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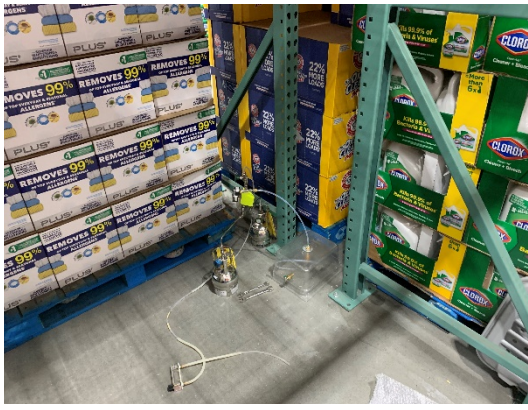
FINAL

REPORT

Bentley Mall East Satellite 2021 Groundwater Monitoring and Vapor Intrusion

FAIRBANKS, ALASKA



SHANNON & WILSON

March 2022

Shannon & Wilson No: 107889-001

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Submitted To: The Krausz Companies LLC
3065 Jones Boulevard, Suite 100
Las Vegas, NV 89146
Attn: Daniel Krausz

Subject: FINAL REPORT, BENTLEY MALL EAST SATELLITE
2021 GROUNDWATER MONITORING AND VAPOR INTRUSION,
FAIRBANKS, ALASKA

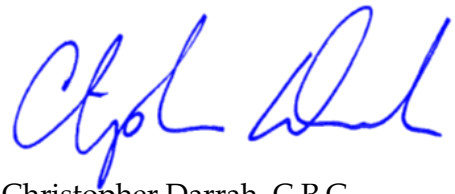
Shannon & Wilson prepared this report and participated in this project as a consultant to The Krausz Companies LLC. Our scope of services was specified in our proposal dated October 4, 2021. Our services are provided under Master Services Agreement Number KCI-2016 and the Task Order signed by you on November 8, 2021.

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

Sincerely,

SHANNON & WILSON

Dana Fjare
Environmental Scientist



Christopher Darrah, C.P.G.
Vice President

DHF:CBD/kdm

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ACRONYMS

AAC	Alaska Administrative Code
ARES	Alaska Resources and Environmental Services, LLC
BIQ	Building Inventory and Indoor Air Sampling Questionnaire
BMES	Bentley Mall East Satellite
cis-1,2-DCE	cis-1,2-dichloroethene
COC	chain-of-custody
COPC	contaminant of potential concern
Costco	Costco Wholesale
CSIA	compound-specific isotope analysis
CSM	conceptual site model
CCV	continuing calibration verification
°C	degrees Celsius
DEC	Alaska Department of Environmental Conservation
EPA	U.S. Environmental Protection Agency
ERG	Environmental Resource Group
Eurofins	Eurofins Air Toxics, LLC
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
PAN	parcel account number
PCE	tetrachloroethene
PPA	prospective purchaser agreement
QA/QC	quality assurance/quality control
RPD	relative percent difference
SGS	SGS North America, Inc.
SVE	soil vapor extraction
TCE	trichloroethene
trans-1,2-DCE	trans-1,2-dichloroethene
µg/L	microgram per liter
µg/m^3	microgram per cubic meter
VIP	VIP Cleaners Inc.
VOC	volatile organic compound
Work Plan	*Bentley Mall East Satellite Groundwater Monitoring and Vapor Intrusion Work Plan REV01*
1,2-DCA	1,2-dichloroethane
1,1,1,2-PCA	1,1,1,2-tetrachloroethane

1 INTRODUCTION

This report summarizes our 2021 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 in the southeast corner of the Bentley Mall property (Parcel Account Number [PAN] 93181); it is listed by the Alaska Department of Environmental Conservation (DEC) as an active contaminated site (DEC File Number 102.38.122, Hazard ID 4033) as a result of chlorinated solvent contamination in soil and groundwater at the site. Solvent-contaminated groundwater extends west from the BMES building to 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) and applicable DEC guidance.

1.1 Project Purpose and Objectives

The project purpose is to monitor groundwater quality within the chlorinated solvent-contaminated groundwater plume originating from the BMES building and to monitor the potential for vapor intrusion at commercial and residential properties within the project area. The project area includes the suspected source area near the BMES building and extends west across College Road and into the Charles Slater residential subdivision. Our objectives for 2021 were to collect groundwater samples from the existing monitoring well network and sample sub-slab soil-gas at Costco Wholesale (Costco).

1.2 Scope of Services

Our scope of services included implementing our December 2021 *Bentley Mall East Satellite Groundwater Monitoring and Vapor Intrusion Work Plan REV01* (Work Plan), approved by DEC on December 7, 2021, and preparing this report.

Our 2021 field and reporting activities included:

- Groundwater sampling from the 13 existing monitoring wells;
- Soil-gas sampling from three existing sub-slab ports in the Costco warehouse;
- Submitting groundwater samples to SGS North America, Inc. (SGS) for analysis of volatile organic compounds (VOCs);
- Submitting soil-gas samples to Eurofins Air Toxics, LLC (Eurofins) for analysis of select VOCs;

- Performing analytical data review and validation;
- Calculating groundwater gradient and flow direction; and
- Providing this summary report.

1.3 Site Description

The BMES building is located at 20 College Road in Fairbanks, Alaska, situated on the southeast corner of the Bentley Mall property (PAN 93181, latitude 64.8503 north, longitude 147.7004 west). Tetrachloroethene (PCE) and trichloroethene (TCE) have been detected in groundwater at and downgradient from the BMES property. The DEC considers the source of contamination at this site to be a former dry-cleaning business in the BMES building, although an additional suspected source has been identified. The groundwater contaminant plume extends west of the BMES building into the Charles Slater residential subdivision. The area is served by public water and sewer. Groundwater flow direction is generally to the west.

The site is located on Tanana and Chena River alluvial sand and gravel deposits. Groundwater is present at approximately 12 to 15 feet below ground surface with a westerly flow direction. The closest surface water body, Noyes Slough, is located approximately 900 feet west of the BMES building.

2 PROJECT HISTORY

A detailed project history is included in our April 2021 *Bentley Mall East Satellite 2020 Vapor Intrusion and Groundwater Assessment Report*. An abbreviated project timeline is presented below.

- April 2003 – The BMES site was added to the DEC's Contaminated Sites Database after PCE and TCE were discovered in soil and groundwater samples collected on the Bentley Mall property as part of a Phase II Environmental Site Assessment. The results of subsequent site characterization by Environmental Resource Group (ERG) indicated the historical dry-cleaning operation at the BMES building appeared to be the source of PCE and TCE at the Bentley Mall property, and the wastewater line from the BMES building may have been a preferential pathway for PCE movement in the subsurface.
- April 2005 – PCE and TCE exceeded DEC commercial target levels in indoor air samples collected from the BMES building and Wells Fargo Bank.
- Fall 2005 – Thirteen monitoring wells (MW-1 to MW-13) were installed and sampled. Sample results suggested a PCE and TCE plume extending off-site in a westerly direction.

- September 2006 – Soil vapor extraction (SVE) systems were installed in the BMES and Wells Fargo Bank buildings and remained active for five years. PCE and TCE concentrations in the source area decreased during this time.
- August 2011 – ADEC approved ERG's request to shut down the SVE systems. Groundwater PCE and TCE concentrations at the site still exceeded DEC cleanup levels and continued semi-annual groundwater sampling was a condition of the site closure.
- February 2013 – DEC met with ERG to discuss the recent groundwater monitoring results that reported an increase in PCE concentration in MW-1, a monitoring well upgradient of the BMES building. DEC subsequently sent letters to the owners of the adjacent, upgradient property (VIP Cleaners, Inc. [VIP], a dry-cleaner) and Bentley Mall. DEC reopened BMES as a contaminated site and required further evaluation of vapor intrusion risks associated with the groundwater contaminant plume.
- September 2015 – ERG began residential vapor intrusion sampling in the Charles Slater subdivision.
- Winter 2016 –Shannon & Wilson, Inc. was retained by The Krausz Companies LLC to continue the monitoring well and vapor intrusion sampling. In addition to collecting residential soil-gas and indoor air samples, Shannon & Wilson collected commercial indoor air samples from several business near the BMES building.
- September 2019 – the concentration of PCE detected at MW-1R increased nearly six times the concentration measured previously. Additionally, this was the first sampling event where 1,1,1,2-tetrachloroethane (1,1,1,2-PCA) had exceeded its cleanup level in any of the monitoring wells. We suggested in our 2019 report that the substantial increase in PCE at MW-1R may be due to PCE migration onto the BMES site from an upgradient source. MW-1R is located along the BMES eastern property line and is hydrologically downgradient from the active VIP business.

2.1 Costco Sub-Slab Investigations

The Costco warehouse was partially evaluated for vapor intrusion by Pacific Crest Environmental between 2017 and 2019. In 2017, Pacific Crest Environmental identified the migration of chlorinated solvents in groundwater onto the subject property during a pre-purchase investigation. Costco entered a prospective purchaser agreement (PPA) with DEC in regard to the chlorinated solvent contamination. In accordance with Section III of the PPA, Pacific Crest Environmental conducted a walkthrough of the Costco warehouse with DEC and completed an updated building survey, recorded the monthly air pressure differential for the building during the first year of Costco warehouse operations, installed three sub-slab soil-gas sampling points in Costco, and sampled sub-slab soil-gas for chlorinated solvents. They found that the building maintained a positive air pressure throughout the year, with the greatest positive pressure during the coldest winter months.

TCE and/or PCE were detected in the three sub-slab sampling points at concentrations less than the DEC commercial sub-slab soil-gas target levels.

3 CONTAMINANTS OF POTENTIAL CONCERN AND REGULATORY LEVELS

The contaminants of potential concern (COPCs) for groundwater at this site are VOCs, which include chlorinated solvents. COPCs for air are VOC contaminants previously detected at the site including 1,2-dichloroethane (1,2-DCA), PCE and PCE-degradation products (TCE, cis-1,2-dichloroethene [cis-1,2-DCE], and trans-1,2-dichloroethene (trans-1,2-DCE), 1,1,1,2-PCA, and chloroform. Chloroform is not a chlorinated solvent but has been detected in exceedance of the DEC groundwater cleanup level in several monitoring wells at the site.

Our analytical approach and performance criteria comply with DEC's *Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data Technical Memorandum*, dated October 2019. We sampled groundwater and soil-gas for analysis of select VOCs listed below in Exhibit 3-1 below.

Exhibit 3-1: Contaminants of Potential Concern and Regulatory Levels

Analyte	Groundwater Cleanup Level	Soil-Gas Target Level (Commercial)
Chloroform	2.2 µg/L	53 µg/m^3
Tetrachloroethene (PCE)	41 µg/L	1,800 µg/m^3
Trichloroethene (TCE)	2.8 µg/L	84 µg/m^3
cis-1,2-dichloroethene (cis-1,2-DCE)	36 µg/L	N/A
trans-1,2-dichloroethene (trans-1,2-DCE)	360 µg/L	N/A
1,2-dichloroethane (1,2-DCA)	1.7 µg/L	47 µg/m^3
1,1,1,2-tetrachloroethane (1,1,1,2-PCA)	5.7 µg/L	170 µg/m^3

NOTES:

Groundwater cleanup levels are from 18 AAC 75.345, Table C. *Groundwater Cleanup Levels*

Soil-gas target levels are from the DEC *Vapor Intrusion Guidance for Contaminated Sites* (November 2017) Appendix E. *Target Levels for Exterior or Subslab Soil Gas (Commercial)*

µg/L = microgram per liter; µg/m^3 = microgram per cubic meter; N/A = not applicable; DEC target level not yet established

Groundwater samples were analyzed by U.S. Environmental Protection Agency (EPA) Method SW8260D. We compared groundwater analytical data to the cleanup levels in 18 AAC 75.345, Table C. *Groundwater Cleanup Levels*.

Soil-gas samples were analyzed by modified EPA Method TO-15. We compared soil-gas data with DEC target levels listed in the November 2017 *Vapor Intrusion Guidance for Contaminated Sites*, Appendix E: *Target Levels for Exterior or Subslab Soil Gas (Commercial)*.

4 FIELD ACTIVITIES

This section summarizes our field activities performed in December 2021 to implement the Work Plan. Field activities included monitoring well sampling near the Bentley Mall and soil-gas sampling at Costco (Figure 1). The data for our groundwater gradient calculation are presented in Table 1 and in Appendix A. Monitoring well water-quality parameters are presented in Table 2. Field activity and sample collection logs are included in Appendix B. An updated DEC *Building Inventory and Indoor Air Sampling Questionnaire* (BIQ) is included in Appendix C.

4.1 Groundwater Gradient

We used the survey information from September 2020 and our December 2021 depth-to-water measurements from the monitoring well network as inputs to calculate groundwater gradient using the EPA's *On-line Tools for Site Assessment Calculation* website. The results indicate that groundwater flow direction at the time of sampling was southwest with a heading of 235 degrees from north and a gradient of 0.0006 feet per foot (Appendix A).

4.2 Annual Monitoring Well Sampling

Photo 4-1: Purging monitoring well MW-9, in the Charles-Slater subdivision across Noyes Slough from the Bentley Mall.

We sampled the site's thirteen monitoring wells on December 9 and 10, 2021, following the procedures described in the Work Plan. Prior to sampling at each well location, we measured depth to the water table and total well depth from the top of the well casing. We purged each well using a stainless-steel submersible pump with new, non-reusable sampling tubing. We set the pump within the screened interval of the well and purged using the low-flow method, collecting water quality parameters at least three minutes apart using a YSI Professional-Plus multi-parameter meter until water quality parameters (conductivity, pH, dissolved oxygen, and oxidation/reduction potential) stabilized. We collected groundwater samples into laboratory-provided containers. Copies of our monitoring well sampling logs are included in Appendix B.

4.3 2021 Costco Sampling

We sampled soil-gas from three previously installed sub-slab sample ports in the Costco warehouse on December 13, 2021. We performed shut-in and leak tests prior to sampling in accordance with the Work Plan; sampling trains were proven to be leak-free prior to collection of each sample. The soil-gas samples were collected over an approximately six-minute period using laboratory-provided 1-liter Summa canisters with soil-gas manifold flow controllers set to sample at a rate of 100 to 200 milliliters per minute.

Soil-gas sample logs are included in Appendix B. Our updated BIQ is presented in Appendix C.

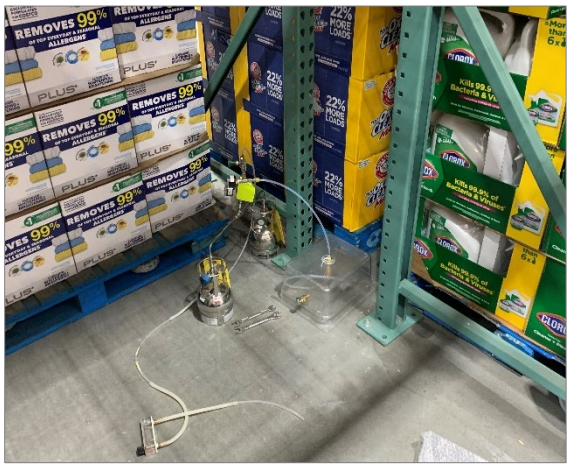


Photo 4-2: Collecting soil-gas sample SSV-2 and duplicate sample SSV-12 near the south end of the Costco warehouse.

Photo 4-3: Collecting soil-gas sample SSV-1 near the south end of the Costco warehouse.

4.4 Investigation-Derived Waste

Purge water and decontamination water generated during groundwater sampling activities was collected in one 55-gallon drum and four 5-gallon locking-lid buckets and temporarily stored on-site. The drum and buckets were collected from the BMES site by US Ecology on December 14, 2021. US Ecology consolidated the four buckets into one additional drum for transport to the US Ecology facility in Grand View, Idaho for disposal as F- listed waste (Appendix B). Non-reusable sampling equipment (nitrile gloves, pump-discharge tubing, air sampling tubing, etc.) was disposed of at the Fairbanks North Star Borough landfill.

4.5 Sample Custody, Storage, and Transport

We collected, handled, and stored samples in a manner consistent with our Work Plan and the DEC October 2019 *Field Sampling Guidance*. Groundwater samples were kept in coolers on artificial ice to maintain a temperature range of 0 to 6 degrees Celsius (°C) and were immediately transferred to a refrigerator upon arrival at Shannon & Wilson's Fairbanks office. Air samples do not require temperature preservation and were stored at room temperature. A laboratory-provided trip blank and temperature blank accompanied the coolers with water samples throughout the duration of our custody. We completed chain-of-custody (COC) forms to accompany the groundwater and air samples. Shannon & Wilson maintained custody of the samples until submitting them to the laboratory for analysis.

We hand-delivered water samples to the SGS sample receiving office in Fairbanks on December 13, 2021. SGS received the samples at their analytical laboratory in Anchorage on December 16, 2021, with a requested standard result-turnaround time of two weeks.

We shipped the air samples to the Eurofins laboratory in Folsom, California on December 13, 2021, via FedEx. The samples were received by the laboratory on December 17, 2021, with a requested standard result-turnaround time of two weeks.

4.6 Analytical Laboratory and Methods

The contract laboratories SGS and Eurofins provided sample containers for each analysis listed in Exhibit 3-1. For quality assurance purposes, we collected two field-duplicate sample pairs for groundwater analysis (*MW-1R* and *MW-100R*; *MW-4R* and *MW-104R*) and one field-duplicate sample pair for soil-gas analysis (*SSV-2* and *SSV-12*). In addition, we collected one equipment blank with our groundwater samples (*BMES-EB).*

Groundwater samples were analyzed for VOCs by method 8260D. Soil-gas samples were analyzed for select VOCs by modified method TO-15. The SGS laboratory report 1218012 was provided to Shannon & Wilson on December 28, 2021. The Eurofins laboratory report 2112475 was provided on January 4, 2022.

4.7 Deviations from the Work Plan

There were no deviations from the Work Plan during our December 2021 field activities.

5 RESULTS

The groundwater and vapor intrusion laboratory reports are provided in Appendix D. Corresponding DEC Laboratory Data-Review Checklists (LDRCs) are provided in Appendix E. The groundwater results are presented in Table 3 and Table 4. The Costco soil-gas sample results are presented in Table 5.

5.1 Groundwater Sampling

Eight VOCs were detected in one or more project samples during the December 2021 sampling event (Table 4) and four VOCs were reported in one or more project sample in exceedance of DEC groundwater cleanup levels (Figure 2).

PCE was detected in all monitoring wells and PCE exceeded the DEC cleanup level in monitoring wells MW-1R, MW-2R, MW-4R, MW-5, MW-6, MW-10, and MW-12. TCE was detected in all monitoring wells except for MW-3R and MW-13 and TCE exceeded the DEC cleanup level in monitoring wells MW-5, MW-6, MW-10, and MW-12. 1,2-DCA was detected in exceedance of the DEC cleanup level in monitoring well MW-1R and chloroform exceeded the DEC cleanup level in monitoring well MW-1R and MW-2R. Other VOC analytes detected in the monitoring well network are included in Table 4.

These detections and exceedances are consistent with historical results with the following exceptions:

- The MW-1R concentrations of 1,1,1,2-PCA, 1,2-DCA, PCE, and TCE decreased from 2020 to 2021. 1,1,1,2-PCA and TCE were detected in MW-1R less than the DEC groundwater cleanup levels in 2021.
- PCE and TCE increased in concentration in the downgradient wells MW-5, MW-6, MW-10, and MW-12.
- The MW-9 concentration of TCE decreased from 2020 to 2021 such that it was less than the DEC groundwater cleanup level in 2021.

5.1.1 Trend Analysis

We performed a Mann-Kendall test for trends in the monitoring wells, where applicable, using ProUCL software version 5.1. The level of significance needed to identify a trend was set at 95%. The data used for the trend test were limited to contaminants of concern detected in the monitoring wells from a minimum of four sample events between 2011 and 2021. We did not include groundwater data prior to 2011, when the SVE system was in operation. ERG collected the groundwater data prior to 2016 and Shannon & Wilson collected the groundwater data after 2016; we have no reason to believe the data are not comparable.

Estimated results (below the laboratory limit of quantitation [LOQ]) and not-detected results were excluded from the dataset. For each monitoring well, we did not evaluate a trend for analytes that have not been detected above the LOQ within the past three years. We interpreted the results of the trend analysis using the decision matrix listed below. Trend analysis results are summarized in Table 6.

Exhibit 5-1. Trend Analysis Decision Matrix

Mann-Kendall Statistic (S)	Confidence in Trend	Concentration in Trend
S > 0	> 95 percent	Increasing
	90 – 95 percent	Probably Increasing
	< 90 percent	No Trend
S ≤ 0	<90 percent and COV ≥ 1	No Trend
	<90 percent and COV < 1	Stable
S < 0	90 – 95 percent	Probably decreasing
	> 95 percent	Decreasing

NOTES:

1 Decision matrix adopted from Airforce Center for Environmental Excellence, February 2007 *Monitoring And Remediation Optimization System Software, Appendix A.2.*

COV = coefficient of variation

Decreasing or probably decreasing trends were observed for the following analyte/well pairs:

- PCE in MW-4R, MW-5, MW-8, MW-9, MW-11, and MW-12;
- TCE in MW-4R, MW-5, MW-9, MW-11, and MW-12;
- Chloroform in MW-1R;
- cis-1,2-DCE in MW-2R, MW-5, MW-6, and MW-7; and
- trans-1,2-DCE in MW-4R, MW-8, and MW-11.

Probably increasing trends were observed for the following analyte/well pairs:

- PCE in MW-6 and MW-13; and
- TCE in MW-8.

Stable trends were observed for the following analyte/well pairs:

- PCE in MW-2R and MW-10;

- TCE in MW-1R, MW-2R, MW-7, and MW-10;
- 1,1,1,2-TCA in MW-1R;
- 1,2-DCA in MW-5;
- Chloroform in MW-5; and
- cis-1,2-DCE in MW-8, MW-9, MW-10, and MW-11.

No trend was identified for the remaining monitoring well and analyte combinations tested. MW-3R has not had sufficient detections of COPCs to perform a trend analysis for this well.

5.2 Costco Sub-Slab Soil-Gas Sampling

We collected soil-gas samples from three sub-slab ports previously installed in the Costco Warehouse (Figure 2). PCE was detected at a concentration less than the DEC commercial target level in sample *SSV-2* and its duplicate. Target analytes were not detected in the other samples. The laboratory diluted sample *SSV-3* due to high concentrations of non-target analytes; as a result, laboratory limits of detection (LODs) were elevated for this sample and the LOD for 1,1,1,2-PCA exceeded the DEC target level.

5.3 Updated BIQ Results

We updated the BIQ previously completed by Pacific Crest Environmental on December 14, 2021. We did not find changes to the building that would negate portions of the previous BIQ, but we did add more detail where warranted. The previous BIQ had omitted page H-7; during the BIQ interview we learned that some employee uniforms are regularly laundered using a local dry-cleaning service, and that the tire shop routinely uses non-chlorinated mechanical maintenance solvents.

The building differential air pressure generally increases with decreasing outdoor air temperature. The differential pressure reading was 0.078 inches of water column and the outdoor air temperature was -42 degrees Fahrenheit on the morning the soil-gas samples were collected.

6 QUALITY ASSURANCE / QUALITY CONTROL

Shannon & Wilson staff performed a quality assurance/quality control (QA/QC) assessment for the laboratory reports provided by SGS and Eurofins, summarized in Appendix F.

Shannon & Wilson personnel conducted field activities in accordance with our standard QA/QC procedures and we consider the samples we collected to be representative of the site conditions at the locations and times they were obtained. Our QA assessment, summarized in the LDRCs in Appendix E, identified analytical results that were qualified due to QC failures reported by the laboratory. Based on our QA review, no data was rejected as unusable due to QC failures, and the completeness goal of obtaining 85-percent useable data was met.

Laboratory reporting limits were obtained prior to the groundwater and soil-gas sampling event and were compared to their respective regulatory limits. The SGS laboratory LOD met the groundwater cleanup level for all requested analytes except for 1,2,3-trichloropropane. The Eurofins reporting limits met vapor intrusion target levels for all requested analytes except for 1,1,1,2-TCA in sample *SSV-3* due to dilution of that sample. We cannot assess whether 1,2,3-trichloropropane in the groundwater samples or 1,1,1,2-TCA in *SSV-3* are present at a concentration less than the LOD or reporting limit but greater than the DEC regulatory level. Non-detect results where LODs or the reporting limit exceed their respective regulatory limits are displayed in Table 3 through Table 5 as "<Bold".

Benzene was detected in several groundwater field samples at an estimated concentration roughly equivalent to the concentration of benzene detected in our equipment blank. This suggests that these results are artifacts of equipment contamination or ambient conditions during sampling. Consequently, the affected results are considered false-positives and are flagged 'B' at the LOQ in the analytical data tables.

7 CONCEPTUAL SITE MODEL

A conceptual site model (CSM) describes potential pathways between a contaminant source and possible receptors (i.e., people, animals, and plants) and is used to determine who may be at risk of exposure to those contaminants. We summarize the suspected contaminant sources, migration and exposure pathways, and potential receptors on the DEC *Human Health Conceptual Site Model Scoping and Graphic Forms* included in Appendix G. We previously completed an updated CSM in our December 2021 Work Plan. Based on our 2021 groundwater and soil-gas sample results, we do not propose any changes to the CSM at this time.

7.1 Description of Potential Receptors

We consider commercial/industrial workers, site visitors, construction workers, and residents in the project area to be current and future potential receptors for one or more

exposure pathways. The contaminants of potential concern at this site are 1,2-DCA, PCE and PCE-degradation products, 1,1,1,2-PCA, and chloroform. Chloroform was added as a contaminant of potential concern at the request of DEC in 2017. We note that 1,1,1,2-PCA has exceeded the groundwater cleanup level in MW-1R since 2019. Because this analyte was not detected in MW-1R up until 2018, we do not believe this release is attributable to the BMES site. However, 1,1,1,2-PCA must be considered a contaminant of potential concern because it has exceeded the DEC groundwater cleanup level at the site.

7.2 Potential Exposure Pathways

Potential human exposure pathways include incidental soil and groundwater ingestion, dermal exposure to contaminants in groundwater, inhalation of volatile compounds in tap water, and inhalation of outdoor and indoor air.

7.2.1 Direct Contact with Soil

Contact with the contaminated subsurface soil at the site is unlikely at present, considering the site near the BMES building is covered in pavement. However, future excavation near the BMES building may result in incidental dermal contact or ingestion of soil by commercial workers, site visitors, trespassers, or construction workers. We do not know if soil contamination exists in the Charles Slater subdivision.

7.2.2 Direct Contact with Groundwater

Commercial businesses and residents in the Charles Slater subdivision are connected to the municipal water supply; therefore, contact with groundwater below the site is unlikely at present. However, we did observe a private well pump in the basement of one of the residences (we were unable to get a response from this resident as to whether there is a functioning well at the property). It is possible there are water wells remaining on properties that were used before the municipal water utility existed. As a result, we chose to include dermal absorption of contaminants in groundwater and inhalation of tap water as potential current and future exposure routes for residents.

Because depth to groundwater is shallow, industrial workers, site visitors, or construction workers could be exposed to contaminated groundwater through dermal absorption during future excavation and construction projects. The groundwater below the area cannot be ruled out as a potential future drinking water source, so ingestion of groundwater must be considered a future exposure pathway.

7.2.3 Inhalation

Inhalation of indoor air is a potential future exposure pathway for residents in the Charles Slater subdivision. PCE has been detected at concentrations less than DEC target levels in the four residences where we have collected indoor air samples, and PCE and TCE have exceeded the soil-gas target level in near-slab and sub-slab samples at two residential locations. While the current vapor intrusion threat appears to be insignificant in the residences where we have collected indoor air samples, because PCE and TCE were less than DEC target levels, that could change in the future if the concentration of PCE in groundwater below the project area increases. The PCE concentration in the monitoring well MW-1R has increased significantly since 2018. Until a stable or decreasing contaminant trend is identified for the monitoring well network, we cannot be certain about the future vapor intrusion risk to residents within the solvent-contaminated groundwater plume.

Outdoor air is a potential future pathway if contaminated soil is exposed during excavation activities.

8 DISCUSSION

The increase in the PCE concentration in groundwater at MW-1R since 2018 indicates that contaminated groundwater is likely migrating onto the BMES site from an upgradient source. The contaminant levels detected in MW-1R decreased for all detected analytes between 2020 and 2021 but remain generally consistent with recent historic contaminant levels (see Exhibit 8-1 below).

Exhibit 8-1: MW-1/MW-1R — Historical Results and Exceedances (µg/L)

Analyte	DEC Groundwater Cleanup Level (µg/L)	MW-1 2017	MW-1R 2018	MW-1R 2019	MW-1R 2020	MW-1R 2021
PCE	41	**159**	**217**	**1,230 E**	**1,980**	**1,150**
TCE	2.8	0.960J	1.08	2.24	**2.92J**	2.36
cis-1,2-DCE	36	<0.500	<0.500	<0.500	<2.50	<0.500
trans-1,2-DCE	360	<0.500	<0.500	<0.500	<2.50	<0.500
1,1,1,2-PCA	5.7	<0.250	1.05	**9.25**	**7.66**	3.11
1,2-DCA	1.7	**3.28**	**2.46**	**3.57**	**5.43**	**2.64**
Chloroform	2.2	**15.9**	**18.8**	**12.7**	**6.34 JH***	**4.33**

NOTES: For each field duplicate pair, only the highest result is reported.
< Analyte not detected; listed as less than the limit of detection.
J Estimated concentration, greater than the detection limit and less than the limit of quantitation. Flag applied by the laboratory.
Bold Detected concentration exceeds regulatory limits in 18 AAC 75.345 Table C. *Groundwater Cleanup Levels*
E Exceeded laboratory calibration range. Flag applied by the laboratory.
JH* Estimated concentration, biased high, due to quality control failures. Flag applied by Shannon & Wilson.

Decreasing contaminant trends for PCE and TCE were identified for several downgradient monitoring wells (Figure 3 and Figure 4). The wells closest to the source, MW-1R and MW-2R, identified a stable trend for TCE. MW-2R identified a stable trend for PCE but no trend for PCE was identified in MW-1R. This may be due to the rapid increase in PCE concentration in MW-1R that occurred after 2018. Probably increasing contaminant trends for PCE were identified in monitoring wells MW-6 and MW-13, which are within the middle portion of the chlorinated solvent plume below the commercial businesses and east from the residential subdivision. Other monitoring wells within this same portion of the plume have exhibited decreasing PCE concentrations, so it is unclear why these two wells have seen an increase.

A probably increasing trend for TCE was identified in MW-8, at the downgradient edge of the plume. The TCE concentration in MW-8 is currently less than the DEC groundwater cleanup level but if the increasing trend continues, it is possible that TCE could exceed the groundwater cleanup level in the future. The increasing TCE in this well could be the result of PCE degrading into the daughter product TCE. More monitoring will be needed to identify contaminant trends near the source and at the edge of the plume.

Sub-slab soil-gas results from the 2021 sampling event differed from the 2018 sampling results in that TCE was not detected in 2021 soil-gas samples but had previously been detected in two of the 2018 samples. Additionally, PCE was detected at only one sub-slab location (*SSV-2*), near the warehouse south side, at a concentration of 20 µg/m^3 which was

less than the 2018 result of 32 µg/m^3. Both sampling events occurred when the Costco warehouse pressure differential was high due to cold outdoor air temperatures; the positive building pressure inhibits vapor intrusion into the building through stack effect. Because contaminants of concern have repeatedly been detected in the sub-slab soil-gas less than DEC target levels, and because the building has been shown to maintain a positive pressure throughout the year (Pacific Crest Environmental, 2020), vapor intrusion is not likely a complete exposure pathway in the Costco warehouse under those conditions.

9 RECOMMENDATIONS

Based on our overall project understanding, the 2021 analytical results, and recommendations from our previous reports, we recommend the following:

- Continued annual groundwater monitoring from the existing monitoring well network.
- Perform an annual contaminant trend analysis for the monitoring well network to evaluate whether contaminants in the groundwater are increasing, decreasing, or stable.
- We recommend residential vapor intrusion sampling remain on a three-year frequency until groundwater sample results for the monitoring well network within the Charles Slater subdivision are less than DEC cleanup levels or contaminant trends are shown to be decreasing in the vicinity of the residences. The next residential vapor intrusion sampling event would be in Fall 2023.
- We do not recommend further vapor intrusion sampling at the Costco warehouse unless contaminant trends increase in nearby monitoring wells.
- Site characterization efforts should be performed by VIP at the VIP property as recommended in previous reports.

10 CLOSURE

This report was prepared for the exclusive use of The Krausz Companies LLC and their representatives for evaluating remaining chlorinated-solvent contamination near the BMES building in Fairbanks, Alaska. Our conclusions and recommendations are based on:

- The limitations of our approved scope, schedule, and budget described in our proposal dated October 4, 2021 and our DEC-approved Work Plan dated December 2021.
- Our understanding of the project based on information provided by DEC and the Owner.
- Site conditions we observed during our visits in December 2021.

- The results of the analytical testing performed on groundwater and sub-slab air samples we collected.
- The regulations in Alaska's 18 AAC 75.345 Table C. *Groundwater Cleanup Levels* (November 2021).
- The regulations in DEC's *Vapor Intrusion Guidance for Contaminated Sites*, Appendix E: *Target Levels for Exterior or Subslab Soil Gas* (November 2017).

Our observations are specific to the locations, depths, and times noted on the field logs (Appendix B) and the BIQ (Appendix C) 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 cleanup levels 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.

11 REFERENCES

Airforce Center for Environmental Excellence, February 2007, *Monitoring And Remediation Optimization System Software, Appendix A.2*

Alaska Administrative Code 18 AAC 75, November 2021, *Oil and Other Hazardous Substances Pollution Control*.

Alaska Department of Environmental Conservation, October 2019, *Field Sampling Guidance*.

Alaska Department of Environmental Conservation, October 2019, *Minimum Quality Assurance requirements for Sample Handling, Reports, and Laboratory Data Technical Memorandum.*

Alaska Department of Environmental Conservation, November 2017, *Vapor Intrusion Guidance for Contaminated Sites*.

Pacific Crest Environmental, January 2020, *Vapor Intrusion Investigation – Differential Air Pressure Monitoring Technical Memorandum, Costco Wholesale Warehouse*.

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

Shannon & Wilson, Inc., April 2018, *Bentley Mall East Satellite 2017 Soil Gas and Groundwater Assessment Report*.

Shannon & Wilson, Inc., July 2019, *Bentley Mall East Satellite Annual Groundwater Monitoring and 2018 Vapor Intrusion Report*.

Shannon & Wilson, Inc., August 2020, *Bentley Mall East Satellite 2019 Annual Groundwater Monitoring Report*.

Shannon & Wilson, Inc., June 2019, *Bentley Mall East Satellite Investigation Environmental Report*.

Shannon & Wilson, Inc., August 2020, *2019 Bentley Mall East Satellite Investigation Summary Report*.

Shannon & Wilson, Inc., April 2021, *Bentley Mall East Satellite 2020 Vapor Intrusion and Groundwater Final Assessment Report*.

Shannon & Wilson, Inc., December 2021, *Bentley Mall East Satellite Groundwater Monitoring and Vapor Intrusion REV01 Work Plan*.

United States Environmental Protection Agency, August 2021, *On-line Tools for Site Assessment Calculation Hydraulic Gradient – Magnitude and Direction*. Accessed at https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/gradient4plus-ns.html, January 2022.

Table 1 - December 2021 Groundwater Elevation Summary

Monitoring Well	Date Measured	Total Well Depth (feet below TOC)	Depth-to-Water (feet below TOC)	TOC Elevation (feet above MSL)	Groundwater Elevation (feet above MSL)	Northing	Easting
MW-1R	12/9/2021	21.31	16.13	446.25	432.59	3968800.00	1375862.06
MW-2R	12/10/2021	21.95	15.93	445.97	432.51	3968848.89	1375709.75
MW-3R	12/10/2021	45.74	15.96	446.01	432.47	3968850.74	1375708.13
MW-4R	12/10/2021	20.21	14.74	444.80	432.49	3968943.56	1375723.21
MW-5	12/9/2021	29.53	18.02	447.77	432.03	3969118.40	1374819.90
MW-6	12/9/2021	20.79	17.84	447.61	432.05	3969124.45	1374818.59
MW-7	12/9/2021	23.75	20.15	449.74	431.86	3969410.57	1374417.21
MW-8	12/9/2021	20.27	12.55	441.65	431.56	3969218.39	1373663.25
MW-9	12/9/2021	20.52	12.10	441.47	431.68	3969203.76	1374201.91
MW-10	12/9/2021	19.94	13.50	443.03	431.91	3968967.07	1374612.88
MW-11	12/9/2021	20.19	12.59	441.82	431.67	3968941.18	1374060.37
MW-12	12/9/2021	20.31	15.56	445.49	432.32	3968917.64	1375316.66
MW-13	12/9/2021	20.55	15.88	445.89	432.39	3968766.05	1375576.75

NOTES:
Monitoring well survey completed by Design Alaska, Inc. on September 25, 2020.
MSL = mean sea level; TOC = top of casing

Table 2 - December 2021 Field Parameters

Sample Date	Monitoring Well	TWD (feet)	DTW (feet)	Groundwater-Quality Parameters						
				Temperature (°C)	Conductivity (µS/cm)	DO (mg/L)	pH (s.u.)	ORP (mV)	Turbidity (visual)	Stabilization Criteria*
12/9/2021	MW-1R	21.31	16.13	6.0	484.7	5.72	6.8	189.0	Clear	Parameters Stabilized
12/10/2021	MW-2R	21.95	15.93	4.4	548.0	0.40	6.86	113.0	Clear	Parameters Stabilized
12/10/2021	MW-3R	45.74	15.96	3.5	347.4	0.40	6.87	59.2	Clear	Parameters Stabilized
12/10/2021	MW-4R	20.21	14.74	4.0	626.0	0.58	6.68	210.8	Clear	Parameters Stabilized
12/9/2021	MW-5	29.53	18.02	3.7	525.0	0.32	6.84	1.5	Clear	Parameters Stabilized
12/9/2021	MW-6	20.79	17.84	2.6	504.0	0.41	6.86	5.2	Clear	Three Well Volumes Purged
12/9/2021	MW-7	23.75	20.15	3.9	578.0	1.15	6.91	51.8	Clear	Three Well Volumes Purged
12/9/2021	MW-8	20.27	12.55	5.5	562.0	2.50	6.84	204.6	Clear	Parameters Stabilized
12/9/2021	MW-9	20.52	12.10	3.7	548.0	4.42	6.95	234.3	Clear	Parameters Stabilized
12/9/2021	MW-10	19.94	13.50	3.8	414.5	0.44	6.92	-31.7	Clear	Parameters Stabilized
12/9/2021	MW-11	20.19	12.59	4.5	456.9	3.32	6.79	230.0	Slightly Turbid	Parameters Stabilized
12/9/2021	MW-12	20.31	15.56	4.7	742.0	1.06	6.68	154.0	Clear	Parameters Stabilized
12/9/2021	MW-13	20.55	15.88	4.9	634.0	0.38	6.61	166.1	Clear	Parameters Stabilized

NOTES:

* Three consecutive readings for conductivity, DO, pH, and ORP were within stabilization criteria prior to sample collection.

°C = degrees Celsius; DO = dissolved oxygen; DTW = depth to water from top of casing; 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 3 - December 2021 Groundwater Results

Analytical Method	Analyte	Cleanup Level	Units	MW-1R Primary	MW-1R Duplicate	MW-2R	MW-3R	MW-4R Primary	MW-4R Duplicate	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
8260D (VOC)	1,1,1,2-Tetrachloroethane	5.7	µg/L	3.09	3.11	<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	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	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	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	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	NA	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	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	NA	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	0.075	µg/L	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<0.0375	<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	1.7	µg/L	**2.53**	**2.64**	<0.250	<0.250	0.388J	0.393J	0.422J	0.404J	<0.250	<0.250	<0.250	0.456J	<0.250	<0.250	<0.250
	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	NA	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	NA	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	NA	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	NA	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
	Benzene	4.6	µg/L	<0.200	<0.200	<0.400B*	<0.400B*	<0.200	<0.200	<0.400B*	<0.400B*	<0.200	<0.200	<0.200	<0.400B*	<0.200	<0.400B*	<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	NA	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	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00
	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	**4.16**	**4.33**	**8.16**	<0.500	<0.500	<0.500	0.373J	0.474J	<0.500	1.12	<0.500	<0.500	<0.500	<0.500	2.15
	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	<0.500	<0.500	<0.500
	cis-1,2-Dichloroethene	36	µg/L	<0.500	<0.500	1.41	0.606J	0.498J	0.437J	1.14	1.59	1.07	1.11	2.23	3.60	1.11	2.77	<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	<0.250	<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
	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	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
	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
	m,p-xylenes	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

Table 3 - December 2021 Groundwater Results

Analytical Method	Analyte	Cleanup Level	Units	MW-1R Primary	MW-1R Duplicate	MW-2R	MW-3R	MW-4R Primary	MW-4R Duplicate	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW-13
8260D (VOC)	Methyl isobutyl ketone	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
	Methylene chloride	110	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
	Methyl-t-butyl ether (MTBE)	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-Isopropyltoluene	NA	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	41	µg/L	**1,150**	**1,150**	**187**	0.364J	39.1	**42.6**	**60.4**	**91.3**	4.21	3.21	9.62	**43.0**	5.60	**117**	31.9
	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	360	µg/L	<0.500	<0.500	<0.500	<0.500	1.22	1.05	0.381J	<0.500	<0.500	5.95	8.82	0.374J	8.05	<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	2.8	µg/L	2.36	2.42	1.56	<0.500	1.02	0.923J	**7.03**	**9.29**	1.79	1.94	2.58	**7.61**	2.23	**5.32**	<0.500
	Trichlorofluoromethane	5,200	µg/L	41.3	40.3	16.8	1.84	5.41	5.47	6.12	3.99	0.749J	<0.500	<0.500	0.682J	6.09	1.92	2.95
	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:
DEC Cleanup Levels obtained from 18 AAC 75.345 Table C. *Groundwater Cleanup Levels.*
Field duplicate sample pairs *MW-1R/MW-101R* and *MW-4R/MW-104R* submitted with this work order.

J — Estimated concentration, detected greater than the limit of detection (LOD) and less than the limit of quantitation (LOQ). 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.
< — Analyte not detected; listed as less than the limit of detection (LOD) unless otherwise flagged due to quality control failures.
<Bold — LOD exceeds DEC Cleanup Level
Bold — Detected concentration exceeds DEC Cleanup Level

DEC = Alaska Department of Environmental Conservation; LOD = limit of detection; LOQ = limit of quantitation; NA = not applicable; DEC Cleanup Level not yet established; VOC = volatile organic compound; µg/L = microgram per liter

Table 4 - December 2021 Groundwater Detected Results and Exceedances

Analytical Method	Analyte	Cleanup Level	Units	*MW-1R*		*MW-2R*	*MW-3R*	*MW-4R*		*MW-5*	*MW-6*	*MW-7*	*MW-8*	*MW-9*	*MW-10*	*MW-11*	*MW-12*	*MW-13*
				Primary	*Duplicate*			*Primary*	*Duplicate*									
8260D (VOC)	1,1,1,2-Tetrachloroethane	5.7	µg/L	3.09	3.11	<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
	1,2-Dichloroethane	1.7	µg/L	**2.53**	**2.64**	<0.250	<0.250	0.388J	0.393J	0.422J	0.404J	<0.250	<0.250	<0.250	0.456J	<0.250	<0.250	<0.250
	Chloroform	2.2	µg/L	**4.16**	**4.33**	**8.16**	<0.500	<0.500	<0.500	0.373J	0.474J	<0.500	1.12	<0.500	<0.500	<0.500	<0.500	2.15
	cis-1,2-Dichloroethene	36	µg/L	<0.500	<0.500	1.41	0.606J	0.498J	0.437J	1.14	1.59	1.07	1.11	2.23	3.60	1.11	2.77	<0.500
	Tetrachloroethene	41	µg/L	**1,150**	**1,150**	**187**	0.364J	39.1	**42.6**	**60.4**	**91.3**	4.21	3.21	9.62	**43.0**	5.60	**117**	31.9
	trans-1,2-Dichloroethene	360	µg/L	<0.500	<0.500	<0.500	<0.500	1.22	1.05	0.381J	<0.500	<0.500	5.95	8.82	0.374J	8.05	<0.500	<0.500
	Trichloroethene	2.8	µg/L	2.36	2.42	1.56	<0.500	1.02	0.923J	**7.03**	**9.29**	1.79	1.94	2.58	**7.61**	2.23	**5.32**	<0.500
	Trichlorofluoromethane	5,200	µg/L	41.3	40.3	16.8	1.84	5.41	5.47	6.12	3.99	0.749J	<0.500	<0.500	0.682J	6.09	1.92	2.95

NOTES:
DEC Cleanup Levels obtained from 18 AAC 75.345 Table C. *Groundwater Cleanup Levels* .
Field duplicate sample pairs *MW-1R/MW-101R* and *MW-4R/MW-104R* submitted with this work order.
J Estimated concentration, detected greater than the limit of detection (LOD) and less than the limit of quantitation (LOQ). Flag applied by the laboratory.
< Analyte not detected; listed as less than the LOD unless otherwise flagged due to quality control failures.
Bold Detected concentration exceeds DEC Cleanup Level
DEC = Alaska Department of Environmental Conservation; LOD = limit of detection; LOQ = limit of quantitation; NA = not applicable; DEC Cleanup Level not yet established; VOC = volatile organic compound; µg/L = microgram per liter

Table 5 - December 2021 Costco Soil-Gas Results

Analytical Method	Analyte	Target Level	Units	SSV-1	SSV-2		SSV-3
					Primary	Duplicate	
TO-15	1,1,1,2-Tetrachloroethane	170	µg/m^3	<54.0	<28.0	<27.0	**<220**
	1,2-Dichloroethane	47	µg/m^3	<8.00	<4.10	<4.00	<32.0
	Chloroform	53	µg/m^3	<9.70	<5.00	<4.80	<39.0
	cis-1,2-Dichloroethene	NA	µg/m^3	<7.90	<4.00	<3.90	<32.0
	Tetrachloroethene	1,800	µg/m^3	<13.0	18.0	20.0	<55.0
	trans-1,2-Dichloroethene	NA	µg/m^3	<7.90	<4.00	<3.90	<32.0
	Trichloroethene	84	µg/m^3	<11.0	<5.40	<5.30	<43.0

NOTES: Regulatory levels are from the DEC November 2017 *Vapor Intrusion Guidance, Appendix E: Target Levels for Exterior or Subslab Soil Gas (Commercial).*
Field duplicate sample pair SSV-2 and SSV-12 was submitted with this work order.
< Analyte not detected; listed as less than the limit of detection (LOD) unless otherwise flagged due to quality control failures.
<Bold LOD exceeds DEC Cleanup Level
DEC = Alaska Department of Environmental Conservation; LOD = limit of detection; µg/m^3 = micrograms per cubic meter; NA = not applicable; DEC Target Level not yet established

Table 6 - Mann-Kendall Trend Analysis Summary

Well	Analyte	N	S	p-value	Confidence	COV	Trend?
MW-1R	1,1,1,2-TCA	4	0	0.625	38%	0.73	Stable
	1,2-DCA	7	7	0.191	81%	0.38	No Trend
	PCE	13	10	0.295	71%	0.93	No Trend
	TCE	8	-9	0.119	88%	0.85	Stable
	Chloroform	12	-28	0.031	97%	0.51	Decreasing
MW-2R	cis-1,2-DCE	10	-17	0.078	92%	0.77	Probably Decreasing
	PCE	12	-6	0.369	63%	0.29	Stable
	TCE	12	-7	0.274	73%	0.36	Stable
	Chloroform	12	17	0.109	89%	0.52	No Trend
MW-4R	trans-1,2-DCE	8	-12	0.089	91%	1.55	Probably Decreasing
	PCE	13	-26	0.064	94%	0.36	Probably Decreasing
	TCE	13	-44	0.001	100%	1.36	Decreasing
MW-5	cis-1,2-DCE	10	-41	0	100%	0.78	Decreasing
	1,2-DCA	4	0	0.625	38%	0.15	Stable
	PCE	11	-39	0.001	100%	0.72	Decreasing
	TCE	11	-43	0	100%	0.81	Decreasing
	Chloroform	11	-7	0.136	86%	0.61	Stable
MW-6	cis-1,2-DCE	8	-21	0.007	99%	0.74	Decreasing
	PCE	11	21	0.06	94%	0.47	Probably Increasing
	TCE	10	11	0.19	81%	0.37	No Trend
MW-7	cis-1,2-DCE	9	-22	0.012	99%	0.66	Decreasing
	PCE	10	1	0.5	50%	0.45	No Trend
	TCE	10	-2	0.431	57%	0.60	Stable
MW-8	cis-1,2-DCE	4	-2	0.375	63%	0.19	Stable
	trans-1,2-DCE	7	-15	0.015	99%	0.27	Decreasing
	PCE	9	-16	0.06	94%	0.19	Probably Decreasing

Table 6 - Mann-Kendall Trend Analysis Summary

Well	Analyte	N	S	p-value	Confidence	COV	Trend?
MW-8	TCE	7	11	0.068	93%	0.18	Probably Increasing
MW-9	cis-1,2-DCE	9	-12	0.13	87%	0.69	Stable
	trans-1,2-DCE	8	8	0.119	88%	0.55	No Trend
	PCE	10	-23	0.023	98%	0.46	Decreasing
	TCE	10	-20	0.036	96%	0.54	Decreasing
MW-10	cis-1,2-DCE	5	0	0.592	41%	0.86	Stable
	PCE	10	-9	0.242	76%	0.74	Stable
	TCE	10	-5	0.364	64%	0.89	Stable
MW-11	cis-1,2-DCE	8	-11	0.138	86%	0.36	Stable
	trans-1,2-DCE	6	-9	0.068	93%	0.57	Probably Decreasing
	PCE	10	-23	0.023	98%	0.86	Decreasing
	TCE	9	-22	0.012	99%	0.73	Decreasing
MW-12	cis-1,2-DCE	5	2	0.408	59%	0.37	No Trend
	PCE	10	-29	0.005	100%	0.56	Decreasing
	TCE	10	-33	0.001	100%	0.90	Decreasing
MW-13	PCE	10	17	0.078	92%	0.38	Probably Increasing
	Chloroform	5	2	0.408	59%	0.20	No Trend

NOTES:
COV = coefficient of variation; N = number of observations; S = Mann-Kendall Statistic

Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

Notes:
MW-1, MW-2, MW-3, MW-4, and MW-14 have been decommissioned.
MW-1R, MW-2R, MW-3R, and MW-4R were reinstalled following completion of the Starbucks construction project in 2018.

LEGEND

- Monitoring Well
- Sub-Slab Soil-Gas Sample Location
- Bentley Mall Property

0 400 800
Feet

N

Bentley Mall East Satellite
2021 Groundwater Monitoring and Vapor Intrusion Report, Fairbanks, Alaska

SITE VICINITY AND SAMPLING LOCATIONS

March 2022 107889-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 1

Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

LEGEND

Bentley Mall Property

Sub-Slab Soil-Gas Sample Location

Results Less Than DEC Target Levels

Monitoring Well

Results Less Than DEC Regulatory Levels

Results Exceed DEC Regulatory Levels

Notes:
Only results exceeding regulatory limits are displayed.See report tables for further information.
The highest result of a field duplicate sample pair is reported.
DEC = Alaska Department of Environmental Conservation
µg/L = micrograms per liter

0 280 560
Feet

N

Bentley Mall East Satellite
2021 Groundwater Monitoring and Vapor Intrusion Report, Fairbanks, Alaska

2021 GROUNDWATER AND SUB-SLAB SOIL-GAS RESULTS EXCEEDING REGULATORY LIMITS

March 2022 107889-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 2

Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

NOTE: MW-3R had insufficient data to analyze a trend for PCE.

LEGEND

PCE Trend

- Stable
- Probably Decreasing
- Decreasing
- Probably Increasing
- No Trend

Bentley Mall Property

0 280 560

Feet

N

Bentley Mall East Satellite
2021 Groundwater Monitoring and Vapor Intrusion Report, Fairbanks, Alaska

MANN-KENDALL TREND ANALYSIS RESULTS FOR PCE

March 2022 107889-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 3

Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

NOTE: MW-3R and MW-13 had insufficient data to analyze a trend for TCE.

LEGEND

TCE Trend

- Stable
- Decreasing
- Probably Increasing
- No Trend

Bentley Mall Property

0 280 560

Feet

N

Bentley Mall East Satellite
2021 Groundwater Monitoring and Vapor Intrusion Report, Fairbanks, Alaska

MANN-KENDALL TREND ANALYSIS RESULTS FOR TCE

March 2022 107889-001

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Figure 4

APPENDIX A: GROUNDWATER GRADIENT CALCULATION

Appendix A

Groundwater Gradient Calculation

EPA On-line Tools for Site Assessment Calculation

Hydraulic Gradient -- Magnitude and Direction

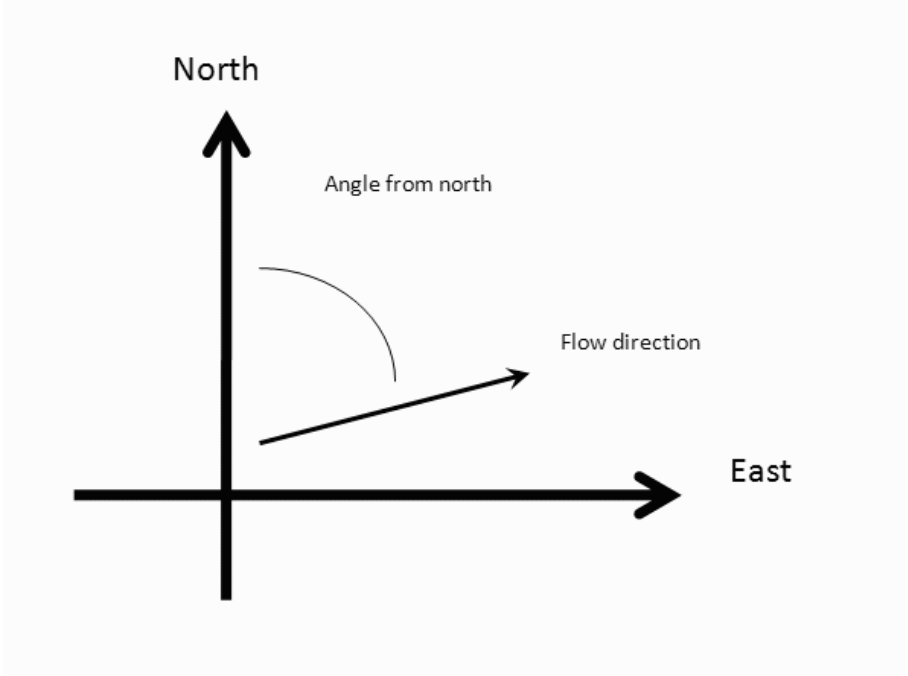
Gradient Calculation from fitting a plane to as many as thirty points

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

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: Bentley Mall East Satellite
Date: 12/10/21 Current Date
Calculation basis: Head
Coordinates: ft

	I.D.	x-coordinate	y-coordinate	head ft
1)	MW-1R	1375862.06	3968800.00	430.12
2)	MW-2R	1375709.75	3968848.89	430.04
3)	MW-3R	1375708.13	3968850.74	430.05
4)	MW-4R	1375723.21	3968943.56	430.06
5)	MW-5	1374819.90	3969118.40	429.75
6)	MW-6	1374818.59	3969124.45	429.77
7)	MW-7	1374417.21	3969410.57	429.59
8)	MW-8	1373663.25	3969218.39	429.1
9)	MW-9	1374201.91	3969203.76	429.37
10)	MW-10	1374612.88	3968967.07	429.53
11)	MW-11	1374060.37	3968941.18	429.23
12)	MW-12	1375316.66	3968917.64	429.93
13)	MW-13	1375576.75	3968766.05	430.01
14)				
15)				
16)				

17)				
18)				
19)				
20)				
21)				
22)				
23)				
24)				
25)				
26)				
27)				
28)				
29)				
30)				

Results

Number of Points Used in Calculation	13
Max. Difference Between Head Values	0.3109
Gradient Magnitude (i)	0.0006456
Flow direction as degrees from North (positive y axis)	235.0
Coefficient of Determination (R^2)	0.988

WCMS

Last updated on 8/31/2021

APPENDIX B: FIELD FORMS

Appendix B

Field Forms

CONTENTS

FIELD ACTIVITIES DAILY LOG

Date 12/9/21
Sheet 1 of 1
Project No. 107889-001

Project Name: BMES Annual Groundwater sampling
Field activity subject: monitoring well sampling
Description of daily activities and events:

1000 DHF and APW pick up rental Monsoon pump from TTL
1020 Arrive at Monroe Catholic school and set up to sample MW-8
1105 Head to MW-9 at other end of Fillingam. Buried under frozen soil and needed to dig out.
1200 Cannot locate MW-9, head to MW-11 instead at Inn & Fulton. Spoke w/ Richard (resident) about project and gave him our contact. He wanted to know the results.
1300 RLW arrive and switch out with DHF for field sampling with APW. DHF leave to locate other wells in network.
1530 Assist VTY and MSC with set-up at MW-10.
1600 Leave site and return to S&W office.
DHF
1400 RLW and APW start at MW-9
1630 RLW and APW begin purging MW-12
1825 RLW and APW begin purging MW-13
2000 RLW and APW begin purging MW-1R, Collect duplicate.
2140 Return to S&W office and unpack samples.

Visitors on site: —

Changes from plans/specifications and other special orders and important decisions:
—

Weather conditions: clear 0°F

Important telephone calls: —

Personnel on site: Dana Fiore
Signature: Dana Fiore Date: 12/9/21

FIELD ACTIVITIES DAILY LOG

Date 12-9-2021
Sheet 1 of 1
Project No. 107889-001

Project Name: BMES
Field activity subject: MW Sampling
Description of daily activities and events:

1300 field prep
1530 VTM and MSC arrive onsite @ MW-10
1720 MW-10 finished

1725 Arrive @ MW-6, set up and start sampling
1815 Start sampling MW-5
1915 finish MW-5

1935 arrive @ MW-7, start sampling
2030 finish MW-7

2035 meet RLW and APW @ Starbucks drive through to hand purge water over and help find MW-4R
2120 back @ SRW office, unpack
2145 end of day

Visitors on site: n/a

Changes from plans/specifications and other special orders and important decisions:
n/a

Weather conditions: clear, 10°F

Important telephone calls: n/a

Personnel on site: VTM, MSC
Signature:

Date: 12-9-21

FIELD ACTIVITIES DAILY LOG

Date 12/10/21
Sheet 1 of 1
Project No. 107889-001

Project Name: Bentley Mall East Satellite
Field activity subject: Groundwater Sampling
Description of daily activities and events:

900 Confidence check YSI and prep sample gear
1020 Arrive at MW-4R near starbucks and begin purging, collect duplicate sample here
1130 Set up at MW-3R to purge. Collect equipment blank here.
1230 Arrive at MW-2R and purge well.
1330 finish sampling MW-2R and clean up site.
1400 Arrive at SLW office and unpack samples.

Visitors on site: —

Changes from plans/specifications and other special orders and important decisions:

—

Weather conditions: Snow and 9°F

Important telephone calls: —

Personnel on site: RLW and APW

Signature: [signature]

Date: 12/10/21

FIELD ACTIVITIES DAILY LOG

Date 12/13/21
Sheet 1 of 1
Project No. 107889-01

Project Name: BMES Costco Soil-gas Sampling
Field activity subject: —
Description of daily activities and events:

800 DHF Arrive at Costco and notify Jason Soule that I have arrived. Look for Sub-slab ports. Located under pallets in grocery rows. Requested help moving pallets out of the way from Costco manager Justin.
840 Locate SSV-1 and set up to Sample
930 Arrive at SSV-2 and set up to sample
1030 Arrive at SSV-3 and set up to sample.
1115 clean up at SSV-3 and look for manager to assist with BTQ. Was told that Jason Soule would be best person to complete the BTQ and that he is not working today. They will let Jason know to get in contact with me to reschedule.
1125 leave site.

Visitors on site: —

Changes from plans/specifications and other special orders and important decisions:
—

Weather conditions: Clear - 35F

Important telephone calls: —

Personnel on site: Dana Tjive
Signature: [signature] Date: 12/13/21

MONITORING WELL SAMPLING LOG

Owner/Client: The Haus52 Companies
Location: Starbucks Drive through
Sampling Personnel: APW RLW
Weather Conditions: Partly Cloudy Air Temp. (°F): 10°

Project No.: 107889-001
Date: 12/9/21
Well: MW-1R
Time started: 2000
Time completed: 2120

Sample No.: MW-1R Time: 2100
Duplicate: MW-100R Time: 2050
Equipment Blank: - Time: -

Pump: Mega Monsoon Pro
Purging Method: (portable) / ~~dedicated pump~~
Pumping Start: 2038
Purge Rate (gal./min.): 0.3
Pumping End: 2100

Pump Set Depth Below MP (ft.): 20
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.): -

Diameter and Type of Casing: 2"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 21.31
Depth to Water Below MP (ft.): 16.13
Depth to Ice (if frozen) Below MP (ft.): -
Feet of Water in Well: 5.18
Gallons per foot: 0.17
Gallons in Well: 0.88
Purge Water Volume (gal.): 6.6
Purge Water Disposal: Drum

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.): 0.3
Monument to ground surface (ft.): 0.0

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No.
MW-1R

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
2038	purge	start				
2041	6.0	7.05	490.6	6.83	186.9	slightly turbid
2044	6.0	6.20	490.1	6.82	187.8	clear
2047	6.0	5.98	488.6	6.81	188.1	↓
2050	6.0	5.84	486.8	6.81	188.3	↓
2053	6.1	5.80	485.9	6.81	188.5	↓
2056	6.0	5.75	484.9	6.81	188.7	↓
2059	6.0	5.72	484.2	6.80	189.0	↓
2100	sample					

Laboratory SGS

✓	Analysis	Sample Containers	Preservatives	Dup
☒	VOCs	3 x VOAs	HCl	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-1R

DHF

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: Starbucks Parking lot
Sampling Personnel: APW / RLW
Weather Conditions: Snow Air Temp. (°F): 9°

Project No.: 107889-001
Date: 12/10/21
Well: MW-2R
Time started: 1230
Time completed: 1330

Sample No.: MW-2R Time: 1300
Duplicate: – Time: –
Equipment Blank: – Time: –

Pump: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 1234
Purge Rate (gal./min.): 0.2
Pumping End: 1300

Pump Set Depth Below MP (ft.): 20
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.): –

Diameter and Type of Casing: 2"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 21.95
Depth to Water Below MP (ft.): 15.93
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 6.02
Gallons per foot: 0.17
Gallons in Well: 1.02
Purge Water Volume (gal.): 5.2
Purge Water Disposal: Bucket

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.): 0.39
Monument to ground surface (ft.): 0.0

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	(0.17)	0.38	0.66	1.5	2.6

DHL

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations

Notes turbid, pale brown at pump start

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1234	purge	start				
1237	3.8	1.34	518	6.81	82.4	slightly turbid
1240	4.1	0.89	537	6.80	90.1	clear
1243	4.1	0.66	543	6.84	96.5	" "
1246	4.3	0.55	547	6.85	100.5	" "
1249	4.2	0.50	546	6.85	104.5	" "
1252	4.3	0.45	547	6.83	107.7	" "
1255	4.5	0.40	548	6.87	110.7	" "
1258	4.4	0.40	548	6.86	113.0	" "
1300	Sample	time				

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	VOA vials x 3	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No.

MW-2R

PHP

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: Starbucks Parking lot
Sampling Personnel: APW RLW
Weather Conditions: Overcast / Snow Air Temp. (°F): 9°

Project No.: 107889-001
Date: 12/10/21
Well: MW-3R
Time started: 1130
Time completed: 1230

Sample No.: MW-3R Time: 1215
Duplicate: — Time: —
Equipment Blank: BMES-EB Time: 1230

Pump: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 1151
Purge Rate (gal./min.): 0.2
Pumping End: 1215

Pump Set Depth Below MP (ft.): 44
KuriTec Tubing (ft.): 50
TruPoly Tubing (ft.):

Diameter and Type of Casing: 2"
Approximate Total Depth of Well Below MP (ft.): 45
Measured Total Depth of Well Below MP (ft.): 45.74
Depth to Water Below MP (ft.): 15.96
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 29.78
Gallons per foot: 0.17
Gallons in Well: 5.06
Purge Water Volume (gal.): 4.8
Purge Water Disposal: Bucket

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.): 0.34
Monument to ground surface (ft.): 0.0

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes:

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations _____

Notes _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1151	purge	start				
1154	3.2	1.15	348.3	6.75	86.2	clear
1157	3.6	0.74	348.7	6.82	76.3	↓
1200	3.6	0.61	344.3	6.84	71.6	↓
1203	3.5	0.57	343.1	6.85	67.5	↓
1206	3.6	0.45	345.0	6.85	64.5	↓
1209	3.6	0.44	346.0	6.86	62.1	↓
1212	3.5	0.40	347.4	6.87	59.2	↓
1215	sample	time				

Laboratory SGS

	Analysis	Sample Containers	Preservatives	EB ~~Dup~~
☒	VOCs	VOA x3	HCl	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-3R

PHF

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: BMES parking lot
Sampling Personnel: APW RLW
Weather Conditions: Overcast Air Temp. (°F): 9°

Project No.: 107889-001
Date: 12/10/21
Well: MW-4R
Time started: 10:20
Time completed: 11:30

Sample No.: MW-4R Time: 1116
Duplicate: MW-104R Time: 1120
Equipment Blank: – Time: –

Pump: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 1037
Purge Rate (gal./min.): 0.15
Pumping End: 1116

Pump Set Depth Below MP (ft.): 19
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.): –

Diameter and Type of Casing: 2"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 20.21
Depth to Water Below MP (ft.): 14.74
Depth to Ice (if frozen) Below MP (ft.): –
Feet of Water in Well: 5.47
Gallons per foot: 0.17
Gallons in Well: 0.93
Purge Water Volume (gal.): 5.5
Purge Water Disposal: Bucket

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.): 0.35
Monument to ground surface (ft.): 0.0

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No.
MW-4R

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations _____

Notes _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1037	purge	start				
1040	3.1	4.81	615	6.66	212.6	clear
1043	3.6	4.86	612	6.66	215.8	
1046	3.7	2.43	626	6.67	220.7	
1049	3.7	1.66	625	6.68	224.0	
1052	3.7	1.26	625	6.67	223.7	
1055	3.7	1.02	625	6.67	222.0	
1058	3.7	0.92	624	6.67	221.6	
1101	3.9	0.84	626	6.68	219.6	
1104	4.0	0.74	627	6.68	218.4	
1107	4.0	0.66	626	6.68	216.2	
1110	4.0	0.63	627	6.66	213.8	
1113	4.0	0.58	626	6.68	210.8	
1116	Sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	3 x VOA	HCl	☒
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-4R

DKF

MONITORING WELL SAMPLING LOG

Owner/Client ~~Krausz~~ The Krausz Companies
Location Behind Key Bank
Sampling Personnel VTY, HSE
Weather Conditions overcast Air Temp. (°F) 1

Project No. 107889-001
Date 12-9-21
Well MW-5
Time started 1813
Time completed 1915

Sample No. MW-5 Time 1902
Duplicate — Time —
Equipment Blank — Time —

Pump Mega Monsoon
Purging Method *portable / dedicated pump*
Pumping Start 1829
Purge Rate (gal./min.) 0.12
Pumping End 1902

Pump Set Depth Below MP (ft.) 28.5
KuriTec Tubing (ft.) 35
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 25
Measured Total Depth of Well Below MP (ft.) 28.34+1.19
Depth to Water Below MP (ft.) 18.02
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 11.51
Gallons per foot 0.17
Gallons in Well 2
Purge Water Volume (gal.) 4
Purge Water Disposal Drum

Monument Condition Good
Casing Condition good

Wiring Condition (dedicated pumps) /

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

Top-of-casing to monument (ft.) 0.51
Monument to ground surface (ft.) 1.76

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational n/a
☒ Well name legible on outside of well
☒ Evidence of frost-jacking none

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1829	2.8	1.05	531	6.84	76.6	v. turbid
1832	2.9	0.79	529	6.83	64.6	turbid
1835	3.2	0.59	528	6.82	49.4	sl. turbid
1838	3.3	0.50	526	6.82	39.1	cloudy
1841	3.3	0.46	524	6.83	33.3	sl cloudy
1844	3.2	0.42	521	6.83	27.5	cloudy
1847	3.2	0.39	520	6.83	21.0	clear
1850	3.2	0.35	518	6.84	9.4	clear
1856	3.2	0.36	518	6.84	6.0	clear
1859	3.7	0.32	525	6.84	1.5	clear
1902	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
X	VOC	3 x 40 mL	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-5

DHE

MONITORING WELL SAMPLING LOG

Owner/Client ~~Krauss~~ The Krausz Companies
Location behind Key Bank
Sampling Personnel VM MSC
Weather Conditions Clear Air Temp. (°F) 1

Project No. 107889-001
Date 12-9-21
Well MW-6
Time started 1725
Time completed 1815

Sample No. MW-6 Time 1808
Duplicate — Time —
Equipment Blank — Time —

Pump ~~Geotech~~ Mega Monsoon
Purging Method *portable / dedicated pump*
Pumping Start 1744
Purge Rate (gal./min.) 0.075
Pumping End 1808

Pump Set Depth Below MP (ft.) 20
KuriTec Tubing (ft.) 25
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 20
Measured Total Depth of Well Below MP (ft.) 19.60+1.19=20.79
Depth to Water Below MP (ft.) 17.84
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 2.95
Gallons per foot 0.17
Gallons in Well 0.5
Purge Water Volume (gal.) 1.6
Purge Water Disposal Drum

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

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

Top-of-casing to monument (ft.) 0.42
Monument to ground surface (ft.) 1.71

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational broken
☒ Well name legible on outside of well
☒ Evidence of frost-jacking n/a

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No. MW-6

DTF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1744	2.4	1.40	483.5	7.05	120.8	turbid
1747	2.0	0.63	477.2	6.90	112.2	sl. turbid
1750	2.5	0.51	487.9	6.88	91.9	cloudy
1753	2.6	0.49	491.9	6.87	79.3	cloudy
1756	3.0	0.44	502.0	6.86	52.0	cloudy
1759	3.0	0.44	506.0	6.85	27.0	clear
1802	2.8	0.43	505.0	6.85	10.3	clear
1805	2.6	0.41	504	6.86	5.2	clear
1808	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
X	VOC	3x 40 mL	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

DHF

Well No. MW-6

MONITORING WELL SAMPLING LOG

Owner/Client ~~Krausz~~ The Krausz Companies
Location BHES
Sampling Personnel VH, MSC
Weather Conditions overcast Air Temp. (°F) 1

Project No. 107889-001
Date 12-9-21
Well MW-7
Time started 1935
Time completed 2030

Sample No. MW-7 Time 2018
Duplicate — Time —
Equipment Blank — Time —

Pump Mega Monsoon
Purging Method *portable / dedicated pump*
Pumping Start 1951
Purge Rate (gal./min.) 0.1
Pumping End 2018

Pump Set Depth Below MP (ft.) 22.75
KuriTec Tubing (ft.) 30
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 20
Measured Total Depth of Well Below MP (ft.) 22.56 + 1.19 = 23.75
Depth to Water Below MP (ft.) 20.15
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 3.6
Gallons per foot 0.17
Gallons in Well 0.6
Purge Water Volume (gal.) 3
Purge Water Disposal Drum

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) /

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

Top-of-casing to monument (ft.) 0.39
Monument to ground surface (ft.) 2.47

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

☐ Lock present and operational n/a
☒ Well name legible on outside of well
☒ Evidence of frost-jacking none

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

DHE

Well No. MW-7

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI C Circle one: *Parameters stabilized* or *≥3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1951	2.5	3.06	548	7.06	127.0	turbid
1954	3.2	2.32	560	6.97	119.0	cloudy
1957	3.6	2.25	567	6.96	113.2	slightly cloudy
2000	3.8	1.78	573	6.94	97.3	sl. cloudy
2003	3.8	1.63	574	6.93	87.0	clear
2006	3.9	1.49	576	6.93	74.1	clear
2009	3.9	1.37	577	6.92	66.8	clear
2012	3.9	1.24	578	6.92	58.0	clear
2015	3.9	1.15	578	6.91	51.8	clear
2018	sampled					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☒	VOC	3x40 ml	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

DHF

Well No. MW-7

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: Monroe Catholic School
Sampling Personnel: DHF
Weather Conditions: Clear 5°F Air Temp. (°F): 5

Project No.: 107889-001
Date: 12/9/21
Well: MW-8
Time started: 1020
Time completed: 1145

Sample No.: MW-8 Time: 1134
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: SS Monsoon
Purging Method: portable / dedicated pump
Pumping Start: 1055
Purge Rate (gal./min.): 0.08
Pumping End: 1134

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): —
Measured Total Depth of Well Below MP (ft.): 20.27
Depth to Water Below MP (ft.): 12.55
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 7.72
Gallons per foot: 0.17
Gallons in Well: 1.31
Purge Water Volume (gal.): 4
Purge Water Disposal: Drum

Pump Set Depth Below MP (ft.): 19
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.): —

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

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

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

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational NA
- ☐ Well name legible on outside of well Yes
- ☐ Evidence of frost-jacking No

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No. MW-8

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI D Circle one: *Parameters stabilized* or *>3 well volumes purged*

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1055	pump start					
1056	4.1	5.50	551	6.82	279.0	opaque, slight yellow, brown
1059	4.8	4.82	558	6.82	269.2	↓
1106	5.2	3.70	560	6.83	243.0	mostly clear
1109	5.2	3.47	561	6.82	236.6	↓
1112	5.4	3.30	563	6.83	230.1	clear
1115	5.4	3.24	564	6.82	223.8	↓
1118	5.5	3.04	565	6.83	217.9	
1121	5.4	2.95	564	6.83	215.0	
1125	5.5	2.72	563	6.84	210.2	
1128	5.6	2.69	562	6.84	206.7	
1131	5.5	2.50	562	6.84	204.6	↓
1134	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOC			☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-8

DHF

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: Ellingson & Noyes
Sampling Personnel: APW, RLW
Weather Conditions: Cloudy Air Temp. (°F): 6

Project No.: 107889-001
Date: 12/9/21
Well: MW-9
Time started: 1410
Time completed: 16:00

Sample No.: MW-9 Time: 1525
Duplicate: - Time: -
Equipment Blank: - Time: -

Pump: Mega Monsoon Pro
Purging Method: portable / dedicated pump
Pumping Start: 1421
Purge Rate (gal./min.): 0.08
Pumping End: 1521

Pump Set Depth Below MP (ft.): 19'
KuriTec Tubing (ft.): 25'
TruPoly Tubing (ft.): -

Diameter and Type of Casing: 2"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 20.52
Depth to Water Below MP (ft.): 12.10
Depth to Ice (if frozen) Below MP (ft.): -
Feet of Water in Well: 8.42
Gallons per foot: 0.17
Gallons in Well: 1.43
Purge Water Volume (gal.): 18
Purge Water Disposal: Drum

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: Rod & level / Tape measure

Top-of-casing to monument (ft.): 0.75
Monument to ground surface (ft.): 0.0

Datalogger type: n/a
Datalogger serial #: n/a
Measured cable length (ft.): n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No.
MW-9

DKF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations _____

Notes _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1421	pump	start				
1424	2.3	7.25	556	6.97	270.8	turbid
1427	2.5	6.50	559	6.97	266.4	" "
1430	2.9	6.15	564	6.97	263.1	slightly turbid
1433	3.2	5.98	568	6.97	260.5	" "
1436	3.3	5.87	571	6.96	258.5	" "
1439	3.4	5.70	571	6.97	256.8	clear
1442	3.5	5.63	572	6.96	255.4	" "
1445	3.4	5.58	570	6.96	254.3	" "
1448	3.5	5.45	569	6.96	252.6	" "
1451	3.6	5.29	567	6.96	251.0	" "
1454	3.6	5.25	564	6.96	249.5	" "
1457	3.7	5.12	563	6.96	247.9	" "
1500	3.6	5.01	560	6.96	246.3	" "
1503	3.6	4.90	557	6.96	244.6	" "
1506	3.6	4.80	555	6.96	242.7	" "
1509	3.7	4.71	554	6.95	240.8	" "
1512	3.6	4.56	552	6.95	239.3	" "
1515	3.7	4.52	552	6.95	237.9	" "
1518	3.7	4.44	550	6.95	236.0	" "
1521	3.7	4.42	548	6.95	234.3	" "

Laboratory *SGS*

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	VOA vials x 3	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-9

DHF

MONITORING WELL SAMPLING LOG

Owner/Client ~~Krausz~~ The Krausz Companies
Location Ina + Noyes
Sampling Personnel MSL, VTY
Weather Conditions Cloudy Air Temp. (°F) ~1

Project No. 107889-001
Date 12-9-21
Well MW-10
Time started 1545
Time completed 1720

Sample No. MW-10 Time 1705
Duplicate — Time —
Equipment Blank — Time —

Pump ~~Geotech~~ Hegg Monsoon
Purging Method ~~portable~~ / dedicated pump
Pumping Start 1635
Purge Rate (gal./min.) 0.08
Pumping End 1705

Pump Set Depth Below MP (ft.) 19
KuriTec Tubing (ft.) 25
TruPoly Tubing (ft.) —

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 30
Measured Total Depth of Well Below MP (ft.) 18.75+1.19=19.94
Depth to Water Below MP (ft.) 13.50
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 6.44
Gallons per foot ~~0.09~~ 0.17
Gallons in Well 1.09
Purge Water Volume (gal.) 2.5
Purge Water Disposal Drum

Monument Condition good
Casing Condition good

Wiring Condition (dedicated pumps) —

Measuring Point (MP) Top of Casing (TOC)

Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.) 0.58
Monument to ground surface (ft.) —

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☑ Lock present and operational
- ☑ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

Well No.
MW-10

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI C Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations:

Notes:

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1635	2.9	1.30	407.3	6.80	7.3	turbid
1638	3.2	0.87	410.5	6.86	-11.0	turbid
1641	3.5	0.91	412.5	6.87	-13.0	sl. turbid
1644	3.6	1.14	413.6	6.89	-20.0	cloudy
1647	3.7	1.00	414.0	6.90	-22.9	cloudy
1650	3.6	0.76	412.5	6.91	-25.7	cloudy
1653	3.7	0.60	413.0	6.91	-27.8	clear
1656	3.7	0.54	413.3	6.93	-29.7	clear
1659	3.7	0.49	413.7	6.91	-30.6	clear
1702	3.8	0.44	414.5	6.92	-31.7	clear
1705	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup
X	VOC	3x 40 mL	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-10

DMF

MONITORING WELL SAMPLING LOG

Owner/Client: The Krausz Companies
Location: Near Ina and Fulton St.
Sampling Personnel: DHF, AQW
Weather Conditions: mostly clear Air Temp. (°F) 5

Project No. 107899-001
Date 12/9/21
Well MW-11
Time started 1220
Time completed 1320

Sample No. MW-11 Time 1300
Duplicate — Time —
Equipment Blank — Time —

Pump SS Monsoon
Purging Method ~~portable~~ / dedicated pump
Pumping Start 1237
Purge Rate (gal./min.) 0.08
Pumping End 1300

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
Depth to Water Below MP (ft.) 12.59
Depth to Ice (if frozen) Below MP (ft.) —

Pump Set Depth Below MP (ft.) 19
KuriTec Tubing (ft.) 25
TruPoly Tubing (ft.) —

Feet of Water in Well 7.6
Gallons per foot 0.17
Gallons in Well 1.3
Purge Water Volume (gal.) 4.6
Purge Water Disposal Drum

Monument Condition good

Casing Condition muddy

Wiring Condition (dedicated pumps) n/a

Measuring Point (MP) Top of Casing (TOC)

Monument type: Stickup / Flushmount
Measurement method: Rod & level / Tape measure

Top-of-casing to monument (ft.) 0.7
Monument to ground surface (ft.) —

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	2	3	4	6	8
Gallons per lineal foot	0.000253	0.08	0.17	0.38	0.66	1.5	2.6

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations _____

Notes _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1237	pump start					very turbid, brown
1238	5.3	3.37	461.9	6.82	236.5	
1241	3.7	3.28	445.4	6.81	232.6	turbid
1244	4.0	2.91	450.8	6.81	235.7	turbid
1247	4.3	3.18	453.8	6.80	234.2	turbid
1250	4.4	3.29	455.6	6.80	232.8	slightly turbid
1253	4.6	3.34	457.0	6.79	231.2	" "
1256	4.5	3.32	456.9	6.79	230.0	" "
1300	Sample time					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	VOA vials x3	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No.

MW-11

DHF

MONITORING WELL SAMPLING LOG

Owner/Client: the Krause Companies
Location: Near REI on College Rd
Sampling Personnel: APW RLW
Weather Conditions: Partly Cloudy Air Temp. (°F) 0°

Project No. 107889-001
Date 12/9/21
Well MW-12
Time started 16:35
Time completed 18:25

Sample No. MW-12 Time 1810
Duplicate – Time –
Equipment Blank – Time –

Pump Mega Monsoon Pro
Purging Method (portable) / dedicated pump
Pumping Start 17:25
Purge Rate (gal./min.) 0.08
Pumping End 18:10

Pump Set Depth Below MP (ft.) 19
KuriTec Tubing (ft.) 25
TruPoly Tubing (ft.) –

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 20
Measured Total Depth of Well Below MP (ft.) 20.31
Depth to Water Below MP (ft.) 15.56
Depth to Ice (if frozen) Below MP (ft.) –
Feet of Water in Well 4.75
Gallons per foot 0.17
Gallons in Well 0.81
Purge Water Volume (gal.) 13.5
Purge Water Disposal Drum

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.) 0.46
Monument to ground surface (ft.) 0.0

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No.

DHP

MW-12

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations _____

Notes _____

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1725	pump	start				
1728	4.4	4.07	954	6.63	223.8	Clear
1731	4.6	2.57	908	6.64	198.1	" "
1734	4.6	2.06	872	6.67	187.2	" "
1737	4.7	1.74	843	6.66	179.8	" "
1740	4.6	1.48	824	6.66	174.7	" "
1743	4.7	1.36	810	6.67	170.3	" "
1746	4.7	1.32	798	6.66	167.3	" "
1749	4.7	1.20	784	6.67	164.2	" "
1752	4.7	1.15	776	6.68	161.9	" "
1755	4.7	1.09	764	6.68	160.1	" "
1758	4.7	1.11	762	6.68	158.8	" "
1801	4.7	1.00	749	6.68	157.2	" "
1804	4.6	1.10	751	6.68	155.0	" "
1807	4.7	1.06	742	6.68	154.0	" "
1810	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	VOA vials x 3	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

Well No. MW-12

DHF

MONITORING WELL SAMPLING LOG

Owner/Client The Krausz Companies
Location Across college Rd from Starbucks
Sampling Personnel APW RLW
Weather Conditions Partly Cloudy Air Temp. (°F) 0°

Project No. 107889-001
Date 12/9/21
Well MW-13
Time started 18:25
Time completed 19:30

Sample No. MW-13 Time 19:07
Duplicate – Time –
Equipment Blank – Time –

Pump Mesa Monsoon Pro
Purging Method (portable) / dedicated pump
Pumping Start 1840
Purge Rate (gal./min.) 0.08
Pumping End 1907

Pump Set Depth Below MP (ft.) 19
KuriTec Tubing (ft.) 25
TruPoly Tubing (ft.) –

Diameter and Type of Casing 2"
Approximate Total Depth of Well Below MP (ft.) 20
Measured Total Depth of Well Below MP (ft.) 20.55
Depth to Water Below MP (ft.) 15.88
Depth to Ice (if frozen) Below MP (ft.) –
Feet of Water in Well 4.67
Gallons per foot 0.17
Gallons in Well 0.79
Purge Water Volume (gal.) 8
Purge Water Disposal Drum

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: Rod & level / (Tape measure)

Top-of-casing to monument (ft.) 0.5
Monument to ground surface (ft.) 0.0

Datalogger type n/a
Datalogger serial # n/a
Measured cable length (ft.) n/a

- ☐ Lock present and operational
- ☐ Well name legible on outside of well
- ☐ Evidence of frost-jacking

Notes

WELL CASING VOLUMES

Diameter of Well [ID-inches]	CMT	1¼	(2)	3	4	6	8
Gallons per lineal foot	0.000253	0.08	(0.17)	0.38	0.66	1.5	2.6

Well No.
MW-13

DHF

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro Plus Circle one: (Parameters stabilized) or >3 well volumes purged

Sample Observations

Notes

FIELD PARAMETERS [stabilization criteria]

Time	Temp. (°C)	Dissolved Oxygen (mg/L) [±0.1]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1840	Purge	Start				
1843	4.7	2.83	662	6.54	168.4	Clear
1846	4.7	1.06	659	6.55	168.3	" "
1849	4.1	0.81	642	6.56	167.3	" "
1852	4.8	0.60	650	6.57	166.9	" "
1855	5.0	0.50	647	6.58	166.1	" "
1858	4.8	0.45	637	6.60	166.2	" "
1901	4.8	0.39	635	6.60	166.1	" "
1904	4.9	0.38	634	6.61	166.1	" "
1907	Sample	time				

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup
☑	VOCs	VOA Vials x 3	HCl	☐
☐				☐
☐				☐
☐				☐
☐				☐
☐				☐

DHF

Well No.

MW-13

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client The Krauss Companies LLC
Location Costco Warehouse
Near produce dept., S. end
Weather Clear Temp (°F) -35

Project Number 107884-001
Project Name BMES
Date and Time 12/3/21 0840
Sampling Personnel DHF

Sample No. SSV-1
Time (start) 0909 Time (end) 0915

Duplicate —
Time (start) — Time (end) —

Soil-Gas Port Type Vapor pin
Installation Depth unknown, ~0.5 feet bgs

Date Installed 11/8/18
Time Installed 1535

Canister ID IL 3373
Canister Volume (L) 1

Laboratory Eurofins
Analysis Modified TO-15

Initial Canister Vacuum (inHg) -28.5
Final Canister Vacuum (inHg) -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train -29 inHg
Drop in vacuum after one minute 0 inHg

Note: vacuum applied to sample train = evacuating sample train to ≥ 7.35 inHg. Any observable loss after 1 minute is considered a leak.

Tracer Test:

Helium applied at probe interface (shroud) 15000 % or (ppm)
Probe and sampling line purge rate 100 mL/min.
Sample train length 6.75 ft
Volume per foot (3/16" tubing) 4.22 mL/ft
Sample train volume 28 mL
One sample train volume (purge time) 17 seconds

Note: Helium detected at > 10% the helium applied under the shroud is considered a leak.

Tracer Test Time	Helium (% or ppm)
9:08:00	0
9:08:03	0
9:08:06	0
9:08:09	0
9:08:12	0
9:08:15	0
9:08:18	0

Notes: Flow cont. 25551 *
24" + 14" + 6" + 37 = 81 ÷ 12 = 6.75

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: The Kraus2 Companies LLC
Location: Costco Warehouse
In cleaning supplies section at S. end
Weather: clear Temp (°F): -35

Project Number: 107889-001
Project Name: BMES
Date and Time: 12/13/21 930
Sampling Personnel: DHF

Sample No.: SSV-2 Time (start): 1000 Time (end): 1013
Duplicate: SSV-12 Time (start): 1000 Time (end): 1013

Soil-Gas Port Type: Vapor Pin
Installation Depth: Unknown, ~0.5 feet bgs
Canister ID: IL 289 / 40868
Canister Volume (L): 1

Date Installed: 11/18/18
Time Installed: 1505
Laboratory: Eurofins
Analysis: TO-15 Modified

Initial Canister Vacuum (inHg): -29 / -28.5
Final Canister Vacuum (inHg): -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -29.5 inHg
Drop in vacuum after one minute: 0 inHg

Note: vacuum applied to sample train = evacuating sample train to ≥ 7.35 inHg. Any observable loss after 1 minute is considered a leak.

Tracer Test:

Helium applied at probe interface (shroud): 4.4 (%) or ppm
Probe and sampling line purge rate: 100 mL/min.
Sample train length: 7.2 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 30 mL
One sample train volume (purge time): 18 seconds

Note: Helium detected at > 10% the helium applied under the shroud is considered a leak.

Tracer Test Time	Helium (% or ppm)
9:57:03	0
9:57:06	0
9:57:09	0
9:57:12	0
9:57:15	0
9:57:18	0

Notes: flow controller 2504S
26" + 17" + 6 + 37 = 86

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: The Krausz Companies, LLC
Location: Costco warehouse
Canned meat & soup area, N. end
Weather: clear Temp (°F): -35

Project Number: 107889-001
Project Name: BMES
Date and Time: 12/13/21
Sampling Personnel: DHF

Sample No.: SSV-3
Time (start): 1054 Time (end): 1104

Duplicate: —
Time (start): — Time (end): —

Soil-Gas Port Type: Vapor Pin
Installation Depth: Unknown, ~0.5 feet bgs
Canister ID: 1L1806
Canister Volume (L): 1

Date Installed: 11/8/18
Time Installed: 1051
Laboratory: Eurofins
Analysis: Modified TO-15

Initial Canister Vacuum (inHg): -28.5
Final Canister Vacuum (inHg): -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -28 inHg
Drop in vacuum after one minute: 0 inHg

Note: vacuum applied to sample train = evacuating sample train to ≥ 7.35 inHg. Any observable loss after 1 minute is considered a leak.

Tracer Test:

Helium applied at probe interface (shroud): 2.5 %or ppm
Probe and sampling line purge rate: 100 mL/min.
Sample train length: 6.75 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 28 mL
One sample train volume (purge time): 17 seconds

Note: Helium detected at > 10% the helium applied under the shroud is considered a leak.

Tracer Test Time	Helium (% or ppm)
10:52:03	0
10:52:06	0
10:52:09	0
10:52:12	0
10:52:15	0
10:52:18	0

Notes: Flow Controller 20298
24" + 14" + 6" + 37" = 81

DHF

PO# 173539-6-3404-KC

173539-KC

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

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: AKR000207175

2. Page 1 of: 2

3. Emergency Response Phone: 800-899-4672

4. Manifest Tracking Number: 004899147 FLE

GENERATOR

5. Generator's Name and Mailing Address
THE KRAUSZ COMPANIES, INC.
44 MONTGOMERY STREET SUITE 2388
SAN FRANCISCO, CA 94104
Generator's Phone:

Generator's Site Address (if different than mailing address)
BENTLEY MALL
32 COLLEGE ROAD
FAIRBANKS, AK 99701

6. Transporter 1 Company Name: US ECOLOGY ALASKA LLC
U.S. EPA ID Number: AKR000004184

7. Transporter 2 Company Name: WEAVER BROTHERS
U.S. EPA ID Number: AKD002848372

8. Designated Facility Name and Site Address
US ECOLOGY IDAHO, INC.
20400 LEMLEY RD
GRAND VIEW, ID 83624
Facility's Phone: (208) 834-2275
U.S. EPA ID Number: IDD073114654

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN3082, Waste Environmentally hazardous substances, liquid, n.o.s. (TETRACHLOROETHENE, TRICHLOROFLUOROMETHANE), 9, PGIII ERG#171	2	DM	320	P	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1) USE52606 F002 IDW GROUNDWATER D40069

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Dana Fjare on behalf of The Krausz Companies, LLC
Signature:
Month: 12 Day: 14 Year: 21

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Scotty Lane
Signature:
Month: 12 Day: 14 Year: 21

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name:
Signature:
Month: Day: Year:

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA E-MANIFEST

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number	22. Page	23. Manifest Tracking Number
AKR000207175	2	004899147FLE

24. Generator's Name: BENTLEY MALL
32 COLLEGE ROAD
FAIRBANKS, AK 99701

25. Transporter 3 Company Name: TOTE MARITIME ALASKA, LLC. U.S. EPA ID Number: WAD070397955

26. Transporter 4 Company Name: EQ INDUSTRIAL SERVICES U.S. EPA ID Number: MIK435642742

GENERATOR

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name | Signature | Month | Day | Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

APPENDIX C: BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE

Appendix C

Building Inventory and Indoor Air Sampling Questionnaire

ALASKA DEPARTMENT OF ENVIRONMENAL CONSERVATION
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building in which interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during work-plan development. Section II should be used to assist in identification of complicating factors during a presampling building walkthrough.

Preparer's Name Dana Fjare Date/Time Prepared 12/14/21 1415

Preparer's Affiliation Shannon & Wilson, Inc. Phone No. (907) 987-7174

Purpose of Investigation Vapor Intrusion as part of BMES monitoring

SECTION I: BUILDING INVENTORY

1. OCCUPANT OR BUILDING PERSONNEL:

Interviewed: (Y) / N

Last Name Soule First Name Jason (manager)

Address 48 College Rd

County Fairbanks

Phone No. (907) 230-8586

Number of Occupants/persons at this location various (shoppers) Age of Occupants [redacted] child to adult (shoppers)
131 full-time employees, 82 part-time, adult (employees)

2. OWNER or LANDLORD: (Check if same as occupant ____) Costco leases building from owner

Interviewed: Y / (N)

Last Name Kamin First Name Daniel

Address 490 South Highland

County Pittsburgh PA

Phone No. —

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	(Commercial/Multi-use)
Industrial	Church	Other ____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other_____

If multiple units, how many? N/A

If the property is commercial, type?

Business Types(s) Wholesale warehouse

Does it include residences (i.e., multi-use)? Y / (N) If yes, how many?_____

Other characteristics:

Number of floors 2 (mezzanine over offices (breakroom) mezzanine over tire shop for electrical mezzanine over bakery for compressors/condensers) Building age 28

Is the building insulated? (Y) / N How air tight? Tight / (Average) / Not Tight

Have occupants noticed chemical odors in the building? Y / (N)

If yes, please describe: ~~N~~

4. AIRFLOW

Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Mezzanines are all open to the rest of the building, so free air exchange. Fans in bldg for circulating air. Three mezzanines: one at northeast corner, one at southeast corner, one at southwest corner.

Airflow in building near suspected source

Sub-slab differential pressure changes with temperature. Colder temps = greater SSDP readings.

Outdoor air infiltration

Front doors open and close frequently for shoppers. HVAC system exchanges an estimated 16,600 cubic feet per minute, or 0.22 air exchanges per hour.

Infiltration into air ducts

Roof-mounted air ducts, Makeup air above bakery, deli, and pizza ovens in food court.

Air ducting to fire shop is separate from rest of bldg

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS** (Circle all that apply) * No basement, responses are for first floor

a. Above grade construction:	wood frame	log	concrete	brick
	constructed on pilings with enclosed air space		constructed on pilings with open air space	metal frame
b. Basement type:	full	crawlspace	(slab-on-grade)	other
c. Basement floor:	(concrete)	dirt	stone	other
d. Basement floor:	unsealed	(sealed)	sealed with	
e. Foundation walls:	(poured)	block	stone	other
f. Foundation walls:	unsealed	(sealed)	sealed with	
g. The basement is:	wet	damp	dry	N/A
h. The basement is:	finished	unfinished	partially finished	N/A
i. Sump present?	(Y) / N	below dishwashing unit to catch rinsewater		
j. Water in sump?	(Y) / N / not applicable	drained nightly		

Basement/Lowest level depth below grade 0 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

The floor is in good condition and sealed. Drains are located in areas with sinks, condensing units, and in front entrance. Manholes for grease traps in the center and near bakery.

6. **HEATING, VENTING and AIR CONDITIONING** (Circle all that apply)

Type of heating system(s) used in this building: (Circle all that apply – not primary)

(Hot air circulation)	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other

The primary type of fuel used is:

(Natural Gas)	Fuel Oil	Kerosene
~~Electric~~	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by N/A

Boiler/furnace located in: N/A, natural gas Basement Outdoors Main Floor Other

Do any of the heating appliances have cold-air intakes? (Y) / N

Type of air conditioning or ventilation used in this building:

Central Air | Window units | Open Windows | None

Commercial HVAC | Heat-recovery system | Passive air system

Are there air distribution ducts present? Y / N

Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the locations of air supply and exhaust points on the floor plan.

The configuration of air supply and exhaust is indicated on the attached floor plan.

Is there a radon mitigation system for the building/structure? Y / N Date of Installation NA

Is the system active or passive? Active/Passive NA

7. **OCCUPANCY**

Is ~~basement~~/lowest level occupied? Full-time | Occasionally | Seldom | Almost Never

Level	**General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage)**
Basement	—
1st Floor	wholesale warehouse, shipping, food preparation
2nd Floor	mezzanines for break room, compressors, and electric
3rd Floor	—

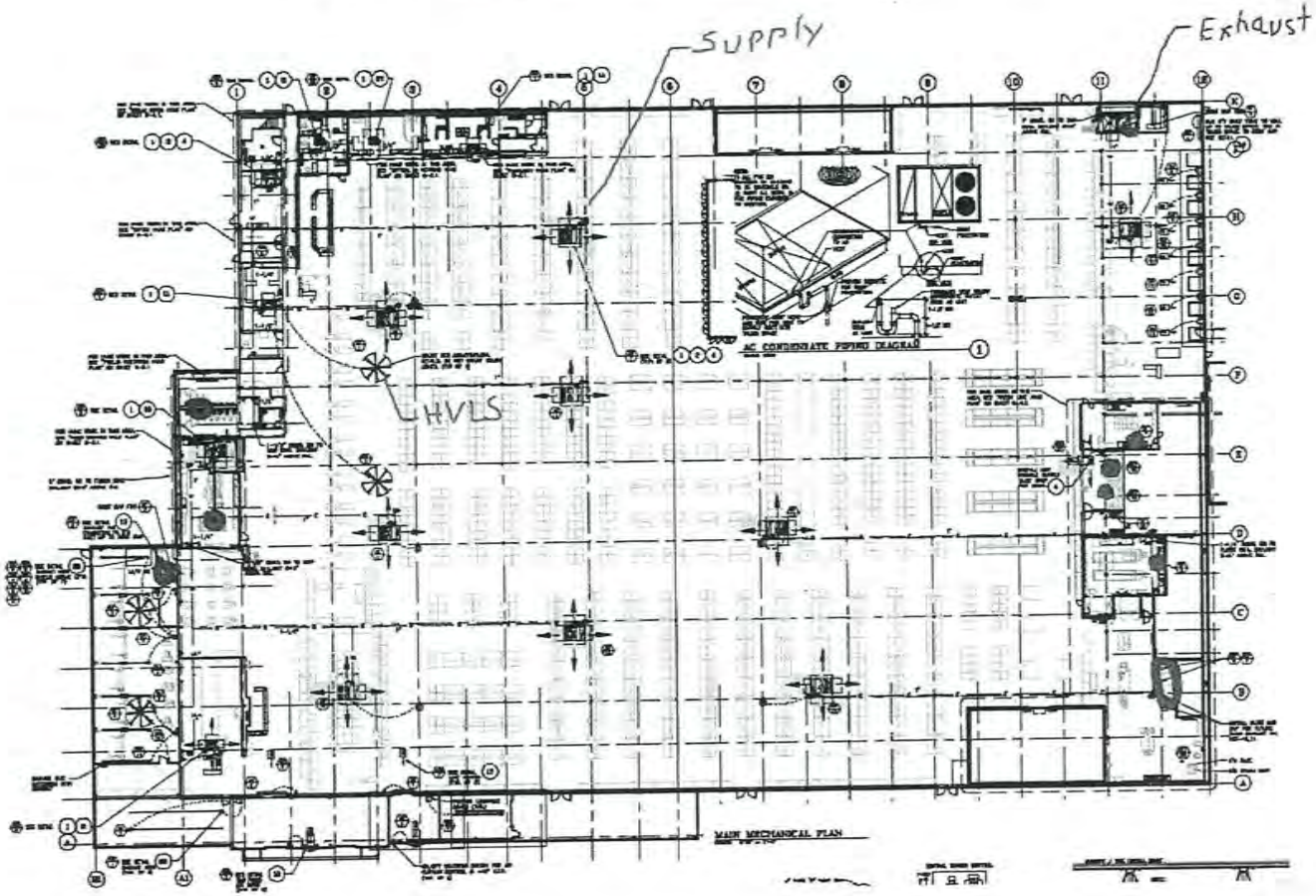
8. **WATER AND SEWAGE**

Water Supply: Public Water | Drilled Well | Driven Well | Dug Well | Other

Sewage Disposal: Public Sewer | Septic Tank | Leach Field | Dry Well | Other

Exhaust on each corner

Costco (Post-Renovation) Air Flow



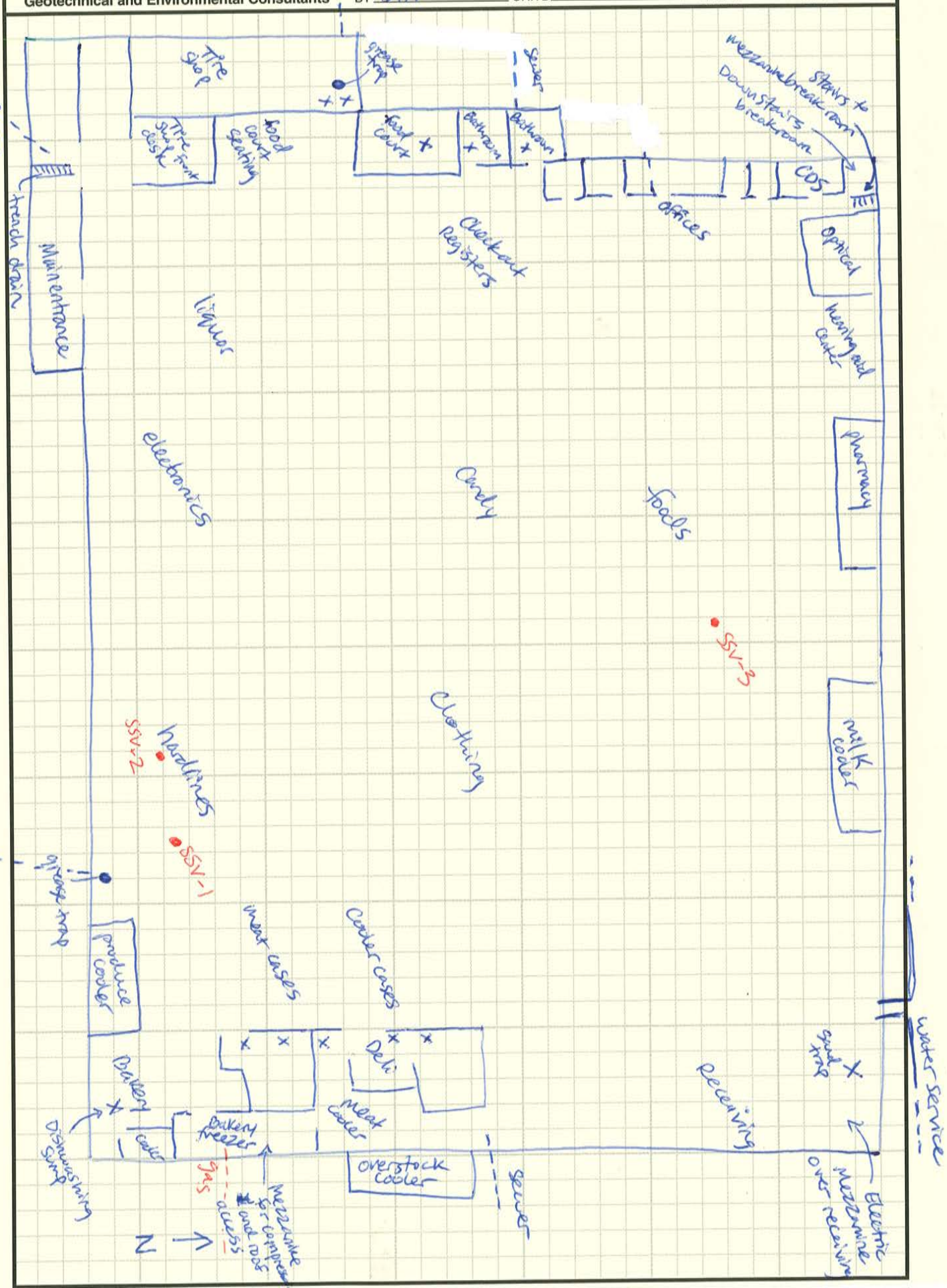
Key:

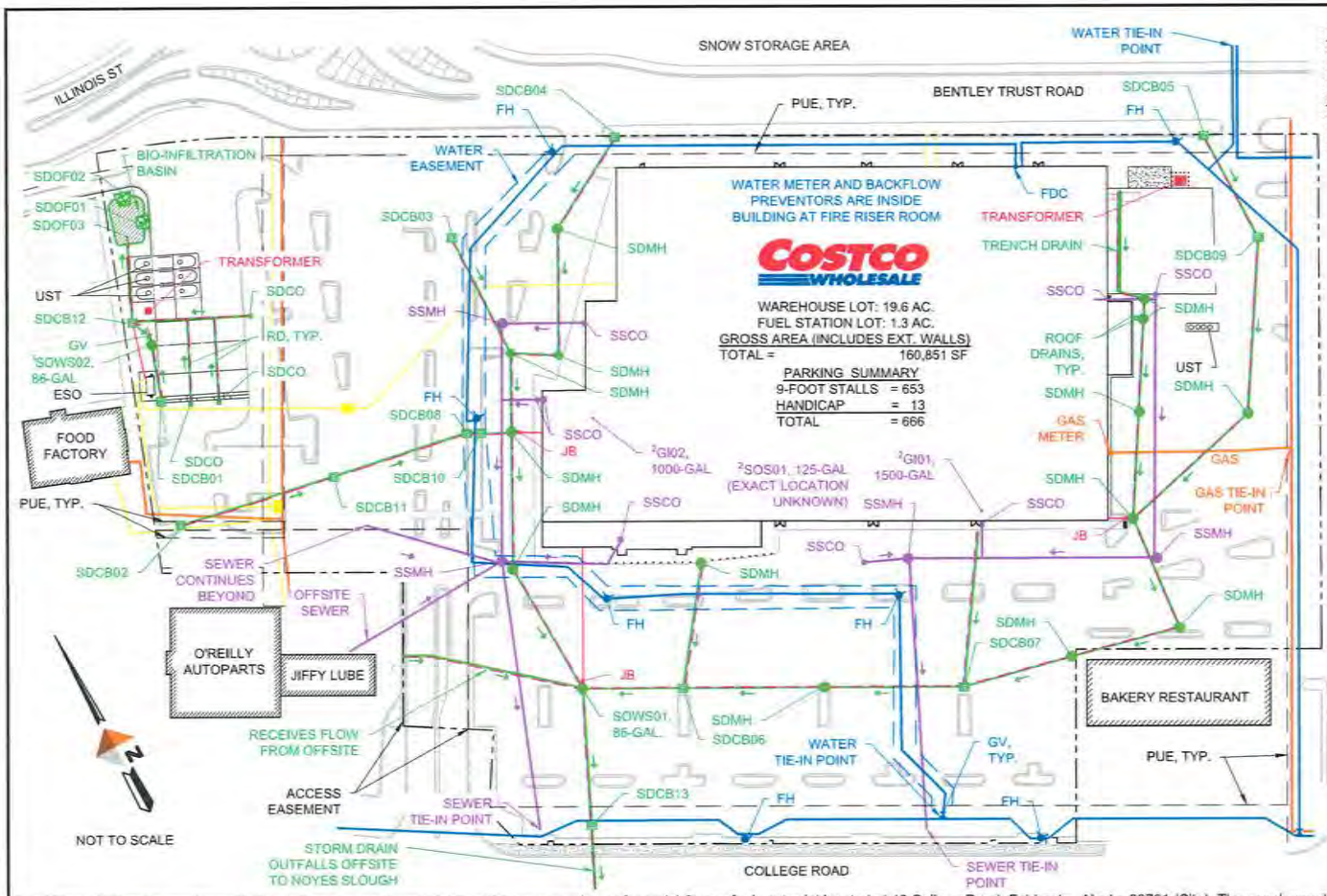
- Exhaust
- Supply

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

JOB NAME BMES
SUBJECT Costco Warehouse Layout
BY DHF CHK'D

JOB NO. 107859-001
DATE 12/14/21
SHEET 1 of 1





TRUCK ROUTE:

TO SITE: FROM PARKS HIGHWAY, EASTBOUND ONTO GEIST ROAD. CONTINUE ONTO JOHANSEN EXPRESSWAY. SOUTH ONTO COLLEGE ROAD, EAST ONTO ILLINOIS STREET. CONTINUE ONTO BENTLEY TRUST ROAD. SOUTHWEST ONTO SITE.
FROM SITE: NORTHEAST OUT OF SITE. NORTHWEST ONTO BENTLEY TRUST ROAD. CONTINUE ONTO ILLINOIS STREET. NORTH ONTO COLLEGE ROAD. WEST ONTO JOHANSEN EXPRESSWAY, TO PARKS HIGHWAY.

LEGEND

- SANITARY SEWER SYSTEM
- STORM DRAIN
- HEAT TRACE
- WATER SERVICE
- UNDERGROUND POWER
- GAS UTLITY
- TELECOMMUNICATIONS
- PROPERTY LINE
- UTILITY EASEMENT

ABBREVIATIONS

ESO	EMERGENCY SHUT-OFF
FDC	FIRE DEPARTMENT CONNECTION
FH	FIRE HYDRANT
GAL	GALLONS
GV	GATE VALVE
JB	JUNCTION BOX
PUE	PUBLIC USE EASEMENT
RD	ROOF DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDCO	STORM DRAIN CLEANOUT
SDMH	STORM DRAIN MANHOLE
SDOF	STORM DRAIN OUTFALL
SOWS	STORMCEPTOR OIL/WATER SEPARATOR
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
OWS	OIL/WATER SEPARATOR
TYP.	TYPICAL
UST	UNDERGROUND STORAGE TANK

STORMWATER FACILITY TOTALS

CATCH BASINS=	13
STORMCEPTOR OIL/WATER SEPARATORS=	1
OUTFALLS=	3
TOTAL=	17

[1]DENOTES STRUCTURES MAINTAINED BY GAS OPS
[2]DENOTES STRUCTURES LOCATED WITHIN WAREHOUSE

The Costco Fairbanks warehouse is situated on a property containing a 19.6-acre warehouse lot and 1.3-acre fuel center lot located at 48 College Road, Fairbanks, Alaska 99701 (Site). The warehouse has a gross floor area of approximately 160,851 square feet (SF). The Site is within the jurisdiction of the City of Fairbanks in the Fairbanks North Star Borough, Alaska. The Site is bounded by College Road to the southwest, Illinois Street to the north, and Bentley Trust Road to the northeast.

REQUIRED TESTING, INSPECTIONS & REPORTING*

Stormwater Facilities - The stormwater system on the Site consists of 13 catch basins, one trench drain, one bio-infiltration basin, one Stormceptor oil/water separator, three outfalls, and a network of storm drain conveyance pipes, manholes and cleanouts. Stormwater facilities must be maintained pursuant to the City of Fairbanks 2017 Wastewater Treatment Regulations, (WTR) Division 12. The City of Fairbanks adopts the Fairbanks and North Pole Storm Water Management Program Guide.

Sanitary Sewer - The sanitary sewer system on the Site consists of manholes, cleanouts and a network of wastewater conveyance pipes which tie into the public sewer system at two locations along College Road. Additionally, there are two grease interceptors and one sand/oil separator located inside the warehouse. Sewer facilities must be maintained pursuant to the City of Fairbanks 2017 WTR Division 3, Section 82-111. If any issues arise from the sanitary sewer system, contact Costco's regional sanitary sewer provider, Liquid Environmental Solutions (LES), or your Compliance Manager.

Cross Connections - There are 8-10 backflow devices at the Site. Backflow prevention devices should be tested annually pursuant to Golden Heart Utilities Cross-Connection Program requirements. Failure to perform backflow assembly testing may result in the disconnection of water services.

Note: Costco maintains one additional Stormceptor oil/water separator at its gas station. Annual maintenance of this structure is covered under a separate maintenance plan maintained by Gas Operations (Gas Ops). Therefore, this structure is not discussed further herein. If issues arise from the oil/water separator at the gas station, contact Gas Ops or your Compliance Manager.

**Generally, any testing, reporting, inspections, repairs and/or maintenance requiring specialized equipment, knowledge or certifications are to be conducted by qualified, licensed industry professionals under a service contract. All records to be maintained on Site for at least 5 years as a best management practice.*

For additional details, plans, schedules, forms, checklists, logs and a link to SMARTSHEET, go to Costco's Google Drive: (https://drive.google.com/) and search for "Real Estate #01342."

For permits go to: https://licenselookup.corp.costco.com/LicenseWhse.

FOR REFERENCE ONLY

DOWL

PREPARED FOR: COSTCO WHOLESALE CORPORATION

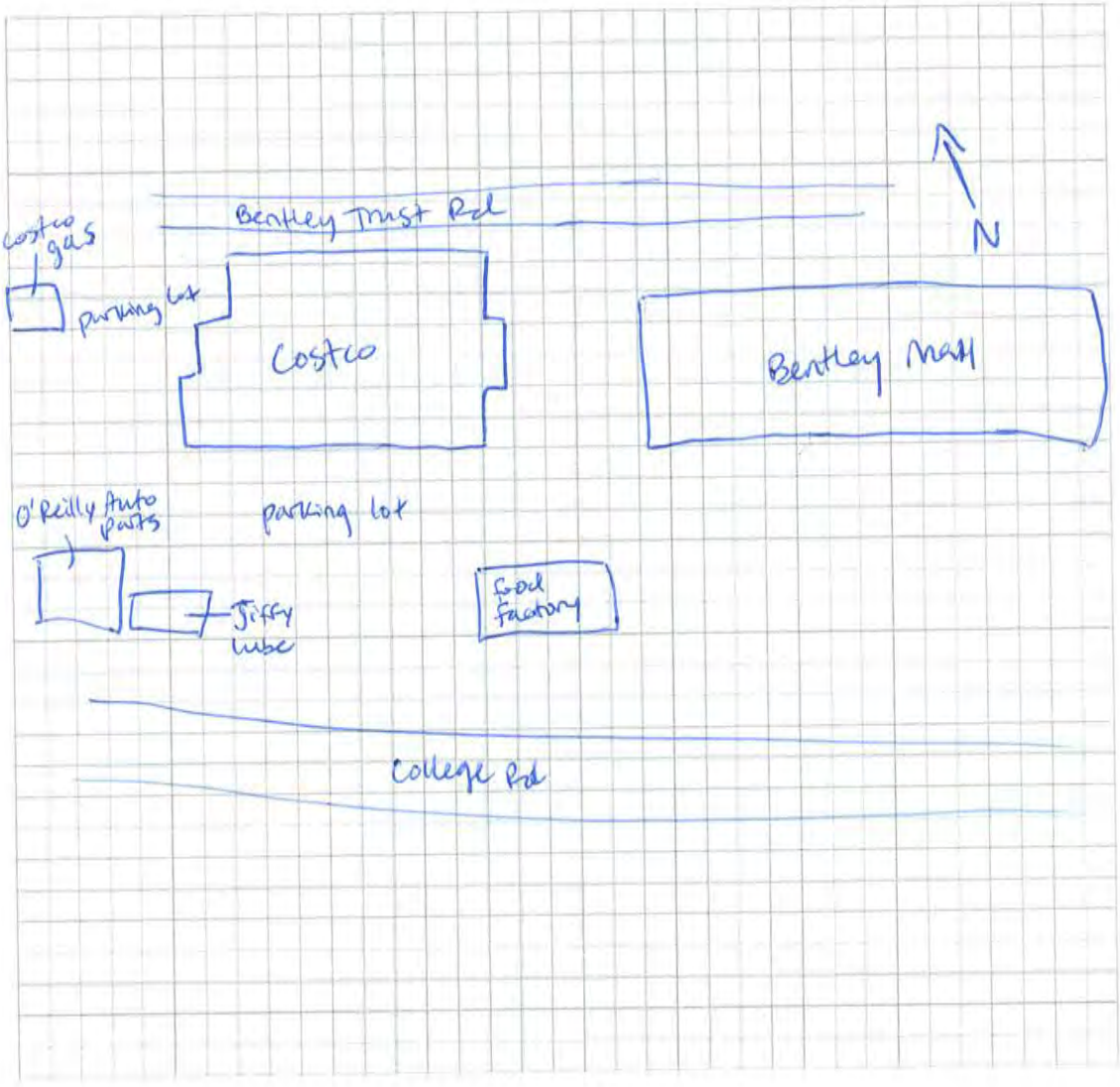
COSTCO #1342 FAIRBANKS
ENVIRONMENTAL COMPLIANCE PLAN
UTILITY SCHEMATIC PLAN

PROJECT 13895-IT
DATE 11/2020

10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE

This section should be completed during a presampling walkthrough. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

a) 1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

Is there an attached garage? (Y) / N tire shop attached to building, kept closed to rest of bldg, has 2 exhaust ports

Does the garage have a separate heating unit? (Y) / N / NA heat tubes (like a radiator)

Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car) (Y) / N / NA

Please specify vehicles

Has the building ever had a fire? Y / (N) When? roof caught fire during remodel

Is a kerosene or unvented gas space heater present? Y / (N) Where?

Is there a workshop or hobby/craft area? (Y) / N Where & Type tire shop

Is there smoking in the building? Y / (N) How frequently?

Has painting/staining been done in the last 6 months? (Y) / N Where & When? minor touch-up

Is there new carpet, drapes or other textiles? Y / (N) Where & When?

Is there a kitchen exhaust fan? (Y) / N If yes, where vented?

Is there a bathroom exhaust fan? (Y) / N If yes, where vented? vented outside

Is there a clothes dryer? Y / (N) If yes, is it vented outside? Y / N N/A

Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling? (Y) / N

If yes, please describe occasional use of disinfectants

Do any of the building occupants use solvents at work? (Y) / N in tire shop

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? non-chlorinated solvents

If yes, are their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

(Yes, use dry-cleaning regularly (weekly)) Snow White laundry

No

Yes, use dry-cleaning infrequently (monthly or less)

Unknown

Yes, work at a dry-cleaning services

2. **PRODUCT INVENTORY FORM** (For use during building walkthrough)

Make & Model of field instrument used_____

List specific products found in the residence that have the potential to affect indoor air quality:

Location	Product Description	Site (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N

* Describe the condition of the product containers **as Unopened (UO), Used (U),** or **Deteriorated (D)**

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form modified from:

ITRC (Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline*. VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. www.itrcweb.org.

The Alaska Department of Environmental Conservation's Contaminated Sites Program protects human health and the environment by managing the cleanup of contaminated soil and groundwater in Alaska. For more information, please contact our staff at the Contaminated Site program closest to you:
Juneau: 907-465-5390 / Anchorage: 907-269-7500

Fill out
each day
Till meter

Air Pressure Trend Log
Costco Fairbanks
Fairbanks, Alaska
Pacific Crest No. 103-052

Month	Date	Time	Recorder Name	Differential Pressure Reading		Weather Description			Photo of Log Sent?* yes/no	Other
				Reading[1]	Photo Sent?* yes/no	Wind calm, light, heavy	Outdoor Temperature (°F)	Precipitation none, rain, snow		
1	10/10	9:00 AM	Sara	0.39		light	0°	none		
2	10/11	9:00 AM	Sara	0.42		light	-10°	snow		
3	10/12		Sara	0.44		Calm	-30	none		
4	10/13	10:15	Sara	0.38		Calm	-42°	none		
5	10/14	10:30	Sara	0.32		Calm	-40°	none		
6										
7										
8										
9										
10										
11										
12										

[1]Include units

[2]Email photos of differential pressure readings, and Air Pressure Trend Log to jharrington@pcenv.com.

Units are in WC inches of water column

APPENDIX D: LABORATORY REPORTS

Appendix D

Laboratory Reports

CONTENTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Road
Fairbanks, AK 99709
(907)479-0600

Report Number: **1218012**

Client Project: **107889-001 BMES**

Dear Dana Fjare,

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 C. Ede
2021.12.28
16:33:15 -09'00'

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: **1218012**
Project Name/Site: **107889-001 BMES**
Project Contact: **Dana Fjare**

Refer to sample receipt form for information on sample condition.

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

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

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. 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 (Provisionally Certified as of 12/03/2021 for Chloroform and TTHMs by EPA 524.2 , Nitrate as N by SM 4500NO3-F and DOC by 5310B) & Microbiology & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) 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
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

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

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

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW-1R	1218012001	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-100R	1218012002	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-4R	1218012003	12/10/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-104R	1218012004	12/10/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-2R	1218012005	12/10/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-3R	1218012006	12/10/2021	12/17/2021	Water (Surface, Eff., Ground)
BMES-EB	1218012007	12/10/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-5	1218012008	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-6	1218012009	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-7	1218012010	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-8	1218012011	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-9	1218012012	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-10	1218012013	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-11	1218012014	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-12	1218012015	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
MW-13	1218012016	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
Trip Blank-1	1218012017	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)
Trip Blank-2	1218012018	12/09/2021	12/17/2021	Water (Surface, Eff., Ground)

Method	Method Description
SW8260D	Volatile Organic Compounds (W) FULL

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

Detectable Results Summary

Client Sample ID: **MW-1R**
Lab Sample ID: 1218012001
Volatile GC/MS

Parameter	Result	Units
1,1,1,2-Tetrachloroethane	3.11	ug/L
1,2-Dichloroethane	2.64	ug/L
Chloroform	4.33	ug/L
Tetrachloroethene	1150	ug/L
Trichloroethene	2.42	ug/L
Trichlorofluoromethane	40.3	ug/L

Client Sample ID: **MW-100R**
Lab Sample ID: 1218012002
Volatile GC/MS

Parameter	Result	Units
1,1,1,2-Tetrachloroethane	3.09	ug/L
1,2-Dichloroethane	2.53	ug/L
Chloroform	4.16	ug/L
Tetrachloroethene	1150	ug/L
Trichloroethene	2.36	ug/L
Trichlorofluoromethane	41.3	ug/L

Client Sample ID: **MW-4R**
Lab Sample ID: 1218012003
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.393J	ug/L
cis-1,2-Dichloroethene	0.437J	ug/L
Tetrachloroethene	42.6	ug/L
trans-1,2-Dichloroethene	1.05	ug/L
Trichloroethene	0.923J	ug/L
Trichlorofluoromethane	5.47	ug/L

Client Sample ID: **MW-104R**
Lab Sample ID: 1218012004
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.388J	ug/L
cis-1,2-Dichloroethene	0.498J	ug/L
Tetrachloroethene	39.1	ug/L
trans-1,2-Dichloroethene	1.22	ug/L
Trichloroethene	1.02	ug/L
Trichlorofluoromethane	5.41	ug/L

Client Sample ID: **MW-2R**
Lab Sample ID: 1218012005
Volatile GC/MS

Parameter	Result	Units
Benzene	0.330J	ug/L
Chloroform	8.16	ug/L
cis-1,2-Dichloroethene	1.41	ug/L
Tetrachloroethene	187	ug/L
Trichloroethene	1.56	ug/L
Trichlorofluoromethane	16.8	ug/L

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Detectable Results Summary

Client Sample ID: **MW-3R**
Lab Sample ID: 1218012006
Volatile GC/MS

Parameter	Result	Units
Benzene	0.255J	ug/L
cis-1,2-Dichloroethene	0.606J	ug/L
Tetrachloroethene	0.364J	ug/L
Trichlorofluoromethane	1.84	ug/L

Client Sample ID: **BMES-EB**
Lab Sample ID: 1218012007
Volatile GC/MS

Parameter	Result	Units
Benzene	0.137J	ug/L
Toluene	0.645J	ug/L

Client Sample ID: **MW-5**
Lab Sample ID: 1218012008
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.422J	ug/L
Benzene	0.135J	ug/L
Chloroform	0.373J	ug/L
cis-1,2-Dichloroethene	1.14	ug/L
Tetrachloroethene	60.4	ug/L
trans-1,2-Dichloroethene	0.381J	ug/L
Trichloroethene	7.03	ug/L
Trichlorofluoromethane	6.12	ug/L

Client Sample ID: **MW-6**
Lab Sample ID: 1218012009
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.404J	ug/L
Benzene	0.159J	ug/L
Chloroform	0.474J	ug/L
cis-1,2-Dichloroethene	1.59	ug/L
Tetrachloroethene	91.3	ug/L
Trichloroethene	9.29	ug/L
Trichlorofluoromethane	3.99	ug/L

Client Sample ID: **MW-7**
Lab Sample ID: 1218012010
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	1.07	ug/L
Tetrachloroethene	4.21	ug/L
Trichloroethene	1.79	ug/L
Trichlorofluoromethane	0.749J	ug/L

Client Sample ID: **MW-8**
Lab Sample ID: 1218012011
Volatile GC/MS

Parameter	Result	Units
Chloroform	1.12	ug/L
cis-1,2-Dichloroethene	1.11	ug/L
Tetrachloroethene	3.21	ug/L
trans-1,2-Dichloroethene	5.95	ug/L
Trichloroethene	1.94	ug/L

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Detectable Results Summary

Client Sample ID: **MW-9**
Lab Sample ID: 1218012012
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	2.23	ug/L
Tetrachloroethene	9.62	ug/L
trans-1,2-Dichloroethene	8.82	ug/L
Trichloroethene	2.58	ug/L

Client Sample ID: **MW-10**
Lab Sample ID: 1218012013
Volatile GC/MS

Parameter	Result	Units
1,2-Dichloroethane	0.456J	ug/L
Benzene	0.152J	ug/L
cis-1,2-Dichloroethene	3.60	ug/L
Tetrachloroethene	43.0	ug/L
trans-1,2-Dichloroethene	0.374J	ug/L
Trichloroethene	7.61	ug/L
Trichlorofluoromethane	0.682J	ug/L

Client Sample ID: **MW-11**
Lab Sample ID: 1218012014
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	1.11	ug/L
Tetrachloroethene	5.60	ug/L
trans-1,2-Dichloroethene	8.05	ug/L
Trichloroethene	2.23	ug/L
Trichlorofluoromethane	6.09	ug/L

Client Sample ID: **MW-12**
Lab Sample ID: 1218012015
Volatile GC/MS

Parameter	Result	Units
Benzene	0.124J	ug/L
cis-1,2-Dichloroethene	2.77	ug/L
Tetrachloroethene	117	ug/L
Trichloroethene	5.32	ug/L
Trichlorofluoromethane	1.92	ug/L

Client Sample ID: **MW-13**
Lab Sample ID: 1218012016
Volatile GC/MS

Parameter	Result	Units
Chloroform	2.15	ug/L
Tetrachloroethene	31.9	ug/L
Trichlorofluoromethane	2.95	ug/L

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012001
Lab Project ID: 1218012

Collection Date: 12/09/21 21:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	3.11		0.500	0.150	ug/L	1		12/17/21 16:34
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:34
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:34
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:34
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 16:34
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,2-Dichloroethane	2.64		0.500	0.200	ug/L	1		12/17/21 16:34
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:34
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:34
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:34
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:34
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:34
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:34
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:34
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 16:34
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:34
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:34
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:34

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012001
Lab Project ID: 1218012

Collection Date: 12/09/21 21:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	4.33		1.00	0.310	ug/L	1		12/17/21 16:34
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:34
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:34
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:34
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:34
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:34
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 16:34
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Tetrachloroethene	1150		50.0	15.5	ug/L	50		12/21/21 17:38
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:34
Trichloroethene	2.42		1.00	0.310	ug/L	1		12/17/21 16:34
Trichlorofluoromethane	40.3		1.00	0.310	ug/L	1		12/17/21 16:34
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:34
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 16:34
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 16:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	94.3		81-118		%	1		12/17/21 16:34
4-Bromofluorobenzene (surr)	102		85-114		%	1		12/17/21 16:34
Toluene-d8 (surr)	105		89-112		%	1		12/17/21 16:34

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Results of **MW-1R**

Client Sample ID: **MW-1R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012001
Lab Project ID: 1218012

Collection Date: 12/09/21 21:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 16:34
Container ID: 1218012001-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21440
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/21/21 17:38
Container ID: 1218012001-B

Prep Batch: VXX38298
Prep Method: SW5030B
Prep Date/Time: 12/21/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-100R**

Client Sample ID: **MW-100R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012002
Lab Project ID: 1218012

Collection Date: 12/09/21 20:50
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	3.09		0.500	0.150	ug/L	1		12/17/21 16:49
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:49
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:49
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:49
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 16:49
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,2-Dichloroethane	2.53		0.500	0.200	ug/L	1		12/17/21 16:49
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:49
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:49
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:49
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:49
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:49
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:49
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:49
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 16:49
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:49
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:49
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:49

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Results of **MW-100R**

Client Sample ID: **MW-100R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012002
Lab Project ID: 1218012

Collection Date: 12/09/21 20:50
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	4.16		1.00	0.310	ug/L	1		12/17/21 16:49
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:49
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:49
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:49
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:49
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:49
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 16:49
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Tetrachloroethene	1150		50.0	15.5	ug/L	50		12/21/21 17:53
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:49
Trichloroethene	2.36		1.00	0.310	ug/L	1		12/17/21 16:49
Trichlorofluoromethane	41.3		1.00	0.310	ug/L	1		12/17/21 16:49
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:49
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 16:49
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 16:49
Surrogates								
1,2-Dichloroethane-D4 (surr)	92.5		81-118		%	1		12/17/21 16:49
4-Bromofluorobenzene (surr)	102		85-114		%	1		12/17/21 16:49
Toluene-d8 (surr)	104		89-112		%	1		12/17/21 16:49

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J flagging is activated

Results of **MW-100R**

Client Sample ID: **MW-100R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012002
Lab Project ID: 1218012

Collection Date: 12/09/21 20:50
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 16:49
Container ID: 1218012002-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21440
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/21/21 17:53
Container ID: 1218012002-B

Prep Batch: VXX38298
Prep Method: SW5030B
Prep Date/Time: 12/21/21 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: **107889-001 BMES**
Lab Sample ID: 1218012003
Lab Project ID: 1218012

Collection Date: 12/10/21 11:16
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:04
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:04
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 17:04
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,2-Dichloroethane	0.393	J	0.500	0.200	ug/L	1		12/17/21 17:04
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:04
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 17:04
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04

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Results of **MW-4R**

Client Sample ID: **MW-4R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012003
Lab Project ID: 1218012

Collection Date: 12/10/21 11:16
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:04
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
cis-1,2-Dichloroethene	0.437	J	1.00	0.310	ug/L	1		12/17/21 17:04
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:04
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 17:04
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Tetrachloroethene	42.6		1.00	0.310	ug/L	1		12/17/21 17:04
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
trans-1,2-Dichloroethene	1.05		1.00	0.310	ug/L	1		12/17/21 17:04
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:04
Trichloroethene	0.923	J	1.00	0.310	ug/L	1		12/17/21 17:04
Trichlorofluoromethane	5.47		1.00	0.310	ug/L	1		12/17/21 17:04
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:04
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 17:04
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 17:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		12/17/21 17:04
4-Bromofluorobenzene (surr)	105		85-114		%	1		12/17/21 17:04
Toluene-d8 (surr)	104		89-112		%	1		12/17/21 17:04

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Results of **MW-4R**

Client Sample ID: **MW-4R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012003
Lab Project ID: 1218012

Collection Date: 12/10/21 11:16
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 17:04
Container ID: 1218012003-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012004
Lab Project ID: 1218012

Collection Date: 12/10/21 11:06
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:19
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:19
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 17:19
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,2-Dichloroethane	0.388	J	0.500	0.200	ug/L	1		12/17/21 17:19
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:19
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 17:19
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19

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Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012004
Lab Project ID: 1218012

Collection Date: 12/10/21 11:06
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:19
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
cis-1,2-Dichloroethene	0.498	J	1.00	0.310	ug/L	1		12/17/21 17:19
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:19
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 17:19
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Tetrachloroethene	39.1		1.00	0.310	ug/L	1		12/17/21 17:19
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
trans-1,2-Dichloroethene	1.22		1.00	0.310	ug/L	1		12/17/21 17:19
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:19
Trichloroethene	1.02		1.00	0.310	ug/L	1		12/17/21 17:19
Trichlorofluoromethane	5.41		1.00	0.310	ug/L	1		12/17/21 17:19
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:19
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 17:19
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 17:19
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		12/17/21 17:19
4-Bromofluorobenzene (surr)	102		85-114		%	1		12/17/21 17:19
Toluene-d8 (surr)	104		89-112		%	1		12/17/21 17:19

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Results of **MW-104R**

Client Sample ID: **MW-104R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012004
Lab Project ID: 1218012

Collection Date: 12/10/21 11:06
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 17:19
Container ID: 1218012004-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012005
Lab Project ID: 1218012

Collection Date: 12/10/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:34
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:34
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:34
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:34
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 17:34
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 17:34
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:34
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:34
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:34
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:34
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:34
Benzene	0.330	J	0.400	0.120	ug/L	1		12/17/21 17:34
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:34
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 17:34
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:34
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:34
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:34

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Results of **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012005
Lab Project ID: 1218012

Collection Date: 12/10/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	8.16		1.00	0.310	ug/L	1		12/17/21 17:34
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
cis-1,2-Dichloroethene	1.41		1.00	0.310	ug/L	1		12/17/21 17:34
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 17:34
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 17:34
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 17:34
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 17:34
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 17:34
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 17:34
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Tetrachloroethene	187		1.00	0.310	ug/L	1		12/17/21 17:34
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 17:34
Trichloroethene	1.56		1.00	0.310	ug/L	1		12/17/21 17:34
Trichlorofluoromethane	16.8		1.00	0.310	ug/L	1		12/17/21 17:34
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 17:34
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 17:34
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 17:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.9		81-118		%	1		12/17/21 17:34
4-Bromofluorobenzene (surr)	102		85-114		%	1		12/17/21 17:34
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 17:34

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Results of **MW-2R**

Client Sample ID: **MW-2R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012005
Lab Project ID: 1218012

Collection Date: 12/10/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 17:34
Container ID: 1218012005-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012006
Lab Project ID: 1218012

Collection Date: 12/10/21 12:15
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:48
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 17:48
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 17:48
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 17:48
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Benzene	0.255	J	0.400	0.120	ug/L	1		12/17/21 17:48
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 17:48
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48

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Results of **MW-3R**

Client Sample ID: **MW-3R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012006
Lab Project ID: 1218012

Collection Date: 12/10/21 12:15
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 17:48
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
cis-1,2-Dichloroethene	0.606	J	1.00	0.310	ug/L	1		12/17/21 17:48
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 17:48
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 17:48
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Tetrachloroethene	0.364	J	1.00	0.310	ug/L	1		12/22/21 15:43
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 17:48
Trichlorofluoromethane	1.84		1.00	0.310	ug/L	1		12/17/21 17:48
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 17:48
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 17:48
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 17:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		12/17/21 17:48
4-Bromofluorobenzene (surr)	103		85-114		%	1		12/17/21 17:48
Toluene-d8 (surr)	104		89-112		%	1		12/17/21 17:48

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Results of **MW-3R**

Client Sample ID: **MW-3R**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012006
Lab Project ID: 1218012

Collection Date: 12/10/21 12:15
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21441
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/22/21 15:43
Container ID: 1218012006-B

Prep Batch: VXX38301
Prep Method: SW5030B
Prep Date/Time: 12/22/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 17:48
Container ID: 1218012006-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **BMES-EB**

Client Sample ID: **BMES-EB**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012007
Lab Project ID: 1218012

Collection Date: 12/10/21 12:30
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 18:03
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:03
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 18:03
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:03
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 18:03
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 18:03
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:03
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:03
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:03
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:03
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:03
Benzene	0.137	J	0.400	0.120	ug/L	1		12/17/21 18:03
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:03
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 18:03
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:03
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:03
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:03

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Results of **BMES-EB**

Client Sample ID: **BMES-EB**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012007
Lab Project ID: 1218012

Collection Date: 12/10/21 12:30
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 18:03
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 18:03
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 18:03
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 18:03
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 18:03
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 18:03
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 18:03
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Toluene	0.645 J		1.00	0.310	ug/L	1		12/17/21 18:03
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 18:03
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 18:03
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 18:03
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 18:03
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		12/17/21 18:03
4-Bromofluorobenzene (surr)	103		85-114		%	1		12/17/21 18:03
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 18:03

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J flagging is activated

Results of **BMES-EB**

Client Sample ID: **BMES-EB**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012007
Lab Project ID: 1218012

Collection Date: 12/10/21 12:30
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 18:03
Container ID: 1218012007-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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

Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012008
Lab Project ID: 1218012

Collection Date: 12/09/21 19:02
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 18:18
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 18:18
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 18:18
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,2-Dichloroethane	0.422	J	0.500	0.200	ug/L	1		12/17/21 18:18
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Benzene	0.135	J	0.400	0.120	ug/L	1		12/17/21 18:18
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 18:18
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18

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J flagging is activated

Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012008
Lab Project ID: 1218012

Collection Date: 12/09/21 19:02
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.373	J	1.00	0.310	ug/L	1		12/17/21 18:18
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
cis-1,2-Dichloroethene	1.14		1.00	0.310	ug/L	1		12/17/21 18:18
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:18
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 18:18
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Tetrachloroethene	60.4		1.00	0.310	ug/L	1		12/17/21 18:18
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
trans-1,2-Dichloroethene	0.381	J	1.00	0.310	ug/L	1		12/17/21 18:18
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:18
Trichloroethene	7.03		1.00	0.310	ug/L	1		12/17/21 18:18
Trichlorofluoromethane	6.12		1.00	0.310	ug/L	1		12/17/21 18:18
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:18
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 18:18
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 18:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.2		81-118		%	1		12/17/21 18:18
4-Bromofluorobenzene (surr)	106		85-114		%	1		12/17/21 18:18
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 18:18

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Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012008
Lab Project ID: 1218012

Collection Date: 12/09/21 19:02
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 18:18
Container ID: 1218012008-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012009
Lab Project ID: 1218012

Collection Date: 12/09/21 18:08
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 18:32
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 18:32
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 18:32
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,2-Dichloroethane	0.404	J	0.500	0.200	ug/L	1		12/17/21 18:32
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Benzene	0.159	J	0.400	0.120	ug/L	1		12/17/21 18:32
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 18:32
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32

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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012009
Lab Project ID: 1218012

Collection Date: 12/09/21 18:08
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.474	J	1.00	0.310	ug/L	1		12/17/21 18:32
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
cis-1,2-Dichloroethene	1.59		1.00	0.310	ug/L	1		12/17/21 18:32
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:32
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 18:32
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Tetrachloroethene	91.3		1.00	0.310	ug/L	1		12/17/21 18:32
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:32
Trichloroethene	9.29		1.00	0.310	ug/L	1		12/17/21 18:32
Trichlorofluoromethane	3.99		1.00	0.310	ug/L	1		12/17/21 18:32
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:32
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 18:32
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 18:32
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.3		81-118		%	1		12/17/21 18:32
4-Bromofluorobenzene (surr)	103		85-114		%	1		12/17/21 18:32
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 18:32

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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012009
Lab Project ID: 1218012

Collection Date: 12/09/21 18:08
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 18:32
Container ID: 1218012009-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012010
Lab Project ID: 1218012

Collection Date: 12/09/21 20:18
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 18:47
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 18:47
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 18:47
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 18:47
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 18:47
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 18:47
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47

Results of **MW-7**

Client Sample ID: **MW-7**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012010
Lab Project ID: 1218012

Collection Date: 12/09/21 20:18
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 18:47
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
cis-1,2-Dichloroethene	1.07		1.00	0.310	ug/L	1		12/17/21 18:47
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 18:47
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 18:47
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Tetrachloroethene	4.21		1.00	0.310	ug/L	1		12/17/21 18:47
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 18:47
Trichloroethene	1.79		1.00	0.310	ug/L	1		12/17/21 18:47
Trichlorofluoromethane	0.749	J	1.00	0.310	ug/L	1		12/17/21 18:47
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 18:47
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 18:47
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 18:47
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.5		81-118		%	1		12/17/21 18:47
4-Bromofluorobenzene (surr)	99.9		85-114		%	1		12/17/21 18:47
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 18:47

Print Date: 12/28/2021 4:20:14PM

J flagging is activated

Results of **MW-7**

Client Sample ID: **MW-7**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012010
Lab Project ID: 1218012

Collection Date: 12/09/21 20:18
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 18:47
Container ID: 1218012010-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012011
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: YN-1

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		12/17/21 19:02
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:02
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:02
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:02
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 19:02
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 19:02
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:02
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:02
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:02
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:02
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:02
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:02
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:02
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 19:02
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:02
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:02
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:02

Print Date: 12/28/2021 4:20:14PM

J flagging is activated

Results of **MW-8**

Client Sample ID: **MW-8**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012011
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: YN-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.12		1.00	0.310	ug/L	1		12/17/21 19:02
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
cis-1,2-Dichloroethene	1.11		1.00	0.310	ug/L	1		12/17/21 19:02
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 19:02
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 19:02
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:02
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:02
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:02
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 19:02
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Tetrachloroethene	3.21		1.00	0.310	ug/L	1		12/17/21 19:02
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
trans-1,2-Dichloroethene	5.95		1.00	0.310	ug/L	1		12/17/21 19:02
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Trichloroethene	1.94		1.00	0.310	ug/L	1		12/17/21 19:02
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:02
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:02
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 19:02
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 19:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.2		81-118		%	1		12/17/21 19:02
4-Bromofluorobenzene (surr)	105		85-114		%	1		12/17/21 19:02
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 19:02

Print Date: 12/28/2021 4:20:14PM

J flagging is activated

Results of **MW-8**

Client Sample ID: **MW-8**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012011
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: YN-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 19:02
Container ID: 1218012011-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012012
Lab Project ID: 1218012

Collection Date: 12/09/21 15:25
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 19:16
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:16
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 19:16
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 19:16
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:16
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 19:16
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012012
Lab Project ID: 1218012

Collection Date: 12/09/21 15:25
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 19:16
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
cis-1,2-Dichloroethene	2.23		1.00	0.310	ug/L	1		12/17/21 19:16
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:16
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 19:16
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Tetrachloroethene	9.62		1.00	0.310	ug/L	1		12/17/21 19:16
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
trans-1,2-Dichloroethene	8.82		1.00	0.310	ug/L	1		12/17/21 19:16
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Trichloroethene	2.58		1.00	0.310	ug/L	1		12/17/21 19:16
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:16
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:16
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 19:16
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 19:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		12/17/21 19:16
4-Bromofluorobenzene (surr)	105		85-114		%	1		12/17/21 19:16
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 19:16

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Results of **MW-9**

Client Sample ID: **MW-9**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012012
Lab Project ID: 1218012

Collection Date: 12/09/21 15:25
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 19:16
Container ID: 1218012012-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012013
Lab Project ID: 1218012

Collection Date: 12/09/21 17:05
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 19:31
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:31
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:31
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:31
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 19:31
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,2-Dichloroethane	0.456	J	0.500	0.200	ug/L	1		12/17/21 19:31
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:31
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:31
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:31
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:31
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:31
Benzene	0.152	J	0.400	0.120	ug/L	1		12/17/21 19:31
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:31
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 19:31
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:31
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:31
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:31

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Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012013
Lab Project ID: 1218012

Collection Date: 12/09/21 17:05
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

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		12/17/21 19:31
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
cis-1,2-Dichloroethene	3.60		1.00	0.310	ug/L	1		12/17/21 19:31
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 19:31
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 19:31
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:31
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:31
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:31
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 19:31
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Tetrachloroethene	43.0		1.00	0.310	ug/L	1		12/17/21 19:31
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
trans-1,2-Dichloroethene	0.374 J		1.00	0.310	ug/L	1		12/17/21 19:31
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 19:31
Trichloroethene	7.61		1.00	0.310	ug/L	1		12/17/21 19:31
Trichlorofluoromethane	0.682 J		1.00	0.310	ug/L	1		12/17/21 19:31
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 19:31
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 19:31
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 19:31
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.6		81-118		%	1		12/17/21 19:31
4-Bromofluorobenzene (surr)	104		85-114		%	1		12/17/21 19:31
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 19:31

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Results of **MW-10**

Client Sample ID: **MW-10**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012013
Lab Project ID: 1218012

Collection Date: 12/09/21 17:05
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-2

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 19:31
Container ID: 1218012013-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 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: **107889-001 BMES**
Lab Sample ID: 1218012014
Lab Project ID: 1218012

Collection Date: 12/09/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 19:46
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:46
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 19:46
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 19:46
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 19:46
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 19:46
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46

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Results of **MW-11**

Client Sample ID: **MW-11**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012014
Lab Project ID: 1218012

Collection Date: 12/09/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 19:46
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
cis-1,2-Dichloroethene	1.11		1.00	0.310	ug/L	1		12/17/21 19:46
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 19:46
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 19:46
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Tetrachloroethene	5.60		1.00	0.310	ug/L	1		12/17/21 19:46
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
trans-1,2-Dichloroethene	8.05		1.00	0.310	ug/L	1		12/17/21 19:46
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 19:46
Trichloroethene	2.23		1.00	0.310	ug/L	1		12/17/21 19:46
Trichlorofluoromethane	6.09		1.00	0.310	ug/L	1		12/17/21 19:46
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 19:46
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 19:46
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 19:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		12/17/21 19:46
4-Bromofluorobenzene (surr)	105		85-114		%	1		12/17/21 19:46
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 19:46

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Results of **MW-11**

Client Sample ID: **MW-11**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012014
Lab Project ID: 1218012

Collection Date: 12/09/21 13:00
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 19:46
Container ID: 1218012014-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012015
Lab Project ID: 1218012

Collection Date: 12/09/21 18:10
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 20:00
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 20:00
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 20:00
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 20:00
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Benzene	0.124	J	0.400	0.120	ug/L	1		12/17/21 20:00
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 20:00
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00

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Results of **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012015
Lab Project ID: 1218012

Collection Date: 12/09/21 18:10
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 20:00
Chloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
cis-1,2-Dichloroethene	2.77		1.00	0.310	ug/L	1		12/17/21 20:00
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:00
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Freon-113	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Naphthalene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
o-Xylene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		12/17/21 20:00
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Styrene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Tetrachloroethene	117		1.00	0.310	ug/L	1		12/17/21 20:00
Toluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:00
Trichloroethene	5.32		1.00	0.310	ug/L	1		12/17/21 20:00
Trichlorofluoromethane	1.92		1.00	0.310	ug/L	1		12/17/21 20:00
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:00
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		12/17/21 20:00
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		12/17/21 20:00
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.4		81-118		%	1		12/17/21 20:00
4-Bromofluorobenzene (surr)	105		85-114		%	1		12/17/21 20:00
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 20:00

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Results of **MW-12**

Client Sample ID: **MW-12**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012015
Lab Project ID: 1218012

Collection Date: 12/09/21 18:10
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 20:00
Container ID: 1218012015-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012016
Lab Project ID: 1218012

Collection Date: 12/09/21 19:07
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

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		12/17/21 20:15
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:15
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 20:15
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:15
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 20:15
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 20:15
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:15
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:15
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:15
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:15
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:15
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 20:15
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:15
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 20:15
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 20:15
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 20:15
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 20:15

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Results of **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012016
Lab Project ID: 1218012

Collection Date: 12/09/21 19:07
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	2.15		1.00	0.310	ug/L	1		12/17/21 20:15
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 20:15
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 20:15
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 20:15
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 20:15
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 20:15
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 20:15
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Tetrachloroethene	31.9		1.00	0.310	ug/L	1		12/17/21 20:15
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 20:15
Trichlorofluoromethane	2.95		1.00	0.310	ug/L	1		12/17/21 20:15
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 20:15
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 20:15
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 20:15
Surrogates								
1,2-Dichloroethane-D4 (surr)	98		81-118		%	1		12/17/21 20:15
4-Bromofluorobenzene (surr)	106		85-114		%	1		12/17/21 20:15
Toluene-d8 (surr)	102		89-112		%	1		12/17/21 20:15

Print Date: 12/28/2021 4:20:14PM

J flagging is activated

Results of **MW-13**

Client Sample ID: **MW-13**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012016
Lab Project ID: 1218012

Collection Date: 12/09/21 19:07
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: TB-1

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 20:15
Container ID: 1218012016-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank-1**

Client Sample ID: **Trip Blank-1**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012017
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-1)

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		12/17/21 15:50
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 15:50
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 15:50
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 15:50
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 15:50
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 15:50
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 15:50
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 15:50
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 15:50
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 15:50
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 15:50
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 15:50
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 15:50
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 15:50
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 15:50
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 15:50
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 15:50

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Results of **Trip Blank-1**

Client Sample ID: **Trip Blank-1**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012017
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-1)

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		12/17/21 15:50
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 15:50
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 15:50
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 15:50
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 15:50
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 15:50
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 15:50
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 15:50
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 15:50
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 15:50
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 15:50
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		12/17/21 15:50
4-Bromofluorobenzene (surr)	103		85-114		%	1		12/17/21 15:50
Toluene-d8 (surr)	103		89-112		%	1		12/17/21 15:50

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Results of **Trip Blank-1**

Client Sample ID: **Trip Blank-1**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012017
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-1)

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 15:50
Container ID: 1218012017-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank-2**

Client Sample ID: **Trip Blank-2**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012018
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-2)

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		12/17/21 16:05
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:05
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:05
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:05
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		12/17/21 16:05
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		12/17/21 16:05
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:05
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:05
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:05
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:05
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:05
Benzene	0.200	U	0.400	0.120	ug/L	1		12/17/21 16:05
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:05
Bromoform	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
Bromomethane	3.00	U	6.00	3.00	ug/L	1		12/17/21 16:05
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		12/17/21 16:05
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		12/17/21 16:05
Chloroethane	0.500	U	1.00	0.310	ug/L	1		12/17/21 16:05

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Results of **Trip Blank-2**

Client Sample ID: **Trip Blank-2**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012018
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-2)

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		12/17/21 16:05
Chloromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:05
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		12/17/21 16:05
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Dichlorodifluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Ethylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Freon-113	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:05
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Isopropylbenzene (Cumene)	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:05
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:05
Naphthalene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
n-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
n-Propylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
o-Xylene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
P & M -Xylene	1.00 U		2.00	0.620	ug/L	1		12/17/21 16:05
sec-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Styrene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Toluene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		12/17/21 16:05
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		12/17/21 16:05
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		12/17/21 16:05
Xylenes (total)	1.50 U		3.00	1.00	ug/L	1		12/17/21 16:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		12/17/21 16:05
4-Bromofluorobenzene (surr)	102		85-114		%	1		12/17/21 16:05
Toluene-d8 (surr)	104		89-112		%	1		12/17/21 16:05

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Results of **Trip Blank-2**

Client Sample ID: **Trip Blank-2**
Client Project ID: **107889-001 BMES**
Lab Sample ID: 1218012018
Lab Project ID: 1218012

Collection Date: 12/09/21 11:34
Received Date: 12/17/21 09:27
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location: Trip Blank (TB-2)

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Analyst: JMG
Analytical Date/Time: 12/17/21 16:05
Container ID: 1218012018-A

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1829549 [VXX/38290]
Blank Lab ID: 1651041

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

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	0.200	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	3.00U	6.00	3.00	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 1829549 [VXX/38290]
Blank Lab ID: 1651041

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

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	5.00U	10.0	3.10	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)	105	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	103	89-112		%

Method Blank

Blank ID: MB for HBN 1829549 [VXX/38290]
Blank Lab ID: 1651041

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21434
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JMG
Analytical Date/Time: 12/17/2021 2:14:00PM

Prep Batch: VXX38290
Prep Method: SW5030B
Prep Date/Time: 12/17/2021 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 1218012 [VXX38290]
Blank Spike Lab ID: 1651042
Date Analyzed: 12/17/2021 14:29

Spike Duplicate ID: LCSD for HBN 1218012 [VXX38290]
Spike Duplicate Lab ID: 1651043
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.2	104	30	30.7	102	(78-124)	1.60	(< 20)
1,1,1-Trichloroethane	30	33.2	111	30	31.9	106	(74-131)	4.00	(< 20)
1,1,2,2-Tetrachloroethane	30	29.6	99	30	29.9	100	(71-121)	1.10	(< 20)
1,1,2-Trichloroethane	30	31.5	105	30	31.3	104	(80-119)	0.63	(< 20)
1,1-Dichloroethane	30	30.8	103	30	30.3	101	(77-125)	1.40	(< 20)
1,1-Dichloroethene	30	32.4	108	30	33.6	112	(71-131)	3.90	(< 20)
1,1-Dichloropropene	30	30.4	101	30	29.0	97	(79-125)	4.70	(< 20)
1,2,3-Trichlorobenzene	30	31.7	106	30	32.6	109	(69-129)	3.00	(< 20)
1,2,3-Trichloropropane	30	29.1	97	30	29.5	99	(73-122)	1.60	(< 20)
1,2,4-Trichlorobenzene	30	30.6	102	30	31.1	104	(69-130)	1.60	(< 20)
1,2,4-Trimethylbenzene	30	30.4	101	30	30.1	100	(79-124)	1.00	(< 20)
1,2-Dibromo-3-chloropropane	30	28.9	96	30	29.9	100	(62-128)	3.40	(< 20)
1,2-Dibromoethane	30	30.4	101	30	30.4	101	(77-121)	0.24	(< 20)
1,2-Dichlorobenzene	30	29.8	99	30	29.6	99	(80-119)	0.61	(< 20)
1,2-Dichloroethane	30	30.5	102	30	30.7	102	(73-128)	0.55	(< 20)
1,2-Dichloropropane	30	31.9	106	30	31.5	105	(78-122)	1.30	(< 20)
1,3,5-Trimethylbenzene	30	30.5	102	30	30.0	100	(75-124)	1.80	(< 20)
1,3-Dichlorobenzene	30	30.1	100	30	29.9	100	(80-119)	0.90	(< 20)
1,3-Dichloropropane	30	31.6	105	30	31.6	105	(80-119)	0.07	(< 20)
1,4-Dichlorobenzene	30	29.9	100	30	30.0	100	(79-118)	0.32	(< 20)
2,2-Dichloropropane	30	33.0	110	30	31.9	106	(60-139)	3.40	(< 20)
2-Butanone (MEK)	90	90.0	100	90	94.4	105	(56-143)	4.80	(< 20)
2-Chlorotoluene	30	30.1	100	30	29.7	99	(79-122)	1.60	(< 20)
2-Hexanone	90	88.9	99	90	91.7	102	(57-139)	3.10	(< 20)
4-Chlorotoluene	30	30.0	100	30	29.7	99	(78-122)	1.20	(< 20)
4-Isopropyltoluene	30	31.3	104	30	30.8	103	(77-127)	1.60	(< 20)
4-Methyl-2-pentanone (MIBK)	90	92.8	103	90	96.8	108	(67-130)	4.20	(< 20)
Benzene	30	31.8	106	30	31.4	105	(79-120)	1.10	(< 20)
Bromobenzene	30	29.8	99	30	29.4	98	(80-120)	1.10	(< 20)
Bromochloromethane	30	30.8	103	30	30.3	101	(78-123)	1.30	(< 20)
Bromodichloromethane	30	31.3	104	30	31.3	104	(79-125)	0.20	(< 20)
Bromoform	30	30.1	100	30	30.6	102	(66-130)	1.40	(< 20)
Bromomethane	30	30.4	101	30	29.9	100	(53-141)	1.70	(< 20)
Carbon disulfide	45	47.5	106	45	49.3	110	(64-133)	3.60	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1218012 [VXX38290]
Blank Spike Lab ID: 1651042
Date Analyzed: 12/17/2021 14:29

Spike Duplicate ID: LCSD for HBN 1218012 [VXX38290]
Spike Duplicate Lab ID: 1651043
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	30.8	103	30	29.5	98	(72-136)	4.30	(< 20)
Chlorobenzene	30	30.7	102	30	30.2	101	(82-118)	1.60	(< 20)
Chloroethane	30	29.9	100	30	32.2	107	(60-138)	7.30	(< 20)
Chloroform	30	28.5	95	30	27.9	93	(79-124)	2.20	(< 20)
Chloromethane	30	32.6	109	30	32.1	107	(50-139)	1.60	(< 20)
cis-1,2-Dichloroethene	30	31.1	104	30	30.7	102	(78-123)	1.50	(< 20)
cis-1,3-Dichloropropene	30	31.7	106	30	31.5	105	(75-124)	0.52	(< 20)
Dibromochloromethane	30	31.3	104	30	31.3	104	(74-126)	0.02	(< 20)
Dibromomethane	30	31.4	105	30	31.7	106	(79-123)	0.96	(< 20)
Dichlorodifluoromethane	30	35.1	117	30	33.7	112	(32-152)	4.10	(< 20)
Ethylbenzene	30	31.6	105	30	30.8	103	(79-121)	2.40	(< 20)
Freon-113	45	48.9	109	45	50.6	113	(70-136)	3.60	(< 20)
Hexachlorobutadiene	30	31.1	104	30	30.7	102	(66-134)	1.30	(< 20)
Isopropylbenzene (Cumene)	30	31.3	104	30	30.5	102	(72-131)	2.50	(< 20)
Methylene chloride	30	32.6	109	30	32.9	110	(74-124)	1.20	(< 20)
Methyl-t-butyl ether	45	49.2	109	45	50.3	112	(71-124)	2.20	(< 20)
Naphthalene	30	30.7	102	30	32.6	109	(61-128)	6.10	(< 20)
n-Butylbenzene	30	31.0	103	30	31.1	104	(75-128)	0.06	(< 20)
n-Propylbenzene	30	31.1	104	30	30.3	101	(76-126)	2.50	(< 20)
o-Xylene	30	31.1	104	30	30.8	103	(78-122)	0.84	(< 20)
P & M -Xylene	60	62.0	103	60	60.6	101	(80-121)	2.20	(< 20)
sec-Butylbenzene	30	31.6	105	30	31.0	103	(77-126)	2.00	(< 20)
Styrene	30	31.3	104	30	31.1	104	(78-123)	0.61	(< 20)
tert-Butylbenzene	30	31.0	103	30	30.7	102	(78-124)	1.20	(< 20)
Tetrachloroethene	30	33.0	110	30	31.8	106	(74-129)	3.60	(< 20)
Toluene	30	31.3	104	30	30.6	102	(80-121)	2.10	(< 20)
trans-1,2-Dichloroethene	30	32.3	108	30	32.0	107	(75-124)	1.10	(< 20)
trans-1,3-Dichloropropene	30	31.7	106	30	31.5	105	(73-127)	0.51	(< 20)
Trichloroethene	30	32.7	109	30	31.9	106	(79-123)	2.40	(< 20)
Trichlorofluoromethane	30	32.0	107	30	33.8	113	(65-141)	5.70	(< 20)
Vinyl acetate	30	32.1	107	30	32.9	110	(54-146)	2.50	(< 20)
Vinyl chloride	30	33.3	111	30	33.6	112	(58-137)	0.81	(< 20)
Xylenes (total)	90	93.0	103	90	91.4	102	(79-121)	1.70	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1218012 [VXX38290]
Blank Spike Lab ID: 1651042
Date Analyzed: 12/17/2021 14:29

Spike Duplicate ID: LCSD for HBN 1218012 [VXX38290]
Spike Duplicate Lab ID: 1651043
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1218012001, 1218012002, 1218012003, 1218012004, 1218012005, 1218012006, 1218012007, 1218012008, 1218012009, 1218012010, 1218012011, 1218012012, 1218012013, 1218012014, 1218012015, 1218012016, 1218012017, 1218012018

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		100	30		101	(81-118)	1.20	
4-Bromofluorobenzene (surr)	30		97	30		97	(85-114)	0.26	
Toluene-d8 (surr)	30		103	30		103	(89-112)	0.03	

Batch Information

Analytical Batch: **VMS21434**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JMG**

Prep Batch: **VXX38290**
Prep Method: **SW5030B**
Prep Date/Time: **12/17/2021 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 1829619 [VXX/38298]
Blank Lab ID: 1651305

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012001, 1218012002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	112	81-118		%
4-Bromofluorobenzene (surr)	92	85-114		%
Toluene-d8 (surr)	94	89-112		%

Batch Information

Analytical Batch: VMS21440
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 12/21/2021 11:15:00AM

Prep Batch: VXX38298
Prep Method: SW5030B
Prep Date/Time: 12/21/2021 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 1218012 [VXX38298]
Blank Spike Lab ID: 1651306
Date Analyzed: 12/21/2021 11:29

Spike Duplicate ID: LCSD for HBN 1218012 [VXX38298]
Spike Duplicate Lab ID: 1651307
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1218012001, 1218012002

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Tetrachloroethene	30	32.8	109	30	31.7	106	(74-129)	3.60	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		102	30		102	(81-118)	0.24	
4-Bromofluorobenzene (surr)	30		95	30		95	(85-114)	0.36	
Toluene-d8 (surr)	30		95	30		95	(89-112)	0.37	

Batch Information

Analytical Batch: **VMS21440**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **JMG**

Prep Batch: **VXX38298**
Prep Method: **SW5030B**
Prep Date/Time: **12/21/2021 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 1829742 [VXX/38301]
Blank Lab ID: 1651394

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	114	81-118		%
4-Bromofluorobenzene (surr)	93.2	85-114		%
Toluene-d8 (surr)	100	89-112		%

Batch Information

Analytical Batch: VMS21441
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 12/22/2021 12:59:00PM

Prep Batch: VXX38301
Prep Method: SW5030B
Prep Date/Time: 12/22/2021 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

Leaching Blank

Blank ID: LB for HBN 1829428 [TCLP/11556
Blank Lab ID: 1650826

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1218012006

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Tetrachloroethene	25.0U	50.0	15.5	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	104	81-118		%
4-Bromofluorobenzene (surr)	95.8	85-114		%
Toluene-d8 (surr)	102	89-112		%

Batch Information

Analytical Batch: VMS21441
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JMG
Analytical Date/Time: 12/22/2021 5:26:00PM

Prep Batch: VXX38301
Prep Method: SW5030B
Prep Date/Time: 12/22/2021 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 1218012 [VXX38301]
Blank Spike Lab ID: 1651395
Date Analyzed: 12/22/2021 13:13

Spike Duplicate ID: LCSD for HBN 1218012 [VXX38301]
Spike Duplicate Lab ID: 1651396
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1218012006

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Tetrachloroethene	30	31.8	106	30	32.1	107	(74-129)	0.76	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		111	30		108	(81-118)	2.70	
4-Bromofluorobenzene (surr)	30		94	30		93	(85-114)	1.20	
Toluene-d8 (surr)	30		100	30		99	(89-112)	0.54	

Batch Information

Analytical Batch: **VMS21441**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **JMG**

Prep Batch: **VXX38301**
Prep Method: **SW5030B**
Prep Date/Time: **12/22/2021 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

CHAIN-OF-CUSTODY RECORD

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

Laboratory SGS
Attn: Jen Dawkins

MSA: MSA-SGS-2016

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	VOCs (HCl) 8260D	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
MW-1R	1AC	2100	12/9/21	X	3	Groundwater (TB-1)
MW-100R	2AC	2050	12/9/21			
MW-4R	3AC	1116	12/10/21			
MW-104R	4AC	1106				
MW-3R-20*	5AC	1300				
MW-3R-45*	6AC	1215				
BMES-EB	7AC	1230				
MW-5	8AC	1902	12/9/21			(TB-2)
MW-6	9AC	1808				
MW-7	10AC	2018				

1218012

Project Information	
Number:	107889-001
Name:	BMES
Contact:	Dana Fjare
Ongoing Project?	Yes [X] No [ ]
Sampler:	RLW, DHF, MSC, APW VTY

Sample Receipt	
Total No. of Containers:	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	2.0
Delivery Method:	

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: Time: 1645	Signature: Time: 1400	Signature: Time:
Printed Name: Rachel Willis Date: 12/13/21	Printed Name: Jen Dawkins Date: 12/16/21	Printed Name: Date:
Company: Shannon + Wilson	Company: SGS	Company:
Received By: 1.	**Received By: 2.**	**Received By: 3.**
Signature: Time: 1645	Signature: Time:	Signature: Time: 9:22 RJC
Printed Name: Jen Dawkins Date: 12-13-21	Printed Name: Date:	Printed Name: Ryan Conlon Date: 9/17/21
Company: SGS	Company:	Company: SGS 1f, 1B

Notes:

*See attached email.

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

2.6 055

No. 411851

CHAIN-OF-CUSTODY RECORD

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

Laboratory SGS
Attn: Jen Dawkins

MSA: MSA-SGS-2016

Turn Around Time: ☐ Normal ☐ Rush — Please Specify

Quote No:

J-Flags: ☐ Yes ☐ No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOCs 8260D	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
MW-8	11AC	1134	12/9/21	X	3	Groundwater (TB-1)
MW-9	12AC	1525				(TB-2)
MW-10	13AC	1705				(TB-1)
MW-11	14AC	1300				
MW-12	15AC	1810				
MW-13	16AC	1907				
Trip Blank-1	17AC	Lab Provided				Trip Blank (TB-1)
Trip Blank-2	18AC	Lab Provided				Trip Blank (TB-2)

1218012

Project Information	
Number:	107839-001
Name:	BMGS
Contact:	D. Fisare
Ongoing Project?	Yes ☒ No ☐
Sampler:	RLW, DHF, MSC, RAN, VTY

Sample Receipt	
Total No. of Containers:	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	
Temp:	
Delivery Method:	

Notes:

- Trip Blank w/ samples in cooler @ all times.
- See Remarks column for trip blank associations.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1645	Signature: Time: 1400	Signature: Time:
Printed Name: Rachel Wills Date: 12/13/21	Printed Name: Jen Dawkins Date: 12/16/21	Printed Name: Date:
Company: Shannon + Wilson	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1645	Signature: Time:	Signature: Time:
Printed Name: Jen Dawkins Date: 12-13-21	Printed Name: Date:	Printed Name: Date:
Company: SGS	Company:	Company:

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

No. 411857

Dawkins, Jennifer A (Fairbanks)

From: Dana Fjare <Dana.Fjare@shanwil.com>
Sent: Tuesday, December 14, 2021 12:00 PM
To: Dawkins, Jennifer A (Fairbanks)
Subject: [EXTERNAL] Request to change sample names on COC

Hi Jen, I would like to change the sample naming from what is written on the COC for two samples from the BMES project #107889-001 (I don't have the work order # yet because they were turned in yesterday). Can you ask the lab to report the updated sample names in the report? See below.
Change "MW-3R-20" to "MW-2R"
Change "MW-3R-45" to "MW-3R"

Thank you,

Dana

Dana Fjare
ENVIRONMENTAL SCIENTIST
SHANNON & WILSON
2355 Hill Road
Fairbanks, AK 99709
shannonwilson.com
Phone: **(907) 479-0600**
Mobile: **(907) 987-7174**
dana.fjare@shanwil.com
Please note, my email address has been updated. You can still reach me at the old address.

e-Sample Receipt Form FBK

SGS Workorder #: **S&W** | S&W

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 @ 2.0 °C Therm. ID: D57
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*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	**Samples are a week into hold time.**

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

Additional notes (if applicable):

SGS Profile #	**363145**	363145

Hold in Fairbanks until 12/16 due to weather.

e-Sample Receipt Form

SGS Workorder #:	1218012	1218012

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	1F, 1B
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 @ 2.6 °C Therm. ID: D55
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):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1218012001-A	HCL to pH < 2	OK	1218012017-B	HCL to pH < 2	OK
1218012001-B	HCL to pH < 2	OK	1218012017-C	HCL to pH < 2	OK
1218012001-C	HCL to pH < 2	OK	1218012018-A	HCL to pH < 2	OK
1218012002-A	HCL to pH < 2	OK	1218012018-B	HCL to pH < 2	OK
1218012002-B	HCL to pH < 2	OK	1218012018-C	HCL to pH < 2	OK
1218012002-C	HCL to pH < 2	OK			
1218012003-A	HCL to pH < 2	OK			
1218012003-B	HCL to pH < 2	OK			
1218012003-C	HCL to pH < 2	OK			
1218012004-A	HCL to pH < 2	OK			
1218012004-B	HCL to pH < 2	OK			
1218012004-C	HCL to pH < 2	OK			
1218012005-A	HCL to pH < 2	OK			
1218012005-B	HCL to pH < 2	OK			
1218012005-C	HCL to pH < 2	OK			
1218012006-A	HCL to pH < 2	OK			
1218012006-B	HCL to pH < 2	OK			
1218012006-C	HCL to pH < 2	OK			
1218012007-A	HCL to pH < 2	OK			
1218012007-B	HCL to pH < 2	OK			
1218012007-C	HCL to pH < 2	OK			
1218012008-A	HCL to pH < 2	OK			
1218012008-B	HCL to pH < 2	OK			
1218012008-C	HCL to pH < 2	OK			
1218012009-A	HCL to pH < 2	OK			
1218012009-B	HCL to pH < 2	OK			
1218012009-C	HCL to pH < 2	OK			
1218012010-A	HCL to pH < 2	OK			
1218012010-B	HCL to pH < 2	OK			
1218012010-C	HCL to pH < 2	OK			
1218012011-A	HCL to pH < 2	OK			
1218012011-B	HCL to pH < 2	OK			
1218012011-C	HCL to pH < 2	OK			
1218012012-A	HCL to pH < 2	OK			
1218012012-B	HCL to pH < 2	OK			
1218012012-C	HCL to pH < 2	OK			
1218012013-A	HCL to pH < 2	OK			
1218012013-B	HCL to pH < 2	OK			
1218012013-C	HCL to pH < 2	OK			
1218012014-A	HCL to pH < 2	OK			
1218012014-B	HCL to pH < 2	OK			
1218012014-C	HCL to pH < 2	OK			
1218012015-A	HCL to pH < 2	OK			
1218012015-B	HCL to pH < 2	OK			
1218012015-C	HCL to pH < 2	OK			
1218012016-A	HCL to pH < 2	OK			
1218012016-B	HCL to pH < 2	OK			
1218012016-C	HCL to pH < 2	OK			
1218012017-A	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.

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1/4/2022
Ms. Dana Fjare
Shannon & Wilson, Inc.
2355 Hill Road

Fairbanks AK 99709

Project Name: BMES
Project #: 107889-001
Workorder #: 2112475

Dear Ms. Dana Fjare

The following report includes the data for the above referenced project for sample(s) received on 12/17/2021 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Monica Tran at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Monica Tran

Project Manager

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WORK ORDER #: 2112475

Work Order Summary

CLIENT:	Ms. Dana Fjare Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709	**BILL TO:**	Ms. Sheila Hinckley Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709
PHONE:	907-479-0600	**P.O. #**	
FAX:	907-479-5691	**PROJECT #**	107889-001 BMES
DATE RECEIVED:	12/17/2021	**CONTACT:**	Monica Tran
DATE COMPLETED:	01/04/2022		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSV-1	TO-15	4.5 "Hg	10.1 psi
02A	SSV-2	TO-15	4.7 "Hg	9.9 psi
03A	SSV-12	TO-15	4.9 "Hg	10.3 psi
04A	SSV-3	TO-15	4.7 "Hg	10.3 psi
05A	Lab Blank	TO-15	NA	NA
06A	CCV	TO-15	NA	NA
07A	LCS	TO-15	NA	NA
07AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 01/04/22

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
EPA Method TO-15
Shannon & Wilson, Inc.
Workorder# 2112475

Four 1 Liter Summa Canister (100% Certified) samples were received on December 17, 2021. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Dilution was performed on samples SSV-1 and SSV-3 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Ten qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SSV-1

Lab ID#: 2112475-01A

No Detections Were Found.

Client Sample ID: SSV-2

Lab ID#: 2112475-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.99	3.0	6.7	20

Client Sample ID: SSV-12

Lab ID#: 2112475-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	1.0	2.7	6.9	18

Client Sample ID: SSV-3

Lab ID#: 2112475-04A

No Detections Were Found.

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Client Sample ID: SSV-1

Lab ID#: 2112475-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122215**	**Date of Collection: 12/13/21 9:15:00 AM**	
Dil. Factor:	**3.97**	**Date of Analysis: 12/22/21 06:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	2.0	Not Detected	7.9	Not Detected
cis-1,2-Dichloroethene	2.0	Not Detected	7.9	Not Detected
Chloroform	2.0	Not Detected	9.7	Not Detected
1,2-Dichloroethane	2.0	Not Detected	8.0	Not Detected
Trichloroethene	2.0	Not Detected	11	Not Detected
Tetrachloroethene	2.0	Not Detected	13	Not Detected
1,1,1,2-Tetrachloroethane	7.9	Not Detected	54	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	87	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SSV-2

Lab ID#: 2112475-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122213**	**Date of Collection: 12/13/21 10:13:00 A**	
Dil. Factor:	**1.98**	**Date of Analysis: 12/22/21 05:43 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	0.99	Not Detected	3.9	Not Detected
cis-1,2-Dichloroethene	0.99	Not Detected	3.9	Not Detected
Chloroform	0.99	Not Detected	4.8	Not Detected
1,2-Dichloroethane	0.99	Not Detected	4.0	Not Detected
Trichloroethene	0.99	Not Detected	5.3	Not Detected
Tetrachloroethene	0.99	3.0	6.7	20
1,1,1,2-Tetrachloroethane	4.0	Not Detected	27	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	87	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SSV-12

Lab ID#: 2112475-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122214**	**Date of Collection: 12/13/21 10:13:00 A**	
Dil. Factor:	**2.03**	**Date of Analysis: 12/22/21 06:13 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.0	Not Detected
Chloroform	1.0	Not Detected	5.0	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.1	Not Detected
Trichloroethene	1.0	Not Detected	5.4	Not Detected
Tetrachloroethene	1.0	2.7	6.9	18
1,1,1,2-Tetrachloroethane	4.1	Not Detected	28	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SSV-3

Lab ID#: 2112475-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122216**	**Date of Collection: 12/13/21 11:04:00 A**	
Dil. Factor:	**16.1**	**Date of Analysis: 12/22/21 07:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	8.0	Not Detected	32	Not Detected
cis-1,2-Dichloroethene	8.0	Not Detected	32	Not Detected
Chloroform	8.0	Not Detected	39	Not Detected
1,2-Dichloroethane	8.0	Not Detected	32	Not Detected
Trichloroethene	8.0	Not Detected	43	Not Detected
Tetrachloroethene	8.0	Not Detected	55	Not Detected
1,1,1,2-Tetrachloroethane	32	Not Detected	220	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2112475-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122206c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/22/21 01:46 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,1,1,2-Tetrachloroethane	2.0	Not Detected	14	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	85	70-130

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Client Sample ID: CCV

Lab ID#: 2112475-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122202**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/22/21 10:32 AM**	

Compound	%Recovery
trans-1,2-Dichloroethene	95
cis-1,2-Dichloroethene	94
Chloroform	103
1,2-Dichloroethane	99
Trichloroethene	103
Tetrachloroethene	111
1,1,1,2-Tetrachloroethane	110

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: LCS

Lab ID#: 2112475-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122203**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/22/21 11:01 AM**	

Compound	%Recovery	Method Limits
trans-1,2-Dichloroethene	100	70-130
cis-1,2-Dichloroethene	96	70-130
Chloroform	102	70-130
1,2-Dichloroethane	101	70-130
Trichloroethene	104	70-130
Tetrachloroethene	112	70-130
1,1,1,2-Tetrachloroethane	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: LCSD

Lab ID#: 2112475-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p122204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/22/21 11:30 AM**	

Compound	%Recovery	Method Limits
trans-1,2-Dichloroethene	97	70-130
cis-1,2-Dichloroethene	95	70-130
Chloroform	100	70-130
1,2-Dichloroethane	100	70-130
Trichloroethene	104	70-130
Tetrachloroethene	111	70-130
1,1,1,2-Tetrachloroethane	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	103	70-130

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Analysis Request /Canister Chain of Custody

For Laboratory Use Only

PID: _____ Workorder #: 2112475

180 Blue Ravine Rd. Suite B, Folsom, CA 95630
Phone (800) 985-5955; Fax (916) 351-8279

page 1 of 1

Client: Shannon & Wilson
Project Name: BMES
Project Manager: Dana Fjare Project # 107889-001
Sampler: Dana Fjare
Site Name: BMES

Special Instructions/Notes:
See attached analyte list for requested analysis.
Did not use req. # 25406

Turnaround Time (Rush surcharges may apply)
Standard X Rush _____ (specify)

Lab ID	Field Sample Identification(Location)	Can #	Flow Controller #	Start Sampling Information		Stop Sampling Information		Canister Vacuum/Pressure		Lab Use Only		Requested Analyses			
				Date	Time	Date	Time	Initial (in Hg)	Final (in Hg)	Receipt	Final (psig) Gas: N_2 / He	Modified TO-15			
01A	SSV-1	IL3373	25551	12/13/21	0909	12/13/21	0915	-28.5	-5			X			
02A	SSV-2	IL2819	25045	↓	1000	↓	1013	-29	-5			X			
03A	SSV-12	40868	25045		1000		1013	-28.5	-5			X			
04A	SSV-3	IL4806	20298		1054		1104	-28.5	-5			X			

Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Dana Fjare	12/13/21	1330	EATL	12/17/21	1213
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time
Relinquished by: (Signature/Affiliation)	Date	Time	Received by: (Signature/Affiliation)	Date	Time

Lab Use Only

Shipper Name: FedEx | Custody Seals Intact? (Yes) No None | GOOD

Sample Transportation Notice: Relinquishing signature on this document indicates that samples are shipped in compliance with all applicable local, State, Federal, and international laws, regulations, and ordinances of any kind. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Eurofins Air Toxics against any claim, demand, or action, of any kind, related to the collection, handling, of shipping of samples. D.O.T Hotline (800) 467-4922

APPENDIX E: LABORATORY DATA REVIEW CHECKLISTS

Appendix E

Laboratory Data Review Checklists

CONTENTS

Laboratory Data Review Checklist

Completed By:

Dana Fjare

Title:

Environmental Scientist

Date:

January 3, 2022

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1218012

Laboratory Report Date:

December 28, 2021

CS Site Name:

Bentley Mall East Satellite

ADEC File Number:

102.38.122

Hazard Identification Number:

4033

1218012

Laboratory Report Date:

December 28, 2021

CS Site Name:

Bentley Mall East Satellite

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

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

   Yes☐ No☐ N/A☒ Comments:

   All analyses were performed by SGS North America in Anchorage, Alaska.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

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

   Yes☒ No☐ N/A☐ Comments:

1218012

Laboratory Report Date:

December 28, 2021

CS Site Name:

Bentley Mall East Satellite

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

Yes☒ No☐ N/A☐ Comments:

The laboratory noted that samples were received in acceptable condition.

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☐ N/A☐ Comments:

We requested that the laboratory change the name for two samples in the laboratory report from what was originally recorded on the chain-of-custody. Sample *MW-3R-20* was changed to *MW-2R* and *MW-3R-45* was changed to *MW-3R*.

e. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

The case narrative did not identify any discrepancies, errors, or QC failures.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were required.

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

Comments:

The data quality/usability is not affected.

1218012

Laboratory Report Date:

December 28, 2021

CS Site Name:

Bentley Mall East Satellite

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Soil samples were not submitted 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☒ N/A☐ Comments:

The reported limits of detection (LODs) were less than the groundwater cleanup levels for the requested analytes, with the exception of 1,2,3-trichloropropane.

e. Data quality or usability affected?

We cannot assess whether 1,2,3-trichloropropane is present at a concentration less than the LOD but greater than the groundwater cleanup level.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

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iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; target analytes were not detected in the method blank samples.

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

Yes☐ No☐ N/A☒ Comments:

Target analytes were not detected in the method blank samples.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

LCS and LCSDs were reported for volatile organic compounds (VOC) analysis by method SW8260D.

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

Yes☐ No☐ N/A☒ Comments:

Metals/Inorganics analyses were not requested with this work order.

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

N/A; method accuracy and precision were demonstrated to be within acceptable limits.

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

Yes☐ No☐ N/A☒ Comments:

LCS and LCSD accuracy and precision were within laboratory control limits.

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

Comments:

The data quality/usability is not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☐ Comments:

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☐ Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☐ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☐ Comments:

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

Comments:

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

Yes☐ No☐ N/A☐ Comments:

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

Comments:

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

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

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

All surrogate recoveries were within laboratory control limits.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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e. Trip Blanks

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

Yes☒ No☐ N/A☐ 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☐ N/A☐ Comments:

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; target analytes were not detected in the trip blank samples.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate pairs *MW-1R* / *MW-100R* and *MW-4R* / *MW-104R* were submitted with this work order.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated for the duplicate pairs was within the project objective of 30% for water, where calculable.

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

Comments:

The data quality/usability is not affected.

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

Yes☒ No☐ N/A☐ Comments:

The equipment blank sample *BMES-EB* was submitted with this work order.

i. All results less than LOQ and project specified objectives?

Yes☐ No☒ N/A☐ Comments:

Benzene and toluene were detected at estimated concentrations below the LOQ.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Toluene was not detected in the project samples, so the results are not affected by the toluene detection in the equipment blank sample.

Benzene was detected at estimated concentrations in the field samples *MW-2R, MW-3R, MW-5, MW-6, MW-10*, and *MW-12*. The detected benzene results are roughly equivalent to that of the concentration detected in the equipment blank. These results may be artifacts of equipment contamination or ambient conditions during sampling. The affected results are considered false-positives and are flagged 'UB' at the LOQ in the analytical data tables.

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iii. Data quality or usability affected?

Comments:

The data quality is affected; see above for applied qualifiers.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Additional data flags/qualifiers were not required.

Laboratory Data Review Checklist for Air Samples

Completed By:

Dana Fjare

Title:

Environmental Scientist

Date:

January 4, 2022

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

Eurofins Air Toxics

Laboratory Report Number:

2112475

Laboratory Report Date:

January 4, 2022

CS Site Name:

Bentley Mall East Satellite

ADEC File Number:

102.38.122

Hazard Identification Number:

4033

2112475

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Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

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

   Yes☐ No☐ N/A☒ Comments:

   All analyses were performed by Eurofins Air Toxics in Folsom, California.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample condition documented - Samples collected in gas tight, opaque/dark Summa canisters or other ADEC approved container? Canister vacuum/pressure checked, recorded upon receipt and contained no open valves?

   Yes☒ No☐ N/A☐ Comments:

   b. If there were discrepancies, were they documented? For example, incorrect sample containers, insufficient or missing samples, canister not holding a vacuum etc.?

   Yes☐ No☐ N/A☒ Comments:

   The laboratory did not note any sample receiving discrepancies.

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c. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

Dilution was performed on samples *SSV-1* and *SSV-3* due to the presence of high-level non-target species.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

The laboratory case narrative did not note any corrective actions.

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

Comments:

The laboratory case narrative did not specify an effect on data quality/usability.

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

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c. Are the reported LOQs less than the target level or screening level for the project, as defined in the approved work plan?

Yes☐ No☒ N/A☐ Comments:

The reported LOQs were less than the target levels for the requested analytes except for 1,1,1,2-tetrachloroethane in sample *SSV-3*.

d. Data quality or usability affected?

We cannot assess whether 1,1,1,2-tetrachloroethane is present in sample *SSV-3* at a concentration less than the LOQ but greater than the target level.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; target analytes were not detected in the method blank.

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

Yes☐ No☐ N/A☒ Comments:

Target analytes were not detected in the method blank.

v. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

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

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

An LCS/LCSD was reported for volatile organic compounds (VOCs) analysis by method TO-15.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☒ No☐ N/A☐ Comments:

iii. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable?

Yes☒ No☐ N/A☐ Comments:

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

Comments:

N/A; method accuracy and precision were demonstrated to be within acceptable limits.

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

Yes☐ No☐ N/A☒ Comments:

LCS/LCSD accuracy and precision were within laboratory control limits.

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

Comments:

The data quality/usability is not affected.

c. Surrogates – VOCs only

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

Yes☒ No☐ N/A☐ Comments:

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ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

Surrogate recoveries were within laboratory control limits.

iv. Data quality or usability affected?

Comments:

The data quality/usability is not affected.

d. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

The field duplicate samples *SSV-2* and *SSV-12* were submitted to the laboratory.

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% air)

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

The relative precision demonstrated for the duplicate pair was within the project objective of 30%, where calculable.

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

Comments:

The data quality/usability is not affected.

e. Field Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Samples for this project are not collected with reusable equipment, so the prospect of foreign contaminants being introduced through equipment contamination is not plausible.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

A field blank was not submitted with this work order.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A; a field blank was not submitted with this work order.

iii. Data quality or usability affected?

Comments:

The data quality/usability is not affected; see above.

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

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

Additional data flags/qualifiers were not required.

APPENDIX F: QUALITY ASSURANCE AND QUALITY CONTROL SUMMARY

Appendix F

Quality Assurance and Quality Control Summary

APPENDIX F: 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 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 °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.

Laboratory QC procedures included evaluating surrogate recovery, performing continuing calibration checks, analyzing method blanks, and analyzing laboratory control samples (LCS) and LCS duplicate (LCSD) samples to assess accuracy and precision. 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 and field duplicate sample pairs.

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

For additional information, refer to the SGS laboratory report 1218012 and Eurofins laboratory report 2112475 in Appendix D and corresponding DEC LDRCs in Appendix E.

F.1 SAMPLE HANDLING

We hand-delivered coolers containing groundwater samples to the SGS Fairbanks facility on December 13, 2021. The coolers contained temperature blanks to measure whether samples were kept within an acceptable temperature range. SGS shipped samples to their 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 shipped the air samples to the Eurofins laboratory in Folsom, California on December 13, 2021 via FedEx. The samples do not require temperature preservation and were

consequently kept at room temperature. The samples were received by the laboratory on December 17, 2021.

We delivered the samples to the SGS and Eurofins laboratories with sufficient time to allow the laboratories 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 and Eurofins processed the samples within the appropriate holding times.

F.2 ANALYTICAL SENSITIVITY

The laboratory's LOD is the lowest analyte concentration that can be measured. The laboratory's 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 LOD and LOQ. Analytes may be present in samples at concentrations below the LOD. In cases where analytes were not detected at concentrations above their LOD, the analytical results are presented in our data-summary table with reference to their LOD. If the analyte is detected between the LOD and the LOQ, its concentration is considered an estimate; in our tables, this value is flagged with a 'J'. This flag is applied by the laboratory.

We compared groundwater LODs and soil-gas sample LOQs to their respective DEC regulatory levels. Groundwater data LODs were less than DEC-established cleanup levels (where applicable) except for 1,2,3-trichloropropane in all samples. Soil-gas sample *SSV-3* was analyzed at a dilution due to high concentrations of non-target analytes. Consequently, the LOQs for non-detect results in sample *SSV-3* were elevated over expected values and the LOQ for 1,1,1,2-PCA exceeded the DEC target level. We cannot assess if the non-detect analytes listed previously are present at concentrations less than the LOQ but greater than their respective DEC regulatory limits.

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 and air 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 equipment blank was collected to assess the possibility of cross-contamination from sampling equipment. The equipment blank was collected post-decontamination after collecting the project samples. The equipment blank was analyzed by the same test methods as the original sample. There were no detections in the equipment blank sample above the LOQ. However, benzene and toluene were detected between the LOD and the LOQ. Benzene results were detected in samples *MW-2R*, *MW-3R*, *MW-5*, *MW-6*, *MW-10*, and *MW-12*, and are considered false-positives and are qualified in the analytical tables to identify the imprecision.

F.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 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 laboratories' LCS, LCSD, and surrogate recoveries were within laboratory acceptance criteria.

The Eurofins 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 CCV recovery was within laboratory control limits.

F.4 PRECISION

We collected field-duplicate samples at a frequency of ten percent of the total number of samples, and one field-duplicate sample per day, to evaluate the precision of analytical measurements and reproducibility of our sampling technique. We collected two groundwater duplicate samples (*MW-1R* and *MW-101R*, *MW-4R* and *MW-104R*) and one soil-gas duplicate sample (*SSV-2* and *SSV-12*). The field-duplicate samples were submitted "blind" (i.e., the laboratory could not identify it as a duplicate). The duplicates were 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 only be evaluated for analytes that are detected in both the sample and its duplicate.

The data quality objective is an RPD within 30 percent for water samples and 25 percent for air samples. Where analytes were detected 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 the LCS/LCSD and evaluating the associated RPDs. The laboratory LCS/LCSD sample RPDs were within laboratory acceptance criteria.

F.5 DATA QUALITY SUMMARY

By conducting our field activities in general accordance with our standard QA/QC 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 85-percent useable data was met. In our opinion, the data produced by the SGS and Eurofins laboratories for this project are suitable for characterizing groundwater and soil-gas at the locations sampled.

APPENDIX G: CONCEPTUAL SITE MODEL

Appendix G

Conceptual Site Model

CONTENTS

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Bentley Mall East Satellite

File Number: 102.38.122

Completed by: Dana Fjare; Shannon & Wilson, Inc.

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☐ ASTs
- ☐ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☒ Other: Dry cleaning waste disposal

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☐ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☒ Other: Undocumented releases

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☒ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☒ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

PCE and its derivatives are not listed in Appendix B as contaminants that can permeate the skin.

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the groundwater is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

The area is currently serviced by the municipal water supply; however, this pathway is marked "complete" to account for unknown wells, likely for garden use, that may be present in the area.

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

Surface water near the site has not been tested; however, we do not expect PCE in groundwater to migrate to surface water.

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

The site is in an urban area.

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Contaminants in the soil could be brought to the surface during future construction activities, potentially impacting outdoor air.

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

Inhalation of indoor air presents an insignificant risk at present, in the residences where we collected indoor air samples. However, we do not know if contaminants in groundwater are increasing, which could pose a greater vapor intrusion risk to commercial businesses and residences in the project area.

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

Future construction activities may expose workers to contaminants in groundwater. In addition, there is a possibility of in-use residential wells in the area.

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☒

Comments:

PCE and other volatile contaminants are present in exceedance of DEC cleanup levels in groundwater samples collected from monitoring wells at the source area and down gradient (west) of the BMES property. Residents in the area are connected with municipal water supply; however, there may be old residential water wells still in-use, though they are likely not for drinking-water. In addition, the groundwater below the site is a future drinking water source.

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Bentley Mall East Satellite

Completed By: Dana Fjare; Shannon & Wilson, Inc.

Date Completed: November 2021

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1)

Check the media that could be directly affected by the release.

(2)

For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.

Media / Transport Mechanisms

Surface Soil (0-2 ft bgs) — ☑
- Direct release to surface soil → check soil
- ☑ Migration to subsurface → check soil
- ☑ Migration to groundwater → check groundwater
- ☑ Volatilization → check air
- ☐ Runoff or erosion → check surface water
- ☐ Uptake by plants or animals → check biota
- ☐ Other (list):

Subsurface Soil (2-15 ft bgs) — ☑
- Direct release to subsurface soil → check soil
- ☑ Migration to groundwater → check groundwater
- ☑ Volatilization → check air
- ☐ Uptake by plants or animals → check biota
- ☐ Other (list):

Ground-water — ☑
- Direct release to groundwater → check groundwater
- ☑ Volatilization → check air
- ☐ Flow to surface water body → check surface water
- ☐ Flow to sediment → check sediment
- ☐ Uptake by plants or animals → check biota
- ☐ Other (list):

Surface Water — ☐
- Direct release to surface water → check surface water
- ☐ Volatilization → check air
- ☐ Sedimentation → check sediment
- ☐ Uptake by plants or animals → check biota
- ☐ Other (list):

Sediment — ☐
- Direct release to sediment → check sediment
- ☐ Resuspension, runoff, or erosion → check surface water
- ☐ Uptake by plants or animals → check biota
- ☐ Other (list):

(3)

Check all exposure media identified in (2).

(4)

*Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5)

Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.

Exposure Media / Exposure Pathway/Route / Current & Future Receptors

Exposure Media	Exposure Pathway/Route	Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ soil	☑ Incidental Soil Ingestion	F	F	F	F			
	☐ Dermal Absorption of Contaminants from Soil							
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	C/F	F	F	F			
	☑ Dermal Absorption of Contaminants in Groundwater	C/F	F	F	F			
	☑ Inhalation of Volatile Compounds in Tap Water	C/F						
☑ air	☑ Inhalation of Outdoor Air	F	F	F	F			
	☑ Inhalation of Indoor Air	I/F	I/F	I/F	I/F			
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

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

IMPORTANT INFORMATION

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

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

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

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

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

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

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

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

IMPORTANT INFORMATION

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland