SUBMITTED TO:
City of Fairbanks
800 Cushman Street
Fairbanks, Alaska 99701

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

(907)479-0600
www.shannonwilson.com

FINAL

SITE CHARACTERIZATION REPORT

Shopper's Forum Mall

FAIRBANKS, ALASKA

March 2024

Shannon & Wilson No: 106568

SHANNON & WILSON

Submitted To: City of Fairbanks
800 Cushman Street
Fairbanks, Alaska 99701
Attn: John O'Brien

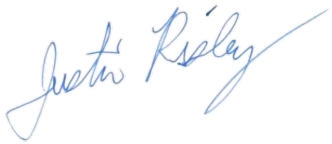
Subject: FINAL SITE CHARACTERIZATION REPORT, SHOPPER'S FORUM MALL, FAIRBANKS, ALASKA

Shannon & Wilson prepared this report and participated in this project as a consultant to the City of Fairbanks (City). Our scope of services was specified in our proposal dated June 9, 2023, and authorized by the City on June 20, 2023. This report presents the results of our August/September 2023 site characterization activities and was prepared by the undersigned.

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

Sincerely,

SHANNON & WILSON



Justin Risley, EIT
Engineering Staff

Dana Fjare
Environmental Scientist

CONTENTS

CONTENTS

Exhibits

Tables

Figures

Appendices

ACRONYMS

AAC	Alaska Administrative Code
bgs	below ground surface
°C	degrees Celsius
cis-1,2-DCE	cis-1,2-dichloroethene
City	City of Fairbanks
COPC	contaminants of potential concern
CSM	conceptual site model
DEC	Alaska Department of Environmental Conservation
EPA	U.S. Environmental Protection Agency
Eurofins	Eurofins Air Toxics, LLC
Gavora	Gavora, Inc.
GeoTek	GeoTek Alaska, Inc.
LCS/LCSD	laboratory control sample/laboratory control sample duplicate
LDRC	laboratory data review checklist
LOD	limit of detection
PCE	tetrachloroethene
QA	quality assurance
QC	quality control
RL	reporting limit
RPD	relative percent difference
SGS	SGS North America, Inc.
S&W	Shannon & Wilson, Inc.
TCE	trichloroethene
trans-1,2-DCE	trans-1,2-dichloroethene
TWP	temporary well point
VOC	volatile organic compound
WELTS	Well Log Tracking System
Work Plan	*2023 Shopper's Forum Mall Site Characterization Work Plan*
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter

1 INTRODUCTION

This report summarizes our August/September 2023 field efforts associated with the Shopper's Forum Mall, located at 1255 Airport Way in Fairbanks, Alaska (Figure 1). The Shopper's Forum Mall is an active Alaska Department of Environmental Conservation (DEC) contaminated site (DEC File Number 102.38.100, Hazard ID 3682) as a result of chlorinated solvent contamination in soil and groundwater at the site.

1.1 Project Purpose and Objectives

Our project purpose was to delineate the downgradient extent of groundwater contamination and to evaluate the potential for vapor intrusion to buildings overlying the groundwater contaminant plume. Our objectives were to collect groundwater samples and exterior soil-gas samples downgradient from the Shopper's Forum Mall Annex building and property boundary. These sampling objectives were intended to further characterize the Shopper's Forum Mall contaminated site.

1.2 Scope of Services

To accomplish our project purpose, we performed the following scope of services:

- Coordinated with a drilling subcontractor to install seven pairs of temporary well points (TWPs), for a total of 14 TWPs, downgradient from the Shopper's Forum Mall property. One well in each pair was screened to span the top of the groundwater table at approximately 16 feet below ground surface (bgs) and one well was screened from about 46 to 50 feet bgs.
- Collected 14 groundwater samples from the newly installed TWPs, four groundwater samples from existing monitoring well pairs MW-1A/B and MW-2A/B, and associated field quality control samples.
- Installed and sampled five exterior soil-gas points near select residential and commercial buildings potentially overlying the groundwater contaminant plume.
- Submitted groundwater and soil-gas samples for laboratory analysis.
- Coordinated the disposal of two drums with F002-listed purge water through US Ecology.
- Prepared this summary report documenting our observations and findings.

1.3 Site Description

The Shopper's Forum Mall is located at 1255 Airport Way in Fairbanks, Alaska, and consists of two commercial structures (Figure 2). The main mall building (Mall) occupies the west half of the property and houses a variety of commercial businesses. The smaller annex building (Annex) is located near the south end of the property and also houses several businesses.

A former dry-cleaning business that operated out of the west end of the Annex is the source of the solvent contamination at the site, though previous work has indicated a possible additional source area near the north end of the property. The City of Fairbanks (City) and the current property owner, Gavora, Inc. (Gavora), share responsibility for ongoing monitoring and characterization of the contaminated site. The groundwater-contaminant plume extends from the Annex to the north side of Airport Way, but the downgradient contamination boundary is poorly defined. Based on past site-specific groundwater investigations, groundwater flow direction is generally to the northwest.

2 BACKGROUND

Historical site use has been commercial. The property was first developed in the mid-1950s. The original building, located in the northern portion of the current Mall location, housed various businesses through time, including two laundries, a grocery, and the Fairbanks North Star Borough School District offices. The first of the laundries began operating around 1961 and was demolished circa 1966 to make way for the Airport Road frontage road. A second laundry moved into the building in the 1970s. The original building was later split; half was moved off-site and the other half (the Annex) was moved to its current location along the southeast portion of the property. A 1974 aerial photograph of the site shows the original building in its original location; a 1982 aerial photograph shows the main mall and the Annex in their current locations. The current mall structure was built in two phases in the mid-1970s. A dry-cleaning facility operated in the western end of the Annex from the mid-1970s until about 2000.

Chlorinated solvent contamination was first discovered in the area during a groundwater investigation at Fairview Manor Apartments, across Airport Way to the north of Shopper's Forum Mall. Groundwater samples collected in 2000 from the Fairview Manor Apartments south property boundary along Airport Way contained tetrachloroethene (PCE) and trichloroethene (TCE) at concentrations exceeding DEC cleanup levels. Because the groundwater contamination was identified at the upgradient property boundary, an off-site source of contamination was indicated.

In 2010, Shannon & Wilson, Inc. (S&W) performed site characterization activities to determine the extent of PCE and TCE contamination in groundwater at the property, and whether PCE was present in near-slab soil-gas along the north end of the Mall and northwest corner of the Annex. S&W advanced five TWPs in the parking lot in the center of the property, installed one monitoring well (MW-1A) on the north property boundary, advanced seven near-slab soil-gas probes around the Mall building, and collected one soil-gas sample from the Mall crawlspace. We identified PCE and TCE-contaminated soil, groundwater, and soil-gas along the northern property boundary and high concentrations of PCE and TCE in soil-gas near the west end of the Annex, consistent with the location of a loading dock used by the most recent dry-cleaning business.

In October 2021, S&W installed two monitoring well pairs and one TWP pair on the Shopper's Forum Property, three TWP pairs downgradient from the property on Airport Way, and three TWPs south from the Annex. Six soil borings were advanced and soil samples were collected from each boring. Groundwater samples were collected from the existing monitoring wells, newly installed monitoring wells, and TWPs. Three soil-gas samples and three indoor air samples were also collected from the Mall crawlspace. Results of this effort indicated that the chlorinated solvent-contaminated groundwater plume extended north and northwest across Airport Way. In our December 2021 *Shopper's Forum Mall Site Characterization Report*, we recommended additional site characterization, including groundwater sampling to delineate the downgradient plume boundaries and a vapor intrusion assessment for structures within 100 feet of the groundwater plume.

On March 20, 2023, DEC approved our Shopper's Forum Mall Site Characterization Work Plan (Work Plan), which detailed the additional groundwater and vapor intrusion sampling planned to address the remaining data gaps at the site.

3 CONTAMINANTS OF POTENTIAL CONCERN AND REGULATORY LEVELS

The contaminants of potential concern (COPCs) for this site are volatile organic compounds (VOCs), specifically chlorinated solvents in soil, groundwater, and air. In addition, VOCs that are constituents of heating oil are COPCs near the Annex building, which has a buried heating oil tank on the south side (currently not in-use) that is likely associated with previously identified petroleum hydrocarbon contamination.

When evaluating groundwater analytical data, we compare sample results to 18 Alaska Administrative Code (AAC) 75.345 Table C, *Groundwater Cleanup Levels*. We compare soil-gas analytical data to the Residential and Commercial Target Levels in DEC's *Vapor*

Intrusion Guidance for Contaminated Sites, Appendix E. Exhibit 3-1 below summarizes the regulatory levels for the site COPCs.

Exhibit 3-1: Regulatory Cleanup Levels

Contaminant	Groundwater Regulatory Level (µg/L)	Soil-Gas Residential Target Level (µg/m³)	Soil-Gas Commercial Target Level (µg/m³)
Tetrachloroethene (PCE)	41	410	1,800
Trichloroethene (TCE)	2.8	20	84
1,1-Dichloroethene	280	2,100	8,800
cis-1,2-Dichloroethene	36	N/A	N/A
trans-1,2-Dichloroethene	360	N/A	N/A
Vinyl chloride	0.19	17	280
Ethylbenzene	15	–	–
1,2,4-Trimethylbenzene	56	–	–
1,3,5-Trimethylbenzene	60	–	–
Xylenes	190	–	–
Naphthalene	1.7	–	–
Other VOCs	Analyte Dependent	–	–

NOTES:
µg/L = micrograms per liter; µg/m³ = micrograms per cubic meter; N/A = not applicable. DEC Target Level not established.
– Analysis not required

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 from August 28 to September 4, 2023, to implement the Work Plan. Field activities included TWP installation, groundwater sampling from TWPs and existing monitoring wells, and exterior soil-gas sampling. Our field forms are included in Appendix A.

4.1 Temporary Well Points

Photo 4-1: GeoTek staff installing one of the temporary well points on the north side of Airport Way.

We subcontracted GeoTek Alaska, Inc. (GeoTek) to advance 14 TWPs on August 29 through 31, 2023, at the Shopper's Forum Mall west property boundary and north from Airport Way (Figure 2). Each location consisted of one deep (50 feet bgs) and one shallow (20 feet bgs) TWP. Prior to drilling activities, we completed the required permits for working in the City and Alaska Department of Transportation and Public Facilities rights-of-way, and requested utility locates from local utility providers. GeoTek used their 6620 DT drill rig to advance steel SP-16 probes. The shallow TWP screen was set near the top of the water table from about 16 to 20 feet bgs, and the deep TWP screen was set at about 46 to 50 feet bgs (SP-16 screens are about four feet in length). We developed the TWPs prior to sampling by purging with a peristaltic pump until parameters stabilized or until three well volumes had been purged. Our sample collection logs are included in Appendix A.

The well pair SFM23-TWP6A/B had abnormally high temperature readings, with the deep well reaching stabilization at 15.1 degrees Celsius (°C, approximately 59 degrees Fahrenheit) and the shallow well at 26.9 °C (approximately 80 degrees Fahrenheit). We contacted Aurora Energy, which provides district heat to the area. Aurora Energy staff verified their utility was adjacent to this TWP location; they proposed that a possible leak in their hot water line may have been the cause of our high temperature readings. Aurora Energy was not aware of when a potential leak may have begun and does not have plans to investigate the line. The hot water line on Kellum Street is supposedly buried about five feet bgs and is approximately four inches in diameter.

Photo 4-2: SFM23-TWP6 location with marks for hot water line (pink) and water main (blue) utilities.

4.2 Existing Monitoring Wells

On September 4, 2023, S&W sampled the MW-1A/B and MW-2A/B pairs located near the Shopper's Forum Mall north property boundary (Figure 2). We used a stainless-steel

submersible pump to purge and sample the wells. Monitoring well sampling logs are included in Appendix A.

4.3 Exterior Soil-Gas

We installed five exterior soil-gas probes near select residential and commercial buildings overlying the presumed groundwater contaminant plume. Probes were installed at approximately eight feet bgs to represent the lowest depth below-grade expected for a basement. One soil-gas sample (SFM23-SG01) was collocated with SFM23-TWP5A/B on the west Shopper's Forum Mall property and the other four soil-gas samples were installed on the north side of Airport Way, co-located with past TWP sample locations. We first attempted to install soil-gas probes using a Bosch Rotohammer drill but had to switch to using the 6620 DT drill rig due to difficult hand-drilling through sand and gravel. Sand was used to fill the annular spaces and a grout seal was installed near the surface of each soil-gas probe. Soil-gas probes were left to equilibrate for a minimum of 48 hours prior to sampling.

A leak test and shut-in test were performed at each soil-gas sample location prior to sampling. After sampling, the soil-gas ports were decommissioned by digging down approximately one foot, cutting and capping the tubing, and restoring the ground surface to its original condition.

4.4 Investigation-Derived Waste

The City reported the 2023 site characterization to EPA as an episodic waste generation event one month prior to the field activities. Groundwater from developing, purging, and sampling was contained in two 55-gallon drums. One drum contained water from sample locations south of Airport Way and the other drum contained water from sample locations north of Airport Way. The drums were stored at the Shopper's Forum Mall property pending the receipt of analytical results; the purge water was subsequently categorized as F002-listed waste and was retrieved by US Ecology on September 26, 2023, for transport to their disposal facility in Grand View, Idaho.

Copies of the waste manifest and the signed DEC Contaminated Media Transport and Treatment or Disposal Approval form are included in Appendix A.

4.5 Deviations from the Work Plan

DEC had requested that soil-gas ports be left in-place for future resampling. We decommissioned the soil-gas probes after sampling instead of leaving them for future resampling, per the work plan, because soil gas points were installed in public and high-traffic areas and we were concerned they would be damaged if left in-place. The purpose of

the soil-points was as initial screening samples to determine if a vapor intrusion investigation of nearby buildings was warranted; we do not think additional sampling from these locations will provide more definitive data about vapor intrusion risk for nearby buildings. Future soil-gas sampling efforts should target near-slab or sub-slab samples co-located with indoor air samples at potentially affected buildings.

5 RESULTS

Summaries of the 2023 site characterization analytical results are presented in Tables 1 and 2. A historical results comparison for MW-1 and MW-2 are included in Table 3. The analytical laboratory reports and corresponding DEC Laboratory Data Review Checklists (LDRCs) are included in Appendix B and C, respectively. Figures 3 and 4 present analytical results exceeding relevant DEC regulatory levels.

5.1 Groundwater Samples

We collected groundwater samples from seven paired TWPs and two paired monitoring wells, for a total of 18 groundwater samples. Each pair contained a "shallow" well, screened near the top of the groundwater table to approximately 20 feet bgs, and a "deep" well screened at approximately 50 feet bgs. The samples were submitted to SGS North America, Inc. (SGS) for VOC analysis.

PCE, TCE, cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), chloromethane, and trichlorofluoromethane were detected in groundwater at the site. Shallow wells consistently had higher concentrations of VOCs than the paired deep wells, except for MW-2B (Figure 3).

- Chlorinated solvents were not detected in SFM23-TWP2A/B, located east from Week's Field Estates on Airport Way (Figure 3)
- Chlorinated solvents were not detected in SFM23-TWP5A, located on the Shopper's Forum Mall west property boundary (Figure 3). In the paired deep well at this location (SFM23-TWP2B), TCE was detected less than the DEC cleanup level.
- PCE exceeded the DEC cleanup level in MW-1A.
- TCE exceeded the DEC cleanup level in MW-1A, MW-2A & 2B, SFM23-TWP1A & 1B, SFM23-TWP3A & 3B, SFM23-TWP4A & 4B, SFM23-TWP6A & 6B, and SFM23-TWP7A.
- Cis-1,2-DCE was detected less than the DEC cleanup level in MW-1A, MW-2A & 2B, SFM23-TWP1A & 1B, SFM23-TWP3A & 3B, SFM23-TWP4A & 4B, SFM23-TWP6A & 6B, and SFM23-TWP7A.

- Trans-1,2-DCE was detected less than the DEC cleanup level in MW-1A, MW-2A & 2B, SFM23-TWP1A, SFM23-TWP4A, SFM23-TWP6A & 6B, and SFM23-TWP7A.

5.2 Soil-Gas Samples

We collected four soil-gas samples north of Airport Way and one soil-gas sample on the Shopper's Forum Mall west property boundary. These samples were submitted to Eurofins Air Toxics, LLC (Eurofins) for analysis of select VOCs by modified method TO-15. We compared sample results to the residential soil-gas target levels in Appendix E of the DEC's *Vapor Intrusion Guidance*, except the results for sample SFM23-SG01 were compared with commercial target levels because this location was not within 100 feet of residential buildings.

- Target analytes were not detected above the laboratory reporting limit in sample SFM23-SG02, the farthest west sample location on Airport Way.
- PCE was detected in sample SFM23-SG01 at a concentration less than the DEC commercial target level. Other target analytes were not detected in this sample.
- TCE exceeded the DEC target level in samples SFM23-SG03, SFM23-SG04, and SFM23-SG05 (Figure 4). PCE also exceeded the DEC target level in samples SFM23-SG04 and SFM23-SG05 and was detected less than the DEC target level in sample SFM23-SG03. Cis-1,2-DCE and trans-1,2-DCE were detected less than DEC target levels in some samples.

6 QUALITY ASSURANCE / QUALITY CONTROL

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results provided by SGS and Eurofins for laboratory QC samples and conducted our own QA assessment for this project. We reviewed chain-of custody records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample holding times, and kept groundwater samples properly chilled (between 0°C and 6°C) until analysis. Our QA review procedures allow us to document accuracy and precision of the analytical data and to check that analyses were sufficiently sensitive to detect analytes below regulatory standards.

We reviewed the groundwater data report for SGS work order 1234779 and soil-gas report for Eurofins work order 2309083. The laboratory reports include a case narrative and sample-receipt forms (Appendix B). Our review of the laboratory reports is in the laboratory data review checklists (LDRCs) in Appendix C. Details regarding our QA analysis are presented below.

6.1 Sample Custody, Storage, and Transport

We hand-delivered the coolers containing groundwater samples to the SGS Fairbanks receiving facility on September 5, 2023, and SGS shipped the samples to their Anchorage laboratory. We shipped air samples to the Eurofins laboratory in Folsom, California on September 5, 2023. The laboratories then performed analyses by methods specified on the chain-of custody records. The coolers with water samples contained a temperature blank to measure whether samples were kept appropriately cold. SGS personnel measured the temperature blanks at the time that the samples arrived at their facilities; the temperature blanks were within the proper temperature range. Air sample canisters are stored at room temperature and do not require a temperature blank. Additionally, laboratory-provided trip blanks for volatile analysis accompanied the SGS coolers and remained with the coolers until receipt at the laboratory.

6.2 Analytical Sensitivity

We compared groundwater limits of detection (LODs) and soil-gas sample reporting limits (RLs) to the DEC regulatory levels. Groundwater LODs were less than DEC-established cleanup levels (where applicable) except for several VOC analytes. These results are presented in the analytical tables as "<bold". Soil-gas RLs were less than DEC target levels.

We submitted a trip blank with our groundwater samples to determine if cross-contamination among samples or contamination from an outside source may have occurred during shipment or storage. There were no analytes detected in the trip blank.

The laboratory runs a method blank with each sample batch to detect analyte carryover during analysis. Project analytes were not detected above the LOD or RL in the method blanks, with the exception of carbon tetrachloride in the groundwater sample batch. Carbon tetrachloride was not detected in any of the project samples; therefore, results are considered unaffected.

6.3 Accuracy

The laboratory assesses the accuracy of its analytical procedures by analyzing laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) samples. LCS/LCSD analysis allows the laboratory to evaluate their ability to recover analytes added to clean aqueous matrices. LCS/LCSD samples were reported for soil-gas and groundwater VOC analysis. Laboratory accuracy was also measured for each sample by assessing the recovery of analyte surrogates added to individual project samples.

The LCS/LCSD and surrogate recoveries were within laboratory control limits in all work orders.

6.4 Precision

We submitted field duplicate samples with each work order. To evaluate data precision and reproducibility of our sampling techniques, we calculated the relative percent difference (RPD) between the primary sample and its duplicate. We can only evaluate RPDs if the results of the analysis for both the sample and its duplicate are greater than the LOD for a given analyte. The field-duplicate RPDs were within the project-specified data quality objective of 30 percent for groundwater and soil-gas samples.

We also evaluated laboratory analytical precision using RPD calculations. The LCS/LCSDs provide information regarding the reproducibility of laboratory procedures and are therefore a measure of the laboratory's analytical precision. The RPD results for the LCS/LCSDs were within acceptable laboratory QC limits, with the exception of 1,2,3-trichlorobenzene and naphthalene in the LCS/LCSD associated with project sample SFM23-TWP7A. Consequently, the sample results were considered estimated, with no direction of bias, and flagged 'J*' in the summary table to identify the imprecision.

6.5 Data Quality Summary

By working in accordance with our proposed scope of services, we consider the samples we collected to be representative of site conditions at the locations and times they were obtained. The quality of the analytical data for this project does not appear to have been compromised, and those results affected by QC anomalies were qualified with appropriate flags. For more detail on individual analyte flags, see the LDRCs in Appendix C.

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 D. We initially completed a CSM for our 2021 report and have updated our CSM based on the 2023 site characterization data. We now consider occupants of structures downgradient from Shopper's Forum Mall, north from Airport Way to at least Pedro Street, to be potential receptors.

7.1 Potential Exposure Pathways and Receptors

Potential exposure routes include dermal contact with, and incidental ingestion of, contaminated soil and groundwater, as well as inhalation of indoor and outdoor air. Potential receptors include construction workers, commercial and/or industrial workers, site visitors, and businesses and residences within 100 feet of the chlorinated solvent groundwater plume, which includes residences northwest from the Shopper's Forum Mall property as well as some residences to the south on Kennicott Avenue.

7.2 Direct Contact with Soil

Dermal absorption and direct ingestion may be direct-contact exposure pathways for soil. Direct contact with the contaminated subsurface soil at the site is unlikely at present because it is covered by pavement or buildings. However, future excavation at the property could result in dermal contact or ingestion of soil by construction workers. Solvent-contaminated soil has been identified at the north property boundary near Airport Way at 15 feet bgs (S&W 2010) and at the south property boundary near Kennicott Avenue at seven feet bgs. Soil contaminated with petroleum VOCs has been identified adjacent to the Annex west end near a former heating oil tank location. Soil contamination appears to be limited to the Shopper's Forum Mall property and did not extend south from Kennicott Avenue during our 2021 site characterization activities.

7.3 Direct Contact with Groundwater

Direct contact with groundwater is an unlikely exposure pathway because businesses and residences in the area are currently connected to the local water utility, and a search of the Alaska Department of Natural Resources Well Log Tracking System (WELTS) did not reveal nearby downgradient residential wells. However, residential wells that are not recorded in WELTS may still exist in the area. In addition, the groundwater must be considered a future source of drinking water.

7.4 Inhalation

Inhalation of indoor and outdoor air may be potential exposure pathways for the Shopper's Forum Mall property and nearby residences and businesses because PCE and its related compounds can volatilize from the subsurface. An active sub-slab depressurization system is currently operating in the Annex building to mitigate chlorinated solvent vapor intrusion (S&W 2014). The Mall does not have a dedicated system to mitigate vapor intrusion and is within the solvent-contaminated groundwater plume. There are four apartment buildings belonging to Weeks Field Estates on the north side of Airport Way and many residences constructed over the presumed solvent-contaminated groundwater plume identified in our

2023 site characterization. These structures may be at risk for vapor intrusion. In addition, the downgradient boundary of the contaminant plume has not yet been defined and vapor intrusion may present a risk to other downgradient businesses and residences.

8 DISCUSSION

8.1 Vapor Intrusion

TCE was detected in soil gas at concentrations exceeding applicable DEC target levels at three locations on the north side of Airport Way. TCE was not detected in a sample collected on the west Shopper's Forum Mall property boundary (SFM23-SG01) or at the southwest end of Week's Field Estates (SFM23-SG02), though PCE was detected less than the DEC target level at SFM23-SG01. The highest soil-gas results were at SFM23-SG05, directly north from the Shopper's Forum Mall, where PCE was reported at 7,400 micrograms per cubic meter (μg/m^3) and TCE was detected at 410 μg/m^3. For reference, PCE was reported in soil-gas samples collected in 2010 on the north side of the main Shopper's Forum Mall building at concentrations ranging from 120,000 μg/m^3 to 190,000 μg/m^3.

The exterior soil gas exceedances near the Week's Field Estates (Figure 4) indicate that the potential for vapor intrusion may be greatest for the three apartment buildings closest to the soil gas exceedances.

8.2 Groundwater

The groundwater northwest from Shopper's Forum Mall, extending to Kellum Street and Pedro Street, contains TCE above DEC cleanup levels in both the shallow and deep aquifer. This indicates that the edge of chlorinated solvent contamination continues downgradient to the northwest. The greatest TCE concentrations were in MW-2B, at the northwest property corner. At the most downgradient well location, SFM23-TWP4, TCE was detected in the shallow well at 15.9 μg/L, well above the 2.8 μg/L cleanup level. Properties further downgradient from Pedro Street include Denali Elementary School and Growden Fields. The plume boundary to the west on Airport Way has also not yet been delineated. The east boundary of the groundwater plume appears to be defined by the temporary well point SFM23-TWP2, at the eastern edge of the Week's Field Estates property. This is consistent with previously collected groundwater data from the Shopper's Forum Mall property itself.

We do not know what effect, if any, the abnormally warm groundwater caused by the supposed leak in the district heat lines may have had on the solvent concentrations in SFM23-TWP6A/B. TCE concentrations measured in SFM23-TWP6A/B were within the range measured in this general area in 2021 and 2023. The influx of warm water may cause vertical

mixing of the contamination, as the water at 50 feet bgs in SFM23-TWP6B was substantially warmer than typical. The warm groundwater and soil caused by the leak may lead to an increase in vapor intrusion potential for nearby buildings.

PCE exceeds the cleanup level in MW-1A, on the north side of the Mall. PCE did not exceed the DEC cleanup level in other wells sampled. Under the right conditions PCE can degrade to TCE, and this is likely happening in the Shopper's Forum Mall plume. The TCE is the main contaminant of concern for properties off-site from Shopper's Forum Mall.

8.3 Historic Monitoring Well Results

The downgradient, northern property boundary monitoring well MW-1A has exceeded the DEC cleanup level for TCE and PCE since it was installed in 2010. The deeper (50 feet bgs) monitoring well MW-1B was installed adjacent to MW-1A in 2013 and initially exceeded the cleanup level for TCE, though TCE has been less than the cleanup level since 2021.

The downgradient, northwestern monitoring well pair MW-2A/B was installed in 2021. TCE has been detected in both MW-2A and MW-2B at concentrations exceeding the DEC cleanup level in 2021 and 2023.

9 CONCLUSIONS

Chlorinated solvents have been detected in soil, groundwater, soil-gas, and indoor air over the course of multiple site investigations at the Shopper's Forum Mall property since 2010. Our interpretation of information gathered during these investigations leads us to conclude that chlorinated solvents released at the western end of the Annex have contributed to soil contamination in that area and a groundwater-contaminant plume that extends from the Annex to the northwest. This contaminant plume extends off-site to at least Pedro Street, and the actual downgradient extent has not yet been determined. Samples collected in 2023 on the north side of the Shopper's Forum Mall property, on the north side of Airport Way, and in the neighborhood north of Airport Way show TCE contamination to be present in shallow (15 feet bgs) and deep (50 feet bgs) groundwater.

Vapor intrusion represents an exposure pathway for occupants of structures overlying the contaminant plume. Exterior soil-gas exceeded DEC target levels for TCE and PCE at several locations on the north side of Airport Way, suggesting the potential for vapor intrusion exists for the area within the groundwater contaminant plume including Week's Field Estates and the neighborhood downgradient.

9.1 Data Gaps

9.1.1 Groundwater

The boundaries of the groundwater contaminant plume are known along the south side of the Shopper's Forum Mall property (upgradient) and on the east side of the property. The west and north (downgradient) extent of the plume has not yet been defined. Additional investigation is needed to determine the downgradient extent of groundwater contamination.

9.1.2 Vapor Intrusion

DEC guidance requires evaluation of the vapor intrusion pathway when volatile and toxic compounds are suspected to be present near an occupied building or where a building could be built in the future. The vapor intrusion pathway should be considered complete if non-petroleum contamination is found within 100 feet of a building or potential location for a building. As stated in our previous *Shopper's Forum Mall 2021 Site Characterization Report*, the Annex, Mall building, apartments, and many residences north of Airport Way are within 100 feet of the groundwater contaminant plume and additional investigation is needed to assess the vapor intrusion pathway for structures in these areas.

The Annex has been the subject of a vapor intrusion assessment and active mitigation measures are in place to control the vapor intrusion pathway. The Mall has been subject to several discrete air sampling events, including indoor air, sub-slab, soil-gas, and crawlspace air. Results of these sampling events suggest vapor intrusion into the Mall building is a complete exposure pathway but that the current risk to occupants is low since PCE detected in indoor air within the Mall main floor has been less than the DEC commercial target level.

To our knowledge, the Weeks Field Estates have not yet been the subject of a vapor intrusion investigation. The City of Fairbanks has records for the Weeks Field Estates that suggest two of the apartment buildings may have been constructed with "vapor pit" systems to mitigate vapor intrusion into the buildings. It is unknown if the vapor pits were actually constructed. DEC has acknowledged that vapor intrusion mitigation was not required by DEC at the time the Weeks Field Estates and the adjacent Raven Landing were developed.

10 RECOMMENDATIONS

Based on the information presented in this report, we offer the following recommendations:

- Install and sample groundwater monitoring points to determine the plume's downgradient extent. This could include TWPs or monitoring wells to the west of SFM23-TWP1 and SFM23-TWP3, along Lathrop Street northwest from SFM23-TWP4, or further downgradient.
- Conduct a vapor intrusion assessment for the three apartment buildings at Week's Field Estates closest to the soil-gas DEC target level exceedances identified during 2023 site characterization activities.
- Provide a copy of this report to DEC to fulfill the requirements of 18 AAC 75.355(c).

11 REFERENCES

Alaska Department of Environmental Conservation, February 2023, 18 AAC 75 *Oil and Other Hazardous Substances Pollution Control*, available online at https://dec.alaska.gov/spar/regulations.

Alaska Department of Environmental Conservation, November 2017, *Vapor Intrusion Guidance for Contaminated Sites*, available online at https://dec.alaska.gov/media/12131/2017-vi-guidance-final-without-appendix-i.pdf

Shannon & Wilson, Inc., February 2022, *Shopper's Forum Mall 2021 Site Characterization Report*.

Shannon & Wilson, Inc., April 2023, *Shopper's Forum Mall Final 2023 Site Characterization Work Plan Addendum*.

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

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater Sample Results

Analytical Method	Analyte	DEC Regulatory Limit	Units	Sample ID:	*MW-1A*	*MW-1B*	*MW-2A*	*MW-2C*	*MW-2B*	*SFM23-TWP1A*	*SFM23-TWP1B*	*SFM23-TWP2A*	*SFM23-TWP2B*	*SFM23-TWP2C*
				Sample Depth (ft bgs):	17	50	20	20	48	19	54	23	49	49
							Primary	Field Duplicate					Primary	Field Duplicate
SW8260D (VOCs)	1,1,1,2-Tetrachloroethane	5.7	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	1,1,1-Trichloroethane	8,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,1,2,2-Tetrachloroethane	0.76	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	1,1,2-Trichloroethane	0.41	µg/L		<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400 J*	<0.400	<0.400	<0.400
	1,1-Dichloroethane	28	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,1-Dichloroethene	280	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,1-Dichloropropene	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,2,3-Trichlorobenzene	7	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,2,3-Trichloropropane	0.0075	µg/L		**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00 J***	**<1.00**	**<1.00**	**<1.00**
	1,2,4-Trichlorobenzene	4	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,2,4-Trimethylbenzene	56	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,2-Dibromo-3-chloropropane	N/A	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	1,2-Dibromoethane	0.075	µg/L		**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750 J***	**<0.0750**	**<0.0750**	**<0.0750**
	1,2-Dichlorobenzene	300	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,2-Dichloroethane	1.7	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	1,2-Dichloropropane	8.2	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,3,5-Trimethylbenzene	60	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,3-Dichlorobenzene	300	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	1,3-Dichloropropane	N/A	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	1,4-Dichlorobenzene	4.8	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	2,2-Dichloropropane	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	2-Butanone (MEK)	5,600	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	2-Chlorotoluene	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	2-Hexanone	38	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	4-Chlorotoluene	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Benzene	4.6	µg/L		<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400 J*	<0.400	<0.400	<0.400
	Bromobenzene	62	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Bromochloromethane	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Bromodichloromethane	1.3	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	Bromoform	33	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater San

			Sample ID:	SFM23-TWP3A	SFM23-TWP3B	SFM23-TWP4A	SFM23-TWP4B	SFM23-TWP5A	SFM23-TWP5B	SFM23-TWP6A	SFM23-TWP6B	SFM23-TWP7A	SFM23-TWP7B
			Sample Depth (ft bgs):	19	54	22	55	24	50	20	51	19	51
Analytical Method	Analyte	DEC Regulatory Limit	Units										
SW8260D (VOCs)	1,1,1,2-Tetrachloroethane	5.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1,1-Trichloroethane	8,000	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,1,2,2-Tetrachloroethane	0.76	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,1,2-Trichloroethane	0.41	µg/L	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
	1,1-Dichloroethane	28	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,1-Dichloroethene	280	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,1-Dichloropropene	N/A	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,2,3-Trichlorobenzene	7	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00
	1,2,3-Trichloropropane	0.0075	µg/L	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**	**<1.00**
	1,2,4-Trichlorobenzene	4	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,2,4-Trimethylbenzene	56	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,2-Dibromo-3-chloropropane	N/A	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	1,2-Dibromoethane	0.075	µg/L	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**	**<0.0750**
	1,2-Dichlorobenzene	300	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,2-Dichloroethane	1.7	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,2-Dichloropropane	8.2	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,3,5-Trimethylbenzene	60	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,3-Dichlorobenzene	300	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	1,3-Dichloropropane	N/A	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1,4-Dichlorobenzene	4.8	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	2,2-Dichloropropane	N/A	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	2-Butanone (MEK)	5,600	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	2-Chlorotoluene	N/A	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	2-Hexanone	38	µg/L	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	4-Chlorotoluene	N/A	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Benzene	4.6	µg/L	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400	<0.400
	Bromobenzene	62	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Bromochloromethane	N/A	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Bromodichloromethane	1.3	µg/L	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Bromoform	33	µg/L	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater Sample Results

Analytical Method	Analyte	DEC Regulatory Limit	Units	Sample ID:	*MW-1A*	*MW-1B*	*MW-2A*	*MW-2C*	*MW-2B*	*SFM23-TWP1A*	*SFM23-TWP1B*	*SFM23-TWP2A*	*SFM23-TWP2B*	*SFM23-TWP2C*
				Sample Depth (ft bgs):	17	50	20	20	48	19	54	23	49	49
							Primary	Field Duplicate					Primary	Field Duplicate
SW8260D (VOCs)	Bromomethane	7.5	µg/L		<6.00	<6.00	<6.00	<6.00	<6.00	<6.00	<6.00 J*	<6.00	<6.00	<6.00
	Carbon disulfide	810	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Carbon tetrachloride	4.6	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Chlorobenzene	78	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	Chloroethane	21,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Chloroform	2.2	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Chloromethane	190	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	1.18 JH*	<1.00
	cis-1,2-Dichloroethene	36	µg/L		8.15	<1.00	2.04	2.13	19.5	5.31	1.33 JL*	<1.00	<1.00	<1.00
	cis-1,3-Dichloropropene	4.7	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	Dibromochloromethane	8.7	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500 J*	<0.500	<0.500	<0.500
	Dibromomethane	8.3	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Dichlorodifluoromethane (Freon 12)	200	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Ethylbenzene	15	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Hexachlorobutadiene	1.4	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Isopropylbenzene	450	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	m,p-xylenes	190	µg/L		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00 J*	<2.00	<2.00	<2.00
	Methyl isobutyl ketone	6,300	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Methylene chloride	110	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Methyl-t-butyl ether (MTBE)	140	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Naphthalene	1.7	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	n-Butylbenzene	1,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	n-Propylbenzene	660	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	o-Xylene	190	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	p-Isopropyltoluene	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	sec-Butylbenzene	2,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Styrene	1,200	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	tert-Butylbenzene	690	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Tetrachloroethene	41	µg/L		147	4.31	1.80	1.82	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Toluene	1100	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Total Xylenes	190	µg/L		<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00 J*	<3.00	<3.00	<3.00

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater San

Analytical Method	Analyte	DEC Regulatory Limit	Units	Sample ID:	SFM23-TWP3A	SFM23-TWP3B	SFM23-TWP4A	SFM23-TWP4B	SFM23-TWP5A	SFM23-TWP5B	SFM23-TWP6A	SFM23-TWP6B	SFM23-TWP7A	SFM23-TWP7B
				Sample Depth (ft bgs):	19	54	22	55	24	50	20	51	19	51
SW8260D (VOCs)	Bromomethane	7.5	µg/L		<6.00	<6.00	<6.00	<6.00	<6.00	<6.00	<6.00	<6.00	<6.00	<6.00
	Carbon disulfide	810	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Carbon tetrachloride	4.6	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Chlorobenzene	78	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Chloroethane	21,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Chloroform	2.2	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Chloromethane	190	µg/L		1.00 JH*	1.31 JH*	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	cis-1,2-Dichloroethene	36	µg/L		3.99	1.70	5.29	3.40	<1.00	<1.00	15.7	15.4	3.11	<1.00
	cis-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
	Dibromochloromethane	8.7	µg/L		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	Dibromomethane	8.3	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Dichlorodifluoromethane (Freon 12)	200	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Ethylbenzene	15	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Hexachlorobutadiene	1.4	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Isopropylbenzene	450	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	m,p-xylenes	190	µg/L		<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00	<2.00
	Methyl isobutyl ketone	6,300	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Methylene chloride	110	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Methyl-t-butyl ether (MTBE)	140	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Naphthalene	1.7	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00
	n-Butylbenzene	1,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	n-Propylbenzene	660	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	o-Xylene	190	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	p-Isopropyltoluene	N/A	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	sec-Butylbenzene	2,000	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Styrene	1,200	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	tert-Butylbenzene	690	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Tetrachloroethene	41	µg/L		1.03	<1.00	1.12	1.03	<1.00	<1.00	1.08	<1.00	1.19	1.18
	Toluene	1100	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Total Xylenes	190	µg/L		<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater Sample Results

Analytical Method	Analyte	DEC Regulatory Limit	Units	Sample ID:	*MW-1A*	*MW-1B*	*MW-2A*	*MW-2C*	*MW-2B*	*SFM23-TWP1A*	*SFM23-TWP1B*	*SFM23-TWP2A*	*SFM23-TWP2B*	*SFM23-TWP2C*
				Sample Depth (ft bgs):	17	50	20	20	48	19	54	23	49	49
							Primary	Field Duplicate					Primary	Field Duplicate
SW8260D (VOCs)	trans-1,2-Dichloroethene	360	µg/L		7.89	<1.00	1.33	1.36	11.0	1.22	<1.00 J*	<1.00	<1.00	<1.00
	trans-1,3-Dichloropropene	4.7	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Trichloroethene	2.8	µg/L		**18.0**	1.15	**3.54**	**3.74**	**53.9**	**13.4**	**4.74 JL***	<0.500	<0.500	<0.500
	Trichlorofluoromethane (Freon 11)	5,200	µg/L		<1.00	<1.00	1.71	1.73	<1.00	<1.00	<1.00 J*	<1.00	<1.00	<1.00
	Trichlorotrifluoroethane (Freon 113)	10,000	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Vinyl acetate	410	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0 J*	<10.0	<10.0	<10.0
	Vinyl chloride	0.19	µg/L		<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150 J*	<0.150	<0.150	<0.150

Table 1 — August/September 2023 Shopper's Forum Mall Groundwater San

				Sample ID:	*SFM23-TWP3A*	*SFM23-TWP3B*	*SFM23-TWP4A*	*SFM23-TWP4B*	*SFM23-TWP5A*	*SFM23-TWP5B*	*SFM23-TWP6A*	*SFM23-TWP6B*	*SFM23-TWP7A*	*SFM23-TWP7B*
				Sample Depth (ft bgs):	19	54	22	55	24	50	20	51	19	51
Analytical Method	**Analyte**	**DEC Regulatory Limit**	**Units**											
SW8260D (VOCs)	trans-1,2-Dichloroethene	360	µg/L		<1.00	<1.00	6.59	5.92	<1.00	<1.00	29.3	27.4	8.74	<1.00
	trans-1,3-Dichloropropene	4.7	µg/L		<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Trichloroethene	2.8	µg/L		**6.67**	**4.68**	**15.9**	**7.00**	<0.500	1.37	**14.0**	**13.8**	**4.41**	2.19
	Trichlorofluoromethane (Freon 11)	5,200	µg/L		<1.00	<1.00	2.32	1.41	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
	Trichlorotrifluoroethane (Freon 113)	10,000	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Vinyl acetate	410	µg/L		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
	Vinyl chloride	0.19	µg/L		<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150	<0.150

Table 1— August/September 2023 Shopper's Forum Mall Groundwater Sample Results

Notes:	Results reported from SGS North America, Inc. work order 1234779.
	Regulatory limits from 18 AAC 75.345 Groundwater Cleanup Levels.
<	Analyte not detected; listed as less than the limit of detection (LOD) unless otherwise flagged due to quality-control failures.
<Bold	The laboratory's LOD exceeds the regulatory limit.
Bold	The detected concentration exceeds the regulatory limit for the associated analyte.
J*	Estimated concentration due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
JH*	Estimated concentration, biased high due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
JL*	Estimated concentration, biased low due to quality control failures. Flag applied by Shannon & Wilson, Inc. (*)
	DEC = Alaska Department of Conservation; ft bgs = feet below ground surface; N/A = no applicable regulatory limit exists for the associated analyte.; µg/L = micrograms per liter; VOC = volatile organic compounds

Table 2 — August/September 2023 Shopper's Forum Mall Soil-Gas Results

Analytical Method	Analyte	Residential Target Levels	Commercial Target Levels	Sample ID: Units	*SFM23-SG01* †	*SFM23-SG02*	*SFM23-SG03*	*SFM23-SG04*	*SFM23-SG05* Primary	*SFM23-SG15* Field Duplicate
TO-15 (VOC)	1,1-Dichloroethene	2,100	8,800	µg/m^3	<26.0	<4.20	<4.00	<4.00	<23.0	<23.0
	cis-1,2-Dichloroethene (cis-1,2-DCE)	N/A	N/A	µg/m^3	<26.0	<4.20	65.0	9.90	<23.0	<23.0
	Tetrachloroethene (PCE)	410	1,800	µg/m^3	500	<7.10	100	**710**	**7,300**	**7,400**
	trans-1,2-Dichloroethene (trans-1,2-DCE)	N/A	N/A	µg/m^3	<26.0	<4.20	33.0	18.0	<23.0	29.0
	Trichloroethene (TCE)	20	84	µg/m^3	<35.0	<5.60	**380**	**250**	**410**	**410**
	Vinyl chloride	17	280	µg/m^3	<17.0	<2.70	<2.60	<2.60	<15.0	<15.0

Notes:

Results reported from Eurofins Air Toxics work order 2309083.

Regulatory limits from DEC's November 2017 *Vapor Intrusion Guidance* , Appendix E: Commercial and Residential Soil Gas target levels.

† Sample compared with commercial soil-gas target levels.

< Analyte not detected; listed as less than the reporting limit unless otherwise flagged due to quality-control failures.

Bold The detected concentration exceeds the applicable target level.

DEC = Alaska Department of Conservation; N/A = no applicable target level exists for the associated analyte.; µg/m³ = micrograms per cubic meter; VOC = volatile organic compound

Table 3 — 2021-2023 Shopper's Forum Mall Historic Monitoring Well Results

				Sample ID:	*MW-1A*		*MW-1B*		*MW-2A*		*MW-2B*	
				Sample Depth (ft bgs):	17	17	50	50	20	20	48	48
				Sample Year	2021	2023	2021	2023	2021	2023	2021	2023
Analytical Method	**Analyte**	**Regulatory Limit**	**Units**									
SW8260D (VOCs)	Chloroform	2.2	µg/L		<1.00	<1.00	<1.00	<1.00	**4.64**	<1.00	<1.00	<1.00
	cis-1,2-Dichloroethene (cis-1,2-DCE)	36	µg/L		7.36	8.15	<1.00	<1.00	35.9	2.13	25.8	19.5
	Tetrachloroethene (PCE)	41	µg/L		**89.6**	**147**	2.93	4.31	1.46	1.82	<1.00	<1.00
	trans-1,2-Dichloroethene (trans-1,2-DCE)	360	µg/L		9.75	7.89	<1.00	<1.00	17.7	1.36	11.8	11.0
	Trichloroethene (TCE)	2.8	µg/L		**25.5**	**18.0**	1.57	1.15	**47.9**	**3.74**	**93.9**	**53.9**
	Trichlorofluoromethane (Freon 11)	5,200	µg/L		<1.00	<1.00	<1.00	<1.00	4.41	1.73	<1.00	<1.00

Notes:
Regulatory limits from 18 AAC 75.345 Groundwater Cleanup Levels.
Only the highest result from each duplicate pair is reported.
< Analyte not detected; listed as less than the limit of detection unless otherwise flagged due to quality-control failures.
Bold The detected concentration exceeds the regulatory limit for the associated analyte.
DEC = Alaska Department of Conservation; ft bgs = feet below ground surface; µg/L = micrograms per liter; VOC = volatile organic compound

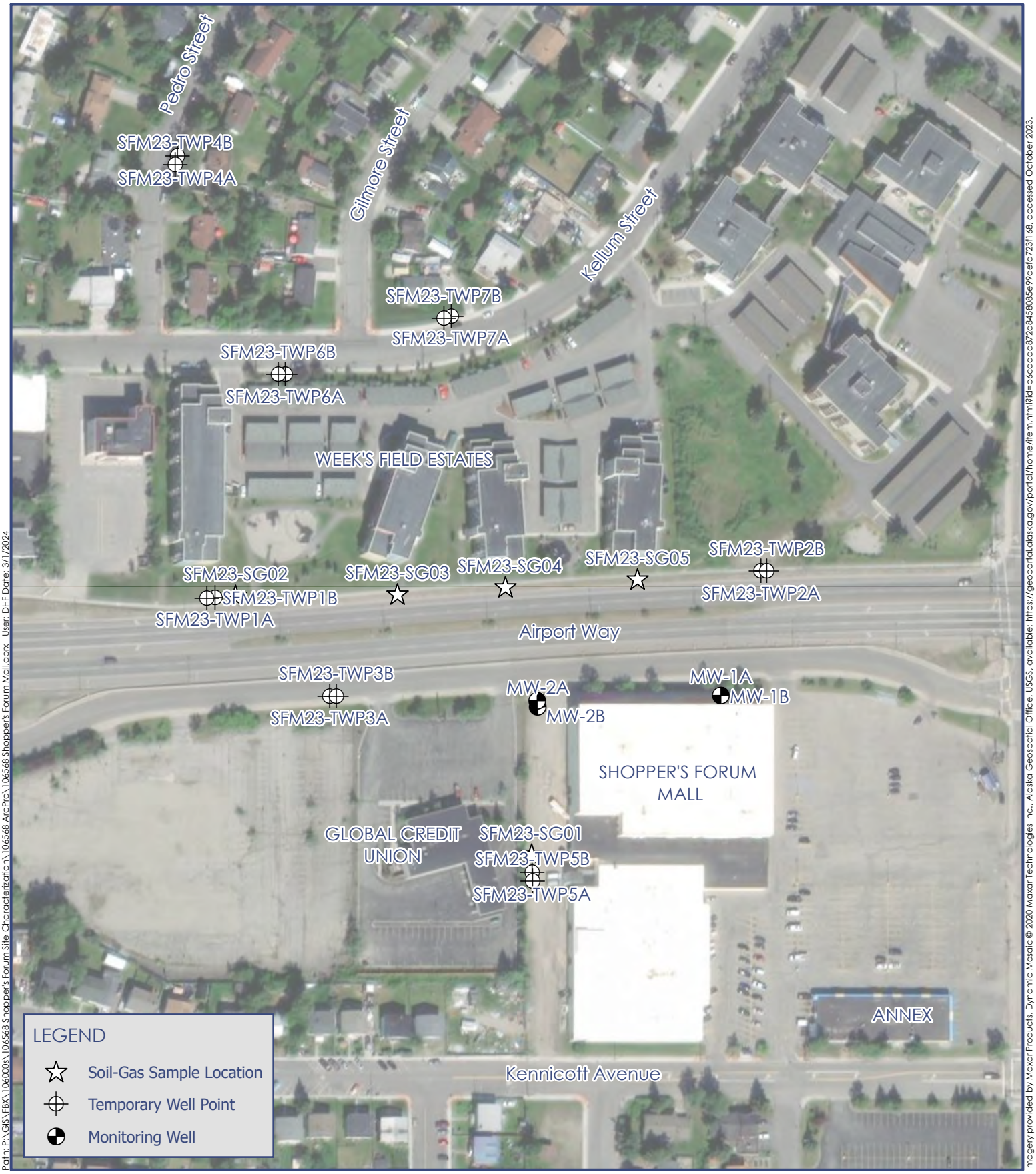
Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=bbcdada87a845808e99defa723f168, accessed October 2023.

March 2024

VICINITY MAP

Figure 1



N
0 500
Feet

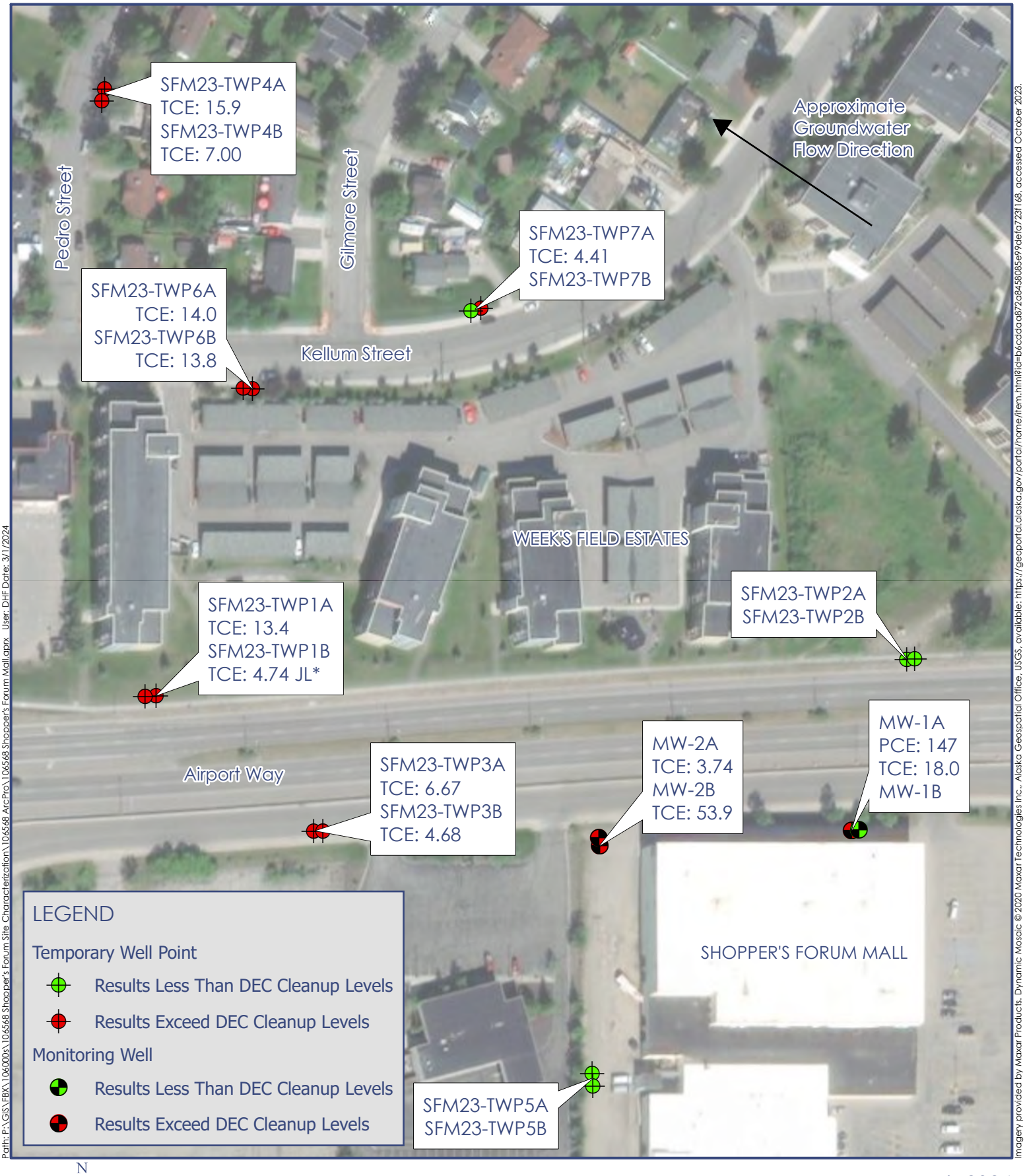
March 2024

SITE MAP AND 2023 SAMPLE LOCATIONS

Figure 2

Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products, Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=b6cddaa872a8458085e99de1a7231168, accessed October 2023.



Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=b6cdda8872c8458085e99defa723f168, accessed October 2023.

N
0 250
Feet

Notes:
1. Results compared with DEC Groundwater Cleanup Levels.
2. Only the maximum result for each duplicate pair is reported.
3. Results reported in micrograms per liter (ug/L).

March 2024

GROUNDWATER RESULTS EXCEEDANCES

Figure 3

Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=b6cdda6872c8458085e99defa723f168, accessed October 2023.

N
0 100
Feet

Notes:
1. Results compared with DEC Residential Soil-Gas Target Levels, except for SFM23-SG01 which is compared with Commercial Soil-Gas Target levels.
2. Only the highest result for each duplicate pair is reported.
3. Results reported in micrograms per cubic meter (ug/m3).

March 2024

SOIL GAS SAMPLE EXCEEDANCES

Figure 4

Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=b6cddaa8872d8458085e99defa723f168, accessed October 2023.

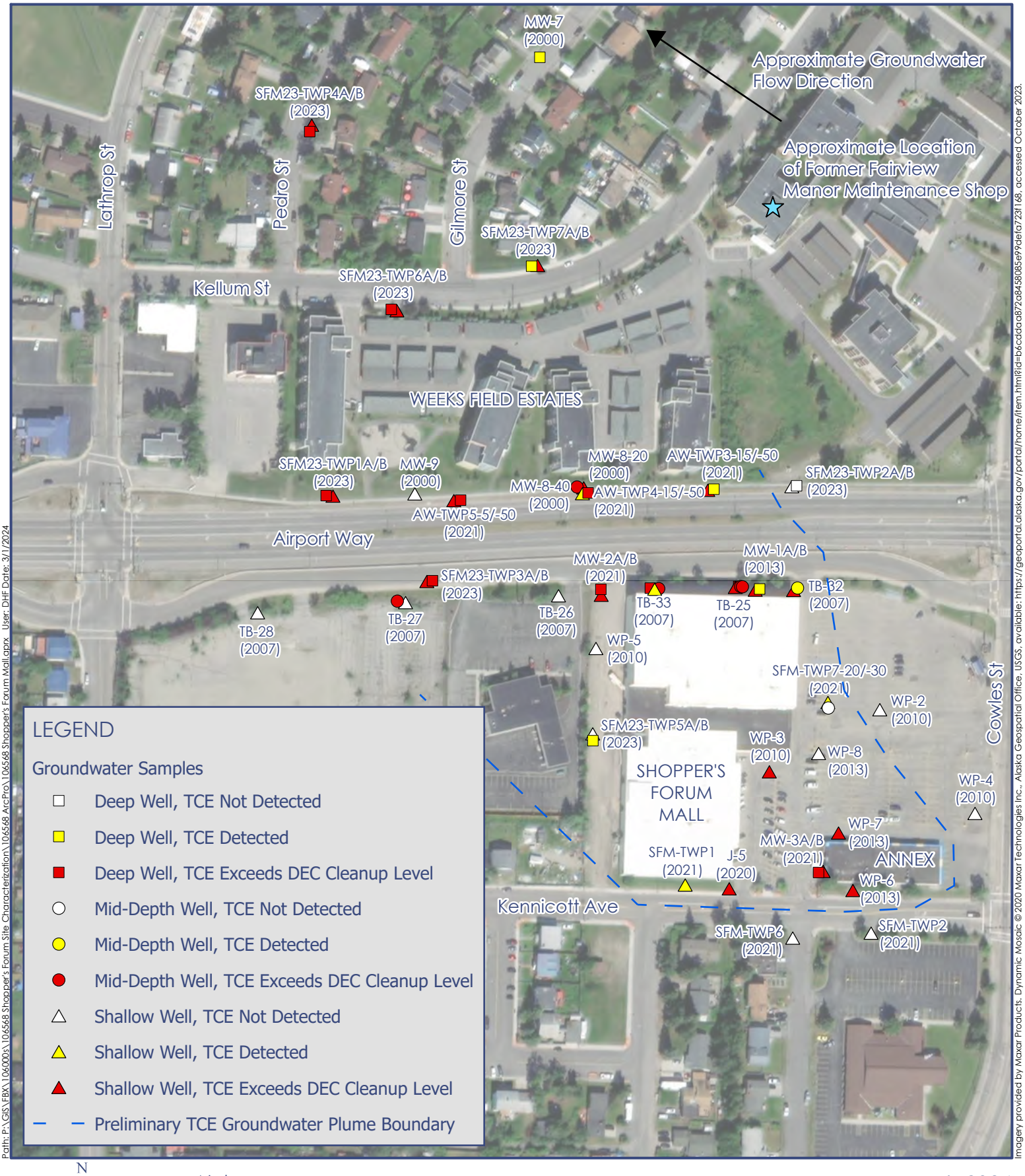
Notes:

1. "Detected" and "Not Detected" are in reference to the laboratory's limit of quantitation.
2. Shallow well depths range from 15 to 24 feet below ground surface, mid-depth well depths range from 28 to 40 feet, and deep wells range from 48 to 60 feet.
3. Results are from monitoring wells and temporary well points.

March 2024

HISTORIC GROUNDWATER RESULTS - PCE

Figure 5



LEGEND

Groundwater Samples

- Deep Well, TCE Not Detected
- Deep Well, TCE Detected
- Deep Well, TCE Exceeds DEC Cleanup Level
- Mid-Depth Well, TCE Not Detected
- Mid-Depth Well, TCE Detected
- Mid-Depth Well, TCE Exceeds DEC Cleanup Level
- Shallow Well, TCE Not Detected
- Shallow Well, TCE Detected
- Shallow Well, TCE Exceeds DEC Cleanup Level
- Preliminary TCE Groundwater Plume Boundary

N

0 250

Feet

Notes:

1. "Detected" and "Not Detected" are in reference to the laboratory's limit of quantitation.
2. Shallow well depths range from 15 to 24 feet below ground surface, mid-depth well depths range from 28 to 40 feet, and deep wells range from 48 to 60 feet.
3. Results are from monitoring wells and temporary well points.

March 2024

HISTORIC GROUNDWATER RESULTS - TCE

Figure 6

Path: P:\GIS\FBX\106000s\106568 Shopper's Forum Site Characterization\106568 ArcPro\106568 Shopper's Forum Mall.aprx User: DHF Date: 3/1/2024

Imagery provided by Maxar Products. Dynamic Mosaic © 2020 Maxar Technologies Inc., Alaska Geospatial Office, USGS, available: https://geoportal.alaska.gov/portal/home/item.html?id=b6cddaa8872c8458085e99defa723f168, accessed October 2023.

APPENDIX A: FIELD FORMS

Appendix A

Field Forms

CONTENTS

SHANNON & WILSON

FIELD ACTIVITIES DAILY LOG

Date 8/29/23

Sheet 1 of 1

Project No. 106568-005

Project Name: Shoppers Forum Mall

Field Activity Subject: Temporary Well Point installation / sampling

Calibration: YSI C

Safety: Traffic; sound; heavy equipment; slips, trips, falls.

Description of daily activities and events:

7:30 arrived at office

7:40 Calibrated YSI; meter

8:20 picked up TCP from Arctic Fire + Safety

9:00 Arrived at site; prepared for TCP

9:30 set up TCP

10:00 started ~~drilling~~ driving 50' TWP. ~~XX~~ on Lathrop side of site; finished and drove the shallow one to 20' due to GW levels

11:15 started sampling 50' TWP; ~~finished~~ ~~SF~~

12:30 finished 50', started 20' well.

13:15 finished 20' well

RLW installing soil gas ports. JKR moved vehicle, dumped purge water in labeled 55-gal drum behind SFM.

14:00 picked up ~~remaining~~ unused TCP and dropped off at the office shop.

15:00 started ~~sampling~~ driving 2nd 20' well.

15:34 started sampling 2nd 20' well while GeoTek pulled out rods and decon'ed.

15:15 finished sampling; waiting for decon to wrap up

17:08 started driving 50' well.

17:32 started sampling 50' well.

16:48 finished; loaded up

19:00 left site; back to office after picking up TCP

19:30 Arrived at office; unloaded

19:45 end of day

Visitors on site: None

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

None

Weather conditions: partly cloudy, 60's

Important telephone calls: None

Personnel on site: JKR, RLW

QC: DHF

Signature: Justin Ruby Date: 8/29/23

Rev. 3/14/23

SHANNON & WILSON

FIELD ACTIVITIES DAILY LOG

Date 8/30/23

Sheet 1 of 1

Project No. 166568-006

Project Name: Shoreline Forum Mall

Field Activity Subject: TWP sampling

Calibration: YSI C

Safety: heavy equipment

Description of daily activities and events:

7:50 arrived at office; calibrated YSI; loaded samples and TCP.

8:30 headed to site; setup TCP; verified utilities. Tailgate meeting

9:40 Started driving TWP3 pair.

1025 finished driving TWP3 pair.

1027 started sampling TWP3 pair

1145 finished sampling

SFC set up TCP on Pedro street to prep for TWP4 pair

GeoTek filled holes with bentonite chips, pea gravel, and cold pack

1240 started setting up on TWP4 pair.

Will drive the 20' TWP, decon while sampling, and then drive 50' TWP.

1335 finished driving TWP4 pair; we had enough tubing for both

1340 started sampling TWP4 pair

1520 finished sampling; packed up; called SFC to pickup TCP headed to SFM.

1620 started driving TWP5 pair

1705 finished driving TWP5 pair; started sampling.

TWP5A was off by 5'; however, almost 3.5' of water was in the well.

1805 tried to sample TWP5A, but too shallow; not enough water for proper flow. Re-drove well to ~20' and sampled

1915 finished; headed back to office

1945 End of day

Visitors on site: None

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

None

Weather conditions: cloudy/rain, 50's

Important telephone calls:

Personnel on site: JKR, RLW, ALF, SFC

QC: DHF

Signature: Justin Risley Date: 8/30/23

Rev. 3/14/23

SHANNON & WILSON

FIELD ACTIVITIES DAILY LOG

Date 8/31/23

Sheet 1 of 2

Project No. 106568-006

Project Name: Shoppers Forum Mall

Field Activity Subject: TWP sampling

Calibration: YSI C

Safety: heavy equipment; slips, trips, falls

Description of daily activities and events:

7:50 Arrived at office; calibrated YSI; packed

8:15 Headed to site with SFC to setup TCP

9:00 Finished TCP; started driving TWP6 pair

9:40 Finished driving TWP6 pair. Started sampling. TWP6B had strangely warm water (~15°C); sampled anyway.

1408 TWP6A had very warm water (~27°C); called TX6. CBD and TX6 conferred and will get a hold of Aurora Energy, who might have a steam line here. Waiting for Aurora staff to proceed and to remove wells.

11:40 Aurora arrived. They said we didn't hit anything as the temperatures were too low for that and there were no pressure losses noticed at their facility. They said we were good to pull the casing out. They have a leak somewhere in this area, so we may have found it. Peter, with Aurora, will be sending Paul out to do utility locates.

1250 Paul with Aurora showed up, but didn't have a locate, just a map. He's gonna grab one. We'll pull up rods when he gets back. Paul confirmed that we didn't hit anything, and we should be paid for the lost location

1305 Paul and RLW ~~stop~~ arrived. Paul marked the line, which corresponds to the pre-marked water main ~8' south of our TWP5. Called SFC to ~~pro~~ prep TCP. started pulling out rods

1330 moving to TWP7 pair location; setting up TCP; dumping purge water at SFM

1420 start driving TWP7 pair; finished at 1455; started sampling

Visitors on site: Aurora Energy

Changes from plans/specifications and other special orders and important decisions:
Samples were still taken from ~~chemically~~ extrinsically warmed water.

Weather conditions: cloudy/rain, 50's

Important telephone calls: TX6

Personnel on site: JKR, SFC, RLW

QC: DHF

Signature: Justin Ripley Date: 8/31/23

SHANNON & WILSON

FIELD ACTIVITIES DAILY LOG

Date 8/31/23

Sheet 2 of 2

Project No. 106568-006

Project Name:

Field Activity Subject: SEE PAGE 1

Calibration:

Safety:

Description of daily activities and events:

1640 Finished sampling and pulled rods.
1650 SFC arrived to help take down TCP; dumped purge water at SFM
1715 Finished TCP pickup and headed back to office.
1725 Arrived at office and unloaded equipment; prepped to drop off TCP tomorrow morning.
1750 End of day

Visitors on site:

Changes from plans/specifications and other special orders and important decisions: SEE PAGE 1

Weather conditions:

Important telephone calls:

Personnel on site:

QC: DHF

Signature: Justin Ruby Date: 8/31/23

SHANNON & WILSON

FIELD ACTIVITIES DAILY LOG

Date 9/4/24

Sheet 1 of 1

Project No. 106568-006

Project Name: Shoppers Forum Mall

Field Activity Subject: MW sampling

Calibration: YSI C

Safety: slips, trips, falls

Description of daily activities and events:

11:15 arrived at office
11:30 Calibrated YSI; packed
12:15 left office
1225 started MW-2 A/B cluster
1415 finished MW-2 A/B cluster; took duplicate on MW-2A (MW-2C); dumped purge water in drum.
1425 Started MW-1 A/B cluster
1600 finished MW-1 A/B cluster; took EB-1A @ 1355
Dumped purge water in drum; sealed drum; headed back to office
1615 Arrived at office; unloaded
1700 End of day

Visitors on site: None

Changes from plans/specifications and other special orders and important decisions:
None

Weather conditions: rain, 40's

Important telephone calls: None

Personnel on site: JKR

QC: DHF

Signature: Justo Riley

Date: 9/4/23

Rev. 3/14/23

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client City of Fairbanks
Location West end of Weeks Field Estates
Sampling Personnel JKR
Weather Conditions partly cloudy Air Temp. (°F) 60's

Project No. 106568-004
Date 8/29/23
Well SFM23-TWP1A
Time started 1231
Time completed 1315

Sample No. SFM23-TWP1A Time 1253
Duplicate — Time —
Equipment Blank — Time —

Pump Peri
Purging Method portable
Pumping Start 1237
Purge Rate (gal./min.) ~~~0.25~~ ~0.2
Pumping End 1253

Diameter and Type of Casing 1¼" steel
Approximate Total Depth of Well Below MP (ft.) 20
Measured Total Depth of Well Below MP (ft.) 19.09
Depth to Water Below MP (ft.) 13.80
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 5.29
Gallons per foot 0.08
Gallons in Well 0.42
3 Well-Volumes 1.27
Purge Water Volume (gal.) ~~6~~

Pump/Tubing Set Depth Below MP (ft.) 17
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 20
Silicone Tubing (ft.) 0.5

Purge Water Disposal 55 Gal Drums

Monument Condition N/A

Casing Condition good

Locate *Survey / (GPS) / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.) 0.81
Monument to ground surface (ft.) —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP1A

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1238	6.0	2.22	444.1	6.25	170.0	cloudy
1241	5.2	0.29	414.8	6.32	162.9	"
1244	5.0	0.15	409.9	6.33	162.2	clear
1247	5.0	0.15	409.0	6.34	159.6	"
1250	5.0	0.15	411.7	6.35	156.1	"
1253	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x 40mL VOAs	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23 - ~~TWP1AA~~ TWP1A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: CoF
Location: west end of weeks field Estates
Sampling Personnel: JGR
Weather Conditions: partly cloudy Air Temp. (°F): 60's

Project No.: 106568-004
Date: 8/29/23
Well: SFM23-TWP1B
Time started: 1115
Time completed: 1230

Sample No.: SFM23-TWP1B Time: 1215
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1137
Purge Rate (gal./min.): ~~~0.2~~ ~0.2
Pumping End: 1215

Diameter and Type of Casing: 1¼ steel
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 54.19
Depth to Water Below MP (ft.): 14.83
Depth to Ice (if frozen) Below MP (ft.): —

Pump/Tubing Set Depth Below MP (ft.): 52'
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 65'
Silicone Tubing (ft.): 1

Feet of Water in Well: 39.31
Gallons per foot: 0.08
Gallons in Well: 3.14
3 Well-Volumes: 9.43
Purge Water Volume (gal.): ~6

Purge Water Disposal: 55 gal drum

Monument Condition: N/A

Casing Condition: good

Locate: Survey / GPS / Field Maps / Swingties (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 0.72
~~Monument to~~ ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP1B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1138	5.4	5.19	377.9	5.74	266.3	turbid
1141	5.3	0.21	340.5	6.36	216.4	"
1144	5.1	0.14	300.5	6.43	211.3	very cloudy
1147	5.1	0.13	299.1	6.41	209.1	"
1150	5.0	0.13	297.2	6.43	202.5	"
1153	4.9	0.13	297.2	6.45	194.8	cloudy
1156	5.0	0.12	294.7	6.46	188.2	"
1159	4.9	0.12	291.1	6.46	181.1	slightly cloudy
1202	4.9	0.11	290.6	6.47	176.3	"
1205	5.0	0.08	291.2	6.47	170.2	clear
1208	5.0	0.08	288.8	6.47	165.3	"
1211	5.0	0.08	290.4	6.48	160.6	"
1215	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC's	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP2B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: East End of Weeksfield Estates
Sampling Personnel: SKR
Weather Conditions: partly cloudy Air Temp. (°F): 60s

Project No.: 106568-006
Date: 8/22/23
Well: SFM23-TWP2A
Time started: 1534
Time completed: 1615

Sample No.: ~~SMF~~ SFM23-TWP2A Time: 1605
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: peri
Purging Method: portable
Pumping Start: 1542
Purge Rate (gal./min.): ~0.2
Pumping End: 1605

Diameter and Type of Casing: 1¼ steel
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): ~~22.53~~ 22.70
Depth to Water Below MP (ft.): 13.15
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.55
Gallons per foot: 0.08
Gallons in Well: 0.76
3 Well-Volumes: 2.3
Purge Water Volume (gal.): ~4
Purge Water Disposal: 55 Gal Drum

Pump/Tubing Set Depth Below MP (ft.): 20
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 30
Silicone Tubing (ft.): 0.5

Monument Condition: N/A

Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.20
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: PMF

Well No.: SFM23-TWP2A

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1543	5.3	0.43	629	5.45	188.3	turbid
1547	4.4	0.52	595	6.06	174.5	cloudy
1550	4.0	0.17	582	6.15	171.5	"
1553	3.9	0.12	577	6.23	167.7	"
1556	3.6	0.15	572	6.26	164.4	clear
1559	3.7	0.20	573	6.29	162.0	"
1602	3.6	0.24	572	6.31	159.9	"
1605	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOAs	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DUP

Well No.: SFM23-TWP2A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: East end of weeks field estates
Sampling Personnel: JKR
Weather Conditions: partly cloudy Air Temp. (°F): 60s

Project No.: 106568~~4~~006
Date: 8/29/20
Well: SFM23-TWP2B
Time started: 1732
Time completed: 1848

Sample No.: SFM23-TWP2B Time: 1831
Duplicate: SFM23-TWP2C Time: 1821
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1741
Purge Rate (gal./min.): ~0.2
Pumping End: 1851

Diameter and Type of Casing: 1¼" steel
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): ~~49.23~~ 49.27
Depth to Water Below MP (ft.): 17.95
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 31.32
Gallons per foot: 0.08
Gallons in Well: 2.5
3 Well-Volumes: 7.51
Purge Water Volume (gal.): ~4
Purge Water Disposal: 55 Gal drum

Pump/Tubing Set Depth Below MP (ft.): 47
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 50
Silicone Tubing (ft.): 05

Monument Condition: N/A
Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.65
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP2B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1743	5.1	0.05	310.4	6.67	104.6	Turbid
1746	4.2	0.07	290.8	6.59	102.0	
1749	4.0	0.07	287.5	6.61	101.7	
1752	3.8	0.07	283.4	6.62	99.7	
1755	3.6	0.06	281.9	6.62	98.3	
1758	3.6	0.06	283.5	6.62	97.0	
1801	3.4	0.06	283.4	6.62	95.9	cloudy
1804	3.3	0.06	283.7	6.62	94.8	
1807	3.3	0.06	281.3	6.62	94.1	
1810	3.4	0.06	283.8	6.62	92.8	
1814	3.3	0.06	281.6	6.62	91.8	
1818	3.2	0.06	282.8	6.61	90.0	
1822	3.2	0.06	283.1	6.60	89.6	
1825	3.2	0.06	282.6	6.60	89.2	
1828	3.2	0.06	282.5	6.59	88.8	clear
1831	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☑	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: _____

Well No.: SFM23 - TWP2B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: West from Shoppers form on Airport Frontage Rd.
Sampling Personnel: SKR
Weather Conditions: cloudy Air Temp. (°F): 50's

Project No.: 106568-006
Date: 8/30/23
Well: SFM23-TWP3A
Time started: 1027
Time completed: 1100

Sample No.: SFM23-TWP3A Time: 1055
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1039
Purge Rate (gal./min.): ~0.2
Pumping End: 1055

Diameter and Type of Casing: 1¼" steel
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 19.44
Depth to Water Below MP (ft.): 10.35
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.09
Gallons per foot: 0.08
Gallons in Well: 0.73
3 Well-Volumes: 2.18
Purge Water Volume (gal.): ~3.5

Pump/Tubing Set Depth Below MP (ft.): 17.5
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 30
Silicone Tubing (ft.): 0.5

Purge Water Disposal: 55 Gal drum

Monument Condition: N/A

Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.92
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP3A

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1040	5.7	0.66	365.8	5.47	150.2	turbid
1043	5.2	0.26	367.2	5.80	148.4	cloudy
1046	5.0	0.15	373.6	5.98	147.8	|
1049	4.9	0.14	372.6	6.07	146.7	|
1052	4.9	0.11	373.4	6.13	145.6	clear ish
1053	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOCs	3x40mL VOAs	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP3A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client City of Fairbanks
Location West from Shoppers Forum on Airport Frontage Rd.
Sampling Personnel SKR
Weather Conditions Rain Air Temp. (°F) 50's

Project No. 106568-006
Date 8/30/23
Well SFM23-TWP3B
Time started 1101
Time completed 1145

Sample No. SFM23-TWP3B Time 1131
Duplicate — Time —
Equipment Blank — Time —

Pump Peri
Purging Method portable
Pumping Start 1106
Purge Rate (gal./min.) ~0.2
Pumping End 1131

Diameter and Type of Casing 1¼" steel
Approximate Total Depth of Well Below MP (ft.) 50
Measured Total Depth of Well Below MP (ft.) ~~54.10~~ 54.17
Depth to Water Below MP (ft.) 20.03
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well ~~33.87~~
Gallons per foot 0.08
Gallons in Well 2.7
3 Well-Volumes 8.12
Purge Water Volume (gal.) ~4
Purge Water Disposal 55 gal drum

Pump/Tubing Set Depth Below MP (ft.) 52
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 70
Silicone Tubing (ft.) 05

Monument Condition N/A

Casing Condition good

Locate *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.) 4.83
Monument to ground surface (ft.) —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP3B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1108	8.2	0.14	361.5	6.67	149.7	turbid
1112	6.4	0.06	311.9	6.90	134.2	"
1115	6.5	0.08	291.5	6.80	131.0	
1119	6.3	0.06	~~297.7~~ 297.7	6.71	129.3	cloudy
1122	6.2	0.06	298.1	6.69	128.3	"
1125	6.2	0.06	296.0	6.68	127.8	"
1128	6.2	0.06	297.7	6.68	127.2	"
1131	Sampled					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOCs	3 x ~~500~~ 40mL VOAs	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP3B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Pedro St.
Sampling Personnel: SKR
Weather Conditions: cloudy / rain Air Temp. (°F): 50's

Project No.: 106568-006
Date: 8/30/23
Well: SFM23-TWP4A
Time started: 1340
Time completed: 1712

Sample No.: SFM23-TWP4A Time: 1406
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1350
Purge Rate (gal./min.): ~0.2
Pumping End: 1406

Diameter and Type of Casing: 1¼"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 22.36
Depth to Water Below MP (ft.): 12.42
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.94
Gallons per foot: 0.08
Gallons in Well: 0.8
3 Well-Volumes: 2.4
Purge Water Volume (gal.): ~3

Pump/Tubing Set Depth Below MP (ft.): 20
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 28
Silicone Tubing (ft.): 0.5

Purge Water Disposal: 55 gal drum

Monument Condition: N/A

Casing Condition: Good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ground (ft.): 2.30
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP4A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Field Parameter Instrument YSI Pro SPC

Circle one: *Parameters stabilized or >3 well volumes purged*

Sample Observations —

Notes —

FIELD PARAMETERS [stabilization criteria]

Time	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1351	5.9	0.23	458.0	6.52	151.5	turbid
1354	5.5	0.15	452.6	6.50	157.6	cloudy
1357	5.5	0.15	450.3	6.51	154.5	|
1300	5.4	0.15	447.7	6.52	159.7	|
1403	5.2	0.10	444.5	6.55	158.9	|
1406	59 mL/L					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOCs	3x40mL VOAs	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP4A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client City of Fairbanks
Location Pedro St.
Sampling Personnel JGR
Weather Conditions cloudy/rain Air Temp. (°F) 30's

Project No. 106568
Date 8/30/23
Well SFM23-TWP4B
Time started 1413
Time completed 1520

Sample No. SFM23-TWP4B Time 1510
Duplicate — Time —
Equipment Blank — Time —

Pump Peri
Purging Method portable
Pumping Start 1420
Purge Rate (gal./min.) ~0.2
Pumping End 1510

Diameter and Type of Casing 1 1/4" steel
Approximate Total Depth of Well Below MP (ft.) 50
Measured Total Depth of Well Below MP (ft.) 54.76
Depth to Water Below MP (ft.) 12.40
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 42.36
Gallons per foot 0.08
Gallons in Well 3.39
3 Well-Volumes 10.17
Purge Water Volume (gal.) ~8

Pump/Tubing Set Depth Below MP (ft.) 54
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 65
Silicone Tubing (ft.) 0.5

Purge Water Disposal 55 gal drum

Monument Condition N/A

Casing Condition good

Locate *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

Measuring Point (MP) *Top of Casing (TOC)*

Monument type: (*Stickup*) / *Flushmount*
Measurement method: *Tape measure*

Top-of-casing to ~~monument~~ ground (ft.) 1.82
Monument to ground surface (ft.) —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP4B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
~~1423~~	~~7.2~~	~~0.43~~	~~474.5~~	~~6.60~~		
1425	6.3	0.10	413.9	6.59	144.1	turbid
1428	5.9	0.07	408.0	6.64	139.7	
1431	6.0	0.07	408.4	6.65	137.0	
1434	6.0	0.07	408.5	6.67	135.3	
1437	6.0	0.07	409.6	6.66	133.9	cloudy
1441	6.0	0.07	407.8	6.66	132.5	
1446	6.0	0.07	406.4	6.67	130.3	
1449	6.0	0.07	407.7	6.66	129.8	
1452	6.0	0.07	410.1	6.67	127.1	
1455	6.0	0.07	408.5	6.70	126.4	
1458	6.0	0.07	407.4	6.69	125.7	
1501	6.0	0.07	405.6	6.69	124.7	
1504	6.0	0.07	404.7	6.68	124.2	
1507	6.0	0.07	406.4	6.68	123.3	
1510	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3 x 40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23 - TMP4B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client City of Fairbanks
Location Between bank + Shoppers Farm, in Alley
Sampling Personnel SKR
Weather Conditions rain Air Temp. (°F) 30's

Project No. 106568-006
Date 8/30/23
Well SFM23-TWP5A
Time started 1835
Time completed 1910

Sample No. SFM23-TWP5A Time 1900
Duplicate — Time —
Equipment Blank — Time —

Pump Peri
Purging Method portable
Pumping Start 1840
Purge Rate (gal./min.) ~0.2
Pumping End 1900

Diameter and Type of Casing 1¼" steel
Approximate Total Depth of Well Below MP (ft.) ~40
Measured Total Depth of Well Below MP (ft.) ~~16.89~~ 24.46
Depth to Water Below MP (ft.) ~~13.47~~ 12.77
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well ~~3.42~~ 11.69
Gallons per foot ~~0.08~~ 0.08
Gallons in Well ~~0.27~~ 0.93
3 Well-Volumes ~~0.82~~ 2.8
Purge Water Volume (gal.) ~3
Purge Water Disposal 55 gal Drum

Pump/Tubing Set Depth Below MP (ft.) 23
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 40
Silicone Tubing (ft.) 1

Monument Condition N/A

Casing Condition Good

Locate *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.) 3.75
Monument to ground surface (ft.) —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP5A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

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

Sample Observations —

Notes —

1803

FIELD PARAMETERS [stabilization criteria]

Time	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1841	10.90	0.10	115.1	6.98	114.8	turbid
1844	7.0	0.08	115.0	7.18	105.9	cloudy
1848	6.7	0.08	112.6	7.21	102.4	|
1852	6.3	0.08	109.2	7.23	97.1	|
1856	6.0	0.08	108.3	7.25	96.4	|
1900	Sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP5A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Between Bank & Shappes farm, in alley
Sampling Personnel: JTR
Weather Conditions: rain Air Temp. (°F): 50's

Project No.: 106568-006
Date: 8/30/23
Well: SFM23-TWP5B
Time started: 1710
Time completed: 1803

Sample No.: SFM23-TWP5B Time: 1802
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1724
Purge Rate (gal./min.): ~0.2
Pumping End: 1802

Diameter and Type of Casing: 1¼" steel
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 49.59
Depth to Water Below MP (ft.): 9.72
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 39.87
Gallons per foot: 0.08
Gallons in Well: 3.19
3 Well-Volumes: 9.57
Purge Water Volume (gal.): ~8

Pump/Tubing Set Depth Below MP (ft.): 47
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 55
Silicone Tubing (ft.): 0.5

Purge Water Disposal: 55 gal drum

Monument Condition: N/A

Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.49
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP5B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1726	6.07	0.06	302.3	5.64	138.9	Turbid
1729	5.8	0.06	294.0	5.93	136.5	/
1732	5.7	0.06	293.0	6.13	134.2	cloudy
1735	5.6	0.06	292.3	6.25	132.8	
1738	5.5	0.06	291.8	6.34	131.6	
1743	5.5	0.06	291.1	6.45	130.0	
1748	5.5	0.06	290.3	6.52	129.1	
1753	5.5	0.06	292.2	6.57	128.9	
1756	5.5	0.06	289.9	6.59	127.5	
1759	5.5	0.06	291.0	6.61	127.1	
1802	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOCs	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWP5B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Kellum St. West
Sampling Personnel: JER
Weather Conditions: cloudy Air Temp. (°F): 40's

Project No.: 106568-006
Date: 8/31/23
Well: SFM23-TWP6A
Time started: 1048
Time completed: 1301

Sample No.: SFM23-TWP6A Time: 1247
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1054
Purge Rate (gal./min.): ~0.2
Pumping End: 1247

Diameter and Type of Casing: 1¼" steel
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 20.32
Depth to Water Below MP (ft.): 11.26
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 9.06
Gallons per foot: 0.08
Gallons in Well: 0.72
3 Well-Volumes: 2.17
Purge Water Volume (gal.): ~3
Purge Water Disposal: 55 gal drum

Pump/Tubing Set Depth Below MP (ft.): 18
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 25
Silicone Tubing (ft.): 0.5

Monument Condition: N/A

Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.31
Monument to ground surface (ft.): —

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

Notes: Stopped sampling briefly during investigation of abnormally high groundwater temps. Turns out Aurora Energy has a suspected leak in their steam line in the area. Aurora marked their utility in our drilling area. No conflict.

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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP6A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

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

Sample Observations —

Notes water is abnormally warm from work in steam line nearby.

FIELD PARAMETERS [stabilization criteria]

Time	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1058	26.8	0.07	714	6.76	94.0	cloudy
1102	26.9	0.07	707	6.68	94.0	
1105	26.9	0.07	704	6.64	95.2	
1108	stopped					
1237	started					
1238	26.4	0.08	714	6.71	66.2	
1241	26.9	0.08	702	6.69	61.0	
1244	26.9	0.08	700	6.65	61.1	
1247	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHE

Well No.: SEM23-TWP64

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Kellum St. West
Sampling Personnel: JKR
Weather Conditions: cloudy Air Temp. (°F): 40's

Project No.: 106568-006
Date: 8/31/23
Well: SFM23-TWP6B
Time started: 1000
Time completed: 1047

Sample No.: SFM23-TWP6B Time: 1041
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Peri
Purging Method: portable
Pumping Start: 1015
Purge Rate (gal./min.): ~0.2
Pumping End: 1041

Diameter and Type of Casing: 1¼" steel
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 51.45
Depth to Water Below MP (ft.): 14.52
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 36.93
Gallons per foot: 0.08
Gallons in Well: 2.95
3 Well-Volumes: 8.86
Purge Water Volume (gal.): ~5

Pump/Tubing Set Depth Below MP (ft.): 49.5
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 65
Silicone Tubing (ft.): 0.5

Purge Water Disposal: 55 gal drum

Monument Condition: N/A
Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to ground monument (ft.): 1.56
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP6B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

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

Sample Observations —

Notes Water temperature is high due to leak from steam line nearby

FIELD PARAMETERS [stabilization criteria]

Time	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1017	17.1	0.26	538	5.51	155.3	cloudy
1020	15.9	0.13	520	6.05	142.8	|
1023	15.7	0.13	516	6.16	139.3	|
1026	15.6	0.09	511	6.26	136.4	|
1029	15.3	0.06	507	6.31	135.0	|
1032	15.1	0.06	504	6.36	133.5	|
1035	15.1	0.06	504	6.38	132.0	|
1038	15.1	0.06	502	6.40	130.9	|
1041	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SSM23-TWP6B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Kellum St. east
Sampling Personnel: JKR
Weather Conditions: cloudy Air Temp. (°F): 50's

Project No.: 106568-006
Date: 8/21/23
Well: SFM23-TWP7A
Time started: 1601
Time completed: 1635

Sample No.: SFM23-TWP7A Time: 1623
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: peri
Purging Method: portable
Pumping Start: 1606
Purge Rate (gal./min.): 1623 ~0.2
Pumping End: 1623

Diameter and Type of Casing: 1¼"
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): ~~18.24~~ 18.56
Depth to Water Below MP (ft.): 11.12
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 7.44
Gallons per foot: 0.08
Gallons in Well: 0.59
3 Well-Volumes: 1.78
Purge Water Volume (gal.): ~3
Purge Water Disposal: 55 gal drum

Pump/Tubing Set Depth Below MP (ft.): 16.5
KuriTec Tubing (ft.): —
TruPoly Tubing (ft.): 20
Silicone Tubing (ft.): 0.5

Monument Condition: N/A

Casing Condition: Good

Locate: *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ~~monument~~ ground (ft.): 1.55
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP7A

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
~~1602~~	~~8.7~~					
1608	7.3	0.07	575	6.60	115.9	turbid
~~1601611~~	6.7	0.07	580	6.50	117.5	cloudy
1614	6.7	0.07	579	6.47	118.2	〃
1617	6.6	0.07	576	6.46	118.1	clear
1620	6.6	0.07	579	6.46	118.0	〃
1623	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: SFM23-TWPZA

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client City of Fairbanks
Location Kellum St east
Sampling Personnel SKR
Weather Conditions cloudy Air Temp. (°F) 50's

Project No. 106568-006
Date 8/31/23
Well SFM23-TWP7B
Time started 1457
Time completed 1601

Sample No. SFM23-TWP7B Time 1600
Duplicate — Time —
Equipment Blank — Time —

Pump Peri
Purging Method portable
Pumping Start 1526
Purge Rate (gal./min.) ~0.2
Pumping End 1600

Diameter and Type of Casing 1¼" steel
Approximate Total Depth of Well Below MP (ft.) 50
Measured Total Depth of Well Below MP (ft.) 51.13
Depth to Water Below MP (ft.) 10.95
Depth to Ice (if frozen) Below MP (ft.) —
Feet of Water in Well 40.18
Gallons per foot 0.08
Gallons in Well 3.21
3 Well-Volumes 9.64
Purge Water Volume (gal.) ~6

Pump/Tubing Set Depth Below MP (ft.) 49
KuriTec Tubing (ft.) —
TruPoly Tubing (ft.) 55
Silicone Tubing (ft.) 0.5

Purge Water Disposal 55 gal drum

Monument Condition N/A

Casing Condition good

Locate *Survey / GPS / Field Maps / Swingties* *(circle one)*
(If locate is not known, take one.)

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

Top-of-casing to ground monument (ft.) 1.82
Monument to ground surface (ft.) —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: SFM23-TWP7B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1527	7.8	0.45	371.4	5.55	124.2	turbid
1530	4.8	0.07	347.5	5.99	120.6	
1533	4.8	0.07	340.3	6.14	119.2	
1537	4.8	0.07	337.8	6.25	117.3	
1541	4.5	0.07	332.4	6.34	116.0	cloudy
1545	4.5	0.07	332.0	6.40	115.3	
1548	4.5	0.07	332.2	6.43	114.6	
1551	4.5	0.07	331.7	6.46	114.1	
1554	4.5	0.07	332.0	6.48	113.5	
1557	4.5	0.07	332.6	6.50	113.0	
1600	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHC

Well No.: SFM 23-TWP78

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Shoppers Farm Mall
Sampling Personnel: JKR
Weather Conditions: rain
Air Temp. (°F): 40's

Project No.: 106586-006
Date: 9/4/23
Well: MW-2A
Time started: 1325
Time completed: 1415

Sample No.: MW-2A — Time: 1400
Duplicate: MW-2C — Time: 1350
Equipment Blank: — — Time: —

Pump: Hurricane
Purging Method: portable
Pumping Start: 1237
Purge Rate (gal./min.): ~0.3
Pumping End: 1400

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 20
Measured Total Depth of Well Below MP (ft.): 20.29
Depth to Water Below MP (ft.): 11.94
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 8.33
Gallons per foot: 0.17
Gallons in Well: 1.42
3 Well-Volumes: 4.25
Purge Water Volume (gal.): ~5

Pump/Tubing Set Depth Below MP (ft.): 18
KuriTec Tubing (ft.): 25
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Purge Water Disposal: 55 gal drum

Monument Condition: good
Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

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

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: MW-2A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

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

Sample Observations: —

Notes: —

FIELD PARAMETERS [stabilization criteria]

Time	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1338	6.4	0.32	502	6.41	148.0	turbid
1341	6.4	0.19	511	6.44	150.0	cloudy
1344	7.1	0.17	505	6.47	149.6	
1347	6.9	0.17	503	6.48	149.4	
1351	6.6	0.17	502	6.49	149.2	clear
1354	6.4	0.17	502	6.50	148.7	
1357	6.3	0.13	501	6.51	147.9	
1400	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40 mL VOA	HCl	☑	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: MW-2A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Shoppers Forum Mall
Sampling Personnel: JKR
Weather Conditions: rain Air Temp. (°F): 40's

Project No.: 106568-006
Date: 9/4/23
Well: MW-2B
Time started: ~~1210~~ 1225
Time completed: 1324

Sample No.: MW-2B Time: 1313
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Hurricane
Purging Method: portable
Pumping Start: 1246
Purge Rate (gal./min.): ~0.2
Pumping End: 1313

Pump/Tubing Set Depth Below MP (ft.): 46
KuriTec Tubing (ft.): 55
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 47.80
Depth to Water Below MP (ft.): 11.84
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 35.96
Gallons per foot: 0.17
Gallons in Well: 6.11
3 Well-Volumes: 18.3
Purge Water Volume (gal.): ~5.5

Purge Water Disposal: 55 gal drum

Monument Condition: good

Casing Condition: good

Locate: *Survey / GPS / Field Maps / Swingties* (circle one)
(If locate is not known, take one.)

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

Top-of-casing to monument (ft.): 0.38
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: MW-2B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1247	5.7	0.52	351.2	5.39	151.3	Turbid
1251	5.5	0.26	346.8	5.90	151.7	1
1254	5.3	0.21	343.3	6.06	150.8	cloudy
1257	5.3	0.16	342.9	6.15	150.1	clear
1300	5.4	0.16	343.6	6.21	149.3	|
1303	5.1	0.16	340.5	6.28	148.3	|
1307	5.1	0.16	340.7	6.31	148.7	|
1310	5.1	0.16	340.6	6.35	148.1	|
1313	Sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	2x40 mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: MW-2B

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Shoppers Forum Mall
Sampling Personnel: SKR
Weather Conditions: Rain Air Temp. (°F): 40's

Project No.: 106568-006
Date: 9/4/23
Well: MW-1A
Time started: 1515
Time completed: 1600

Sample No.: MW-1A Time: 1533
Duplicate: — Time: —
Equipment Blank: EB-1A Time: 1555

Pump: Hurricane
Purging Method: portable
Pumping Start: 1517
Purge Rate (gal./min.): ~0.2
Pumping End: 1533

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): ~~20~~ 15
Measured Total Depth of Well Below MP (ft.): 15.73
Depth to Water Below MP (ft.): 13.41
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 2.32
Gallons per foot: 0.17
Gallons in Well: 0.4
3 Well-Volumes: 1.18
Purge Water Volume (gal.): ~3

Pump/Tubing Set Depth Below MP (ft.): 14.5
KuriTec Tubing (ft.): 20
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Purge Water Disposal: 55 gal drum

Monument Condition: good

Casing Condition: good

Locate: Survey / GPS / Field Maps / Swingties (circle one)
(If locate is not known, take one.)

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

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

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: MW-1A

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1518	5.6	3.69	388.5	6.47	132.4	clear
1521	4.7	0.26	386.5	6.46	132.7	"
1524	5.3	0.17	389.2	6.48	132.2	"
1527	4.7	0.38	391.0	6.49	132.1	"
1530	4.5	0.14	386.8	6.50	131.9	"
1533	sample					

Laboratory SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40 mL VOA	HCl	☐	☑
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DHF

Well No.: MW-1A

SHANNON & WILSON

MONITORING WELL SAMPLING LOG

Owner/Client: City of Fairbanks
Location: Shoppers Forum Mall
Sampling Personnel: JKR
Weather Conditions: Rain Air Temp. (°F): 40's

Project No.: 106568-006 (~~106586~~)
Date: 9/4/23
Well: MW-1B
Time started: 1425
Time completed: 1514

Sample No.: MW-1B Time: 1504
Duplicate: — Time: —
Equipment Blank: — Time: —

Pump: Hurricane
Purging Method: portable
Pumping Start: 1434
Purge Rate (gal./min.): ~0.3
Pumping End: 1504

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 50
Measured Total Depth of Well Below MP (ft.): 49.59
Depth to Water Below MP (ft.): 12.72
Depth to Ice (if frozen) Below MP (ft.): —
Feet of Water in Well: 36.87
Gallons per foot: 0.17
Gallons in Well: 6.27
3 Well-Volumes: 18.8
Purge Water Volume (gal.): ~55

Pump/Tubing Set Depth Below MP (ft.): 47.5
KuriTec Tubing (ft.): 53
TruPoly Tubing (ft.): —
Silicone Tubing (ft.): —

Purge Water Disposal: 55 gal drum

Monument Condition: good

Casing Condition: good

Locate: Survey / GPS / Field Maps / Swingties (circle one)
(If locate is not known, take one.)

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

Top-of-casing to monument (ft.): 0.22
Monument to ground surface (ft.): —

- ☐ 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	0.65	1.5	2.6

QC: DHF

Well No.: MW-1B

SHANNON & WILSON

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	(°C) [± 3%]	Oxygen (mg/L) [±10%]	Conductivity (µS/cm) [± 3%]	pH [± 0.1]	ORP (mV) [± 10 mV]	Water Clarity (visual)
1435	6.1	7.34	345.1	6.69	127.8	~~clear~~ turbid
1438	2.9	0.65	280.3	6.54	133.4	
1442	3.8	1.92	283.3	6.52	135.6	cloudy
1446	3.0	1.25	278.4	6.52	135.7	clear
1449	2.9	0.82	278.6	6.53	135.6	
1452	2.9	0.46	279.9	6.56	135.1	
1455	2.9	0.35	280.0	6.59	134.6	
1458	~~3.0~~ 2.9	0.33	280.4	6.61	134.1	
1501	2.9	0.33	279.6	6.62	133.7	
1504	sample					

Laboratory: SGS

	Analysis	Sample Containers	Preservatives	Dup	E.B.
☑	VOC	3x40mL VOA	HCl	☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐
☐				☐	☐

QC: DUP

Well No.: MW-1B

FIELD ACTIVITIES DAILY LOG

Date 8/28/23

Sheet 1 of 1

Project No. ~~106568~~ 106568-006

Project Name: SHOPPERS FORUM MALL SITE CHARACTERIZATION

Field Activity Subject: ~~AIR~~ SOIL-GAS INSTALL

Calibration: N/A

Description of daily activities and events:

0830 RLW prep equipment. Brief JKR on planned activities

1045 RLW left office. Call received from Interior Gas Utilities → locations cleared

RLW begins installing SG01. Substrate very rocky.

Multiple installation attemps. RLW calls JKR for assistance (1115)

1330 Done installing SG01.

1400 RLW attempts installing SG02 (Along airport way)

JKR returns to site to assist w/ install.

High-lift jack base broke from removal strain.

Unable to get AMS rods out of ground.

RLW called CBD to discuss leaving rod in ground overnight.

Plan to use drill rig to remove rods on 8/29/23

Rods covered w/ cone overnight.

1730 Done w/ day.

Visitors on site: —

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

Abandon SG02 → Rods stuck.

Plan to install remaining SG ports w/ drill rig

Weather conditions: 50-60°F overcast

Important telephone calls: CBD

Personnel on site: RLW, JKR

Signature: [signature] Date: 8/28/23

Rev. 5-9-22

DHF

FIELD ACTIVITIES DAILY LOG

Date 8/29/23

Sheet 1 of 1

Project No. 106568-006

Project Name: SHOPPERS FORUM MALL SITE CHARACTERIZATION

Field Activity Subject: SOIL-GAS INSTALL / TRAFFIC CONTROL SUPPORT

Calibration: —

Description of daily activities and events:

0800 Prepare equipment
RLW + JKR pick up traffic control materials from Arctic Fire + Safety
Bring Materials to jobsite
1000 Begin setting up pedestrian detour signage.
Cone covering SG02 missing - Assume stolen
Notice public notices did not go out. Call TXG to discuss.
1200 Driller begins installing TWPs + SG ports (SG02)
1245 Install SG03 JKR sampling TWPs along airport way.
1335 Install SG04 * No soil generated from SG-install
1400 Install SG05 + TWP cluster N of SFM along Airport Way sidewalk.
1430 RLW returned to office to get public notice signage.
Deliver public notice to Global Credit Union + Pedro St residents.
1630 RLW return to office. SFC help w/ TCP signage.

Visitors on site: —

Changes from plans/specifications and other special orders and important decisions:
Install SG ports w/ drill rig

Weather conditions: 60 - 70° F partly cloudy

Important telephone calls: TXG

Personnel on site: RLW, JKR, SFC

Signature: [signature] Date: 8/29/23

DHF

FIELD ACTIVITIES DAILY LOG

Date 8/31/23

Sheet 1 of 1

Project No. 106568-006

Project Name: Shoppers Forum Mall Site Characterization

Field Activity Subject: SOIL-GAS SAMPLING

Calibration: Helium Detector calibrated by TTT.

Description of daily activities and events:

1000 RLW begins preparing soil-gas sampling supplies
JKR messaged RLW about warm purge water from TWP
RLW discussed potential for utility conflict w/ TXG + CBO
RLW called Aurora to request staff to site to look at location.
JKR called RLW to inform RLW that Aurora visited boring location and was not concerned about TWP hitting steam line
1242 RLW spoke w/ Paul from Aurora Energy via phone.
Paul said we did not hit the steam line. Paul said we could remove TWP rods without any issues. Paul said the line is known to have a leak and drilling may have helped them identify the leak. Steam is much hotter than the water we encountered in TWP. Utility locators will be out to site to mark steam
RLW spoke w/ DHF about current + warm temp in TWP.
1300 RLW left office. Picked up Helium detector from TTT.
Met JKR + Aurora utility locator on-site.
Locator marked Aurora's steam lines. Lines run alongside water utility below sidewalk. RLW took photos + borings locations cleared by Aurora locator.
1330 - 1800 RLW collected soil-gas samples from SG1 to SG5. Duplicate sample collected at SG5 (on N of SFM).
1800- Return to office + unpack equipment
1830- Done w/ day

Visitors on site: Aurora energy

Changes from plans/specifications and other special orders and important decisions:
Aurora Energy steam utility locate

Weather conditions: 55-60 °F Partly cloudy. Breezy

Important telephone calls: Aurora Energy

Personnel on site: RLW, JKR

Signature: [signature] Date: 8/31/23

Rev. 5-9-22

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: City of Fairbanks
Location: N of SFM in alley
Weather: Overcast w/ wind Temp (°F): 55

Project Number: 106568-006
Project Name: SFM
Date and Time: 8/31/23 1330
Sampling Personnel: RLW

Sample No.: SFM23-SG01
Time (start): 1423 Time (end): 1431

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

Soil-Gas Port Type: soil-gas. ~~Retained by~~ (hand driven point)
Installation Depth: 7.0 feet bgs
Installed 8/28/23
Canister ID: 13435 (Reg 23374)
Canister Volume (L): 1

Date Installed: 8/28/2
Time Installed: 1330
Laboratory: Eurofins Air Toxics
Analysis: TO-15 VOCs Full Scan

Initial Canister Vacuum (inHg): -26
Final Canister Vacuum (inHg): -4.5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -27 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): 2.8 % or ppm
Probe and sampling line purge rate: 200 mL/min.
Sample train length: 16.67 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 70 mL
One sample train volume (purge time): 21 seconds

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

Tracer Test Time (s)	Helium (% or ppm)
0	0
3	0
6	0
9	0
12	0
15	0
18	0
21	0
He still in shroud after leak test	

Notes: Port installed 8/28/23 by RLW
Train length = 96 + 12 + 51 + 41 = 200 in = 16.67 ft

16.6 ft | 4.22 ml / 1 ft = 70 ml | 1 min / 200 ml | 60 sec / 1 min = 21

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: City of Fairbanks
Location: North of Airport way. West of Apts
Weather: Overcast Temp (°F): 58

Project Number: 106568-006
Project Name: SFM
Date and Time: 8/31/23 1530
Sampling Personnel: RLW

Sample No.: SFM23-SVG02 Time (start): 1549 Time (end): 1555
Duplicate: — Time (start): — Time (end): —

Soil-Gas Port Type: Soil-gas (installed via Macrocore)
Installation Depth: 87 inches / 7.25 ft feet bgs
Canister ID: IL3747 (Reg. 23768)
Canister Volume (L): 1

Date Installed: 8/29/23
Time Installed: 1200
Laboratory: EuroFins Air Toxics
Analysis: TO-15 VOCs Full Scan

Initial Canister Vacuum (inHg): ~~-25~~ -27
Final Canister Vacuum (inHg): ~~0~~ -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -25 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): 5.1 (%) or ppm
Probe and sampling line purge rate: 200 mL/min.
Sample train length: 16.9 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 71.4 mL
One sample train volume (purge time): 21.4 seconds

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

Tracer Test Time (s)	Helium (% or ppm)
0	0
3	0
6	0
9	0
12	0
15	0
18	0
21	0
24	0
He in shroud	after tracer test

120, 33"

Notes: 10 ft of pipe. 33 inches pipe stickup 87 in deep

Sample train length: 87 + 22 + 12 + 82 = 203 in = 16.9 ft

16.9 ft | 4.22 ml / 1 ft = 71.4 ml | 1 min / 200 ml | 60 sec / 1 min = 21.4 sec

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: City of Fairbanks
Location: North of Airport Way. In front of Apt (west)
Weather: Overcast Temp (°F): 58

Project Number: 106568-006
Project Name: SFM
Date and Time: 8/31/23 1600
Sampling Personnel: RLW

Sample No.: SFM23-SG03 Time (start): 1627 Time (end): 1634
Duplicate: — Time (start): — Time (end): —

Soil-Gas Port Type: Soil-gas (installed via macrocore
Installation Depth: 99 in (8 Ft 3 in) feet bgs
Canister ID: IL3726 (Reg. 24750)
Canister Volume (L): 1

Date Installed: 8/29/23
Time Installed: 1245
Laboratory: Eurofins Air Toxics
Analysis: TO-15 VOCs

Initial Canister Vacuum (inHg): -27
Final Canister Vacuum (inHg): -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -27 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): 23.1 (%) or ppm
Probe and sampling line purge rate: 200 mL/min.
Sample train length: 17.4 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 74 mL
One sample train volume (purge time): 22 seconds

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

Tracer Test Time (s)	Helium (% or ppm)
0	0
3	0
6	0
9	0
12	0
15	0
18	0
21	0
24	0

Notes: Installed 10 ft - 8-in casing w/ 24 in casing above ground. Removed casing + backfilling sand to 8 Ft - 3 in bgs

Sample train length = 99 + 16 + 12 + 82 = 209 in = 17.4 ft

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: City of Fairbanks
Location: North of Airport Way
In front of Apt (center)
Weather: Overcast, some sun Temp (°F): 57

Project Number: 106568-606
Project Name: Shoppers Forum (SFM)
Date and Time: 8/31/23 1640
Sampling Personnel: RLW

Sample No.: SFM23-SG04
Time (start): 1700 Time (end): 1706

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

Soil-Gas Port Type: Soil-gas (installed via Macrocore)
Installation Depth: (97 in) 8.1 ft feet bgs

Date Installed: 8/29/23
Time Installed: 1335

Canister ID: 1L4547 (Reg. 23154)
Canister Volume (L): 1

Laboratory: Eurofins Air Toxics
Analysis: TO-15 VOCs

Initial Canister Vacuum (inHg): ~~-30~~ -27
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): 3.5 (%) or ppm
Probe and sampling line purge rate: 200 mL/min.
Sample train length: 19.2 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 81.0 mL
One sample train volume (purge time): 24 seconds

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

Tracer Test Time (s)	Helium (% or ppm)
0	0
3	0
6	0
9	0
12	0
15	0
18	0
21	0
24	0
27	0

Notes: Installed 8-ft 1-in.

Sample train length = 97 + 16 + 24 + 11 + 82 = 230 in = 19.2 ft

$$\frac{19.2\ \text{ft}}{1\ \text{ft}} \left| \frac{4.22\ \text{ml}}{} \right| = 81.0\ \text{mL} \left| \frac{1\ \text{min}}{200\ \text{ml}} \right| \frac{60\ \text{sec}}{1\ \text{min}} = 24.3$$

DHF

SHANNON & WILSON, INC.

SOIL-GAS SAMPLING LOG

Client: City of Fairbanks
Location: North of Airport Way In front of Apts. (east)
Weather: overcast Temp (°F): 60

Project Number: 106568-006
Project Name: SFM
Date and Time: 8/31/23 1710
Sampling Personnel: RLW

Sample No.: SFM23-SG05 Time (start): 1733 Time (end): 1747
Duplicate: SFM23-SG15 Time (start): 1723 Time (end): 1737

Soil-Gas Port Type: Soil-gas (installed w/ macrocore)
Installation Depth: 96 inches / 8 ft feet bgs
Canister ID: IL3586 / IL4013 (Reg) 23105
Canister Volume (L): 1

Date Installed: 8/29/23
Time Installed: 1400
Laboratory: Eurofins Air Toxics
Analysis: TO-15 VOCs

Initial Canister Vacuum (inHg): -27.5 / -27.5
Final Canister Vacuum (inHg): -5 / -5

Leak Detection Tests: (Pass) / Fail

Shut-in Test:

Vacuum applied to sample train: -27 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): 4.7 (%) or ppm
Probe and sampling line purge rate: 200 mL/min.
Sample train length: 18.5 ft
Volume per foot (3/16" tubing): 4.22 mL/ft
Sample train volume: 78 mL
One sample train volume (purge time): 23 seconds

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

Tracer Test Time (s)	Helium (% or ppm)
0	0
3	0
6	0
9	0
12	0
15	0
18	0
21	0
24	0
He still in shroud after leak test	

Notes: Installed to 8-ft exactly. ~~Co-located with SFM23-SG05~~

Sample train length = 96 + 16 + 16 + 12 + 82 = 222 in = 18.5 ft

$$\frac{18.5\ ft}{1}\left|\frac{4.22\ mL}{1\ ft}\right. = 78\ mL \left|\frac{1\ min}{200\ mL}\right|\frac{60\ sec}{1\ min} = 23.4$$

DHF

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

Contaminated Media Transport and Treatment or Disposal Approval Form

DEC HAZARD/SPILL ID #	NAME OF CONTAMINATED SITE OR SPILL	
3682/102.38.100	Shopper's Forum Mall	
CONTAMINATED SITE OR SPILL LOCATION – ADDRESS OR OTHER APPROPRIATE DESCRIPTION		
Shopper's Forum Mall, 1255 Airport Way, Fairbanks AK		
CURRENT PHYSICAL LOCATION OF MEDIA	**SOURCE OF THE CONTAMINATION (DAY TANK, WASH BAY, FIRE TRAINING PIT, LUST, ETC.)**	
Shopper's Forum Mall, 1255 Airport Way, Fairbanks AK	Dry cleaning operations	
CONTAMINANTS OF CONCERN	**ESTIMATED VOLUME**	**DATE(S) GENERATED**
PCE and TCE	100 gallons water	8/29/23 - 9/4/23
POST TREATMENT ANALYSIS REQUIRED *(such as GRO, DRO, RRO, VOCs, metals, PFAS, and/or Chlorinated Solvents)*		
None		
COMMENTS OR OTHER IMPORTANT INFORMATION		
Monitoring well purge water stored in two 55-gallon drums		

TREATMENT FACILITY, LANDFILL, AND/OR FINAL DESTINATION OF MEDIA	PHYSICAL ADDRESS/PHONE NUMBER
US Ecology Idaho	20400 Lemley Road, Grand View ID 83624/800-274-1516
RESPONSIBLE PARTY	**ADDRESS/PHONE NUMBER**
City of Fairbanks	800 Cushman Street, Fairbanks AK/907-459-6836
WASTE MANAGEMENT CO. / ORGANIZER	**ADDRESS/PHONE NUMBER**
US Ecology	619 East Ship Creek Avenue, Anchorage AK 99501/907-656-5050

***Note, disposal of polluted soil in a landfill requires prior approval from the landfill operator and ADEC Solid Waste Program.**

Dana Fjare
Name of the Person Requesting Approval (printed)


Signature

Environmental Scientist/Shannon & Wilson, Inc.
Title/Association

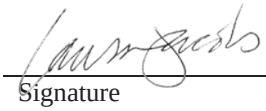
9/25/23
Date

907-987-7174
Phone Number

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

Based on the information provided, ADEC approves transport of the above mentioned material. The Responsible Party or their consultant must submit to the DEC Project Manager a copy of weight receipts of the loads transported and a post treatment analytical report, if disposed of at an approved treatment facility. The contaminated soil shall be transported as a covered load in compliance with 18 AAC 60.015.

Laura Jacobs
DEC Project Manager Name (printed)


Signature

Environmental Program Specialist
Project Manager Title

September 25, 2023
Date

907-451-2911
Phone Number

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	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	[illegible]	[illegible]	[illegible]	008735910 FLE

GENERATOR

5. Generator's Name and Mailing Address
GAVORA, INC
1410 S. CUSHMAN [illegible]
FAIRBANKS, AK 99701

Generator's Site Address (if different than mailing address)
SHOPPERS FORUM MALL
1255 AIRPORT WAY
FAIRBANKS, AK 99701

Generator's Phone:

6. Transporter 1 Company Name: US ECOLOGY — U.S. EPA ID Number: [illegible]

7. Transporter 2 Company Name: WEAVER BROTHERS — U.S. EPA ID Number: [illegible]

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

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. RQ UN3082 Waste Environmentally hazardous substances, liquid, n.o.s. (TETRACHLOROETHYLENE, TRICHLOROETHYLENE), 9, PGIII ERG#171	2	DM		P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1) [illegible] F002 [illegible] WATER [illegible]

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 | Signature | Month Day Year

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 | Signature | Month Day Year
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

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: AKR000007829

22. Page: 2 of 4

23. Manifest Tracking Number: 008735W10FLE

GENERATOR

24. Generator's Name: SHOPPERS FORUM MALL
1255 AIRPORT WAY
FAIRBANKS AK 99701

25. Transporter 3 Company Name: TOTE MARITIME ALASKA LLC

U.S. EPA ID Number: WAD070397955

26. Transporter 4 Company Name: DS ECOLOGY

U.S. EPA ID Number: MK6937435B

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.

GENERATOR'S INITIAL COPY

APPENDIX B: LABORATORY REPORTS

Appendix B

Laboratory Reports

CONTENTS

Laboratory Report of Analysis

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

Report Number: **1234779**

Client Project: **106568-006; SFM23 GW**

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
2023.09.20
09:22:33 -08'00'

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

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

Member of SGS Group

Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1234779**
Project Name/Site: **106568-006; SFM23 GW**
Project Contact: **Dana Fjare**

Refer to sample receipt form for information on sample condition.

SFM23-TWP1B (1234779001) PS

8260D - Sample had a pH > 2 and was not analyzed within 7 days of collection.

SFM23-TWP2B (1234779005) PS

8260D - Chloromethane was detected above LOQ. ICV recovery for chloromethane was biased high for the associated calibration. Results may be biased high.

SFM23-TWP3A (1234779006) PS

8260D - Chloromethane was detected above LOQ. ICV recovery for chloromethane was biased high for the associated calibration. Results may be biased high.

SFM23-TWP3B (1234779007) PS

8260D - Chloromethane was detected above LOQ. Sample was re-analyzed outside of hold and results confirm. In-hold data was reported.

LCSD for HBN 1864191 [VXX/4042 (1734266) LCSD

8260D - LCS/LCSD RPD for several analytes do not meet QC criteria. These analytes were not reported above LOQ in associated samples.

MB for HBN 1864224 [VXX/40426] (1734419) MB

8260D - Carbon tetrachloride was detected above 1/2 LOQ in the MB. This analyte was not reported above LOQ in all associated DOD samples.

*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

Member of SGS Group

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260D				
1234779022	Trip Blank	VMS22749	Chloromethane	SP

Manual Integration Reason Code Descriptions

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

All DRO/RRO analysis are integrated per SOP.

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

Laboratory Qualifiers

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

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

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 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

Member of SGS Group

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SFM23-TWP1B	1234779001	08/29/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP1A	1234779002	08/29/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP2A	1234779003	08/29/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP2C	1234779004	08/29/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP2B	1234779005	08/29/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP3A	1234779006	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP3B	1234779007	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP4A	1234779008	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP4B	1234779009	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP5B	1234779010	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP5A	1234779011	08/30/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP6B	1234779012	08/31/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP6A	1234779013	08/31/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP7B	1234779014	08/31/2023	09/06/2023	Water (Surface, Eff., Ground)
SFM23-TWP7A	1234779015	08/31/2023	09/06/2023	Water (Surface, Eff., Ground)
MW-2B	1234779016	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
MW-2C	1234779017	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
MW-2A	1234779018	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
MW-1B	1234779019	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
MW-1A	1234779020	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
EB-1A	1234779021	09/04/2023	09/06/2023	Water (Surface, Eff., Ground)
Trip Blank	1234779022	08/29/2023	09/06/2023	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

Member of SGS Group

Detectable Results Summary

Client Sample ID: **SFM23-TWP1B**
Lab Sample ID: 1234779001
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	1.33	ug/L
Trichloroethene	4.74	ug/L

Client Sample ID: **SFM23-TWP1A**
Lab Sample ID: 1234779002
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	5.31	ug/L
trans-1,2-Dichloroethene	1.22	ug/L
Trichloroethene	13.4	ug/L

Client Sample ID: **SFM23-TWP2B**
Lab Sample ID: 1234779005
Volatile GC/MS

Parameter	Result	Units
Chloromethane	1.18	ug/L

Client Sample ID: **SFM23-TWP3A**
Lab Sample ID: 1234779006
Volatile GC/MS

Parameter	Result	Units
Chloromethane	1.00	ug/L
cis-1,2-Dichloroethene	3.99	ug/L
Tetrachloroethene	1.03	ug/L
Trichloroethene	6.67	ug/L

Client Sample ID: **SFM23-TWP3B**
Lab Sample ID: 1234779007
Volatile GC/MS

Parameter	Result	Units
Chloromethane	1.31	ug/L
cis-1,2-Dichloroethene	1.70	ug/L
Trichloroethene	4.68	ug/L

Client Sample ID: **SFM23-TWP4A**
Lab Sample ID: 1234779008
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	5.29	ug/L
Tetrachloroethene	1.12	ug/L
trans-1,2-Dichloroethene	6.59	ug/L
Trichloroethene	15.9	ug/L
Trichlorofluoromethane	2.32	ug/L

Client Sample ID: **SFM23-TWP4B**
Lab Sample ID: 1234779009
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	3.40	ug/L
Tetrachloroethene	1.03	ug/L
trans-1,2-Dichloroethene	5.92	ug/L
Trichloroethene	7.00	ug/L
Trichlorofluoromethane	1.41	ug/L

Client Sample ID: **SFM23-TWP5B**
Lab Sample ID: 1234779010
Volatile GC/MS

Parameter	Result	Units
Trichloroethene	1.37	ug/L

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

Member of SGS Group

Detectable Results Summary

Client Sample ID: **SFM23-TWP6B**
Lab Sample ID: 1234779012
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	15.4	ug/L
trans-1,2-Dichloroethene	27.4	ug/L
Trichloroethene	13.8	ug/L

Client Sample ID: **SFM23-TWP6A**
Lab Sample ID: 1234779013
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	15.7	ug/L
Tetrachloroethene	1.08	ug/L
trans-1,2-Dichloroethene	29.3	ug/L
Trichloroethene	14.0	ug/L

Client Sample ID: **SFM23-TWP7B**
Lab Sample ID: 1234779014
Volatile GC/MS

Parameter	Result	Units
Tetrachloroethene	1.18	ug/L
Trichloroethene	2.19	ug/L

Client Sample ID: **SFM23-TWP7A**
Lab Sample ID: 1234779015
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	3.11	ug/L
Tetrachloroethene	1.19	ug/L
trans-1,2-Dichloroethene	8.74	ug/L
Trichloroethene	4.41	ug/L

Client Sample ID: **MW-2B**
Lab Sample ID: 1234779016
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	19.5	ug/L
trans-1,2-Dichloroethene	11.0	ug/L
Trichloroethene	53.9	ug/L

Client Sample ID: **MW-2C**
Lab Sample ID: 1234779017
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	2.13	ug/L
Tetrachloroethene	1.82	ug/L
trans-1,2-Dichloroethene	1.36	ug/L
Trichloroethene	3.74	ug/L
Trichlorofluoromethane	1.73	ug/L

Client Sample ID: **MW-2A**
Lab Sample ID: 1234779018
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	2.04	ug/L
Tetrachloroethene	1.80	ug/L
trans-1,2-Dichloroethene	1.33	ug/L
Trichloroethene	3.54	ug/L
Trichlorofluoromethane	1.71	ug/L

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

Member of SGS Group

Detectable Results Summary

Client Sample ID: **MW-1B**
Lab Sample ID: 1234779019
Volatile GC/MS

Parameter	Result	Units
Tetrachloroethene	4.31	ug/L
Trichloroethene	1.15	ug/L

Client Sample ID: **MW-1A**
Lab Sample ID: 1234779020
Volatile GC/MS

Parameter	Result	Units
cis-1,2-Dichloroethene	8.15	ug/L
Tetrachloroethene	147	ug/L
trans-1,2-Dichloroethene	7.89	ug/L
Trichloroethene	18.0	ug/L

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

Member of SGS Group

Results of **SFM23-TWP1B**

Client Sample ID: **SFM23-TWP1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779001
Lab Project ID: 1234779

Collection Date: 08/29/23 12:15
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:16
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 20:16
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 20:16
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:16
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 20:16
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16

Results of **SFM23-TWP1B**

Client Sample ID: **SFM23-TWP1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779001
Lab Project ID: 1234779

Collection Date: 08/29/23 12:15
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
cis-1,2-Dichloroethene	1.33		1.00	0.310	ug/L	1		09/10/23 20:16
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:16
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 20:16
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Trichloroethene	4.74		0.500	0.150	ug/L	1		09/10/23 20:16
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:16
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:16
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 20:16
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 20:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/10/23 20:16
4-Bromofluorobenzene (surr)	108		85-114		%	1		09/10/23 20:16
Toluene-d8 (surr)	102		89-112		%	1		09/10/23 20:16

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

Member of SGS Group

Results of **SFM23-TWP1B**

Client Sample ID: **SFM23-TWP1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779001
Lab Project ID: 1234779

Collection Date: 08/29/23 12:15
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 20:16
Container ID: 1234779001-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Results of **SFM23-TWP1A**

Client Sample ID: **SFM23-TWP1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779002
Lab Project ID: 1234779

Collection Date: 08/29/23 12:53
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:31
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 20:31
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 20:31
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:31
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 20:31
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31

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

Member of SGS Group

Results of **SFM23-TWP1A**

Client Sample ID: **SFM23-TWP1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779002
Lab Project ID: 1234779

Collection Date: 08/29/23 12:53
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
cis-1,2-Dichloroethene	5.31		1.00	0.310	ug/L	1		09/10/23 20:31
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:31
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 20:31
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
trans-1,2-Dichloroethene	1.22		1.00	0.310	ug/L	1		09/10/23 20:31
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Trichloroethene	13.4		0.500	0.150	ug/L	1		09/10/23 20:31
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:31
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:31
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 20:31
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 20:31
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/10/23 20:31
4-Bromofluorobenzene (surr)	99.8		85-114		%	1		09/10/23 20:31
Toluene-d8 (surr)	101		89-112		%	1		09/10/23 20:31

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

Member of SGS Group

Results of **SFM23-TWP1A**

Client Sample ID: **SFM23-TWP1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779002
Lab Project ID: 1234779

Collection Date: 08/29/23 12:53
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 20:31
Container ID: 1234779002-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Results of **SFM23-TWP2A**

Client Sample ID: **SFM23-TWP2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779003
Lab Project ID: 1234779

Collection Date: 08/29/23 16:05
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:46
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 20:46
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 20:46
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 20:46
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 20:46
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46

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

Member of SGS Group

Results of **SFM23-TWP2A**

Client Sample ID: **SFM23-TWP2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779003
Lab Project ID: 1234779

Collection Date: 08/29/23 16:05
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 20:46
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/10/23 20:46
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 20:46
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 20:46
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 20:46
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 20:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		81-118		%	1		09/10/23 20:46
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/10/23 20:46
Toluene-d8 (surr)	101		89-112		%	1		09/10/23 20:46

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

Member of SGS Group

Results of **SFM23-TWP2A**

Client Sample ID: **SFM23-TWP2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779003
Lab Project ID: 1234779

Collection Date: 08/29/23 16:05
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 20:46
Container ID: 1234779003-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Results of **SFM23-TWP2C**

Client Sample ID: **SFM23-TWP2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779004
Lab Project ID: 1234779

Collection Date: 08/29/23 18:21
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 21:01
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 21:01
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 21:01
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 21:01
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 21:01
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01

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

Member of SGS Group

Results of **SFM23-TWP2C**

Client Sample ID: **SFM23-TWP2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779004
Lab Project ID: 1234779

Collection Date: 08/29/23 18:21
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 21:01
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:01
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:01
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:01
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 21:01
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 21:01
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/10/23 21:01
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/10/23 21:01
Toluene-d8 (surr)	101		89-112		%	1		09/10/23 21:01

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

Member of SGS Group

Results of **SFM23-TWP2C**

Client Sample ID: **SFM23-TWP2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779004
Lab Project ID: 1234779

Collection Date: 08/29/23 18:21
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 21:01
Container ID: 1234779004-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Results of **SFM23-TWP2B**

Client Sample ID: **SFM23-TWP2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779005
Lab Project ID: 1234779

Collection Date: 08/29/23 18:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 21:16
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 21:16
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 21:16
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 21:16
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 21:16
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16

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

Member of SGS Group

Results of **SFM23-TWP2B**

Client Sample ID: **SFM23-TWP2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779005
Lab Project ID: 1234779

Collection Date: 08/29/23 18:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Chloromethane	1.18		1.00	0.310	ug/L	1		09/10/23 21:16
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 21:16
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/10/23 21:16
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 21:16
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 21:16
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 21:16
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 21:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		09/10/23 21:16
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/10/23 21:16
Toluene-d8 (surr)	101		89-112		%	1		09/10/23 21:16

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

Member of SGS Group

Results of **SFM23-TWP2B**

Client Sample ID: **SFM23-TWP2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779005
Lab Project ID: 1234779

Collection Date: 08/29/23 18:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 21:16
Container ID: 1234779005-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Results of **SFM23-TWP3A**

Client Sample ID: **SFM23-TWP3A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779006
Lab Project ID: 1234779

Collection Date: 08/30/23 10:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:03
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 20:03
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 20:03
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:03
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 20:03
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03

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

Member of SGS Group

Results of **SFM23-TWP3A**

Client Sample ID: **SFM23-TWP3A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779006
Lab Project ID: 1234779

Collection Date: 08/30/23 10:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Chloromethane	1.00		1.00	0.310	ug/L	1		09/11/23 20:03
cis-1,2-Dichloroethene	3.99		1.00	0.310	ug/L	1		09/11/23 20:03
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:03
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 20:03
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Tetrachloroethene	1.03		1.00	0.310	ug/L	1		09/11/23 20:03
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Trichloroethene	6.67		0.500	0.150	ug/L	1		09/11/23 20:03
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:03
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:03
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 20:03
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 20:03
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/11/23 20:03
4-Bromofluorobenzene (surr)	99.5		85-114		%	1		09/11/23 20:03
Toluene-d8 (surr)	103		89-112		%	1		09/11/23 20:03

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

Member of SGS Group

Results of **SFM23-TWP3A**

Client Sample ID: **SFM23-TWP3A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779006
Lab Project ID: 1234779

Collection Date: 08/30/23 10:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 20:03
Container ID: 1234779006-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP3B**

Client Sample ID: **SFM23-TWP3B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779007
Lab Project ID: 1234779

Collection Date: 08/30/23 11:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:18
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 20:18
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 20:18
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:18
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 20:18
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18

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

Member of SGS Group

Results of **SFM23-TWP3B**

Client Sample ID: **SFM23-TWP3B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779007
Lab Project ID: 1234779

Collection Date: 08/30/23 11:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Chloromethane	1.31		1.00	0.310	ug/L	1		09/11/23 20:18
cis-1,2-Dichloroethene	1.70		1.00	0.310	ug/L	1		09/11/23 20:18
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:18
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 20:18
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Trichloroethene	4.68		0.500	0.150	ug/L	1		09/11/23 20:18
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:18
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:18
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 20:18
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 20:18
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/11/23 20:18
4-Bromofluorobenzene (surr)	98.1		85-114		%	1		09/11/23 20:18
Toluene-d8 (surr)	102		89-112		%	1		09/11/23 20:18

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

Member of SGS Group

Results of **SFM23-TWP3B**

Client Sample ID: **SFM23-TWP3B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779007
Lab Project ID: 1234779

Collection Date: 08/30/23 11:31
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 20:18
Container ID: 1234779007-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP4A**

Client Sample ID: **SFM23-TWP4A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779008
Lab Project ID: 1234779

Collection Date: 08/30/23 14:06
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:34
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 20:34
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 20:34
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:34
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 20:34
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34

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

Member of SGS Group

Results of **SFM23-TWP4A**

Client Sample ID: **SFM23-TWP4A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779008
Lab Project ID: 1234779

Collection Date: 08/30/23 14:06
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
cis-1,2-Dichloroethene	5.29		1.00	0.310	ug/L	1		09/11/23 20:34
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:34
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 20:34
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Tetrachloroethene	1.12		1.00	0.310	ug/L	1		09/11/23 20:34
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
trans-1,2-Dichloroethene	6.59		1.00	0.310	ug/L	1		09/11/23 20:34
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:34
Trichloroethene	15.9		0.500	0.150	ug/L	1		09/11/23 20:34
Trichlorofluoromethane	2.32		1.00	0.310	ug/L	1		09/11/23 20:34
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:34
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 20:34
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 20:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	100		81-118		%	1		09/11/23 20:34
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/11/23 20:34
Toluene-d8 (surr)	101		89-112		%	1		09/11/23 20:34

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

Member of SGS Group

Results of **SFM23-TWP4A**

Client Sample ID: **SFM23-TWP4A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779008
Lab Project ID: 1234779

Collection Date: 08/30/23 14:06
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 20:34
Container ID: 1234779008-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP4B**

Client Sample ID: **SFM23-TWP4B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779009
Lab Project ID: 1234779

Collection Date: 08/30/23 15:10
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:49
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 20:49
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 20:49
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 20:49
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 20:49
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49

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

Member of SGS Group

Results of **SFM23-TWP4B**

Client Sample ID: **SFM23-TWP4B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779009
Lab Project ID: 1234779

Collection Date: 08/30/23 15:10
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
cis-1,2-Dichloroethene	3.40		1.00	0.310	ug/L	1		09/11/23 20:49
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 20:49
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 20:49
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Tetrachloroethene	1.03		1.00	0.310	ug/L	1		09/11/23 20:49
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
trans-1,2-Dichloroethene	5.92		1.00	0.310	ug/L	1		09/11/23 20:49
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 20:49
Trichloroethene	7.00		0.500	0.150	ug/L	1		09/11/23 20:49
Trichlorofluoromethane	1.41		1.00	0.310	ug/L	1		09/11/23 20:49
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 20:49
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 20:49
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 20:49
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		09/11/23 20:49
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/11/23 20:49
Toluene-d8 (surr)	102		89-112		%	1		09/11/23 20:49

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

Member of SGS Group

Results of **SFM23-TWP4B**

Client Sample ID: **SFM23-TWP4B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779009
Lab Project ID: 1234779

Collection Date: 08/30/23 15:10
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 20:49
Container ID: 1234779009-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP5B**

Client Sample ID: **SFM23-TWP5B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779010
Lab Project ID: 1234779

Collection Date: 08/30/23 18:02
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:04
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 21:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 21:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:04
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 21:04
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04

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

Member of SGS Group

Results of **SFM23-TWP5B**

Client Sample ID: **SFM23-TWP5B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779010
Lab Project ID: 1234779

Collection Date: 08/30/23 18:02
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:04
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 21:04
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Trichloroethene	1.37		0.500	0.150	ug/L	1		09/11/23 21:04
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:04
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:04
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 21:04
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 21:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		09/11/23 21:04
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/11/23 21:04
Toluene-d8 (surr)	101		89-112		%	1		09/11/23 21:04

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

Member of SGS Group

Results of **SFM23-TWP5B**

Client Sample ID: **SFM23-TWP5B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779010
Lab Project ID: 1234779

Collection Date: 08/30/23 18:02
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 21:04
Container ID: 1234779010-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **SFM23-TWP5A**

Client Sample ID: **SFM23-TWP5A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779011
Lab Project ID: 1234779

Collection Date: 08/30/23 19:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:19
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 21:19
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 21:19
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:19
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 21:19
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19

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

Member of SGS Group

Results of **SFM23-TWP5A**

Client Sample ID: **SFM23-TWP5A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779011
Lab Project ID: 1234779

Collection Date: 08/30/23 19:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 21:19
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:19
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:19
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:19
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 21:19
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 21:19
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/11/23 21:19
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/11/23 21:19
Toluene-d8 (surr)	102		89-112		%	1		09/11/23 21:19

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

Member of SGS Group

Results of **SFM23-TWP5A**

Client Sample ID: **SFM23-TWP5A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779011
Lab Project ID: 1234779

Collection Date: 08/30/23 19:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 21:19
Container ID: 1234779011-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP6B**

Client Sample ID: **SFM23-TWP6B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779012
Lab Project ID: 1234779

Collection Date: 08/31/23 10:41
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:34
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 21:34
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 21:34
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:34
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 21:34
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34

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

Member of SGS Group

Results of **SFM23-TWP6B**

Client Sample ID: **SFM23-TWP6B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779012
Lab Project ID: 1234779

Collection Date: 08/31/23 10:41
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
cis-1,2-Dichloroethene	15.4		1.00	0.310	ug/L	1		09/11/23 21:34
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:34
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 21:34
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
trans-1,2-Dichloroethene	27.4		1.00	0.310	ug/L	1		09/11/23 21:34
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Trichloroethene	13.8		0.500	0.150	ug/L	1		09/11/23 21:34
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:34
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:34
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 21:34
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 21:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/11/23 21:34
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/11/23 21:34
Toluene-d8 (surr)	101		89-112		%	1		09/11/23 21:34

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

Member of SGS Group

Results of **SFM23-TWP6B**

Client Sample ID: **SFM23-TWP6B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779012
Lab Project ID: 1234779

Collection Date: 08/31/23 10:41
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 21:34
Container ID: 1234779012-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP6A**

Client Sample ID: **SFM23-TWP6A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779013
Lab Project ID: 1234779

Collection Date: 08/31/23 12:47
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:49
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 21:49
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 21:49
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 21:49
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 21:49
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49

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

Member of SGS Group

Results of **SFM23-TWP6A**

Client Sample ID: **SFM23-TWP6A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779013
Lab Project ID: 1234779

Collection Date: 08/31/23 12:47
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
cis-1,2-Dichloroethene	15.7		1.00	0.310	ug/L	1		09/11/23 21:49
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 21:49
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 21:49
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Tetrachloroethene	1.08		1.00	0.310	ug/L	1		09/11/23 21:49
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
trans-1,2-Dichloroethene	29.3		1.00	0.310	ug/L	1		09/11/23 21:49
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Trichloroethene	14.0		0.500	0.150	ug/L	1		09/11/23 21:49
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 21:49
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 21:49
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 21:49
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 21:49
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/11/23 21:49
4-Bromofluorobenzene (surr)	98.9		85-114		%	1		09/11/23 21:49
Toluene-d8 (surr)	101		89-112		%	1		09/11/23 21:49

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

Member of SGS Group

Results of **SFM23-TWP6A**

Client Sample ID: **SFM23-TWP6A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779013
Lab Project ID: 1234779

Collection Date: 08/31/23 12:47
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 21:49
Container ID: 1234779013-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP7B**

Client Sample ID: **SFM23-TWP7B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779014
Lab Project ID: 1234779

Collection Date: 08/31/23 16:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/11/23 22:04
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/11/23 22:04
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/11/23 22:04
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Benzene	0.400	U	0.400	0.120	ug/L	1		09/11/23 22:04
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/11/23 22:04
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04

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

Member of SGS Group

Results of **SFM23-TWP7B**

Client Sample ID: **SFM23-TWP7B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779014
Lab Project ID: 1234779

Collection Date: 08/31/23 16:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/14/23 16:34
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/11/23 22:04
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/11/23 22:04
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Styrene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Tetrachloroethene	1.18		1.00	0.310	ug/L	1		09/11/23 22:04
Toluene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Trichloroethene	2.19		0.500	0.150	ug/L	1		09/11/23 22:04
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/11/23 22:04
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/11/23 22:04
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/11/23 22:04
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/11/23 22:04
Surrogates								
1,2-Dichloroethane-D4 (surr)	106		81-118		%	1		09/11/23 22:04
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		09/11/23 22:04
Toluene-d8 (surr)	101		89-112		%	1		09/11/23 22:04

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

Member of SGS Group

Results of **SFM23-TWP7B**

Client Sample ID: **SFM23-TWP7B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779014
Lab Project ID: 1234779

Collection Date: 08/31/23 16:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22762
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/14/23 16:34
Container ID: 1234779014-B

Prep Batch: VXX40425
Prep Method: SW5030B
Prep Date/Time: 09/14/23 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS22758
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/11/23 22:04
Container ID: 1234779014-A

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 09/11/23 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

Member of SGS Group

Results of **SFM23-TWP7A**

Client Sample ID: **SFM23-TWP7A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779015
Lab Project ID: 1234779

Collection Date: 08/31/23 16:23
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/12/23 23:05
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/12/23 23:05
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/12/23 23:05
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Benzene	0.400	U	0.400	0.120	ug/L	1		09/12/23 23:05
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/12/23 23:05
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05

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

Member of SGS Group

Results of **SFM23-TWP7A**

Client Sample ID: **SFM23-TWP7A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779015
Lab Project ID: 1234779

Collection Date: 08/31/23 16:23
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
cis-1,2-Dichloroethene	3.11		1.00	0.310	ug/L	1		09/12/23 23:05
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/12/23 23:05
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/12/23 23:05
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Styrene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Tetrachloroethene	1.19		1.00	0.310	ug/L	1		09/12/23 23:05
Toluene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
trans-1,2-Dichloroethene	8.74		1.00	0.310	ug/L	1		09/12/23 23:05
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Trichloroethene	4.41		0.500	0.150	ug/L	1		09/12/23 23:05
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/12/23 23:05
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/12/23 23:05
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/12/23 23:05
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/12/23 23:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/12/23 23:05
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/12/23 23:05
Toluene-d8 (surr)	102		89-112		%	1		09/12/23 23:05

Results of **SFM23-TWP7A**

Client Sample ID: **SFM23-TWP7A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779015
Lab Project ID: 1234779

Collection Date: 08/31/23 16:23
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22761
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/12/23 23:05
Container ID: 1234779015-A

Prep Batch: VXX40420
Prep Method: SW5030B
Prep Date/Time: 09/12/23 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

Member of SGS Group

Results of **MW-2B**

Client Sample ID: **MW-2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779016
Lab Project ID: 1234779

Collection Date: 09/04/23 13:13
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 21:54
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 21:54
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 21:54
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 21:54
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 21:54
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54

Results of **MW-2B**

Client Sample ID: **MW-2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779016
Lab Project ID: 1234779

Collection Date: 09/04/23 13:13
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
cis-1,2-Dichloroethene	19.5		1.00	0.310	ug/L	1		09/13/23 21:54
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 21:54
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 21:54
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
trans-1,2-Dichloroethene	11.0		1.00	0.310	ug/L	1		09/13/23 21:54
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Trichloroethene	53.9		0.500	0.150	ug/L	1		09/13/23 21:54
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 21:54
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 21:54
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 21:54
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 21:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		09/13/23 21:54
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/13/23 21:54
Toluene-d8 (surr)	101		89-112		%	1		09/13/23 21:54

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

Member of SGS Group

Results of **MW-2B**

Client Sample ID: **MW-2B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779016
Lab Project ID: 1234779

Collection Date: 09/04/23 13:13
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 21:54
Container ID: 1234779016-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **MW-2C**

Client Sample ID: **MW-2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779017
Lab Project ID: 1234779

Collection Date: 09/04/23 13:50
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:09
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 22:09
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 22:09
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:09
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 22:09
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09

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

Member of SGS Group

Results of **MW-2C**

Client Sample ID: **MW-2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779017
Lab Project ID: 1234779

Collection Date: 09/04/23 13:50
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
cis-1,2-Dichloroethene	2.13		1.00	0.310	ug/L	1		09/13/23 22:09
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:09
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 22:09
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Tetrachloroethene	1.82		1.00	0.310	ug/L	1		09/13/23 22:09
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
trans-1,2-Dichloroethene	1.36		1.00	0.310	ug/L	1		09/13/23 22:09
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:09
Trichloroethene	3.74		0.500	0.150	ug/L	1		09/13/23 22:09
Trichlorofluoromethane	1.73		1.00	0.310	ug/L	1		09/13/23 22:09
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:09
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 22:09
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 22:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		81-118		%	1		09/13/23 22:09
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/13/23 22:09
Toluene-d8 (surr)	101		89-112		%	1		09/13/23 22:09

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

Member of SGS Group

Results of **MW-2C**

Client Sample ID: **MW-2C**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779017
Lab Project ID: 1234779

Collection Date: 09/04/23 13:50
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 22:09
Container ID: 1234779017-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **MW-2A**

Client Sample ID: **MW-2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779018
Lab Project ID: 1234779

Collection Date: 09/04/23 14:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:24
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 22:24
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 22:24
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:24
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 22:24
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24

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

Member of SGS Group

Results of **MW-2A**

Client Sample ID: **MW-2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779018
Lab Project ID: 1234779

Collection Date: 09/04/23 14:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
cis-1,2-Dichloroethene	2.04		1.00	0.310	ug/L	1		09/13/23 22:24
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:24
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 22:24
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Tetrachloroethene	1.80		1.00	0.310	ug/L	1		09/13/23 22:24
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
trans-1,2-Dichloroethene	1.33		1.00	0.310	ug/L	1		09/13/23 22:24
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:24
Trichloroethene	3.54		0.500	0.150	ug/L	1		09/13/23 22:24
Trichlorofluoromethane	1.71		1.00	0.310	ug/L	1		09/13/23 22:24
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:24
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 22:24
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 22:24
Surrogates								
1,2-Dichloroethane-D4 (surr)	108		81-118		%	1		09/13/23 22:24
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/13/23 22:24
Toluene-d8 (surr)	100		89-112		%	1		09/13/23 22:24

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

Member of SGS Group

Results of **MW-2A**

Client Sample ID: **MW-2A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779018
Lab Project ID: 1234779

Collection Date: 09/04/23 14:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 22:24
Container ID: 1234779018-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **MW-1B**

Client Sample ID: **MW-1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779019
Lab Project ID: 1234779

Collection Date: 09/04/23 15:04
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:39
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 22:39
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 22:39
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:39
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 22:39
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39

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

Member of SGS Group

Results of **MW-1B**

Client Sample ID: **MW-1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779019
Lab Project ID: 1234779

Collection Date: 09/04/23 15:04
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:39
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 22:39
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Tetrachloroethene	4.31		1.00	0.310	ug/L	1		09/13/23 22:39
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Trichloroethene	1.15		0.500	0.150	ug/L	1		09/13/23 22:39
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:39
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:39
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 22:39
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 22:39
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		81-118		%	1		09/13/23 22:39
4-Bromofluorobenzene (surr)	101		85-114		%	1		09/13/23 22:39
Toluene-d8 (surr)	98.8		89-112		%	1		09/13/23 22:39

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

Member of SGS Group

Results of **MW-1B**

Client Sample ID: **MW-1B**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779019
Lab Project ID: 1234779

Collection Date: 09/04/23 15:04
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 22:39
Container ID: 1234779019-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **MW-1A**

Client Sample ID: **MW-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779020
Lab Project ID: 1234779

Collection Date: 09/04/23 15:33
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:54
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 22:54
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 22:54
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 22:54
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 22:54
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54

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

Member of SGS Group

Results of **MW-1A**

Client Sample ID: **MW-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779020
Lab Project ID: 1234779

Collection Date: 09/04/23 15:33
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
cis-1,2-Dichloroethene	8.15		1.00	0.310	ug/L	1		09/13/23 22:54
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 22:54
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 22:54
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Tetrachloroethene	147		1.00	0.310	ug/L	1		09/13/23 22:54
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
trans-1,2-Dichloroethene	7.89		1.00	0.310	ug/L	1		09/13/23 22:54
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Trichloroethene	18.0		0.500	0.150	ug/L	1		09/13/23 22:54
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 22:54
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 22:54
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 22:54
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 22:54
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/13/23 22:54
4-Bromofluorobenzene (surr)	103		85-114		%	1		09/13/23 22:54
Toluene-d8 (surr)	100		89-112		%	1		09/13/23 22:54

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

Member of SGS Group

Results of **MW-1A**

Client Sample ID: **MW-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779020
Lab Project ID: 1234779

Collection Date: 09/04/23 15:33
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 22:54
Container ID: 1234779020-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **EB-1A**

Client Sample ID: **EB-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779021
Lab Project ID: 1234779

Collection Date: 09/04/23 15:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/13/23 23:09
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/13/23 23:09
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/13/23 23:09
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Benzene	0.400	U	0.400	0.120	ug/L	1		09/13/23 23:09
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/13/23 23:09
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09

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

Member of SGS Group

Results of **EB-1A**

Client Sample ID: **EB-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779021
Lab Project ID: 1234779

Collection Date: 09/04/23 15:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/13/23 23:09
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Styrene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Toluene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/13/23 23:09
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/13/23 23:09
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/13/23 23:09
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/13/23 23:09
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/13/23 23:09
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		81-118		%	1		09/13/23 23:09
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/13/23 23:09
Toluene-d8 (surr)	98.1		89-112		%	1		09/13/23 23:09

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

Member of SGS Group

Results of **EB-1A**

Client Sample ID: **EB-1A**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779021
Lab Project ID: 1234779

Collection Date: 09/04/23 15:55
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/13/23 23:09
Container ID: 1234779021-A

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 09/13/23 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

Member of SGS Group

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779022
Lab Project ID: 1234779

Collection Date: 08/29/23 00:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
1,1,1-Trichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,1,2,2-Tetrachloroethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
1,1,2-Trichloroethane	0.400	U	0.400	0.120	ug/L	1		09/10/23 18:16
1,1-Dichloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,1-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,1-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2,3-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2,3-Trichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2,4-Trichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2,4-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2-Dibromo-3-chloropropane	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
1,2-Dibromoethane	0.0750	U	0.0750	0.0180	ug/L	1		09/10/23 18:16
1,2-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,2-Dichloroethane	0.500	U	0.500	0.200	ug/L	1		09/10/23 18:16
1,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,3,5-Trimethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,3-Dichlorobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
1,3-Dichloropropane	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
1,4-Dichlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
2,2-Dichloropropane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
2-Butanone (MEK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
2-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
2-Hexanone	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
4-Chlorotoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
4-Isopropyltoluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
4-Methyl-2-pentanone (MIBK)	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Benzene	0.400	U	0.400	0.120	ug/L	1		09/10/23 18:16
Bromobenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Bromochloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Bromodichloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
Bromoform	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Bromomethane	6.00	U	6.00	3.00	ug/L	1		09/10/23 18:16
Carbon disulfide	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Carbon tetrachloride	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Chlorobenzene	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
Chloroethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16

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

Member of SGS Group

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779022
Lab Project ID: 1234779

Collection Date: 08/29/23 00:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Chloromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
cis-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
cis-1,3-Dichloropropene	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
Dibromochloromethane	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
Dibromomethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Dichlorodifluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Ethylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Freon-113	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Hexachlorobutadiene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Isopropylbenzene (Cumene)	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Methylene chloride	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Methyl-t-butyl ether	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Naphthalene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
n-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
n-Propylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
o-Xylene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
P & M -Xylene	2.00	U	2.00	0.620	ug/L	1		09/10/23 18:16
sec-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Styrene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
tert-Butylbenzene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Tetrachloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Toluene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
trans-1,2-Dichloroethene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
trans-1,3-Dichloropropene	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Trichloroethene	0.500	U	0.500	0.150	ug/L	1		09/10/23 18:16
Trichlorofluoromethane	1.00	U	1.00	0.310	ug/L	1		09/10/23 18:16
Vinyl acetate	10.0	U	10.0	3.10	ug/L	1		09/10/23 18:16
Vinyl chloride	0.150	U	0.150	0.0500	ug/L	1		09/10/23 18:16
Xylenes (total)	3.00	U	3.00	1.00	ug/L	1		09/10/23 18:16
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/10/23 18:16
4-Bromofluorobenzene (surr)	99.3		85-114		%	1		09/10/23 18:16
Toluene-d8 (surr)	102		89-112		%	1		09/10/23 18:16

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

Member of SGS Group

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **106568-006; SFM23 GW**
Lab Sample ID: 1234779022
Lab Project ID: 1234779

Collection Date: 08/29/23 00:00
Received Date: 09/06/23 11:22
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Analyst: JY
Analytical Date/Time: 09/10/23 18:16
Container ID: 1234779022-A

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 09/10/23 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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1864088 [VXX/40406]
Blank Lab ID: 1733772

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779001, 1234779002, 1234779003, 1234779004, 1234779005, 1234779022

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.730J	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

Method Blank

Blank ID: MB for HBN 1864088 [VXX/40406]
Blank Lab ID: 1733772

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779001, 1234779002, 1234779003, 1234779004, 1234779005, 1234779022

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	103	81-118		0	%
4-Bromofluorobenzene (surr)	96.7	85-114		0	%
Toluene-d8 (surr)	101	89-112		0	%

Batch Information

Analytical Batch: VMS22749
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/10/2023 1:52:00PM

Prep Batch: VXX40406
Prep Method: SW5030B
Prep Date/Time: 9/10/2023 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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40406]
Blank Spike Lab ID: 1733773
Date Analyzed: 09/10/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40406]
Spike Duplicate Lab ID: 1733774
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779001, 1234779002, 1234779003, 1234779004, 1234779005, 1234779022

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	28.9	96	30	28.2	94	(78-124)	2.40	(< 20)
1,1,1-Trichloroethane	30	30.2	101	30	30.5	102	(74-131)	0.82	(< 20)
1,1,2,2-Tetrachloroethane	30	24.5	82	30	25.5	85	(71-121)	4.40	(< 20)
1,1,2-Trichloroethane	30	29.6	99	30	28.4	95	(80-119)	4.20	(< 20)
1,1-Dichloroethane	30	28.1	94	30	28.8	96	(77-125)	2.30	(< 20)
1,1-Dichloroethene	30	30.2	101	30	30.6	102	(71-131)	1.20	(< 20)
1,1-Dichloropropene	30	30.9	103	30	30.9	103	(79-125)	0.07	(< 20)
1,2,3-Trichlorobenzene	30	23.9	80	30	25.6	85	(69-129)	6.90	(< 20)
1,2,3-Trichloropropane	30	26.1	87	30	25.9	86	(73-122)	0.65	(< 20)
1,2,4-Trichlorobenzene	30	26.5	88	30	26.7	89	(69-130)	0.79	(< 20)
1,2,4-Trimethylbenzene	30	26.9	90	30	29.0	97	(79-124)	7.60	(< 20)
1,2-Dibromo-3-chloropropane	30	27.8	93	30	26.0	87	(62-128)	6.40	(< 20)
1,2-Dibromoethane	30	29.7	99	30	28.2	94	(77-121)	5.50	(< 20)
1,2-Dichlorobenzene	30	27.0	90	30	27.1	90	(80-119)	0.30	(< 20)
1,2-Dichloroethane	30	26.1	87	30	26.3	88	(73-128)	0.92	(< 20)
1,2-Dichloropropane	30	29.5	98	30	29.8	99	(78-122)	0.91	(< 20)
1,3,5-Trimethylbenzene	30	26.9	90	30	28.4	95	(75-124)	5.60	(< 20)
1,3-Dichlorobenzene	30	27.9	93	30	28.4	95	(80-119)	1.90	(< 20)
1,3-Dichloropropane	30	30.1	100	30	28.8	96	(80-119)	4.30	(< 20)
1,4-Dichlorobenzene	30	27.5	92	30	28.0	93	(79-118)	1.90	(< 20)
2,2-Dichloropropane	30	38.3	128	30	38.1	127	(60-139)	0.37	(< 20)
2-Butanone (MEK)	90	96.3	107	90	87.5	97	(56-143)	9.60	(< 20)
2-Chlorotoluene	30	27.1	90	30	28.8	96	(79-122)	6.40	(< 20)
2-Hexanone	90	89.6	100	90	81.7	91	(57-139)	9.20	(< 20)
4-Chlorotoluene	30	27.0	90	30	28.7	96	(78-122)	6.10	(< 20)
4-Isopropyltoluene	30	28.1	94	30	30.1	100	(77-127)	6.70	(< 20)
4-Methyl-2-pentanone (MIBK)	90	99.0	110	90	93.6	104	(67-130)	5.60	(< 20)
Benzene	30	31.2	104	30	31.5	105	(79-120)	0.99	(< 20)
Bromobenzene	30	27.0	90	30	27.8	93	(80-120)	2.70	(< 20)
Bromochloromethane	30	27.0	90	30	27.3	91	(78-123)	0.96	(< 20)
Bromodichloromethane	30	27.4	91	30	27.9	93	(79-125)	1.80	(< 20)
Bromoform	30	26.8	89	30	25.9	86	(66-130)	3.70	(< 20)
Bromomethane	30	27.5	92	30	30.9	103	(53-141)	11.60	(< 20)
Carbon disulfide	45	49.6	110	45	49.7	110	(64-133)	0.10	(< 20)

Print Date: 09/20/2023 8:21:42AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40406]
Blank Spike Lab ID: 1733773
Date Analyzed: 09/10/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40406]
Spike Duplicate Lab ID: 1733774
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779001, 1234779002, 1234779003, 1234779004, 1234779005, 1234779022

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	29.9	100	30	30.4	101	(72-136)	1.70	(< 20)
Chlorobenzene	30	29.6	99	30	29.4	98	(82-118)	0.58	(< 20)
Chloroethane	30	29.7	99	30	30.4	101	(60-138)	2.40	(< 20)
Chloroform	30	27.3	91	30	27.9	93	(79-124)	2.20	(< 20)
Chloromethane	30	27.0	90	30	28.1	94	(50-139)	3.90	(< 20)
cis-1,2-Dichloroethene	30	27.8	93	30	28.8	96	(78-123)	3.50	(< 20)
cis-1,3-Dichloropropene	30	31.1	104	30	30.8	103	(75-124)	0.78	(< 20)
Dibromochloromethane	30	29.0	97	30	28.2	94	(74-126)	2.60	(< 20)
Dibromomethane	30	26.4	88	30	26.4	88	(79-123)	0.04	(< 20)
Dichlorodifluoromethane	30	30.1	100	30	30.7	102	(32-152)	1.90	(< 20)
Ethylbenzene	30	32.6	109	30	32.6	109	(79-121)	0.06	(< 20)
Freon-113	45	47.2	105	45	47.5	106	(70-136)	0.74	(< 20)
Hexachlorobutadiene	30	30.9	103	30	30.2	101	(66-134)	2.40	(< 20)
Isopropylbenzene (Cumene)	30	29.5	98	30	29.5	98	(72-131)	0.14	(< 20)
Methylene chloride	30	28.0	93	30	28.8	96	(74-124)	2.60	(< 20)
Methyl-t-butyl ether	45	45.0	100	45	44.0	98	(71-124)	2.20	(< 20)
Naphthalene	30	28.0	93	30	28.2	94	(61-128)	0.64	(< 20)
n-Butylbenzene	30	28.0	93	30	30.4	101	(75-128)	7.90	(< 20)
n-Propylbenzene	30	26.9	90	30	28.5	95	(76-126)	5.90	(< 20)
o-Xylene	30	31.6	105	30	31.2	104	(78-122)	1.20	(< 20)
P & M -Xylene	60	59.0	98	60	59.0	98	(80-121)	0.00	(< 20)
sec-Butylbenzene	30	27.3	91	30	29.4	98	(77-126)	7.40	(< 20)
Styrene	30	28.9	97	30	28.9	96	(78-123)	0.31	(< 20)
tert-Butylbenzene	30	26.9	90	30	29.2	97	(78-124)	8.00	(< 20)
Tetrachloroethene	30	31.6	105	30	30.7	102	(74-129)	3.00	(< 20)
Toluene	30	30.9	103	30	30.4	101	(80-121)	1.70	(< 20)
trans-1,2-Dichloroethene	30	30.6	102	30	30.8	103	(75-124)	0.68	(< 20)
trans-1,3-Dichloropropene	30	29.4	98	30	28.2	94	(73-127)	4.10	(< 20)
Trichloroethene	30	31.5	105	30	31.5	105	(79-123)	0.16	(< 20)
Trichlorofluoromethane	30	30.9	103	30	31.3	104	(65-141)	1.40	(< 20)
Vinyl acetate	30	31.5	105	30	30.6	102	(54-146)	2.70	(< 20)
Vinyl chloride	30	31.0	103	30	31.4	105	(58-137)	1.30	(< 20)
Xylenes (total)	90	90.6	101	90	90.2	100	(79-121)	0.42	(< 20)

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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40406]
Blank Spike Lab ID: 1733773
Date Analyzed: 09/10/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40406]
Spike Duplicate Lab ID: 1733774
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779001, 1234779002, 1234779003, 1234779004, 1234779005, 1234779022

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		93	30		94	(81-118)	1.40	
4-Bromofluorobenzene (surr)	30		101	30		97	(85-114)	4.10	
Toluene-d8 (surr)	30		100	30		99	(89-112)	0.47	

Batch Information

Analytical Batch: **VMS22749**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JY**

Prep Batch: **VXX40406**
Prep Method: **SW5030B**
Prep Date/Time: **09/10/2023 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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1864173 [VXX/40417]
Blank Lab ID: 1734187

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779006, 1234779007, 1234779008, 1234779009, 1234779010, 1234779011, 1234779012, 1234779013, 1234779014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.730J	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

Method Blank

Blank ID: MB for HBN 1864173 [VXX/40417]
Blank Lab ID: 1734187

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779006, 1234779007, 1234779008, 1234779009, 1234779010, 1234779011, 1234779012, 1234779013, 1234779014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	102	81-118		0	%
4-Bromofluorobenzene (surr)	98.7	85-114		0	%
Toluene-d8 (surr)	102	89-112		0	%

Batch Information

Analytical Batch: VMS22758
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/11/2023 3:15:00PM

Prep Batch: VXX40417
Prep Method: SW5030B
Prep Date/Time: 9/11/2023 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40417]
Blank Spike Lab ID: 1734188
Date Analyzed: 09/11/2023 15:30

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40417]
Spike Duplicate Lab ID: 1734189
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779006, 1234779007, 1234779008, 1234779009, 1234779010, 1234779011, 1234779012, 1234779013, 1234779014

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	28.8	96	30	28.2	94	(78-124)	2.00	(< 20)
1,1,1-Trichloroethane	30	30.7	102	30	30.7	102	(74-131)	0.26	(< 20)
1,1,2,2-Tetrachloroethane	30	26.9	90	30	26.4	88	(71-121)	2.10	(< 20)
1,1,2-Trichloroethane	30	29.7	99	30	29.0	97	(80-119)	2.40	(< 20)
1,1-Dichloroethane	30	28.7	96	30	28.8	96	(77-125)	0.66	(< 20)
1,1-Dichloroethene	30	30.8	103	30	30.9	103	(71-131)	0.42	(< 20)
1,1-Dichloropropene	30	31.6	105	30	31.5	105	(79-125)	0.35	(< 20)
1,2,3-Trichlorobenzene	30	32.7	109	30	31.2	104	(69-129)	4.80	(< 20)
1,2,3-Trichloropropane	30	27.3	91	30	26.7	89	(73-122)	2.40	(< 20)
1,2,4-Trichlorobenzene	30	30.3	101	30	30.1	100	(69-130)	0.63	(< 20)
1,2,4-Trimethylbenzene	30	29.1	97	30	29.3	98	(79-124)	0.55	(< 20)
1,2-Dibromo-3-chloropropane	30	30.4	101	30	29.0	97	(62-128)	4.80	(< 20)
1,2-Dibromoethane	30	29.4	98	30	28.9	96	(77-121)	1.70	(< 20)
1,2-Dichlorobenzene	30	27.5	92	30	27.4	91	(80-119)	0.36	(< 20)
1,2-Dichloroethane	30	26.6	89	30	26.9	90	(73-128)	1.10	(< 20)
1,2-Dichloropropane	30	30.0	100	30	30.2	101	(78-122)	0.43	(< 20)
1,3,5-Trimethylbenzene	30	28.3	94	30	28.3	94	(75-124)	0.04	(< 20)
1,3-Dichlorobenzene	30	28.7	96	30	28.7	96	(80-119)	0.21	(< 20)
1,3-Dichloropropane	30	30.2	101	30	29.5	98	(80-119)	2.40	(< 20)
1,4-Dichlorobenzene	30	28.5	95	30	28.5	95	(79-118)	0.07	(< 20)
2,2-Dichloropropane	30	37.5	125	30	37.3	124	(60-139)	0.78	(< 20)
2-Butanone (MEK)	90	101	112	90	97.4	108	(56-143)	3.30	(< 20)
2-Chlorotoluene	30	28.9	96	30	29.2	97	(79-122)	1.00	(< 20)
2-Hexanone	90	91.0	101	90	87.8	98	(57-139)	3.70	(< 20)
4-Chlorotoluene	30	28.5	95	30	28.8	96	(78-122)	0.98	(< 20)
4-Isopropyltoluene	30	30.1	100	30	30.5	102	(77-127)	1.40	(< 20)
4-Methyl-2-pentanone (MIBK)	90	100	112	90	98.7	110	(67-130)	1.80	(< 20)
Benzene	30	32.0	107	30	31.6	105	(79-120)	1.50	(< 20)
Bromobenzene	30	27.4	91	30	27.5	92	(80-120)	0.29	(< 20)
Bromochloromethane	30	27.1	90	30	27.6	92	(78-123)	1.90	(< 20)
Bromodichloromethane	30	27.9	93	30	28.3	94	(79-125)	1.40	(< 20)
Bromoform	30	27.1	91	30	26.2	87	(66-130)	3.40	(< 20)
Bromomethane	30	25.3	84	30	28.4	95	(53-141)	11.60	(< 20)
Carbon disulfide	45	50.3	112	45	50.2	112	(64-133)	0.14	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40417]
Blank Spike Lab ID: 1734188
Date Analyzed: 09/11/2023 15:30

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40417]
Spike Duplicate Lab ID: 1734189
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779006, 1234779007, 1234779008, 1234779009, 1234779010, 1234779011, 1234779012, 1234779013, 1234779014

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	30.7	102	30	31.0	103	(72-136)	0.97	(< 20)
Chlorobenzene	30	29.9	100	30	29.5	98	(82-118)	1.40	(< 20)
Chloroethane	30	29.2	97	30	29.3	98	(60-138)	0.27	(< 20)
Chloroform	30	27.9	93	30	28.1	94	(79-124)	0.82	(< 20)
Chloromethane	30	26.7	89	30	27.2	91	(50-139)	1.70	(< 20)
cis-1,2-Dichloroethene	30	28.6	95	30	28.6	95	(78-123)	0.14	(< 20)
cis-1,3-Dichloropropene	30	31.2	104	30	31.4	105	(75-124)	0.70	(< 20)
Dibromochloromethane	30	29.3	98	30	28.8	96	(74-126)	1.90	(< 20)
Dibromomethane	30	26.6	89	30	27.0	90	(79-123)	1.30	(< 20)
Dichlorodifluoromethane	30	29.5	99	30	29.6	99	(32-152)	0.20	(< 20)
Ethylbenzene	30	32.8	109	30	32.8	109	(79-121)	0.06	(< 20)
Freon-113	45	48.1	107	45	48.4	108	(70-136)	0.62	(< 20)
Hexachlorobutadiene	30	32.6	109	30	32.4	108	(66-134)	0.83	(< 20)
Isopropylbenzene (Cumene)	30	30.1	100	30	29.9	100	(72-131)	0.80	(< 20)
Methylene chloride	30	28.3	94	30	28.7	96	(74-124)	1.40	(< 20)
Methyl-t-butyl ether	45	45.1	100	45	45.2	101	(71-124)	0.24	(< 20)
Naphthalene	30	34.7	116	30	35.0	117	(61-128)	0.75	(< 20)
n-Butylbenzene	30	30.9	103	30	31.1	104	(75-128)	0.74	(< 20)
n-Propylbenzene	30	28.6	95	30	28.7	96	(76-126)	0.24	(< 20)
o-Xylene	30	31.8	106	30	31.7	106	(78-122)	0.22	(< 20)
P & M -Xylene	60	59.3	99	60	59.2	99	(80-121)	0.20	(< 20)
sec-Butylbenzene	30	30.0	100	30	30.2	101	(77-126)	0.96	(< 20)
Styrene	30	29.3	98	30	29.0	97	(78-123)	0.82	(< 20)
tert-Butylbenzene	30	29.2	98	30	29.2	98	(78-124)	0.00	(< 20)
Tetrachloroethene	30	31.8	106	30	30.8	103	(74-129)	3.30	(< 20)
Toluene	30	31.1	104	30	30.6	102	(80-121)	1.70	(< 20)
trans-1,2-Dichloroethene	30	31.1	104	30	31.1	104	(75-124)	0.03	(< 20)
trans-1,3-Dichloropropene	30	29.3	98	30	28.5	95	(73-127)	2.50	(< 20)
Trichloroethene	30	31.9	106	30	32.2	107	(79-123)	0.97	(< 20)
Trichlorofluoromethane	30	30.8	103	30	30.7	102	(65-141)	0.26	(< 20)
Vinyl acetate	30	32.2	107	30	31.8	106	(54-146)	1.20	(< 20)
Vinyl chloride	30	30.4	101	30	30.6	102	(58-137)	0.39	(< 20)
Xylenes (total)	90	91.1	101	90	90.9	101	(79-121)	0.21	(< 20)

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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40417]
Blank Spike Lab ID: 1734188
Date Analyzed: 09/11/2023 15:30

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40417]
Spike Duplicate Lab ID: 1734189
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779006, 1234779007, 1234779008, 1234779009, 1234779010, 1234779011, 1234779012, 1234779013, 1234779014

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		94	30		96	(81-118)	1.70	
4-Bromofluorobenzene (surr)	30		95	30		96	(85-114)	0.84	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.00	

Batch Information

Analytical Batch: **VMS22758**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JY**

Prep Batch: **VXX40417**
Prep Method: **SW5030B**
Prep Date/Time: **09/11/2023 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1864191 [VXX/40420]
Blank Lab ID: 1734264

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779015

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.710J	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1864191 [VXX/40420]
Blank Lab ID: 1734264

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779015

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	102	81-118		0	%
4-Bromofluorobenzene (surr)	101	85-114		0	%
Toluene-d8 (surr)	101	89-112		0	%

Batch Information

Analytical Batch: VMS22761
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/12/2023 5:35:00PM

Prep Batch: VXX40420
Prep Method: SW5030B
Prep Date/Time: 9/12/2023 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Leaching Blank

Blank ID: LB for HBN 1863841 [TCLP/12644
Blank Lab ID: 1732612

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779015

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1-Dichloroethene	25.0U	50.0	15.5	25.0	ug/L
1,2-Dichloroethane	12.5U	25.0	10.0	12.5	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	12.5	ug/L
2-Butanone (MEK)	250U	500	155	250	ug/L
Benzene	10.0U	20.0	6.00	10.0	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	25.0	ug/L
Chlorobenzene	12.5U	25.0	7.50	12.5	ug/L
Chloroform	25.0U	50.0	15.5	25.0	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	25.0	ug/L
Tetrachloroethene	25.0U	50.0	15.5	25.0	ug/L
Trichloroethene	12.5U	25.0	7.50	12.5	ug/L
Vinyl chloride	3.75U	7.50	2.50	3.75	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	104	81-118		0	%
4-Bromofluorobenzene (surr)	100	85-114		0	%
Toluene-d8 (surr)	99.5	89-112		0	%

Batch Information

Analytical Batch: VMS22761
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/12/2023 11:50:00PM

Prep Batch: VXX40420
Prep Method: SW5030B
Prep Date/Time: 9/12/2023 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

Member of SGS Group

Leaching Blank

Blank ID: LB for HBN 1864056 [TCLP/12651
Blank Lab ID: 1733603

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779015

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1-Dichloroethene	25.0U	50.0	15.5	25.0	ug/L
1,2-Dichloroethane	12.5U	25.0	10.0	12.5	ug/L
1,4-Dichlorobenzene	12.5U	25.0	7.50	12.5	ug/L
2-Butanone (MEK)	250U	500	155	250	ug/L
Benzene	10.0U	20.0	6.00	10.0	ug/L
Carbon tetrachloride	25.0U	50.0	15.5	25.0	ug/L
Chlorobenzene	12.5U	25.0	7.50	12.5	ug/L
Chloroform	25.0U	50.0	15.5	25.0	ug/L
Hexachlorobutadiene	25.0U	50.0	15.5	25.0	ug/L
Tetrachloroethene	25.0U	50.0	15.5	25.0	ug/L
Trichloroethene	12.5U	25.0	7.50	12.5	ug/L
Vinyl chloride	3.75U	7.50	2.50	3.75	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	101	81-118		0	%
4-Bromofluorobenzene (surr)	100	85-114		0	%
Toluene-d8 (surr)	99.1	89-112		0	%

Batch Information

Analytical Batch: VMS22761
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/13/2023 12:05:00AM

Prep Batch: VXX40420
Prep Method: SW5030B
Prep Date/Time: 9/12/2023 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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40420]
Blank Spike Lab ID: 1734265
Date Analyzed: 09/12/2023 17:50

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40420]
Spike Duplicate Lab ID: 1734266
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779015

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	28.5	95	30	28.0	93	(78-124)	2.10	(< 20)
1,1,1-Trichloroethane	30	31.7	106	30	29.0	97	(74-131)	9.10	(< 20)
1,1,2,2-Tetrachloroethane	30	26.5	88	30	25.1	84	(71-121)	5.50	(< 20)
1,1,2-Trichloroethane	30	29.1	97	30	28.0	93	(80-119)	3.70	(< 20)
1,1-Dichloroethane	30	29.7	99	30	27.2	91	(77-125)	8.80	(< 20)
1,1-Dichloroethene	30	31.8	106	30	29.3	98	(71-131)	8.10	(< 20)
1,1-Dichloropropene	30	31.8	106	30	29.5	98	(79-125)	7.80	(< 20)
1,2,3-Trichlorobenzene	30	27.2	91	30	21.1	70	(69-129)	25.00 *	(< 20)
1,2,3-Trichloropropane	30	27.1	90	30	25.4	85	(73-122)	6.40	(< 20)
1,2,4-Trichlorobenzene	30	28.1	94	30	23.6	79	(69-130)	17.20	(< 20)
1,2,4-Trimethylbenzene	30	29.3	98	30	28.7	96	(79-124)	1.80	(< 20)
1,2-Dibromo-3-chloropropane	30	28.2	94	30	24.3	81	(62-128)	15.20	(< 20)
1,2-Dibromoethane	30	29.1	97	30	27.7	92	(77-121)	5.10	(< 20)
1,2-Dichlorobenzene	30	27.6	92	30	26.7	89	(80-119)	3.00	(< 20)
1,2-Dichloroethane	30	27.5	92	30	25.1	84	(73-128)	9.40	(< 20)
1,2-Dichloropropane	30	30.4	101	30	28.4	95	(78-122)	6.80	(< 20)
1,3,5-Trimethylbenzene	30	28.7	96	30	28.1	94	(75-124)	2.30	(< 20)
1,3-Dichlorobenzene	30	28.8	96	30	28.0	93	(80-119)	2.90	(< 20)
1,3-Dichloropropane	30	29.4	98	30	28.3	94	(80-119)	3.80	(< 20)
1,4-Dichlorobenzene	30	28.8	96	30	27.8	93	(79-118)	3.70	(< 20)
2,2-Dichloropropane	30	38.6	129	30	34.9	116	(60-139)	10.10	(< 20)
2-Butanone (MEK)	90	97.2	108	90	79.6	89	(56-143)	19.90	(< 20)
2-Chlorotoluene	30	29.1	97	30	28.5	95	(79-122)	1.90	(< 20)
2-Hexanone	90	87.4	97	90	76.0	84	(57-139)	14.00	(< 20)
4-Chlorotoluene	30	28.9	96	30	28.3	94	(78-122)	2.10	(< 20)
4-Isopropyltoluene	30	30.1	100	30	30.0	100	(77-127)	0.63	(< 20)
4-Methyl-2-pentanone (MIBK)	90	99.8	111	90	84.9	94	(67-130)	16.20	(< 20)
Benzene	30	31.3	104	30	29.7	99	(79-120)	5.30	(< 20)
Bromobenzene	30	28.0	93	30	27.3	91	(80-120)	2.30	(< 20)
Bromochloromethane	30	28.3	94	30	26.1	87	(78-123)	8.10	(< 20)
Bromodichloromethane	30	29.0	97	30	26.7	89	(79-125)	8.40	(< 20)
Bromoform	30	26.8	89	30	25.2	84	(66-130)	6.20	(< 20)
Bromomethane	30	24.0	80	30	26.9	90	(53-141)	11.60	(< 20)
Carbon disulfide	45	52.3	116	45	47.8	106	(64-133)	9.10	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40420]
Blank Spike Lab ID: 1734265
Date Analyzed: 09/12/2023 17:50

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40420]
Spike Duplicate Lab ID: 1734266
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779015

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	31.9	106	30	29.0	97	(72-136)	9.40	(< 20)
Chlorobenzene	30	29.7	99	30	28.5	95	(82-118)	4.30	(< 20)
Chloroethane	30	30.9	103	30	28.6	95	(60-138)	7.70	(< 20)
Chloroform	30	28.8	96	30	26.5	88	(79-124)	8.30	(< 20)
Chloromethane	30	28.3	94	30	26.3	88	(50-139)	7.40	(< 20)
cis-1,2-Dichloroethene	30	29.0	97	30	26.8	89	(78-123)	7.90	(< 20)
cis-1,3-Dichloropropene	30	31.7	106	30	29.3	98	(75-124)	7.80	(< 20)
Dibromochloromethane	30	29.0	97	30	27.9	93	(74-126)	3.90	(< 20)
Dibromomethane	30	27.5	92	30	25.1	84	(79-123)	9.40	(< 20)
Dichlorodifluoromethane	30	32.0	107	30	29.3	98	(32-152)	8.80	(< 20)
Ethylbenzene	30	32.9	110	30	31.5	105	(79-121)	4.40	(< 20)
Freon-113	45	49.8	111	45	45.9	102	(70-136)	8.10	(< 20)
Hexachlorobutadiene	30	31.7	106	30	29.8	99	(66-134)	6.10	(< 20)
Isopropylbenzene (Cumene)	30	30.1	100	30	28.5	95	(72-131)	5.20	(< 20)
Methylene chloride	30	29.7	99	30	27.6	92	(74-124)	7.40	(< 20)
Methyl-t-butyl ether	45	45.6	101	45	41.5	92	(71-124)	9.40	(< 20)
Naphthalene	30	29.8	99	30	22.5	75	(61-128)	27.90 *	(< 20)
n-Butylbenzene	30	30.7	102	30	30.7	102	(75-128)	0.13	(< 20)
n-Propylbenzene	30	28.6	95	30	28.2	94	(76-126)	1.50	(< 20)
o-Xylene	30	31.8	106	30	30.5	102	(78-122)	4.10	(< 20)
P & M -Xylene	60	59.6	99	60	57.2	95	(80-121)	4.20	(< 20)
sec-Butylbenzene	30	29.7	99	30	29.6	99	(77-126)	0.54	(< 20)
Styrene	30	28.9	96	30	27.9	93	(78-123)	3.80	(< 20)
tert-Butylbenzene	30	29.4	98	30	28.9	96	(78-124)	1.80	(< 20)
Tetrachloroethene	30	31.0	103	30	30.2	101	(74-129)	2.70	(< 20)
Toluene	30	30.5	102	30	29.6	99	(80-121)	3.20	(< 20)
trans-1,2-Dichloroethene	30	31.8	106	30	29.4	98	(75-124)	8.00	(< 20)
trans-1,3-Dichloropropene	30	28.7	96	30	27.5	92	(73-127)	4.00	(< 20)
Trichloroethene	30	32.5	108	30	30.2	101	(79-123)	7.40	(< 20)
Trichlorofluoromethane	30	32.4	108	30	29.7	99	(65-141)	8.40	(< 20)
Vinyl acetate	30	32.1	107	30	28.7	96	(54-146)	11.00	(< 20)
Vinyl chloride	30	32.1	107	30	29.6	99	(58-137)	8.10	(< 20)
Xylenes (total)	90	91.4	102	90	87.6	97	(79-121)	4.20	(< 20)

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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40420]
Blank Spike Lab ID: 1734265
Date Analyzed: 09/12/2023 17:50

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40420]
Spike Duplicate Lab ID: 1734266
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779015

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		97	30		92	(81-118)	5.60	
4-Bromofluorobenzene (surr)	30		96	30		98	(85-114)	1.50	
Toluene-d8 (surr)	30		99	30		100	(89-112)	1.30	

Batch Information

Analytical Batch: **VMS22761**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JY**

Prep Batch: **VXX40420**
Prep Method: **SW5030B**
Prep Date/Time: **09/12/2023 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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1864211 [VXX/40425]
Blank Lab ID: 1734348

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779014

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	106	81-118		0	%
4-Bromofluorobenzene (surr)	102	85-114		0	%
Toluene-d8 (surr)	97.4	89-112		0	%

Batch Information

Analytical Batch: VMS22762
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: JY
Analytical Date/Time: 9/14/2023 11:43:00AM

Prep Batch: VXX40425
Prep Method: SW5030B
Prep Date/Time: 9/14/2023 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

Member of SGS Group

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40425]
Blank Spike Lab ID: 1734349
Date Analyzed: 09/14/2023 11:58

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40425]
Spike Duplicate Lab ID: 1734350
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779014

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloromethane	30	30.2	101	30	28.7	96	(50-139)	5.10	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		98	30		101	(81-118)	2.70	
4-Bromofluorobenzene (surr)	30		98	30		98	(85-114)	0.44	
Toluene-d8 (surr)	30		100	30		100	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS22762**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **JY**

Prep Batch: **VXX40425**
Prep Method: **SW5030B**
Prep Date/Time: **09/14/2023 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

Member of SGS Group

Method Blank

Blank ID: MB for HBN 1864224 [VXX/40426]
Blank Lab ID: 1734419

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779016, 1234779017, 1234779018, 1234779019, 1234779020, 1234779021

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	0.250	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	0.200	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	5.00	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	0.0375	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	0.250	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	0.500	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	0.250	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	0.250	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	0.500	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	5.00	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
2-Hexanone	5.00U	10.0	3.10	5.00	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	0.500	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	0.500	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	5.00	ug/L
Benzene	0.200U	0.400	0.120	0.200	ug/L
Bromobenzene	0.500U	1.00	0.310	0.500	ug/L
Bromochloromethane	0.500U	1.00	0.310	0.500	ug/L
Bromodichloromethane	0.250U	0.500	0.150	0.250	ug/L
Bromoform	0.500U	1.00	0.310	0.500	ug/L
Bromomethane	3.00U	6.00	3.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	5.00	ug/L
Carbon tetrachloride	0.750J	1.00	0.310	0.500	ug/L
Chlorobenzene	0.250U	0.500	0.150	0.250	ug/L
Chloroethane	0.500U	1.00	0.310	0.500	ug/L
Chloroform	0.500U	1.00	0.310	0.500	ug/L
Chloromethane	0.500U	1.00	0.310	0.500	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	0.250	ug/L
Dibromochloromethane	0.250U	0.500	0.150	0.250	ug/L

Method Blank

Blank ID: MB for HBN 1864224 [VXX/40426]
Blank Lab ID: 1734419

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1234779016, 1234779017, 1234779018, 1234779019, 1234779020, 1234779021

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Dibromomethane	0.500U	1.00	0.310	0.500	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	0.500	ug/L
Ethylbenzene	0.500U	1.00	0.310	0.500	ug/L
Freon-113	5.00U	10.0	3.10	5.00	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	0.500	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	0.500	ug/L
Methylene chloride	5.00U	10.0	3.10	5.00	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	5.00	ug/L
Naphthalene	0.500U	1.00	0.310	0.500	ug/L
n-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
n-Propylbenzene	0.500U	1.00	0.310	0.500	ug/L
o-Xylene	0.500U	1.00	0.310	0.500	ug/L
P & M -Xylene	1.00U	2.00	0.620	1.00	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Styrene	0.500U	1.00	0.310	0.500	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	0.500	ug/L
Tetrachloroethene	0.500U	1.00	0.310	0.500	ug/L
Toluene	0.500U	1.00	0.310	0.500	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	0.500	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	0.500	ug/L
Trichloroethene	0.250U	0.500	0.150	0.250	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	0.500	ug/L
Vinyl acetate	5.00U	10.0	3.10	5.00	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	0.0750	ug/L
Xylenes (total)	1.50U	3.00	1.00	1.50	ug/L
Surrogates					
1,2-Dichloroethane-D4 (surr)	105	81-118		0	%
4-Bromofluorobenzene (surr)	100	85-114		0	%
Toluene-d8 (surr)	99.8	89-112		0	%

Batch Information

Analytical Batch: VMS22763
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: JY
Analytical Date/Time: 9/13/2023 1:52:00PM

Prep Batch: VXX40426
Prep Method: SW5030B
Prep Date/Time: 9/13/2023 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40426]
Blank Spike Lab ID: 1734420
Date Analyzed: 09/13/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40426]
Spike Duplicate Lab ID: 1734421
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779016, 1234779017, 1234779018, 1234779019, 1234779020, 1234779021

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	29.0	97	30	29.1	97	(78-124)	0.38	(< 20)
1,1,1-Trichloroethane	30	31.2	104	30	30.9	103	(74-131)	0.90	(< 20)
1,1,2,2-Tetrachloroethane	30	26.6	89	30	26.8	89	(71-121)	0.86	(< 20)
1,1,2-Trichloroethane	30	29.2	97	30	29.2	97	(80-119)	0.07	(< 20)
1,1-Dichloroethane	30	29.0	97	30	29.0	97	(77-125)	0.04	(< 20)
1,1-Dichloroethene	30	31.1	104	30	30.8	103	(71-131)	0.90	(< 20)
1,1-Dichloropropene	30	31.4	105	30	31.2	104	(79-125)	0.54	(< 20)
1,2,3-Trichlorobenzene	30	31.7	106	30	30.6	102	(69-129)	3.70	(< 20)
1,2,3-Trichloropropane	30	27.8	93	30	27.8	93	(73-122)	0.11	(< 20)
1,2,4-Trichlorobenzene	30	30.0	100	30	30.2	101	(69-130)	0.57	(< 20)
1,2,4-Trimethylbenzene	30	28.7	96	30	29.4	98	(79-124)	2.50	(< 20)
1,2-Dibromo-3-chloropropane	30	29.5	98	30	29.2	97	(62-128)	1.10	(< 20)
1,2-Dibromoethane	30	29.3	98	30	29.3	98	(77-121)	0.00	(< 20)
1,2-Dichlorobenzene	30	27.6	92	30	28.1	94	(80-119)	1.80	(< 20)
1,2-Dichloroethane	30	27.5	92	30	27.5	92	(73-128)	0.18	(< 20)
1,2-Dichloropropane	30	29.9	100	30	29.9	100	(78-122)	0.23	(< 20)
1,3,5-Trimethylbenzene	30	28.5	95	30	29.0	97	(75-124)	1.90	(< 20)
1,3-Dichlorobenzene	30	29.0	97	30	29.3	98	(80-119)	1.10	(< 20)
1,3-Dichloropropane	30	29.8	99	30	29.8	99	(80-119)	0.03	(< 20)
1,4-Dichlorobenzene	30	28.4	95	30	28.9	96	(79-118)	1.80	(< 20)
2,2-Dichloropropane	30	36.8	123	30	36.1	120	(60-139)	1.90	(< 20)
2-Butanone (MEK)	90	98.9	110	90	96.5	107	(56-143)	2.40	(< 20)
2-Chlorotoluene	30	29.5	98	30	29.7	99	(79-122)	0.47	(< 20)
2-Hexanone	90	87.9	98	90	86.6	96	(57-139)	1.60	(< 20)
4-Chlorotoluene	30	28.8	96	30	29.3	98	(78-122)	1.50	(< 20)
4-Isopropyltoluene	30	30.2	101	30	30.9	103	(77-127)	2.10	(< 20)
4-Methyl-2-pentanone (MIBK)	90	97.7	109	90	96.5	107	(67-130)	1.30	(< 20)
Benzene	30	31.4	105	30	31.7	106	(79-120)	0.89	(< 20)
Bromobenzene	30	27.8	93	30	28.1	94	(80-120)	1.00	(< 20)
Bromochloromethane	30	27.9	93	30	27.9	93	(78-123)	0.14	(< 20)
Bromodichloromethane	30	28.8	96	30	28.9	96	(79-125)	0.59	(< 20)
Bromoform	30	27.0	90	30	27.0	90	(66-130)	0.04	(< 20)
Bromomethane	30	25.2	84	30	27.3	91	(53-141)	8.20	(< 20)
Carbon disulfide	45	50.7	113	45	50.0	111	(64-133)	1.40	(< 20)

Print Date: 09/20/2023 8:22:04AM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40426]
Blank Spike Lab ID: 1734420
Date Analyzed: 09/13/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40426]
Spike Duplicate Lab ID: 1734421
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779016, 1234779017, 1234779018, 1234779019, 1234779020, 1234779021

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	31.8	106	30	31.4	105	(72-136)	1.10	(< 20)
Chlorobenzene	30	29.8	99	30	29.9	100	(82-118)	0.44	(< 20)
Chloroethane	30	30.1	100	30	29.9	100	(60-138)	0.90	(< 20)
Chloroform	30	28.6	95	30	28.6	95	(79-124)	0.10	(< 20)
Chloromethane	30	27.7	92	30	27.8	93	(50-139)	0.18	(< 20)
cis-1,2-Dichloroethene	30	28.4	95	30	28.4	95	(78-123)	0.14	(< 20)
cis-1,3-Dichloropropene	30	31.1	104	30	31.1	104	(75-124)	0.23	(< 20)
Dibromochloromethane	30	29.5	98	30	29.5	98	(74-126)	0.07	(< 20)
Dibromomethane	30	27.4	91	30	27.2	91	(79-123)	0.44	(< 20)
Dichlorodifluoromethane	30	31.5	105	30	31.2	104	(32-152)	0.89	(< 20)
Ethylbenzene	30	32.9	110	30	33.0	110	(79-121)	0.30	(< 20)
Freon-113	45	48.9	109	45	48.5	108	(70-136)	0.86	(< 20)
Hexachlorobutadiene	30	32.1	107	30	32.8	109	(66-134)	2.00	(< 20)
Isopropylbenzene (Cumene)	30	30.1	100	30	30.3	101	(72-131)	0.60	(< 20)
Methylene chloride	30	28.9	96	30	29.2	97	(74-124)	1.00	(< 20)
Methyl-t-butyl ether	45	45.3	101	45	45.3	101	(71-124)	0.00	(< 20)
Naphthalene	30	33.3	111	30	32.5	108	(61-128)	2.40	(< 20)
n-Butylbenzene	30	30.8	103	30	31.3	104	(75-128)	1.60	(< 20)
n-Propylbenzene	30	28.5	95	30	29.0	97	(76-126)	1.60	(< 20)
o-Xylene	30	31.7	106	30	31.8	106	(78-122)	0.28	(< 20)
P & M -Xylene	60	59.7	99	60	59.4	99	(80-121)	0.44	(< 20)
sec-Butylbenzene	30	29.9	100	30	30.6	102	(77-126)	2.20	(< 20)
Styrene	30	28.9	96	30	29.3	98	(78-123)	1.50	(< 20)
tert-Butylbenzene	30	29.2	98	30	29.7	99	(78-124)	1.50	(< 20)
Tetrachloroethene	30	31.1	104	30	30.9	103	(74-129)	0.55	(< 20)
Toluene	30	30.5	102	30	30.5	102	(80-121)	0.13	(< 20)
trans-1,2-Dichloroethene	30	31.4	105	30	31.2	104	(75-124)	0.80	(< 20)
trans-1,3-Dichloropropene	30	28.6	95	30	28.8	96	(73-127)	0.70	(< 20)
Trichloroethene	30	32.4	108	30	32.1	107	(79-123)	0.84	(< 20)
Trichlorofluoromethane	30	32.5	108	30	32.3	108	(65-141)	0.86	(< 20)
Vinyl acetate	30	31.9	106	30	31.8	106	(54-146)	0.44	(< 20)
Vinyl chloride	30	31.4	105	30	31.1	104	(58-137)	0.83	(< 20)
Xylenes (total)	90	91.4	102	90	91.2	101	(79-121)	0.19	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1234779 [VXX40426]
Blank Spike Lab ID: 1734420
Date Analyzed: 09/13/2023 14:07

Spike Duplicate ID: LCSD for HBN 1234779 [VXX40426]
Spike Duplicate Lab ID: 1734421
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1234779016, 1234779017, 1234779018, 1234779019, 1234779020, 1234779021

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		98	30		98	(81-118)	0.17	
4-Bromofluorobenzene (surr)	30		96	30		95	(85-114)	0.38	
Toluene-d8 (surr)	30		99	30		99	(89-112)	0.10	

Batch Information

Analytical Batch: **VMS22763**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **JY**

Prep Batch: **VXX40426**
Prep Method: **SW5030B**
Prep Date/Time: **09/13/2023 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

Member of SGS Group

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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

CHAIN-OF-CUSTODY RECORD

363145.30

Laboratory SGS
Attn: Jen Dawkins

Analytical Methods (include preservative if used)

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

Sample Identity	Lab No.	Time	Date Sampled	VOC 8260D	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SFM23-TWP1B	1AC	1215	8/29/23		3	Groundwater
SFM23-TWP1A	2AC	1253				
SFM23-TWP2A	3AC	1605				
SFM23-TWP2C	4AC	1821				
SFM23-TWP2B	5AC	1831				
SFM23-TWP3A	6AC	1055	8/30/23			
SFM23-TWP3B	7AC	1131				
SFM23-TWP4A	8AC	1406				
SFM23-TWP4B	9AC	1510				
SFM23-TWP5B	10AC	1802				

Project Information	Sample Receipt
Number: 106568-006	Total No. of Containers:
Name: SFM23 GW	COC Seals/Intact? Y/N/NA
Contact: DHF@shannwil.com	Received Good Cond./Cold
Ongoing Project? Yes ☑ No ☐	Temp: 4.4
Sampler: JKR	Delivery Method:

Notes:

MSA-SGS-2016

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: [signature] Time: 1120	Signature: [signature] Time: 1500	Signature: Time:
Printed Name: R. WILLIS Date: 9/5/23	Printed Name: Jen Dawkins Date: 9/5/23	Printed Name: Date:
Company: SHANNON & WILSON	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: [signature] Time: 1120	Signature: Time:	Signature: [signature] Time: 11:22
Printed Name: Jen Dawkins Date: 9/5/23	Printed Name: Date:	Printed Name: Jessica C. Date: 9/6/23
Company: SGS	Company:	Company: SGS

returned to Shannon & Wilson w/ laboratory report
onsignee files
job file

1234779

0.8°C D63

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jen Dawkins

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	VOC 8260 D	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SFM23-TWP5 A	11AC	1900	8/30/23		3	Gwoard water
SFM23-TWP6 B	12AC	1041	8/31/23			
SFM23-TWP6 A	13AC	1247				
SFM23-TWP 7B	14AC	1600				
SFM23-TWP7A	15AC	1623				
MW-2B	16AC	1313	9/4/23			
MW-2C	17AC	1350				
MW-2A	18AC	1400				
MW-1B	19AC	1504				
MW-1A	20AC	1533				

Project Information	
Number:	SEE PAGE
Name:	
Contact:	
Ongoing Project? Yes ☐ No ☐	
Sampler:	

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

Notes:
MSA-SGS-2016

Reliquished By: 1.	Reliquished By: 2.	Reliquished By: 3.
Signature: Time: 1120	Signature: Time: 1500	Signature: Time:
Printed Name: R. WILLIS Date: 9/5/23	Printed Name: Jen Dawkins Date: 9/5/23	Printed Name: Date:
Company: SHANNON & WILSON	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1120	Signature: Time:	Signature: Time: 11:22
Printed Name: Jen Dawkins Date: 9/5/23	Printed Name: Date:	Printed Name: Jessica C. Date: 9/6/23
Company: SGS	Company:	Company: SGS

Distribution: Original shipment returned to Shannon & Wilson w/ laboratory report

1234779

0.8 D63

No.

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Sen Dawkins

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	VOC 8260D	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
EB-1A	21 AC	1555	9/4/23	1	3	Groundwater
Trip Blank	22 AC					

Project Information
Number:
Name: SEE PAGE
Contact:
Ongoing Project? Yes ☐ No ☐
Sampler: L

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

Notes:
MSA-SGS-2016

Distrib on & Wilson w/ laboratory report
s

1234779

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Time: 1120	Signature: Time: 1500	Signature: Time:
Printed Name: R. WILLIS Date: 9/5/23	Printed Name: Sen Dawkins Date: 9/5/23	Printed Name: Date:
Company: SHANNON + WILSON	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1120	Signature: Time:	Signature: Time: 11:22
Printed Name: Sen Dawkins Date: 9/5/23	Printed Name: Date:	Printed Name: Jessica C. Date: 9/6/23
Company: SGS	Company:	Company: SGS

0.8 D63

No.

SGS

1234779

SAMPLE RECEIPT FORM

Project Manager Completion				
Was all necessary information recorded on the COC upon receipt? (temperature, COC seals, etc.?)	(Yes)	No	N/A	
Was temperature between 0-6° C?	(Yes)	No	N/A	If "No", are the samples either exempt* or sampled <8 hours prior to receipt?
Were all analyses received within holding time*?	(Yes)	No	N/A	
Was a method specified for each analysis, where applicable? If no, please note correct methods.	(Yes)	No	N/A	
Are compound lists specified, where applicable? For project specific or special compound lists please note correct analysis code.	Yes	No	(N/A)	
If rush was requested by the client, was the requested TAT approved?	Yes	No	(N/A)	If "NO", what is the approved TAT?
If SEDD Deliverables are required, were Location ID's and an NPDL Number provided?	Yes	No	(N/A)	*If "NO", contact client for information.*
Sample Login Completion				
Do ID's on sample containers match COC?	(Yes)	No	N/A	
If provided on containers, do dates/times collected match COC?	(Yes)	No	N/A	Note: If times differ <1 hr., record details below and login per COC.
Were all sample containers received in good condition?	(Yes)	No	N/A	
Were proper containers (type/mass/volume/preservative) received for all samples? **See form F-083 "Sample Guide"*	(Yes)	No	N/A	*Note: If 200.8/6020 Total Metals are received unpreserved, preserve and note HNO3 lot here: If 200.8/6020 Dissolved Metals are received unpreserved, log in for LABFILTER and do not preserve. For all non-metals methods, inform Project Manager.*
Were Trip Blanks (VOC, GRO, Low-Level Hg, etc.) received with samples, where applicable*?	(Yes)	No	N/A	
Were all VOA vials free of headspace >6mm?	(Yes)	No	N/A	
Were all soil VOA samples received field extracted with Methanol?	Yes	No	(N/A)	
Did all soil VOA samples have an accompanying unpreserved container for % solids?	Yes	No	(N/A)	
If special handling is required, were containers labelled appropriately? e.g. MI/ISM, foreign soils, lab filter, Ref Lab, limited volume	Yes	No	(N/A)	
For Rush/Short Holding time, was the lab notified?	Yes	No	(N/A)	
For any question answered "NO", was the Project Manager notified?	Yes	No	(N/A)	PM Initials:
Was Peer Review of sample numbering/labelling completed?	(Yes)	No	N/A	Reviewer Initials: JAC
Additional Notes/Clarification where Applicable, including resolution of "No" answers when a change order is not attached:				

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1234779001-A	HCL to pH < 2	OK	1234779017-B	HCL to pH < 2	OK
1234779001-B	HCL to pH < 2	OK	1234779017-C	HCL to pH < 2	OK
1234779001-C	HCL to pH < 2	OK	1234779018-A	HCL to pH < 2	OK
1234779002-A	HCL to pH < 2	OK	1234779018-B	HCL to pH < 2	OK
1234779002-B	HCL to pH < 2	OK	1234779018-C	HCL to pH < 2	OK
1234779002-C	HCL to pH < 2	OK	1234779019-A	HCL to pH < 2	OK
1234779003-A	HCL to pH < 2	OK	1234779019-B	HCL to pH < 2	OK
1234779003-B	HCL to pH < 2	OK	1234779019-C	HCL to pH < 2	OK
1234779003-C	HCL to pH < 2	OK	1234779020-A	HCL to pH < 2	OK
1234779004-A	HCL to pH < 2	OK	1234779020-B	HCL to pH < 2	OK
1234779004-B	HCL to pH < 2	OK	1234779020-C	HCL to pH < 2	OK
1234779004-C	HCL to pH < 2	OK	1234779021-A	HCL to pH < 2	OK
1234779005-A	HCL to pH < 2	OK	1234779021-B	HCL to pH < 2	OK
1234779005-B	HCL to pH < 2	OK	1234779021-C	HCL to pH < 2	OK
1234779005-C	HCL to pH < 2	OK	1234779022-A	HCL to pH < 2	OK
1234779006-A	HCL to pH < 2	OK	1234779022-B	HCL to pH < 2	OK
1234779006-B	HCL to pH < 2	OK	1234779022-C	HCL to pH < 2	OK
1234779006-C	HCL to pH < 2	OK			
1234779007-A	HCL to pH < 2	OK			
1234779007-B	HCL to pH < 2	OK			
1234779007-C	HCL to pH < 2	OK			
1234779008-A	HCL to pH < 2	OK			
1234779008-B	HCL to pH < 2	OK			
1234779008-C	HCL to pH < 2	OK			
1234779009-A	HCL to pH < 2	OK			
1234779009-B	HCL to pH < 2	OK			
1234779009-C	HCL to pH < 2	OK			
1234779010-A	HCL to pH < 2	OK			
1234779010-B	HCL to pH < 2	OK			
1234779010-C	HCL to pH < 2	OK			
1234779011-A	HCL to pH < 2	OK			
1234779011-B	HCL to pH < 2	OK			
1234779011-C	HCL to pH < 2	OK			
1234779012-A	HCL to pH < 2	OK			
1234779012-B	HCL to pH < 2	OK			
1234779012-C	HCL to pH < 2	OK			
1234779013-A	HCL to pH < 2	OK			
1234779013-B	HCL to pH < 2	OK			
1234779013-C	HCL to pH < 2	OK			
1234779014-A	HCL to pH < 2	OK			
1234779014-B	HCL to pH < 2	OK			
1234779014-C	HCL to pH < 2	OK			
1234779015-A	HCL to pH < 2	OK			
1234779015-B	HCL to pH < 2	OK			
1234779015-C	HCL to pH < 2	OK			
1234779016-A	HCL to pH < 2	OK			
1234779016-B	HCL to pH < 2	OK			
1234779016-C	HCL to pH < 2	OK			
1234779017-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.

eurofins | Air Toxics

9/14/2023
Ms. Dana Fjare
Shannon & Wilson, Inc.
2355 Hill Road

Fairbanks AK 99709

Project Name: SHOPPERS FORUM MALL
Project #:
Workorder #: 2309083

Dear Ms. Dana Fjare

The following report includes the data for the above referenced project for sample(s) received on 9/7/2023 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

eurofins | Air Toxics

WORK ORDER #: 2309083

Work Order Summary

CLIENT:	Ms. Dana Fjare Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709	**BILL TO:**	Ms. Dana Fjare Shannon & Wilson, Inc. 2355 Hill Road Fairbanks, AK 99709
PHONE:	907-479-0600	**P.O. #**	106568-006
FAX:	907-479-5691	**PROJECT #**	SHOPPERS FORUM MALL
DATE RECEIVED:	09/07/2023	**CONTACT:**	Monica Tran
DATE COMPLETED:	09/14/2023		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SFM23-SG01	TO-15	4.5 "Hg	10psi
02A	SFM23-SG02	TO-15	6.0 "Hg	10psi
03A	SFM23-SG03	TO-15	5.0 "Hg	10psi
04A	SFM23-SG04	TO-15	5.0 "Hg	10psi
05A	SFM23-SG05	TO-15	5.0 "Hg	10psi
06A	SFM23-SG15	TO-15	5.0 "Hg	10psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 09/14/23

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP – 209222, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP – T104704434-22-18, UT NELAP – CA009332022-14, VA NELAP - 12240, WA ELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program) CA300005-017
Eurofins Environment Testing Northern California, LLC certifies that the test results contained in this report meet all requirements of the 2016 TNI Standard.

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, LLC.

LABORATORY NARRATIVE
EPA Method TO-15
Shannon & Wilson, Inc.
Workorder# 2309083

Six 1 Liter Summa Canister samples were received on September 07, 2023. 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

Dilution was performed on samples SFM23-SG05 and SFM23-SG15 due to the presence of high level target species.

Dilution was performed on sample SFM23-SG01 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

eurofins | Air Toxics

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

Client Sample ID: SFM23-SG01

Lab ID#: 2309083-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	6.6	74	45	500

Client Sample ID: SFM23-SG02

Lab ID#: 2309083-02A

No Detections Were Found.

Client Sample ID: SFM23-SG03

Lab ID#: 2309083-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.0	16	4.0	65
Trichloroethene	1.0	71	5.4	380
trans-1,2-Dichloroethene	1.0	8.2	4.0	33
Tetrachloroethene	1.0	15	6.8	100

Client Sample ID: SFM23-SG04

Lab ID#: 2309083-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	1.0	2.5	4.0	9.9
Trichloroethene	1.0	46	5.4	250
trans-1,2-Dichloroethene	1.0	4.6	4.0	18
Tetrachloroethene	1.0	100	6.8	710

Client Sample ID: SFM23-SG05

Lab ID#: 2309083-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	5.8	76	31	410
Tetrachloroethene	5.8	1100	39	7300

eurofins | Air Toxics

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

Client Sample ID: SFM23-SG15

Lab ID#: 2309083-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	5.8	76	31	410
trans-1,2-Dichloroethene	5.8	7.2	23	29
Tetrachloroethene	5.8	1100	39	7400

eurofins | Air Toxics

Client Sample ID: SFM23-SG01

Lab ID#: 2309083-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091214**	**Date of Collection: 8/31/23 2:31:00 PM**	
Dil. Factor:	**13.2**	**Date of Analysis: 9/12/23 07:04 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	6.6	Not Detected	17	Not Detected
1,1-Dichloroethene	6.6	Not Detected	26	Not Detected
cis-1,2-Dichloroethene	6.6	Not Detected	26	Not Detected
Trichloroethene	6.6	Not Detected	35	Not Detected
trans-1,2-Dichloroethene	6.6	Not Detected	26	Not Detected
Tetrachloroethene	6.6	74	45	500

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	87	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: SFM23-SG02

Lab ID#: 2309083-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091209**	**Date of Collection: 8/31/23 3:55:00 PM**	
Dil. Factor:	**2.10**	**Date of Analysis: 9/12/23 04:04 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.7	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.2	Not Detected
cis-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.6	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.2	Not Detected
Tetrachloroethene	1.0	Not Detected	7.1	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: SFM23-SG03

Lab ID#: 2309083-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091210**	**Date of Collection: 8/31/23 4:34:00 PM**	
Dil. Factor:	**2.02**	**Date of Analysis: 9/12/23 04:42 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
cis-1,2-Dichloroethene	1.0	16	4.0	65
Trichloroethene	1.0	71	5.4	380
trans-1,2-Dichloroethene	1.0	8.2	4.0	33
Tetrachloroethene	1.0	15	6.8	100

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: SFM23-SG04

Lab ID#: 2309083-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091211**	**Date of Collection: 8/31/23 5:06:00 PM**	
Dil. Factor:	**2.02**	**Date of Analysis: 9/12/23 05:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.0	Not Detected
cis-1,2-Dichloroethene	1.0	2.5	4.0	9.9
Trichloroethene	1.0	46	5.4	250
trans-1,2-Dichloroethene	1.0	4.6	4.0	18
Tetrachloroethene	1.0	100	6.8	710

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: SFM23-SG05

Lab ID#: 2309083-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091212**	**Date of Collection: 8/31/23 5:47:00 PM**	
Dil. Factor:	**11.5**	**Date of Analysis: 9/12/23 05:55 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	5.8	Not Detected	15	Not Detected
1,1-Dichloroethene	5.8	Not Detected	23	Not Detected
cis-1,2-Dichloroethene	5.8	Not Detected	23	Not Detected
Trichloroethene	5.8	76	31	410
trans-1,2-Dichloroethene	5.8	Not Detected	23	Not Detected
Tetrachloroethene	5.8	1100	39	7300

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: SFM23-SG15

Lab ID#: 2309083-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091213**	**Date of Collection: 8/31/23 5:37:00 PM**	
Dil. Factor:	**11.5**	**Date of Analysis: 9/12/23 06:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	5.8	Not Detected	15	Not Detected
1,1-Dichloroethene	5.8	Not Detected	23	Not Detected
cis-1,2-Dichloroethene	5.8	Not Detected	23	Not Detected
Trichloroethene	5.8	76	31	410
trans-1,2-Dichloroethene	5.8	7.2	23	29
Tetrachloroethene	5.8	1100	39	7400

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2309083-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091206c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/12/23 12:27 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2309083-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091203**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/12/23 10:36 AM**	

Compound	%Recovery
Vinyl Chloride	90
1,1-Dichloroethene	98
cis-1,2-Dichloroethene	96
Trichloroethene	97
trans-1,2-Dichloroethene	96
Tetrachloroethene	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	104	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2309083-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/12/23 11:12 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	89	70-130
1,1-Dichloroethene	92	70-130
cis-1,2-Dichloroethene	93	70-130
Trichloroethene	96	70-130
trans-1,2-Dichloroethene	94	70-130
Tetrachloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	104	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2309083-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a091205**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 9/12/23 11:49 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	87	70-130
1,1-Dichloroethene	93	70-130
cis-1,2-Dichloroethene	92	70-130
Trichloroethene	94	70-130
trans-1,2-Dichloroethene	93	70-130
Tetrachloroethene	98	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	105	70-130

APPENDIX C: LABORATORY DATA REVIEW CHECKLIST

Appendix C

Laboratory Data Review Checklists

CONTENTS

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Michael Jaramillo	**CS Site Name:**	Shopper's Forum Mall	**Lab Name:**	SGS North America, Inc. (SGS)
Title:	Senior Chemist	**ADEC File No.:**	102.38.100	**Lab Report No.:**	1234779
Consulting Firm:	Shannon & Wilson, Inc.	**Hazard ID No.:**	3682	**Lab Report Date:**	9/20/2023

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments: SGS of Anchorage, Alaska is certified for the requested analysis.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments: Samples were not transferred to another laboratory.

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments: Click or tap here to enter text.

   b. Were the correct analyses requested?
   Yes ☒ No ☐ N/A ☐
   Analyses requested: VOCs by SW8260D
   Comments:

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes ☒ No ☐ N/A ☐
Cooler temperature(s): The cooler temperature was recorded at 4.4° C at the Fairbanks receiving office and 0.8° C at the Anchorage laboratory.
Sample temperature(s): Sample temperatures were not reported.
Comments: None.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☐ No ☒ N/A ☐
Comments: The case narrative notes the pH for sample *SFM23-TWP1B* was outside acceptance criteria. The sample results are considered estimated, biased low, and are flagged 'J*' for non-detect results and 'JL*' for detected results to identify the preservation failure.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
Comments: Samples were reported as being received in good 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, canister not holding a vacuum, etc.?
Yes ☒ No ☐ N/A ☐
Comments: There were no additional discrepancies aside from the sample preservation failure for sample *SFM23-TWP1B*.

e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See above.

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☒ No ☐ N/A ☐
Comments:
Sample *SFM23-TWP1B* had a pH > 2 for VOC analysis and was not analyzed within 7 days of collection. Refer to Section 3.c for applied qualifiers to this sample.

Samples *SFM23-TWP2B* and *SFM23-TWP3A* had detections for the VOC analyte chloromethane above LOQ. The ICV recovery for chloromethane was biased high for the associated calibration. Results may be biased high and are flagged 'JH*' in the summary tables.

Sample *SFM23-TWP3B* had a detection for the VOC analyte chloromethane above LOQ. The sample was re-analyzed outside of hold and results confirm. In-hold data was reported. Results may be biased high and are flagged 'JH*' in the summary tables.

The VOC LCS/LCSD associated with prep batch VXX40420 had RPD failures for several analytes. These analytes were not reported above LOQ in associated samples. Refer to Section 6.b. for further assessment.

The VOC method blank associated with prep batch VXX40420 had a detection for carbon tetrachloride above ½ the LOQ. This analyte was not reported above LOQ in all associated samples. Refer to Section 6.a for further assessment.

c. Were all the corrective actions documented?
Yes ☒ No ☐ N/A ☐
Comments: See above.

d. What is the effect on data quality/usability according to the case narrative?
Comments: The case narrative identified potential high bias associated with ICV recoveries. Refer to subsequent sections for further assessment.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments:

c. Are all soils reported on a dry weight basis?
Yes ☐ No ☐ N/A ☒
Comments: Soil samples were not presented with this work order.

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☐ No ☒ N/A ☐
Comments: The VOC analytes 1,2,3-trichloropropane and 1,2-dibromoethane had LOQs greater than the DEC cleanup levels. These analytes are bolded in the analytical summary tables.

e. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See above.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments: However, the method blank samples associated with preparation batches VXX40406, VXX40417, VXX40420, and VXX40426 had estimated detections for carbon tetrachloride at concentrations less than the LOQ. However, associated samples did not have detections for this analyte. Analytical results are not affected by the potential high bias.

iii. If above LoQ or RL, what samples are affected?
Comments: Sample results were not affected; see above.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: See above.

v. Data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality and usability are not affected; see above.

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

i. Organics – Are 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: LSC/LCSD samples were reported for VOC analysis.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Metals/inorganic samples were not submitted with this work order.

iii. Accuracy – Are 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: Click or tap here to enter text.

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the 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: The LCS/LCSD associated with preparation batch VXX40420 had RPD failures for 1,2,3-trichlorobenzene and naphthalene.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: Sample *SFM23-TWP7A* is associated with this preparation batch. The sample results are considered estimated, no direction of bias, and are flagged 'J*' in the summary tables to identify the imprecision.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: See above.

vii. Is the data quality or usability affected?
Yes ☒ No ☐ N/A ☐
Comments: See above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples were not reported for VOC analysis. Refer to Section 6.b for assessment of laboratory precision and accuracy.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Metals/inorganic samples were not submitted with this work order.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples were not reported for the requested analyses.

iv. Precision – Are 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: MS/MSD samples were not reported for the requested analyses.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: N/A; MS/MSD samples were not reported for the requested analyses.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples were not reported for the requested analyses.

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

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 – Are 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: Surrogate recovery failures were within laboratory acceptance criteria.

   iv. Is the data quality or usability affected?
   Yes ☐ No ☒ N/A ☐
   Comments: Data quality/usability were not affected.

e. Trip Blanks

   i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☒ No ☐ N/A ☐
   Comments:

   ii. Are all results less than LoQ or RL?
   Yes ☒ No ☐ N/A ☐
   Comments:

   iii. If above LoQ or RL, what samples are affected?
   Comments: Target analytes were not detected in the trip blank sample.

   iv. Is the data quality or usability affected?
   Yes ☐ No ☒ N/A ☐
   Comments: Data quality/usability were not affected.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

ii. Was the duplicate submitted blind to lab?
Yes ☒ No ☐ N/A ☐
Comments: Sample *MW-2C* is a field-duplicate of sample *MW-2A*. Sample *SFM23-TWP2C* is a field-duplicate of sample *SFM23-TWP2B*.

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

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐
Comments: The field duplicate RPDs are within the recommended DQO of 30% for waters matrices, where calculable.

iv. Is the data quality or usability affected? (Explain)
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☒ No ☐ N/A ☐
Comments: The equipment blank sample *EB-1* was submitted with this work order.

ii. Are all results less than LoQ or RL?
Yes ☒ No ☐ N/A ☐
Comments:

iii. If above LoQ or RL, specify what samples are affected.
Comments: Target analytes were not detected in the equipment blank sample.

iv. Are data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

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

a. Are they defined and appropriate?
Yes ☐ No ☐ N/A ☒
Comments: Additional data flags or qualifiers were not required.

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Michael Jaramillo	**CS Site Name:**	Shopper's Forum Mall	**Lab Name:**	Eurofins Air Toxics (Eurofins)
Title:	Senior Chemist	**ADEC File No.:**	102.38.100	**Lab Report No.:**	2309083
Consulting Firm:	Shannon & Wilson, Inc.	**Hazard ID No.:**	3682	**Lab Report Date:**	9/14/2023

Note: *Any N/A or No box checked must have an explanation in the comments box.*

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments: Eurofins Air Toxic holds CS-LAP certification 18-006 for the requested analyses and matrices.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments: A network laboratory was not used to analyze these samples.

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments:

   b. Were the correct analyses requested?
   Yes ☒ No ☐ N/A ☐
   Analyses requested: Halogenated VOCs by Method TO-15
   Comments:

3. Laboratory Sample Receipt Documentation

a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
Yes ☐ No ☐ N/A ☒
Cooler temperature(s): Temperature control is not required for this method.
Sample temperature(s): Temperature control is not required for this method.
Comments: Samples were shipped at ambient temperature. Temperature control is not required for this method.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☐ No ☐ N/A ☒
Comments: Preservation is not required for this method.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
Comments: Receipt vacuum are within acceptance criteria.

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, canister not holding a vacuum, etc.?
Yes ☐ No ☒ N/A ☐
Comments: Discrepancies were not identified by the laboratory.

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☒ No ☐ N/A ☐
Comments: Samples *SFM23-SG05* and *SFM23-SG15* were analyzed at a dilution due to high concentrations of target analytes.

Sample *SFM23-SG01* was analyzed at a dilution due to high concentrations of non-target analytes.

c. Were all the corrective actions documented?
Yes ☒ No ☐ N/A ☐
Comments: See above.

d. What is the effect on data quality/usability according to the case narrative?
Comments: Data quality/usability were not affected.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments:

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments:

c. Are all soils reported on a dry weight basis?
Yes ☐ No ☐ N/A ☒
Comments: Soils were not submitted with this work order.

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☒ No ☐ N/A ☐
Comments:

e. Is the data quality or usability affected?
Yes ☐ No ☐ N/A ☐
Comments: Data quality/usability were not affected.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments:

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments:

iii. If above LoQ or RL, what samples are affected?
Comments: Target analytes were not detected in the method blank sample.

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 sample.

v. Data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

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

i. Organics – Are 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/LCSD samples were reported for TO-15 analysis.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Metals/inorganic analyses were not requested with this work order.

iii. Accuracy – Are 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 – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the 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:

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: N/A; the percent recoveries and RPDs are within acceptance criteria.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: The percent recoveries and RPDs are within acceptance criteria.

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples are not required for this analysis.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Metals/inorganic analyses were not requested with this work order.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples are not required for this analysis.

iv. Precision – Are 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: MS/MSD samples are not required for this analysis.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments: N/A; MS/MSD samples are not required for this analysis.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: MS/MSD samples are not required for this analysis.

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

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 – Are 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: Surrogate recoveries were within laboratory acceptance criteria.

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☐ No ☐ N/A ☒
Comments: A trip blank is not required for this analysis.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: A trip blank is not required for this analysis.

iii. If above LoQ or RL, what samples are affected?
Comments: N/A; a trip blank is not required for this analysis.

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments:

ii. Was the duplicate submitted blind to lab?
Yes ☒ No ☐ N/A ☐
Comments: Sample *SFM23-SG15* is a field-duplicate of sample *SFM23-SG05*.

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

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☒ No ☐ N/A ☐
Comments: The field duplicate RPDs were within acceptance criteria, where calculable.

iv. Is the data quality or usability affected? (Explain)
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☐ No ☐ N/A ☒
Comments: An equipment blank was not required for this project.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: An equipment blank was not required for this project.

iii. If above LoQ or RL, specify what samples are affected.
Comments: N/A; an equipment blank was not required for this project.

iv. Are data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality/usability were not affected.

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

a. Are they defined and appropriate?
Yes ☐ No ☐ N/A ☐
Comments: Click or tap here to enter text.

APPENDIX D: CONCEPTUAL SITE MODEL

Appendix D

Conceptual Site Model

CONTENTS

Print Form

Appendix A - Human Health Conceptual Site Model Scoping Form and Standardized Graphic

Site Name: Shopper's Forum Mall

File Number: 102.38.100

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 to the soil surface or to the sewer

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:

PCE and TCE were detected in subsurface soil near the Annex building on the south end of the property and near the former Gottschalks building at the north end. In addition, petroleum contamination was detected in subsurface soil near the Annex building west end. Soil is not currently exposed at the surface but could be unearthed during future construction activities

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: Complete

Comments:

Naphthalene is listed in Appendix B as a contaminant known to permeate the skin and was detected near the Annex; however, PCE and TCE are not listed in Appendix B.

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 businesses and residences in the area are connected to the local water utility. The groundwater could be a future drinking water source.

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:

The closest surface water body is the Chena River, approximately 1/2 mile distant.

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:

Inhalation of outdoor air could be a concern if future construction projects near the Annex unearth contaminated soil and bring it to the surface.

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:

The Annex building at the south property boundary has an active vapor mitigation system for chlorinated solvents in indoor air. In the Mall, chlorinated solvents were detected in 2021 soil-gas and indoor air samples less than commercial DEC target levels, except PCE was detected in the crawlspace air exceeding the DEC target level. Solvent-contaminated groundwater has traveled off-site to the northwest, and several apartment buildings and residences are within 100 feet of the contamination.

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:

Construction workers could encounter contaminated groundwater during future construction work near the Annex and the northwest-extending plume. Naphthalene is listed by DEC as a contaminant known to permeate the skin. PCE and TCE are considered by DEC to be volatile enough that exposure to these contaminants is addressed through the inhalation pathway.

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:

Residences and businesses in the area are connected with the local water utility.

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:

Contaminated soil in the area is covered by buildings or pavement.

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:

The site is not located near surface water bodies or sediment.

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Shopper's Forum Mall

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.*

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			
	☑ Dermal Absorption of Contaminants from Soil				F			
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater	F			F			
	☑ Dermal Absorption of Contaminants in Groundwater				F			
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air				F			
	☑ Inhalation of Indoor Air	C/F	C/F	C/F	C/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 such situations, you and your consultant can work together to help reduce their impacts. Retaining

IMPORTANT INFORMATION

your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

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

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

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

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

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

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

READ RESPONSIBILITY CLAUSES CLOSELY.

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

IMPORTANT INFORMATION

being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland