SUBMITTED TO:
The Krausz Companies LLC
3065 Jones Boulevard, Suite 100
Las Vegas, NV 89146

BY:
Shannon & Wilson, Inc.
2355 Hill Road
Fairbanks, Alaska 99709

(907) 479-0600
www.shannonwilson.com

FINAL

2019 ANNUAL GROUNDWATER MONITORING REPORT

Bentley Mall East Satellite

FAIRBANKS, ALASKA

SHANNON & WILSON

August 2020

Shannon & Wilson No: 101926-006

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Submitted To: The Krausz Companies LLC
3065 Jones Boulevard, Suite 100
Las Vegas, NV 89146
Attn: Mr. David Pyle

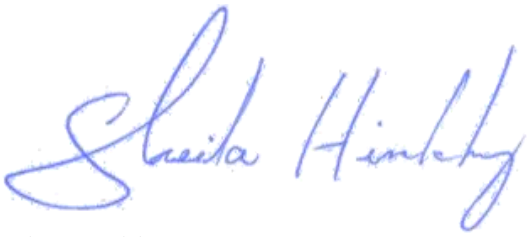
Subject: FINAL 2019 ANNUAL GROUNDWATER MONITORING REPORT, BENTLEY MALL EAST SATELLITE, FAIRBANKS, ALASKA

Shannon & Wilson participated in this project as a consultant to The Krausz Companies, Inc. Our scope of services was specified in our *Annual Groundwater Monitoring and 3-Year Vapor Intrusion Evaluation Work Plan* (Work Plan) dated October 29, 2018, along with our proposals and cost estimates dated October 03, 2018 and January 22, 2019. Our services are provided under Master Services Agreement Number KCI-2016 and the January 22, 2019 proposal task order signed by you on March 14, 2019.

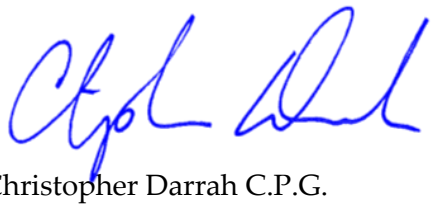
We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.



Sheila Hinckley
Senior Environmental Scientist
Role: Project Manager



Christopher Darrah C.P.G.
Vice President
Role: Supervision and Review

RLW:SMH/cbd

CONTENTS

Exhibits

CONTENTS

Tables

Figures

Appendices

ACRONYMS

°C	degrees Celsius
AAC	Alaska Administrative Code
DEC	Alaska Department of Environmental Conservation
bgs	below ground surface
BMES	Bentley Mall East Satellite
CCV	continuing calibration verification
CUL	cleanup level
COPC	contaminant of potential concern
COC	chain of custody
1,2-DCA	1,2-dichloroethane
DL	detection limit
DQO	data quality objective
EB	equipment blank
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ERG	Environmental Resource Group
GAC	granular activated carbon
GeoTek	GeoTek, Alaska, Inc.
LCS/LCSD	laboratory control sample / laboratory control sample duplicate
LDRC	Laboratory Data-Review Checklist
LOD	limit of detection
LOQ	limit of quantitation
MS/MSD	matrix spike / matrix spike duplicate
µg/L	microgram per liter
PCE	tetrachloroethene
2018 Report	*Annual Groundwater Monitoring and 2018 Vapor Intrusion Report*
QA/QC	quality assurance / quality control
RPD	relative percent difference
SGS	SGS North America, Inc.
SVE	soil-vapor extraction
TCE	trichloroethene
1,2,3-TCP	1,2,3-trichloropropane
VOC	volatile organic compound
Work Plan	*Annual Groundwater Monitoring and 3-Year Vapor Intrusion Evaluation Work Plan*

1 INTRODUCTION

This report summarizes our Fall 2019 field efforts associated with the Bentley Mall East Satellite (BMES) building, located at 20 College Road in Fairbanks, Alaska (Figure 1). The BMES building is located in the southeast corner of the Bentley Mall property (parcel account number 93181); it is listed by the Alaska Department of Environmental Conservation (DEC) as a contaminated site (DEC File 102.38.122), as a result of chlorinated-solvent contamination having been detected in soil and groundwater at the site. Chlorinated solvents are present in the groundwater extending west through the Charles Slater residential subdivision.

Shannon & Wilson prepared this report in compliance with DEC regulations Title 18 Chapter 75 of the Alaska Administrative Code (18 AAC 75.335) and applicable DEC guidance.

1.1 Project Purpose and Goals

The project purpose is to obtain current information on groundwater quality in the area downgradient (west) of the BMES building. Our objectives were to collect and analyze groundwater samples from existing monitoring wells for site contaminants of potential concern (COPCs).

1.2 Scope of Services

Our scope of services included implementing our *Annual Groundwater Monitoring and 3-Year Vapor Intrusion Evaluation Work Plan* (Work Plan) and preparing this report. The October 29, 2018 Work Plan was approved by the DEC on December 19, 2018.

Our activities included:

- Collecting analytical groundwater samples from the 13 existing monitoring wells;
- Submitting groundwater samples to SGS North America, Inc. (SGS);
- Performing analytical data review and validation;
- Calculating groundwater gradient using the 2018 survey; and
- Providing this summary report.

This report includes a summary of field activities, analytical laboratory results, conclusions, and recommendations relevant to future management of the site. The authorized scope of services was based on the Work Plan. Our scope of services did not include:

- Performing an audit for regulatory compliance.
- Evaluating the presence of contaminants or naturally occurring materials, other than those for which our analyses were performed.

If a service is not specifically indicated in this report, do not assume that it was performed.

2 SITE DESCRIPTION AND PROJECT SUMMARY

Below is a description of the site and a summary of historical evaluations through the 2019 annual sampling event.

2.1 Site Description

The BMES building is located at 20 College Road in Fairbanks, Alaska, and situated on the southeast corner of the Bentley Mall property (parcel 93181; Figure 1). Tetrachloroethene (PCE) and trichloroethene (TCE) have been detected in the groundwater at the site and downgradient of the BMES property. The DEC considers the BMES site to be a source of this contamination, although other suspected sources have been identified including VIP Cleaners Inc. (VIP), neighboring and hydrologically upgradient to the BMES building. Exhibit 2-1 shows various drums and containers stored behind VIP; note the two 55-gallon drums of PCE in the foreground along the VIP building, and the BMES upgradient monitoring well MW-1R in the center-right of the photo.

Exhibit 2-1: Eastern BMES property boundary; facing south.

The groundwater-contaminant plume extends west of the site into the Charles Slater residential subdivision; public water and sewer service serve this area. Based on the *USGS Water-Resources Investigations Report 96-4060*, previous site-specific groundwater investigations conducted by Environmental Resources Group (ERG) and Shannon & Wilson, and the most recent survey data, groundwater flow direction is to the west, with seasonal fluctuations to the northwest and southwest, and is influenced by the Chena River and Noyes Slough.

Our study boundaries comprise the suspected source area in the vicinity of the BMES structure, and the groundwater-contaminant plume extending west of the site into the Charles Slater residential subdivision.

2.2 Project Summary

The BMES site was added to the DEC's Contaminated Sites Database in April 2003 following detections of PCE and TCE in soil and groundwater samples collected as part of a Phase II Environmental Site Assessment.

The Phase II report noted a dry cleaner in operation at the BMES building for several years in the 1980s; however, the investigation was unable to pinpoint the PCE and TCE source area due to physical proximity to an upgradient active dry-cleaning facility known to use products containing PCE. ERG was contracted to conduct additional site characterization activities and an August 2003 soil-gas survey indicated the historical dry-cleaning operation at the BMES building appeared to be the source of PCE and TCE at the BMES property. The results of the survey also indicated the wastewater line from the BMES building may be a preferential pathway of PCE.

In April 2005, indoor-air samples were collected by ERG from the BMES building, McDonalds, and Wells Fargo Bank; PCE and TCE were detected exceeding target levels at the BMES building and Wells Fargo at that time. Thirteen monitoring wells (MW-1 to MW-13) were installed and sampled in fall 2005; sample results suggested a PCE and TCE plume extending off-site in a westerly direction.

Soil-vapor extraction (SVE) systems were installed around the BMES and Wells Fargo Bank buildings in September 2006 and remained active for five years. PCE and TCE concentrations in the source area decreased during this time and in August 2011, DEC approved ERG's request to shut down the SVE systems citing approval of a groundwater-monitoring schedule. Groundwater PCE and TCE concentrations at the time were not less than DEC cleanup levels (CULs).

ERG collected 30 passive soil gas samples along the Noyes Street sewer line in October 2010. Sample results indicated relatively low levels of PCE were detected and appeared to be in a clustered formation near 620 and 640 Noyes Street. They concluded it may be indicative of a leaking sewer or storm drain.

In February 2013, DEC met with ERG to discuss the fall 2012 results that reported increasing concentrations of PCE in MW-1, a monitoring well upgradient of the BMES building. DEC subsequently followed up with letters to the owners of VIP and the BMES. In the BMES letter dated April 22, 2013, DEC reopened BMES as a contaminated site and required further evaluation of vapor intrusion risks associated with the groundwater plume.

ERG collected 11 soil-gas samples in September 2015 from the Charles Slater subdivision to assess whether further investigation at the residences was necessary. Soil-gas samples were collected from eight private properties in the Charles Slater subdivision in March 2016. Soil-gas sample results from four of the private properties exceeded or nearly exceeded DEC target levels for PCE, TCE, and trans-1,2-dichloroethene (trans-1,2-DCE) in one or more project samples. ERG also collected indoor-air samples from 120 Ina Street in November 2015 and January 2016; chlorinated solvents were not detected above DEC target levels in these indoor-air samples.

While the March 2016 sampling effort yielded useful information, in an e-mail dated November 13, 2015, the DEC recommended obtaining vapor intrusion samples in fall to assess exposure risk; additionally, the March 2016 results were questionable due to quality control issues.

The Owner retained Shannon & Wilson, Inc. in 2016 as their environmental consultant. Shannon & Wilson conducted a winter 2016 sampling event (December 2016 and January 2017) collecting indoor-air samples from seven commercial businesses, two indoor-air samples from two private properties, and soil-gas samples from seven properties in the Charles Slater subdivision using sampling ports installed by ERG. DEC target levels for PCE and TCE were not exceeded during this sampling event with the exception of PCE from the AutoZone indoor-air sample.

In June 2017, DEC requested additional samples be collected from the sampling ports to verify the lower concentrations noted between the March 2016 and winter 2016 sampling events. In October and November 2017, we collected soil-gas, and indoor-air samples from residential properties and indoor-air from the AutoZone and Wild Wings. PCE and TCE results from our October/November 2017 vapor intrusion sampling event were comparable to the winter 2016 sampling event. Results were less than DEC target levels with the

exception of soil-gas results for chloroform at two residential properties, and PCE and TCE at one residential property.

Groundwater sampling conducted in October 2017 resulted in detections of COPCs exceeding DEC CULs in nine of the 13 monitoring wells. We additionally performed a TCE and PCE trend assessment using Mann-Kendall nonparametric trend analysis from existing monitoring wells; trends were either decreasing or exhibited no trend with the exception of increasing trends at monitoring wells MW-1, MW-8, and MW-11.

2.2.1 2018 Activities

In May 2018, we subcontracted with GeoTek Alaska, Inc. (GeoTek) to decommission five monitoring wells in accordance with DEC Monitoring Well Guidance (September 2013) as part of the Starbucks upgrades at the BMES building. In September 2018, GeoTek installed four replacement wells (MW-1R, MW-2R, MW-3R, and MW-4R) as close to the original monitoring well locations as practicable. The original nine monitoring wells (MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, and MW-13) and four replacement wells were sampled September 2018 in accordance with the Work Plan. We subcontracted with Design Alaska, Inc. to complete a vertical and horizontal survey of monitoring wells in November 2018.

Results from the 2018 sampling event were overall consistent with historical results and are detailed in our *Annual Groundwater Monitoring and 2018 Vapor Intrusion Report* (2018 Report), with detections of PCE, TCE, 1,2-dichloroethane (1,2-DCA), and chloroform exceeding DEC CULs in one or more project sample.

In November 2018, we conducted additional indoor air sampling at the request of the DEC due to soil-gas chloroform exceedances in Fall 2017, from two private properties. Chloroform was the only analyte detected in one project sample exceeding DEC target levels. Chloroform was added to the list of COPCs in 2017 at the request of DEC. Upon further consideration and research of chloroform with relation to the BMES site and likelihood of private property background interferences, our 2018 Report requested this analyte be removed from the sites COPCs.

We completed a conceptual site model to describe the potential pathways between a contaminant source and potential receptors (i.e., people, animals, and plants). Based on our understanding of site conditions and historical information from the former dry-cleaning business located in the BMES building, potentially contaminated media include surface and subsurface soil, groundwater, and air. Additional details are available in the 2018 Report.

2.2.2 VIP Contribution Investigations

Increased PCE concentrations in MW-1 and the 2018 replacement monitoring well MW-1R are suspected to be a result of poor housekeeping practices by VIP, an active dry cleaner known to use PCE located directly upgradient of MW-1/MW-1R (Exhibit 2-2 and 2-3). Based on our review of historical records, it appears VIP began operation in its current location in the late 1990s. By contrast, the dry cleaner formerly located in the BMES building reportedly ceased operations in the 1980s.

Exhibit 2-2: Several containers stored at VIP. Photo taken August 2020.

Exhibit 2-3: PCE drums stored at VIP. Photo taken August 2020.

Between 2017 and 2019, we conducted multiple site investigation activities, seeking to understand how upgradient sources, presumably VIP, may be contributing to the PCE contamination observed on and downgradient of the BMES site.

Our 2017-2018 services included drilling and sampling soil borings along the VIP/BMES property line, injecting a fluorescein tracer dye in one of these borings (completed as a monitoring well: MW-14) to assess groundwater-flow direction in the immediate vicinity of MW-1, and performing a compound specific isotope analysis (CSIA) of PCE in four monitoring wells.

We collected weekly carbon and water samples for fluorescein dye analysis from November 2017 through December 2018, and water samples for compound specific isotope analysis (CSIA) in January 2019.

Results of the 2017 and 2019 soil samples collected from the property line borings were indicative of a surface spill of PCE migrating onto the BMES property from an offsite source.

The fluorescein-dye results suggest that groundwater flow direction in this area is to the west-northwest, which is consistent with our previous understanding based on PCE and TCE concentrations in monitoring wells downgradient of the BMES site. Dye was not detected in MW-1/MW-1R, north-northeast of MW-14 as pictured in Figure 2.

CSIA results provide evidence a secondary source is present in addition to the known historical spill. CSIA results noted PCE in MW-1R is statistically significantly different than PCE in MW-5, MW-10, and MW-12.

Further information on the VIP investigations is presented in the following reports submitted to DEC separately from the annual groundwater and vapor intrusion investigation report:

- *Bentley Mall East Satellite Site Investigation Environmental Report*, June 2019; and
- *2019 Bentley Mall East Satellite Site Investigation Summary Report*, August 2020.

2.3 Contaminants of Potential Concern and Cleanup Levels

The current COPCs associated with this site include PCE, PCE degradation constituents (TCE, cis-1,2-dichloroethene, and trans-1,2-dichloroethene) and chloroform (Exhibit 2-2). As mentioned in Section 2.2.1, the 2018 Report has requested chloroform be removed.

2.3.1 Data Quality Objectives and Regulatory Comparison Criteria

Our analytical approach and performance criteria are in compliance with DEC's *Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data Technical Memorandum* dated October 2019. We collected groundwater samples to be analyzed for select volatile organic compounds (VOCs); the analytes listed in the above COPC list are included in the VOC list.

Exhibit 2-4: Contaminants of Concern and Regulatory Levels

Contaminant of Concern	Analytical Method	Groundwater Cleanup Level
tetrachloroethene (PCE)	SW8260C	41 µg/L
trichloroethene (TCE)	SW8260C	2.8 µg/L
cis-1,2-dichloroethene (cis-1,2-DCE)	SW8260C	36 µg/L
trans-1,2-dichloroethene (trans-1,2-DCE)	SW8260C	360 µg/L
chloroform	SW8260C	2.2 µg/L

µg/L = microgram per liter

To evaluate groundwater sample concentrations, we compared analytical data to the 18 AAC 75.341 *Table C Groundwater Cleanup Levels* (October 2018).

3 FIELD ACTIVITIES

This section summarizes field activities performed in September 2019, to implement the Work Plan. Field activities for this reporting period include conducting the fall 2019 groundwater sampling of thirteen monitoring wells to evaluate groundwater conditions (Figure 2). Activities were performed in accordance with our Work Plan, with the exceptions listed in Section 5.

3.1 Monitoring Well Sampling

Shannon & Wilson field staff from our Fairbanks office sampled monitoring wells between September 25 to 27, 2019. Our field staff are Qualified Environmental Professionals as defined in 18 AAC 75.333. The monitoring wells were sampled using a Proactive™ stainless steel Hurricane submersible pump with new, non-reusable sampling equipment.

Prior to collecting groundwater samples, we measured depth to the water table from the top of the well casing at each well location and purged the well to prepare it for sampling. Purging and sampling of the monitoring wells uses the low-flow method in accordance with our Work Plan.

Each well was purged at a rate of less than one gallon per minute, until a minimum of three casing volumes were removed, or four of the five quantifiable water-quality parameters (pH, conductivity, temperature, dissolved oxygen, oxidation/reduction potential, and turbidity) stabilized over three consecutive readings prior to sample collection. Field parameters are presented in Table 1, and copies of our field-sampling logs are included in Appendix A.

3.2 Monitoring Well Condition and Hydraulic Gradient

Design Alaska, Inc. surveyed the monitoring-well casing elevations in November 2018. The survey information and depths to water measurements were used to calculate the groundwater gradient using the hydraulic gradient calculator available at the Environmental Protection Agency (EPA) *On-line Tools for Site Assessment Calculation* website. Results from the 2019 calculations indicate groundwater flow direction is west-southwest with a heading of approximately 260 degrees from north and a slope of 0.0005 vertical foot per horizontal foot. The monitoring well survey and gradient calculation are presented in Appendix B, and pictorially presented in Figure 2.

3.3 Investigative Derived Waste

Water generated during groundwater sampling activities were filtered in the field with granular activated carbon (GAC) filtration and purged to the ground surface on site. Non-reusable sampling equipment (nitrile gloves, pump-discharge tubing, etc.) were collected and disposed of at the Fairbanks North Star Borough landfill.

3.4 Analytical Laboratory and Methods

Our contract laboratory, SGS, provided sample containers for each analysis. We collected, handled, and stored samples in a manner consistent with the Work Plan. Field duplicate samples (*MW-101R* and *MW-104R*) were collected from monitoring wells MW-1R and MW4R, respectively. Equipment blank (EB) sample (*EB-10R*) was collected from the monitoring well MW-10. The field duplicate samples and EB sample are quality control samples analyzed for the same methods as their parent sample for quality assurance (QA) purposes. A laboratory provided trip blank and "temperature blank" were maintained with the samples in their cooler during sampling and shipping.

We delivered samples to the SGS sample receiving facility in Fairbanks, Alaska on September 27, 2019, to determine concentrations of the VOC analytes listed in Table 2 by EPA Method SW8260C. The SGS Anchorage laboratory is National Environmental Laboratory Accreditation Program-certified for the requested analyses. The samples were submitted with a standard turn-around time of approximately 14 business days. The SGS laboratory report work order 1199822 was provided to Shannon & Wilson on October 17, 2019.

4 RESULTS

The SGS laboratory report and corresponding DEC laboratory data-review checklist (LDRC) are provided in Appendix C and Appendix D, respectively. A quality control (QC) and QA assessment of the analytical results is presented in Appendix E. The results of this sampling event are presented in Table 2. Additionally, Figure 2 presents monitoring well sample results exceeding regulatory levels

4.1 Data Quality Summary

We performed a QA/QC assessment of our sampling procedures and the SGS laboratory report; this assessment is provided in Appendix E. By conducting our field activities in accordance with our standard QC/QA procedures, we consider the samples we collected to be representative of site conditions at the locations and times they were obtained. Based on

our QA review, no datum was rejected as unusable due to QC failures, and our completeness goal of obtaining 90-percent useable data was met. Individual data results affected by QA/QC failures are "flagged" in Table 1.

The QA assessment in Appendix E identifies analytical results that were qualified due to QC failures reported by the laboratory and Shannon & Wilson. In our opinion the data produced by SGS for this project are suitable for characterizing groundwater water quality at the locations sampled, with qualifications applied by Shannon & Wilson due to data affected by QC failures.

4.2 September 2019 Analytical Summary

Twelve VOCs were detected in one or more project samples from the current sampling event and are overall consistent with historical results with the exception of PCE and 1,1,1,2-tetrachloroethane at MW-1R. Detected concentrations were less than their respective DEC CULs listed in Table 2, with the following exceptions:

- PCE in project samples *MW-1R* and its field duplicate *MW-101R*, *MW-2R*, *MW-5*, *MW-6*, *MW-10*, and *MW-12*, at concentrations of 1,230E microgram per liter (µg/L), 1,210 µg/L, 183 µg/L, 95.2 µg/L, 74.8 46.5 µg/L, and 168 µg/L, respectively.
- TCE in project samples *MW-5*, *MW-6*, *MW-10*, and *MW-12* at concentrations of 13.7 µg/L, 7.73 µg/L, 10.1 µg/L, and 6.99 µg/L, respectively.
- 1,1,1,2-tetrachloroethane in project sample *MW-1R* and corresponding field duplicate *MW-101R* at concentrations of 9.25 µg/L and 9.13 µg/L, respectively.
- 1,2-DCA in project samples *MW-1R* and corresponding field duplicate *MW-101R* at concentrations of 3.43 µg/L and 3.57 µg/L, respectively.
- Chloroform in project samples *MW-1R*, *MW-101R*, and *MW-2R* at concentrations of 12.2 µg/L, 12.7 µg/L, and 9.55 µg/L, respectively.

Groundwater analytical results exceeding DEC CULs are also depicted on Figure 2. There were no additional analytes detected in the current sampling event exceeding CULs.

The reported limits of detections (LODs) were less than CULs with the exception of 1,2,3-trichloropropane (1,2,3-TCP) and 1,2-dibromoethane (EDB) in one or more project sample. These analytes were not detected in the project samples but had LODs above DEC CULs. We cannot assess whether these analytes are present in project samples at concentrations less than the LOD but greater than CULs.

5 DEVIATIONS TO THE WORK PLAN

Field activities for the September 2019 sampling event were conducted in accordance with the Work Plan with the following exceptions:

- Purge rates ranged between 0.22 to 0.8 gallons per minute.
- Monitoring well purge water was discharged to the ground surface after filtering by activated carbon adsorption.

Purge rates for future sampling events will be lowered to 0.013 – 0.13 gallons per minute where possible, and purge water will be stored onsite until disposal by US ecology (formerly NRC Alaska, LLC).

6 DISCUSSION

The September 2019 analytical results are presented in Table 2 and results exceeding DEC CULS are pictured in Figure 2. Analytical results contained detections at six monitoring wells exceeding DEC CULs in one or more project sample for the following analytes as discussed in Section 4.2: PCE, TCE, 1,2-DCA, 1,1,1,2-tetrachloroethane, and Chloroform (Table 2 and Figure 2).

All monitoring well samples contained detectable amounts of PCE with the exception of MW-3R. MW-3R is the deepest monitoring well in the network with a total well depth of approximately 45 feet below ground surface (bgs). The remaining monitoring wells have estimated depths of 20 to 30 feet bgs.

The highest concentration of PCE was detected in the project sample and field duplicate at MW-1R, located along the BMES eastern property line (Exhibit 6-1).

- MW-1R is hydrologically upgradient of the former BMES dry cleaning business and downgradient of the active VIP business.
- Exhibit 6-1 shows monitoring well MW-1R in the lower right corner of the photo; note the two drums of PCE stored outside the VIP business in the background.
- The concentrations of PCE detected at MW-1R in 2019 are nearly six times greater than concentrations detected during in 2018.

Exhibit 6-1: Upgradient well MW-1R; facing east.

Additionally, this is the first sampling event where 1,1,1,2-tetrachloroethane has exceeded DEC CULs in monitoring wells; detected at MW-1R.

As discussed in Section 2.2.1, monitoring well MW-1R replaced MW-1 in 2018, prior to the 2018 sampling event. The substantial increase of PCE concentrations at MW-1R (Exhibit 6-2), along with conclusions made in the 2018 Report indicates contaminated groundwater may be migrating onto the BMES site from an upgradient source.

Exhibit 6-2: MW-1 and MW-1R — COPC Results and Current Exceedances (µg/L)

Analyte	Cleanup Level	*MW-1* 2016	*MW-1* 2017	*MW-1R* 2018	*MW-1R* 2019
PCE	41	**113**	**159**	**217**	**1,230 E**
TCE	2.8	0.810J	0.960J	**1.08**	**2.24**
cis-1,2-DCE	36	<0.500	<0.500	<0.500	<0.500
trans-1,2-DCE	360	<0.500	<0.500	<0.500	<0.500
chloroform	2.2	**15.2**	**15.9**	**18.8**	**12.7**
1,1,1,2-tetrachloroethane	5.7	<0.250	<0.250	**1.05**	**9.25**
1,2-DCA	1.7	<0.250	**3.28**	**2.46**	**3.57**

NOTES: Highest result of a field-duplicate sample pair is reported. Results prior to 2016 not reported here.

1 < = Analyte not detected; listed as less than the limit of detection.

2 J = Estimated concentration, greater than the detection limit and less than the limit of quantitation. Flag applied by the laboratory.

3 **Bold** = Detected concentration exceeds 18 AAC 75.341 Table C Groundwater Cleanup Levels (October 2018).

4 E = Exceeded laboratory calibration range. Flag applied by the laboratory.

These detections are consistent with historical results with the exception of PCE and 1,1,1,2-tetrachloroethane at MW-1R. No other analytes were detected in exceedance of DEC CULS.

7 RECOMMENDATIONS

Based on our overall project understanding and the 2019 analytical results, we recommend the following:

- Continue the current monitoring schedule as described in the Work Plan: annual groundwater monitoring of the current monitoring well network, and vapor intrusion sampling every three years;
- Request that DEC confirm our conclusion that vapor intrusion is likely not the cause of elevated indoor air chloroform concentrations from sample *IA1-2018*, and to remove chloroform as a COPC, as recommended in our *Annual Groundwater Monitoring and 2018 Vapor Intrusion Report* dated July 2019; and

- Site characterization efforts be performed by VIP at the VIP property as recommended in the February 2020 report *2019 Bentley Mall East Satellite Site Investigation Summary Report*.

8 CLOSURE

This report was prepared for the exclusive use of KE Bentley One, LLC and KGC Bentley Two, LLC., DEC, and their representatives for evaluating remaining chlorinated-solvent contamination near the BMES building in Fairbanks, AK. Our conclusions and recommendations are based on:

- The limitations of our approved scope, schedule, and budget described in our proposals dated October 3, 2018 and January 22, 2019, and our Work Plan dated October 29, 2018.
- Our understanding of the project and information provided by the DEC and the Owner.
- Site conditions we observed during our visits in September 2019.
- The results of the analytical testing performed on groundwater samples we collected.
- The requirements in Alaska's 18 AAC 75.341 *Table C Groundwater Cleanup Levels* (October 2018).

Our observations are specific to the locations, depths, and times noted on the logs (Appendix A) and may not be applicable to all areas of the site. No amount of sampling can precisely predict the characteristics, quality, or distribution of subsurface and site conditions. Potential sources of variation include, but are not limited to:

- The passage of time or intervening causes (natural and manmade) may result in changes to site and subsurface conditions.
- The different conditions between sampling locations.
- Variations in the presence, distribution, and concentration of contaminants at our sampling locations; our tests may not represent the highest contaminant concentrations at the site.
- Contaminant concentrations may change in response to natural conditions, chemical reactions, and/or other events.

If substantial time has elapsed between submission of this report and the start of activities or action based upon it, we should retain to review the applicability of the conclusions and recommendations, considering the lapsed time or changed conditions.

This report should not be used for other purposes without our review, and it should not be used without our approval if any of the following occurs:

- Conditions change due to natural forces or human activity under, at, or adjacent to the site.
- Assumptions stated in this report have changed.
- Project details change, or new information becomes available such that our conclusions may be affected.
- The site ownership or land use has changed.
- Regulations, laws, or CULs change.
- The site's regulatory status has changed.

If any of these occurs, we should be retained to review the applicability of our recommendations.

State and/or federal agencies may require reporting of the information included in this report. 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 KE Bentley One, LLC and KGC Bentley Two, LLC., or as required by law. Regulatory agencies may reach different conclusions than Shannon & Wilson. We have prepared the attachment, *Important Information about Your Environmental Report*, to assist you and others in understanding the uses and limitations of our reports.

9 REFERENCES

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Shannon & Wilson, Inc. Annual Groundwater Monitoring and 3-Year Vapor Intrusion Evaluation Work Plan, October 2018.

Shannon & Wilson, Inc. Annual Groundwater Monitoring and 2018 Vapor Intrusion Report, July 2019.

Shannon & Wilson, Inc. 2019 Bentley mall East Satellite Site Investigation Summary Report, February 2020.

Table 1 - September 2019 Field Parameters

				Groundwater-Quality Parameters						
Sample Date	Monitoring Well	TWD (ft.)	DTW (ft.)	Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (visual)	Stabilization Criteria *
9/26/2019	MW-1R	21.36	14.81	8.6	513	6.00	6.55	219.8	Clear	>3 well volumes purged
9/25/2019	MW-2R	22.08	14.53	6.3	536	0.77	6.74	199.6	Clear	Parameters Stabilized
9/25/2019	MW-3R	45.88	27.82	4.7	352.7	0.30	6.60	100.2	Clear	Parameters Stabilized
9/26/2019	MW-4R	20.31	15.93	5.9	428.1	0.34	6.64	200.6	Clear	>3 well volumes purged
9/25/2019	MW-5	29.76	17.72	4.5	513	0.32	6.63	106.7	Clear	Parameters Stabilized
9/25/2019	MW-6	21.09	16.59	5.3	600	4.12	6.63	175.2	Clear	>3 well volumes purged
9/26/2019	MW-7	23.84	18.93	4.8	604	0.67	6.68	97.1	Clear	Parameters Stabilized
9/26/2019	MW-8	20.27	11.18	8.3	601	2.52	6.77	151.2	Clear	Parameters Stabilized
9/27/2019	MW-9	20.57	10.8	4.8	488.6	5.12	6.75	280.2	Clear	Parameters Stabilized
9/27/2019	MW-10	20.03	12.22	6.9	449.2	0.30	6.68	99.9	Clear	Parameters Stabilized
9/27/2019	MW-11	20.28	11.39	8.4	589	2.92	6.55	274.5	Clear	Parameters Stabilized
9/26/2019	MW-12	20.34	13.32	6.0	1019	1.49	6.46	186.2	Clear	>3 well volumes purged
9/26/2019	MW-13	20.66	14.58	6.4	614	0.51	6.52	212.9	Clear	Parameters Stabilized

NOTES:

* A minimum of three well casing volumes or three consecutive readings for 4 of the 5 above listed quantifiable water quality parameters were within stabilization criteria prior to sample collection.

°C = degrees Celsius; DO = dissolved oxygen; DTW = depth to water from top-of-casing; ft. = feet; µS/cm = microSiemens per centimeter; mg/L = milligrams per liter; mV = millivolts; ORP = oxidation-reduction potential; s.u. = standard units; TWD = total well depth

Table 2 - September 2019 Groundwater Analytical Results

Analyte	DEC Cleanup Level	Units	*MW-1R*	*MW-101R (Dup)*	*MW-2R*	*MW-3R*	*MW-4R*	*MW-104R (Dup)*	*MW-5*	*MW-6*	*MW-7*	*MW-8*	*MW-9*	*MW-10*	*MW-11*	*MW-12*	*MW-13*
1,1,1,2-Tetrachloroethane	5.7	µg/L	9.25	9.13	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,1,1-Trichloroethane (TCA)	8,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,1,2,2-Tetrachloroethane (PCA)	0.76	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,1,2-Trichloroethane (1,1,2-TCA)	0.41	µg/L	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
1,1-Dichloroethane	28	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,1-Dichloroethene (1,1,-DCE)	280	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,1-Dichloropropene	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2,3-Trichlorobenzene	7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2,3-Trichloropropane (1,2,3-TCP)	0.0075	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2,4-Trichlorobenzene	4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2,4-Trimethylbenzene	56	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2-Dibromo-3-chloropropane	—	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
1,2-Dibromoethane (EDB)	0.075	µg/L	<0.0375	<0.200J*	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.200J*	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375
1,2-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,2-Dichloroethane (1,2-DCA)	1.7	µg/L	3.43	3.57	0.430J	0.690	0.430J	0.460J	0.680	0.360J	<0.250	0.190J	<0.250	0.530	<0.250	0.360J	0.400J
1,2-Dichloropropane	8.2	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,3,5-Trimethylbenzene	60	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,3-Dichlorobenzene	300	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
1,3-Dichloropropane	—	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
1,4-Dichlorobenzene	4.8	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
2,2-Dichloropropane	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2-Butanone (MEK)	5,600	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
2-Chlorotoluene	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
2-Hexanone	38	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
4-Chlorotoluene	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
4-Methyl-2-pentanone (MIBK)	6,300	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Benzene	4.6	µg/L	<0.200	<0.200	0.680	<0.200	<0.200	<0.200	0.190J	<0.200	<0.200	<0.200	<0.200	0.170J	<0.200	0.150J	<0.200
Bromobenzene	62	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Bromochloromethane	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Bromodichloromethane	1.3	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Bromoform	33	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Bromomethane	7.5	µg/L	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
Carbon disulfide	810	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Carbon tetrachloride	4.6	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chlorobenzene	78	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Chloroethane	21,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Chloroform	2.2	µg/L	12.2	12.7	9.55	<1.00B*	<1.00B*	<1.00B*	<1.15B*	<1.64B*	<0.500	<1.22B*	<1.00B*	<1.00B*	<1.00B*	<1.00B*	<1.75B*
Chloromethane	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.580J	<0.500	<0.500

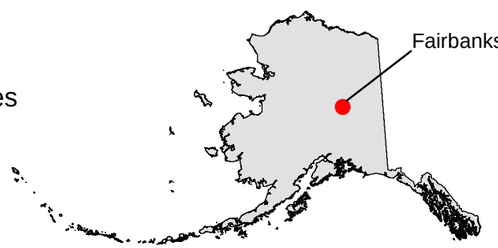
Table 2 - September 2019 Groundwater Analytical Results

Analyte	DEC Cleanup Level	Units	*MW-1R*	*MW-101R (Dup)*	*MW-2R*	*MW-3R*	*MW-4R*	*MW-104R (Dup)*	*MW-5*	*MW-6*	*MW-7*	*MW-8*	*MW-9*	*MW-10*	*MW-11*	*MW-12*	*MW-13*
cis-1,2-Dichloroethene (cis-1,2-DCE)	36	µg/L	<0.500	<0.500	2.10	0.540J	0.380J	0.390J	1.93	1.39	1.98	0.940J	1.32	2.76	1.67	1.36	<0.500
cis-1,3-Dichloropropene	4.7	µg/L	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Dibromochloromethane	8.7	µg/L	0.320J	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Dibromomethane	8.3	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Dichlorodifluoromethane (Freon-12)	200	µg/L	<0.500	<0.500	0.330J	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Ethylbenzene	15	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Hexachlorobutadiene	1.4	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Isopropylbenzene	450	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Methylene chloride	110	µg/L	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50	<2.50
Methyl-t-butyl ether	140	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Naphthalene	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
n-Butylbenzene	1,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
n-Propylbenzene	660	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
o-Xylene	190	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
P & M -Xylene	190	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
p-Isopropyltoluene	—	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
sec-Butylbenzene	2,000	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Styrene	1,200	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
tert-Butylbenzene	690	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Tetrachloroethene (PCE)	41	µg/L	1230 E	1210	183	<0.500	21.0	20.2	95.2	74.8	5.28	3.00	9.78	46.5	4.58	168	25.4
Toluene	1,100	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Total Xylenes	190	µg/L	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50	<1.50
trans-1,2-Dichloroethene (trans-1,2-D	360	µg/L	<0.500	<0.500	<0.500	<0.500	0.730J	0.750J	0.480J	<0.500	<0.500	6.68	3.48	0.320J	9.24	<0.500	<0.500
trans-1,3-Dichloropropene	4.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
Trichloroethene (TCE)	2.8	µg/L	2.16	2.24	1.94	0.330J	1.84	1.85	13.7	7.73	2.41	1.35	2.47	10.1	2.01	6.99	<0.500
Trichlorofluoromethane (Freon-11)	5200	µg/L	57.5JH*	59.0JH*	16.4	2.28	3.37JH*	3.47JH*	9.62	5.96	0.560J	<0.500	<0.500	0.310J	6.90JH*	2.55JH*	1.70JH*
Trichlorotrifluoroethane	10,000	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Vinyl acetate	410	µg/L	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
Vinyl chloride	0.19	µg/L	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750	<0.0750

NOTES:
Field Duplicate (Dup) samples *MW-101R* and *MW-104R* collected from monitoring wells MW-1R and MW-4R, respectively.
DEC Cleanup Levels obtained from 18 AAC 75.341 Table C Groundwater Cleanup Levels (October 2018).
< Analyte not detected; listed as less than the LOD unless otherwise flagged due to quality control failures.
— DEC Cleanup Level not established.
<Bold LOD exceeds DEC Cleanup Level
Bold Concentration exceeds DEC Cleanup Level
J Estimated concentration, detected greater than the DL and less than the LOQ. Flag applied by the laboratory.
J* Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc.
JH* Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc.
E Result exceeds laboratory calibration range. Flag applied by the laboratory.
B* Result is considered not detected due to quality control failures; see checklist for details. Flag applied by Shannon & Wilson, Inc.
DEC = Alaska Department of Environmental Conservation; DL = detection limit; LOD = limit of detection; LOQ = limit of quantitation; µg/L = microgram per liter

LEGEND

Bentley Mall Properties



N

0 0.5 1

Miles

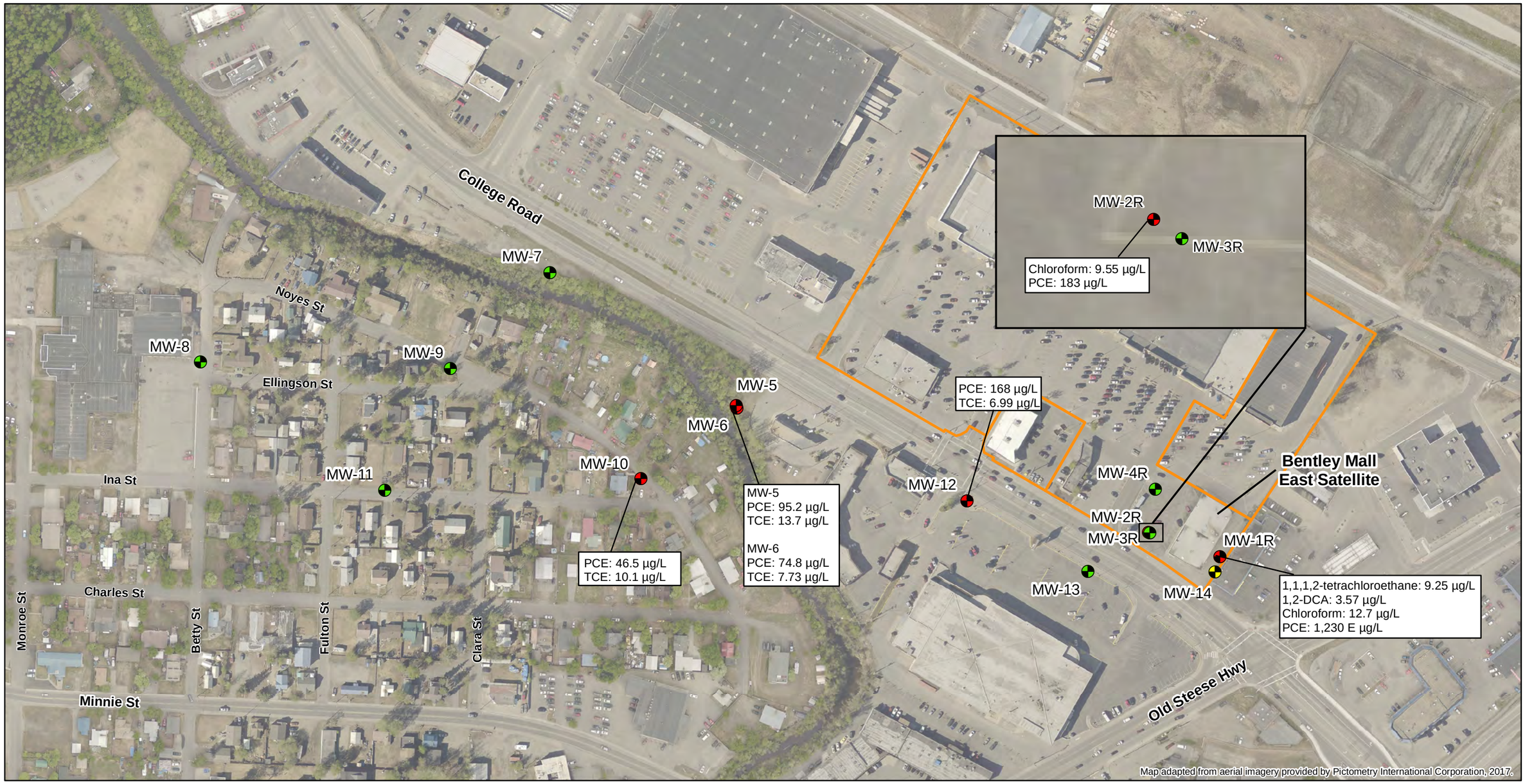
Bentley Mall East Satellite
2019 Annual Groundwater Monitoring Report
Fairbanks, Alaska

SITE VICINITY

August 2020 101926-006

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1



LEGEND

Monitoring Well Analytical Results

- Exceed DEC Cleanup Levels
- Not detected or less than DEC Cleanup Levels
- Decommisioned

Bentley Mall Properties

2019 Groundwater Gradient
258.9 degrees from North

Notes:
Only results exceeding regulatory levels are displayed. See report tables for further information.
The highest result of a field-duplicate sample pair is reported.
Decomissioned wells MW-1, MW-2, MW-3, MW-4 are not displayed.
DEC = Alaska Department of Environmental Conservation

0 250 500 750 1,000
Feet

N

Bentley Mall East Satellite
2019 Annual Groundwater Monitoring Report
Fairbanks, Alaska

2019 RESULTS - EXCEEDING REGULATORY LEVELS

August 2020 101926-006

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2

APPENDIX A: MONITORING WELL SAMPLING LOGS

Appendix A

Monitoring Well Sampling Logs

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Starbucks drivethru
Sampling Personnel: AM
Weather Conditions: rainy
Air Temp. (°F): 40s

Project No.: 10192g
Date: 4/26/19
Well: MW-1R
Time started: 2010
Time completed: 2100

Sample No.: MW-1R — Time: 2043
Duplicate: MW-101R — Analysis: — Time: 2033
Equipment Blank (EB): ~~Analysis:~~ — Time:

Depth to Water (ft.): 14.81
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 2024
Purge Rate (gal./min.): 0.25
Pumping End: 2040

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 20.46 + 0.9 = 21.36
Depth to Water Below MP (ft.): 14.81
Depth to Ice (if frozen) Below MP (ft.):

Pump Set Depth Below MP (ft.): 20.36
KuriTec Tubing (ft.): 22
TruPoly Tubing (ft.):
Silicone Tubing (ft.):

Feet of Water in Well: 6.55
Gallons per foot: 0.17
Gallons in Well: 1.11
Gallons in Well x3 = 3.34
(also enter on back) Total Gallons Purged: 4
Purge Water Disposal: City of N. ~~P. manhole near NPR Gate 1~~ GAC #3

Monument Condition: Good
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.33
Monument to ground surface (ft.): 0

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)

Frost-jacking? Y / N
Temperature Logger Present (TidBit)? Y / N
Lock present and operational N/A
Well name legible on outside of well (stickup) or inside of well (flushmount) Dark outside

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: *Parameters stabilized* OR > 3 *well volumes purged*
Total Gallons purged: ~4 Gallons needed for 3WV: 3.34
Water observations: _____
Notes: Sampled @ night difficult to see

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
2024	Purging start time					
2027	8.8	7.46	610	5.10	246.0	Silty
2030	8.7	6.16	568	6.19	228.7	clear
2033	8.6	6.22	541	6.46	222.7	clear
2037	8.6	6.05	519	6.53	220.7	Clear
2040	8.6	6.00	513	6.55	219.8	Clear
2043	SAMPLE					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC 8260	VOA	HCl	☒	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Starbucks parking lot
Sampling Personnel: ARM, RLW
Weather Conditions: Clear, Air Temp. (°F): 50s

Project No.: 102926
Date: 9/25/19
Well: MW-2R
Time started: 1215
Time completed: 1300

Sample No.: MW-2R — Time: 1241
Duplicate: — Analysis: — Time: —
Equipment Blank (EB): — Analysis: — Time: —

Depth to Water (ft.): 14.53
Depth to LNAPL (ft.): —
NAPL Thickness (ft.): —
Method of NAPL Measurement: —

Pump/Controller: Hurricane XL
Purging Method: (portable) / dedicated pump
Pumping Start: 1224
Purge Rate (gal./min.): 0.5 gal/min
Pumping End: 1238

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 21.18 + 0.9 = 22.08
Depth to Water Below MP (ft.): 14.53
Depth to Ice (if frozen) Below MP (ft.): —

Pump Set Depth Below MP (ft.): 21.08
KuriTec Tubing (ft.): ~~20~~ 30
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Feet of Water in Well: 7.55
Gallons per foot: 0.17
Gallons in Well: 1.28
Gallons in Well x3 = 3.8
(also enter on back) Total Gallons Purged: ~7
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.35
Monument to ground surface (ft.): 0

Datalogger Type (circle): RT-100 / GW WL-16 / AT-200 / LT-700 / LT-500 / Other: _____ / HOBO
Datalogger serial #: _____
Measured cable length (ft): _____

☒ Frost-jacking? Y / (N)
☐ Lock present and operational N/A
☒ Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / (N)

Notes: _____

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: ~~5m4~~

Parameter Criteria: Circle One: (Parameters stabilized) OR ~~> 3 well volumes purged~~

Total Gallons purged: ≈7 Gallons needed for 3WV: 3.8

Water observations: None

Notes: —

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1224	Purging start time					
1225	6.2	4.10	553	6.59	190.3	gray
1229	6.4	1.82	545	6.70	195.4	clear
1232	6.3	1.20	540	6.72	197.9	clear
1235	6.3	1.03	539	6.72	198.7	clear
1238	6.3	0.77	536	6.74	196.6	clear
1241	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC 8260		HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Starbucks parking lot
Sampling Personnel: ARM, RLW
Weather Conditions: overcast Air Temp. (°F): 50°

Project No.: 10292E
Date: 9/25/19
Well: MW-3R
Time started: 10:55
Time completed: ~~1215~~ 1215

Sample No.: MW-3R Time: 1143
Duplicate: – Analysis: Time: –
Equipment Blank (EB): – Analysis: Time:

Depth to Water (ft.): 2' PVC
Depth to LNAPL (ft.): –
NAPL Thickness (ft.): –
Method of NAPL Measurement: –

Pump/Controller: hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 11 15
Purge Rate (gal./min.): 0.43
Pumping End: 1140

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): –
Measured Total Depth of Well Below MP (ft.): 44.98 + 0.9 = 45.88
Depth to Water Below MP (ft.): 27.82
Depth to Ice (if frozen) Below MP (ft.): –

Pump Set Depth Below MP (ft.): 40
KuriTec Tubing (ft.): 55
TruPoly Tubing (ft.): –
Silicone Tubing (ft.): –

Feet of Water in Well: 18.06
Gallons per foot: 0.17
Gallons in Well: 3.07
Gallons in Well x3 = 9.21
(also enter on back) Total Gallons Purged: ~15
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.2
Monument to ground surface (ft.): 0

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: _____ HOBO
Datalogger serial #: _____
Measured cable length (ft): _____

☑ Frost-jacking? Y / (N)
☐ Lock present and operational N/A
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / (N)

Notes: _____

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: 5MH

Parameter Criteria: Circle One: *Parameters stabilized* OR *3 well volumes purged*

Total Gallons purged: ~15 Gallons needed for 3WV: 9.2

Water observations: cloudy at start

Notes:

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1115	Purging start time					
1123	4.7	0.97	343.7	6.10	197.5	cloudy
1125	4.7	0.64	346.6	6.37	162.3	clear
1128	4.7	0.53	349.7	6.49	135.0	clear
1131	4.7	0.44	350.2	6.53	121.9	clear
1134	4.7	0.39	351.3	6.57	110.6	clear
1137	4.7	0.34	352.3	6.59	104.0	clear
1140	4.7	0.30	352.7	6.60	100.2	clear
1143	1143 SAMPLE					
1146						
1147						

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOCs 8260		HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client BMES
Location Starbucks Parking lot
Sampling Personnel ARM, BAB
Weather Conditions Overcast Air Temp. (°F) 35

Project No. 101926
Date 9/26/19
Well MW-4R
Time started 0940
Time completed ~~to~~ 1100

Sample No. MW-4R Time ~~1035~~ 1025
Duplicate MW-14R Analysis: ~~VOCs~~ Time ~~1075~~ 1015
Equipment Blank (EB) ~~EB-MR~~ Analysis: ~~VOCs~~ Time ~~1095~~ 1035

Depth to Water (ft.) 15.93
Depth to LNAPL (ft.) —
NAPL Thickness (ft.) —
Method of NAPL Measurement —

Pump/Controller Hurricane XL
Purging Method *portable* / *dedicated pump*
Pumping Start 1004
Purge Rate (gal./min.) 0.5
Pumping End 1022

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 19.41 + 0.9 = 20.31
Depth to Water Below MP (ft.) 15.93
Depth to Ice (if frozen) Below MP (ft.) —

Pump Set Depth Below MP (ft.) 12.31
KuriTec Tubing (ft.) 18
TruPoly Tubing (ft.) —
Silicone Tubing (ft.) —

Feet of Water in Well 4.38
Gallons per foot 0.17
Gallons in Well 0.74
Gallons in Well x3 = 2.23
(also enter on back) Total Gallons Purged 9
Purge Water Disposal ~~City of N. P. manhole near NPR Gate 1~~ GAC # 3

Monument Condition good
Casing Condition good
Wiring Condition NA
(dedicated pumps)

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / *Flushmount*
Measurement method: *Tape measure*

Top-of-casing to monument (ft.) 0.34
Monument to ground surface (ft.) 0

Datalogger Type (circle): *RT-100* *GW WL-16* *AT-200* *LT-700* *LT-500* *Other:* ____ *HOBO*
Datalogger serial #: ____
Measured cable length (ft) ____

☒ Frost-jacking? Y / (N)
☐ Lock present and operational N/A
☐ Well name legible on outside of well (stickup) or inside of well (flushmount) No

Temperature Logger Present (TidBit)? Y / (N)

Notes ____

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: 451 Pro Plus B OR Rental # ___ Handheld s/n: ___

Parameter Criteria: Circle One: Parameters stabilized OR (3 well volumes purged)

Total Gallons purged: 9 Gallons needed for 3WV: 2.23

Water observations: N/A

Notes: N/A

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1004	Purging start time					Dark
1007	5.9	1.23	423.2	6.00	229.6	Slt Hzy
1010	5.9	1.05	446.6	6.37	229.9	Slt Hzy
1014	5.9	0.45	419.0	6.56	221.7	Clear
1018	6.0	0.39	426.9	6.62	207.1	Clear
1022	5.9	0.34	428.1	6.64	200.6	Clear
1025	SAMPLE					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	Sulfolane (1625B)	2x 1-Liter amber bottle	none	☐	☐
☐	BTEX (8260B)	3x 40-mL amber VOA vials	HCl	☐	☐
☐	Geochem	Multiple (see proposal)	Multiple	☐	☐
☐	COPC	Multiple (see proposal)	Multiple	☐	☐
☒	VOC 8260	VOA	HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Behind Key Bank
Sampling Personnel: ARM, RLW
Weather Conditions: partly cloudy Air Temp. (°F): 50°s

Project No.: 102926
Date: 9/25/19
Well: MW-5
Time started: 1450
Time completed: 1536

Sample No.: MW-5 Time: 1525
Duplicate: — Analysis: Time: —
Equipment Blank (EB): — Analysis: Time: —

Depth to Water (ft.): 17.72
Depth to LNAPL (ft.): —
NAPL Thickness (ft.): —
Method of NAPL Measurement: —

Pump/Controller: Hurl. maxL
Purging Method: portable / dedicated pump
Pumping Start: 1503
Purge Rate (gal./min.): 2min 0.58 gal/min
Pumping End: 1516

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 28.86+0.9 = 29.76
Depth to Water Below MP (ft.): 17.72
Depth to Ice (if frozen) Below MP (ft.): —

Pump Set Depth Below MP (ft.): 28.26
KuriTec Tubing (ft.): 35
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Feet of Water in Well: 12.04
Gallons per foot: 0.17
Gallons in Well: 2.04
Gallons in Well x3 = 6.14
(also enter on back) Total Gallons Purged: ~7.5
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.64
Monument to ground surface (ft.): 1.95

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)

- [x] Frost-jacking? Y / (N)
- [x] Lock present and operational N/A
- [x] Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / (N)

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: ___

Parameter Criteria: Circle One: Parameters stabilized OR 3 well volumes purged 5m H

Total Gallons purged: ~ 9.5 Gallons needed for 3WV: 6.14

Water observations: rusty

Notes:

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1503	Purging start time					
1502	4.8	3.93	509	6.54	220.2	Orange / rust
1505	4.5	0.95	505	6.57	167.4	cloudy, near clear
1508	4.5	0.51	510	6.61	133.8	clear
1511	4.5	0.39	511	6.62	123.5	clear
1513	4.5	0.35	512	6.62	111.7	clear
1516	4.5	0.32	513	6.63	106.7	clear
1525	SAMPLE					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	Sulfolane (1625B)	2x 1-Liter amber bottle	none	☐	☐
☐	BTEX (8260B)	3x 40-mL amber VOA vials	HCl	☐	☐
☐	Geochem	Multiple (see proposal)	Multiple	☐	☐
☐	COPC	Multiple (see proposal)	Multiple	☐	☐
☒	VOC 8260		HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client BMES
Location Behind Key Bank
Sampling Personnel ARM, RLW
Weather Conditions Overcast Air Temp. (°F) 50's

Project No. 101926
Date 9/25/19
Well MW-6
Time started 1536
Time completed ~~1630~~ RLW 17:15

Sample No. MW-6 Time 16:12
Duplicate — Analysis: Time —
Equipment Blank (EB) — Analysis: Time —

Depth to Water (ft.) 6.59
Depth to LNAPL (ft.) —
NAPL Thickness (ft.) —
Method of NAPL Measurement —

Pump/Controller hurricane XL
Purging Method *portable / dedicated pump*
Pumping Start 15:53
Purge Rate (gal./min.) ~~15:53~~ 0.32 gal/min
Pumping End 16:09 RLW
Pump Set Depth Below MP (ft.) ~~29.09~~ RLW 20.09 ft
KuriTec Tubing (ft.) 29.09
TruPoly Tubing (ft.) —
Silicone Tubing (ft.) —

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 20.19 + 0.9 = 21.09
Depth to Water Below MP (ft.) 16.59
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 4.5
Gallons per foot 0.17
Gallons in Well 0.765
Gallons in Well x3 = 2.295
(also enter on back) Total Gallons Purged 3.5
Purge Water Disposal ~~*City of N. P. manhole near NPR Gate 1*~~ GAC #3

Monument Condition good
Casing Condition good
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / *Flushmount*
Measurement method: *Tape measure*

Top-of-casing to monument (ft.) 0.41
Monument to ground surface (ft.) 2.48

Datalogger Type (circle): ~~*RT-100*~~ *GW WL-16* *AT-200* ~~*LT-700*~~ *LT-500* *Other:* _____ *HOBO*
Datalogger serial #:
Measured cable length (ft)

☒ Frost-jacking? Y / (N)
☒ Lock present and operational N/A
☒ Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / (N)

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* ___

Parameter Criteria: Circle One: *Parameters stabilized* OR > *3 well volumes purged*

Total Gallons purged: 3.5 gal Gallons needed for 3WV: 2.295

Water observations: ___

Notes: ___

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
15:53	Purging start time					
15:54	5.5	3.46	560	6.69	183.2	cloudy, orange
15:57	5.5	2.43	556	6.65	186.3	~~cloudy~~ less cloudy, grey
16:00	5.4	1.92	559	6.65	186.8	clear
16:03	5.3	2.98	574	6.64	183.2	clear
16:06	5.2	3.64	589	6.64	178.8	clear
16:09	5.3	4.12	600	6.63	175.2	clear
16:12	sample					

Laboratory *SGS*

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC ~~8020~~ 8260			☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Near/across Costco
Sampling Personnel: ARM / BAB
Weather Conditions: Rain
Air Temp. (°F): 40s

Project No.: 101926
Date: 9/26/19
Well: MW-7
Time started: 1517
Time completed: 1600

Sample No.: MW-7
Time: 1548
Duplicate: — Analysis: —
Time: —
Equipment Blank (EB): — Analysis: —
Time: —

Depth to Water (ft.): 18.93
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 1529
Purge Rate (gal./min.): 0.5
Pumping End: 1545

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 22.94 +0.9 = 23.84
Depth to Water Below MP (ft.): 18.93
Depth to Ice (if frozen) Below MP (ft.): 0

Pump Set Depth Below MP (ft.): 22.84
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.):
Silicone Tubing (ft.):

Feet of Water in Well: 4.91
Gallons per foot: 0.17
Gallons in Well: 0.83
Gallons in Well x3 = 2.50
(also enter on back) Total Gallons Purged: 8
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.34
Monument to ground surface (ft.): 2.84

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)
Temperature Logger Present (TidBit)? (Y) / N

- ☐ Frost-jacking? Y / (N)
- ☐ Lock present and operational N/A
- ☐ Well name legible on outside of well (stickup) or inside of well (flushmount) No

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

RW

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ~~Handheld s/n:~~ JMH
Parameter Criteria: Circle One: *Parameters stabilized* OR *> 3 well volumes purged*
Total Gallons purged: 8 Gallons needed for 3WV: 2-5
Water observations: None
Notes: None

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1529	Purging start time					Cloudy
1530	4.9	1.92	591	6.55	200.1	clear
15:34	4.8	1.00	606	6.46	166.1	clear
15:38	4.8	0.69	604	6.66	121.6	clear
15:42	4.8	0.67	603	6.68	106.7	clear
15:45	4.8	0.67	604	6.64	97.1	clear
15:48	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
~~☒~~	VOC 8260		MCL	~~☒~~	☐
☐				☐	☐

RW

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Monroe School
Sampling Personnel: BAB ASM
Weather Conditions: Rain Air Temp. (°F):

Project No.: 10[illegible]926
Date: 9/26/19
Well: MW-8
Time started: 1320
Time completed: 1800

Sample No.: MW-8 Time: 1745
Duplicate: — Analysis: Time: —
Equipment Blank (EB): — Analysis: Time: —

Depth to Water (ft.): 11.18
Depth to LNAPL (ft.): —
NAPL Thickness (ft.): —
Method of NAPL Measurement: —

Pump/Controller: Hurricane XL
Purging Method: (portable) / dedicated pump
Pumping Start: 1730
Purge Rate (gal./min.): 0.8
Pumping End: 1742

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 19.37 + 0.9 = 20.27
Depth to Water Below MP (ft.): 11.18
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.09
Gallons per foot: 0.17
Gallons in Well: 1.54
Gallons in Well x3 = 4.64
(also enter on back) Total Gallons Purged: 12
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~

Pump Set Depth Below MP (ft.): 19.27
KuriTec Tubing (ft.): 20
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): NA

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.44
Monument to ground surface (ft.): 0

Datalogger Type (circle): RT-100 / GW WL-16 / AT-200 / LT-700 / LT-500 / Other: _____ / HOBO
Datalogger serial #: _____
Measured cable length (ft): _____
Temperature Logger Present (TidBit)? Y / (N)

☐ Y Frost-jacking? Y / (N)
☒ Lock present and operational NA
☒ Well name legible on outside of well (stickup) or inside of well (flushmount) Y

Notes: _____

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: 451 *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* _____

Parameter Criteria: Circle One: *Parameters stabilized* OR *>3 well volumes purged*

Total Gallons purged: 12 Gallons needed for 3WV: 9.64

Water observations:

Notes:

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1527	Purging start time					
1730	8.0	3.95	590	6.79	150.6	~~Clear~~ silty
1733	8.3	2.99	597	6.78	149.9	clear
1736	8.3	2.52	599	6.77	150.1	clear
1739	8.3	2.60	600	6.78	150.5	clear
1742	8.3	2.52	601	6.77	151.2	clear
1745	Sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC 8260	VOA	HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client BMES
Location Monroe School Neighborhood
Sampling Personnel Aron
Weather Conditions Sunny Air Temp. (°F) 30s

Project No. 101924
Date 9-27-14
Well MW-9
Time started 1135
Time completed 1230

Sample No. MW-9 Time 1207
Duplicate — Analysis: Time —
Equipment Blank (EB) ~~EB-MW-9~~ Analysis: Time —

Depth to Water (ft.) 1
Depth to LNAPL (ft.) —
NAPL Thickness (ft.) —
Method of NAPL Measurement —

Pump/Controller Hurricane
Purging Method (portable / dedicated) pump
Pumping Start 1146
Purge Rate (gal./min.) 0.5
Pumping End 1207

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) —
Measured Total Depth of Well Below MP (ft.) 19.67 + 0.9 = 20.57
Depth to Water Below MP (ft.) 10.8
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 9.77
Gallons per foot 0.17
Gallons in Well 1.66
Gallons in Well x3 = 4.98
(also enter on back) Total Gallons Purged 10.5
Purge Water Disposal ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Pump Set Depth Below MP (ft.) 19.57
KuriTec Tubing (ft.) 20
TruPoly Tubing (ft.) —
Silicone Tubing (ft.) —

Monument Condition good
Casing Condition good (mud + leaves on it)
Wiring Condition (dedicated pumps) NA

Measuring Point (MP) Top of Casing (TOC)
Monument type: Stickup (/ Flushmount)
Measurement method: Tape measure

Top-of-casing to monument (ft.) 0.74
Monument to ground surface (ft.) —

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: ____ HOBO
Datalogger serial #:
Measured cable length (ft)
Temperature Logger Present (TidBit)? Y / (N)

~~☒~~ Frost-jacking? Y / (N)
☐ Lock present and operational N/A
~~☒~~ Well name legible on outside of well (stickup) or inside of well (flushmount) N/A

Notes —

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* ___

Parameter Criteria: Circle One: *Parameters stabilized* OR *> 3 well volumes purged* SMH

Total Gallons purged: ≈10 Gallons needed for 3WV: 4.98

Water observations: ___

Notes: ___

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1146	Purging start time	took time for water to come up				muddy/silty
1152	4.7	6.15	493.0	6.77	279.1	slightly silty
1155	4.7	5.59	484.8	6.74	280.8	clear
1158	4.7	5.35	485.5	6.74	280.5	clear
1201	4.8	5.26	489.4	6.75	280.3	clear
1204	4.8	5.12	488.6	6.75	280.2	clear
1207	SAMPLE					

Laboratory *SGS*

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC 8260	VOA	HCl	☐	☐
☐				☐	☐

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Monroe School (Weighted mw)
Sampling Personnel: ARM
Weather Conditions: Sunny Air Temp. (°F): 40s

Project No.: 101929
Date: 9/27/19
Well: MW-10
Time started: 1315
Time completed: 1430

Sample No.: MW-10 Time: 1359
Duplicate Analysis: Time
Equipment Blank (EB): EB-10 Analysis: VOC 8260 Time: 1415

Depth to Water (ft.): 12.22
Depth to LNAPL (ft.): —
NAPL Thickness (ft.): —
Method of NAPL Measurement: —

Pump/Controller: Hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 1335
Purge Rate (gal./min.): 0.25
Pumping End: 1359

Pump Set Depth Below MP (ft.): 19.03
KuriTec Tubing (ft.): 20
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 19.13 +0.9=20.03
Depth to Water Below MP (ft.): 12.22
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 7.81
Gallons per foot: 0.17
Gallons in Well: 1.33
Gallons in Well x3 = 3.98
(also enter on back) Total Gallons Purged: 6
Purge Water Disposal: City of N. ~~P. manhole near NPR Gate~~ 1 GAC #3

Monument Condition: good; covered w/ mud + debris
Casing Condition: good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / Flushmount
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.67
Monument to ground surface (ft.): 0

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: ____ HOBO
Datalogger serial #: ____
Measured cable length (ft): ____

Frost-jacking? Y / N
Temperature Logger Present (TidBit)? Y / N
Lock present and operational N/A
Well name legible on outside of well (stickup) or inside of well (flushmount) N/A

Notes: ____

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

RW

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: ___

Parameter Criteria: Circle One: *Parameters stabilized* OR > 3 well volumes purged

Total Gallons purged: 6 Gallons needed for 3WV: 3.96

Water observations: ___

Notes: ___

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1335	Purging start time					
1337	6.1	1.73	~~445.6~~	6.83	185.6	Rusty
1340	6.5	0.67	~~693.4~~ 449.0	6.61	134.8	Clear
1343	6.6	0.52	449.9	6.67	118.6	Clear
1347	6.6	0.38	450.5	6.69	109.6	Clear
1350	Water	Stopped pumping, restarted	pump; ~~696~~ 452.7	pump; ba. HCl + rabbits were base		
1353	6.8	0.28		6.67	102.3	Clear
1356	6.9	0.30	449.2	6.68	99.9	Clear
1359						

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOC	8260 VOA	HCl	☐	☒
☐				☐	☐

RW

MONITORING WELL SAMPLING LOG

Owner/Client: BMES
Location: Monroe Neighborhood
Sampling Personnel: ARM
Weather Conditions: cold, clear Air Temp. (°F): 30's

Project No.: 101926
Date: 9/27/19
Well: MW-11
Time started: 9:15
Time completed: 10:20

Sample No.: MW-11 Time: 1005
Duplicate: — Analysis: Time: —
Equipment Blank (EB): — Analysis: Time: —

Depth to Water (ft.): 11.39
Depth to LNAPL (ft.): —
NAPL Thickness (ft.): —
Method of NAPL Measurement: —

Pump/Controller: Hurricane XL
Purging Method: portable / dedicated pump
Pumping Start: 0945
Purge Rate (gal./min.): 0.25
Pumping End: 1005

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 19.38 + 0.9 = 20.28
Depth to Water Below MP (ft.): 11.39
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 8.89
Gallons per foot: 0.17
Gallons in Well: 1.51
Gallons in Well x3 = 4.53
(also enter on back) Total Gallons Purged: 5
Purge Water Disposal: ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Pump Set Depth Below MP (ft.): 19.28
KuriTec Tubing (ft.): 24
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Monument Condition: good
Casing Condition: good
Wiring Condition (dedicated pumps): NA

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: Tape measure

Top-of-casing to monument (ft.): 0.62
Monument to ground surface (ft.):

Datalogger Type (circle): RT-100 / GW WL-16 / AT-200 / LT-700 / LT-500 / Other: _____ / HOBO
Datalogger serial #:
Measured cable length (ft):

☒ Frost-jacking? Y / (N)
☐ Lock present and operational NA
☐ Well name legible on outside of well (stickup) or inside of well (flushmount) No

Temperature Logger Present (TidBit)? Y / (N)

Notes:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____

Parameter Criteria: Circle One: Parameters stabilized OR > 3 well volumes purged

Total Gallons purged: ≈ 6.5 Gallons needed for 3WV: 4.53

Water observations: Silty

Notes: bottom of well muddy / hole

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
0945	Purging start time					
0948	8.2	4.62	599	5.93	281.7	muddy
0951	8.3	4.07	592	6.35	277.5	less silty
0954	8.3	3.52	590	6.47	276.5	clear
0959	8.4	3.07	591	6.53	274.5	clear
1002	8.4	2.92	599	6.55	274.5	clear
1005	SAMPLE					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	Sulfolane (1625B)	2x 1-Liter amber bottle	none	☐	☐
☐	BTEX (8260B)	3x 40-mL amber VOA vials	HCl	☐	☐
☐	Geochem	Multiple (see proposal)	Multiple	☐	☐
☐	COPC	Multiple (see proposal)	Multiple	☐	☐
☒	VOC 8260	VOA	HCl	☐	☐
☐				☐	☐

RW

MONITORING WELL SAMPLING LOG

Owner/Client BMES
Location REI Parking lot
Sampling Personnel ARM BAB
Weather Conditions Raining Air Temp. (°F) 50's

Project No. 101926
Date 9/26/19
Well MW-12
Time started 1120
Time completed 1230

Sample No. MW-12 Time 1203
Duplicate Analysis: Time
Equipment Blank (EB) Analysis: Time

Depth to Water (ft.) 13.32
Depth to LNAPL (ft.)
NAPL Thickness (ft.)
Method of NAPL Measurement

Pump/Controller Hurricane XL
Purging Method *portable / dedicated pump*
Pumping Start 1143
Purge Rate (gal./min.) 0.5
Pumping End 1200

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.)
Measured Total Depth of Well Below MP (ft.) 9.44 +0.9= 20.34
Depth to Water Below MP (ft.) 13.32
Depth to Ice (if frozen) Below MP (ft.)

Pump Set Depth Below MP (ft.) 12.34
KuriTec Tubing (ft.) 17
TruPoly Tubing (ft.)
Silicone Tubing (ft.)

Feet of Water in Well 7.02
Gallons per foot 0.17
Gallons in Well 1.19
Gallons in Well x3 = 3.58
(also enter on back) Total Gallons Purged 8
Purge Water Disposal ~~City of N. P. manhole near NPR Gate 1~~ GAC #3

Monument Condition 5 crews were not secure, well was covered w/ dirt + debris - sinking?
Casing Condition good
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / *Flushmount*
Measurement method: *Tape measure*

Top-of-casing to monument (ft.) 0.47
Monument to ground surface (ft.) 0

Datalogger Type (circle): *RT-100* *GW WL-16* *AT-200* *LT-700* *LT-500* *Other:* *HOBO*
Datalogger serial #:
Measured cable length (ft)

☒ Frost-jacking? Y / (N)
☐ Lock present and operational N/A
☐ Well name legible on outside of well (stickup) or inside of well (flushmount) N/A

Temperature Logger Present (TidBit)? Y / (N)

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* ___

Parameter Criteria: Circle One: *Parameters stabilized* OR *> 3 well volumes purged*

Total Gallons purged: 8 Gallons needed for 3WV: 3.58

Water observations: -

Notes: -

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1143	Purging start time					
1148	7.0	4.01	1215	6.40	182.1	brown/rusty
1151	6.1	2.57	1207	6.40	181.1	"
1154	6.0	2.19	1136	6.42	182.8	clear
1157	6.0	1.72	1074	6.45	184.9	clear
1200	6.0	1.49	1019	6.46	186.3	clear
1203	Sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	*Sulfolane (1625B)*	*2x 1-Liter amber bottle*	*none*	☐	☐
☐	*BTEX (8260B)*	*3x 40-mL amber VOA vials*	*HCl*	☐	☐
☐	*Geochem*	*Multiple (see proposal)*	*Multiple*	☐	☐
☐	*COPC*	*Multiple (see proposal)*	*Multiple*	☐	☐
☒	VOCs 8260		HCl	☐	☐
☐				☐	☐

RW

MONITORING WELL SAMPLING LOG

Owner/Client BMES
Location Foundation Health Rehab Parking lot
Sampling Personnel ARM / BAB
Weather Conditions Sunny Air Temp. (°F) 40

Project No. 101926
Date 9/26/19
Well MW-13
Time started 1350
Time completed ~~1429~~ 1445

Sample No. MW-13 Time 1427
Duplicate — Analysis: Time —
Equipment Blank (EB) — Analysis: Time —

Depth to Water (ft.) 14.58
Depth to LNAPL (ft.)
NAPL Thickness (ft.)
Method of NAPL Measurement

Pump/Controller Hurricane XL
Purging Method *portable* / *dedicated pump*
Pumping Start ~~1400~~
Purge Rate (gal./min.) 0.25 - 0.5
Pumping End 1424

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) ≈
Measured Total Depth of Well Below MP (ft.) 19.76 + 0.9 = 20.66
Depth to Water Below MP (ft.) 14.58
Depth to Ice (if frozen) Below MP (ft.) —

Pump Set Depth Below MP (ft.) 19.66
KuriTec Tubing (ft.) 22
TruPoly Tubing (ft.) —
Silicone Tubing (ft.) —

Feet of Water in Well 6.08 ft
Gallons per foot 0.17
Gallons in Well 1.03
Gallons in Well x3 = 3.09
(also enter on back) Total Gallons Purged 8
Purge Water Disposal ~~*City of N. P. manhole near NPR Gate 1*~~ GAC #3

Monument Condition Covered in dirt, unsecure screws; missing 2 screws
Casing Condition Good
Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) *Top of Casing (TOC)*
Monument type: *Stickup* / *Flushmount*
Measurement method: *Tape measure*

Top-of-casing to monument (ft.) 0.56
Monument to ground surface (ft.) 0

Datalogger Type (circle): *RT-100* *GW WL-16* *AT-200* *LT-700* *LT-500* *Other:* _____ *HOBO*
Datalogger serial #:
Measured cable length (ft)

- ☐ Frost-jacking? Y / (N)
- ☐ Lock present and operational N/A
- ☐ Well name legible on outside of well (stickup) or inside of well (flushmount) No

Temperature Logger Present (TidBit)? Y / (N)

Notes —

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.01057	0.08	0.17	0.38	0.66	1.5	2.6

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: ~~Parameters stabilized~~ OR ~~>3 well volumes purged~~ 3WV
Total Gallons purged: ~~8~~ Gallons needed for 3WV: 3.09
Water observations: Sandy, moved up from bottom 1" Extra (total 2" from bottom)
Notes: _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [± 0.10 mg/L]	Conductivity (µS/cm) [± 3%]	pH [± 0.10]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1400	Purging start time 1400			6.50		
1412	6.4	1.09	~~1.08~~ 645	~~6.52~~	~~6.50~~ 211.9	~~S.~~ lt y
1415	6.4	0.68	624	6.51	213.3	clear
1418	6.4	0.63	616	6.52	214.0	clear
1421	6.4	0.53	612	6.53	213.6	clear
1424	6.4	0.51	614	6.52	212.9	clear
1427	SAMPLE					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	EB
☐	Sulfolane (1625B)	2x 1-Liter amber bottle	none	☐	☐
☐	BTEX (8260B)	3x 40-mL amber VOA vials	HCl	☐	☐
☐	Geochem	Multiple (see proposal)	Multiple	☐	☐
☐	COPC	Multiple (see proposal)	Multiple	☐	☐
~~☒~~	VOC 8260	VOA	HCl	~~☒~~	☐
☐				☐	☐

RW

APPENDIX B: MONITORING WELL SURVEY AND GROUNDWATER GRADIENT

Appendix B

Monitoring Well Survey and Groundwater Gradient

CONTENTS

MONITOR WELL SURVEY

BENTLEY MALL EAST SATELLITE

Fairbanks, Alaska

	ALASKA STATE PLANE ZONE 3, NAD83, USft.		NAVD88 ELEVATION	
WELL ID	NORTHING	EASTING	PVC PIPE	GROUND
BM-MW-1R	3968800.00	1375862.06	446.23	446.6
BM-MW-2R	3968848.89	1375709.75	445.96	446.4
BM-MW-3R	3968850.74	1375708.13	445.99	446.4
BM-MW-4R	3968943.56	1375723.21	444.79	445.1
BM-MW-5	3969118.40	1374819.90	447.73	446.1
BM-MW-6	3969124.45	1374818.59	447.56	446.1
BM-MW-7	3969410.57	1374417.21	449.67	447.2
BM-MW-8	3969218.39	1373663.25	441.62	442.1
BM-MW-9	3969203.76	1374201.91	441.46	442.3
BM-MW-10	3968967.07	1374612.88	442.95	443.7
BM-MW-11	3968941.18	1374060.37	441.82	442.6
BM-MW-12	3968917.64	1375316.66	445.45	446.1
BM-MW-13	3968766.05	1375576.75	445.87	446.5

Surveyed November, 2018

Prepared For Shannon & Wilson

Design Alaska Inc. Architects • Engineers • Surveyors
601 College Road Fairbanks Alaska 99701 907 452 1241
Fax 907 456 6883 E-Mail mail@designalaska.com

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient -- Magnitude and Direction

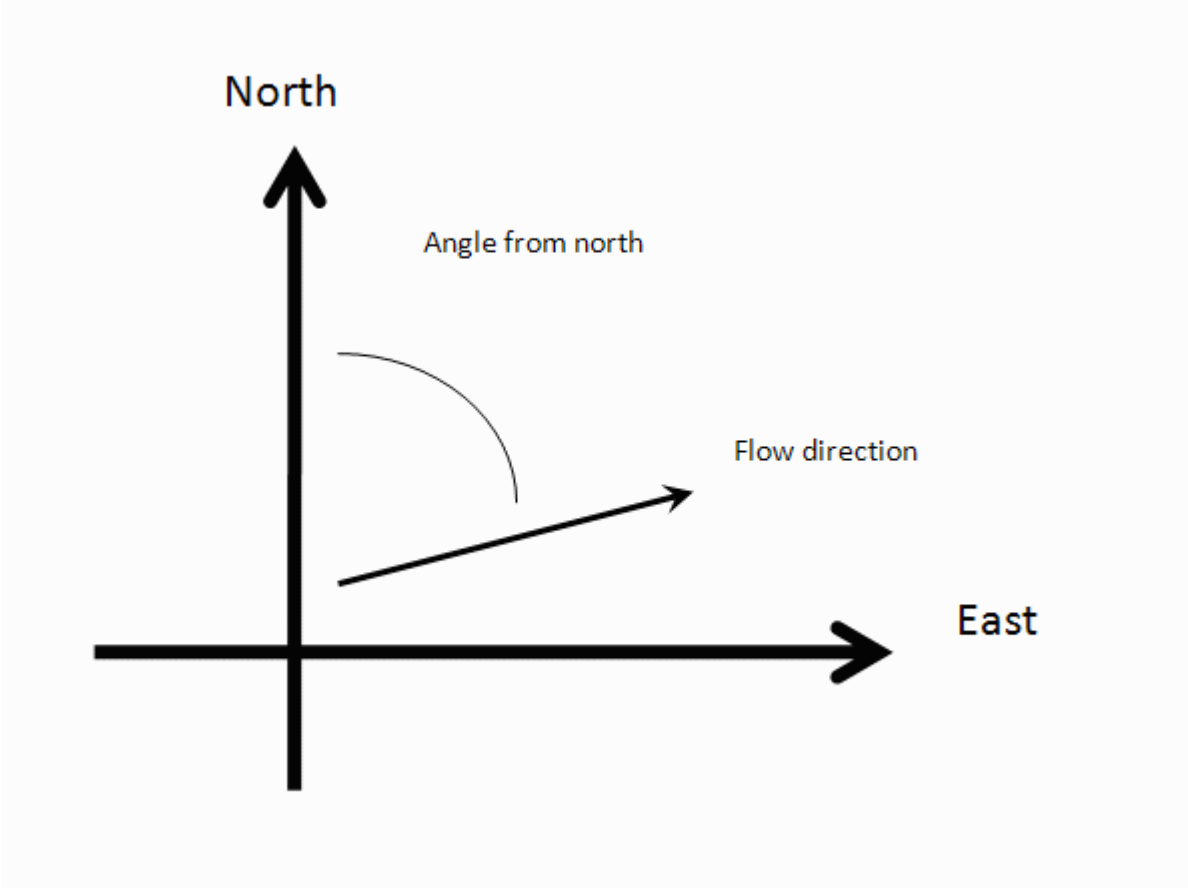
Gradient Calculation from fitting a plane to as many as thirty points

$a\,x_1 + b\,y_1 + c = h_1$
$a\,x_2 + b\,y_2 + c = h_2$
$a\,x_3 + b\,y_3 + c = h_3$
. . .
$a\,x_{30} + b\,y_{30} + c = h_{30}$

where (x_i,y_i) are the coordinates of the well and
h_i is the head

i = 1,2,3, ... , 30
The coefficients a, b, and c are calculated by a least-squares fitting of the the data to a plane

The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant



Inputs

Example Data Set 1	Example Data Set 2	Calculate	Clear
Save Data	Recall Data	Go Back	
Site Name	BMES GW		
Date	September 2019	Current Date	
Calculation basis	Head		

Coordinates ft			
I.D.	x-coordinate	y-coordinate	head ft
1) MW-1R	1375862.06	3968800.00	431.42
2) MW-2R	1375709.75	3968848.89	431.43
3) MW-3R	1375708.13	3968850.74	
4) MW-4R	1375723.21	3968943.56	
5) MW-5	1374819.90	3969118.40	
6) MW-6	1374818.59	3969124.45	430.97
7) MW-7	1374417.21	3969410.57	430.74
8) MW-8	1373663.25	3969218.39	430.44
9) MW-9	1374201.91	3969203.76	430.66
10) MW-10	1374612.88	3968967.07	430.73
11) MW-11	1374060.37	3968941.18	
12) MW-12	1375316.66	3968917.64	
13) MW-13	1375576.75	3968766.05	431.29
14)			
15)			
16)			
17)			
18)			
19)			
20)			
21)			
22)			
23)			
24)			
25)			
26)			
27)			
28)			
29)			
30)			

Results

Number of Points Used in Calculation	8
Max. Difference Between Head Values	0.3018
Gradient Magnitude (i)	0.0005078
Flow direction as degrees from North (positive y axis)	258.9
Coefficient of Determination (R^2)	0.980

APPENDIX C: ANALYTICAL LABORATORY REPORT

Appendix C

Analytical Laboratory Report

CONTENTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707

Report Number: **1199822**

Client Project: **101926 - BMES**

Dear Sheila Hinckley,

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 Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

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

Sincerely,
SGS North America Inc.

Stephen Ede
2019.10.17
09:13:14 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@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-Fairbanks**
SGS Project: **1199822**
Project Name/Site: **101926 - BMES**
Project Contact: **Sheila Hinckley**

Refer to sample receipt form for information on sample condition.

MW-1R (1199822001) PS

8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).
8260C - Tetrachloroethene was detected above the calibration range. The sample was reanalyzed outside of hold time and results confirm. The in-hold data is reported.
8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-4R (1199822004) PS

8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).
8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-7 (1199822007) PS

8260C - 1,2-dibromoethane was not calibrated down to the LOQ. There was insufficient volume to reanalyze. The LOQ for 1,2-dibromoethane is elevated.

MW-8 (1199822008) PS

8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-9 (1199822009) PS

8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-10 (1199822010) PS

8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-11 (1199822011) PS

8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).
8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

MW-12 (1199822012) PS

8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).

MW-13 (1199822013) PS

8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).

MW-101R (1199822014) PS

8260C - Sample was analyzed past hold time due to lab error.
8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).
8260C - 1,2-dibromoethane was not calibrated down to the LOQ. There was insufficient volume to rerun. The LOQ for 1,2-dibromoethane is elevated.

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Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1199822**
Project Name/Site: **101926 - BMES**
Project Contact: **Sheila Hinckley**

MW-104R (1199822015) PS

8260B - Sample was analyzed past hold time due to lab error.
8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm.
8260C - Trichlorofluoromethane was detected above the LOQ. ICV recovery for trichlorofluoromethane does not meet QC criteria (Biased high).

EB-10R (1199822016) PS

8260C - 1,2-dibromoethane was not calibrated down to the LOQ. The sample was reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported.

LCS for HBN 1800722 [VXX/35060 (1537660) LCS

8260C - LCS recovery for bromomethane does not meet QC criteria. The associated samples are non-detect.

LCSD for HBN 1800722 [VXX/3506 (1537661) LCSD

8260C - LCSD recovery and RPD for bromomethane does not meet QC criteria. Associated samples are non-detect.

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

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Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260C				
1199822010	MW-10	VMS19555	Trichlorofluoromethane	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

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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.

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Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-1R	1199822001	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-2R	1199822002	09/25/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-3R	1199822003	09/25/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-4R	1199822004	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-5	1199822005	09/25/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-6	1199822006	09/25/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-7	1199822007	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-8	1199822008	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-9	1199822009	09/27/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-10	1199822010	09/27/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-11	1199822011	09/27/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-12	1199822012	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-13	1199822013	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-101R	1199822014	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
MW-104R	1199822015	09/26/2019	10/01/2019	Water (Surface, Eff., Ground)
EB-10R	1199822016	09/27/2019	10/01/2019	Water (Surface, Eff., Ground)
Trip Blank	1199822017	09/25/2019	10/01/2019	Water (Surface, Eff., Ground)

Method	Method Description
SW8260C	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW-1R**
Lab Sample ID: 1199822001
Volatile GC/MS

Parameter	Result	Units
1,1,1,2-Tetrachloroethane	9.25	ug/L
1,2-Dichloroethane	3.43	ug/L
Chloroform	12.2	ug/L
Dibromochloromethane	0.320J	ug/L
Tetrachloroethene	1230	ug/L
Trichloroethene	2.16	ug/L
Trichlorofluoromethane	57.5	ug/L

Client Sample ID: **MW-2R**
Lab Sample ID: 1199822002
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.430J	ug/L
Benzene	0.680	ug/L
Chloroform	9.55	ug/L
cis-1,2-Dichloroethene	2.10	ug/L
Dichlorodifluoromethane	0.330J	ug/L
Tetrachloroethene	183	ug/L
Trichloroethene	1.94	ug/L
Trichlorofluoromethane	16.4	ug/L

Client Sample ID: **MW-3R**
Lab Sample ID: 1199822003
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.690	ug/L
Chloroform	0.420J	ug/L
cis-1,2-Dichloroethene	0.540J	ug/L
Trichloroethene	0.330J	ug/L
Trichlorofluoromethane	2.28	ug/L

Client Sample ID: **MW-4R**
Lab Sample ID: 1199822004
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.430J	ug/L
Chloroform	0.340J	ug/L
cis-1,2-Dichloroethene	0.380J	ug/L
Tetrachloroethene	21.0	ug/L
trans-1,2-Dichloroethene	0.730J	ug/L
Trichloroethene	1.84	ug/L
Trichlorofluoromethane	3.37	ug/L

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Detectable Results Summary

Client Sample ID: **MW-5**
Lab Sample ID: 1199822005
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.680	ug/L
Benzene	0.190J	ug/L
Chloroform	1.15	ug/L
cis-1,2-Dichloroethene	1.93	ug/L
Tetrachloroethene	95.2	ug/L
trans-1,2-Dichloroethene	0.480J	ug/L
Trichloroethene	13.7	ug/L
Trichlorofluoromethane	9.62	ug/L

Client Sample ID: **MW-6**
Lab Sample ID: 1199822006
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.360J	ug/L
Chloroform	1.64	ug/L
cis-1,2-Dichloroethene	1.39	ug/L
Tetrachloroethene	74.8	ug/L
Trichloroethene	7.73	ug/L
Trichlorofluoromethane	5.96	ug/L

Client Sample ID: **MW-7**
Lab Sample ID: 1199822007
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	1.98	ug/L
Tetrachloroethene	5.28	ug/L
Trichloroethene	2.41	ug/L
Trichlorofluoromethane	0.560J	ug/L

Client Sample ID: **MW-8**
Lab Sample ID: 1199822008
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.190J	ug/L
Chloroform	1.22	ug/L
cis-1,2-Dichloroethene	0.940J	ug/L
Tetrachloroethene	3.00	ug/L
trans-1,2-Dichloroethene	6.68	ug/L
Trichloroethene	1.35	ug/L

Client Sample ID: **MW-9**
Lab Sample ID: 1199822009
Volatile GC/MS

Parameter	Result	Units
Chloroform	0.480J	ug/L
cis-1,2-Dichloroethene	1.32	ug/L
Tetrachloroethene	9.78	ug/L
trans-1,2-Dichloroethene	3.48	ug/L
Trichloroethene	2.47	ug/L

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Detectable Results Summary

Client Sample ID: **MW-10**
Lab Sample ID: 1199822010
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.530	ug/L
Benzene	0.170J	ug/L
Chloroform	0.500J	ug/L
cis-1,2-Dichloroethene	2.76	ug/L
Tetrachloroethene	46.5	ug/L
trans-1,2-Dichloroethene	0.320J	ug/L
Trichloroethene	10.1	ug/L
Trichlorofluoromethane	0.310J	ug/L

Client Sample ID: **MW-11**
Lab Sample ID: 1199822011
Volatile GC/MS

Parameter	Result	Units
Chloroform	0.350J	ug/L
Chloromethane	0.580J	ug/L
cis-1,2-Dichloroethene	1.67	ug/L
Tetrachloroethene	4.58	ug/L
trans-1,2-Dichloroethene	9.24	ug/L
Trichloroethene	2.01	ug/L
Trichlorofluoromethane	6.90	ug/L

Client Sample ID: **MW-12**
Lab Sample ID: 1199822012
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.360J	ug/L
Benzene	0.150J	ug/L
Chloroform	0.930J	ug/L
cis-1,2-Dichloroethene	1.36	ug/L
Tetrachloroethene	168	ug/L
Trichloroethene	6.99	ug/L
Trichlorofluoromethane	2.55	ug/L

Client Sample ID: **MW-13**
Lab Sample ID: 1199822013
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.400J	ug/L
Chloroform	1.75	ug/L
Tetrachloroethene	25.4	ug/L
Trichlorofluoromethane	1.70	ug/L

Client Sample ID: **MW-101R**
Lab Sample ID: 1199822014
Volatile GC/MS

Parameter	Result	Units
1,1,1,2-Tetrachloroethane	9.13	ug/L
1,2-Dichloroethane	3.57	ug/L
Chloroform	12.7	ug/L
Tetrachloroethene	1210	ug/L
Trichloroethene	2.24	ug/L
Trichlorofluoromethane	59.0	ug/L

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Detectable Results Summary

Client Sample ID: **MW-104R**
Lab Sample ID: 1199822015
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.460J	ug/L
Chloroform	0.310J	ug/L
cis-1,2-Dichloroethene	0.390J	ug/L
Tetrachloroethene	20.2	ug/L
trans-1,2-Dichloroethene	0.750J	ug/L
Trichloroethene	1.85	ug/L
Trichlorofluoromethane	3.47	ug/L

Client Sample ID: **EB-10R**
Lab Sample ID: 1199822016
Volatile GC/MS

Parameter	Result	Units
Chloroform	0.580J	ug/L
o-Xylene	0.890J	ug/L
P & M -Xylene	0.720J	ug/L
Xylenes (total)	1.61J	ug/L

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822001
Lab Project ID: 1199822

Collection Date: 09/26/19 20:43
Received Date: 10/01/19 14:04
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	9.25		0.500	0.150	ug/L	1		10/10/19 22:55
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 22:55
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/10/19 22:55
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/10/19 22:55
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/10/19 22:55
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,2-Dichloroethane	3.43		0.500	0.150	ug/L	1		10/10/19 22:55
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/10/19 22:55
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 22:55
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 22:55
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/10/19 22:55
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 22:55
Benzene	0.200	U	0.400	0.120	ug/L	1		10/10/19 22:55
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 22:55
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/10/19 22:55
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/10/19 22:55
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 22:55
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 22:55

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822001
Lab Project ID: 1199822

Collection Date: 09/26/19 20:43
Received Date: 10/01/19 14:04
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	12.2		1.00	0.310	ug/L	1		10/10/19 22:55
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/10/19 22:55
Dibromochloromethane	0.320 J		0.500	0.150	ug/L	1		10/10/19 22:55
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/10/19 22:55
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/10/19 22:55
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/10/19 22:55
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/10/19 22:55
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Styrene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Tetrachloroethene	1230 E		1.00	0.310	ug/L	1		10/10/19 22:55
Toluene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/10/19 22:55
Trichloroethene	2.16		1.00	0.310	ug/L	1		10/10/19 22:55
Trichlorofluoromethane	57.5		1.00	0.310	ug/L	1		10/10/19 22:55
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/10/19 22:55
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/10/19 22:55
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/10/19 22:55
Surrogates								
1,2-Dichloroethane-D4 (surr)	92.8		81-118		%	1		10/10/19 22:55
4-Bromofluorobenzene (surr)	99.2		85-114		%	1		10/10/19 22:55
Toluene-d8 (surr)	103		89-112		%	1		10/10/19 22:55

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822001
Lab Project ID: 1199822

Collection Date: 09/26/19 20:43
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 22:55
Container ID: 1199822001-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822002
Lab Project ID: 1199822

Collection Date: 09/25/19 12:41
Received Date: 10/01/19 14:04
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		10/08/19 14:53
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/08/19 14:53
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/08/19 14:53
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,2-Dichloroethane	0.430	J	0.500	0.150	ug/L	1		10/08/19 14:53
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
Benzene	0.680		0.400	0.120	ug/L	1		10/08/19 14:53
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/08/19 14:53
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53

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Results of **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822002
Lab Project ID: 1199822

Collection Date: 09/25/19 12:41
Received Date: 10/01/19 14:04
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	9.55		1.00	0.310	ug/L	1		10/08/19 14:53
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
cis-1,2-Dichloroethene	2.10		1.00	0.310	ug/L	1		10/08/19 14:53
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 14:53
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Dichlorodifluoromethane	0.330	J	1.00	0.310	ug/L	1		10/08/19 14:53
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/08/19 14:53
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/08/19 14:53
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Styrene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Tetrachloroethene	183		5.00	1.55	ug/L	5		10/08/19 19:02
Toluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 14:53
Trichloroethene	1.94		1.00	0.310	ug/L	1		10/08/19 14:53
Trichlorofluoromethane	16.4		1.00	0.310	ug/L	1		10/08/19 14:53
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/08/19 14:53
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/08/19 14:53
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/08/19 14:53
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		10/08/19 14:53
4-Bromofluorobenzene (surr)	101		85-114		%	1		10/08/19 14:53
Toluene-d8 (surr)	98.6		89-112		%	1		10/08/19 14:53

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Results of **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822002
Lab Project ID: 1199822

Collection Date: 09/25/19 12:41
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 14:53
Container ID: 1199822002-A

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 19:02
Container ID: 1199822002-C

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 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 **MW-3R**

Client Sample ID: **MW-3R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822003
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
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		10/08/19 15:08
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/08/19 15:08
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/08/19 15:08
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,2-Dichloroethane	0.690		0.500	0.150	ug/L	1		10/08/19 15:08
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
Benzene	0.200	U	0.400	0.120	ug/L	1		10/08/19 15:08
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/08/19 15:08
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-3R**

Client Sample ID: **MW-3R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822003
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
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	0.420	J	1.00	0.310	ug/L	1		10/08/19 15:08
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
cis-1,2-Dichloroethene	0.540	J	1.00	0.310	ug/L	1		10/08/19 15:08
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:08
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/08/19 15:08
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/08/19 15:08
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Styrene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/09/19 14:47
Toluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:08
Trichloroethene	0.330	J	1.00	0.310	ug/L	1		10/08/19 15:08
Trichlorofluoromethane	2.28		1.00	0.310	ug/L	1		10/08/19 15:08
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:08
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/08/19 15:08
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/08/19 15:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	117		81-118		%	1		10/08/19 15:08
4-Bromofluorobenzene (surr)	105		85-114		%	1		10/08/19 15:08
Toluene-d8 (surr)	97		89-112		%	1		10/08/19 15:08

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Results of **MW-3R**

Client Sample ID: **MW-3R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822003
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19549
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/09/19 14:47
Container ID: 1199822003-B

Prep Batch: VXX35060
Prep Method: SW5030B
Prep Date/Time: 10/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 15:08
Container ID: 1199822003-A

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-4R**

Client Sample ID: **MW-4R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822004
Lab Project ID: 1199822

Collection Date: 09/26/19 10:25
Received Date: 10/01/19 14:04
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		10/10/19 23:10
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:10
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/10/19 23:10
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,2-Dichloroethane	0.430	J	0.500	0.150	ug/L	1		10/10/19 23:10
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
Benzene	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:10
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/10/19 23:10
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-4R**

Client Sample ID: **MW-4R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822004
Lab Project ID: 1199822

Collection Date: 09/26/19 10:25
Received Date: 10/01/19 14:04
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	0.340	J	1.00	0.310	ug/L	1		10/10/19 23:10
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
cis-1,2-Dichloroethene	0.380	J	1.00	0.310	ug/L	1		10/10/19 23:10
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:10
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/10/19 23:10
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/10/19 23:10
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Styrene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Tetrachloroethene	21.0		1.00	0.310	ug/L	1		10/10/19 23:10
Toluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
trans-1,2-Dichloroethene	0.730	J	1.00	0.310	ug/L	1		10/10/19 23:10
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:10
Trichloroethene	1.84		1.00	0.310	ug/L	1		10/10/19 23:10
Trichlorofluoromethane	3.37		1.00	0.310	ug/L	1		10/10/19 23:10
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:10
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/10/19 23:10
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/10/19 23:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		10/10/19 23:10
4-Bromofluorobenzene (surr)	100		85-114		%	1		10/10/19 23:10
Toluene-d8 (surr)	99.4		89-112		%	1		10/10/19 23:10

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Results of **MW-4R**

Client Sample ID: **MW-4R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822004
Lab Project ID: 1199822

Collection Date: 09/26/19 10:25
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 23:10
Container ID: 1199822004-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822005
Lab Project ID: 1199822

Collection Date: 09/25/19 15:25
Received Date: 10/01/19 14:04
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		10/08/19 15:23
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:23
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/08/19 15:23
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:23
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/08/19 15:23
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,2-Dichloroethane	0.680		0.500	0.150	ug/L	1		10/08/19 15:23
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:23
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:23
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:23
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:23
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:23
Benzene	0.190	J	0.400	0.120	ug/L	1		10/08/19 15:23
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:23
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/08/19 15:23
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:23
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:23
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:23

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Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822005
Lab Project ID: 1199822

Collection Date: 09/25/19 15:25
Received Date: 10/01/19 14:04
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	1.15		1.00	0.310	ug/L	1		10/08/19 15:23
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
cis-1,2-Dichloroethene	1.93		1.00	0.310	ug/L	1		10/08/19 15:23
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/08/19 15:23
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/08/19 15:23
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:23
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/08/19 15:23
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:23
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/08/19 15:23
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Styrene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Tetrachloroethene	95.2		1.00	0.310	ug/L	1		10/08/19 15:23
Toluene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
trans-1,2-Dichloroethene	0.480 J		1.00	0.310	ug/L	1		10/08/19 15:23
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:23
Trichloroethene	13.7		1.00	0.310	ug/L	1		10/08/19 15:23
Trichlorofluoromethane	9.62		1.00	0.310	ug/L	1		10/08/19 15:23
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:23
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/08/19 15:23
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/08/19 15:23
Surrogates								
1,2-Dichloroethane-D4 (surr)	113		81-118		%	1		10/08/19 15:23
4-Bromofluorobenzene (surr)	103		85-114		%	1		10/08/19 15:23
Toluene-d8 (surr)	99.5		89-112		%	1		10/08/19 15:23

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Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822005
Lab Project ID: 1199822

Collection Date: 09/25/19 15:25
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 15:23
Container ID: 1199822005-A

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822006
Lab Project ID: 1199822

Collection Date: 09/25/19 16:12
Received Date: 10/01/19 14:04
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		10/08/19 15:37
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:37
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/08/19 15:37
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:37
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/08/19 15:37
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,2-Dichloroethane	0.360	J	0.500	0.150	ug/L	1		10/08/19 15:37
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:37
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:37
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:37
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:37
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:37
Benzene	0.200	U	0.400	0.120	ug/L	1		10/08/19 15:37
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:37
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/08/19 15:37
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/08/19 15:37
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 15:37
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 15:37

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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822006
Lab Project ID: 1199822

Collection Date: 09/25/19 16:12
Received Date: 10/01/19 14:04
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	1.64		1.00	0.310	ug/L	1		10/08/19 15:37
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
cis-1,2-Dichloroethene	1.39		1.00	0.310	ug/L	1		10/08/19 15:37
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/08/19 15:37
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/08/19 15:37
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:37
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/08/19 15:37
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:37
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/08/19 15:37
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Styrene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Tetrachloroethene	74.8		1.00	0.310	ug/L	1		10/08/19 15:37
Toluene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/08/19 15:37
Trichloroethene	7.73		1.00	0.310	ug/L	1		10/08/19 15:37
Trichlorofluoromethane	5.96		1.00	0.310	ug/L	1		10/08/19 15:37
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/08/19 15:37
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/08/19 15:37
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/08/19 15:37
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		10/08/19 15:37
4-Bromofluorobenzene (surr)	103		85-114		%	1		10/08/19 15:37
Toluene-d8 (surr)	98.4		89-112		%	1		10/08/19 15:37

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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822006
Lab Project ID: 1199822

Collection Date: 09/25/19 16:12
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 15:37
Container ID: 1199822006-A

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-7**

Client Sample ID: **MW-7**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822007
Lab Project ID: 1199822

Collection Date: 09/26/19 15:48
Received Date: 10/01/19 14:04
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		10/10/19 23:24
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:24
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
1,2-Dibromoethane	0.200	U	0.400	0.0180	ug/L	1		10/10/19 23:24
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
Benzene	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:24
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/10/19 23:24
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24

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Results of **MW-7**

Client Sample ID: **MW-7**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822007
Lab Project ID: 1199822

Collection Date: 09/26/19 15:48
Received Date: 10/01/19 14:04
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		10/10/19 23:24
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
cis-1,2-Dichloroethene	1.98		1.00	0.310	ug/L	1		10/10/19 23:24
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:24
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/10/19 23:24
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/10/19 23:24
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Styrene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Tetrachloroethene	5.28		1.00	0.310	ug/L	1		10/10/19 23:24
Toluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:24
Trichloroethene	2.41		1.00	0.310	ug/L	1		10/10/19 23:24
Trichlorofluoromethane	0.560	J	1.00	0.310	ug/L	1		10/10/19 23:24
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:24
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/10/19 23:24
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/10/19 23:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		10/10/19 23:24
4-Bromofluorobenzene (surr)	101		85-114		%	1		10/10/19 23:24
Toluene-d8 (surr)	98.8		89-112		%	1		10/10/19 23:24

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Results of **MW-7**

Client Sample ID: **MW-7**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822007
Lab Project ID: 1199822

Collection Date: 09/26/19 15:48
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 23:24
Container ID: 1199822007-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-8**

Client Sample ID: **MW-8**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822008
Lab Project ID: 1199822

Collection Date: 09/26/19 17:45
Received Date: 10/01/19 14:04
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		10/10/19 23:39
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:39
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:39
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:39
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/10/19 23:39
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,2-Dichloroethane	0.190	J	0.500	0.150	ug/L	1		10/10/19 23:39
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:39
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:39
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:39
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:39
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:39
Benzene	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:39
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:39
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/10/19 23:39
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:39
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:39
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:39

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-8**

Client Sample ID: **MW-8**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822008
Lab Project ID: 1199822

Collection Date: 09/26/19 17:45
Received Date: 10/01/19 14:04
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	1.22		1.00	0.310	ug/L	1		10/10/19 23:39
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
cis-1,2-Dichloroethene	0.940 J		1.00	0.310	ug/L	1		10/10/19 23:39
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/10/19 23:39
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/10/19 23:39
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/10/19 23:39
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/10/19 23:39
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/10/19 23:39
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/10/19 23:39
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Styrene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Tetrachloroethene	3.00		1.00	0.310	ug/L	1		10/10/19 23:39
Toluene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
trans-1,2-Dichloroethene	6.68		1.00	0.310	ug/L	1		10/10/19 23:39
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Trichloroethene	1.35		1.00	0.310	ug/L	1		10/10/19 23:39
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		10/10/19 23:39
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/10/19 23:39
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/10/19 23:39
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/10/19 23:39
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		10/10/19 23:39
4-Bromofluorobenzene (surr)	103		85-114		%	1		10/10/19 23:39
Toluene-d8 (surr)	99.6		89-112		%	1		10/10/19 23:39

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Results of **MW-8**

Client Sample ID: **MW-8**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822008
Lab Project ID: 1199822

Collection Date: 09/26/19 17:45
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 23:39
Container ID: 1199822008-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822009
Lab Project ID: 1199822

Collection Date: 09/27/19 12:07
Received Date: 10/01/19 14:04
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		10/10/19 23:54
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:54
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/10/19 23:54
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
Benzene	0.200	U	0.400	0.120	ug/L	1		10/10/19 23:54
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/10/19 23:54
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822009
Lab Project ID: 1199822

Collection Date: 09/27/19 12:07
Received Date: 10/01/19 14:04
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	0.480	J	1.00	0.310	ug/L	1		10/10/19 23:54
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
cis-1,2-Dichloroethene	1.32		1.00	0.310	ug/L	1		10/10/19 23:54
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/10/19 23:54
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/10/19 23:54
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/10/19 23:54
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Styrene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Tetrachloroethene	9.78		1.00	0.310	ug/L	1		10/10/19 23:54
Toluene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
trans-1,2-Dichloroethene	3.48		1.00	0.310	ug/L	1		10/10/19 23:54
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Trichloroethene	2.47		1.00	0.310	ug/L	1		10/10/19 23:54
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/10/19 23:54
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/10/19 23:54
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/10/19 23:54
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/10/19 23:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		10/10/19 23:54
4-Bromofluorobenzene (surr)	99.7		85-114		%	1		10/10/19 23:54
Toluene-d8 (surr)	99.4		89-112		%	1		10/10/19 23:54

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822009
Lab Project ID: 1199822

Collection Date: 09/27/19 12:07
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 23:54
Container ID: 1199822009-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822010
Lab Project ID: 1199822

Collection Date: 09/27/19 13:59
Received Date: 10/01/19 14:04
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		10/11/19 00:08
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:08
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/11/19 00:08
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,2-Dichloroethane	0.530		0.500	0.150	ug/L	1		10/11/19 00:08
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
Benzene	0.170	J	0.400	0.120	ug/L	1		10/11/19 00:08
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/11/19 00:08
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08

Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822010
Lab Project ID: 1199822

Collection Date: 09/27/19 13:59
Received Date: 10/01/19 14:04
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	J	1.00	0.310	ug/L	1		10/11/19 00:08
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
cis-1,2-Dichloroethene	2.76		1.00	0.310	ug/L	1		10/11/19 00:08
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:08
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/11/19 00:08
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/11/19 00:08
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Styrene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Tetrachloroethene	46.5		1.00	0.310	ug/L	1		10/11/19 00:08
Toluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
trans-1,2-Dichloroethene	0.320	J	1.00	0.310	ug/L	1		10/11/19 00:08
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:08
Trichloroethene	10.1		1.00	0.310	ug/L	1		10/11/19 00:08
Trichlorofluoromethane	0.310	J	1.00	0.310	ug/L	1		10/11/19 00:08
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:08
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/11/19 00:08
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/11/19 00:08
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		10/11/19 00:08
4-Bromofluorobenzene (surr)	101		85-114		%	1		10/11/19 00:08
Toluene-d8 (surr)	100		89-112		%	1		10/11/19 00:08

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Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822010
Lab Project ID: 1199822

Collection Date: 09/27/19 13:59
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 00:08
Container ID: 1199822010-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-11**

Client Sample ID: **MW-11**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822011
Lab Project ID: 1199822

Collection Date: 09/27/19 10:05
Received Date: 10/01/19 14:04
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		10/11/19 00:23
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:23
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/11/19 00:23
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
Benzene	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:23
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/11/19 00:23
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23

Results of **MW-11**

Client Sample ID: **MW-11**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822011
Lab Project ID: 1199822

Collection Date: 09/27/19 10:05
Received Date: 10/01/19 14:04
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	0.350	J	1.00	0.310	ug/L	1		10/11/19 00:23
Chloromethane	0.580	J	1.00	0.310	ug/L	1		10/11/19 00:23
cis-1,2-Dichloroethene	1.67		1.00	0.310	ug/L	1		10/11/19 00:23
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:23
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/11/19 00:23
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/11/19 00:23
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Styrene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Tetrachloroethene	4.58		1.00	0.310	ug/L	1		10/11/19 00:23
Toluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
trans-1,2-Dichloroethene	9.24		1.00	0.310	ug/L	1		10/11/19 00:23
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:23
Trichloroethene	2.01		1.00	0.310	ug/L	1		10/11/19 00:23
Trichlorofluoromethane	6.90		1.00	0.310	ug/L	1		10/11/19 00:23
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:23
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/11/19 00:23
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/11/19 00:23
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		10/11/19 00:23
4-Bromofluorobenzene (surr)	101		85-114		%	1		10/11/19 00:23
Toluene-d8 (surr)	100		89-112		%	1		10/11/19 00:23

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Results of **MW-11**

Client Sample ID: **MW-11**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822011
Lab Project ID: 1199822

Collection Date: 09/27/19 10:05
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 00:23
Container ID: 1199822011-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822012
Lab Project ID: 1199822

Collection Date: 09/26/19 12:03
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/09/19 20:38
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/09/19 20:38
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,2-Dichloroethane	0.360	J	0.500	0.150	ug/L	1		10/09/19 20:38
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
Benzene	0.150	J	0.400	0.120	ug/L	1		10/09/19 20:38
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/09/19 20:38
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38

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Results of **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822012
Lab Project ID: 1199822

Collection Date: 09/26/19 12:03
Received Date: 10/01/19 14:04
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	0.930	J	1.00	0.310	ug/L	1		10/09/19 20:38
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
cis-1,2-Dichloroethene	1.36		1.00	0.310	ug/L	1		10/09/19 20:38
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:38
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/09/19 20:38
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/09/19 20:38
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Styrene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Tetrachloroethene	168		1.00	0.310	ug/L	1		10/09/19 20:38
Toluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:38
Trichloroethene	6.99		1.00	0.310	ug/L	1		10/09/19 20:38
Trichlorofluoromethane	2.55		1.00	0.310	ug/L	1		10/10/19 22:26
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:38
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/09/19 20:38
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/09/19 20:38
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		10/09/19 20:38
4-Bromofluorobenzene (surr)	105		85-114		%	1		10/09/19 20:38
Toluene-d8 (surr)	98.1		89-112		%	1		10/09/19 20:38

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Results of **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822012
Lab Project ID: 1199822

Collection Date: 09/26/19 12:03
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19549
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/09/19 20:38
Container ID: 1199822012-A

Prep Batch: VXX35060
Prep Method: SW5030B
Prep Date/Time: 10/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 22:26
Container ID: 1199822012-B

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822013
Lab Project ID: 1199822

Collection Date: 09/26/19 14:27
Received Date: 10/01/19 14:04
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		10/09/19 20:53
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:53
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/09/19 20:53
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:53
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/09/19 20:53
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,2-Dichloroethane	0.400	J	0.500	0.150	ug/L	1		10/09/19 20:53
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:53
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:53
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:53
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:53
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:53
Benzene	0.200	U	0.400	0.120	ug/L	1		10/09/19 20:53
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:53
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/09/19 20:53
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/09/19 20:53
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/09/19 20:53
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/09/19 20:53

Print Date: 10/17/2019 8:47:27AM

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Results of **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822013
Lab Project ID: 1199822

Collection Date: 09/26/19 14:27
Received Date: 10/01/19 14:04
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	1.75		1.00	0.310	ug/L	1		10/09/19 20:53
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/09/19 20:53
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/09/19 20:53
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/09/19 20:53
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/09/19 20:53
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/09/19 20:53
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/09/19 20:53
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Styrene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Tetrachloroethene	25.4		1.00	0.310	ug/L	1		10/09/19 20:53
Toluene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		10/09/19 20:53
Trichlorofluoromethane	1.70		1.00	0.310	ug/L	1		10/10/19 22:41
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/09/19 20:53
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/09/19 20:53
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/09/19 20:53
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		10/09/19 20:53
4-Bromofluorobenzene (surr)	103		85-114		%	1		10/09/19 20:53
Toluene-d8 (surr)	95.6		89-112		%	1		10/09/19 20:53

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Results of **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822013
Lab Project ID: 1199822

Collection Date: 09/26/19 14:27
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19549
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/09/19 20:53
Container ID: 1199822013-A

Prep Batch: VXX35060
Prep Method: SW5030B
Prep Date/Time: 10/09/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/10/19 22:41
Container ID: 1199822013-B

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-101R**

Client Sample ID: **MW-101R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822014
Lab Project ID: 1199822

Collection Date: 09/26/19 20:33
Received Date: 10/01/19 14:04
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	9.13		0.500	0.150	ug/L	1		10/11/19 00:38
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:38
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:38
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:38
1,2-Dibromoethane	0.200	U	0.400	0.0180	ug/L	1		10/11/19 00:38
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,2-Dichloroethane	3.57		0.500	0.150	ug/L	1		10/11/19 00:38
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:38
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:38
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:38
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:38
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:38
Benzene	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:38
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:38
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/11/19 00:38
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:38
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:38
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:38

Results of **MW-101R**

Client Sample ID: **MW-101R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822014
Lab Project ID: 1199822

Collection Date: 09/26/19 20:33
Received Date: 10/01/19 14:04
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	12.7		1.00	0.310	ug/L	1		10/11/19 00:38
Chloromethane	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		10/11/19 00:38
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		10/11/19 00:38
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Freon-113	5.00 U		10.0	3.10	ug/L	1		10/11/19 00:38
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Methylene chloride	2.50 U		5.00	1.00	ug/L	1		10/11/19 00:38
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		10/11/19 00:38
Naphthalene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
o-Xylene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		10/11/19 00:38
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Styrene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Tetrachloroethene	1210		10.0	3.10	ug/L	10		10/11/19 17:16
Toluene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		10/11/19 00:38
Trichloroethene	2.24		1.00	0.310	ug/L	1		10/11/19 00:38
Trichlorofluoromethane	59.0		1.00	0.310	ug/L	1		10/11/19 00:38
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		10/11/19 00:38
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		10/11/19 00:38
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		10/11/19 00:38
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.5		81-118		%	1		10/11/19 00:38
4-Bromofluorobenzene (surr)	99.8		85-114		%	1		10/11/19 00:38
Toluene-d8 (surr)	104		89-112		%	1		10/11/19 00:38

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Results of **MW-101R**

Client Sample ID: **MW-101R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822014
Lab Project ID: 1199822

Collection Date: 09/26/19 20:33
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 00:38
Container ID: 1199822014-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS19557
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 17:16
Container ID: 1199822014-C

Prep Batch: VXX35071
Prep Method: SW5030B
Prep Date/Time: 10/11/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822015
Lab Project ID: 1199822

Collection Date: 09/26/19 10:15
Received Date: 10/01/19 14:04
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		10/11/19 00:52
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:52
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/11/19 00:52
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,2-Dichloroethane	0.460	J	0.500	0.150	ug/L	1		10/11/19 00:52
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
Benzene	0.200	U	0.400	0.120	ug/L	1		10/11/19 00:52
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/11/19 00:52
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52

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Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822015
Lab Project ID: 1199822

Collection Date: 09/26/19 10:15
Received Date: 10/01/19 14:04
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	0.310	J	1.00	0.310	ug/L	1		10/11/19 00:52
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
cis-1,2-Dichloroethene	0.390	J	1.00	0.310	ug/L	1		10/11/19 00:52
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 00:52
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/11/19 00:52
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/11/19 00:52
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Styrene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Tetrachloroethene	20.2		1.00	0.310	ug/L	1		10/11/19 00:52
Toluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
trans-1,2-Dichloroethene	0.750	J	1.00	0.310	ug/L	1		10/11/19 00:52
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 00:52
Trichloroethene	1.85		1.00	0.310	ug/L	1		10/11/19 00:52
Trichlorofluoromethane	3.47		1.00	0.310	ug/L	1		10/11/19 00:52
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/11/19 00:52
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/11/19 00:52
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/11/19 00:52
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		10/11/19 00:52
4-Bromofluorobenzene (surr)	99.8		85-114		%	1		10/11/19 00:52
Toluene-d8 (surr)	98.3		89-112		%	1		10/11/19 00:52

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Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822015
Lab Project ID: 1199822

Collection Date: 09/26/19 10:15
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 00:52
Container ID: 1199822015-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **EB-10R**

Client Sample ID: **EB-10R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822016
Lab Project ID: 1199822

Collection Date: 09/27/19 14:15
Received Date: 10/01/19 14:04
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		10/11/19 01:07
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/11/19 01:07
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/11/19 01:07
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
Benzene	0.200	U	0.400	0.120	ug/L	1		10/11/19 01:07
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/11/19 01:07
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07

Results of **EB-10R**

Client Sample ID: **EB-10R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822016
Lab Project ID: 1199822

Collection Date: 09/27/19 14:15
Received Date: 10/01/19 14:04
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	0.580	J	1.00	0.310	ug/L	1		10/11/19 01:07
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/11/19 01:07
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/11/19 01:07
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
o-Xylene	0.890	J	1.00	0.310	ug/L	1		10/11/19 01:07
P & M -Xylene	0.720	J	2.00	0.620	ug/L	1		10/11/19 01:07
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Styrene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Toluene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/11/19 01:07
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/11/19 01:07
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/11/19 01:07
Xylenes (total)	1.61	J	3.00	1.00	ug/L	1		10/11/19 01:07
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		10/11/19 01:07
4-Bromofluorobenzene (surr)	103		85-114		%	1		10/11/19 01:07
Toluene-d8 (surr)	97.1		89-112		%	1		10/11/19 01:07

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Results of **EB-10R**

Client Sample ID: **EB-10R**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822016
Lab Project ID: 1199822

Collection Date: 09/27/19 14:15
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/11/19 01:07
Container ID: 1199822016-A

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/19 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 **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822017
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
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		10/08/19 13:11
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/08/19 13:11
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/08/19 13:11
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,2-Dichloroethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
Benzene	0.200	U	0.400	0.120	ug/L	1		10/08/19 13:11
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Bromomethane	2.50	U	5.00	1.50	ug/L	1		10/08/19 13:11
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822017
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
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		10/08/19 13:11
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/08/19 13:11
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Methylene chloride	2.50	U	5.00	1.00	ug/L	1		10/08/19 13:11
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/08/19 13:11
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Styrene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Toluene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/08/19 13:11
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/08/19 13:11
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/08/19 13:11
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/08/19 13:11
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		10/08/19 13:11
4-Bromofluorobenzene (surr)	104		85-114		%	1		10/08/19 13:11
Toluene-d8 (surr)	96.9		89-112		%	1		10/08/19 13:11

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **101926 - BMES**
Lab Sample ID: 1199822017
Lab Project ID: 1199822

Collection Date: 09/25/19 11:43
Received Date: 10/01/19 14:04
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19541
Analytical Method: SW8260C
Analyst: CMC
Analytical Date/Time: 10/08/19 13:11
Container ID: 1199822017-C

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/08/19 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1800638 [VXX/35044]
Blank Lab ID: 1537311

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822002, 1199822003, 1199822005, 1199822006, 1199822017

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

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Method Blank

Blank ID: MB for HBN 1800638 [VXX/35044]
Blank Lab ID: 1537311

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822002, 1199822003, 1199822005, 1199822006, 1199822017

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)	112	81-118		%
4-Bromofluorobenzene (surr)	105	85-114		%
Toluene-d8 (surr)	97.8	89-112		%

Method Blank

Blank ID: MB for HBN 1800638 [VXX/35044]
Blank Lab ID: 1537311

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822002, 1199822003, 1199822005, 1199822006, 1199822017

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19541
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/8/2019 10:36:00AM

Prep Batch: VXX35044
Prep Method: SW5030B
Prep Date/Time: 10/8/2019 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 1199822 [VXX35044]
Blank Spike Lab ID: 1537312
Date Analyzed: 10/08/2019 10:50

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35044]
Spike Duplicate Lab ID: 1537313
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822002, 1199822003, 1199822005, 1199822006, 1199822017

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	32.9	110	30	32.9	110	(78-124)	0.12	(< 20)
1,1,1-Trichloroethane	30	33.1	110	30	33.0	110	(74-131)	0.39	(< 20)
1,1,2,2-Tetrachloroethane	30	28.4	95	30	28.3	95	(71-121)	0.25	(< 20)
1,1,2-Trichloroethane	30	29.3	98	30	29.6	99	(80-119)	0.88	(< 20)
1,1-Dichloroethane	30	30.6	102	30	30.6	102	(77-125)	0.07	(< 20)
1,1-Dichloroethene	30	31.8	106	30	31.7	106	(71-131)	0.16	(< 20)
1,1-Dichloropropene	30	31.9	106	30	31.8	106	(79-125)	0.22	(< 20)
1,2,3-Trichlorobenzene	30	27.9	93	30	30.2	101	(69-129)	8.00	(< 20)
1,2,3-Trichloropropane	30	29.7	99	30	29.8	99	(73-122)	0.20	(< 20)
1,2,4-Trichlorobenzene	30	30.2	101	30	31.0	103	(69-130)	2.50	(< 20)
1,2,4-Trimethylbenzene	30	31.6	105	30	30.7	102	(79-124)	3.00	(< 20)
1,2-Dibromo-3-chloropropane	30	29.3	98	30	29.3	98	(62-128)	0.07	(< 20)
1,2-Dibromoethane	30	30.8	103	30	31.3	104	(77-121)	1.80	(< 20)
1,2-Dichlorobenzene	30	29.9	100	30	29.9	100	(80-119)	0.07	(< 20)
1,2-Dichloroethane	30	30.4	101	30	30.8	103	(73-128)	1.10	(< 20)
1,2-Dichloropropane	30	30.1	100	30	30.8	103	(78-122)	2.20	(< 20)
1,3,5-Trimethylbenzene	30	31.5	105	30	31.0	103	(75-124)	1.70	(< 20)
1,3-Dichlorobenzene	30	30.8	103	30	31.0	103	(80-119)	0.81	(< 20)
1,3-Dichloropropane	30	30.1	100	30	30.1	100	(80-119)	0.03	(< 20)
1,4-Dichlorobenzene	30	30.0	100	30	30.3	101	(79-118)	1.00	(< 20)
2,2-Dichloropropane	30	31.9	106	30	31.8	106	(60-139)	0.50	(< 20)
2-Butanone (MEK)	90	86.2	96	90	86.1	96	(56-143)	0.09	(< 20)
2-Chlorotoluene	30	30.7	102	30	30.2	101	(79-122)	1.80	(< 20)
2-Hexanone	90	82.7	92	90	82.4	92	(57-139)	0.38	(< 20)
4-Chlorotoluene	30	30.9	103	30	30.5	102	(78-122)	1.50	(< 20)
4-Isopropyltoluene	30	31.5	105	30	31.8	106	(77-127)	1.00	(< 20)
4-Methyl-2-pentanone (MIBK)	90	88.6	99	90	90.8	101	(67-130)	2.40	(< 20)
Benzene	30	30.3	101	30	30.4	101	(79-120)	0.26	(< 20)
Bromobenzene	30	30.3	101	30	30.3	101	(80-120)	0.30	(< 20)
Bromochloromethane	30	30.3	101	30	30.8	103	(78-123)	1.50	(< 20)
Bromodichloromethane	30	33.1	110	30	33.2	111	(79-125)	0.42	(< 20)
Bromoform	30	32.4	108	30	32.6	109	(66-130)	0.46	(< 20)
Bromomethane	30	27.0	90	30	26.6	89	(53-141)	1.40	(< 20)
Carbon disulfide	45	44.8	100	45	44.8	100	(64-133)	0.09	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35044]
Blank Spike Lab ID: 1537312
Date Analyzed: 10/08/2019 10:50

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35044]
Spike Duplicate Lab ID: 1537313
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822002, 1199822003, 1199822005, 1199822006, 1199822017

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	34.2	114	30	34.0	113	(72-136)	0.85	(< 20)
Chlorobenzene	30	29.6	99	30	29.5	98	(82-118)	0.17	(< 20)
Chloroethane	30	34.1	114	30	30.9	103	(60-138)	9.90	(< 20)
Chloroform	30	31.4	105	30	31.6	105	(79-124)	0.60	(< 20)
Chloromethane	30	24.6	82	30	25.5	85	(50-139)	3.70	(< 20)
cis-1,2-Dichloroethene	30	30.1	100	30	30.8	103	(78-123)	2.30	(< 20)
cis-1,3-Dichloropropene	30	32.0	107	30	32.3	108	(75-124)	1.10	(< 20)
Dibromochloromethane	30	32.2	107	30	31.9	106	(74-126)	0.84	(< 20)
Dibromomethane	30	30.1	100	30	30.7	102	(79-123)	2.20	(< 20)
Dichlorodifluoromethane	30	27.5	92	30	26.9	90	(32-152)	1.90	(< 20)
Ethylbenzene	30	30.6	102	30	30.9	103	(79-121)	0.75	(< 20)
Freon-113	45	48.4	108	45	48.6	108	(70-136)	0.41	(< 20)
Hexachlorobutadiene	30	30.7	102	30	31.0	103	(66-134)	0.84	(< 20)
Isopropylbenzene (Cumene)	30	31.0	103	30	30.4	101	(72-131)	2.00	(< 20)
Methylene chloride	30	30.1	100	30	30.4	101	(74-124)	1.00	(< 20)
Methyl-t-butyl ether	45	44.8	100	45	46.3	103	(71-124)	3.20	(< 20)
Naphthalene	30	27.5	92	30	30.1	100	(61-128)	9.10	(< 20)
n-Butylbenzene	30	29.5	98	30	29.6	99	(75-128)	0.41	(< 20)
n-Propylbenzene	30	31.5	105	30	31.1	104	(76-126)	1.20	(< 20)
o-Xylene	30	30.5	102	30	30.0	100	(78-122)	1.70	(< 20)
P & M -Xylene	60	61.0	102	60	60.2	100	(80-121)	1.30	(< 20)
sec-Butylbenzene	30	31.5	105	30	30.9	103	(77-126)	2.00	(< 20)
Styrene	30	30.9	103	30	30.7	102	(78-123)	0.71	(< 20)
tert-Butylbenzene	30	31.0	103	30	30.3	101	(78-124)	2.40	(< 20)
Tetrachloroethene	30	31.7	106	30	31.5	105	(74-129)	0.79	(< 20)
Toluene	30	29.5	98	30	29.5	98	(80-121)	0.14	(< 20)
trans-1,2-Dichloroethene	30	30.3	101	30	30.5	102	(75-124)	0.56	(< 20)
trans-1,3-Dichloropropene	30	29.5	98	30	29.4	98	(73-127)	0.17	(< 20)
Trichloroethene	30	31.5	105	30	31.8	106	(79-123)	0.73	(< 20)
Trichlorofluoromethane	30	34.6	115	30	32.4	108	(65-141)	6.70	(< 20)
Vinyl acetate	30	28.5	95	30	29.1	97	(54-146)	2.30	(< 20)
Vinyl chloride	30	28.3	94	30	28.1	94	(58-137)	0.75	(< 20)
Xylenes (total)	90	91.5	102	90	90.2	100	(79-121)	1.40	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35044]
Blank Spike Lab ID: 1537312
Date Analyzed: 10/08/2019 10:50

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35044]
Spike Duplicate Lab ID: 1537313
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822002, 1199822003, 1199822005, 1199822006, 1199822017

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	103	103	30	104	104	(81-118)	1.00	
4-Bromofluorobenzene (surr)	30	101	101	30	99.2	99	(85-114)	2.00	
Toluene-d8 (surr)	30	99.7	100	30	99.3	99	(89-112)	0.44	

Batch Information

Analytical Batch: **VMS19541**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35044**
Prep Method: **SW5030B**
Prep Date/Time: **10/08/2019 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 1800722 [VXX/35060]
Blank Lab ID: 1537659

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822003, 1199822012, 1199822013

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 1800722 [VXX/35060]
Blank Lab ID: 1537659

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822003, 1199822012, 1199822013

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
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)	114	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	97.2	89-112		%

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Method Blank

Blank ID: MB for HBN 1800722 [VXX/35060]
Blank Lab ID: 1537659

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822003, 1199822012, 1199822013

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19549
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/9/2019 10:57:00AM

Prep Batch: VXX35060
Prep Method: SW5030B
Prep Date/Time: 10/9/2019 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 1199822 [VXX35060]
Blank Spike Lab ID: 1537660
Date Analyzed: 10/09/2019 11:11

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35060]
Spike Duplicate Lab ID: 1537661
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822003, 1199822012, 1199822013

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	33.9	113	30	35.4	118	(78-124)	4.20	(< 20)
1,1,1-Trichloroethane	30	37.1	124	30	35.8	119	(74-131)	3.70	(< 20)
1,1,2,2-Tetrachloroethane	30	30.1	100	30	29.7	99	(71-121)	1.30	(< 20)
1,1,2-Trichloroethane	30	30.2	101	30	31.1	104	(80-119)	3.20	(< 20)
1,1-Dichloroethane	30	34.0	113	30	32.8	109	(77-125)	3.40	(< 20)
1,1-Dichloroethene	30	37.5	125	30	36.4	121	(71-131)	3.00	(< 20)
1,1-Dichloropropene	30	35.5	118	30	34.3	114	(79-125)	3.60	(< 20)
1,2,3-Trichlorobenzene	30	29.9	100	30	29.5	98	(69-129)	1.30	(< 20)
1,2,3-Trichloropropane	30	31.5	105	30	30.7	102	(73-122)	2.30	(< 20)
1,2,4-Trichlorobenzene	30	31.2	104	30	31.5	105	(69-130)	0.86	(< 20)
1,2,4-Trimethylbenzene	30	33.2	111	30	34.0	113	(79-124)	2.50	(< 20)
1,2-Dibromo-3-chloropropane	30	30.3	101	30	29.1	97	(62-128)	3.90	(< 20)
1,2-Dibromoethane	30	31.2	104	30	32.4	108	(77-121)	3.70	(< 20)
1,2-Dichlorobenzene	30	31.7	106	30	32.1	107	(80-119)	1.40	(< 20)
1,2-Dichloroethane	30	34.5	115	30	32.2	107	(73-128)	6.80	(< 20)
1,2-Dichloropropane	30	33.2	111	30	32.5	108	(78-122)	2.30	(< 20)
1,3,5-Trimethylbenzene	30	33.1	110	30	33.7	112	(75-124)	1.90	(< 20)
1,3-Dichlorobenzene	30	32.7	109	30	32.9	110	(80-119)	0.61	(< 20)
1,3-Dichloropropane	30	30.7	102	30	31.6	105	(80-119)	2.90	(< 20)
1,4-Dichlorobenzene	30	32.1	107	30	32.6	109	(79-118)	1.60	(< 20)
2,2-Dichloropropane	30	35.2	117	30	33.7	112	(60-139)	4.30	(< 20)
2-Butanone (MEK)	90	92.4	103	90	84.3	94	(56-143)	9.10	(< 20)
2-Chlorotoluene	30	32.7	109	30	33.5	112	(79-122)	2.60	(< 20)
2-Hexanone	90	87.1	97	90	83.2	93	(57-139)	4.60	(< 20)
4-Chlorotoluene	30	32.7	109	30	33.3	111	(78-122)	1.60	(< 20)
4-Isopropyltoluene	30	33.9	113	30	34.3	114	(77-127)	1.30	(< 20)
4-Methyl-2-pentanone (MIBK)	90	99.7	111	90	89.7	100	(67-130)	10.50	(< 20)
Benzene	30	33.3	111	30	32.4	108	(79-120)	2.50	(< 20)
Bromobenzene	30	32.0	107	30	32.4	108	(80-120)	1.50	(< 20)
Bromochloromethane	30	34.1	114	30	33.0	110	(78-123)	3.20	(< 20)
Bromodichloromethane	30	37.5	125	30	35.4	118	(79-125)	5.80	(< 20)
Bromoform	30	33.8	113	30	33.6	112	(66-130)	0.53	(< 20)
Bromomethane	30	45.6	152 *	30	58.4	195 *	(53-141)	24.60 *	(< 20)
Carbon disulfide	45	52.8	117	45	50.8	113	(64-133)	3.80	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35060]
Blank Spike Lab ID: 1537660
Date Analyzed: 10/09/2019 11:11

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35060]
Spike Duplicate Lab ID: 1537661
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822003, 1199822012, 1199822013

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	38.5	128	30	37.0	123	(72-136)	4.00	(< 20)
Chlorobenzene	30	31.1	104	30	32.1	107	(82-118)	3.10	(< 20)
Chloroethane	30	39.1	130	30	36.4	121	(60-138)	7.30	(< 20)
Chloroform	30	35.6	119	30	33.8	113	(79-124)	5.20	(< 20)
Chloromethane	30	31.3	104	30	29.9	100	(50-139)	4.70	(< 20)
cis-1,2-Dichloroethene	30	34.0	113	30	32.8	109	(78-123)	3.60	(< 20)
cis-1,3-Dichloropropene	30	35.2	117	30	33.9	113	(75-124)	3.80	(< 20)
Dibromochloromethane	30	33.4	111	30	33.8	113	(74-126)	1.40	(< 20)
Dibromomethane	30	34.5	115	30	31.9	106	(79-123)	7.90	(< 20)
Dichlorodifluoromethane	30	30.7	102	30	27.6	92	(32-152)	10.70	(< 20)
Ethylbenzene	30	32.7	109	30	33.3	111	(79-121)	1.70	(< 20)
Freon-113	45	57.3	127	45	55.0	122	(70-136)	4.10	(< 20)
Hexachlorobutadiene	30	32.0	107	30	32.9	110	(66-134)	2.80	(< 20)
Isopropylbenzene (Cumene)	30	33.1	110	30	33.7	112	(72-131)	1.80	(< 20)
Methylene chloride	30	33.3	111	30	31.5	105	(74-124)	5.60	(< 20)
Methyl-t-butyl ether	45	50.4	112	45	47.3	105	(71-124)	6.30	(< 20)
Naphthalene	30	28.9	96	30	28.4	95	(61-128)	1.80	(< 20)
n-Butylbenzene	30	30.9	103	30	31.6	105	(75-128)	2.00	(< 20)
n-Propylbenzene	30	33.4	111	30	34.6	115	(76-126)	3.40	(< 20)
o-Xylene	30	32.2	107	30	32.8	109	(78-122)	1.70	(< 20)
P & M -Xylene	60	64.9	108	60	66.4	111	(80-121)	2.20	(< 20)
sec-Butylbenzene	30	33.2	111	30	34.3	114	(77-126)	3.20	(< 20)
Styrene	30	32.5	108	30	32.9	110	(78-123)	1.30	(< 20)
tert-Butylbenzene	30	33.1	110	30	33.8	113	(78-124)	1.90	(< 20)
Tetrachloroethene	30	32.8	109	30	34.2	114	(74-129)	4.10	(< 20)
Toluene	30	31.0	103	30	31.9	106	(80-121)	3.10	(< 20)
trans-1,2-Dichloroethene	30	33.8	113	30	32.5	108	(75-124)	3.80	(< 20)
trans-1,3-Dichloropropene	30	30.0	100	30	30.8	103	(73-127)	2.60	(< 20)
Trichloroethene	30	35.6	119	30	34.3	114	(79-123)	3.60	(< 20)
Vinyl acetate	30	30.9	103	30	29.3	98	(54-146)	5.50	(< 20)
Vinyl chloride	30	32.6	109	30	31.8	106	(58-137)	2.50	(< 20)
Xylenes (total)	90	97.1	108	90	99.1	110	(79-121)	2.10	(< 20)

Surrogates

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35060]
Blank Spike Lab ID: 1537660
Date Analyzed: 10/09/2019 11:11

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35060]
Spike Duplicate Lab ID: 1537661
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822003, 1199822012, 1199822013

Results by **SW8260C**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,2-Dichloroethane-D4 (surr)	30	111	111	30	103	103	(81-118)	7.30	
4-Bromofluorobenzene (surr)	30	101	101	30	101	101	(85-114)	0.60	
Toluene-d8 (surr)	30	97.9	98	30	99.6	100	(89-112)	1.70	

Batch Information

Analytical Batch: **VMS19549**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35060**
Prep Method: **SW5030B**
Prep Date/Time: **10/09/2019 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 1800790 [VXX/35069]
Blank Lab ID: 1538018

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

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 1800790 [VXX/35069]
Blank Lab ID: 1538018

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

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)	106	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	100	89-112		%

Method Blank

Blank ID: MB for HBN 1800790 [VXX/35069]
Blank Lab ID: 1538018

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19555
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/10/2019 6:32:00PM

Prep Batch: VXX35069
Prep Method: SW5030B
Prep Date/Time: 10/10/2019 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 1199822 [VXX35069]
Blank Spike Lab ID: 1538019
Date Analyzed: 10/10/2019 18:47

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35069]
Spike Duplicate Lab ID: 1538020
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

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	32.8	109	(78-124)	5.00	(< 20)
1,1,1-Trichloroethane	30	30.9	103	30	30.1	100	(74-131)	2.70	(< 20)
1,1,2,2-Tetrachloroethane	30	30.3	101	30	31.0	103	(71-121)	2.20	(< 20)
1,1,2-Trichloroethane	30	31.7	106	30	32.2	107	(80-119)	1.60	(< 20)
1,1-Dichloroethane	30	29.6	99	30	28.9	96	(77-125)	2.50	(< 20)
1,1-Dichloroethene	30	35.9	120	30	35.7	119	(71-131)	0.56	(< 20)
1,1-Dichloropropene	30	31.6	105	30	30.8	103	(79-125)	2.40	(< 20)
1,2,3-Trichlorobenzene	30	28.5	95	30	31.5	105	(69-129)	10.00	(< 20)
1,2,3-Trichloropropane	30	30.4	101	30	30.2	101	(73-122)	0.82	(< 20)
1,2,4-Trichlorobenzene	30	29.9	100	30	31.1	104	(69-130)	3.90	(< 20)
1,2,4-Trimethylbenzene	30	31.0	103	30	31.3	104	(79-124)	0.87	(< 20)
1,2-Dibromo-3-chloropropane	30	30.5	102	30	31.8	106	(62-128)	4.20	(< 20)
1,2-Dibromoethane	30	31.8	106	30	32.3	108	(77-121)	1.30	(< 20)
1,2-Dichlorobenzene	30	29.6	99	30	30.4	101	(80-119)	2.40	(< 20)
1,2-Dichloroethane	30	28.9	96	30	28.1	94	(73-128)	2.60	(< 20)
1,2-Dichloropropane	30	30.8	103	30	29.7	99	(78-122)	3.60	(< 20)
1,3,5-Trimethylbenzene	30	31.1	104	30	31.0	103	(75-124)	0.29	(< 20)
1,3-Dichlorobenzene	30	30.3	101	30	30.5	102	(80-119)	0.79	(< 20)
1,3-Dichloropropane	30	32.2	107	30	32.0	107	(80-119)	0.65	(< 20)
1,4-Dichlorobenzene	30	30.7	102	30	30.7	102	(79-118)	0.16	(< 20)
2,2-Dichloropropane	30	29.7	99	30	29.1	97	(60-139)	2.20	(< 20)
2-Butanone (MEK)	90	95.8	106	90	97.1	108	(56-143)	1.40	(< 20)
2-Chlorotoluene	30	30.4	101	30	30.5	102	(79-122)	0.39	(< 20)
2-Hexanone	90	91.2	101	90	90.7	101	(57-139)	0.56	(< 20)
4-Chlorotoluene	30	30.7	102	30	30.4	101	(78-122)	0.82	(< 20)
4-Isopropyltoluene	30	31.2	104	30	31.6	105	(77-127)	1.30	(< 20)
4-Methyl-2-pentanone (MIBK)	90	95.9	107	90	94.8	105	(67-130)	1.10	(< 20)
Benzene	30	30.9	103	30	30.3	101	(79-120)	2.00	(< 20)
Bromobenzene	30	30.3	101	30	30.3	101	(80-120)	0.13	(< 20)
Bromochloromethane	30	29.2	97	30	28.3	95	(78-123)	2.90	(< 20)
Bromodichloromethane	30	32.3	108	30	30.9	103	(79-125)	4.40	(< 20)
Bromoform	30	31.8	106	30	32.2	107	(66-130)	1.20	(< 20)
Bromomethane	30	38.4	128	30	34.5	115	(53-141)	10.60	(< 20)
Carbon disulfide	45	53.8	120	45	53.8	120	(64-133)	0.07	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35069]
Blank Spike Lab ID: 1538019
Date Analyzed: 10/10/2019 18:47

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35069]
Spike Duplicate Lab ID: 1538020
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

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	30.5	102	(72-136)	3.30	(< 20)
Chlorobenzene	30	29.7	99	30	29.7	99	(82-118)	0.17	(< 20)
Chloroethane	30	41.3	138	30	35.4	118	(60-138)	15.30	(< 20)
Chloroform	30	30.1	100	30	29.3	98	(79-124)	2.50	(< 20)
Chloromethane	30	36.4	121	30	34.8	116	(50-139)	4.60	(< 20)
cis-1,2-Dichloroethene	30	30.2	101	30	29.4	98	(78-123)	2.80	(< 20)
cis-1,3-Dichloropropene	30	32.8	109	30	31.8	106	(75-124)	3.30	(< 20)
Dibromochloromethane	30	31.6	105	30	31.2	104	(74-126)	1.10	(< 20)
Dibromomethane	30	30.6	102	30	29.6	99	(79-123)	3.40	(< 20)
Dichlorodifluoromethane	30	30.9	103	30	29.6	99	(32-152)	4.30	(< 20)
Ethylbenzene	30	31.5	105	30	30.2	101	(79-121)	4.10	(< 20)
Freon-113	45	52.7	117	45	53.9	120	(70-136)	2.20	(< 20)
Hexachlorobutadiene	30	29.8	99	30	30.8	103	(66-134)	3.30	(< 20)
Isopropylbenzene (Cumene)	30	31.5	105	30	30.9	103	(72-131)	1.90	(< 20)
Methylene chloride	30	29.7	99	30	29.2	97	(74-124)	1.80	(< 20)
Methyl-t-butyl ether	45	46.8	104	45	45.6	101	(71-124)	2.40	(< 20)
Naphthalene	30	28.7	96	30	32.4	108	(61-128)	12.20	(< 20)
n-Butylbenzene	30	30.8	103	30	31.6	105	(75-128)	2.60	(< 20)
n-Propylbenzene	30	30.8	103	30	31.0	103	(76-126)	0.52	(< 20)
o-Xylene	30	30.9	103	30	30.7	102	(78-122)	0.49	(< 20)
P & M -Xylene	60	62.6	104	60	61.6	103	(80-121)	1.50	(< 20)
sec-Butylbenzene	30	30.8	103	30	30.6	102	(77-126)	0.78	(< 20)
Styrene	30	31.6	105	30	30.8	103	(78-123)	2.70	(< 20)
tert-Butylbenzene	30	30.6	102	30	30.9	103	(78-124)	1.10	(< 20)
Tetrachloroethene	30	30.4	101	30	31.6	105	(74-129)	3.70	(< 20)
Toluene	30	29.1	97	30	29.9	100	(80-121)	2.60	(< 20)
trans-1,2-Dichloroethene	30	29.2	97	30	28.7	96	(75-124)	1.80	(< 20)
trans-1,3-Dichloropropene	30	29.7	99	30	29.5	99	(73-127)	0.51	(< 20)
Trichloroethene	30	31.5	105	30	30.6	102	(79-123)	2.80	(< 20)
Trichlorofluoromethane	30	37.6	125	30	35.3	118	(65-141)	6.30	(< 20)
Vinyl acetate	30	32.7	109	30	32.0	107	(54-146)	2.10	(< 20)
Vinyl chloride	30	36.9	123	30	36.4	121	(58-137)	1.50	(< 20)
Xylenes (total)	90	93.5	104	90	92.4	103	(79-121)	1.20	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199822 [VXX35069]
Blank Spike Lab ID: 1538019
Date Analyzed: 10/10/2019 18:47

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35069]
Spike Duplicate Lab ID: 1538020
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822001, 1199822004, 1199822007, 1199822008, 1199822009, 1199822010, 1199822011, 1199822012, 1199822013, 1199822014, 1199822015, 1199822016

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	97.6	98	30	94.5	95	(81-118)	3.30	
4-Bromofluorobenzene (surr)	30	98.2	98	30	99.6	100	(85-114)	1.40	
Toluene-d8 (surr)	30	98.8	99	30	103	103	(89-112)	3.60	

Batch Information

Analytical Batch: **VMS19555**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35069**
Prep Method: **SW5030B**
Prep Date/Time: **10/10/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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

Method Blank

Blank ID: MB for HBN 1800859 [VXX/35071]
Blank Lab ID: 1538096

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1199822014

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	107	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	98.9	89-112		%

Batch Information

Analytical Batch: VMS19557
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: CMC
Analytical Date/Time: 10/11/2019 11:17:00AM

Prep Batch: VXX35071
Prep Method: SW5030B
Prep Date/Time: 10/11/2019 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 1199822 [VXX35071]
Blank Spike Lab ID: 1538097
Date Analyzed: 10/11/2019 11:31

Spike Duplicate ID: LCSD for HBN 1199822 [VXX35071]
Spike Duplicate Lab ID: 1538098
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1199822014

Results by **SW8260C**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Tetrachloroethene	30	30.7	102	30	30.7	102	(74-129)	0.07	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30	97.3	97	30	95.1	95	(81-118)	2.30	
4-Bromofluorobenzene (surr)	30	98.8	99	30	98.9	99	(85-114)	0.13	
Toluene-d8 (surr)	30	101	101	30	101	101	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS19557**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **CMC**

Prep Batch: **VXX35071**
Prep Method: **SW5030B**
Prep Date/Time: **10/11/2019 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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

1199822

SHANNON & WILSON, INC. — CHAIN-O[illegible]ECORD

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

Page 1 of 2

Laboratory SGS
Attn: J. Dawkins

Profile: 362915

Turn Around Time:	Quote No:	J-Flags:
☒ Normal ☐ Rush		☒ Yes ☐ No
Please Specify		

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOC 8260							Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
MW-1R	(1) A-C	2043	9/26/19	X							3	groundwater
MW-2R	(2) A-C	1241	9/25/19	X							3	
MW-3R	(3) A-C	1143	9/25/19	X							3	
MW-4R	(4) A-C	1025	9/26/19	X							3	
MW-5	(5) A-C	1525	9/25/19	X							3	
MW-6	(6) A-C	1610	9/25/19	X							3	
MW-7	(7) A-C	1548	9/26/19	X							3	
MW-8	(8) A-C	1745	9/26/19	X							3	
MW-9	(9) A-C	1207	9/27/19	X							3	
MW-10	(10) A-C	1359	9/27/19	X							3	

Project Information	
Number:	10926
Name:	BMES
Contact:	SMH
Ongoing Project?	Yes ☒ No ☐
Sampler:	ATM, BAB, RLW

Sample Receipt	
Total No. of Containers:	30
COC Seals/Intact? (Y)N/NA	1F 1B
Received Good Cond./Cold	2.7°D21
Temp:	3.0
Delivery Method:	HAND

Notes:

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature:	Signature:	Signature:
Time: 1503	Time: 1450	Time:
Printed Name: A. Masters	Printed Name: Jen D.	Printed Name:
Date: 9/27/19	Date: 9-30-19	Date:
Company: STW	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature:	Signature:	Signature:
Time: 1503	Time:	Time: 14:01
Printed Name: Jen Dawkins	Printed Name:	Printed Name: Alan G
Date: 9-27-19	Date:	Date: 10/01
Company: SGS	Company:	Company: SGS

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

Page 82 of 87

No. 411422

1199822

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GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: J. Dawkins

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOC 8260	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
MW-11	(11) A-C	1005	9/27/19	X	3	groundwater
MW-12	(12) A-C	1203	9/26/19	X	3	
MW-13	(13) A-C	1427	9/26/19	X	3	
MW-101R	(14) A-C	2033	9/26/19	X	3	
MW-104R	(15) A-C	1015	9/26/19	X	3	
EB-10R	(16) A-C	1415	9/27/19	X	3	Equipment Blank
	(17) AC					

Project Information	
Number:	
Name:	
Contact:	
Ongoing Project? Yes [ ] No [ ]	
Sampler:	

Sample Receipt	
Total No. of Containers:	4-NCL
COC Seals/Intact? Y/N/NA	NF NB
Received Good Cond./Cold	2.7 D21
Temp:	
Delivery Method:	

Notes: See Page

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1505	Signature: Time: 1450	Signature: Time:
Printed Name: A. Mastro Date: 9/27/19	Printed Name: Date: 9-27-19	Printed Name: Date:
Company: Shannon+Wilson, Inc.	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1505	Signature: Time:	Signature: Time: 14:04
Printed Name: Jeri Davis Date: 9-27-19	Printed Name: Date:	Printed Name: Date: 9/01/19
Company: SGS	Company:	Company: SGS

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

No. 411423

e-Sample Receipt Form

SGS Workorder #: 1199822

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1 front 1 back
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 @ 2.7 °C Therm. ID: D21
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 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)?	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):

e-Sample Receipt Form FBK

SGS Workorder #:	**1199822**	1199822

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements	Yes	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	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 @ 3.0 °C Therm. ID: D23
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?		
If <0°C, were sample containers ice free?		
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.
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	N/C	
**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 samples in good condition (no leaks/cracks/breakage)?	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
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/C	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	
For Rush/Short Hold Time, was RUSH/Short HT email sent?	N/A	

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

Additional notes (if applicable):

SGS Profile #	**362915**	362915

Sample Containers and Preservatives

Container Id	Preservative	Container Condition
1199822001-A	HCL to pH < 2	OK
1199822001-B	HCL to pH < 2	OK
1199822001-C	HCL to pH < 2	OK
1199822002-A	HCL to pH < 2	OK
1199822002-B	HCL to pH < 2	OK
1199822002-C	HCL to pH < 2	OK
1199822003-A	HCL to pH < 2	OK
1199822003-B	HCL to pH < 2	OK
1199822003-C	HCL to pH < 2	OK
1199822004-A	HCL to pH < 2	OK
1199822004-B	HCL to pH < 2	OK
1199822004-C	HCL to pH < 2	OK
1199822005-A	HCL to pH < 2	OK
1199822005-B	HCL to pH < 2	OK
1199822005-C	HCL to pH < 2	OK
1199822006-A	HCL to pH < 2	OK
1199822006-B	HCL to pH < 2	OK
1199822006-C	HCL to pH < 2	OK
1199822007-A	HCL to pH < 2	OK
1199822007-B	HCL to pH < 2	OK
1199822007-C	HCL to pH < 2	OK
1199822008-A	HCL to pH < 2	OK
1199822008-B	HCL to pH < 2	OK
1199822008-C	HCL to pH < 2	OK
1199822009-A	HCL to pH < 2	OK
1199822009-B	HCL to pH < 2	OK
1199822009-C	HCL to pH < 2	OK
1199822010-A	HCL to pH < 2	OK
1199822010-B	HCL to pH < 2	OK
1199822010-C	HCL to pH < 2	OK
1199822011-A	HCL to pH < 2	OK
1199822011-B	HCL to pH < 2	OK
1199822011-C	HCL to pH < 2	OK
1199822012-A	HCL to pH < 2	OK
1199822012-B	HCL to pH < 2	OK
1199822012-C	HCL to pH < 2	OK
1199822013-A	HCL to pH < 2	OK
1199822013-B	HCL to pH < 2	OK
1199822013-C	HCL to pH < 2	OK
1199822014-A	HCL to pH < 2	OK
1199822014-B	HCL to pH < 2	OK
1199822014-C	HCL to pH < 2	OK
1199822015-A	HCL to pH < 2	OK
1199822015-B	HCL to pH < 2	OK
1199822015-C	HCL to pH < 2	OK
1199822016-A	HCL to pH < 2	OK
1199822016-B	HCL to pH < 2	OK
1199822016-C	HCL to pH < 2	OK
1199822017-A	HCL to pH < 2	OK
1199822017-B	HCL to pH < 2	OK
1199822017-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.

APPENDIX D: DEC LABORATORY DATA REVIEW CHECKLIST

Appendix D

DEC Laboratory Data Review Checklist

CONTENTS

Laboratory Data Review Checklist

Completed By:

Rachel Willis

Title:

Environmental Scientist

Date:

10/22/19

CS Report Name:

101926- BMES

Report Date:

10/17/19

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1199822

ADEC File Number:

Hazard Identification Number:

1199822

1. Laboratory

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

   (•) Yes ( ) No Comments:

SGS North America Inc. performed all analyses.

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

   ( ) Yes (•) No Comments:

Not applicable, samples were not transferred to another lab.

2. Chain of Custody (CoC)

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

   (•) Yes ( ) No Comments:

   b. Correct Analyses requested?

   ( ) Yes (•) No Comments:

The trip blank sample included with this work order was inadvertently not listed on the CoC and VOC analysis of the trip blank sample was therefore not requested. The lab performed VOC analysis on the trip blank sample. No impact to data quality/usability due to this omission.

3. Laboratory Sample Receipt Documentation

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

   ( ) Yes (•) No Comments:

Sample receipt notes the cooler temperature to be 2.7°C and 3.0°C at time of receipt at the Anchorage laboratory and the Fairbanks office, respectively.

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

   (•) Yes ( ) No Comments:

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

   (•) Yes ( ) No Comments:

Laboratory notes containers were received in good condition. However, the laboratory notes that both the "do the samples match COC" and "were all water VOA vial free of headspace" items on the sample receipt form were not checked at sample login in the Fairbanks office. These items were checked when the samples were logged in at the Anchorage laboratory and no discrepancies were noted. Data quality/usability not impacted.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

○ Yes ◉ No Comments:

Not applicable, the lab did not note any discrepancies at sample login.

e. Data quality or usability affected?

Comments:

See above.

4. Case Narrative

a. Present and understandable?

◉ Yes ○ No Comments:

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

◉ Yes ○ No Comments:

Trichlorofluoromethane was detected above the LOQ in VOC samples *MW-1R MW-4R MW-11 MW-12 MW-13 MW-101R MW-104R*. ICV recovery for trichlorofluoromethane does not meet QC criteria (biased high). As a result, the trichlorofluoromethane results for these samples are considered biased high, estimates and have been flagged 'JH*'.

Tetrachloroethene was detected above the calibration range in VOC sample *MW-1R*. The sample was reanalyzed outside of hold time and results confirm. The in-hold data is reported. The laboratory qualified this data 'E' as the analyte result is above the calibrated range. The laboratory qualifier has been retained and no further qualification of this data is required.

1,2-Dibromoethane was not calibrated down to the LOQ for VOC samples *MW-1R MW-4R MW-8 MW-9 MW-10 MW-11, MW-104R, EB-10R*. The samples were reanalyzed 4 days outside of hold time with a calibration that meets criteria for 1,2-dibromoethane and results confirm. The in-hold data is reported. Not data qualification necessary.

1,2-Dibromoethane was not calibrated down to the LOQ for VOC samples *MW-7 and MW-101R*. There was insufficient volume to reanalyze. The LOQ for 1,2-dibromoethane is elevated. 1,2-Dibromoethane was not detected in either project sample, consequently, the 1,2-dibromoethane results in these samples have been flagged 'J*' as estimates.

VOC samples *MW-101R and MW-104R* were analyzed past hold time due to lab error. See section 5.a. for discussion.

VOC LCS/LCSD recovery and RPD associated with preparatory batch VXX35060 for bromomethane does not meet QC criteria. The associated samples are non-detect. See section 6b.for discussion.

c. Were all corrective actions documented?

◉ Yes ○ No Comments:

See above.

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

Comments:

Case narrative does not describe impacts of data quality, only discusses discrepancies and actions to correct them.

5. Samples Results

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

◉ Yes ○ No Comments:

All samples were analyzed for VOC by 8260C.

b. All applicable holding times met?

◉ Yes ○ No Comments:

No, lab indicates that *MW-101R and MW-104R* were analyzed past hold times. However, the analysis was performed on the 14th and final day of the hold time period. No data qualification is required.

c. All soils reported on a dry weight basis?

○ Yes ◉ No Comments:

Not applicable, no soil samples were included with this work order.

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

◉ Yes ○ No Comments:

The reported limits of detection (LODs) were below the project-specific groundwater cleanup levels for the requested analytes with the exception of 1,2,3-Trichloropropane in all samples and 1,2-dibromoethene in samples *MW-101R* and *MW-7*. We cannot assess whether these analytes are present at concentrations below the LOD but greater than the respective data quality objectives.

e. Data quality or usability affected?

◉ Yes ○ No Comments:

See above.

1199822

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No Comments:

Yes, MBs were reported.

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

(•) Yes ( ) No Comments:

All method blank results are non-detects

iii. If above LOQ, what samples are affected?

Comments:

N/A, all method blank results are non-detects

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

( ) Yes (•) No Comments:

Not applicable. All method blank results were non-detect.

v. Data quality or usability affected?

Comments:

Not applicable, 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 Comments:

LCS/LCSD was reported for analysis of VOCs.

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

(•) Yes ( ) No Comments:

Not applicable, metals/inorganic analyses were not requested as a part of this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

○ Yes ◉ No Comments:

Percent recoveries within lab QC criteria, except for Bromomethane (VXX3560), which exceed laboratory percent recovery limits.

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

○ Yes ◉ No Comments:

All relative percent differences are within laboratory limits except for bromomethane.

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

Comments:

Bromomethane is biased high and was not detected in any associated project samples. No impact to data quality/usability.

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

○ Yes ◉ No Comments:

No samples are affected.

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

Comments:

No, see above.

c. Surrogates – Organics Only

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

◉ Yes ○ No Comments:

Yes, surrogate recoveries all reported

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

◉ Yes ○ No Comments:

Yes, surrogate recoveries for all project samples are within laboratory limits.

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

○ Yes ◉ No Comments:

Surrogate recoveries all within lab limits, so no flags are necessary.

iv. Data quality or usability affected?

Comments:

No effect on data quality or usability.

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

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

◉ Yes ○ No Comments:

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

○ Yes ◉ No Comments:

The trip blank sample included with this work order was inadvertently not listed on the CoC and VOC analysis of the trip blank sample was therefore not requested. The lab performed VOC analysis on the trip blank sample. No impact to data quality/usability due to this omission.

iii. All results less than LOQ?

○ Yes ◉ No Comments:

Trip blank samples are all non-detects.

iv. If above LOQ, what samples are affected?

Comments:

No samples are affected since trip blanks are non-detects.

v. Data quality or usability affected?

Comments:

No detected trip blank.

e. Field Duplicate

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

◉ Yes ○ No Comments:

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

Yes, two duplicates *MW-1R* / *MW-101R* and *MW-4R* / *MW-104R* were submitted to the lab.

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

○ Yes ◉ No Comments:

All field duplicate pair RPDs were less than 30% where calculable.

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

Comments:

Not applicable, see above.

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

◉ Yes ○ No ○ Not Applicable

Sample *EB-10R* submitted to the lab as an equipment blank.

i. All results less than LOQ?

◉ Yes ○ No Comments:

No analytes were detected above the LOQ. However, Chloroform, o-Xylene, P&M-xylenes, and Xylenes (total) were detected below the LOQ.

ii. If above LOQ, what samples are affected?

Comments:

Chloroform was detected within five times the concentration detected in the equipment blank sample in project samples *MW-10*, *MW-104R*, *MW-11*, *MW-12*, *MW-3R*, *MW-4R*, *MW-8*, *MW-5*, *MW-6*, *MW-13*, and *MW-9*. Chloroform results for the aforementioned samples have been flagged 'B*' as estimated.

O-Xylene, P&M-xylenes, and xylenes (total) were not detected in any associated project samples. There was no affect on data quality or usability.

iii. Data quality or usability affected?

Comments:

Yes, see above.

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

a. Defined and appropriate?

○ Yes ◉ No Comments:

No other data flags/qualifiers.

APPENDIX E: QUALITY ASSURANCE AND QUALITY CONTROL SUMMARY

Appendix E

Quality Assurance and Quality Control Assessment Summary

APPENDIX E: QUALITY ASSURANCE AND QUALITY CONTROL SUMMARY

OVERVIEW

QC/QA procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples and conducted our own QA assessment for this project. We reviewed the chain of custody (COC) records and laboratory receipt forms to check that custody was not breached, sample-holding times were met, the groundwater samples were kept chilled (between 0 degrees Celsius [°C] and 6 °C) during shipping.

Our QA-review procedures allowed us to document the accuracy and precision of the analytical data, as well as check that the analyses were sufficiently sensitive to meet project-specific data quality objectives (DQOs).

Laboratory QC procedures included evaluating surrogate recovery, performing continuing calibration checks, and analyzing method blanks, laboratory control samples (LCS), and matrix spikes (MS) to assess accuracy and precision. LCS, LCS duplicate (LCSD), MS, MS duplicate (MSD), and surrogate recovery analyses were performed to evaluate the accuracy of the analytical process. Analytical precision was assessed by comparing the results of duplicate analyses performed on LCS/LCSD, MS/MSD, and duplicate-sample pairs.

QC procedures in the field included using single-use equipment to reduce the potential for sample cross-contamination. We used a new, clean pair of nitrile gloves when sampling at each monitoring well. The laboratory report contains a case narrative and forms documenting sample-receipt conditions. Details regarding the results of our QA review are presented below.

Refer to the SGS laboratory report 1199822, and corresponding DEC LDRC in Appendix C and D, respectively, for additional information.

E.1 SAMPLE HANDLING

We hand-delivered coolers containing groundwater samples to the SGS Fairbanks facility on September 27, 2019. The coolers contained a temperature blank to measure whether samples were kept within acceptable temperature range. SGS shipped samples to the Anchorage laboratory to perform analyses by methods specified on the COC records. SGS personnel measured the temperature blanks at the time that the samples arrived at their facilities. Temperature blanks were within the proper temperature range upon submittal in Fairbanks and arrival in Anchorage.

We delivered the samples directly to the SGS laboratory sample-receiving office in Fairbanks with sufficient time to allow the laboratory to analyze the samples within the applicable holding-time requirements. We retained a copy of the COC record to allow sample accountability between field and laboratory.

Our review of COC records and laboratory sample-receipt documents did not identify sample handling anomalies. SGS processed all samples within the appropriate holding times.

E.2 ANALYTICAL SENSITIVITY

The laboratory's detection limit (DL) is the lowest analyte concentration that can be measured. The laboratory's limit of quantitation (LOQ) is the lowest analyte concentration that can be routinely measured in the sampled matrix with confidence, the point at which a concentration is considered quantitative. Sample matrix, instrument performance, sample dilutions, and other factors may affect the DL and LOQ. Analytes may be present in samples at concentrations below the DL. In cases where analytes were not detected at concentrations above their DL, the analytical results are presented in our data-summary table with reference to their LODs. If the analyte is detected between the DL and the LOQ, its concentration is considered an estimate; in our tables, this value is flagged with a 'J'. The flag is applied by the laboratory.

Laboratory results meet the sensitivity DQOs listed in the DEC-approved Work Plan for the COPCs except for 1,2,3-TCP in all project samples and EDB in two project samples. 1,2,3-TCP and EDB were not detected in the groundwater samples but had LODs greater than the DEC CULs for each analyte. We cannot assess if this analyte is present in the samples at a concentration greater than the DEC CULs but less than the laboratory's ability to reliably detect an analyte for the given method.

To evaluate the potential for cross-contamination between samples or introduction of contamination from an outside source, laboratory-supplied trip blanks are carried with groundwater samples in their cooler during sampling and shipping. Trip blanks were analyzed as part of this sampling event for VOCs. The laboratory reported there were no detections in the trip blanks.

Laboratory method blanks were also analyzed in association with groundwater samples to check for contributions to the analytical results possibly attributable to laboratory-based contamination. There were no detections in the method blank samples.

One groundwater EB was collected to assess the possibility of sample contamination from sampling equipment. The EB was collected post decontamination after collecting the project

samples from monitoring well MW-10. The EB was analyzed by the same test methods as the original sample. There were no detections in the EB sample above the LOQ. However, few analytes were detected between the LOD and the LOQ; sample results are considered not detected and flagged at the LOD by Shannon & Wilson, Inc. as '<B*', indicating the EB failure.

E.3 ACCURACY

Accuracy refers to determining the correct analyte concentration and is a comparison between the measured value and a known or expected value. Laboratory analytical accuracy may be assessed through the analyte recoveries from LCS/LCSD analyses and MS/MSD analyses, and the recovery of analyte surrogates (for organic analytes) added to project samples. The LCS/LCSD are spikes of known analyte concentrations added to a clean matrix; the MS/MSDs are spikes of known analyte concentrations in a matrix similar to field samples.

The laboratories' LCS, LCSD, MS, MSD, and surrogate recoveries were within laboratory acceptance criteria except for recovery of bromomethane in the LCS/LCSD samples. No flags are applied to bromomethane, as the analytes was not detected in project samples.

The laboratory also assesses analytical-batch accuracy using recovery information from continuing calibration verification (CCV) samples. Assessment of CCV recoveries is beyond the scope of a Level II data review. The laboratory notes that CCV recovery does not meet QC criteria for trichlorofluoromethane for multiple project samples, resulting in laboratory-applied flags for associated project samples.

E.4 PRECISION

We collected field-duplicate samples at a frequency of ten percent of the total number of samples to evaluate the precision of analytical measurements and reproducibility of our sampling technique. Two duplicate samples were collected; one from monitoring well MW-1R and one from monitoring well MW-4R. The field-duplicate samples were submitted "blind" (i.e., the laboratory could not identify it as a duplicate) with sample names of *MW-101R* and *MW-104R*, respectively. The duplicate was analyzed by the same test methods as the original sample. To evaluate the precision of the data, we calculated the relative percent difference (RPD; difference between the sample and its duplicate divided by the mean of the two). RPDs can be evaluated only if the results of the analyses for both the sample and its duplicate are reported above the DL.

The data quality objective for water samples' RPD is 30 percent. Where concentrations were reported in both samples, we calculated the RPDs. The RPDs were within acceptance criteria.

Laboratory analytical precision can also be assessed by comparing the results of duplicate analyses performed on LCS/LCSD, MS/MSD, and laboratory-duplicate samples, and evaluating the associated RPDs. The data quality objective is 20 percent for the laboratory QC samples. The laboratory LCS/LCSD, MS/MSD, and laboratory-duplicate sample RPDs were within laboratory acceptance criteria with the exception for bromomethane. No flags are required since bromomethane was not detected in any project samples.

E.5 DATA QUALITY SUMMARY

By conducting our field activities in general accordance with our standard QA/QC procedures, the samples we collected are considered representative of site conditions at the locations and times they were obtained. Based on our QA review, no datum was rejected as unusable due to QC failures, and our completeness goal of obtaining 90-percent useable data was met. In our opinion, the data produced by the SGS laboratory for this project are suitable for characterizing groundwater at the locations sampled.

IMPORTANT INFORMATION

Important Information

About Your Environmental Report

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

IMPORTANT INFORMATION

and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims

IMPORTANT INFORMATION

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