	ug/L	1		10/11/19 03:17
Benzo[b]Fluoranthene	0.222		0.0463	0.0139	ug/L	1		10/11/19 03:17
Benzo[g,h,i]perylene	0.124		0.0463	0.0139	ug/L	1		10/11/19 03:17
Benzo[k]fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Chrysene	0.187		0.0463	0.0139	ug/L	1		10/11/19 03:17
Dibenzo[a,h]anthracene	0.00925	U	0.0185	0.00574	ug/L	1		10/11/19 03:17
Fluoranthene	0.226		0.0463	0.0139	ug/L	1		10/11/19 03:17
Fluorene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 03:17
Indeno[1,2,3-c,d] pyrene	0.103		0.0463	0.0139	ug/L	1		10/11/19 03:17
Naphthalene	0.0463	U	0.0926	0.0287	ug/L	1		10/11/19 03:17
Phenanthrene	0.0730		0.0463	0.0139	ug/L	1		10/11/19 03:17
Pyrene	0.158		0.0463	0.0139	ug/L	1		10/11/19 03:17
Surrogates								
2-Methylnaphthalene-d10 (surr)	49.4		47-106		%	1		10/11/19 03:17
Fluoranthene-d10 (surr)	51.4		24-116		%	1		10/11/19 03:17

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 03:17
Container ID: 1195651001-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Results of **101882-B1MW**

Client Sample ID: **101882-B1MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651001
Lab Project ID: 1195651

Collection Date: 09/23/19 11:36
Received Date: 09/23/19 16:56
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	0.333	J	0.566	0.170	mg/L	1		10/14/19 04:09
Surrogates								
5a Androstane (surr)	75		50-150		%	1		10/14/19 04:09

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 04:09
Container ID: 1195651001-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 265 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B1MW**

Client Sample ID: **101882-B1MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651001
Lab Project ID: 1195651

Collection Date: 09/23/19 11:36
Received Date: 09/23/19 16:56
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		09/30/19 13:36
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/30/19 13:36
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/30/19 13:36
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/30/19 13:36
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 13:36
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/30/19 13:36
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/30/19 13:36
Benzene	0.200	U	0.400	0.120	ug/L	1		09/30/19 13:36
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
Bromomethane	2.50	U	5.00	1.50	ug/L	1		09/30/19 13:36
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/30/19 13:36
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/30/19 13:36
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/30/19 13:36

Results of **101882-B1MW**

Client Sample ID: **101882-B1MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651001
Lab Project ID: 1195651

Collection Date: 09/23/19 11:36
Received Date: 09/23/19 16:56
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		09/30/19 13:36
Chloromethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/30/19 13:36
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/30/19 13:36
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Dichlorodifluoromethane	0.960 J		1.00	0.310	ug/L	1		10/07/19 16:13
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/30/19 13:36
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		09/30/19 13:36
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/30/19 13:36
Naphthalene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
o-Xylene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		09/30/19 13:36
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Styrene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Toluene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/30/19 13:36
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/30/19 13:36
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/30/19 13:36
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		09/30/19 13:36
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		09/30/19 13:36
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/30/19 13:36
Toluene-d8 (surr)	98.7		89-112		%	1		09/30/19 13:36

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B1MW**

Client Sample ID: **101882-B1MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651001
Lab Project ID: 1195651

Collection Date: 09/23/19 11:36
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19508
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 09/30/19 13:36
Container ID: 1195651001-E

Prep Batch: VXX34986
Prep Method: SW5030B
Prep Date/Time: 09/30/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19534
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/07/19 16:13
Container ID: 1195651001-E

Prep Batch: VXX35028
Prep Method: SW5030B
Prep Date/Time: 10/07/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-B2MW**

Client Sample ID: **101882-B2MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651002
Lab Project ID: 1195651

Collection Date: 09/20/19 13:40
Received Date: 09/23/19 16:56
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	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
2-Methylnaphthalene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Acenaphthene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Acenaphthylene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Benzo(a)Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Benzo[a]pyrene	0.0104	U	0.0208	0.00646	ug/L	1		10/11/19 03:37
Benzo[b]Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Benzo[g,h,i]perylene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Benzo[k]fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Chrysene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Dibenzo[a,h]anthracene	0.0104	U	0.0208	0.00646	ug/L	1		10/11/19 03:37
Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Fluorene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Indeno[1,2,3-c,d] pyrene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Naphthalene	0.0520	U	0.104	0.0323	ug/L	1		10/11/19 03:37
Phenanthrene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Pyrene	0.0261	U	0.0521	0.0156	ug/L	1		10/11/19 03:37
Surrogates								
2-Methylnaphthalene-d10 (surr)	58.4		47-106		%	1		10/11/19 03:37
Fluoranthene-d10 (surr)	63.7		24-116		%	1		10/11/19 03:37

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 03:37
Container ID: 1195651002-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B2MW**

Client Sample ID: **101882-B2MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651002
Lab Project ID: 1195651

Collection Date: 09/20/19 13:40
Received Date: 09/23/19 16:56
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	J	0.600	0.180	mg/L	1		10/14/19 04:19
Surrogates								
5a Androstane (surr)	74.9		50-150		%	1		10/14/19 04:19

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 04:19
Container ID: 1195651002-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B2MW**

Client Sample ID: **101882-B2MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651002
Lab Project ID: 1195651

Collection Date: 09/20/19 13:40
Received Date: 09/23/19 16:56
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		10/03/19 20:07
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 20:07
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 20:07
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 20:07
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 20:07
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 20:07
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 20:07
Benzene	52.1		0.400	0.120	ug/L	1		10/03/19 20:07
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 20:07
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 20:07
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 20:07
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 20:07

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J flagging is activated

Results of **101882-B2MW**

Client Sample ID: **101882-B2MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651002
Lab Project ID: 1195651

Collection Date: 09/20/19 13:40
Received Date: 09/23/19 16:56
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		10/03/19 20:07
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
cis-1,2-Dichloroethene	1.48		1.00	0.310	ug/L	1		10/03/19 20:07
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 20:07
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 20:07
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 20:07
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 20:07
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 20:07
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 20:07
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Toluene	0.320 J		1.00	0.310	ug/L	1		10/03/19 20:07
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:07
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 20:07
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 20:07
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 20:07
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		10/03/19 20:07
4-Bromofluorobenzene (surr)	101		85-114		%	1		10/03/19 20:07
Toluene-d8 (surr)	98		89-112		%	1		10/03/19 20:07

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J flagging is activated

Results of **101882-B2MW**

Client Sample ID: **101882-B2MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651002
Lab Project ID: 1195651

Collection Date: 09/20/19 13:40
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19524
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 20:07
Container ID: 1195651002-F

Prep Batch: VXX35013
Prep Method: SW5030B
Prep Date/Time: 10/03/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-B3MW**

Client Sample ID: **101882-B3MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651003
Lab Project ID: 1195651

Collection Date: 09/23/19 13:30
Received Date: 09/23/19 16:56
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	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Benzo[a]pyrene	0.127		0.0200	0.00620	ug/L	1		10/11/19 03:58
Benzo[b]Fluoranthene	0.343		0.0500	0.0150	ug/L	1		10/11/19 03:58
Benzo[g,h,i]perylene	0.218		0.0500	0.0150	ug/L	1		10/11/19 03:58
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Chrysene	0.207		0.0500	0.0150	ug/L	1		10/11/19 03:58
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		10/11/19 03:58
Fluoranthene	0.181		0.0500	0.0150	ug/L	1		10/11/19 03:58
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 03:58
Indeno[1,2,3-c,d] pyrene	0.176		0.0500	0.0150	ug/L	1		10/11/19 03:58
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		10/11/19 03:58
Phenanthrene	0.0507		0.0500	0.0150	ug/L	1		10/11/19 03:58
Pyrene	0.131		0.0500	0.0150	ug/L	1		10/11/19 03:58
Surrogates								
2-Methylnaphthalene-d10 (surr)	64.1		47-106		%	1		10/11/19 03:58
Fluoranthene-d10 (surr)	63.6		24-116		%	1		10/11/19 03:58

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 03:58
Container ID: 1195651003-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B3MW**

Client Sample ID: **101882-B3MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651003
Lab Project ID: 1195651

Collection Date: 09/23/19 13:30
Received Date: 09/23/19 16:56
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	0.528	J	0.612	0.184	mg/L	1		10/14/19 04:29
Surrogates								
5a Androstane (surr)	76.4		50-150		%	1		10/14/19 04:29

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 04:29
Container ID: 1195651003-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B3MW**

Client Sample ID: **101882-B3MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651003
Lab Project ID: 1195651

Collection Date: 09/23/19 13:30
Received Date: 09/23/19 16:56
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		10/03/19 07:12
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 07:12
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:12
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 07:12
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:12
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:12
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:12
Benzene	0.120	J	0.400	0.120	ug/L	1		10/03/19 07:12
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 07:12
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:12
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:12
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:12

Results of **101882-B3MW**

Client Sample ID: **101882-B3MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651003
Lab Project ID: 1195651

Collection Date: 09/23/19 13:30
Received Date: 09/23/19 16:56
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		10/03/19 07:12
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:12
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:12
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:12
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 07:12
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:12
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:22
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 20:22
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 07:12
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Toluene	0.320 J		1.00	0.310	ug/L	1		10/03/19 07:12
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:12
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:12
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 07:12
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 07:12
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.4		81-118		%	1		10/03/19 07:12
4-Bromofluorobenzene (surr)	99.8		85-114		%	1		10/03/19 07:12
Toluene-d8 (surr)	99.6		89-112		%	1		10/03/19 07:12

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B3MW**

Client Sample ID: **101882-B3MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651003
Lab Project ID: 1195651

Collection Date: 09/23/19 13:30
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 07:12
Container ID: 1195651003-E

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19524
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 20:22
Container ID: 1195651003-F

Prep Batch: VXX35013
Prep Method: SW5030B
Prep Date/Time: 10/03/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-B5MW**

Client Sample ID: **101882-B5MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651004
Lab Project ID: 1195651

Collection Date: 09/23/19 15:05
Received Date: 09/23/19 16:56
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	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		10/11/19 04:19
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		10/11/19 04:19
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		10/11/19 04:19
Phenanthrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 04:19
Surrogates								
2-Methylnaphthalene-d10 (surr)	60.2		47-106		%	1		10/11/19 04:19
Fluoranthene-d10 (surr)	65.9		24-116		%	1		10/11/19 04:19

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 04:19
Container ID: 1195651004-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B5MW**

Client Sample ID: **101882-B5MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651004
Lab Project ID: 1195651

Collection Date: 09/23/19 15:05
Received Date: 09/23/19 16:56
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	0.390	J	0.612	0.184	mg/L	1		10/14/19 04:39
Surrogates								
5a Androstane (surr)	76.7		50-150		%	1		10/14/19 04:39

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 04:39
Container ID: 1195651004-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B5MW**

Client Sample ID: **101882-B5MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651004
Lab Project ID: 1195651

Collection Date: 09/23/19 15:05
Received Date: 09/23/19 16:56
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		10/03/19 07:27
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 07:27
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:27
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 07:27
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:27
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:27
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:27
Benzene	0.330	J	0.400	0.120	ug/L	1		10/03/19 07:27
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 07:27
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:27
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:27
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:27

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J flagging is activated

Results of **101882-B5MW**

Client Sample ID: **101882-B5MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651004
Lab Project ID: 1195651

Collection Date: 09/23/19 15:05
Received Date: 09/23/19 16:56
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		10/03/19 07:27
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:27
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:27
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:27
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 07:27
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:27
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 07:27
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Toluene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:27
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:27
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 07:27
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 07:27
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.7		81-118		%	1		10/03/19 07:27
4-Bromofluorobenzene (surr)	97.5		85-114		%	1		10/03/19 07:27
Toluene-d8 (surr)	101		89-112		%	1		10/03/19 07:27

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B5MW**

Client Sample ID: **101882-B5MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651004
Lab Project ID: 1195651

Collection Date: 09/23/19 15:05
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 07:27
Container ID: 1195651004-E

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-B6MW**

Client Sample ID: **101882-B6MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651005
Lab Project ID: 1195651

Collection Date: 09/20/19 11:55
Received Date: 09/23/19 16:56
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	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
2-Methylnaphthalene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Acenaphthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Acenaphthylene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Benzo(a)Anthracene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Benzo[a]pyrene	0.00925	U	0.0185	0.00574	ug/L	1		10/11/19 04:39
Benzo[b]Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Benzo[g,h,i]perylene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Benzo[k]fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Chrysene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Dibenzo[a,h]anthracene	0.00925	U	0.0185	0.00574	ug/L	1		10/11/19 04:39
Fluoranthene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Fluorene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Indeno[1,2,3-c,d] pyrene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Naphthalene	0.0463	U	0.0926	0.0287	ug/L	1		10/11/19 04:39
Phenanthrene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Pyrene	0.0232	U	0.0463	0.0139	ug/L	1		10/11/19 04:39
Surrogates								
2-Methylnaphthalene-d10 (surr)	53.2		47-106		%	1		10/11/19 04:39
Fluoranthene-d10 (surr)	56.3		24-116		%	1		10/11/19 04:39

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 04:39
Container ID: 1195651005-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 270 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B6MW**

Client Sample ID: **101882-B6MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651005
Lab Project ID: 1195651

Collection Date: 09/20/19 11:55
Received Date: 09/23/19 16:56
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	0.437	J	0.612	0.184	mg/L	1		10/14/19 04:49
Surrogates								
5a Androstane (surr)	75.6		50-150		%	1		10/14/19 04:49

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 04:49
Container ID: 1195651005-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B6MW**

Client Sample ID: **101882-B6MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651005
Lab Project ID: 1195651

Collection Date: 09/20/19 11:55
Received Date: 09/23/19 16:56
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		10/03/19 07:41
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 07:41
1,1-Dichloroethane	0.320	J	1.00	0.310	ug/L	1		10/03/19 07:41
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:41
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 07:41
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:41
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:41
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:41
Benzene	133		0.400	0.120	ug/L	1		10/03/19 07:41
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 07:41
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:41
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:41
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:41

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B6MW**

Client Sample ID: **101882-B6MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651005
Lab Project ID: 1195651

Collection Date: 09/20/19 11:55
Received Date: 09/23/19 16:56
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		10/03/19 07:41
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
cis-1,2-Dichloroethene	8.63		1.00	0.310	ug/L	1		10/03/19 07:41
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:41
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:41
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:41
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 07:41
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:41
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 07:41
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Toluene	0.420 J		1.00	0.310	ug/L	1		10/03/19 07:41
trans-1,2-Dichloroethene	0.390 J		1.00	0.310	ug/L	1		10/03/19 07:41
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:41
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:41
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 07:41
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 07:41
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.2		81-118		%	1		10/03/19 07:41
4-Bromofluorobenzene (surr)	102		85-114		%	1		10/03/19 07:41
Toluene-d8 (surr)	98.8		89-112		%	1		10/03/19 07:41

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B6MW**

Client Sample ID: **101882-B6MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651005
Lab Project ID: 1195651

Collection Date: 09/20/19 11:55
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 07:41
Container ID: 1195651005-E

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **101882-B16MW**

Client Sample ID: **101882-B16MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651006
Lab Project ID: 1195651

Collection Date: 09/20/19 13:25
Received Date: 09/23/19 16:56
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	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
2-Methylnaphthalene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Acenaphthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Acenaphthylene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Benzo(a)Anthracene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Benzo[a]pyrene	0.0100	U	0.0200	0.00620	ug/L	1		10/11/19 05:00
Benzo[b]Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Benzo[g,h,i]perylene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Benzo[k]fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Chrysene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Dibenzo[a,h]anthracene	0.0100	U	0.0200	0.00620	ug/L	1		10/11/19 05:00
Fluoranthene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Fluorene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Indeno[1,2,3-c,d] pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Naphthalene	0.0500	U	0.100	0.0310	ug/L	1		10/11/19 05:00
Phenanthrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Pyrene	0.0250	U	0.0500	0.0150	ug/L	1		10/11/19 05:00
Surrogates								
2-Methylnaphthalene-d10 (surr)	62		47-106		%	1		10/11/19 05:00
Fluoranthene-d10 (surr)	65.1		24-116		%	1		10/11/19 05:00

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Analyst: DSD
Analytical Date/Time: 10/11/19 05:00
Container ID: 1195651006-C

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 09/26/19 07:08
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B16MW**

Client Sample ID: **101882-B16MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651006
Lab Project ID: 1195651

Collection Date: 09/20/19 13:25
Received Date: 09/23/19 16:56
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	0.459	J	0.625	0.188	mg/L	1		10/14/19 05:18
Surrogates								
5a Androstane (surr)	83.7		50-150		%	1		10/14/19 05:18

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Analyst: CMS
Analytical Date/Time: 10/14/19 05:18
Container ID: 1195651006-A

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/03/19 07:11
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B16MW**

Client Sample ID: **101882-B16MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651006
Lab Project ID: 1195651

Collection Date: 09/20/19 13:25
Received Date: 09/23/19 16:56
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		10/03/19 07:56
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 07:56
1,1-Dichloroethane	0.430	J	1.00	0.310	ug/L	1		10/03/19 07:56
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:56
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 07:56
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:56
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:56
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:56
Benzene	153		0.400	0.120	ug/L	1		10/03/19 07:56
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 07:56
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 07:56
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 07:56
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 07:56

Results of **101882-B16MW**

Client Sample ID: **101882-B16MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651006
Lab Project ID: 1195651

Collection Date: 09/20/19 13:25
Received Date: 09/23/19 16:56
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		10/03/19 07:56
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
cis-1,2-Dichloroethene	10.7		1.00	0.310	ug/L	1		10/03/19 07:56
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:56
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 07:56
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:56
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 07:56
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:56
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
n-Butylbenzene	0.860 J		1.00	0.310	ug/L	1		10/03/19 07:56
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 07:56
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Toluene	0.360 J		1.00	0.310	ug/L	1		10/03/19 07:56
trans-1,2-Dichloroethene	0.460 J		1.00	0.310	ug/L	1		10/03/19 07:56
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 07:56
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 07:56
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 07:56
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 07:56
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.8		81-118		%	1		10/03/19 07:56
4-Bromofluorobenzene (surr)	102		85-114		%	1		10/03/19 07:56
Toluene-d8 (surr)	102		89-112		%	1		10/03/19 07:56

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-B16MW**

Client Sample ID: **101882-B16MW**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651006
Lab Project ID: 1195651

Collection Date: 09/20/19 13:25
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 07:56
Container ID: 1195651006-E

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **101882-WTB2**

Client Sample ID: **101882-WTB2**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651007
Lab Project ID: 1195651

Collection Date: 09/20/19 11:00
Received Date: 09/23/19 16:56
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		10/03/19 02:34
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/03/19 02:34
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/03/19 02:34
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/03/19 02:34
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 02:34
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/03/19 02:34
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/03/19 02:34
Benzene	0.200	U	0.400	0.120	ug/L	1		10/03/19 02:34
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/03/19 02:34
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/03/19 02:34
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/03/19 02:34
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/03/19 02:34

Results of **101882-WTB2**

Client Sample ID: **101882-WTB2**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651007
Lab Project ID: 1195651

Collection Date: 09/20/19 11:00
Received Date: 09/23/19 16:56
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		10/03/19 02:34
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/03/19 02:34
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/03/19 02:34
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/03/19 02:34
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/03/19 02:34
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/03/19 02:34
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/03/19 02:34
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Styrene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Toluene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/03/19 02:34
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/03/19 02:34
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/03/19 02:34
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/03/19 02:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		10/03/19 02:34
4-Bromofluorobenzene (surr)	104		85-114		%	1		10/03/19 02:34
Toluene-d8 (surr)	97.3		89-112		%	1		10/03/19 02:34

Print Date: 10/16/2019 2:24:45PM

J flagging is activated

Results of **101882-WTB2**

Client Sample ID: **101882-WTB2**
Client Project ID: **101882-001 Warning Lites**
Lab Sample ID: 1195651007
Lab Project ID: 1195651

Collection Date: 09/20/19 11:00
Received Date: 09/23/19 16:56
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/03/19 02:34
Container ID: 1195651007-A

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/02/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1800230 [VXX/34986]
Blank Lab ID: 1535557

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	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

Method Blank

Blank ID: MB for HBN 1800230 [VXX/34986]
Blank Lab ID: 1535557

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
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)	106	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	98.6	89-112		%

Method Blank

Blank ID: MB for HBN 1800230 [VXX/34986]
Blank Lab ID: 1535557

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19508
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 9/30/2019 10:48:00AM

Prep Batch: VXX34986
Prep Method: SW5030B
Prep Date/Time: 9/30/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX34986]
Blank Spike Lab ID: 1535558
Date Analyzed: 09/30/2019 11:03

Spike Duplicate ID: LCSD for HBN 1195651 [VXX34986]
Spike Duplicate Lab ID: 1535559
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001

Results by **SW8260C**

	Blank Spike (ug/L)				Spike Duplicate (ug/L)				
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	34.8	116	30	33.1	110	(78-124)	5.20	(< 20)
1,1,1-Trichloroethane	30	33.9	113	30	32.3	108	(74-131)	4.90	(< 20)
1,1,2,2-Tetrachloroethane	30	31.6	105	30	30.8	103	(71-121)	2.50	(< 20)
1,1,2-Trichloroethane	30	32.2	107	30	31.3	104	(80-119)	2.80	(< 20)
1,1-Dichloroethane	30	32.5	108	30	31.3	104	(77-125)	3.80	(< 20)
1,1-Dichloroethene	30	33.1	110	30	31.6	105	(71-131)	4.60	(< 20)
1,1-Dichloropropene	30	33.9	113	30	32.3	108	(79-125)	5.00	(< 20)
1,2,3-Trichlorobenzene	30	32.1	107	30	32.4	108	(69-129)	1.10	(< 20)
1,2,3-Trichloropropane	30	32.0	107	30	31.6	105	(73-122)	1.30	(< 20)
1,2,4-Trichlorobenzene	30	33.0	110	30	33.0	110	(69-130)	0.12	(< 20)
1,2,4-Trimethylbenzene	30	33.5	112	30	32.5	108	(79-124)	3.00	(< 20)
1,2-Dibromo-3-chloropropane	30	32.2	107	30	32.7	109	(62-128)	1.70	(< 20)
1,2-Dibromoethane	30	33.8	113	30	33.0	110	(77-121)	2.20	(< 20)
1,2-Dichlorobenzene	30	31.9	106	30	31.4	105	(80-119)	1.60	(< 20)
1,2-Dichloroethane	30	30.9	103	30	30.1	100	(73-128)	2.70	(< 20)
1,2-Dichloropropane	30	31.9	106	30	32.3	108	(78-122)	1.00	(< 20)
1,3,5-Trimethylbenzene	30	33.5	112	30	32.3	108	(75-124)	3.60	(< 20)
1,3-Dichlorobenzene	30	32.6	109	30	31.8	106	(80-119)	2.60	(< 20)
1,3-Dichloropropane	30	32.5	108	30	32.0	107	(80-119)	1.60	(< 20)
1,4-Dichlorobenzene	30	32.2	107	30	32.0	107	(79-118)	0.65	(< 20)
2,2-Dichloropropane	30	33.1	110	30	32.0	107	(60-139)	3.40	(< 20)
2-Butanone (MEK)	90	95.2	106	90	99.0	110	(56-143)	3.90	(< 20)
2-Chlorotoluene	30	32.6	109	30	31.4	105	(79-122)	3.50	(< 20)
2-Hexanone	90	91.8	102	90	92.8	103	(57-139)	1.00	(< 20)
4-Chlorotoluene	30	33.1	110	30	31.2	104	(78-122)	5.90	(< 20)
4-Isopropyltoluene	30	34.4	115	30	32.8	109	(77-127)	4.80	(< 20)
4-Methyl-2-pentanone (MIBK)	90	100	111	90	98.8	110	(67-130)	1.30	(< 20)
Benzene	30	32.7	109	30	31.3	104	(79-120)	4.30	(< 20)
Bromobenzene	30	32.3	108	30	31.4	105	(80-120)	3.00	(< 20)
Bromochloromethane	30	31.5	105	30	30.8	103	(78-123)	2.00	(< 20)
Bromodichloromethane	30	34.3	114	30	33.2	111	(79-125)	3.30	(< 20)
Bromoform	30	34.6	115	30	33.6	112	(66-130)	2.90	(< 20)
Bromomethane	30	44.5	148	* 30	38.2	127	(53-141)	15.20	(< 20)
Carbon disulfide	45	47.5	105	45	45.2	100	(64-133)	5.00	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX34986]
Blank Spike Lab ID: 1535558
Date Analyzed: 09/30/2019 11:03

Spike Duplicate ID: LCSD for HBN 1195651 [VXX34986]
Spike Duplicate Lab ID: 1535559
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	34.6	115	30	32.7	109	(72-136)	5.60	(< 20)
Chlorobenzene	30	31.7	106	30	30.7	102	(82-118)	3.10	(< 20)
Chloroethane	30	37.1	124	30	30.4	101	(60-138)	19.90	(< 20)
Chloroform	30	32.6	109	30	31.3	104	(79-124)	3.90	(< 20)
Chloromethane	30	32.0	107	30	30.8	103	(50-139)	3.70	(< 20)
cis-1,2-Dichloroethene	30	31.9	106	30	31.4	105	(78-123)	1.70	(< 20)
cis-1,3-Dichloropropene	30	33.9	113	30	33.0	110	(75-124)	2.70	(< 20)
Dibromochloromethane	30	33.8	113	30	33.0	110	(74-126)	2.30	(< 20)
Dibromomethane	30	31.8	106	30	31.1	104	(79-123)	2.20	(< 20)
Ethylbenzene	30	33.1	110	30	32.0	107	(79-121)	3.30	(< 20)
Freon-113	45	49.2	109	45	47.0	104	(70-136)	4.70	(< 20)
Hexachlorobutadiene	30	35.0	117	30	34.5	115	(66-134)	1.50	(< 20)
Isopropylbenzene (Cumene)	30	32.9	110	30	31.5	105	(72-131)	4.30	(< 20)
Methylene chloride	30	31.3	104	30	30.9	103	(74-124)	1.40	(< 20)
Methyl-t-butyl ether	45	48.2	107	45	47.9	106	(71-124)	0.67	(< 20)
Naphthalene	30	27.9	93	30	29.8	99	(61-128)	6.50	(< 20)
n-Butylbenzene	30	31.8	106	30	30.8	103	(75-128)	3.30	(< 20)
n-Propylbenzene	30	33.3	111	30	31.8	106	(76-126)	4.70	(< 20)
o-Xylene	30	32.3	108	30	31.0	103	(78-122)	4.10	(< 20)
P & M -Xylene	60	66.1	110	60	63.9	106	(80-121)	3.40	(< 20)
sec-Butylbenzene	30	33.3	111	30	32.6	109	(77-126)	2.20	(< 20)
Styrene	30	32.9	110	30	32.2	107	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	33.7	112	30	31.9	106	(78-124)	5.40	(< 20)
Tetrachloroethene	30	33.6	112	30	32.0	107	(74-129)	4.80	(< 20)
Toluene	30	32.2	107	30	30.7	102	(80-121)	4.70	(< 20)
trans-1,2-Dichloroethene	30	32.4	108	30	31.0	103	(75-124)	4.20	(< 20)
trans-1,3-Dichloropropene	30	30.9	103	30	30.5	102	(73-127)	1.50	(< 20)
Trichloroethene	30	33.5	112	30	31.9	106	(79-123)	4.70	(< 20)
Trichlorofluoromethane	30	35.2	117	30	30.8	103	(65-141)	13.30	(< 20)
Vinyl acetate	30	31.7	106	30	31.1	104	(54-146)	1.90	(< 20)
Vinyl chloride	30	32.4	108	30	30.1	100	(58-137)	7.30	(< 20)
Xylenes (total)	90	98.4	109	90	94.9	105	(79-121)	3.60	(< 20)

Surrogates

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX34986]
Blank Spike Lab ID: 1535558
Date Analyzed: 09/30/2019 11:03

Spike Duplicate ID: LCSD for HBN 1195651 [VXX34986]
Spike Duplicate Lab ID: 1535559
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane-D4 (surr)	30	99.1	99	30	98.4	98	(81-118)	0.64	
4-Bromofluorobenzene (surr)	30	99.2	99	30	98.7	99	(85-114)	0.57	
Toluene-d8 (surr)	30	101	101	30	102	102	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS19508**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX34986**
Prep Method: **SW5030B**
Prep Date/Time: **09/30/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1800431 [VXX/35011]
Blank Lab ID: 1536415

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	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

Method Blank

Blank ID: MB for HBN 1800431 [VXX/35011]
Blank Lab ID: 1536415

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
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)	113	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	97.5	89-112		%

Method Blank

Blank ID: MB for HBN 1800431 [VXX/35011]
Blank Lab ID: 1536415

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19523
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/3/2019 12:04:00AM

Prep Batch: VXX35011
Prep Method: SW5030B
Prep Date/Time: 10/2/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35011]
Blank Spike Lab ID: 1536416
Date Analyzed: 10/03/2019 00:34

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35011]
Spike Duplicate Lab ID: 1536417
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	35.2	117	30	35.2	117	(78-124)	0.11	(< 20)
1,1,1-Trichloroethane	30	36.4	121	30	35.7	119	(74-131)	1.70	(< 20)
1,1,2,2-Tetrachloroethane	30	31.9	106	30	31.6	105	(71-121)	1.10	(< 20)
1,1,2-Trichloroethane	30	32.6	109	30	32.5	108	(80-119)	0.34	(< 20)
1,1-Dichloroethane	30	34.5	115	30	33.8	113	(77-125)	2.00	(< 20)
1,1-Dichloroethene	30	35.2	117	30	34.9	116	(71-131)	0.86	(< 20)
1,1-Dichloropropene	30	35.9	120	30	35.3	118	(79-125)	1.70	(< 20)
1,2,3-Trichlorobenzene	30	33.4	111	30	35.5	118	(69-129)	6.10	(< 20)
1,2,3-Trichloropropane	30	32.4	108	30	32.2	107	(73-122)	0.68	(< 20)
1,2,4-Trichlorobenzene	30	34.9	116	30	36.6	122	(69-130)	4.60	(< 20)
1,2,4-Trimethylbenzene	30	35.3	118	30	35.0	117	(79-124)	0.91	(< 20)
1,2-Dibromo-3-chloropropane	30	32.6	109	30	31.8	106	(62-128)	2.40	(< 20)
1,2-Dibromoethane	30	33.5	112	30	34.0	113	(77-121)	1.50	(< 20)
1,2-Dichlorobenzene	30	33.6	112	30	33.3	111	(80-119)	0.84	(< 20)
1,2-Dichloroethane	30	33.8	113	30	33.1	110	(73-128)	2.10	(< 20)
1,2-Dichloropropane	30	33.7	112	30	34.1	114	(78-122)	1.30	(< 20)
1,3,5-Trimethylbenzene	30	34.9	116	30	34.4	115	(75-124)	1.40	(< 20)
1,3-Dichlorobenzene	30	35.1	117	30	34.1	114	(80-119)	2.80	(< 20)
1,3-Dichloropropane	30	33.1	110	30	32.9	110	(80-119)	0.76	(< 20)
1,4-Dichlorobenzene	30	34.2	114	30	34.2	114	(79-118)	0.20	(< 20)
2,2-Dichloropropane	30	35.5	118	30	34.8	116	(60-139)	2.10	(< 20)
2-Butanone (MEK)	90	97.2	108	90	91.5	102	(56-143)	6.10	(< 20)
2-Chlorotoluene	30	34.6	115	30	34.1	114	(79-122)	1.50	(< 20)
2-Hexanone	90	91.9	102	90	89.6	100	(57-139)	2.50	(< 20)
4-Chlorotoluene	30	34.7	116	30	34.0	113	(78-122)	2.00	(< 20)
4-Isopropyltoluene	30	35.8	119	30	35.0	117	(77-127)	2.20	(< 20)
4-Methyl-2-pentanone (MIBK)	90	100	111	90	98.4	109	(67-130)	1.90	(< 20)
Benzene	30	34.5	115	30	34.0	113	(79-120)	1.50	(< 20)
Bromobenzene	30	34.4	115	30	33.4	111	(80-120)	2.80	(< 20)
Bromochloromethane	30	33.6	112	30	33.2	111	(78-123)	1.20	(< 20)
Bromodichloromethane	30	37.0	123	30	36.0	120	(79-125)	2.90	(< 20)
Bromoform	30	34.4	115	30	34.1	114	(66-130)	0.88	(< 20)
Bromomethane	30	37.3	124	30	33.9	113	(53-141)	9.60	(< 20)
Carbon disulfide	45	50.1	111	45	49.7	110	(64-133)	0.92	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35011]
Blank Spike Lab ID: 1536416
Date Analyzed: 10/03/2019 00:34

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35011]
Spike Duplicate Lab ID: 1536417
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	37.4	125	30	36.5	122	(72-136)	2.20	(< 20)
Chlorobenzene	30	33.2	111	30	32.5	108	(82-118)	2.10	(< 20)
Chloroethane	30	37.9	126	30	33.7	112	(60-138)	11.70	(< 20)
Chloroform	30	35.4	118	30	34.5	115	(79-124)	2.80	(< 20)
Chloromethane	30	27.7	92	30	27.1	90	(50-139)	2.20	(< 20)
cis-1,2-Dichloroethene	30	34.6	115	30	35.0	117	(78-123)	1.10	(< 20)
cis-1,3-Dichloropropene	30	35.4	118	30	34.7	116	(75-124)	1.80	(< 20)
Dibromochloromethane	30	34.6	115	30	34.2	114	(74-126)	1.30	(< 20)
Dibromomethane	30	33.7	112	30	33.9	113	(79-123)	0.59	(< 20)
Dichlorodifluoromethane	30	26.6	89	30	25.8	86	(32-152)	3.30	(< 20)
Ethylbenzene	30	34.2	114	30	34.1	114	(79-121)	0.21	(< 20)
Freon-113	45	53.2	118	45	52.6	117	(70-136)	1.20	(< 20)
Hexachlorobutadiene	30	35.8	119	30	35.9	120	(66-134)	0.42	(< 20)
Isopropylbenzene (Cumene)	30	34.3	114	30	34.4	115	(72-131)	0.20	(< 20)
Methylene chloride	30	33.9	113	30	33.7	112	(74-124)	0.65	(< 20)
Methyl-t-butyl ether	45	50.9	113	45	50.1	111	(71-124)	1.40	(< 20)
Naphthalene	30	29.7	99	30	32.8	109	(61-128)	10.10	(< 20)
n-Butylbenzene	30	33.4	111	30	33.1	110	(75-128)	0.90	(< 20)
n-Propylbenzene	30	35.0	117	30	34.8	116	(76-126)	0.69	(< 20)
o-Xylene	30	33.8	113	30	33.9	113	(78-122)	0.44	(< 20)
P & M -Xylene	60	68.2	114	60	68.1	114	(80-121)	0.19	(< 20)
sec-Butylbenzene	30	34.7	116	30	34.7	116	(77-126)	0.17	(< 20)
Styrene	30	34.4	115	30	34.0	113	(78-123)	1.20	(< 20)
tert-Butylbenzene	30	34.2	114	30	33.9	113	(78-124)	0.94	(< 20)
Tetrachloroethene	30	35.0	117	30	34.9	116	(74-129)	0.43	(< 20)
Toluene	30	32.9	110	30	32.9	110	(80-121)	0.18	(< 20)
trans-1,2-Dichloroethene	30	34.6	115	30	33.9	113	(75-124)	2.10	(< 20)
trans-1,3-Dichloropropene	30	31.2	104	30	30.8	103	(73-127)	1.20	(< 20)
Trichloroethene	30	35.7	119	30	35.0	117	(79-123)	1.90	(< 20)
Trichlorofluoromethane	30	38.3	128	30	35.5	118	(65-141)	7.70	(< 20)
Vinyl acetate	30	32.0	107	30	31.6	105	(54-146)	1.40	(< 20)
Vinyl chloride	30	31.2	104	30	30.5	102	(58-137)	2.10	(< 20)
Xylenes (total)	90	102	113	90	102	113	(79-121)	0.02	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35011]
Blank Spike Lab ID: 1536416
Date Analyzed: 10/03/2019 00:34

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35011]
Spike Duplicate Lab ID: 1536417
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651003, 1195651004, 1195651005, 1195651006, 1195651007

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	104	104	30	103	103	(81-118)	1.30	
4-Bromofluorobenzene (surr)	30	99.4	99	30	98.3	98	(85-114)	1.20	
Toluene-d8 (surr)	30	99.2	99	30	99.6	100	(89-112)	0.44	

Batch Information

Analytical Batch: **VMS19523**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35011**
Prep Method: **SW5030B**
Prep Date/Time: **10/02/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1800436 [VXX/35013]
Blank Lab ID: 1536435

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651002, 1195651003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	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
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	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

Method Blank

Blank ID: MB for HBN 1800436 [VXX/35013]
Blank Lab ID: 1536435

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651002, 1195651003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
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)	103	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.1	89-112		%

Method Blank

Blank ID: MB for HBN 1800436 [VXX/35013]
Blank Lab ID: 1536435

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651002, 1195651003

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19524
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/3/2019 3:22:00PM

Prep Batch: VXX35013
Prep Method: SW5030B
Prep Date/Time: 10/3/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35013]
Blank Spike Lab ID: 1536436
Date Analyzed: 10/03/2019 15:36

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35013]
Spike Duplicate Lab ID: 1536437
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651002, 1195651003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.2	104	30	30.4	101	(78-124)	2.50	(< 20)
1,1,1-Trichloroethane	30	30.1	100	30	30.1	100	(74-131)	0.03	(< 20)
1,1,2,2-Tetrachloroethane	30	28.8	96	30	28.6	95	(71-121)	0.49	(< 20)
1,1,2-Trichloroethane	30	29.8	99	30	29.1	97	(80-119)	2.40	(< 20)
1,1-Dichloroethane	30	29.5	98	30	29.5	98	(77-125)	0.00	(< 20)
1,1-Dichloroethene	30	30.2	101	30	30.4	101	(71-131)	0.59	(< 20)
1,1-Dichloropropene	30	30.9	103	30	30.9	103	(79-125)	0.07	(< 20)
1,2,3-Trichlorobenzene	30	29.5	98	30	31.0	103	(69-129)	4.90	(< 20)
1,2,3-Trichloropropane	30	28.1	94	30	28.2	94	(73-122)	0.18	(< 20)
1,2,4-Trichlorobenzene	30	31.5	105	30	31.7	106	(69-130)	0.79	(< 20)
1,2,4-Trimethylbenzene	30	30.7	102	30	30.9	103	(79-124)	0.71	(< 20)
1,2-Dibromo-3-chloropropane	30	27.8	93	30	28.2	94	(62-128)	1.70	(< 20)
1,2-Dibromoethane	30	30.8	103	30	30.0	100	(77-121)	2.50	(< 20)
1,2-Dichlorobenzene	30	29.7	99	30	29.9	100	(80-119)	0.84	(< 20)
1,2-Dichloroethane	30	28.0	93	30	27.8	93	(73-128)	0.61	(< 20)
1,2-Dichloropropane	30	30.1	100	30	29.6	99	(78-122)	1.60	(< 20)
1,3,5-Trimethylbenzene	30	30.5	102	30	30.7	102	(75-124)	0.52	(< 20)
1,3-Dichlorobenzene	30	30.8	103	30	30.9	103	(80-119)	0.19	(< 20)
1,3-Dichloropropane	30	30.0	100	30	29.7	99	(80-119)	1.10	(< 20)
1,4-Dichlorobenzene	30	30.5	102	30	30.5	102	(79-118)	0.00	(< 20)
2,2-Dichloropropane	30	29.8	100	30	29.5	98	(60-139)	1.20	(< 20)
2-Butanone (MEK)	90	82.3	92	90	80.7	90	(56-143)	2.00	(< 20)
2-Chlorotoluene	30	29.9	100	30	30.5	102	(79-122)	2.30	(< 20)
2-Hexanone	90	81.9	91	90	81.1	90	(57-139)	1.10	(< 20)
4-Chlorotoluene	30	30.1	100	30	30.4	101	(78-122)	0.96	(< 20)
4-Isopropyltoluene	30	31.1	104	30	31.6	105	(77-127)	1.60	(< 20)
4-Methyl-2-pentanone (MIBK)	90	88.1	98	90	86.6	96	(67-130)	1.80	(< 20)
Benzene	30	29.9	100	30	29.9	100	(79-120)	0.00	(< 20)
Bromobenzene	30	29.8	99	30	30.2	101	(80-120)	1.40	(< 20)
Bromochloromethane	30	29.3	98	30	28.8	96	(78-123)	1.60	(< 20)
Bromodichloromethane	30	30.7	102	30	30.6	102	(79-125)	0.33	(< 20)
Bromoform	30	30.9	103	30	30.1	100	(66-130)	2.50	(< 20)
Bromomethane	30	33.8	113	30	29.0	97	(53-141)	15.40	(< 20)
Carbon disulfide	45	43.1	96	45	43.2	96	(64-133)	0.23	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35013]
Blank Spike Lab ID: 1536436
Date Analyzed: 10/03/2019 15:36

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35013]
Spike Duplicate Lab ID: 1536437
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651002, 1195651003

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.7	102	30	30.5	102	(72-136)	0.43	(< 20)
Chlorobenzene	30	29.4	98	30	29.6	99	(82-118)	0.51	(< 20)
Chloroethane	30	33.2	111	30	28.4	95	(60-138)	15.50	(< 20)
Chloroform	30	29.4	98	30	29.4	98	(79-124)	0.03	(< 20)
Chloromethane	30	25.7	86	30	27.7	92	(50-139)	7.60	(< 20)
cis-1,2-Dichloroethene	30	29.1	97	30	29.4	98	(78-123)	0.99	(< 20)
cis-1,3-Dichloropropene	30	30.8	103	30	30.7	102	(75-124)	0.52	(< 20)
Dibromochloromethane	30	31.0	103	30	30.5	102	(74-126)	1.60	(< 20)
Dibromomethane	30	29.2	97	30	28.7	96	(79-123)	1.70	(< 20)
Dichlorodifluoromethane	30	29.8	99	30	29.6	99	(32-152)	0.78	(< 20)
Ethylbenzene	30	30.3	101	30	30.6	102	(79-121)	0.98	(< 20)
Freon-113	45	45.2	101	45	45.7	101	(70-136)	0.95	(< 20)
Hexachlorobutadiene	30	31.7	106	30	32.4	108	(66-134)	2.00	(< 20)
Isopropylbenzene (Cumene)	30	30.3	101	30	30.0	100	(72-131)	1.30	(< 20)
Methylene chloride	30	29.7	99	30	30.2	101	(74-124)	1.80	(< 20)
Methyl-t-butyl ether	45	43.7	97	45	43.2	96	(71-124)	1.10	(< 20)
Naphthalene	30	28.0	93	30	29.6	99	(61-128)	5.50	(< 20)
n-Butylbenzene	30	30.3	101	30	30.3	101	(75-128)	0.03	(< 20)
n-Propylbenzene	30	30.9	103	30	31.4	105	(76-126)	1.60	(< 20)
o-Xylene	30	29.8	99	30	30.0	100	(78-122)	0.80	(< 20)
P & M -Xylene	60	60.3	101	60	60.2	100	(80-121)	0.25	(< 20)
sec-Butylbenzene	30	30.8	103	30	31.5	105	(77-126)	2.40	(< 20)
Styrene	30	30.2	101	30	30.2	101	(78-123)	0.03	(< 20)
tert-Butylbenzene	30	30.0	100	30	30.5	102	(78-124)	1.90	(< 20)
Tetrachloroethene	30	31.1	104	30	30.9	103	(74-129)	0.68	(< 20)
Toluene	30	29.5	98	30	29.4	98	(80-121)	0.51	(< 20)
trans-1,2-Dichloroethene	30	29.6	99	30	29.8	100	(75-124)	0.67	(< 20)
trans-1,3-Dichloropropene	30	28.0	93	30	27.4	91	(73-127)	2.20	(< 20)
Trichloroethene	30	30.2	101	30	30.3	101	(79-123)	0.26	(< 20)
Trichlorofluoromethane	30	31.6	105	30	27.7	92	(65-141)	13.20	(< 20)
Vinyl acetate	30	28.6	95	30	28.3	94	(54-146)	1.20	(< 20)
Vinyl chloride	30	29.2	97	30	29.0	97	(58-137)	0.65	(< 20)
Xylenes (total)	90	90.1	100	90	90.2	100	(79-121)	0.10	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35013]
Blank Spike Lab ID: 1536436
Date Analyzed: 10/03/2019 15:36

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35013]
Spike Duplicate Lab ID: 1536437
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651002, 1195651003

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	96.4	96	30	96.1	96	(81-118)	0.31	
4-Bromofluorobenzene (surr)	30	99.5	100	30	101	101	(85-114)	1.60	
Toluene-d8 (surr)	30	102	102	30	101	101	(89-112)	1.10	

Batch Information

Analytical Batch: **VMS19524**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35013**
Prep Method: **SW5030B**
Prep Date/Time: **10/03/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1800527 [VXX/35028]
Blank Lab ID: 1536954

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	111	81-118		%
4-Bromofluorobenzene (surr)	103	85-114		%
Toluene-d8 (surr)	97.5	89-112		%

Batch Information

Analytical Batch: VMS19534
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/7/2019 10:20:00AM

Prep Batch: VXX35028
Prep Method: SW5030B
Prep Date/Time: 10/7/2019 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [VXX35028]
Blank Spike Lab ID: 1536955
Date Analyzed: 10/07/2019 10:49

Spike Duplicate ID: LCSD for HBN 1195651 [VXX35028]
Spike Duplicate Lab ID: 1536956
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Dichlorodifluoromethane	30	25.7	86	30	25.6	86	(32-152)	0.31	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	102	102	30	102	102	(81-118)	0.23	
4-Bromofluorobenzene (surr)	30	100	100	30	99.9	100	(85-114)	0.37	
Toluene-d8 (surr)	30	99.7	100	30	99.6	100	(89-112)	0.13	

Batch Information

Analytical Batch: **VMS19534**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35028**
Prep Method: **SW5030B**
Prep Date/Time: **10/07/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1799992 [XXX/42342]
Blank Lab ID: 1534385

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001, 1195651002, 1195651003, 1195651004, 1195651005, 1195651006

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

Parameter	Results	LOQ/CL	DL	Units
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
Dibenzo[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)	60.2	47-106		%
Fluoranthene-d10 (surr)	67.3	24-116		%

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 10/10/2019 10:50:00PM

Prep Batch: XXX42342
Prep Method: SW3520C
Prep Date/Time: 9/26/2019 7:08:05AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [XXX42342]
Blank Spike Lab ID: 1534386
Date Analyzed: 10/10/2019 23:10

Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001, 1195651002, 1195651003, 1195651004, 1195651005, 1195651006

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

Blank Spike (ug/L)

Parameter	Spike	Result	Rec (%)	CL
1-Methylnaphthalene	2	1.18	59	(41-115)
2-Methylnaphthalene	2	1.16	58	(39-114)
Acenaphthene	2	1.25	63	(48-114)
Acenaphthylene	2	1.35	68	(35-121)
Anthracene	2	1.51	75	(53-119)
Benzo(a)Anthracene	2	1.43	72	(59-120)
Benzo[a]pyrene	2	1.36	68	(53-120)
Benzo[b]Fluoranthene	2	1.44	72	(53-126)
Benzo[g,h,i]perylene	2	1.26	63	(44-128)
Benzo[k]fluoranthene	2	1.47	73	(54-125)
Chrysene	2	1.49	75	(57-120)
Dibenzo[a,h]anthracene	2	1.17	59	(44-131)
Fluoranthene	2	1.45	72	(58-120)
Fluorene	2	1.42	71	(50-118)
Indeno[1,2,3-c,d] pyrene	2	1.39	69	(48-130)
Naphthalene	2	1.12	56	(43-114)
Phenanthrene	2	1.46	73	(53-115)
Pyrene	2	1.49	74	(53-121)
Surrogates				
2-Methylnaphthalene-d10 (surr)	2	61.4	61	(47-106)
Fluoranthene-d10 (surr)	2	71.8	72	(24-116)

Batch Information

Analytical Batch: **XMS11796**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **DSD**

Prep Batch: **XXX42342**
Prep Method: **SW3520C**
Prep Date/Time: **09/26/2019 07:08**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/16/2019 2:25:01PM

Matrix Spike Summary

Original Sample ID: 1195661003
MS Sample ID: 1534387 MS
MSD Sample ID: 1534388 MSD

Analysis Date: 10/11/2019 0:12
Analysis Date: 10/11/2019 0:33
Analysis Date: 10/11/2019 0:53
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001, 1195651002, 1195651003, 1195651004, 1195651005, 1195651006

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

		Matrix Spike (ug/L)				Spike Duplicate (ug/L)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
1-Methylnaphthalene	0.0236U	1.85	1.11	60		1.92	1.25	65		41-115	11.80	(< 20)
2-Methylnaphthalene	0.0236U	1.85	1.03	56		1.92	1.12	58		39-114	7.70	(< 20)
Acenaphthene	0.0236U	1.85	1.44	78		1.92	1.61	84		48-114	11.20	(< 20)
Acenaphthylene	0.0236U	1.85	1.19	64		1.92	1.29	67		35-121	8.10	(< 20)
Anthracene	0.0236U	1.85	1.13	61		1.92	1.23	64		53-119	7.80	(< 20)
Benzo(a)Anthracene	0.0236U	1.85	1.04	56	*	1.92	1.11	58	*	59-120	6.70	(< 20)
Benzo[a]pyrene	0.00945U	1.85	.723	39	*	1.92	0.773	40	*	53-120	6.70	(< 20)
Benzo[b]Fluoranthene	0.0236U	1.85	.803	43	*	1.92	0.847	44	*	53-126	5.30	(< 20)
Benzo[g,h,i]perylene	0.0236U	1.85	.482	26	*	1.92	0.522	27	*	44-128	8.10	(< 20)
Benzo[k]fluoranthene	0.0236U	1.85	.746	40	*	1.92	0.799	42	*	54-125	6.90	(< 20)
Chrysene	0.0236U	1.85	1.08	58		1.92	1.16	60		57-120	7.40	(< 20)
Dibenzo[a,h]anthracene	0.00945U	1.85	.443	24	*	1.92	0.476	25	*	44-131	7.20	(< 20)
Fluoranthene	0.0236U	1.85	1.24	67		1.92	1.27	66		58-120	2.60	(< 20)
Fluorene	0.628	1.85	1.69	57		1.92	1.86	64		50-118	9.80	(< 20)
Indeno[1,2,3-c,d] pyrene	0.0236U	1.85	.51	28	*	1.92	0.537	28	*	48-130	5.20	(< 20)
Naphthalene	0.0471U	1.85	1.36	73		1.92	1.50	78		43-114	9.80	(< 20)
Phenanthrene	0.0236U	1.85	1.2	65		1.92	1.28	67		53-115	7.10	(< 20)
Pyrene	0.0236U	1.85	1.28	69		1.92	1.38	72		53-121	7.30	(< 20)
Surrogates												
2-Methylnaphthalene-d10 (surr)		1.85	.945	51		1.92	1.02	53		47-106	7.60	
Fluoranthene-d10 (surr)		1.85	1.24	67		1.92	1.27	66		24-116	2.60	

Batch Information

Analytical Batch: XMS11796
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: DSD
Analytical Date/Time: 10/11/2019 12:33:00AM

Prep Batch: XXX42342
Prep Method: 3520 Liq/Liq Ext for 8270 PAH SIM LV
Prep Date/Time: 9/26/2019 7:08:05AM
Prep Initial Wt./Vol.: 270.00mL
Prep Extract Vol: 1.00mL

Print Date: 10/16/2019 2:25:02PM

Method Blank

Blank ID: MB for HBN 1800329 [XXX/42388]
Blank Lab ID: 1535937

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1195651001, 1195651002, 1195651003, 1195651004, 1195651005, 1195651006

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.180	mg/L
Surrogates				
5a Androstane (surr)	91.5	60-120		%

Batch Information

Analytical Batch: XFC15398
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: CMS
Analytical Date/Time: 10/13/2019 10:06:00PM

Prep Batch: XXX42388
Prep Method: SW3520C
Prep Date/Time: 10/3/2019 7:11:53AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1195651 [XXX42388]
Blank Spike Lab ID: 1535938
Date Analyzed: 10/13/2019 22:46

Spike Duplicate ID: LCSD for HBN 1195651 [XXX42388]
Spike Duplicate Lab ID: 1535939
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1195651001, 1195651002, 1195651003, 1195651004, 1195651005, 1195651006

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	19.5	98	20	19.4	97	(75-125)	0.52	(< 20)
Surrogates									
5a Androstane (surr)	0.4	94.8	95	0.4	96.3	96	(60-120)	1.50	

Batch Information

Analytical Batch: **XFC15398**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **CMS**

Prep Batch: **XXX42388**
Prep Method: **SW3520C**
Prep Date/Time: **10/03/2019 07:11**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

SGS North America Inc.
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1195651

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CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jillian Johnson

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

Sample Identity	Lab No.	Time	Date Sampled	Comp.	Grab	VOCs 8260 (HCL Pres)	D20 AK 102 (HCL Pres)	PAH 8270 SIM				Total Number of Containers	Remarks/Matrix
101882-B1MW	(1) AG	11:36	9/23/19		X	X	X	X				7	Groundwater
-B2MW	(2) AG	13:40	9/20/19		X	X	X	X				7	
-B3MW	(3) AG	13:30	9/23/19		X	X	X	X				7	
-B5MW	(4) AG	15:05	9/23/19		X	X	X	X				7	
-B6MW	(5) AG	11:55	9/20/19		X	X	X	X				7	
-B16MW	(6) AG	13:25	9/20/19		X	X	X	X				7	
-WTB2	(7) AC	11:00	9/20/19									1	Trip Blank

Project Information		Sample Receipt	
Project Number:	101882-001	Total Number of Containers	
Project Name:	Warning Lites	COC Seals/Intact? Y/N/NA	
Contact:	Jessa Tibbetts	Received Good Cond./Cold	
Ongoing Project?	Yes ☒ No ☐	Delivery Method:	
Sampler:	SAH	(attach shipping bill, if any)	

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 16:56	Signature: Time:	Signature: Time:
Printed Name: Schyler Healy Date: 9/23/19	Printed Name: Date:	Printed Name: Date:
Company: S&W	Company:	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time:	Signature: Time:	Signature: Time: 16:56
Printed Name: Date:	Printed Name: Date:	Printed Name: Michelle Albarran Date: 9-23-19 HD
Company:	Company:	Company: SGS 3.3 D99

Instructions	
Requested Turnaround Time:	
Special Instructions:	Profile: 3348666 JKJ

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

F-19-91/UR

No. 65 of 64 34992

e-Sample Receipt Form

SGS Workorder #: **1195651**

1 1 9 5 6 5 1

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements	Yes	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	Absent
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
	N/A	**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 3.3 °C Therm. ID: D44
		Cooler ID: @ °C Therm. ID:
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*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	
	N/A	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	Container 6G has a bubble
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):

Container 5B had a broken lid, lid replaced, sample integrity intact

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1195651001-A	HCL to pH < 2	OK			
1195651001-B	HCL to pH < 2	OK			
1195651001-C	No Preservative Required	OK			
1195651001-D	No Preservative Required	OK			
1195651001-E	HCL to pH < 2	OK			
1195651001-F	HCL to pH < 2	OK			
1195651001-G	HCL to pH < 2	OK			
1195651002-A	HCL to pH < 2	OK			
1195651002-B	HCL to pH < 2	OK			
1195651002-C	No Preservative Required	OK			
1195651002-D	No Preservative Required	OK			
1195651002-E	HCL to pH < 2	OK			
1195651002-F	HCL to pH < 2	OK			
1195651002-G	HCL to pH < 2	OK			
1195651003-A	HCL to pH < 2	OK			
1195651003-B	HCL to pH < 2	OK			
1195651003-C	No Preservative Required	OK			
1195651003-D	No Preservative Required	OK			
1195651003-E	HCL to pH < 2	OK			
1195651003-F	HCL to pH < 2	OK			
1195651003-G	HCL to pH < 2	OK			
1195651004-A	HCL to pH < 2	OK			
1195651004-B	HCL to pH < 2	OK			
1195651004-C	No Preservative Required	OK			
1195651004-D	No Preservative Required	OK			
1195651004-E	HCL to pH < 2	OK			
1195651004-F	HCL to pH < 2	OK			
1195651004-G	HCL to pH < 2	OK			
1195651005-A	HCL to pH < 2	OK			
1195651005-B	HCL to pH < 2	OK			
1195651005-C	No Preservative Required	OK			
1195651005-D	No Preservative Required	OK			
1195651005-E	HCL to pH < 2	OK			
1195651005-F	HCL to pH < 2	OK			
1195651005-G	HCL to pH < 2	OK			
1195651006-A	HCL to pH < 2	OK			
1195651006-B	HCL to pH < 2	OK			
1195651006-C	No Preservative Required	OK			
1195651006-D	No Preservative Required	OK			
1195651006-E	HCL to pH < 2	OK			
1195651006-F	HCL to pH < 2	OK			
1195651006-G	HCL to pH < 2	BU			
1195651007-A	HCL to pH < 2	OK			
1195651007-B	HCL to pH < 2	OK			
1195651007-C	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container 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.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

LABORATORY DATA REVIEW CHECKLIST

Completed by: Jessa Tibbetts
Title: Environmental Scientist
Date: February 2021

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America Inc.
Laboratory Report Number: 1195651
Laboratory Report Date: October 16, 2019

Contaminated Site Name: Warning Lites of Alaska Gas/Diesel UST #2
ADEC File Number: 2100.26.580
Hazard Identification Number: 26177

(**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**
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
Comments:

b. Correct analyses requested? **Yes / No / NA**
Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes / No / NA
Comments: *The cooler temperature blank was 3.3° Celsius.*

b. Sample preservation acceptable - acidified waters, Methanol preserved VOC soil (GRO, BTEX, VOCs, etc.)? **Yes / No / NA**
Comments:

c. Sample condition documented - broken, leaking (MeOH), zero headspace (VOC vials)? **Yes / No / NA**
Comments: *The laboratory noted the following:*
- *A bubble was observed in sampling container "6G" of Sample B16MW.*
- *Sampling container "5B" of Sample B6MW had a broken lid. The laboratory replaced the lid, and sample integrity remained intact.*

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.? **Yes / No / NA**
Comments: *No discrepancies were noted.*

e. Data quality or usability affected?
Comments: *Although container "5B" of Sample B6MW had a broken lid, the laboratory confirmed that the sample integrity was unaffected.*
The laboratory used a sample container of Sample B16MW other than "6B" for VOC analysis; therefore, the data quality is considered unaffected.

4. Case Narrative

a. Present and understandable? **Yes / No / NA**
Comments:

b. Discrepancies, errors or QC failures noted by the lab? **Yes / No / NA**
Comments: *The laboratory noted the following:*
- *LCS: (8260C) LCS recovery for bromomethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.*

MS/MSD: (8270D SIM) PAH MS/MSD recovery for several analytes do not meet QC criteria. Refer to the LCS for accuracy requirements.

c. Were all corrective actions documented? **Yes / No / NA**
Comments: *See above.*

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**
Comments:

b. All applicable holding times met? **Yes / No / NA**
Comments:

c. All soils reported on a dry weight basis? **Yes / No / NA**
Comments: *Soil samples were not included in this work order.*

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project? **Yes / No / NA**
Comments*: For each sample, the LOQ for 1,2,3-trichloropropane is greater than the ADEC Table C groundwater cleanup level.*

e. Data quality or usability affected?
Comments: *The data cannot be used to determine whether or not concentrations of 1,2,3-trichloropropane are present at concentrations greater than the ADEC Table C groundwater cleanup level. However, 1,2,3-trichloropropane was not detected in the project samples.*

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?
Yes / No / NA
Comments:

iii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments:

v. Data quality or usability affected?
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**
Comments:

ii. Metals/Inorganics - One LCS and one sample duplicate reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK petroleum methods: AK 101 60%-120%, AK 102 75%-125%, AK 103 60%-120%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments: *The LCS recovery for bromomethane does not meet QC criteria.*

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from LCS/LCSD, and/or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages) **Yes / No / NA**
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *All project samples are potentially affected.*

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments: *Bromomethane was not detected above the LOQ in the associated samples, therefore flagging is not required.*

vii. Data quality or usability affected?
Comments*: See above.*

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)
Note: Leave blank if not required for project

i. Organics - One MS/MSD reported per matrix, analysis, and 20 samples?
Yes / No / NA
Comments:

ii. Metals/Inorganics - One MS and one MSD reported per matrix, analysis and 20 samples? **Yes / No / NA**
Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. **Yes / No / NA**
Comments: *The MS/MSD recoveries for PAH several analytes do not meet QC criteria.*

iv. Precision – All relative percent differences (RPDs) reported and less than method or laboratory limits and project specified objectives, if applicable. RPD reported from MS/MSD, and/or sample/sample duplicate. **Yes / No / NA**
Comments:

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: *All project samples analyzed for PAHs are potentially affected.*

vi. Do the affected samples(s) have data flags? If so, are the data flags clearly defined?
Yes / No / NA
Comments: *Although MS/MSD recoveries for PAH several analytes do not meet QC criteria, the LCS/LCSD for these same analytes are within QC criteria and therefore flagging is not required.*

vii. Data quality or usability affected?
Comments*: No, see above.*

d. Surrogates - Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses - field, QC, and laboratory samples? **Yes / No / NA**
Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages) **Yes / No / NA**
Comments:

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined? **Yes / No / NA**
Comments:

iv. Data quality or usability affected?
Comments: *See above.*

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

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.) **Yes / No / NA**
Comments: *One soil trip blank (WTB2) 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? (If not, a comment explaining why must be entered below.) **Yes / No / NA**
Comments: *Only one cooler was used to transport the samples.*

iii. All results less than LOQ and project specified objectives? **Yes / No / NA**
Comments:

iv. If above LOQ or project specified DQOs, what samples are affected?
Comments: *NA*

v. Data quality or usability affected?
Comments: *See above.*

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
Yes / No / NA
Comments: *Sample B16MW is the field duplicate of Sample B6MW.*

ii. Were the field duplicates submitted blind to the lab? **Yes / No / NA**
Comments:

iii. Precision – All relative percent differences (RPDs) less than specified project objectives? (Recommended: 30% for water, 50% for soil) **Yes / No / NA**
Comments:

iv. Data quality or usability affected?
Comments: *See above.*

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

Yes / No / NA
Comments: *A decontamination or equipment blank was not included in our ADEC-approved work plan.*

i. All results less than LOQ and project specified objectives?
Yes / No / NA
Comments:

ii. If above LOQ or project specified objectives, what samples are affected?
Comments: *NA*

iii. Data quality or usability affected?
Comments: *See above.*

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

a. Defined and appropriate? **Yes / No / NA**
Comments: *A key is provided on Page 3 of the SGS Laboratory Report.*

Important Information

About Your Geotechnical/Environmental Report

IMPORTANT INFORMATION

IMPORTANT INFORMATION

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 that 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

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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

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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